Public Version

UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of **CERTAIN ACCESS CONTROL SYSTEMS AND COMPONENTS THEREOF**	**Inv. No. 337-TA-1016**

INITIAL DETERMINATION ON VIOLATION OF SECTION 337

Administrative Law Judge Thomas B. Pender

(October 23, 2017)

Pursuant to the Notice of Investigation and Rule 210.42(a) of the Rules of Practice and Procedure of the United States International Trade Commission, this is my Initial Determination in the matter of *Certain Access Control Systems and Components Thereof*, Investigation No. 337-TA-1016.

TABLE OF CONTENTS

TABLE OF ABBREVIATIONS

CDX	Complainant's Demonstrative Exhibit
CIB1	Complainant's Initial Post-Hearing Brief for the '336 Patent
CIB2	Complainant's Initial Post-Hearing Brief for the '319 Patent
CPB1	Complainant's Pre-Hearing Brief for the '336 Patent
CPB2	Complainant's Pre-Hearing Brief for the '319 Patent
CPX	Complainant's Physical Exhibit
CRPB1	Complainant's Reply Post-Hearing Brief for the '336 Patent
CRPB2	Complainant's Reply Post-Hearing Brief for the '319 Patent
CRSB1	Complainant's Responsive Post-Hearing Brief for the '336 Patent
CRSB2	Complainant's Responsive Post-Hearing Brief for the '319 Patent
CX	Complainant's Exhibit
C101B	Complainant's Opposition to Respondents' Memorandum in Support of Motion for Summary Determination That the '336 and '611 Patents are Directed to Ineligible Subject matter Under 35 U.S.C. § 101
Dep. Tr.	Deposition Transcript
Hr'g Tr.	Hearing Transcript
JX	Joint Exhibit
RDX	Respondents' Demonstrative Exhibit
RIB1	Respondents' Initial Post-Hearing Brief for the '336 Patent
RIB2	Respondents' Initial Post-Hearing Brief for the '319 Patent
RPB1	Respondents' Pre-Hearing Brief for the '336 Patent
RPB2	Respondents' Pre-Hearing Brief for the '319 Patent
RPX	Respondents' Physical Exhibit

RRPB1	Respondents' Reply Post-Hearing Brief for the '336 Patent
RRPB2	Respondents' Reply Post-Hearing Brief for the '319 Patent
RRSB1	Respondents' Responsive Post-Hearing Brief for the '336 Patent
RRSB2	Respondents' Responsive Post-Hearing Brief for the '319 Patent
RX	Respondents' Exhibit
R101B	Respondents' Memorandum in Support of Motion for Summary Determination That the '336 and '611 Patents are Directed to Ineligible Subject matter Under 35 U.S.C. § 101

I. INTRODUCTION

A. Procedural Background

Complainant The Chamberlain Group, Inc. ("CGI" or "Complainant") filed the complaint underlying this Investigation on July 5, 2016. The complaint alleges Respondents Techtronic Industries Company Ltd., Techtronic Industries North America Inc., One World Technologies, Inc., OWT Industries, Inc., Techtronic Trading Ltd., Techtronic Industries Factory Outlets, Inc. ("TTi Respondents"), and ET Technology (Wuxi), Co., Ltd. ("ET Door") (collectively "Respondents") import certain products that infringe one or more claims of U.S. Patent Nos. 7,339,336 (the "'336 patent"), 7,196,611 (the "'611 patent"), and 7,161,319 (the "'319 patent") (collectively, the "Asserted Patents"). CGI filed an unopposed motion to amend the complaint on September 23, 2016 to add two entities as respondents, Techtronic Trading Limited and Techtronic Industries Factory Outlets Inc., which I granted on September 28, 2016 (Order No. 4); and then, upon motion from CGI, I terminated the investigation with respect to these respondents on February 14, 2017 (Order No. 15).

By publication of a notice in the Federal Register on August 9, 2016, the U.S. International Trade Commission ordered that:

> Pursuant to subsection (b) of section 337 of the Tariff Act of 1930, as amended, an investigation be instituted to determine whether there is a violation of subsection (a)(l)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain access control systems and components thereof by reason of infringement of one or more of claims 1–4, 7–12, 15, and 16 of the '319 patent; claims 1, 10–12, and 18–25 of the '611 patent; and claims 7, 11–13, 15–23, and 34–36 of the '336 patent, and whether an industry in the United States exists as required by subsection (a)(2) of section 337;

81 F.R. 52713 (Aug. 9, 2016). I set a target date of December 8, 2017 for completion of this investigation and set the evidentiary hearing for April 21, 2017. (Order No. 3.) On October 14,

2016, I issued the initial procedural schedule (Order no. 5), which was amended at subsequent points throughout the investigation (*see, e.g.*, Order Nos. 8, 9, 10, 12, 14, 17).

In accordance with the procedural schedule, on December 20, 2016, I held a technology tutorial and Markman hearing. On January 26, 2017, I issued Order No. 13, construing certain terms of the asserted patents. One of those terms, "wall console," from the '319 patent, was construed to mean "a wall-mounted control unit including a passive infrared detector." (Order No. 13 at 80.) This construction prompted Respondents to file an unopposed motion for summary determination of no-infringement of the '319 patent. I granted that motion on March 27, 2017 with an initial determination which terminated the '319 patent from the investigation. (Order No. 23.) CGI, disagreeing with the claim construction of "wall console," and thus, the basis for Order No. 23, petitioned the Commission for review on April 3, 2017.

Moving back, on March 7, 2017, Respondents filed a motion to strike much of CGI's proffered evidence and argument on the economic prong of domestic industry, for reasons of untimely production and disclosure. I granted-in-part this motion on March 24, 2017. (Order No. 21.)

On April 28, 2017, CGI filed a motion to withdraw the '611 patent. I granted that motion through an initial determination on May 3, 2017. (Order No. 28.) The Commission determined not to review this initial determination. (EDIS Doc. No. 613129.)

I then conducted an evidentiary hearing between May 1 and May 3, 2017 on issues solely relating to the '336 patent, which at that time was the only asserted patent remaining. On the last day of the hearing, May 3, the Commission gave notice that it had determined to review Order No. 23, and upon review, determined to construe "wall console" simply as a "wall-mounted

control unit." (Comm'n Op. (May 5, 2017) at 1-2.) Order No. 23 was therefore vacated and the investigation over the '319 patent was remanded back to me for further proceedings. (*Id.*)

On May 8, 2017, I issued Order No. 29, an initial determination which amended the target date in light of the remand of the '319 patent. The initial determination moved the target date back approximately two-and-a-half months to February 23, 2018, or eighteen-and-a-half months from the date that the Notice of Investigation was published in the Federal Register. (*See* Order No. 29.)

On July 12, and 13, 2017, I held a second evidentiary hearing on issues solely relating to the '319 patent.

On October 16, 2017, CGI and Respondents filed a joint motion to partially terminate the investigation with respect to a certain class of accused product—the V26 software products—and claims 19-23 of the '336 patent based on a consent order stipulation. (Motion Docket No. 1016-046.) I granted that motion on October 17, 2017. (Order No. 36.)

As of the date of this initial determination, the following motions remain pending: Respondents' Motion for Summary Determination That the '336 and '611 Patents Are Directed to Ineligible Subject Matter under 35 U.S.C. § 101 (Motion Docket No. 1016-016), and Respondents' Motion for Leave to File a Reply Brief in Support of Their Motion for Summary Determination That the '336 and '611 Patents Are Directed to Ineligible Subject Matter under Section 101 (Mot. Dkt. No. 1016-026). In that these motions overlap completely with the issues presented at the hearing and discussed below in detail, they (Mot. Dkt Nos. 1016-016, -026) are hereby DENIED.

B. The Parties

Complainant The Chamberlain Group, Inc. is a U.S. company headquartered in Oak Brook, IL, with previous headquarters in Elmhurst, IL. (CIB1 at 6.) CGI claims it has been in the GDO (garage door opener) industry for more than 50 years and is the "leader in the residential GDO market." (*Id.* at 7.)

Respondent Techtronic Industries Co., Ltd. ("TTi HK") is a Hong Kong-based corporation with a principal place of business at 29/F, Tower 2, Kowloon Commerce Centre, 51 Kwai Cheong Road, Kwai Chung, New Territories, Hong Kong The Chamberlain Group, Inc. (RIB1 at 6-7.) TTi HK "is the ultimate parent of the TTi family of companies, including Respondents TTi NA, One World, and OWT." (*Id.* at 7.)

Respondent Techtronic Industries North America, Inc. ("TTi NA") is a Delaware corporation with a principal place of business at 303 International Circle, Suite 4900, Hunt Valley, Maryland 21030. (*Id.* (citing RX-0002C at Q46, 47).) [

] (*Id.*)

Respondent One World Technologies, Inc. ("One World") is a Delaware corporation with a principal place of business at 1428 Pearman Dairy Road, Anderson, South Carolina 29625. (*Id.* (citing RX-0002C at Q39, 40, 55).) "One World designs, markets, and sells power tools and outdoor products under the Ryobi® brand, including the accused garage door opener products." (*Id.* (citing RX-0002C at Q18, 19).)

Respondent OWT Industries, Inc. ("OWT") is a Delaware corporation with a principal place of business at 201 Orange Way, Anderson, South Carolina 29621. (*Id.* (citing RX-0002C at Q42).)

Respondent ET Technology (Wuxi), Co., Ltd. ("Et Door") is a China-based corporation with a principal place of business at Xiqun Road (East Section), Meicun Industrial Zone, Wuxi 214122, Jiangsu, China. (RIB1 at 7.) "Et Door is engaged in the business of manufacturing and selling residential, commercial, and industrial garage door openers and accessories." (*Id.* (citing RX-0002C at Q30-33; CX-1138C [Chen Dep. Tr.] at 11:8-13; 12:12-21).)

C. The Asserted Patents and Claims

The asserted patents[1] relate to control systems for garage door openers. The following patents and claims remain at issue in this investigation:

Patent Number	Infringement Claims	Domestic Industry Claims
U.S. Patent 7,339,336	34	12, 14, 15, 19, 34
U.S. Patent 7,161,319	1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16	1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16

The '336 patent is entitled, "Movable Barrier Operator Auto-Force Setting Method and Apparatus." (JX-0001.) It was filed on October 22, 2004, and claims priority as a divisional application to an application field on December 31, 2002, now U.S. Patent No. 6,870,334. (*Id.*) The '336 patent issued on March 4, 2008. The '336 patent generally describes a method for use with a "movable barrier operator," whereby the force as applied to the barrier is measured, compared against thresholds for determining error states or other problems (*e.g.*, barrier obstructions), and intelligent updating of those thresholds. (*See id.* at Abstract.) More specifically, the thresholds are updated so as to avoid improper triggering of error states, and are updated continuously without user involvement. (*See, e.g., id.* at 1:32-53.)

[1] The effective date of the asserted patents pre-dates the America Invents Act ("AIA") enacted by Congress on September 16, 2011.

The '319 patent is entitled, "Movable Barrier Operator Having Serial Data Communication." (JX-0007.) It was filed on November 19, 2003, and claims priority as a continuation application to an application filed on April 7, 2000, now U.S. Patent No. 6,737,968. (*Id.*) The '319 patent issued on January 9, 2007. The '319 patent generally describes a wall control unit for a garage door opener (*i.e.*, a moveable barrier operator) that communicates digitally with the head unit of the same garage door opener. (*See id.* at Abstract.) More specifically, the wall control unit, or "wall console," includes an infrared sensor and uses detected states of light to control the lamp of the head unit, in addition to including buttons or switches to control the operation of the head unit's motor. (*See, e.g.*, *id.* at 2:13-35.)

D. Products at Issue

1. Domestic Industry Products

The products which CGI alleges practice the '336 patent include "residential garage door operators without Wi-Fi (Security +2.0) and Wi-Fi garage door operators." (CX-1256C [Fitzgibbon WS] at Q43; *see* CIB1 at 12, 60-61.) Specifically, CGI and its expert identify the following models (hereafter, the "'336 Domestic Industry Products"):

Product Family	Model Nos.
Garage Door Operators without Wi-Fi (Security +2.0)	54915, 54985, 54990, HD220, HD220P, HD420EV, HD520EV, HD630EVP, HD720EV, PD612EV, WD832KEV, HD630EVP, PD752KEV, PD762EV, LC1000EVC, LC500EVC, PD220, PD222, PD510, PD512, PD622EVC, LW3000EV, LW3500EV, 3043, 54918, 30437, 349544, 349544EV, HD920EV, HD930EV, LW5000EV, WD962EV, WD962KEV, WD962KLD, WD962KPEV, WD962MLEV, 55918, 8365-267, 8355-267, 8355RGD, 8587, 8355, M8856, 8065, 8075, 8155, 8165, M885, M8856, 8557, 8155RGD, Airman II, 8165RGD, Corporal II, 8365RGD, Pilot II, 8550, 8550-267, 8350, 8550-267, 8550, 8360, 8550RGD, and Admiral II
Wi-Fi Garage Door Operators	HD750WF, HD950WF, WD1000WF, LW9000WF, 8550W, 8557W, 8587RGD, Ultra II, 8587W, 8550WRGD, and 8587WRGD

(CIB1 at 60-61; CDX-0005.8.)

The products which CGI alleges practice the '319 patent include garage door openers and residential jackshaft operators. Specifically, CGI and its expert identify the following models (hereafter, the "'319 Domestic Industry Products"):

Product Family	Model Nos.
Garage Door Operators without Wi-Fi (Security ÷2.0)	54915, 54985, 54990, HD220, HD220P, HD420EV, HD520EV, HD630EVP, HD720EV, PD612EV, WD832KEV, HD630EVP, PD752KEV, PD762EV, LC1000EVC, LC500EVC, PD220, PD222, PD510, PD512, PD622EVC, LW3000EV, LW3500EV, 3043, 54918, 30437, 349544, 349544EV, HD920EV, HD930EV, LW5000EV, WD962EV, WD962KEV, WD962KLD, WD962KPEV, WD962MLEV, 55918, 8365-267, 8355-267, 8355RGD, 8587, 8355, M8856, 8065, 8075, 8155, 8165, M885, M8856, 8557, 8155RGD, Airman II, 8165RGD, Corporal II, 8365RGD, Pilot II, 8550, 8550-267, 8350, 8550-267, 8550, 8360, 8550RGD, and Admiral II
Wi-Fi Garage Door Operators	HD750WF, HD950WF, WD1000WF, LW9000WF, 8550W, 8557W, 8587RGD, Ultra II, 8587W, 8550WRGD, and 8587WRGD
Wall Control Consoles	883LM, 78EV, 882LM, 882RGD, 885LM, 880LM, 880RGD, 886LM, 881LM, 935CB, 98LM, and 398LM
Residential Jackshaft Operators	8500, 8355RGD, 8500RGD, Prodigy II, 3900, 3950, 3800LM, and 3800RGD

(CIB2 at 13, 52; CDX-0013.11.)

The '336 Domestic Industry Products and '319 Domestic Industry Products, together, will at times be referred to as the "Domestic Industry Products."

2. Accused Products

The products which CGI alleges infringe the '336 patent include garage door openers loaded with the C02 firmware, *i.e.*, the Ryobi GD200, GD200A, and GD125 (collectively, the "'336 Accused Products"). (*See* CIB1 at 9.) According to CGI, "[t]he parties agree that the GD200 is representative of the GD200A and GD125 for purposes of conducting an infringement

analysis of the '336 patent." (*Id.* (citing CX-1251C [Direen WS] at Q66-69; RX-228C [Heppe WS] at Q35, 51, 52, 408-410).)

The products which CGI alleges infringe the '319 patent also consist of the GD200, GD200A, and GD125 (collectively, the "'319 Accused Products"). (*See* CIB2 at 11-12.) According to CGI, "[t]he parties agree that the GD200 is representative of the GD200A and GD125 for purposes of conducting an infringement analysis." (*Id.* (citing Hr'g Tr. at 968:19-22, 1013:20-22; CX-1317C [Davis WS] at Q38-43; RX-0474C [Lipoff WS] at Q65).)

The '336 Accused Products and '319 Accused Products, together, will at times be referred to as the "Accused Products."

II. STANDARDS OF LAW

A. Infringement

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*) (citations omitted).

1. Direct Infringement

A complainant must prove either literal infringement or infringement under the doctrine of equivalents. Infringement must be proven by a preponderance of the evidence. *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988). A preponderance of the evidence standard "requires proving that infringement was more likely than not to have occurred." *Warner-Lambert Co. v. Teva Pharm. USA, Inc.*, 418 F.3d 1326, 1341 n.15 (Fed. Cir. 2005).

Literal infringement, a form of direct infringement, is a question of fact. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1332 (Fed. Cir. 2008). "To establish literal infringement,

every limitation set forth in a claim must be found in an accused product, exactly." *Microsoft Corp. v. GeoTag, Inc.*, 817 F.3d 1305, 1313 (Fed. Cir. 2016) (quoting *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995). If any claim limitation is absent, there is no literal infringement of that claim as a matter of law. *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1247 (Fed. Cir. 2000).

2. Indirect Infringement

Section 271 of the Patent Act defines both direct infringement and the two categories of indirect infringement, active inducement of infringement and contributory infringement. 35 U.S.C. § 271 (2010). For indirect infringement violations under Section 337, the direct infringement element may occur after importation, so long as all the other elements of indirect infringement are met at the time of importation. *See Certain Vision-Based Driver Assistance System Cameras and Components Thereof*, Inv. No. 337-TA-907, Comm'n Op. at 19 (Dec. 1, 2015) (citing *Suprema, Inc. v. Int'l Trade Comm'n*, 796 F.3d 1338, 1348 (Fed. Cir. 2015)).

a. Induced Infringement

Section 271(b) of the Patent Act prohibits inducement: "[w]hoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b). *See DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1305 (Fed. Cir. 2006) (*en banc*) ("To establish liability under section 271(b), a patent holder must prove that once the defendants knew of the patent, they actively and knowingly aided and abetted another's direct infringement.") (citations omitted). "The mere knowledge of possible infringement by others does not amount to inducement; specific intent and action to induce infringement must be proven." *Id.* (citations omitted). A defendant's belief regarding patent validity is not a defense to a claim of induced infringement. *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1928 (2015).

b. Contributory Infringement

Section 271(c) of the Patent Act prohibits contributory infringement. *See* 35 U.S.C. § 271(c). "Under 35 U.S.C. § 271(c), a party who sells a component with knowledge that the component is especially designed for use in a patented invention, and is not a staple article of commerce suitable for substantial noninfringing use, is liable as a contributory infringer." *Wordtech Sys., Inc. v. Integrated Networks Solutions, Inc.*, 609 F.3d 1308, 1316 (Fed. Cir. 2010).

Contributory infringement is premised upon a finding that: (1) Respondents sell, offer to sell, or import into the United States a component of a product; (2) the component has no substantial non-infringing use; (3) the component constitutes a material part of the claimed invention; (4) Respondents were aware of the patent and know that the product may be covered by a claim of the patent; and (5) the use of the component in the product directly infringes the claim. *See Certain Gaming & Entm't Consoles, Related Software, & Components Thereof*, Inv. No. 337-TA-752, Final Initial Remand Determination at 8 (Mar. 22, 2013).

It is well settled that "[a]bsent direct infringement of the patent claims, there can be neither contributory infringement ... nor inducement of infringement." *Met–Coil Sys. Corp. v. Korners Unltd., Inc.*, 803 F.2d 684, 687 (Fed. Cir. 1986) (citations omitted).

B. Domestic Industry

In an investigation based on a claim of patent infringement, Section 337 requires that an industry in the United States, relating to the articles protected by the patent, exist or be in the process of being established. 19 U.S.C. § 1337(a)(2). Under Commission precedent, the domestic industry requirement has been divided into (i) an "economic prong" (which requires certain activities with respect to the protected articles) and (ii) a "technical prong" (which requires that the activities relate to the asserted patent). *Certain Video Game Systems and Controllers*, Inv. No. 337-TA-743, Comm'n Op. at 6-7 (April 14, 2011) ("*Video Games*").

1. Technical Prong

The technical prong of the domestic industry requirement is satisfied when the complainant in a patent-based section 337 investigation establishes that it is practicing or exploiting the patents at issue. *See* 19 U.S.C. §1337 (a)(2) and (3); *Certain Microsphere Adhesives, Process for Making Same and Prods. Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op. at 8 (U.S.I.T.C. Jan. 16, 1996). "In order to satisfy the technical prong of the domestic industry requirement, it is sufficient to show that the domestic industry practices any claim of that patent, not necessarily an asserted claim of that patent." *Certain Ammonium Octamolybdate Isomers*, Inv. No. 337-TA-477, Comm'n Op. at 55 (U.S.I.T.C. Aug. 28, 2003).

The test for claim coverage for the purposes of the technical prong of the domestic industry requirement is the same as that for infringement. *See Certain Doxorubicin and Preparations Containing Same*, Inv. No. 337-TA-300, ID at 109 (U.S.I.T.C. May 21, 1990), *aff'd*, Views of the Commission at 22 (U.S.I.T.C. Oct. 31, 1990); *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1375 (Fed. Cir. 2003). "First, the claims of the patent are construed. Second, the complainant's article or process is examined to determine whether it falls within the scope of the claims." *Certain Doxorubicin and Preparations Containing Same*, Inv. No. 337-TA-300, ID at 109. To prevail, the patentee must establish by a preponderance of the evidence that the domestic product practices one or more claims of the patent. The technical prong of the domestic industry can be satisfied either literally or under the doctrine of equivalents. *Certain Dynamic Sequential Gradient Devices and Component Parts Thereof*, Inv. No. 337-TA-335, ID at 44, Pub. No. 2575 (U.S.I.T.C. May 15, 1992).

2. Economic Prong

The "economic prong" of the domestic industry requirement is satisfied when there exists in the United States in connection with products practicing at least one claim of the patent at issue: (A) significant investment in plant and equipment; (B) significant employment of labor or capital; or (C) substantial investment in its exploitation, including engineering, research and development, and licensing. 19 U.S.C. § 1337(a)(3). Establishment of the "economic prong" is not dependent on any "minimum monetary expenditure" and there is no need for complainant "to define the industry itself in absolute mathematical terms." *Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-586, Comm'n Op. at 25-26 (May 16, 2008) ("*Stringed Instruments*"). However, a complainant must substantiate the significance of its activities with respect to the articles protected by the patent. *Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Comm'n Op. at 30 (February 17, 2011) ("*Imaging Devices*"). Further, a complainant can show that its activities are significant by showing how those activities are important to the articles protected by the patent in the context of the company's operations, the marketplace, or the industry in question. *Id.* at 27-28. That significance, however, must be shown in a quantitative context. *Lelo Inc. v. Int'l Trade Comm'n*, 786 F.3d 879, 886 (Fed. Cir. 2015). The Federal Circuit noted that when the ITC first addressed this requirement, it found the word "'significant' denoted 'an assessment of the *relative* importance of the domestic activities.'" *Id.* at 883-4 (internal citation omitted) (emphasis added).

The Commission "has long recognized that the 'its' in the phrase 'investment in its exploitation' in subparagraph (C) refers to the asserted patent or other intellectual-property right being asserted. That conclusion is supported by the clear text of the statute." *Certain Integrated Circuit Chips and Products Containing the Same*, Inv. No. 337-TA-859, Comm'n Op. at 36 (Aug. 11, 2014) ("*Circuit Chips*"). This connection between the investment and the patent is

known as the "nexus" requirement. *Id.* at 38. "To the extent that the patented technology arises from endeavors in the United States, such a nexus would ordinarily exist." *Id.* at 39. "'Exploitation' is a generally broad term that encompasses activities such as efforts to improve, develop, or otherwise take advantage of the asserted patent." *Id.*

C. Invalidity

1. 35 U.S.C. § 101

"Patent eligibility under 35 U.S.C. § 101 is an issue of law." *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1366 (Fed. Cir. 2015). Because a patent is presumed valid, Respondents bear the burden of establishing invalidity by clear and convincing evidence. *See* 35 U.S.C. § 282(a); *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, 717 F.3d 1269, 1284 (Fed. Cir. 2013) (*en banc*) ("[A]ll issued patent claims receive a statutory presumption of validity. And, as with obviousness and enablement, that presumption applies when § 101 is raised as a basis for invalidity in district court proceedings.") (citations omitted); *but see Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 721 (Fed. Cir. 2014) (Mayer, J., concurring) ("[W]hile a presumption of validity attaches in many contexts, no equivalent presumption of eligibility applies in the section 101 calculus.") (citation omitted); *Certain Activity Tracking Devices, Systems, and Components Thereof*, Inv. No. 337-TA-963, Comm'n Notice at 2 (U.S.I.T.C. Apr. 4, 2016) ("[T]he law remains unsettled as to whether the presumption of patent validity under 35 U.S.C. § 282 applies to subject matter eligibility challenges under 35 U.S.C. § 101.").[2]

Section 101 of the Patent Act (35 U.S.C. §§ 1 *et seq.*) provides that "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any

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[2] Whether the presumption applies here is inconsequential because the Record evidence supports a finding that the asserted claims of the asserted patents are invalid under 35 U.S.C. § 101, even under the higher "clear and convincing" standard.

new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." *See* 35 U.S.C. § 101. Thus, the statute sets forth four categories of patent-eligible subject matter: processes, machines, manufactures, and compositions of matter. *Intellectual Ventures I*, 792 F.3d at 1366. Notably, the Supreme Court "ha[s] long held that that [section 101] contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable." *See Alice Corp. Pty. Ltd. v. CLS Bank Intern.*, 134 S. Ct. 2347, 2354 (2014). Specifically, the Supreme Court explained that:

> We have described the concern that drives this exclusionary principle as one of pre-emption. Laws of nature, natural phenomena, and abstract ideas are the basic tools of scientific and technological work. Monopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it, thereby thwarting the primary object of the patent laws. We have repeatedly emphasized this concern that patent law not inhibit further discovery by improperly tying up the future use of these building blocks of human ingenuity.
>
> At the same time, we tread carefully in construing this exclusionary principle lest it swallow all of patent law. At some level, all inventions embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas. Thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept.[3] Applications of such concepts to a new and useful end, we have said, remain eligible for patent protection.
>
> Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more, thereby transforming them into a patent-eligible invention. The former would risk disproportionately tying up the use of the underlying ideas, and are therefore ineligible for patent protection.

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[3] The Federal Circuit cautioned against overgeneralizing claims and describing them at a high level of abstraction. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1337 (Fed. Cir. 2016) ("[D]escribing the claims at such a high level of abstraction and untethered from the language of the claims all but ensures that the exceptions to § 101 swallow the rule.") (citations omitted).

> The latter pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws.

Id. at 2354-55 (citations omitted).

To distinguish between patent-eligible and patent-ineligible subject matter, the Supreme Court set forth a two-step analytical framework: "First, we determine whether the claims at issue are directed to one of [the] patent-ineligible concepts," *i.e.*, laws of nature, natural phenomena, and abstract ideas. *See id.* at 2355 (citing *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289, 1296-97 (2012)). If so, we proceed to the second step, and "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *See id.* (citing *Mayo*, 132 S. Ct. at 1297-98). "A claim that recites an abstract idea must include 'additional features' to ensure 'that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].'" *Id.* at 2357 (citing *Mayo*, 132 S. Ct. at 1297).

"The Supreme Court has not established a definitive rule to determine what constitutes an 'abstract idea' sufficient to satisfy the first step of the *Mayo/Alice* inquiry. Rather, both [the Federal Circuit] and the Supreme Court have found it sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases." *Enfish*, 822 F.3d at 1334. The Federal Circuit has described the first step as "looking at the 'focus' of the claims, their character as a whole." *Electric Power Group LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (internal citation omitted).

With respect to the second step of the *Alice* inquiry, the Supreme Court characterized it as "a search for an 'inventive concept'--*i.e.*, an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.'" *See id.* (citing *Mayo*, 132 S. Ct. at 1294); *see also Bascom Global*

Internet Services, Inc. v. AT&T Mobility LLC, 827 F.3d 1341, 1350 (Fed. Cir. 2016) ("The inventive concept inquiry requires more than recognizing that each claim element, by itself, was known in the art. As is the case here, an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces."). The Federal Circuit has later described the second step as "looking more precisely at what the claim elements add—specifically, whether, in the Supreme Court's terms, they identify an inventive concept in the application of the ineligible matter to which (by assumption at stage two) the claim is directed." *Electric Power*, 830 F.3d at 1353.

For example, in *Alice*, the Supreme Court held that the claim elements considered "separately" and "as an ordered combination," involved no more than "generic computer functions" that are "well-understood, routine, conventional activities" and "not '*enough*' to transform an abstract idea into a patent-eligible invention." *See Alice*, 134 S. Ct. at 2359-60 (citing *Mayo*, 132 S. Ct. at 1294-98) (emphasis in original); *see also OIP Techs, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) ("Beyond the abstract idea of offer-based price optimization, the claims merely recite well-understood, routine conventional activities, either by requiring conventional computer activities or routine data-gathering steps. Considered individually or taken together as an ordered combination, the claim elements fail to transform the claimed abstract idea into a patent-eligible application.") (citations omitted); *Activity Tracking Devices*, Inv. No. 337-TA-963, Order No. 54, at 12 (Apr. 27, 2016) (not reviewed) ("The use of sensors does not render such a system patent-eligible. 'Monitoring, recording, and inputting information represent insignificant 'data-gathering steps,' and 'thus add nothing of practical significance to the underlying abstract idea.'") (citing *Wireless Media Innovations, LLC v. Maher Terminals, LLC*, 100 F. Supp. 3d 405, 416 (D.N.J. 2015), *aff'd*, 636

Fed. Appx. 1014 (Fed. Cir. 2016)).

The Federal Circuit also distinguished "general-purpose computer components [which] are added post-hoc to a fundamental economic practice or mathematical equation," but found "claims [that] are directed to a specific implementation of a solution to a problem in the software arts . . . are not directed to an abstract idea." *See Enfish*, 822 F.3d at 1339; *see also DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014) (finding the claimed system patent-eligible under § 101 where "the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks").

2. 35 U.S.C. § 102

Pursuant to 35 U.S.C. § 102, a patent claim is invalid as anticipated if:

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant;
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States;
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent;"
>
> (g)(2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it.

35 U.S.C. § 102 (2008). "A patent is invalid for anticipation if a single prior art reference discloses each and every limitation of the claimed invention. Moreover, a prior art reference may anticipate without disclosing a feature of the claimed invention if that missing characteristic

is necessarily present, or inherent, in the single anticipating reference." *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (citations omitted).

3. 35 U.S.C. § 103

Section 103 of the Patent Act states:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 103(a) (2008). "Obviousness is a question of law based on underlying questions of fact." *Scanner Techs. Corp. v. ICOS Vision Sys. Corp. N.V.*, 528 F.3d 1365, 1379 (Fed. Cir. 2008). The underlying factual determinations include: "(1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) objective indicia of non-obviousness." *Id.* (citing *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966)). These factual determinations are often referred to as the "Graham factors."

The critical inquiry in determining the differences between the claimed invention and the prior art is whether there is a reason to combine the prior art references. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418-21 (2007). In *KSR*, the Supreme Court rejected the Federal Circuit's rigid application of the teaching-suggestion-motivation test. While the Court stated that "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does," it described a more flexible analysis:

> Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed

> by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue . . . . As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

Id. at 418. Since *KSR*, the Federal Circuit has announced that, where a patent challenger contends that a patent is invalid for obviousness based on a combination of prior art references, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device . . . and would have had a reasonable expectation of success in doing so." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007); *see KSR*, 550 U.S. at 399 ("The proper question was whether a pedal designer of ordinary skill in the art, facing the wide range of needs created by developments in the field, would have seen an obvious benefit to upgrading Asano with a sensor.").

In addition to demonstrating that a reason exists to combine prior art references, the challenger must demonstrate that the combination of prior art references discloses all of the limitations of the claims. *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357, 1373-4 (Fed. Cir. 2010) (abrogated on other grounds by *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. 2120 (2014)) (upholding finding of non-obviousness based on the fact that there was substantial evidence that the asserted combination of references failed to disclose a claim limitation); *Velander v. Garner*, 348 F.3d 1359, 1363 (Fed. Cir. 2003) (explaining that a requirement for a finding of obviousness is that "all the elements of an invention are found in a combination of prior art references").

"A reference qualifies as prior art for a determination under § 103 when it is analogous to the claimed invention." *Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1321 (Fed.

Cir. 2011) (citing *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992)). "Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved." *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (citing *In re Deminski,* 796 F.2d 436, 442 (Fed. Cir. 1986)). One way of evaluating whether a reference is reasonably pertinent is to consider if, "logically [it] would have commended itself to an inventor's attention in considering his problem." *K-TEC, Inc. v. Vita-Mix Corp.*, 696 F.3d 1364, 1375 (Fed. Cir. 2012) (citing *Innovention*, 637 F.3d at 1321)). The requirement for prior art to be analogous is "meant to defend against hindsight." *In re Khan*, 441 F.3d 977, 986-987 (Fed. Cir. 2006).

An obviousness determination should also include a consideration of "secondary considerations" such as "commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." *Graham*, 338 U.S. at 17-18. "For [such] objective evidence to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention." *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995); *see Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 837 (Fed. Cir. 2015).

III. JURISDICTION AND IMPORTATION

In order to have the power to decide a case, a court or agency must have both subject matter jurisdiction and jurisdiction over either the parties or the property involved. 19 U.S.C. § 1337; *Certain Steel Rod Treating Apparatus and Components Thereof*, Inv. No. 337-TA-97, Commission Memorandum Opinion, 215 U.S.P.Q. 229, 231 (U.S.I.T.C. 1981). Respondents do not dispute the Commission has subject matter jurisdiction over this investigation as well as

personal jurisdiction.

A. Importation and In Rem Jurisdiction

Respondents largely do not dispute the importation requirement. As recounted by CGI, "Respondents [] do not dispute that ET Door sells the Accused Products for importation and that One World imports and sells them in the U.S." (CIB1 at 12.) "Rather," as CGI explains, "Respondents' pre-hearing brief only disputes whether the importation requirement is satisfied with respect to: (1) TTi HK, TTi NA, and OWT." (*Id.*)

For respondent TTi HK, CGI argues "the importation requirement as to TTi HK is met because TTi HK facilitates the manufacture, importation, and sale of the accused products." (CIB1 at 13 (citing Hr'g Tr. at 482:24-483:7, 465:17-466:6, 468:11-470:2, 474:25-478:2).) CGI notes that "TTi HK's sign-off was required to develop the accused products" (CRPB1 at 2 (citing Hr'g Tr. at 465:17-466:6, 468:11-470:2) and one TTi witness admitted that TTi HK imports the Ryobi® Ultra-Quiet Garage Door Opener into the United States. (CRPB1 at 2 (citing Hr'g Tr. at 482:22-483:7).)

For respondent TTi NA, CGI also argues it "facilitates the sale after importation of the Accused Products" proven through [

] (*Id.* (citing Hr'g Tr. at 394:2-395:10 (admitting to [ ]); CX-0745C (TTi email [ ]); RX-0081C; CX-1152C (TTi Supp. Resp. to Interrog. Nos. 5-7)).)

For respondent OWT, CGI argues it meets the importation requirement because it [

] (CIB1 at 13 (citing RX-0081C; CX-1152C (TTi's Supp. Resp. to Interrog. Nos. 6, 33) (identifying inventory of the accused products in [ ]); CX-1148C (TTi's Resp. to Interrog. No. 23 & Ex. A) (identifying OWT as the only TTi entity with [ ])).)

In its second round of post-hearing briefing, CGI argues that, "more likely than not": TTi HK is "involved in the manufacture, importation, and/or sale of the accused products;" TTi NA "sells the Accused Products after their importation into the United States;" and OWT [

] (CIB2 at 14-15.)

Respondents do indeed argue that CGI has failed to satisfy the importation requirement for respondents TTi HK, TTi NA, and OWT. (RRSB1 at 3-5.) Essentially, Respondents argue:

> CGI cites no case supporting its argument that "facilitation" of the sale for importation, importation, or sale after importation of an accused product is sufficient to satisfy the importation requirement. CGI's argument should be rejected as legally unsupported. And even if "facilitation" could constitute importation, the evidence does not support the claim.

(*Id.* at 3-4.) Respondents continue:

> There is no evidence these Respondents have sold for importation, imported, or sold after importation any accused product, and CGI has failed to present any evidence showing the requisite nexus between TTi HK, TTi NA, or OWT on the one hand, and Et Door or One World on the other, such that they should be held responsible for the actions of the importing Respondents.

(RRSB2 at 5-6.) More specifically, for respondent TTi HK, Respondents dispute that Respondents' witness, Michael Farrah, admitted that TTi [ ] of the accused products,[ ).] (RRSB1 at 4.) Respondents suggest[ ] (*Id.*) For respondent TTi NA, Respondents, again, argue that determining

TTi NA "facilitates" the sales of accused products because witness Mark Huggins has a TTi NA email address, or the fact that One World (an agreed importer) is a subsidiary of TTi NA, has "no basis in law or fact." (*Id.*) Respondents allege [

] (*Id.* at 4-5.) Finally, for respondent OWT, Respondents do not dispute that [

] but disputes whether this satisfies the importation requirement. (*Id.* at 5.)

I find that each of TTi HK, TTi NA, and OWT are sufficiently involved in the sale for importation or sale after importation of the Accused Products. Specifically, I find credible testimony supporting CGI's assertion that [

]

(Hr'g Tr. at 465:17-466:6, 468:11-470:2.) If that is the case, it is more likely than not that [

] (*See* CX-1152C at 11 (2nd Supp. Resp. to Interrogatory No. 6).) In addition, TTi witness Mark Huggins expressed a view that [ ] (Hr'g Tr. at 482:22-483:7.) I find this to be sufficient involvement for TTi HK to meet the importation requirement.

For TTi NA, Respondents acknowledge that TTi NA [

] (RIB1 at 7.) [

] (*see* CX-1152C at 10 (2nd Supp. Resp. to Interrogatory No. 5)) is support for the sale after importation of the Accused Products. I find this support, combined with the fact that [ ]

[ ] results in sufficient involvement for TTi NA to meet the importation requirement.

For OWT, Respondents do not really dispute CGI's allegation that [ ] (*See* RRSB1 at 5.) In this way, OWT plays a critical role [ ] Combined with the fact, yet again, [ ] (CX-1152C at 12 (2nd Supp. Resp. to Interrogatory No. 6)), this is sufficient involvement for OWT to meet the importation requirement.

In addition, and regardless of the above facts, it is not Commission practice to insulate parent companies from the unfair importation, sale for importation, or sale after importation acts of their subsidiaries or affiliates. *See, e.g.*, *Certain Air Mattress Systems, Components Thereof, and Methods of Using the Same*, Inv. No. 337-TA-971, Comm'n Op. at 66 (June 20, 2017) ("the Commission has determined to issue an LEO prohibiting the unlicensed entry of infringing air mattress systems, components thereof, and methods of using the same . . . that are manufactured abroad by or on behalf of, or imported by or on behalf of Respondents, or their affiliated companies, parents, subsidiaries, or other related business entities, or their successor or assigns."); *Certain Automated Teller Machines, ATM Modules, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-989, Comm'n Op. at 2 (Aug. 3, 2017). Indeed, if this was not the case, it would be incredibly easy to circumvent limited exclusion orders. I note that Respondents cite no case to the contrary in their briefings. (*See* RRSB1 at 3-5; RRSB2 at 5-6.)

Accordingly, I find each of the Respondents has satisfied the importation requirement and the Commission has *in rem* jurisdiction over the Accused Products. *See Sealed Air Corp. v. United States Int'l Trade Comm'n*, 645 F.2d 976, 985 (C.C.P.A. 1981).

B. Subject Matter Jurisdiction

Section 337 confers subject matter jurisdiction on the International Trade Commission to investigate, and if appropriate, to provide a remedy for, unfair acts and unfair methods of competition in the importation, the sale for importation, or the sale after importation of articles into the United States. *See* 19 U.S.C. §§ 1337(a)(1)(B), (a)(2).

CGI alleges a violation of Section 337 in the importation and sale of access control systems and components thereof. CGI alleges the accused access control systems (*e.g.*, garage door openers) directly and indirectly infringe the asserted patents. CGI observes in its post-hearing briefing that "Respondents do not dispute that the Commission has subject matter jurisdiction over this Investigation and personal jurisdiction over Respondents. . . . Respondents do not dispute that subject matter and *in rem* jurisdiction exist over the accused GD200, GD200A, and GD125." (CIB1 at 12; *see* RRSB2 at 5 ("Respondents do not dispute that the Commission has subject matter jurisdiction over this Investigation or that Respondents have submitted to personal jurisdiction of the Commission").)

CGI has alleged sufficient facts that, if proven, would demonstrate that Respondents import articles that directly infringe CGI's patents. *See Certain Elec. Devices with Image Processing Sys., Components Thereof, & Assoc. Software*, Inv. No. 337-TA-724, Comm'n Op., 2012 WL 3246515, at *7 (U.S.I.T.C. Dec. 21, 2011) (citing *Amgen, Inc. v. Int'l Trade Comm'n*, 902 F.2d 1532, 1536 (Fed. Cir. 1990)); *see also Suprema, Inc. v. Int'l Trade Comm'n*, 796 F.3d 1338, 1352-53 (Fed. Cir. 2015) ("[T]he Commission's interpretation that the phrase 'articles that infringe' covers goods that were used by an importer to directly infringe post-importation as a result of the seller's inducement is reasonable.").

Accordingly, I find the Commission has subject matter jurisdiction over this Investigation

under Section 337 of the Tariff Act of 1930. *Amgen, Inc.*, 902 F.2d at 1536.

C. Personal Jurisdiction

Respondents have fully participated in this Investigation by, among other things, responding to the complaint and fully participating in discovery, the claim construction process, and filing and responding to motions for summary determination. Respondents have participated in the evidentiary hearing, filed pre-hearing briefs, and post-hearing briefs. Accordingly, I find, and Respondents do not dispute (*see* RRSB2 at 5), that Respondents have submitted to the jurisdiction of the Commission. *Certain Lithium Metal Oxide Cathode Mats., et al.,* Inv. No. 337-TA-951, ID at 10-11 (Feb. 29, 2016); *Certain Miniature Hacksaws*, Inv. No. 337-TA-237, Pub. No. 1948, ID at 4, 1986 WL 379287 (U.S.I.T.C. Oct. 15, 1986) (not reviewed by Commission in relevant part).

IV. U.S. PATENT NO. 7,339,336

A. Level of Ordinary Skill in the Art

CGI contends that "the level of ordinary skill in the art for the '336 patent is an individual with an undergraduate degree in Electrical Engineering, Computer Engineering, or Computer Science, and at least two years of experience working with embedded computer systems or related technologies." (CIB1 at 14 (citing CX-1251C [Direen WS] at Q32).) CGI states that it cannot discern a meaningful difference between its proposed level of skill and that from Respondents. (*Id.* at 14-15; *see* CRSB1 at 5.)

Respondents treat my order on the level of ordinary skill in the art for the '319 and '611 patents, as described in Order No. 13, as the level for the '336 patent. (RIB1 at 8.)

I find that, as CGI describes, that a person with ordinary skill in the art of the '336 patent at the time of the invention is an individual with an undergraduate degree in Electrical Engineering, Computer Engineering, or Computer Science, and at least two years of experience

working with embedded computer systems or related technologies; where superior experience or education could compensate for a deficiency in the other.

B. Claims-at-Issue

The following claims of the '336 patent are at-issue in this investigation, either through allegations of infringement of technical prong domestic industry.

> 12. A method for use with a movable barrier operator having both a user-initiable dedicated learning mode of operation and a normal mode of operation, comprising:
>
> during the normal mode of operation:
>
> monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move between at least a first position and a second position;
>
> automatically changing an excess force threshold value in response to the monitored at least one parameter to provide an updated excess force threshold value;
>
> using the updated excess force threshold value and the monitored at least one parameter to determine when excess force is being applied to the movable barrier via the movable barrier operator;
>
> taking a predetermined action when excess force is being applied to the movable barrier via the movable barrier operator.

> 14. The method of claim 12 and further comprising monitoring operation of a motor and wherein automatically changing an excess force threshold value in response to the monitored at least one parameter to provide an updated excess force threshold value further includes using a motor operation compensation value to automatically change the excess force threshold value.

> 15. A method for use with a movable barrier operator, comprising:

monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move;

automatically changing a characteristic force value in response to the monitored at least one parameter to provide an updated characteristic force value as a function of a difference between the characteristic force value and the at least one parameter;

using an updated characteristic force value to determine a corresponding excess force threshold value;

determining when force in excess of the excess force threshold value is being applied to the movable barrier;

taking a predetermined action when excess force is being applied to the movable barrier.

19. The method of claim 15 and further comprising monitoring operation of a motor and wherein using an updated characteristic force value to determine a corresponding excess force threshold value includes using an updated characteristic force value and a motor operation compensation value to determine a corresponding motor operation-compensated excess force threshold value.

34. A method for use with a movable barrier operator, comprising:

monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move;

automatically increasing a characteristic force value pursuant to a first determination process in response to the monitored at least one parameter to provide an updated characteristic force value when a first condition is met;

automatically decreasing the characteristic force value pursuant to a second determination process, which second determination process is different from the first determination process, in response to the monitored at least one parameter to provide an updated characteristic force value when a second condition is met;

using the updated characteristic force value to determine a corresponding excess force threshold value;

determining when force in excess of the excess force threshold value is being applied to the movable barrier; and

taking a predetermined action when excess force is being applied to the movable barrier.

(CIB1 at 6, 47.)[4]

C. Claim Construction

During the Markman process, no disputed claim terms were construed for the '336 patent. (*See* Order No. 13 at 80-81.) Separately, the parties stipulated to the following constructions for other claim terms:

Claim Term	Agreed Construction
excess force threshold value (claims 7, 12-13, 15, 19, 34)	a value used to identify when excess force is being applied by the moveable barrier operator
characteristic force value (claims 11, 13, 15-19, 34-36)	value that corresponds to the force applied to move a barrier

Both CGI and Respondents identify one remaining claim-construction issue for this initial determination—the proper construction of "automatically changing a characteristic force value in response to the monitored at least one parameter to provide an updated characteristic force value as a function of a difference between the characteristic force value and the at least one parameter." (CIB1 at 15-16; RIB1 at 8.)

Claim Term	CGI's Construction	Respondents' Construction
automatically changing a characteristic force value in response to the monitored at	Plain and ordinary meaning, or automatically changing a characteristic force value in	Automatically replacing a previous characteristic force value with an updated

[4] While only claim 34 is presently asserted against Respondents, CGI's alleged practice of claims 14, 19, and 34 implicate independent claims 12 and 15.

least one parameter to provide an updated characteristic force value as a function of a difference between the characteristic force value and the at least one parameter (claim 15)	response to the monitored at least one parameter to provide an updated characteristic force value based on a comparison of values associated with the characteristic force value and the at least one parameter	characteristic force value, where the updated characteristic force value differs from the previous characteristic force value by the amount of the difference between the previous characteristic force value and the monitored at least one parameter

CGI argues "[t]his clear claim language does not require construction." (CIB1 at 16.) CGI argues its construction is the plain and ordinary meaning. (*Id.*) CGI argues it is also "consistent with the intrinsic evidence, which teaches that the difference between the characteristic force value and the monitored parameter determine whether the characteristic force value is updated." (*Id.* (referring to '336 patent at 7:4-18, 7:53-67, 3:43-52).) CGI criticizes Respondents' construction as too narrow because it requires strict replacement of values but the "word replace does not even appear in the '336 patent" and no other content from the specification supports that reading. (*Id.* at 16-17.)

Respondents argue that the particular "function of a difference" language found in this term sets it apart from other, conceptually similar, but differently-worded terms in other claims. (RIB1 at 9.) In particular, Respondents point to "claims 1, 7, and 12 recited changing a force value 'in response to' a monitored parameter, and claim 27 recites changing a force value by 'incrementing it toward' a force measurement." (*Id.* (citing '336 patent at claims 1, 7, 12, 27).) Respondents contend their construction follows from the differences between these terms, whereas CGI's construction is overly broad and introduce ambiguity. (*Id.*) Respondents point specifically to the phrases "comparison of values" and "values associated" as problematic and absent from the patent's specification. (*Id.* at 9-10.) Respondents then argue that CGI's expert,

Dr. Direen, admits "to get a difference of two values, you have to subtract the two values" but avoids using a subtraction-derived value in his construction to avoid infringement problems. (*Id.* at 10 (citing Hr'g Tr. at 223:23-224:1, 227:16-230:11, 234:14-18).)

I find neither party's proposed construction is correct. The language of the claim is plain and clear, and the starting point for interpreting the claims. *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1329 (Fed. Cir. 2009); *see GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("the specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal"). The "characteristic force value" is changed as a "function of a difference between the characteristic force value and the at least one parameter." ('336 patent at claim 15.) Put another way, the function that is used to change the "characteristic force value" *somehow* involves the difference between the characteristic force value and the at least one parameter. Expressed mathematically, this would read:

$$F(x) = F([\text{characteristic force value}] - [\text{at least one parameter}])$$

CGI's construction is improper because it is too broad. It recites a comparison between the "at least one parameter" and "values *associated with* the characteristic force value"—rather than the "characteristic force value" itself. This is not the meaning of the plain language of the claim, and I see no reason to expand the claim scope in this way. CGI's explanation for its construction also misses the mark. CGI states: "the difference between the characteristic force value and the monitored parameter determine whether the characteristic force value is updated." (CIB1 at 16.) I disagree. The recited difference is not what determines *whether* to update; that decision has already been made "in response to the monitored at least one parameter." ('336

patent at claim 15; *see* '336 patent at Figures 4 (*compare* step 43 *with* step 45), 6 (*compare* step 63 *with* step 66).)

On the other hand, Respondents' construction is also improper, because it is too narrow. It recites setting the "updated characteristic force value" to be exactly the prior "characteristic force value" plus the difference between that "characteristic force value" and the "at least one monitored parameter." This approach takes away the breadth of "as a function of a difference" by defining what the function must be—a strict one-to-one replacement of values. The plain language of the claim leaves this question open, however, and I see no reason to overturn it with Respondents' construction.

Thus, the plain and ordinary meaning of the term controls here. "[A]utomatically changing a characteristic force value in response to the monitored at least one parameter to provide an updated characteristic force value as a function of a difference between the characteristic force value and the at least one parameter" means what it says and cannot be expressed more clearly.

D. Infringement

At the time of the evidentiary hearing, CGI had alleged that Respondents, through the '336 Accused Products, directly and indirectly infringe claims 19-23, 34 of the '336 patent. (CIB1 at 6.) As noted above, on October 17, upon joint motion, I terminated the investigation with respect to the accused products loaded with the "V26" software and claims 19-23. (Order No. 36.) Thus, only claim 34 remains asserted against the '336 Accused Products, and only against the subset of products loaded with the "C02" software. Of these remaining products, the parties' experts have agreed that the GD200 is sufficiently representative of the GD200A and

GD125 for the purposes of evaluating infringement. (CX-1251C [Direen WS] at Q66-69; RX-0228C [Heppe WS] at 408-410.)

I find that the '336 Accused Products, represented by the GD200 as loaded with C02 software, have not been shown to infringe claim 34 of the '336 patent. In short, Respondents removed the portion of the products' code that *might* have infringed upon the '336 patent claims when it switched from the V26 to the C02 version of the code. (*See* CX-1251C [Direen WS] at Q78.) CGI's expert, Dr. Direen, explains the effect of the change as follows:

> Q. What effect does this change have on the operation of the Accused Products?
>
> A. As I described earlier, this change means that the C02 version does not [
>
>]

(CX-1251C at Q86.) In other words, according to Dr. Direen, the C02 software does not [

]

Respondents' expert, Dr. Heppe, explains the V26 and C02 switch with:

> Q. What are the differences between the two versions of source code V26 and C02 that you previously mentioned?
>
> A. The difference between the two versions is simply the [
>
>]

(RX-0228C at Q430.) Dr. Heppe explains how the switch from V26 to C02 impacts CGI's infringement as follows:

> Q. What is the difference in Dr. Direen's infringement opinions between the V26 and C02 source code versions?

> A. Basically, Dr. Direen lays out in his table the claims that are asserted against the V26 Products and the Accused C02 Products as I previously stated. I do think it is worth noting that there is a discrepancy at a high level in his analysis. For the V26 products, Dr. Direen relies on the "monitored . . . parameter that corresponds to force" to be the [ ] whereas in the C02 version of the product he relies on the "monitored . . . parameter that corresponds to force" to be [ ]. These two disparate variables are not carried through the claim analysis for claim 34. I recognize that CGI had [ ] in its previous claim 15 arguments, but have since dropped them, as seen in the witness statement at A95. Thus, it seems to be the case that [ ] no longer "works" for CGI's infringement read in claim 15 and is implicitly not applicable to claim 34 either. However, CGI has based its new infringement theory of claim 34 on this variable that, as explained earlier, does not correspond to force as applied to the movable barrier operator.

(*Id.* at Q436.) In other words, despite the striking similarity between independent claims 15 and 34, CGI's infringement theory dramatically switches what it accuses as the "monitored at least one parameter" and as the mechanisms by which thresholds are updated under the two claims. Respondents argue that this is a strong indication that CGI's infringement theory for claim 34 is a "stretch." (*See* RRSB1 at 7, 17.) I agree.

I also tend to believe Respondents' [ ], is a primary reason why CGI's infringement theory comes off as a stretch for the C02 software. As it was explained at the hearing from Respondents' witness, Mark Huggins:

> The Court: Where did they – how were they able to get [ ]
>
> The Witness: I'm not sure. In discussions with them, they said [ ]
>
> The Court: [ ]

The Witness: [

]

(Hr'g Tr. at 446:7-24.)

a. Direct Infringement

i. Limitation 34[pre]

Moving on to a limitation-by-limitation analysis, Claim 34 requires, "A method for use with a movable barrier operator." ('336 patent at claim 34.) I find credible and unrebutted testimony demonstrates that the '336 Accused Products are garage door openers, and thus, movable barrier operators. (CX-1251C [Direen WS] at Q150-151.)

ii. Limitation 34[a]

Claim 34 further requires, "monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move." ('336 patent at claim 34.) Respondents dispute that this limitation is met in the '336 Accused Products.

CGI's position

CGI unequivocally states, "[t]he Accused Products satisfy this limitation by monitoring the parameter that corresponds to the motor's operational mode, [ ]" (CIB1 at 33.) CGI explains, "[

]" (*Id.* (citing Hr'g Tr. at 531:15-19).)

Continuing, CGI argues "[

]" (*Id.* (citing CX-1251C at Q152; RX-0228C [Heppe WS] at Q418; CX-1251C [Direen WS] at Q153).) CGI points out that "Respondents' expert also acknowledged the correspondence between [ ] testifying that, other factors being equal, the [ ]" (*Id.*

at 34 (citing Hr'g Tr. at 551:9-553:4).) Thus, according to CGI "[ ] corresponds to the force applied to a moveable barrier to selectively cause the barrier to move." (*Id.* at 34.)

CGI also contends, as is required by the claim, that [ ] is a "monitored" parameter. (*Id.* at 35.) CGI argues that Respondents are wrong when they say [ ] is not a monitored parameter "due to lack of [ ]" (*id.* (referring to Hr'g Tr. at 510:12-511:3)), and then goes on to explain how [ ] supposedly works with [ ]:

The Accused Products implement a [

.]

(*Id.* (emphasis added).) CGI continues:

One example of the Accused Products [

]

(*Id.* at 36.)

In addressing Respondents' defenses, CGI observes that Respondents' expert "repeatedly testified that motor speed corresponds to force for purposes of his invalidity analysis." (*Id.* at 37 (citing Hr'g Tr. at 595:14-22, 601:2-6, 601:18-22; RX-1C [Pedram WS] at Q251, 254, 256, 275, 287).) CGI also argues that any alleged distinction between average force and force, is meaningless because "claim 34 does not require an exact one-to-one relationship between the

monitored parameter and force[;] Claim 34 requires that the monitored parameter correspond to force." (*Id.*) In short, CGI argues, "[e]ven Respondents' validity expert testified that the only requirement for the monitored at least one parameter was that it correspond to force." (*Id.* at 37-38 (citing Hr'g Tr. at 604:7-18).)

In its reply brief, CGI argues flatly "Dr. Heppe testified that when the transistor is on then current is delivered to the motor, and when the transistor is off then current is not delivered to the motor. . . . [ ]" (CRPB1 at 5 (citing Hr'g Tr. at 525:22-526:4).) CGI then identifies various moments where Respondents' validity expert allegedly testified that speed of the motor corresponds to force. (*Id.* (referring to Hr'g Tr. at 595:14-22, 601:2-12, 601:18-22; RX-0001C [Pedram WS] at Q251, 254, 256, 275, 287).) CGI describes Respondents' non-infringement expert as holding a "litigation-induced contrary opinion" that "should be rejected as lacking credibility" when compared to Respondents' validity expert's testimony on the prior art. (*See id.* at 6-7.)

CGI then argues that Respondents' remaining defenses are "predicated on an unduly narrow interpretation of 'corresponds' that the claim language does not support." (*Id.* at 7.) First, the sequence of values which [ ] takes on is irrelevant because "the claim does not prohibit a pre-set sequence of values if it corresponds to force." (*Id.*) Second, the difference between [ ] is irrelevant because the claim "requires only that the monitored parameter correspond to force." (*Id.*) Third, the claim does not require that [ ] or any other parameter "control" the motor's speed by itself. (*Id.*) Finally, CGI suggests that any opinion from Dr. Heppe as to what the force "might be doing in the Accused Products at certain locations or positions of the door" is "irrelevant because he admitted that he did not conduct any force tests with the Accused Products."*Id.* at 8 (citing Hr'g Tr. at 566:14-

567:22, 570:2-6).)

Regarding [ ] as a "monitored" parameter, CGI contends that "[t]here is no dispute that [

]" (*Id.* at 8 (citing CX-1251C [Direen WS] at Q79, RX-228C [Heppe WS] at Q81, Hr'g Tr. (Direen) at 155:24-156:3).) CGI argues this even though it states clearly that "claim 34 does not require 'feedback' or 'learning' based on the monitored parameter." (*Id.*) CGI then considers how [ ] fits into later claim limitations regarding first and second conditions to argue "[i]n the accused products , [

]" (*Id.* at 9.) CGI's purpose of exploring satisfaction of these later limitations is to explain how "[t]o the extent claim 34 requires feedback based on the monitored parameter, this [

]" (*Id.*)

Respondents' position

Respondents dispute the limitation is met on two fronts: (1) [ ] does not correspond to force, and (2) [ ] is not a monitored parameter. (*See* RRSB1 at 8-9.) Respondents argue that [ ] does not correspond to force because it is instead "[

]" (*Id.* at 9 (citing Hr'g Tr. at 155:18-157:21; RX-0228C [Heppe WS] at Q418-429).) More specifically, as Respondents explain:

[

]

[
]

(*Id.*) More generally, Respondents consider that:

> [I]f there were any correspondence between [ ] and force, one would expect the [ ] to have some relationship with the operating conditions of each accused product. [
>] As such, there can be no correspondence between [ ] and force when [
>]

(*Id.* (citing Hr'g Tr. at 163:1-4, 163:9-11).) Respondents contend that, in this way,

[ ],

which is important because, according to Respondents, the force applied to the door corresponds to [ ]. (*Id.* at 10 (citing Hr'g Tr. at 542:25-543:4).) Respondents also take issue with CGI's use of their expert's testimony to argue that [ ] (*Id.* at 12.) Rather, Respondents argue, their expert testified that "[t]ypically, that's true; although, not always." (*Id.* (citing Hr'g Tr. at 531:15-20).) This, according to Respondents, proves a failure to show correspondence between [ ] and force, because "an occasional change in [ ] corresponds with force." (*Id.*) Finally, Respondents argue lack of correspondence because, for example, when [ ]. (*Id.* (referring to Hr'g Tr. at 550:20-553:5).) This, according to Respondents, "disproves any correspondence between [ ] and force." (*Id.*)

On the second front, Respondents dispute that [ ] is "monitored." Respondents argue that in the '336 patent the point of monitoring is to determine force, but no

such monitoring of [ ] takes place in the 336 Accused Product. (RRPB1 at 13.) Regarding CGI's alleged [ ] Respondents argue "the only alleged [ ]" which "does not provide any [ ]" (*Id.* at 14.) This, according to Respondents, "is not the type of feedback (or learning) required by claim 34, as the claim requires the monitored parameter to drive an increase or decrease in a characteristic *force* value." (*Id.*) Respondents then emphasize that it is the first and second conditions that trigger "the selection of the determination process" as opposed to[ ], whose purpose is "to provide a response (*i.e.*, feedback) for automatically increasing or decreasing a characteristic force value so that the value can be updated." (*Id.*) Respondents conclude with "[ ] does not perform the 'monitored parameter' role because it [ ]" (*Id.* (citing RX-0228C at Q413-414; Hr'g Tr. at 510:12-511:3).) Respondents then discuss how the purported "inconsistencies" between its non-infringement and invalidity experts do not resolve this issue in CGI's favor. (*See id.* at 14-16.)

Analysis

Regarding whether or not [ ] "corresponds" to force, I find that it does. "Corresponds" is a very broad term, and it is clear that [ ] indirectly corresponds to force. For example, I found credible testimony from both parties explaining that if one is given the value of [ ], one would have some idea of the [ ] (*See* RX-0228 [Heppe WS] at Q418-419; CX-1251C at Q153; Hr'g Tr. at 531:15-19 (a change in [ ]), 551:9-553:4; CX-1140C [Yongwen

Huang Dep.] Tr. at 35:15-19, 36:14-16 ("Q. Do you know what the [

]"), 79:4-20; CX-1146C [Shao Dep. Tr.] at 35:20-36:7

(confirming [ ]), 37:22-38:10 ("[

]"), 38:17-22).] I find this connection to average force [ ] meets the loose requirement of "corresponding" to force. Additionally, Respondents' invalidity expert, Dr. Pedram, freely associates parameters corresponding to motor current or motor speed in the prior art with the requisite "at least one parameter that corresponds to force as applied to a movable barrier." (*See* RX-0228C [Pedram WS] at Q254 ("As noted by Mullet at column 12, lines 60-61, the monitored 'speed of the motor 48 is directly proportional to the force applied to the door.' Accordingly, it is clear in Mullet that the monitored speed of the motor is a parameter that corresponds to force."); Hr'g Tr. at 595:14-22 (agreeing that motor current and speed correspond to the amount of force applied to the movable barrier).)

Respondents' argument that their invalidity expert's admissions do not apply because the '336 Accused Products "do not measure motor speed" as the prior art explicitly does (RRSB1 at 15), this argument misses the point. Whether or not motor speed is directly measured does not diminish the correspondence a motor's speed has to the force it applies upon the movable barrier. I find Respondents' other arguments are generally not persuasive because they apply "corresponds" too narrowly. [(*See* RRSB1 at 9-10 ("there can be no correspondence between [ ] and force because [

]), 10-12 (force is technically the result of current amplitude [ ]), 11-12 (sometimes force can go down [ ]).) Thus, I find [ ] in the '336 Accused Products is a parameter which corresponds to force.

Regarding whether or not [ ] is a "monitored parameter," I find that it is monitored. I can readily understand Respondents' position that [

] (RRSB1 at 8 (citing Hr'g Tr. at 155:18-156:3), 15), and in this way not a "monitored parameter." Indeed, CGI's initial post-hearing brief description of accused product operation is telling in how [ ] and is not a "monitored" parameter as compared to, for example, the "[ ]," where [ ] (*See* CIB1 at 20 (citing CX-1251C at Q95-97; CX-1140C [Yongwen Huang Dep. Tr.] at 120:3-15; CX-1146C [Shao Dep. Tr.] at 29:3-22).) In a first sentence, CGI states "after this phase, the motor enters the [

]" (CIB1 at 35.) This implies [

] In the next sentence, CGI states, "[l]ikewise, when the door is [

]" (*Id.*) This implies the motor's [

]

I find that the second statement is accurate and the first is not. [

] In other words, [ ] and this is reflected accurately in CGI's second statement—"[

]" (CIB1 at 35.)

The C02 source code in the '336 Accused Products, however, is clear and dispositive here. The code explicitly [

]

[1623] [ ]

....

[1654] [ ]

....

[1716] [ ]

....

[(CPX-0224C at line 1623; CPX-0225C at line 1654; CPX-0226C at line 1716.) I find it hard to argue that code which [

] under a plain and ordinary meaning of "monitor." The standard for deviating from this plain and ordinary meaning is "exacting" and requires "a clear and unmistakable disclaimer." *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1366-67 (Fed. Cir. 2012).]

On this issue, the parties argue a bit over "feedback," and whether it is present with [ ] or not. (*See* CIB1 at 35; RRPB1 at 13-14.) I find [ ] but I also find the question to be irrelevant. The presence or absence of feedback does not define or establish a data value as a "monitored" parameter. Indeed, there is no mention of "feedback" in the '336 patent's specification or claims, and no process flow in the patent's figures suggest it. (*See generally* '336 patent.) The monitoring or measurement of force as applied to a moveable barrier would be considered "feedback" only if the goal of the control system was to control the force (*i.e.*, achieve a certain value) as applied to a moveable barrier (*i.e.*, closed loop control). This is not the focus of the '336 patent, as it does not mention anywhere adjusting the force as applied by the motor (*i.e.*, the monitored parameter) to achieve a certain value. Rather, the focus is on monitoring force as applied in order to intelligently update threshold limits. (*See, e.g.*, '336 patent at Abstract ("An excess force threshold value is automatically changed in response to the monitored at least one parameter to provide an updated excess force threshold value.").)

Thus, I find the '336 Accused Products have been shown to meet the limitation

"monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move."

iii. Limitation 34[b]

Claim 34 further requires, "automatically increasing a characteristic force value pursuant to a first determination process in response to the monitored at least one parameter to provide an updated characteristic force value when a first condition is met." ('336 patent at claim 34.) Respondents dispute that this limitation is met in the '336 Accused Products.

CGI's position

CGI argues clearly, "[t]he first determination process includes [

]" (CIB1 at 38.) CGI describes this first determination process as "[u]nder these *conditions*, the Accused Products automatically [

]" (*Id.* (citing Hr'g Tr. at 247:24-275:3; CX-1251C [Direen WS] at Q156, 157 (emphasis added).) CGI continues, "[t]his determination process is responsive to [

]" (*Id.* (citing Hr'g Tr. at 247:15-23; CX-1251C at Q156, 157).)

CGI asserts that "Respondents agreed that this determination process increases the characteristic force value, at least sometimes." (*Id.* (citing RX-0228C [Heppe WS] at Q471, 485).) CGI then explains how, using the "[ ]" and "[ ] "for any position along the travel path of the door, the characteristic force value is automatically [

]" and "[ ] results in an updated characteristic force value."

(*Id.* at 38-39 (citing CX-1251C [Direen WS] at Q158, 159; CX-1140C [Yongwen Huang Dep. Tr.] at 69:16-70:5).)

CGI then addresses Respondents' argument that the limitation can only be satisfied when the first determination process *always* increases the characteristic force value, as opposed to *sometimes*. (*See id.* at 39.) CGI contends this is wrong under the law, where "[i]t is well settled that that an accused device that 'sometimes, but not always, embodies a claim[] nonetheless infringes." (*Id.* (citing *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1333 (Fed. Cir. 2013) and discussing *Versata Software, Inc. v. SAP America, Inc.*,717 F.3d 1255, 1263 (Fed. Cir. 2013); *Hilgraeve Corp. v. Symantec Corp.*, 265 F.3d 1336, 1343 (Fed. Cir. 2001)).) CGI adds that Respondents did not raise this argument at the claim construction phase of the investigation indicting it is now a "desperate attempt to manufacture a noninfringement argument." (*Id.*) CGI concludes by clarifying its understanding of how the variable [ ] serves as the "characteristic force value" and the "excess force threshold generated by [ ]" (*Id.* at 39-40 (citing CX-1251C at 156-159).) For this limitation specifically, CGI argues "[t]he selecting and loading of [ ] satisfies this limitation. . . . It is not the value of [ ]" (*Id.* at 40.)

In its reply brief, CGI argues again that "the first and second determination processes need not always increase or decrease" because "[the law] is well settled that an accused device that 'sometimes, but not always, embodies a claim nonetheless infringes." (*See* CRPB1 at 9-11 (citing *Broadcom Corp.*, 732 F.3d at 1333 and discussing *UltimatePointer, L.L.C. v. Nintendo Co., Ltd.*, 816 F.3d 816, 825 (Fed. Cir. 2016); *Dippin' Dots, Inc. v. Mosey*, 476 F.3d 1337, 1343 (Fed. Cir. 2007); *Hilgraeve*, 265 F.3d at 1343).) In particular, CGI distinguishes *Ferguson*

Beauregard/Logic Controls Division of Dover Resources, Inc. v. Mega Systems, LLC, 350 F.3d 1327, 1346 (Fed. Cir. 2003) because "the court held that claims required always decreasing or increasing a length of time because the claims covered every possible circumstance that could arise." (*Id.* at 10.) CGI explains that under presently asserted claim 34, "situations could arise under which neither condition is satisfied." (*Id.* at 11.) In conclusion, CGI argues it has "identified a first determination process that automatically increases a characteristic force value at least sometimes . . . and a second determination process that automatically decreases a characteristic force value at least sometimes" (*id.* at 12 (citing CX-1251C [Direen WS] at Q156-159, 170-173)), and that this satisfies claim 34.

With respect to the first and second processes being different from each other, CGI argues three differences exist. (*Id.* at 13.) First, the processes constitute different lines of code, which CGI claims is "the clearest evidence that the processes are different." (*Id.*) Second, a [ ] (*Id.* (citing Hr'g Tr. at 268:16-269:5; CX-1251C at Q181).) Third, "one determination process occurs when the Accused Products are [ ] and the other occurs when the accused products are [ ]" (*Id.* (citing Hr'g Tr. at 267:1-268:11).) CGI contends that "Respondents have no answer for these differences." (*Id.*)

Respondents' position

Respondents dispute the limitation is met for three reasons: (1) the alleged "first determination process" does not increase or update the "characteristic force value;" (2) the alleged "first determination process" does not "automatically" update the characteristic force value when a first condition is met; and (3) the "first determination process" is actually no different from the "second determination process." (*See* RRSB1 at 16, 18, 21.)

Under the first reason, Respondents argue:

> Limitation 34[b] requires a "first determination process" that will "increase" and "update" a characteristic force value. It is insufficient to identify a process that merely selects and applies previously stored force values to determine whether the motor is applying too much force to the door. RX-228C at Q&A 486, 493-94. Yet that is exactly what CGI has done.

(RRSB1 at 16.) More specifically, Respondents explain how CGI has identified the "[ ]" as the "first determination process," but this function cannot satisfy the claims because it "merely [ ]" (*Id.* (citing RX-0228C at Q83, 412, 413, 485, 486, 493; RDX-243C; CDX-5.21C; CPX- 215C to -218C at lines 1595, 1601, 1657, 1662, 1724, 1729; CPX-225C-227C at lines 1629, 1635, 1691, 1696, 1758, 1763).) Respondents point out how, at the hearing, CGI's expert, Dr. Direen, "confirmed that the [ ]" (*Id.* at 17 (citing Hr'g Tr. at 214:14-25).)]

Under the second reason, Respondents contend that the "[ ]" will not always increase what Dr. Direen identified as the "characteristic force value." (*See id.* at 18.) More specifically, Respondents explain how the values in the [ ] may actually decrease, which will result in [ ]" (*Id.* (citing RX-228C at Q485, 471, 510; Hr'g Tr. at 204:7-207:20).)] This behavior, according to Respondents, cannot satisfy a limitation which requires "*automatically increasing* a characteristic force value pursuant to a first determination process … *when a first condition is met.*" (*Id.* (citing '336 patent at claim 34).) Respondents then explain why "automatically increasing," as it is used in the claim, must mean "always increasing." (*See id.* at 18-21 (discussing *Ferguson Beauregard/Logic Controls*, 350 F.3d at 1346; *Dippin' Dots*, 476

F.3d at 1343; *UltimatePointer*, 816 F.3d at 825; *Broadcom Corp.*, 732 F.3d 1325 (Fed. Cir. 2013); *Versata Software*, 717 F.3d 1255 (Fed. Cir. 2013); *Hilgraeve*, 265 F.3d 1336 (Fed. Cir. 2001)).) Respondents argue clearly, "CGI's alleged first determination process is never configured to meet limitation 34[b]." (*Id.* at 20.)

Under the third reason, Respondents argue simply:

> CGI did not identify a "first determination process" that is "different" from the "second determination process" as claim 34 requires. CGI's expert, Dr. Direen, asserts that the first determination process occurs when [ ] and the second determination process occurs when [ ]. But the code routines that Dr. Direen identified as [ ] for the first determination process (*i.e.*, [ ]) are found verbatim in the code for his alleged second determination process (*i.e.*, [ ]). Hr'g Tr. at 181:25-182:13.]

(*Id.* at 21.) Respondents then refer to demonstratives which allegedly show, through color coding, how the determination process for when [ ] are the same. (*Id.* at 22 (showing RDX-0417C and citing CPX-0225; CPX-0226; CPX-0217; CPX-0218).) Respondents quote CGI's expert, Dr. Direen, as testifying "all you've shown here is just two – two sections of code that are the same." (*Id.* (citing Hr'g Tr. at 182:14-183:9).) Respondents continue to cite Dr. Direen with:

> Q. Now, each of these sections of code, which you say show the second determination process, are actually found in the code that we looked at previously where the [ ], correct?
>
> A. The code is very similar, but you're -- the door is [ ], and that's what's key here. That's what we're missing.
>
> Q. They're not just similar, right? Each one of these sections of code is found in the other part of the code, correct?
>
> A. Yes.

(*Id.* at 23 (citing Hr'g Tr. at 189:7-189:19).)

Respondents summarize, "[t]hus, the operations used to set [

] are identical to the ones used to set [

]" (*id.* at 24) and argue that CGI cannot pick and choose different portions, of what is a single process, to manufacture an appearance of two different processes (*id.* at 25). Respondents point to one portion of the code in particular, a [ ], as having been omitted by Dr. Direen to create such a difference. (*Id.* (citing Hr'g Tr. at 178:13-179:25).) Respondents then characterize CGI's remaining arguments regarding different lines of code, different conditions, and the effect of the [ ] as irrelevant. (*Id.* at 26.)

Analysis

I find the Respondents' first non-infringement reason is their weakest because it addresses an infringement theory that CGI has not made. For example, Respondents call out one moment from Dr. Direen's hearing testimony as an "admission:"

> At the hearing, Dr. Direen admitted that the [
>
>] (which he claims is the characteristic force value). Hr'g Tr. at 204:1-18.]

[(RRSB1 at 17.)] I do not view this as an "admission." It appears to be exactly CGI's infringement theory where the [ ] variable is the "characteristic force value" which is [ ]. (*See* CIB1 at 38-39; CX-1251C [Direen WS] at Q159.) In this way, Respondents' argument regarding [

]" as unable to meet a limitation requiring updating—misses the mark. CGI does not accuse the [

] as the "characteristic force value."]

I find Respondents' second non-infringement reason to be stronger than the first and ultimately rooted in the legal question of what impact the term "automatically" has on the claim. Respondents essentially argue it means "always." (RRSB1 at 18 ("[a]t the hearing, Dr. Direen admitted that the MAX() function will not always increase what he identified as the characteristic force value").) CGI disputes that meaning as a matter of law, but does not provide its own an alternative interpretation. (*See* CIB1 at 38-40; CRPB1 at 9-12.) Rather, CGI wants me to follow that body of law which states "[i]t is well settled that that an accused device that 'sometimes, but not always, embodies a claim[] nonetheless infringes." (*See* CIB1 at 39 (citing *Broadcom*, 732 F.3d at 1333); CRPB1 at 9-10.)

I find that even if I take CGI up on its offer, the result is non-infringement. In other words, I consider whether the '336 Accused Products "sometimes" "automatically increase. . . when a first condition is met." The answer is no because when the '336 Accused Products [

] it is always possible that [ ] The only "automatic" act under these conditions is that [ ] (CX-1251C [Direen WS] at Q158-159; RX-0228C [Heppe WS] at Q485; *see* CPX-0225; CPX-0226; CPX-0227.) In this way, [ ] is

---

[5] [

]

not a condition which "automatically" results in [ ] and the limitation is not met.

I understand how this approach can be viewed as overly narrow, given the 'sometimes, but not always" law from *Broadcom*, but I find two circumstances that should ameliorate this concern. First, the word "automatically" as used in the claim must be presumed to impart meaning and should not be read out. *Warner-Jenkinson Co., Ind. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 29 (1997) ("[e]ach element contained in a patent claim is deemed material to defining the scope of the patented invention."); *Foremost in Packaging Sys., Inc. v. Cold Chain Techs., Inc.*, 485 F.3d 1153, 1156 (Fed. Cir. 2007) (refusing to read out "together"); *Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361, 1369 (Fed. Cir. 2005) (refusing to read out "preformed").

If the claim had omitted "automatically" and simply read "increasing . . . when a first condition is met," then Respondents would have no defense because, occasionally,

[

] Yet, the patentee included the word "automatically," and I must avoid an interpretation that reads "automatically" out of the claim. As noted above, CGI does not offer its own suggested meaning for "automatically" (*see* CIB1 at 38-40; CRPB1 at 9-12) which makes it difficult to understand how an accused product can meet it.

Second, the restriction brought on by the term "automatically" is counteracted by the breadth of the term "a first condition." In other words, an accused system can have *any* condition or set of conditions (which could collectively be called a "first condition") under which automatically causes the characteristic force value to increase, without further consideration, and meet the limitation. I find CGI most likely recognizes this flexibility when it states, "[t[herefore,

the claims require increasing or decreasing only under *some circumstances* to satisfy the limitations of claim 34." (CRPB1 at 11 (emphasis added).) I find it is CGI's burden and freedom to identify whatever it wants as the "some circumstances" for the recited "first condition" in the claim. Truly, if an accused system operates in a way in which *no* possible set of conditions guarantees, or "automatically" results in, an increased characteristic force value, then it should not, on principle, infringe claim 34 of the '336 patent.

With that said, I make no finding on whether there are *any* possible set of conditions which guarantee an increase [ ] in the '336 Accused Products. I imagine there could be. The barrier to infringement in this case, though, is that CGI has clearly and unmistakably identified the "first condition" as when [ ] (CIB1 at 38; CX-1251C [Direen WS] at Q156.)[6] These two conditions, as CGI itself states, do not guarantee or automatically result in [ ] being increased. (CRPB1 at 12 ("Complainant has identified a first determination process that automatically increases a characteristic force value at least sometimes . . . and a second determination process that automatically decreases a characteristic force value at least sometimes").) For this reason, I find the '336 Accused Products running the C02 version of the code do not infringe claim 34.

I find Respondents' third non-infringement reason to reflect one of the most difficult issues surrounding the '336 patent and claim 34; specifically, what makes one determination

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6 [ ]

process different from another.[7] I find it difficult because the claim recites "increasing a characteristic force value pursuant to a first determination process" and "decreasing the characteristic force value pursuant to a second determination process," and then adds "which second determination process is different from the first determination process." ('336 patent at claim 34.) I find it difficult to imagine how a first process which automatically increases a value could be the exact same (*i.e.*, not different) as a second process which automatically decreases that value, and yet, the patent's drafters seem to have believed it possible and guarded against it by adding the language "which second determination process is different from the first determination process." Again, I must avoid reading out this explicit language in the claim. *Foremost in Packaging Sys., Inc. v. Cold Chain Techs., Inc.*, 485 F.3d 1153, 1156 (Fed. Cir. 2007) (refusing to read out "together"); *Callicrate v. Wadsworth Mfg., Inc.*, 427 F.3d 1361, 1369 (Fed. Cir. 2005) (refusing to read out "preformed").

Forced into this corner, I find, based on the plain language of the claim and a review of the '336 patent specification, the meaning of "which second determination process is different from the first determination process" to be "which second determination process is different in operators or called-upon variables." This comports with, but is not limited to, what is shown in Figure 6 of the '336 patent and described at column 7, line 19 to column 8, line 65.

Moving on, CGI contends three differences between the alleged "first determination process" and "second determination process" to satisfy the claims: (1) the first and second processes "constitute different lines of code;" (2) the presence of [ ] in the second process; and (3) one process occurs when the products are in [ ] and the

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[7] I also note that this non-infringement reason arises by way of the subsequent limitation, 34[c], but Respondents' discussed it in the context of limitation 34[b], so I do as well. (*See* RRSB1 at 21.)

other occurs during [ ] (*See* CRPB1 at 13.)

I do not find differences (1) and (3) to be meaningful or to satisfy the construction I put forward above. Regarding the first, which CGI contends is "the clearest evidence that the processes are different," I find it is the least compelling. It is akin to arguing two copies of the same program are "different" because they are stored on different discs, and is not persuasive at all. Regarding the third, this is nearly as unpersuasive. [

]

(RX-0228C [Heppe WS] at Q414, 418-421.)] These, under CGI's theory of infringement, are components of the "first condition" and "second condition," and rightfully not part of either "determination process." Indeed, if the "first condition" and "second condition" could be rolled into the "first determination process" and "second determination process," then the language "which second determination process is different from the first determination process" would be even more redundant than it already is. I decline to take up such a reading of the claim.[8]

This leaves the second alleged difference—"the [

]" (CRPB1 at 13.) CGI explains in its initial post-hearing brief:

> The source code of the second determination process includes [ ] that is not found in the first determination process. Hrg Tr. (Direen) at 197:2-7; 264:19-25. The [ ] in the second determination process [ ]
> Hrg Tr. (Direen) at 191:14-22; 192:6-21; 264:6-18.]

(CIB1 at 42.) Respondents' defense is straightforward. They contend that this "[ ]" as admitted by CGI's expert, has no effect on the alleged characteristic force value and therefore "does not render the alleged determination processes different from one another." (RRSB1 at 26

[8] This reasoning applies equally to CGI's argument that "[a]nother code difference is the [ ]" (CRPB1 at 13.) These "differences" are already accounted for as the first and second "conditions" required by the claim.

(citing Hr'g Tr. at 198:6-10 and referring to RX-0228C [Heppe WS] at Q506, 507).) CGI does not contest this fact that "[ ] (*See* CRPB1 at 13.)

Upon review of the source code, the operation of the C02 version code is clear. There is [

](CPX-0225 at lines 1653-1660 (annotated); CPX-0226 at lines 1715-1725 (annotated).) In the above excerpt I have placed red brackets showing how [

]

(*Compare* CPX-0225 at line 1658 – CPX-0226 at line 1715 *with* CPX-0226 at line 1723 – CPX-0227 at line 1715; *see also* RDX-0431C.)[9] In other words, [

]

I do not find that this constitutes a "difference" under the spirit of the '336 patent or the

[9] In their demonstratives, the parties often compared CPX-0225 and CPX-0226 to CPX-0217 and CPX-0218. (*See* RRSB1 at 22, 24; CIB1 at 42.) CPX-0217 and CPX-0218 belong to the V26 software, however (*see* CX-1251C [Direen WS] at Q77), so I cite what is the same code but taken from its location within the C02 version (*i.e.*, CPX-0225 to CPX-0227).

construction I adopted above for "which second determination process is different from the first determination process." [ ] is more of a precondition than a part of the determination process because, as Respondents argue and CGI does not dispute, it [ ] (RRSB1 at 26; CRPB1 at 1.) That values comes solely from [ ] (CPX-0226 at lines 1689-1693; CPX-0227 at lines 1756-1760.) Additionally, the system [ ] (CPX-0225 at lines 1659, 1687-1690; CPX-0226 at line 1724; CPX-0227 at lines 1754-1757.) This is significant because CGI argues these are two of the three conditions for the second determination process, and at least one of the conditions for the first. (*See* CIB1 at 38, 40.) Respondents have shown convincingly that, while left out by CGI, the [ ] applies equally to the first process as well. (*See* RRSB1 at 24-25; Hr'g Tr. at 178:13-179:25; CPX-0225 at line 1687.) It is contrary to an ordinary understanding for a step of a process (*e.g.*,[ ]) to begin before its defined preconditions [ ] are met.

The bottom line is, as Respondents allege, "the operations that [ ]" (RRSB1 at 24.) This does not allow for, what the '336 patent describes as, the benefit of having different processes:

> In this embodiment, this step size L is smaller than the step size K used when incrementing the characteristic force value TH_c towards a larger value as described above, and it is at least this difference that distinguishes the second determination process 62 from the first determination process 61. So configured, the operator can track (closely or loosely, depending upon the nature of the force peak excursions) changing force needs and reflect those changes in the excess force threshold value (by, in these embodiments, adjusting a characteristic force value TH_c). *These*

> *processes, however, permit more significant immediate increases in the characteristic force value TH_c than decreases.* This preferred approach aids in ensuring that the operator does not quickly (and possibly inappropriately) reduce the excess force threshold value to a point where the movable barrier cannot be moved without triggering a false obstacle detection event.

('336 patent at 8:50-65 (emphasis added).)

Thus, I find the '336 Accused Products have not been shown to meet the limitations "automatically increasing a characteristic force value pursuant to a first determination process in response to the monitored at least one parameter to provide an updated characteristic force value when a first condition is met" or "which second determination process is different from the first determination process."

iv. Limitation 34[c]

Claim 34 further requires, "automatically decreasing the characteristic force value pursuant to a second determination process, which second determination process is different from the first determination process, in response to the monitored at least one parameter to provide an updated characteristic force value when a second condition is met." ('336 patent at claim 34.) Respondents dispute this limitation is met in the '336 Accused Products.

CGI's position

CGI argues that "the characteristic force value is automatically decreased from a maximum expected motor current to a lower expected motor current" in a second determination process when three conditions are met: (1) [ ]; (2) [ ]; and (3) [ ] (CIB1 at 40 (citing CX-1251C [Direen WS] at Q168, 170; Hr'g Tr. at 248:4-9).) Specifically, CGI explains the process as where the characteristic force value [ ] (*See id.* at 40-41.)

CGI accuses Respondents' defenses as distracting from the facts. (*Id.* at 41.) CGI disputes that the characteristic force value needs to be changed as a result of two different "functions." (*Id.* (referring to RX-0228C [Heppe WS] at Q490, 495).) CGI disputes that, as it understands Respondents to contend, there can be no "overlap" between the two processes, pointing specifically to step 64 in Figure 6 of the '336 patent. (*Id.* (referring to RX-0228C at Q466-470, 491-493).)

CGI asserts "Respondents' last resort was highlighting similarities between the first and second determination processes in the source code." (*Id.*) CGI continues, "[t]he fact remains, CGI identified different lines of the source code as the first and second determination processes that [ ]" (*Id.* (citing Hr'g Tr. at 265:22-266:11; CX-1251C at Q174, 175).) CGI points to Respondents' demonstrative RDX-0429C as showing the processes where "[" (*id.*), and, as shown, "[t]he source code of the second determination process includes a [ ] that is not found in the first determination process" (*id.* at 42 (citing Hr'g Tr. at 197:2-7, 264:19-25)). The result, according to CGI, is that "[t]he [ ] in the second determination process allows for [ ]" (*Id.* (citing Hr'g Tr. at 191:14-22, 192:6-21, 164:6-18).) CGI contends this difference is dispositive. (*See id.* at 42-43.)]

CGI's reply brief arguments for limitation 34[c] are captured in its discussion of limitation 34[b] above. (*See* CRPB1 at 9.)

Respondents' position

Respondents largely argue that this limitation is not met for the same reasons as limitation 34[b], in part because the second determination process is no different than the first. (RRSB1 at 26.) Respondents add that the identified second determination process also does not

"decrease" or "update" a characteristic force value because it "merely involves [

]" (*Id.* at 27.) Respondents argue there is a situation here where the [

]" (*id.* (citing Hr'g Tr. at 213:1-15)), and that the [

] (*id.* (citing Hr'g Tr. at 215:11-15, 218:23-219:9; CX-1251C at Q74)). Respondents conclude with:

> Finally, even if [ ] is somehow deemed to constitute changing and updating these values, there is still no selection in response to a monitored parameter that corresponds to force. Rather, as CGI acknowledges, the [
>
>] CGI's IPHB at 40; Hr'g at 209:6-17; *see also* RX-228C at Q&A 495-97; RDX-249C. At the hearing, Dr. Direen admitted the [ ] does not constitute a monitored force parameter and thus cannot be the monitored parameter required by claim 34. Hr'g Tr. at 210:8-17.

(*Id.*)

Analysis

As CGI suggests, much of the discussion for limitation 34[b] applies equally to limitation 34[c]. Due to the nature of the [ ], the '336 Accused Products do not "sometimes" "automatically decreas[e] the characteristic force value pursuant to a second determination process." The [

] which CGI's expert conceded. (Hr'g Tr. at 213:1-15.) Further, as explained above, that second determination process by which [ ] is the same as the first determination process:

[

]

(CPX-0226 at lines 1687-1691.)

[

]

(CPX-0227 at lines 1754-1758.)

Thus, I find the '336 Accused Products have not been shown to meet the limitation "automatically decreasing the characteristic force value pursuant to a second determination process, which second determination process is different from the first determination process, in response to the monitored at least one parameter to provide an updated characteristic force value when a second condition is met."

v. Limitation 34[d]

Claim 34 further requires, "using the updated characteristic force value to determine a corresponding excess force threshold value." ('336 patent at claim 34.) I find credible and unrebutted testimony demonstrates that the '336 Accused Products [

] to determine the excess force threshold. (CX-1251C [Direen WS] at Q185.)

vi. Limitation 34[e]

Claim 34 further requires, "determining when force in excess of the excess force threshold value is being applied to the movable barrier." ('336 patent at claim 34.) I find credible and unrebutted testimony demonstrates that the '336 Accused Products [

] to

determine if excess force has been applied. (CX-1251C [Direen WS] at Q186-187.) It should be noted that the "[

] (*see* CX-1251C at Q88), and this is its first appearance in CGI's infringement theory for the C02 products, whereas for the V26 products and claims 15 and 19, the "[

] served as the cornerstone "at least one parameter that corresponds to force as applied to a movable barrier." (*Compare* CIB1 at 33-43 *with* CIB1 at 19-27.) I find this to be another indicator of how the [

]

vii. Limitation 34[f]

Finally, claim 34 requires, "taking a predetermined action when excess force is being applied to the movable barrier." ('336 patent at claim 34.) I find credible and unrebutted testimony demonstrates that the '336 Accused Products [

] when the threshold value is reached—a basic safety feature. (CX-1251C at Q188, 189.)

All taken together, I find CGI has not proven by a preponderance of the evidence that the '336 Accused Products infringe claim 34 of the '336 patent.

b. Indirect Infringement

CGI argues that "Respondents' activities constitute induced infringement and contributory infringement" of the '336 patent. (CIB1 at 45.) CGI argues that Respondents have been aware of the'336 patent "[

] (*Id.* (citing CX-1144C [Ben-David Dep. Tr.] at 35:20-36:20; CX-1251C [Direen WS] at Q206).) CGI argues the evidence shows that "Respondents' employees emailed each other [

] which constitutes specific knowledge of the '336 patent. (*Id.* at 45-46.) CGI

then argues that Respondents "encourage the infringing use of the Accused Ryobi Products in several ways," such as through discussions with customers on "performance applications of the Ryobi GDOs," as well as "product manuals and instructional videos that instructs end users to operate the Accused Ryobi Products in a manner that practices the asserted claims of the '336 patent." (*Id.* at 46 (citing CX-1251C at Q209, 213; CPX-0029C; CPX-0030C; CPX-0031C; CPX-0032C; CPX-0033C; CPX-0122C; CPX-0123C; CPX-0124; CPX-0125C; CPX-0126C; CPX-0127C; CPX-0128; CPX-0006C; CPX-0178C; CX-0419; CX-1048; CX-1050; CX-0016C; CX-0364; CX-0424C; CX-0439C; CX-1152C at Nos. 46, 48).) CGI alleges that "these manuals instruct the user to use and test the accused obstacle detection feature." (*Id.* (citing CX-1251C at Q213; CX-0364; CX-0049C; CX-0053; CX-0054; CX-0055C; CX-0056C; CX-0057C; CX-0058C; CX-0361; CX-0369C).) CGI concludes by stating that the '336 Accused Products are not suitable for any substantial noninfringing use because "[t]he Accused Product's firmware is specifically adapted to [

] (Id. at 46-47 (citing CX-1251C at Q210).)

In their responsive briefing, Respondents do not address these claims of indirect infringement. (*See* RRSB1.)

A finding of indirect infringement requires a predicate finding of direct infringement by any actor. *Met–Coil*, 803 F.2d at 687. As discussed above, I do not find the '336 Accused Products directly infringe the '336 patent. Thus, I find Respondents do not indirectly infringe either.

E. Domestic Industry - Technical Prong

CGI argues the '336 Domestic Industry Products practice claims 12, 14, 15, 19, and 34 of

the '336 patent. (CIB1 at 47.)[10] Generally, CGI argues "[t]he Chamberlain Products monitor the force applied to the door and reverse the door when applied force exceeds a threshold" and that this features is internally called "AutoForce." (CIB1 at 47-48.) CGI claims AutoForce "adjusts the force reversal threshold to be slightly above the amount of force required to move the door along its travel path" and does so "after each successful full open or close cycle." (*Id.* at 48.) According to CGI, "[t]he adapted values are updated based on different rules depending on whether the measured force is greater than or less than the stored adapted value." (*Id.* at 48.)

Respondents argue that CGI relies on a representative-product approach to showing this practice but fails to provide sufficient evidence in support—particularly for twelve '336 Domestic Industry Products for which, Respondents allege, no evidence has been put on. (*See* RRSB1 at 32 (referring to the HD220P, HD720EV, LW3000EV, LW3500EV, 349544EV, WD962KLD, Airman II, Corporal II, Pilot II, 8350, Admiral II, and Ultra II products).) Respondents also argue that "[a] close analysis of the source code is necessary to determine whether a given product practices the claims at issue," but claim CGI's expert relied on old, outdated, code to form his opinions due to [

] (*Id.* at 33-35 (referring to RX-0228C [Heppe WS] Q527-534).) Respondents also point to an apparent admission by Dr. Direen, that he is "unable to map which domestic industry products use which version of the code." (*Id.* at 34-35 (citing Hr'g Tr. at 243:5-8, 240:11-13).) Generally, and as CGI notes, Respondents do not argue that the '336 Domestic Industry Products *do not* practice claims of the '336 patent—only that they have not been shown to or have not been "proven" to do so. (*See* CIB1 at 47; RRSB1 at 32-33.)

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[10] Independent Claims 12 and 15 are not alleged to be practiced *per se*, but are implicated by assertion of practice of dependent claims 14 and 19, respectively.

In its reply brief, CGI maintains its position that its expert, Dr. Direen, did not rely on "representative products or representative engineering specifications" to form his opinions. (CRPB1 at 16.) Rather, according to CGI, "Dr. Direen provided an example of his methodology using two of the product requirements documents which specifically identify the products and specifications related to those products." (*Id.* (referring to CX-1251C at Q225, 230).) CGI also disputes that Dr. Direen "had to reply on source code to form his opinions," especially with respect to claim 34, because Dr. Direen "testified that the specifications explained the increasing and decreasing processes within the domestic industry products." (*Id.* (citing CX-1251C at Q290).) CGI also dismisses Respondents' concerns over the source code discussed by Dr. Direen as irrelevant because Dr. Direen, again, did not rely on it when forming his opinions, and moreover, comment blocks in that code and filenames have no bearing on the functionality of the code. (*Id.* at 16-17.) Finally, CGI argues that source code was needed to form an opinion about the Accused Products, as opposed to the Domestic Industry Products, because TTi admitted it did not have access to its own code and thus could not have created technical specifications in the way CGI could and does. (*Id.* at 17.)

Keeping in mind the ultimate burden falls upon CGI to show it has practiced each limitation of one or more claims of the '336 patent, *Microsoft,* 817 F.3d at 1313 (quoting *Southwall Techs*, 54 F.3d at 1575), I first address Respondents' criticisms.

Regarding source code, I disagree with Respondents that "given the importance of the source code to Dr. Direen's opinions regarding the alleged DI products, his failure to link the source code to any specific CGI product is fatal to his analysis." (RRSB1 at 35.) It is not clear how important the source code was to the formation of Dr. Direen's opinions. Dr. Direen gave direct testimony that he formed his opinion before reviewing the code. (CX-1251C at Q235-

239.) Also, the elements of the algorithm which is the '336 patent are described at a very high and ambiguous level—"first determination process," "first condition," "at least one parameter that corresponds to force," "second process is different from the first determination process," "taking a predetermined action," etc. (*See, e.g.*, '336 patent at claim 34.) This allows for similar high-level descriptions to sufficiently show practice of the claim; source code is not necessarily needed here.

Additionally, and perhaps more importantly, Respondents do not allege that either autoforce.c or autoforce_old.c fail to perform the steps Dr. Direen ascribes to them. (*See* RRSB1 at 32-35.) Thus, to the extent there is a meaningful difference between the two versions—one that would alter whether or not a '336 patent claim is practiced—Respondents have not identified it. (*See id.*)

It also stands in stark contrast to the credible testimony of Dr. Direen who recounted how [

] (Hr'g Tr. at 240:4-8), and in response to a question on which code was used in any given product, stated "No. That's why I evaluated both, to verify that both had effectively the same functionality." (*Id.* at 242:19-21). I also found CGI witness and '336 patent inventor, James Fitzgibbon, to be a credible witness. In his direct testimony he explains succinctly that the invention of the '336 patent is implemented in CGI's products through a feature known as "Adaptive AutoForce." (CX-1256C at Q74.) Each of the filenames considered by Dr. Direen are entitled "Autoforce." Mr. Fitzgibbon also states that "[b]ecause of how critical we believe this invention is to safety, all of our GDOs and gates use the Adapative [sic] AutoForce feature." (*Id.* at Q75.) I agree that the '336 patent is related to safety (*see* CX-1251C at Q51) and given

how it is algorithmic in nature, it is credible that CGI places it into many if not all of its products, either through [ ] Respondents have not pointed to anything in the Record to overcome the evidence CGI has presented to show the '336 Domestic Industry Products employ AutoForce.

Regarding representative products, after a thorough review of Dr. Direen's written testimony, I can understand why Respondents allege a representative product-approach has taken place. In Dr. Direen's limitation-by-limitation analysis, some of his answers cite and identify documents according to their respective product model number (*see, e.g.*, CX-1251C at Q252-253 (identifying CX-0069C with product number "8550W")), whereas other answers refer to smaller collections of documents and identify them by their CGI-internal "Document" number (*see, e.g.*, *id.* at Q24 (identifying CX-1020C with document number [ ] as found on the exhibit's first page)). The former technique suggests a true product-by-product claim analysis, while the latter suggests a representative product or some other all-in-one approach.

Classifying Dr. Direen's approach as representative product-based or not is not especially material, however. What matters is whether he fulfills CGI's burden on technical prong domestic industry, which is to show each and every limitation of one or more '336 patent claims is practiced by a 336 Domestic Industry Product. On this point, Respondents' criticisms of CGI's technical prong are telling in exactly the way CGI points out—"Respondents *did not challenge a single limitation* of claims 14, 19, or 34 or the claims from which they depend as being not satisfied by CGI's products." (CIB1 at 47.)

Hence, based on CGI's unrebutted claims and the evidence provided, I find it more likely than not that the '336 Domestic Industry Products practice claims 12, 14, 15, 19, and 34 of the '336 patent through the feature known as "Autoforce." (*See* CX-1256C [Fitzgibbon WS] at Q74,

75; CX-1251C [Direen WS] at Q220-222, 240; RX-0228C [Heppe WS] at Q521-534).) I will note that this feature is very different than the processes within Respondents' Accused Products discussed above and found not to infringe.

1. Claims 12 and 14

The evidence adduced at the hearing shows the '336 Domestic Industry Products practice independent claim 12 of the '336 patent.

Claim 12 requires, "[a] method for use with a movable barrier operator having both a user-initiable dedicated learning mode of operation and a normal mode of operation." ('336 patent at claim 12.) I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products are garage door openers, and thus, movable barrier operators. (CX-1251C [Direen WS] at Q252; CX-1256C [Fitzgibbon WS] at Q43-45.) I also find credible and unrebutted testimony shows the '336 Domestic Industry Products have user initiated learning and normal modes of operation. (CX-1251C at Q253, 254; *see, e.g.*, CX-0068C at 3263-66; CX-0179C at 47001-05; CX-0069 at 3360-61; CX-0093 at 4503-4.)

Claim 12 further requires, "during the normal mode of operation: monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move between at least a first position and a second position." ('336 patent at claim 12.) I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products implement the Autoforce feature during a normal mode of operation (CX-1251C at Q254-256; *see, e.g.*, CX-0068C at -3279; CX-0179C at -47000-05; CX-0183C at -47298-303; CX-0072C at -3403-4; CX-0187C at -47645), and, during this time, the motor's (which moves the door up and down) current or RPM are monitored (CX-1251C at Q257-263; *see, e.g.*, CX-0068C at -3279; CX-0179C at -47000; CX-0183C at -47294, -47298-303; CX-0072C at -3403-4; CX-0187C at -47645). Motor current or speed (*e.g.*, RPM) are understood by

the experts in this investigation to fairly represent the force applied to a barrier to make it move. (*See, e.g.*, CX-1251C at Q257, 258; RX-0001C [Pedram WS] at Q254.)

Claim 12 further requires, "automatically changing an excess force threshold value in response to the monitored at least one parameter to provide an updated excess force threshold value." ('336 patent at claim 12.) I find and unrebutted credible testimony demonstrates that the '336 Domestic Industry Products utilize an excess force threshold data value to determine when an obstruction or other unsafe condition has been met, and that this threshold is based on the stored peak motor current or RPM measured, which is itself updated during normal operation. (CX-1251C at Q264-266; *see, e.g.*, CX-0068C at 3279; CX-0179C at 47000; CX-0183C at 47298-303; CX-0072C at 3403-4; CX-0187C at 47645.)

Claim 12 further requires, "using the updated excess force threshold value and the monitored at least one parameter to determine when excess force is being applied to the movable barrier via the movable barrier operator." ('336 patent at claim 12.) I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products can determine when a measured current and/or RPM value exceeds a threshold value thereby signaling excess force is applied to the barrier, occasionally referred to as a "force event." (CX-1251C at Q267-268; *see, e.g.*, CX-0068C at -3279; CX-0179C at -47000; CX-0183C at -47298-303; CX-0072C at -3403-4; CX-0187C at -47645.)

Claim 12 finally requires, "taking a predetermined action when excess force is being applied to the movable barrier via the movable barrier operator." ('336 patent at claim 12.) I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products reverse the direction of the barrier when the threshold value is reached—a basic safety feature. (CX-1251C at Q269-270; *see, e.g.*, CX-0068C at -3279; CX-0179C at -47000; CX-0183C at -

47298-303; CX-0072C at -3403-4; CX-0187C at -47645.)

Claim 14 depends from claim 12 and requires:

> [F]urther comprising monitoring operation of a motor and wherein automatically changing an excess force threshold value in response to the monitored at least one parameter to provide an updated excess force threshold value further includes using a motor operation compensation value to automatically change the excess force threshold value.

('336 patent at claim 14.) I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products monitor [

] (CX-1251C at Q271-272; *see, e.g.*, CX-0068C at -3279; CX-0183C at -47300-301; CX-0072C at -3404; CX-0187C at -47645.) While CGI does not expressly indicate where [

] I find it more likely than not that it is taken on or near the motor so that it may accomplish the stated goal of

[ ]

Thus, I find CGI has proven by a preponderance of the evidence that the '336 Domestic Industry Products practice claims 12 and 14 of the '336 patent.

2. Claims 15 and 19

The evidence adduced at the hearing shows the '336 Domestic Industry Products practice independent claim 15 of the '336 patent, which is very similar to claim 12 discussed above.

Claim 15 requires, "A method for use with a movable barrier operator." ('336 patent at claim 15.) As with the similar preamble to claim 12, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q273.)

Claim 15 further requires, "monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move." ('336 patent at

claim 15.) As with the similar limitation in claim 12, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q274.)

Claim 15 further requires, "automatically changing a characteristic force value in response to the monitored at least one parameter to provide an updated characteristic force value as a function of a difference between the characteristic force value and the at least one parameter." ('336 patent at claim 15.) I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products record and then store [ ] during a normal mode of operation, and when a newly measured [ ] is greater than the stored value, replace the stored value with the newly measured value. (CX-1251C at Q275-278; *see, e.g.*, CX-0068C at -3279; CX-0179C at -47000; CX-0183C at -47300; CX-0072C at -3403-4; CX-0187C at -47645.) This act of replacement of a stored value (*i.e.*, the "characteristic force value") with the newly measured value (*i.e.*, the "monitored at least one parameter") is a form of updating "as a function of the difference" between the stored and measured values (*e.g.*, replacing A with B is the same as updating A based on the difference between B and A).

I note here that I find the limitation is met under the construction I concluded upon in Section IV.C. above. I find that it would also be *literally* met under either of CGI's or Respondents' proposed constructions as well.[11] The act of replacing the stored value with the newly measured value meets CGI's broader construction—"updated characteristic force value based on a *comparison of values associated* with the characteristic force value and the at least

[11] I emphasize "literally" because CGI's post-hearing brief suggests literal infringement while its expert, Dr. Direen, states clearly "Yes. Under Respondents' construction, the Chamberlain Domestic Industry Products satisfy this limitation under the *doctrine of equivalents*." (CX-1251C at Q278 (emphasis added).)

one parameter"—and Respondents' narrower construction—"where the updated characteristic force value *differs* from the previous characteristic force value *by the amount of the difference* between the previous characteristic force value and the monitored at least one parameter."

Moving on, Claim 15 further requires, "using an updated characteristic force value to determine a corresponding excess force threshold value." ('336 patent at claim 15.) As discussed in claim 12, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products base their excess force threshold values on the [

] which are themselves updated from time-to-time. (CX-1251C at Q279, 280; *see, e.g.*, CX-0068C at -3279; CX-0179C at -47000; CX-0183C at -47298-303; CX-0072C at -3403-4; CX-0187C at -47645.)

Claim 15 further requires, "determining when force in excess of the excess force threshold value is being applied to the movable barrier." ('336 patent at claim 15.) As with the similar limitation in claim 12, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q281.)

Claim 15 finally requires, "taking a predetermined action when excess force is being applied to the movable barrier." ('336 patent at claim 15.) As with the similar limitation in claim 12, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q282.)

Claim 19 depends from claim 15 and requires:

> [F]urther comprising monitoring operation of a motor and wherein using an updated characteristic force value to determine a corresponding excess force threshold value includes using an updated characteristic force value and a motor operation compensation value to determine a corresponding motor operation-compensated excess force threshold value.

('336 patent at claim 19.) As with the similar limitation in claim 14, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation.

(*See* CX-1251C at Q283, 284.)

Thus, I find CGI has proven by a preponderance of the evidence that the '336 Domestic Industry Products practice claims 15 and 19 of the '336 patent.

3. Claim 34

The evidence adduced at the hearing shows the '336 Domestic Industry Products practice independent claim 34 of the '336 patent.

Claim 34 requires, "A method for use with a movable barrier operator." ('336 patent at claim 34.) As with the similar limitation in claims 12 and 15, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q285.)

Claim 34 further requires, "monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move." ('336 patent at claim 34.) As with the similar limitation in claims 12 and 15, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q286.)

Claim 34 further requires, "automatically increasing a characteristic force value pursuant to a first determination process in response to the monitored at least one parameter to provide an updated characteristic force value when a first condition is met." ('336 patent at claim 34.) As discussed above, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products [ ]values during a normal mode of operation, and when [ ] replace the[ ] (CX-1251C at Q287, 289; *see, e.g.*, CX-0068C at -3279; CX-0179C at -47000; CX-0183C at -47300; CX-0072C at -3403-4; CX-0187C at -47645.) This act of replacement is a form of "increasing a characteristic force value pursuant to a first

determination process" and it happens when a first condition, [

] is met.

Claim 34 further requires, "automatically decreasing the characteristic force value pursuant to a second determination process, which second determination process is different from the first determination process, in response to the monitored at least one parameter to provide an updated characteristic force value when a second condition is met." ('336 patent at claim 34.) I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products[

] (CX-1251C at Q290, 291; *see, e.g.*, CX-0068C at -3279; CX-0179C at -47000; CX-0183C at -47300; CX-0072C at -3403-4; CX-0187C at -47645.) Under the [

] (CX-1251C at Q291; CX-0183C at 47300.) This decrease by a fixed amount is a different "determination process" than the exact-replacement of values that occurs when [ ] and it only happens when the stored value is greater than the measured value, which is a different prerequisite condition.

Claim 34 further requires, "using the updated characteristic force value to determine a corresponding excess force threshold value." ('336 patent at claim 34.) As with the similar limitation in claims 12 and 15, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q292.)

Claim 34 further requires, "determining when force in excess of the excess force threshold value is being applied to the movable barrier." ('336 patent at claim 34.) As with the similar limitation in claims 12 and 15, I find credible and unrebutted testimony demonstrates that

the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q293.)

Claim 34 finally requires, "taking a predetermined action when excess force is being applied to the movable barrier." ('336 patent at claim 34.) As with the similar limitation in claims 12 and 15, I find credible and unrebutted testimony demonstrates that the '336 Domestic Industry Products meet this limitation. (*See* CX-1251C at Q294.)

Thus, I find CGI has proven by a preponderance of the evidence that the '336 Domestic Industry Products practice claim 34 of the '336 patent.

F. Validity

1. 35 U.S.C. § 101

As noted above, at the time of the evidentiary hearing on the '336 patent, the parties had already fully briefed Respondents' motion for summary determination of invalidity of the '336 patent under 35 U.S.C. § 101, and I was approaching finality on my written order. I instructed the parties that they could largely leave alone that topic following the evidentiary hearing and dedicate their post-hearing briefs to other topics. (Hr'g Tr. at 654:19-22, 657:12-24.) Below, I summarize the parties' arguments from the summary determination briefing, and supplement it where appropriate with post-hearing brief content.

a. Respondents' Position

Respondents describe the '336 patent as "a method of updating an 'excess force threshold value' for a garage door opener or barrier movement operator ('BMO') on an ongoing basis" where "an 'excess force threshold value' is a threshold value or limit for determining whether the BMO's motor is exerting too much force." (R101B at 4.) Respondents describe the point of novelty of the '336 patent as updating this threshold value during the normal mode of operation of the BMO as opposed to only during a distinct learning mode. (*See id.* at 4-5.) Essentially, according to Respondents:

> In other words, the alleged invention of the '336 patent merely takes a conventional method that was performed during the learning mode and/or manually performed by the user during the normal mode of operation, and instead performs it automatically during the normal mode of operation. At bottom, the '336 patent is drawn to nothing more than the abstract concept of automatically updating an excess threshold value during the normal mode of operation

(*Id.* at 5-6.)

Regarding step one of *Alice*, Respondents argue "[a]ll asserted claims of the '336 patent are 'on their face' drawn on the abstract idea of automatically updating an excess force threshold value for a BMO." (*Id.* at 6.) Respondents argue this is the direction of independent claim 15, and then assert the challenged claims 19, 20-23, and 34 "are directed to the same abstract idea" with the difference being "*how* the claimed methods calculate an excess force threshold value." (*Id.* at 7 (emphasis in original).) Respondents urge that "the asserted '336 patent claims simply recite a commonplace calculation for updating a threshold value which, under well-settled Federal Circuit precedent, is a patent-ineligible abstract idea." (*Id.* (citing *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014)).) Respondents also analogize the challenged claims to those invalidated in *Parker v. Flook*, 437 U.S. 584 (1978) (*id.* at 8), and argue the claimed methods are "mental processes that 'can be performed in the human mind'" (*id.* at 9 (citing *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1376 (Fed. Cir. 2011))). Regarding the field of art, Respondents argue "[t]he asserted claims are no less abstract because they recite methods 'for use with' a BMO." (*Id.* at 10 (referring to *Alice*, 134 S. Ct. at 2358-59).)

Regarding step two of *Alice*, Respondents contend that "[n]othing in the asserted claims amounts to an inventive concept sufficient to transform the abstract idea of updating an excess force threshold value into a patent-eligible invention." (*Id.* at 11.) Respondents' argument here focuses on the purported ability of a user to manually perform the steps now claimed by the '336

patent and the patent's admissions to this effect. (*See id.* at 11-13.) Respondents state, "[j]ust as the test-data gathering and application steps in *Grams* failed to confer patentability, the force-data gathering and application steps here likewise fail to impart an inventive concept." (*Id.* at 13 (referring to *In re Grams*, 888 F.2d 835 (Fed. Cir. 1989)).) Effectively, "[t]he only purported novelty of the asserted '336 patent claims lies in *automatically* performing these conventional steps in the normal mode of operation—*i.e.*, on a *continuous* basis . . . But merely automating a process that was previously performed manually does not transform an abstract idea into a patentable invention." (*Id.* at 13.)

Respondents conclude to argue "the asserted claims of the '336 patent do not recite an inventive concept merely because they are limited to use with a barrier movement operator. The Federal Circuit has repeatedly explained that limiting the use of an abstract idea to a particular technological environment is 'insufficient to save a claim.'" (*Id.* at 15 (citing *Ultramercial*, 772 F.3d at 716).)

In their post-hearing brief, Respondents argue that "[t]he '336 patent claims do not require novel or specialized BMO components. On the contrary, the '336 patent describes the BMO components as 'elements [that] are generally well understood in the art and hence additional description will not be presented here.'" (RIB1 at 14 (citing '336 patent at 4:31-46).) Respondents repeat that "[e]ven if the asserted claims did require a physical BMO (they do not), implementing an idea in a physical device cannot confer patentability." (*Id.* (citing *Alice*, 134 S. Ct. at 2358).) Respondents also suggest that the holding in *In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607 (Fed. Cir. 2016), is "particularly instructive" in that it rejected "an identical argument" to that which CGI makes regarding the '336 patent requiring "real-world physical moveable barrier operators" and "real-world" actions. (*Id.* at 15.) Respondents continue to

undercut CGI's claim of similarity with *Diamond v. Diehr*, 450 U.S. 175 (1981) by stating "[i]n sharp contract [to *Diehr*], the "'336 patent does not claim 'otherwise statutory' subject matter; it claims only the abstract idea of automatically updating an excess force threshold 'for use with' a generic BMO." (RIB1 at 17.) Respondents then assert the goal of the '336 patent is to avoid the need to *manually* set force threshold limits while arguing that "automating conventional activities using generic technology does not amount to an inventive concept." (RIB1 at 17-18 (citing, *inter alia*, *LendingTree, LLC v. Zillow, Inc.*, 656 Fed. Appx. 991, 996-97 (Fed. Cir. 2016)).) Respondents conclude their brief to note that patent eligibility is not conferred by the "'regular (or essentially constant)' performance of a conventional process" under *Bancorp Servs. LLC v. Sun Life Assur. Co. of Can.*, 687 F.3d 1266, 1277-78. (*Id.* at 18 (citing '336 patent at 3:12-17).)

b. CGI's Position

CGI asserts the '336 patent "addresses issues in movable barrier operators used to control operation of a motor that applies force to a movable barrier to move the movable barrier between positions." (C101B at 10.) In particular, "the '336 Patent can be accurately described as being directed to controlling operation of a movable barrier, and particularly directed to detecting the presence of an obstacle using an excessive force threshold." (*Id.*)

CGI argues that the improvement offered by the '336 patent involves a "'characteristic force value' (TH_C) that is automatically changed in response to 'changing conditions regarding the application of force during normal operation.'" (*Id.* at 11-12.) CGI goes on to describe the process by which the characteristic force value is updated. (*See id.* at 12-13.)

Regarding step one of *Alice*, CGI first describes the "direction" of the '336 patent claims as "directed to methods of operating physical moveable barrier operators and are therefore very similar to the claims found patent eligible in *Diehr*—which used a mathematical formula to

control movement of injection mold pieces." (*Id.* at 13 (referring to *Diehr*, 450 U.S. at 192).) Regarding claim 15, from which the identified claims depend, "recites actions performed by a real-world physical moveable barrier operator (such as opening or closing the garage door) in response to detecting excess force that involve automatically changing a characteristic force value and determining an excess force threshold value using an updated characteristic force value." (*Id.*) Moving on, "independent claim 34 recites a real-world physical moveable barrier operator performing actions in response to excess force that involves automatically changing a characteristic force value and determining an excess force value using an updated characteristic force value." (*Id.* at 14.)

CGI then criticizes Respondents for "never" mentioning the *Diehr* decision, and instead looking to *Flook* and *Benson*, which were distinguished by *Diehr*. (*Id.* at 15.) CGI argues Respondents' challenge "can be denied on this basis alone." (*Id.*) CGI contends that "even if the '336 Patent claims were found to involve a mathematical formula, as Respondents allege, the process of claims 15, 19-23, and 34, implements such a formula in the real world process of operating a moveable barrier operator . . . ." (*Id.*) CGI then, in turn, distinguishes *Flook* with "the claim at issue in *Flook* was directed to using numbers to calculate a number, and nothing more" and leverages *Thales Visionix* to argue that under a "modern day Alice test," the '336 patent's claims are directed to "an improvement in the operation of movable barriers, not a mathematical formula." (*Id.* at 16.) CGI repeats the comparison to the claims at issue in its own *Linear* decision[12] and that of *Enfish*. (*Id.* at 16-17.) Indeed, CGI argues that the '336 patent claims are similar to those of *Enfish* in that "the plain focus of the claims is on an improvement

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[12] *Chamberlain Group v. Linear LLC*, 114 F. Supp. 3d 614, 625 (N.D. Ill. 2015).

to" movable barrier systems, and "not on economic or other tasks for which a computer is used in its ordinary capacity." (*Id.* at 17 (internal citation omitted).)

CGI finally criticizes Respondents' "mental processes" argument as failing because it addresses only limited features of the identified claims (*id.* at 19) and Respondents' use of the specification to demonstrate that the claims are just the automation of a prior art knob-turning technique (*id.* at 20-21). Key to most of CGI's discussion is the idea that "the '336 Patent claims are clearly limited to a moveable barrier operator." (*Id.* at 21.)

Regarding step two of *Alice*, CGI again argues that claims 19-23 and 34 are "'necessarily rooted' in movable barrier systems 'in order to overcome a problem specifically arising in the realm of" movable barrier systems." (*Id.* at 22 (referring to *DDR Holdings*, 773 F.3d at 1257).) According to CGI, each of the claims recites "a specific, discrete implementation" of automatically updating an excess force threshold value" (*id.*) and there is no pre-emption concern because the techniques of the '336 patent can be used "alone, or as a complement to one or more of the prior techniques" of force-setting. (*See id.* at 23.)

In its post-hearing brief, CGI promotes Figure 2 of the '336 patent as demonstrating "a function which the patent laws were designed to protect." (CRSB1 at 9.) CGI continues:

> Indeed, if the '336 patent claims did not concern measuring physical properties relating to and affecting the motor, the hearing transcript would not have been replete with the discussion of measuring physical values that turn transistors on and off, that allow current to flow to a motor, that change the speed of a motor, that affect force, and that ultimately move a garage door.

(*Id.*) CGI disputes that it has ever conceded or acknowledged, as Respondents may have suggested, that the '336 patent claims are directed to an abstract idea. (*Id.* at 9-10.) CGI claims that "the '336 patent does not claim automation of a prior manual system" because a user does not "measure a 'parameter that corresponds to force as applied to a moveable barrier' or

'determine when force in excess of the excess force threshold value is being applied to the movable barrier'" (*id.* at 10, 20-21), nor does the '336 patent invention "describe automatically adjusting knobs of a user-adjustment interface" (*id.* at 20).

Regarding an *Alice* step one analysis, CGI then claims that Respondents' position is that "any claim to an algorithm cannot be statutory" which is a "serious misstatement of law and logic" because "all method claims are algorithms, recited as a series of steps. The fact that claims are directed to an algorithm does nothing to advance or detract from the eligibility analysis." (*Id.* at 13.) In numerous places, CGI argues plainly that claims, like those of the '336 patent, are patent eligible any time they "improve[] an existing technological process." (*See, e.g.*, *id.* at 14 (referring to *Diehr*, 134 S. Ct. at 2358).)

Regarding an *Alice* step two analysis, CGI argues:

> That is, absent the existence of motor-operated movable barrier systems, the technical problem that the claims of the '336 patent address, and the technical solution they provide, would not exist. As established in the '336 patent, prior movable barrier systems having static, and/or manually updated excess force threshold values are unable to account for variance in physical dimensions of installations, variance in the physical interface between the barrier and its corresponding track or pathway, variance in operating environment, such as temperature, as well as variance in force measurements and/or behaviors due to changes in physical conditions, such as motor age, and/or how recently the motor operated.

(*Id.* at 16.) Regarding Respondents' selected caselaw, CGI suggests that "[t]he claims of the '336 patent are distinct from those at issue in these cases in that the real-world, physical components *implicated by the claims* are part-and-parcel of the technical solution the claims provide to the technical problem of barrier movement operators. . . ." (*Id.* at 18 (emphasis added).)

CGI continues "[i]n contrast, the focus *of the patentee* and of the claims of the '336 patent is squarely on an improved barrier movement system, and not some trivial use of movable

barriers, or movable barrier operators" (*id.* (emphasis added)), and:

> [T]he '336 patent is deeply rooted in measuring and compensating the physical aspects of the barrier movement system (e.g., "the force sensor 13 comprises a mechanism (such as a current-sensing resistor) to detect current flow through the motor 11 (in general, current flow through a motor will correspond to loading and hence will tend to provide a relatively reliable indication of force being exerted by the motor)." JX-1 at 4:53-60.

(*id.* at 19). CGI also proposes the '336 patent claims would pass an eligibility test whereby if the "real-world physical components" recited in the claims were extracted, the remaining algorithm limitations would be meaningless. (*Id.* at 19-20.) CGI concludes, as it states many times over, that the '336 patent "provides a technical solution to a technical problem." (*Id.* at 20.)

On September 21, 2017, CGI filed a notice of supplemental authority on this topic, providing me with *Visual Memory LLC v. Nvidia Corp.*, No. 2016-2254 (Fed. Cir. August 15, 2017), where, according to CGI, "a claim that was found to recite generic and conventional computer components" was held eligible under Step One of the *Alice* test. (EDIS Doc. No. 623537 at 1.)

c. Analysis

I agree with the Respondents that, under the *Alice* framework, the '336 patent claims are directed to an abstract idea and do not consist of eligible application of that idea.

Alice Step One

Independent claim 15 of the '336 patent recites:

> 15. A method for use with a movable barrier operator, comprising:
>
> monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move;
>
> automatically changing a characteristic force value in response to the monitored at least one parameter to provide an updated characteristic force value as a function of a

> difference between the characteristic force value and the at least one parameter;
>
> using an updated characteristic force value to determine a corresponding excess force threshold value;
>
> determining when force in excess of the excess force threshold value is being applied to the movable barrier;
>
> taking a predetermined action when excess force is being applied to the movable barrier.

('336 patent at claim 15.) Generally, this claim presents a method used for keeping the barrier movement operator in safe working conditions. This method arguably takes place entirely within a controller or general-purpose processor, and involves: (1) monitoring data; (2) updating a first stored data value according to a specific rule; (3) determining a second stored data value; (4) comparing data values; and (5) taking an action in response to the comparison. I need look no further than the language of this claim to determine that it is directed to a software-based routine which could take place entirely within a controller or other general-purpose processor.

Taking a cue from CGI and its proffered *Linear* decision, claim 15 lines up squarely with the flowchart presented in Figure 2 of the '336 patent where there is nothing structural at all shown:

15. A method for use with a movable barrier operator, comprising:
monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move;
automatically changing a characteristic force value in response to the monitored at least one parameter to provide an updated characteristic force value as a function of a difference between the characteristic force value and the at least one parameter;
using an updated characteristic force value to determine a corresponding excess force threshold value;
determining when force in excess of the excess force threshold value is being applied to the movable barrier;
taking a predetermined action when excess force is being applied to the movable barrier.

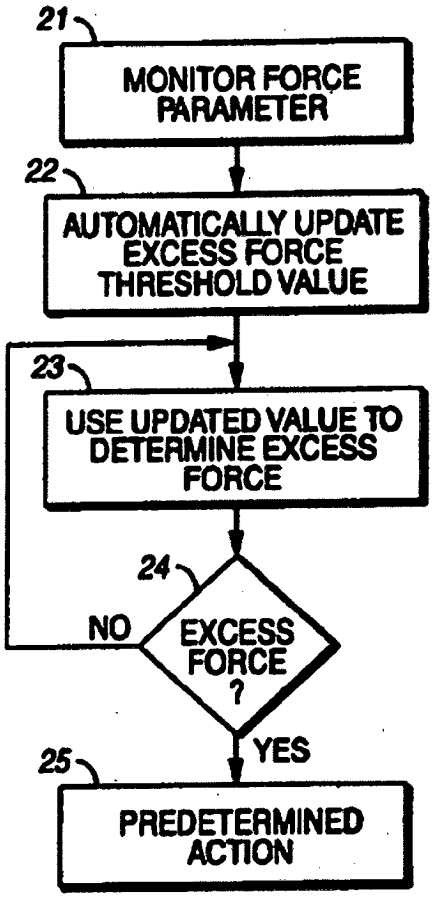

FIG. 2

Indeed, all but three of the '336 patent's twenty-nine figures are either flowcharts or data plots illustrating the routines by which the controller or other processor takes in and manipulates data. (*See* '336 patent at Figures 2-16, 18-22, 24-29.) The language of the claim is itself dispositive, but the '336 patent's focus on *calculation* is strong circumstantial evidence that claim 15 is directed to a software-based routine, or algorithm—an ineligible concept under 35 U.S.C. § 101. *Electric Power*, 830 F.3d at 1354 ("we have treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category").

Dependent claims 19-23 fare no better. Claim 19 recites:

> 19. The method of claim 15 and further comprising monitoring operation of a motor and wherein using an updated characteristic force value to determine a corresponding excess force threshold value includes using an updated characteristic force value and a motor operation compensation value to determine a corresponding motor operation-compensated excess force threshold value.

('336 patent at claim 19.) This is nothing more than the creation of yet two more data values through calculation, the "motor operation compensation value" and the "motor operation-compensated excess force threshold value." This language does not change the direction of the claim out of the abstract; it only drifts in further.

Independent claim 34 recites:

> 34. A method for use with a movable barrier operator, comprising:
>
> monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move;
>
> automatically increasing a characteristic force value pursuant to a first determination process in response to the monitored at least one parameter to provide an updated characteristic force value when a first condition is met;
>
> automatically decreasing the characteristic force value pursuant to a second determination process, which second determination process is different from the first determination process, in response to the monitored at least one parameter to provide an updated characteristic force value when a second condition is met;
>
> using the updated characteristic force value to determine a corresponding excess force threshold value;
>
> determining when force in excess of the excess force threshold value is being applied to the movable barrier; and
>
> taking a predetermined action when excess force is being applied to the movable barrier.

('336 patent at claim 34.)

This is a method which is nearly identical to that of claim 15, except it elaborates on the *rules* behind the alteration or updating of the "characteristic force value" (increasing in one context and decreasing in another):

15. A method for use with a movable barrier operator, comprising:	34. A method for use with a movable barrier operator, comprising
monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move;	monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move;
automatically changing a characteristic force value in response to the monitored at least one parameter to provide an updated characteristic force value as a function of a difference between the characteristic force value and the at least one parameter;	automatically increasing a characteristic force value pursuant to a first determination process in response to the monitored at least one parameter to provide an updated characteristic force value when a first condition is met; automatically decreasing the characteristic force value pursuant to a second determination process, which second determination process is different from the first determination process, in response to the monitored at least one parameter to provide an updated characteristic force value when a second condition is met;
using an updated characteristic force value to determine a corresponding excess force threshold value;	using the updated characteristic force value to determine a corresponding excess force threshold value;
determining when force in excess of the excess force threshold value is being applied to the movable barrier;	determining when force in excess of the excess force threshold value is being applied to the movable barrier; and
taking a predetermined action when excess force is being applied to the movable barrier.	taking a predetermined action when excess force is being applied to the movable barrier.

Just like claim 15, I need look no further than the language of claim 34 to determine that it is directed to a software-based routine which could take place entirely within a controller or other general-purpose processor. Taking the same cue from CGI and its *Linear* decision described above, claim 34 lines up squarely with the flowchart presented in Figure 2 coupled with the flowchart presented in Figure 6 (which provides the elaboration on rules behind the alteration of TH_C):

34. . . . automatically **increasing** a characteristic force value pursuant to a first determination process in response to the monitored at least one parameter to provide an updated characteristic force value when a first condition is met;	34. . . . automatically **decreasing** the characteristic force value pursuant to a second determination process, which second determination process is different from the first determination process, in response to the monitored at least one parameter to provide an updated characteristic force value when a second condition is met;

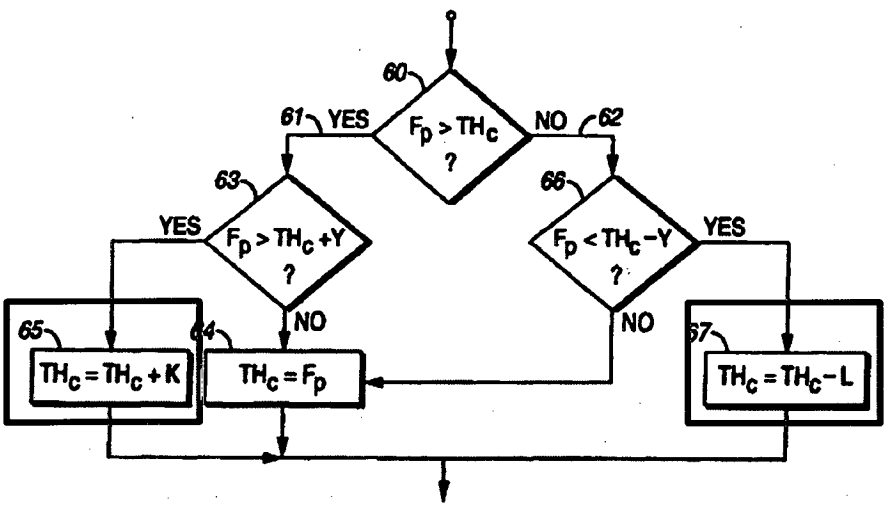

FIG. 6

('336 patent at claim 34 (emphasis added), Figure 6 (annotated).)

Like Figure 2, there is nothing structural in Figure 6; it is literally the algorithm by which the contrived data value TH_C is updated. The language of the claim is itself dispositive, but these figures' focus on *calculation* is strong circumstantial evidence that claim 34 is directed to a software-based routine, or algorithm—an ineligible concept under 35 U.S.C. § 101. *Electric Power*, 830 F.3d at 1354. Indeed it is hard to reconcile the above claim language and figures with CGI's position that "in terms of the modern day *Alice* test, the '336 Patent claims are 'directed to' an improvement in the operation of movable barriers, *not a mathematical formula.*" (C101B at 16 (emphasis added).)

CGI's points in opposition do not move me from this conclusion. CGI begins with "Independent claim 15, from which each of claims 19-23 ultimately depends, recites actions performed by a real-world physical moveable barrier operator (such as opening or closing the garage door) in response to detecting excess force that involve automatically changing a characteristic force value and determining an excess force threshold value using an updated characteristic force value." (C101B at 13.) CGI argues essentially the same regarding independent claim 34. (*Id.* at 14.)

At best, CGI is only partially right. Claims 15 and 34 do "recite[] actions performed by a real-world physical moveable barrier operator," but these actions are software based and can take place entirely within the controller or other general purpose processor of the otherwise "real-world physical moveable barrier operator."

At worst, CGI is incorrect. Each claim's preamble states "a method for use *with* a moveable barrier operator" (emphasis added). That, on its face, allows, perhaps even suggests, for the method to be performed by some entity or component *apart* from the moveable barrier

operator. In other words, something, somewhere, that is associated with a moveable barrier operator, performs the claimed method.

Next CGI draws a comparison between the present claims and those in *Diehr* and *Flook*, arguing the '336 patent is similar to *Diehr* and dissimilar to *Flook*. (C101B at 15.) I disagree. The claims at issue in *Diehr* included physical, tangible, or structural elements which the *Alice* Court described as "transform[ing] the process into an inventive application of the formula," *Alice*, 134 S. Ct. 2358 (internal citation omitted); elements such as:

> opening the press automatically . . .
>
> heating said mold to a temperature range . . .
>
> installing prepared unmolded synthetic rubber of a known compound in a molding cavity of predetermined geometry as defined by said mold . . .
>
> closing said press to mold said rubber to occupy said cavity in conformance with the contour of said mold and to cure said rubber by transfer of heat thereto from said mold . . .
>
> heating said mold during said closure . . .
>
> removing from said mold the resultant precision molded and cured rubber article . . .

See Diehr, 450 U.S. 175, 181, n.5 (1981). As shown, the method claims in *Diehr* recite plenty of tangible elements which is why, "when considered as a whole, [they were] performing a function which the patent laws were designed to protect." *Diehr*, 450 U.S. at 192; *see also id.* at 181, n.5.

Claim 15 of the '336 patent has no such tangible elements save for "movable barrier," but even then none of the claimed steps involve that barrier or act upon it; the "movable barrier" that is not actually part of the method. Claim 19 invokes "a motor," but the method simply monitors its "operation." In other words, the claimed method is still completely contained within the controller or other general purpose processor. The claims in *Diehr*, on the other hand, go outside

that controller or processor (involving a "mold," "press," "article"). In note CGI makes the comparison without presenting the actual language of *Diehr*'s claims. (*See* C101B at 13, 15.)

CGI does present the claim at issue in *Flook*, however (C101B at 15) and it looks a lot like claim 15 of the '336 patent. A tangible process or structure is recited in the preamble—"movable barrier operator" in the '336 patent and "catalytic chemical conversion of hydrocarbons" in *Flook*—and the remaining limitations are center around gathering information and manipulating it. Indeed, the "direction" of the claims is really the same—updating "alarm limits" in *Flook* and updating "threshold values" in the '336 patent. CGI argues the claim in *Flook* was "directed to using numbers to calculate a number" (C101B at 16), but that is a prime ingredient of claim 15 of the '336 patent as well. (*See* '336 patent at claim 15 ("automatically changing a characteristic force value . . . using an update characteristic force value to determine a corresponding excess force threshold value").)

CGI's comparison to its own *Linear* decision (C101B at 16-17) is not persuasive principally because the mere recitation of "taking a predetermined action" (the only step which might not be software-based) at the end of claim 15 does not alter the direction that the preceding four software-routine steps provide.

I also do not find CGI's comparison to the recent *Thales Visionix v. United States*, 850 F.3d 1343, 2017 WL 914618 (Fed. Cir. March 8, 2017) effective or persuasive. *Thales Visionix* involved two claims: claim 1 which recited, *inter alia*, "a first initial sensor mounted on the tracked object; a second inertial sensor mounted on the moving reference frame;" and claim 22 which recited "two inertial sensors mounted respectively on the object and on the moving reference frame." 2017 WL 914618 at *2. The claims also make reference to determining an

orientation of the object based on these sensors' signals, *id.*, but it was the placement of the sensors which the Court held defined the direction of the claim:

> These claims are not merely directed to the abstract idea of using "mathematical equations for determining the relative position of a moving object to a moving reference frame," as the Claims Court found. *Thales*, 122 Fed. Cl. at 252. Rather, *the claims are directed to systems and methods that use inertial sensors in a non- conventional manner* to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame.

Id. at *5 (emphasis added).

CGI's comparison fails because claims 15, 19, and 34 of the '336 patent do not contain any structures analogous to claims 1 and 22 of *Thales Visionix*, regardless of conventional or non-conventional use. (*See* '336 patent at claims 15, 19, and 34.) As discussed above, the only structures implicated by these claims are a movable barrier and motor, but even then, they are not actually part of the claimed methods. (*See id.*) Rather, they are recited to explain the identity of data values like "characteristic force value" (claim 15) and "motor operation compensation value" (claim 19). This usage does not affect the direction of the claims as the unconventional sensor placement in *Thales Visionix* did.

In reality, CGI accurately captures the direction of the '336 patent claims when it states, "the '336 patent introduces a 'characteristic force value' (TH_C) that is automatically changed in response to "changing conditions regarding the application of force during normal operation," where the characteristic force value is updated based on a difference between the characteristic force value and the monitored force parameter." (C101B at 18-19 (citing '336 patent at 5:41-44, 7:24-8:55, Figure 6).) This is a description of an algorithm, involving data values and logical operators, and it fairly applies to each of claims 15, 19, and 34. The fact that the data values have names which connote tangible interactions (*e.g.*, "force" value) does not change their identity as mere data values. *See Electric Power*, 830 F.3d at 1353 ("collecting information,

including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas.")

CGI next addresses whether the '336 patent claims "are essentially directed to mental processes that 'can be performed in the human mind'" (C101B at 19), and whether they can be "manually performed by a user on a generic [movable barrier operator (MBO)]" (*id.*). CGI essentially argues that both findings would be based on an oversimplification of the claims by leaving out key limitations. (*See id.* at 19-20.)

Setting aside whether or not Respondents omitted discussion of key limitations, I find the '336 patent claims can be performed in the human mind because of their precise wording. "[C]ourts must be careful to avoid oversimplifying the claims by looking at them generally and failing to account for the specific requirements of the claims." *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016) (internal citations omitted). Starting with claim 15, the literal actions which are the steps of the claim are:

> monitoring at least one parameter,
>
> automatically changing a characteristic force value,
>
> using an updated characteristic force value,
>
> determining when force in excess . . . is being applied, and
>
> taking a predetermined action.

('336 patent at claim 15.) The human mind can do all of these things; it can monitor data values (that are provided to it by a display); it can change a stored value based on what it sees; it can use stored values in simple equations (as in Figure 6); and it can take unnamed predetermined actions (decide to press a door stop button). The human mind can also accomplish the steps of claims 19 and 34, which simply add additional "monitoring," "using [force/motor] value,"

"determining that a [status/condition] exists," and "[increasing/decreasing] characteristic force value" steps. (*See* '336 patent at claims 19, 34.)

Indeed, the reason the human mind can accomplish this claim is because of the technological aspects the claim-in-practice omits; for example, *gathering the data* "that corresponds to force" through sensors, *communicating that data* to a processor through a wired or wireless link, *providing electrical current* to the motor, or even *moving the barrier*. None of these acts are recited in the claims but they are almost certainly present when a covered product is in operation. I imagine this is why CGI repeatedly emphasizes the idea that the '336 patent is a "technical solution to a technical problem" (*see, e.g.*, CRSB1 at 20) but it is also the reason CGI is forced to describe "real-world, physical components" as "implicated by the claims" rather than "*recited* by the claims" in the following passage:

> The claims of the '336 patent are distinct from those at issue in these cases in that the real-world, physical components *implicated by the claims* are part-and-parcel of the technical solution the claims provide to the technical problem of barrier movement operators. . . .

(*Id.* at 18 (emphasis added).)

Truly, the effect of this omission is straightforward. You avoid the risk of the claims being too narrow to capture the sensors, communication links, or movement patterns your competitors eventually use by keeping the claim language to the basic blocks of a software routine for updating force threshold values—a useful feature in practice, but ineligible for patent protection without more. *See, e.g.*, *Activity Tracking Devices*, Inv. No. 337-TA-963, Order No. 54, at 15 ("An abstract idea does not become nonabstract by limiting the invention to a particular field of use or technological environment. Nor does it matter that computers are more accurate, efficient and economical than humans at observing and recording data about sleep.") (citing *Intellectual Ventures I*, 792 F.3d at 1366); *Affinity Labs*, 838 F.3d at 1258 ("The '379 patent

claims the function of wirelessly communicating regional broadcast content to an out-of-region recipient, not a particular way of performing that function.").

For these reasons, claims 15, 19, and 34 are directed to a software-based routine, or algorithm, for updating force threshold values which is an ineligible concept under 35 U.S.C. § 101.

Alice Step Two

Having found the asserted claims of the '336 patent are directed to an abstract idea, I must proceed to the second step of the *Alice* framework and determine whether the asserted claims contain an inventive concept. As explained below, I find that the asserted claims lack an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible invention; *i.e.*, I do not find "an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible] concept itself.'" *Alice*, 134 S. Ct. at 2355 (alteration in original) (citing *Mayo*, 132 S. Ct. at 1294).

Claim 15 essentially has five parts. The first part requires "monitoring at least one parameter" where the parameter "corresponds" to force which is applied to move a movable barrier. Notably, there are no limits on what constitutes "corresponds." The second part requires "changing" a data value ("characteristic force value") as a function of the difference between it and the first monitored parameter, where any mathematical function is sufficient as long as it incorporates this difference. The third part requires "using" the updated data value to update a second type of data value ("excess force threshold value"). Again, there is no limit on how this update occurs.

The fourth part of claim 15 is a little unique because it may be poorly worded. It reads, "determining when force in excess of the excess force threshold value is being applied to the movable barrier." This requires determining the *actual force* being applied to the movable barrier as opposed to "monitoring at least one parameter that *corresponds to force* as applied to a movable barrier" (emphasis added). Nevertheless, there is no limit on how that information is gathered; the only requirement is that it is gathered. Similarly, the fifth part of claim 15 requires "taking" some "predetermined action," when there is excess force being applied, but it places no limit on what kind of action.

Claim 34 is almost identical to claim 15, but it expands on the "updating" of the first data value as either: (1) "increasing" that value "pursuant to a first determination process;" or (2) "decreasing" that value "pursuant to a second determination process." Again, there are no limits on the "determination process[es]" which are the heart of this claim.

Claim 19 is more of the same. Claim 19 requires "monitoring" the "operation" of a motor presumably to create the required "motor operation compensation value." There are no limits placed on how the "monitoring" is effected or what "operation" is monitored.

I find nothing in the above claims to remove the invention from the abstract idea of gathering information and then analyzing it. The only tangible elements recited at all are the "movable barrier" and the "motor." Yet none of the method steps actually involve or affect these structures; they are recited only as targets of information gathering.

In this way, I find claims 15, 19, and 34 of the '336 patent as exceedingly similar to those in *Electric Power*. Those claims too involved gathering specific types of information (related to real-world electric power grid structural elements), analyzing that information, and displaying results. *See Electric Power*, 830 F.3d at 1351-52, 1355. Yet the connection of the

information to real world elements, like "movable barrier" and "motor," was not enough to move the claims out of ineligibility:

> [A] large portion of the lengthy claims is devoted to enumerating types of information and information sources available within the power-grid environment. But merely selecting information, by content or source, for collection, analysis, and display does nothing significant to differentiate a process from ordinary mental processes, whose implicit exclusion from § 101 undergirds the information-based category of abstract ideas.

Id. at 1355. *Electric Power* states, "[i]nquiry therefore must turn to any requirements for *how* the desired result is achieved." *Id.* The Court held "[n]othing in the claims, understood in light of the specification, requires anything other than off-the-shelf, conventional computer, network, and display technology for gathering, sending, and presenting the desired information." *Id.*

I cannot discern how claims 15, 19, and 34 are any different. Their limitations, viewed individually or in ordered combination simply do not contain a suggestion of eligible subject matter and do not appear to require anything but conventional components. (*See* '336 patent at 1:21-26, 60-67 (describing prior movable barrier operators which monitor force, compare it thresholds, and update thresholds in learning modes).)

CGI's briefing in opposition to summary determination with respect to *Alice* Step Two is largely irrelevant. CGI does not discuss the limitations of claim 15, "taking the claim elements separately" or "considered 'as an ordered combination,'" *Alice*, 134 S. Ct. at 2359, but rather discusses the practical benefits of the invention as described in the specification. (*See* C101B at 21-22.) Additionally, CGI's argument regarding pre-emption misses the mark. It is not a concern whether claims 15, 19, and 34 pre-empt the "prior techniques or using user-adjustments and learn mode settings." (C101B at 33.) The concern is whether these claims pre-empt the updating of force threshold values using data commonly gathered from barrier movement operators; and I find that it does. Even if I were to accept the argument that the asserted claims

do not entirely pre-empt the use of that abstract idea, it does not negate a finding that the asserted claims are patent-ineligible. *See Vehicle Intelligence*, 635 Fed. Appx. at 918.

For these reasons, I find claims 15, 19, and 34 are invalid under 35 U.S.C. § 101.

2. 35 U.S.C. § 102

a. Claims 12 and 14

Claims 12 and 14 (which depends from claim 12) of the '336 patent are not asserted against respondents, but rather used for CGI's technical prong of domestic industry. (*See* RIB1 at 61; CIB1 at 47.) Respondents attack the validity of claims 12 and 14 nonetheless and argue prior art reference U.S. Patent No. 6,326,751 to Mullet ("Mullet") (RX-0006) anticipates both of them. (RIB1 at 61.) Respondents argue that claim 12 is similar to asserted claim 15, and "Dr. Direen made no effort to rebut Dr. Pedram's analysis." (RIB1 at 51 (citing CX-1307C).) Respondents observe that claim 14 is similar to asserted claim 19 (*id.* at 63), which CGI does contest however (*see id.* at 59-61; CRSB1 at 38-41.)

CGI argues that "[f]or the first time in their post-hearing brief, Respondents advance a new argument regarding the limitations of claim 12" in contravention of Ground Rule 15.1.2. (CRSB1 at 41.) Effectively, CGI argues that Respondents did not sufficiently disclose an anticipation theory for these claims in their pre-hearing brief, and "[e]ven if the argument was timely raised, Respondents fail to meet their burden by relying on the same evidence for claims 15 and 12 because the claims are different." (*Id.*)

Upon review of claims 12 and 15, and Respondents' pre-hearing brief and pre-hearing statement, I find Respondents have waived an invalidity challenge to claims 12 and 14 of the '336 patent. My Ground Rule 15.1.2 states, "[t]he initial post-hearing briefs shall discuss the issues and evidence tried within the framework of the pre-hearing briefs and any permitted amendments thereto." Moreover, my ground rule concerning pre-hearing briefs, G.R. 11.2,

states:

> [T]he pre-hearing brief shall set forth with particularity the party's contentions with respect to each issue in the investigation. . . . To meet the requisite level of particularity, the pre-hearing brief must provide the other parties fair notice of each issue and argument the party wishes to advance at the hearing or in post-hearing briefing and any evidence the party intends to rely on in support thereof. Any contentions not set forth with the level of particularity required herein shall be deemed abandoned or withdrawn . . . .

(G.R. 11.2.)

Respondents' pre-hearing brief does not present an anticipation theory for claim 12 with the requisite level of particularity. I also agree with CGI that the differences between claim 12 and claim 15 prevent simple statements such as "[the evidence used for claim 15] applies equally to the anticipation of claim 12" (*see* RPB1 at 112) from providing sufficient notice of *how* a body of evidence applies to claim 12. For example, claim 12 requires "taking a predetermined action when excess force is being applied to the movable barrier *via the movable barrier operator*." ('336 patent at claim 12 (emphasis added).) Claim 15 does not require "via the movable barrier operator," thus making it broader. (*Id.* at claim 15.)

As another example, and perhaps more importantly, claim 12's preamble contains particular language concerning the existence of "both a user-initiable dedicated learning mode of operation and a normal mode of operation," and then requires the method steps occur during the "normal mode." (*Id.* at claim 12.) Claim 15 leaves out any mention of these modes, again, making it broader than claim 12. (*Id.* at claim 15.) In light of these differences, an invalidity theory presented for claim 15 would not be of sufficient particularity to be copied over, without additional explanation, for claim 12. I find that claim 14 is similarly affected due to its dependence on claim 12 and its own differences with the language of claim 19. (*See, e.g.*, '336 patent at claims 14 ("using a motor operation compensation value to automatically change the

excess force threshold value"), 19 ("using an updated characteristic force value and a motor operation compensation value to determine a corresponding motor operation-compensated excess force threshold value").) I also note that Respondents' invalidity expert, Dr. Pedram, intentionally does not address how the prior art anticipates claims 12 or 14 in his witness statement, based on his understanding that they are no longer asserted in the investigation. (*See* RX-0001C at Q240-241.)

For these reasons I find Respondents have waived an anticipation challenge to claims 12 and 14 of the '336 patent.

b. Claim 15

Respondents argue that each of U.S. Patent No. 6,456,027 to Pruessel ("Pruessel") (RX-0008), Mullet, and U.S. Patent No. 5,539,290 to Lu et al. ("Lu") (RX-0010) "discloses every step recited in method claim 15" and that there is not dispute over this. (RIB1 at 50.) I agree with Respondents insofar as CGI does not respond at all to these claims of anticipation in its responsive post hearing brief. (*See* CRSB1 at 38-43.) In addition, I find credible testimony from Respondents' expert explaining how Pruessel, Mullet, and Lu anticipate claim 15. (RIB1 at 51-59; RX-0001C at Q249-260 (Mullet), 315-325 (Lu), 332-342 (Pruessel).)

To begin, claim 15 requires "A method for use with a movable barrier operator; comprising." ('336 patent at claim 1.) Mullet discloses a "[s]ystem and related methods for detecting and measuring the operational parameters of a garage door utilizing a lift cable system." (RX-0006 at Title.) Lu discloses a "motor control system for controlling operation of an electric motor associated with a motor-operated vent in a vehicle" and "[t]he system monitors and stores data relating to the operating current and detects occurrences of abnormal loads applied to the vent by determining whether the monitored operating current exceeds one of several predetermined thresholds." (RX-0010 at Abstract.) Pruessel discloses a "closing device .

. . having a drive motor (4) for pushing a closing element such as a window pane or roof panel across an opening." (RX-0008 at Abstract.)

Claim 15 further requires "monitoring at least one parameter that corresponds to force as applied to a movable barrier to selectively cause the movable barrier to move." ('336 patent at claim 15.) Mullet discloses "monitor[ing] … a pulse counter to determine motor speed and thus the torque of the door as it travels" and "speed of the motor 48 is directly proportional to the force applied to the door." (RX-0006 at 6:47-52, 12:60-61.) Lu discloses moving the barrier by "altering the operating current provided to the motor" and "monitor[ing] and stor[ing] data relating to the operating current and detect[ing] occurrences of abnormal loads applied to the vent. . . ." (RX-0010 at 1:62-2:20, Abstract.) Pruessel discloses "a sensor (3) for detecting a force acting on the closing element in the opposite direction to the direction of closing" but clarifies that "the voltage drop across resistor 3 is proportional to the output of motor 4 and is thus proportional to the torque and, respectively, the force acting against the movement of the closing element, which is being pushed by motor 4." (RX-0008 at Abstract, 4:55-59.)

Claim 15 further requires "automatically changing a characteristic force value in response to the monitored at least one parameter to provide an updated characteristic force value as a function of a difference between the characteristic force value and the at least one parameter." ('336 patent at claim 15.) As discussed above, the parties have a dispute over the proper construction of this claim term, but I have found it to mean exactly as it is worded—that the function used to change the "characteristic force value" *somehow* involves the difference between the characteristic force value and the at least one measured parameter.

Each of Mullet, Lu, and Pruessel discloses this limitation under this construction. Mullet discloses "said control circuit (50) updates said plurality of door profile data points to the motor

torque values for each respective said plurality of positional locations if the predetermined threshold is not exceeded" and "[i]n the event the newly acquired torque value varies less than the plus/minus 15 pounds or other predetermined threshold, then the processor 66 *replaces the previously stored profile data with the newly acquired value*." (RX-0006 at Abstract, 11:17-20 (emphasis added).) Even if the Commission chooses to adopt CGI's or Respondents' proposed constructions, I find the limitation is met—updating a stored value to a newly measured value is effectively "a comparison of values associated with the [stored value] and the [measured value]" (CGI's construction) and exactly an "updated [stored value which] differs from the previous [stored value] by the amount of the difference between the [stored value] and the [measured value]" (Respondents' construction).

Lu discloses, "[d]uring the measurement of the operating current, the control module operates to both store and update values associated with a dynamic average measurement 95 of the operating current I_{AVG} and *a time incremental storage of the operating current* I_{TRACE}. Both I_{AVG} and I_{TRACE} are constantly updated during vent operation, and frequently at very short time intervals." (RX-0010 at 6:57-63 (emphasis added); *see also* RX-0010 at Figures 10A, 14A.) According to the unrebutted and credible testimony of Respondents' expert, this updating of I_{TRACE} means "the trace current value is updated with the newly measured operating current." (RX-0001C at Q322.) By this method of replacing the old trace value with the newly measured operating current value, Lu satisfies the limitation in the same way as Mullet, and would likewise do so under CGI's or Respondents' proposed constructions as well.

Pruessel discloses:

> In Step 36, mean ΣFt is compared with value F(x) for the corresponding position x of the closing element stored in table F of memory 13. If the newly measured mean ΣFt is greater, in Step 37 the stored value F(x) of the force for the corresponding position x plus increment ε is entered in

> buffer B(0). If the mean ΣFt is less than F(x), in Step 38the value F(x)−ε is entered in B(0). Herein, *ε may be a fixed predefined amount; it may also be proportional to difference ΣFt−F(x)*, and if so the proportionality relationship is a measure of how quickly the stored values F(x) are following the actual conditions if the frictional forces that are occurring are changing.

(RX-0008 at 7:46-57 (emphasis added); *see* RX-0008 at Figure 3.) "ΣFt−F(x)," which is used to update the stored characteristic force value of "F(x)," (*see* RX-0008 at 7:26-45 (discussing how data stored in buffer B(0, 1, . . . 15) is moved to memory location F(x)), 7:64-8:9) is exactly the "difference between the characteristic force value and the at least one parameter" recited in this claim limitation. I therefore find the limitation is met under the plain and ordinary construction I outlined above. Respondents argue the limitation is similarly met under CGI's proposed construction, but not their own. (*See* RIB1 at 58-59.)

I decline to address whether the limitation is met under Respondents' proposed construction, as it has not been alleged, but I do agree that the limitation is met under CGI's construction. "ΣFt−F(x)," which is used to update the stored characteristic force value of "F(x)," qualifies as "a comparison of values associated with the characteristic force value and the at least one parameter." F(x) is the characteristic force value and ΣFt, a running average of four prior measured force values (*see* RX-0008 at 7:26-30), is the at least one parameter.

Moving on, claim 15 further requires "using an updated characteristic force value to determine a corresponding excess force threshold value." ('336 patent at claim 15.) Mullet discloses "utiliz[ing] door profile data acquired during a set-up or installation routine to determine the appropriate force limits for when the door is opening and for when the door is closing" and "the internal entrapment system triggers whenever the force applied exceeds a plus/minus 15 pound limit for each monitored door position throughout the operational cycle." (RX-0006 at 9:61-65, 10:9-13.) Lu discloses, "[t]he predetermined thresholds are dynamically

modified in accordance with the monitored condition variations of the operating current" and "a detailed view of the current measurement timing diagram of I_{OP} is shown with respect to the use of the final threshold $I_{TRACE} + I_{GAP}$. The I_{TRACE} values 1100 correspond to previously measured values of IOP 1108 occurring at predetermined time increments" (RX-0010 at Abstract, 7:52-64.) Pruessel discloses how a closing device which "allows one to choose a sufficiently low closing force limit value is provided, the closing movement being interrupted, or reversed if the limit value is exceeded, so that there is no absolutely no risk of injury if a body part becomes trapped in the opening to be closed" (RX-0008 at 2:34-38) and:

> In all instances, the closing device according to the present invention varies the limit value with which the force exerted by the motor on the closing element is compared, not based on acceleration exerted from outside and measured using an additional external sensor but rather solely based on a force measured at an earlier point in time.

(*id.* at 6:25-30.)

Claim 15 further requires "determining when force in excess of the excess force threshold value is being applied to the movable barrier." ('336 patent at claim 15.) Mullet discloses that "processor 66 detects that the door 12 is applying any force greater than the upper force limit (high speed value) plus 15 pounds" and "if the processor 66 detects that the door 12 is applying any force greater than the upper force limit (high speed value) plus 15 pounds, then the door stops if moving up or reverses if moving down." (RX-0006 at 12:53-13:5) Lu discloses, "[s]tarting at step 146, the system begins comparing the operation current IOP to the predetermined thresholds" and " final determination is made at 120 as to whether the operating current I_{OP} is less than a final threshold corresponding to the value of I_{TRACE} plus the gap current value I_{GAP}." (RX-0010 at 9:25-26, 7:46-50.) Pruessel discloses "the stored force value F(x) is subtracted from current measured value Ft. Ideally the force value Ft that has been adjusted in this way should only deviate from 0 if external forces such as acceleration forces or forces

associated with a trap event are acting on the closing element" and "control circuit 1 monitors force value Ft that has been adjusted in this way to determine whether a force limit value has been exceeded." (RX-0008 at 7:58-63, 7:65-8:9.)

Claim 15 finally requires "taking a predetermined action when excess force is being applied to the movable barrier." ('336 patent at claim 15.) Mullet discloses "if the processor 66 detects that the door 12 is applying any force greater than the upper force limit (high speed value) plus 15 pounds, then the door stops if moving up or reverses if moving down." (RX-0006 at 12:53-13:5) Lu discloses "when the system detects an abnormal load on the vent, the operating current is altered so as to stop or reverse the vent operation" and "[a]ccordingly, if I_{OP} (at 1106) suddenly increases or decreases to a level which exceeds the threshold 1110 associated with the incremental value of I_{TRACE} +I_{GAP} at T_3, an object is determined to be detected, and therefore the motor current will be altered." (RX-0010 at 5:63-65, 8:5-9.) Pruessel discloses how a closing device which "allows one to choose a sufficiently low closing force limit value is provided, the closing movement being interrupted, or reversed if the limit value is exceeded, so that there is no absolutely no risk of injury if a body part becomes trapped in the opening to be closed." (RX-0008 at 2:34-38.)

Thus, in light of the above, I find that each of Mullet, Lu, and Pruessel have been shown to anticipate claim 15 of the '336 patent by clear and convincing evidence.

c. Claim 19

Claim 19 depends from claim 15 and reads:

> [F]urther comprising monitoring operation of a motor and wherein using an updated characteristic force value to determine a corresponding excess force threshold value includes using an updated characteristic force value and a motor operation compensation value to determine a corresponding motor operation-compensated excess force threshold value.

('336 patent at claim 19.) Respondents argue that Mullet "discloses this added requirement

because it teaches adding a motor operation compensation value (namely, a value that corresponds to ambient temperature *near the motor*) to a characteristic force value along with an offset value (of approximately 15 pounds) to determine an excess force threshold value." (RIB1 at 60 (emphasis added).) Respondents quote Mullet's specification with "calculates motor torque from the speed readings and then adjusts [force] values depending upon the temperature readings [from the thermistor] *to generate an offset value* which is associated with a particular door position and then stored into the nonvolatile memory along with upper and lower door profiles." (*Id.* (citing RX-0006 at 6:61-67 (emphasis and edits in original)).) Respondents argue that "Mullet's 'offset value' thus constitutes the claimed 'motor operation compensated value." (*Id.*)

After a review of Mullet, I find it fails to adequately disclose the "motor operation compensation value" required by claim 19. Specifically, Respondents point to Mullet's measurement of "ambient temperature" (*see, e.g.*, RX-0006 at 1:15) and characterize it as "a value that corresponds to ambient temperature *near the motor*" (RIB1 at 60 (emphasis added)). Respondents must characterize the value as "near the motor" because the temperature must be identifiable as a "motor operation compensation value" to meet the claim. ('336 patent at claim 19.)

There is no support in Mullet, however, for this characterization. Mullet's specification does not describe the "thermistor 72" or its measured "ambient temperature" as near, adjacent, or in proximity to the motor (*see* RX-0006 at 1:11-17, 6:47-52, 7:18-27, 9:50-54, 10:45-62, 11:30-33, 11:62-65); and Mullet's claims actually require "a thermistor directly connected to said controller means for detecting an ambient temperature value, w*herein said thermistor is separate from the operation of said motor*" (*id.* at claims 2, 4 (emphasis added)). Mullet's figures do not

support Respondents' characterization either. (*Id.* at Figures 2, 3.) So while Mullet does measure temperature, it is not fair to say the temperature is of the motor rather than a more general "ambient temperature." This is in contrast to the '336 patent which, as Respondents point out, explicitly identifies the measured temperatures as belonging to the motor, which is why it is a "motor operation compensation value." (*See* RIB1 at 60 (citing '336 patent at 4:4-9 ("thresholds/values can be modified as a function of *temperature and/or runtime history of the motor(s)* that effect movement of the movable barrier.")); *see also* '336 patent at 12:65-13:6 (discussing compensation based on temperature as "ambient temperature proximal to the motor").)

With that, I do not find that Mullet teaches the "motor operation compensation value" required by claim 19. Thus, Respondents have not shown that claim 19 is invalid for anticipation by clear and convincing evidence.

3. 35 U.S.C. § 103

a. Claim 34

The invalidity determination of claim 34 is critical to Respondents, who assert that only this claim is being asserted against products currently imported into the United States. (*See* RIB1 at 2-3; *see also* Order No. 36.) Respondents propose that three different combinations of prior art references render claim 34 obvious: (1) Pruessel and U.S. Patent No. 6,043,620 ("Koestler") (RX-0012), (2) Mullet and Koestler, and (3) U.S. Patent No. 6,161,438 ("Mullet '438") (RX-0007) and Koestler. (RIB1 at 18, 34, 42.) Respondents' initial post-hearing brief suggests one or more of these references actually disclose all limitations of claim 34 (*see id.* at 20 ("the evidence of record . . . confirms that Pruessel renders claim 34 obvious")), but CGI contends such anticipation was not argued in Respondents' pre-hearing brief and is at this point waived (*see* CRSB1 at 1-3). Under Ground Rule 11.2, I agree, and I do not consider whether any

prior art reference anticipates claim 34. (*See* RPB1 at 111-116 (arguing only claims 12, 14, 15, 19, 22, and 23 are anticipated); Respondents' Pre-Hearing Statement at 10 (EDIS Doc. No. 607351).)

CGI resists an obviousness determination by challenging the propriety of each combination and arguing that, even if combined, the pairings would not result in all limitations of the claim. (CRSB1 at 22.) CGI particularly attacks limitations 34(b) and 34(c), which require increasing and decreasing stored characteristic force values when certain conditions are met, performed by two different determination processes. (*Id.*; *see* '336 patent at claim 34.)

I find that Respondents have not presented a *prima facie* case of invalidity for claim 34 through obviousness for two reasons.

First, each one of Respondents' combinations relies on Koestler to introduce limitation 34(c)–"automatically decreasing the characteristic force value pursuant to a second determination process, which second determination process is different from the first determination process, in response to the monitored at least one parameter to provide an updated characteristic force value when a second condition is met"–into the methods of Pruessel, Mullet, or Mullet '438. (*See* RIB1 at 26 ("claim 34 is still invalid because it would have been obvious to modify Pruessel to have such two separate and different processes in view of Koestler's teachings"), 37 ("it would have been obvious to modify Mullet in view of Koestler to use a different (second) determination process for decreasing the characteristic force value"), 45 ("it would have been obvious to modify Mullet '438 in view of Koestler to utilize a second determination process for decreasing the characteristic force value that is different from the first determination process for increasing the characteristic force value").)

More specifically, Respondents, through their expert, use Koestler because, in their view:

> Koestler teaches that tolerance limits T1 and T2 can be adjusted upwards or downward but do not have to vary based on the same function with respect to drive energy profile M1. *Id.* For example, Koestler teaches that T1 and T2 may be adjusted "preferably in tandem" but not necessarily in tandem. RX-12 at 5:27-32. Dr. Pedram confirmed this during cross-examination, when he testified that in Koestler adjusting both tolerance limits "can be done separately – differently from each other." Hr'g Tr. at 609:7-18; *see also id.* at 610:1-4 ("So it's your opinion that Koestler discloses increasing the T2 band limit by one process and decreasing T1 by another process, correct? A. Yes, sir."). Koestler demonstrates this in Figure 4 (shown above), where upper tolerance limit T2 does not vary in the same way as lower tolerance limit T1 with respect to the drive energy profile M1. RX-1C at Q&A 354. Therefore, Koestler confirms it was obvious and well-known to use one process to increase a force value and another separate and different process to decrease a force value based on changes in the measured force. *Id.*

(RIB1 at 27-28.)

Respondents stretch the limited disclosure of Koestler past its breaking point to make this claim. What Koestler actually discloses is:

> Second, in case of the measured value M1 overshoots a tolerance band limit T1 or T2 but fails to reach the limiting value G1 or G2, then *the tolerance band limits T1 and T2 along with the limiting value G1 are adjusted, preferably in tandem, such that the measured value M1 again lies just within the tolerance band.* Preferably, the adjustment is limited essentially to the position along the travel path h where the overshoot occurred. The value of the change as a result of the adjustment should be only very small. *The profile of the tolerance band limits T1 and T2 is stored in such a way that it corresponds essentially to the profile of the associated limiting value G1*, taking into account the feed voltage of the electric motor of the actuator present at the start of the tolerance band when the closing part makes an opening movement.

(RX-0012 at 5:27-41 (emphasis added).) I do not understand this to mean T1 and T2 "preferably," but not necessarily, move in tandem to *each other* when an adjustment is called for. Rather, according to the plain language, it is T1 and T2 which "preferably," but not necessarily, move in tandem *with actual threshold limit G1*. In other words, if there are different determination processes at play here (which, according to Koestler, is not "preferable"), then they are between T1/T2 and G1.

This understanding is supported by the language "[t]he profile of the tolerance band limits T1 and T2 is stored in such a way that it corresponds essentially to the profile of the associated limiting value G1" (found in the excerpt above) and by Koestler's Figure 4, which shows how T1 and T2 do indeed move in tandem with each other but not always in tandem with G1. Koestler's Figure 4 is presented in its original form, and again with line M1 ("actual drive energy" (RX-0012 at 2:30-32)) removed, below:

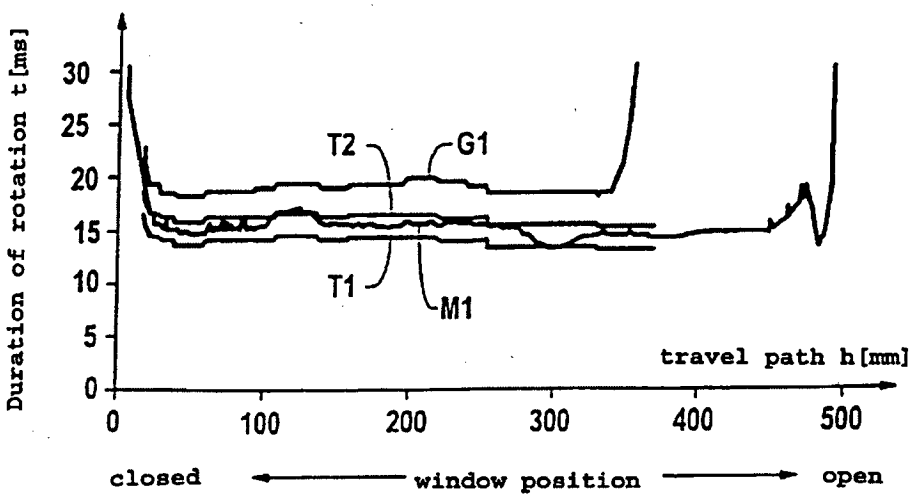

FIG 4

(RX-0012 at Figure 4);

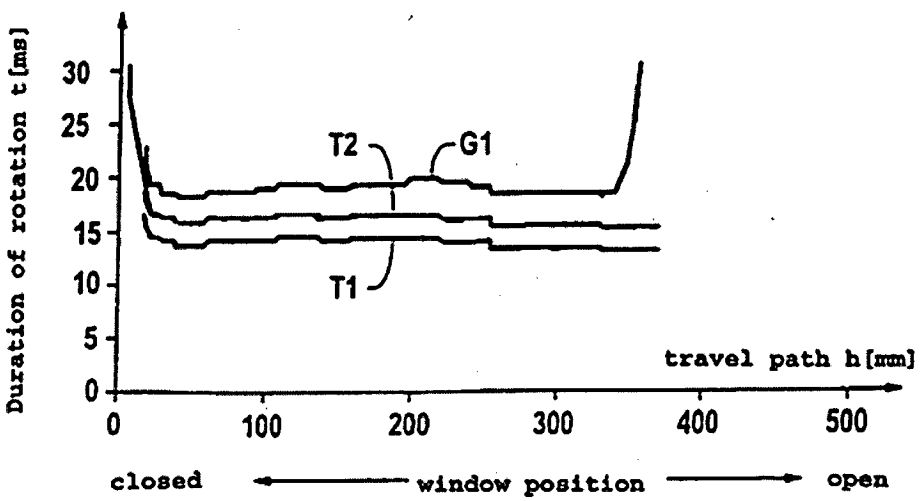

FIG 4

(*id.* at Figure 4 (annotated, line M1 ("actual drive energy") removed)). From this figure it is clear T1 and T2 move with each other, and usually but not always with G1. Respondents suggest that the figure shows T1 and T2 *not* moving in tandem (RIB1 at 27) but the annotations Respondents apply (RIB1 at 27) are slightly inaccurate and mask the true up and down matching between the T1 and T2 lines. I find the lines are, for all relevant purposes, parallel.

Thus, Koestler does not teach what Respondents use it for—"to use one process to increase a force value and another separate and different process to decrease a force value based on changes in the measured force." (RIB1 at 46.) Again, if there are two different determination processes at work in Koestler, they are applied to two different values: T1/T2 and G1. All of Respondents' obviousness combinations, which rely on Koestler for this teaching, fail for this reason alone.

Setting this aside, I also find Respondents make a mountain out of the molehill of the word "preferably" in Koestler. Specifically, in describing why Koestler is used in combination with Pruessel, Mullet, and Mullet '438, Respondents allege Koestler discloses first and second processes, which are different from another. (*See* RIB1 at 31 ("the proposed combination involves incorporating Koestler's first and second determination *processes* into Pruessel"), 37 ("tolerance limits T1 and T2 'can be [adjusted] separately – differently from each other,' using one process to increase T2 and another process to decrease T1").)

Koestler discloses no such thing. Again, all that Koestler discloses is "the tolerance band limits T1 and T2 along with the limiting value G1 are adjusted, *preferably* in tandem." (RX-0012 at 5:29-31.) While it is true that this use of "preferably" arguably discloses adjustments which are not in tandem, this is not the same as an explicit teaching of two processes which are different from one another and lead to polar opposite results (*e.g.*, increase and decrease).

Indeed, it is entirely possible that "preferably" mentioned here simply means that one value is adjusted while the other remains constant—which would mean just one adjustment process is employed, half the time. There is no reason, and certainly not a clear and convincing one, to read Koestler as teaching "tolerance limits T1 and T2 'can be [adjusted] separately – differently from each other,' using one process to increase T2 and another process to decrease T1." (RIB1 at 46.)

The second overarching reason Respondents have not presented a *prima facie* case for obviousness is that they have not sufficiently explained what benefit is conferred upon Pruessel, Mullet, or Mullet '438 as a result of the combination with Koestler's limits and/or limit adjustment process—*i.e.*, what the reason for the combination would have been. *KSR*, 550 U.S. at 399 ("The proper question was whether a pedal designer of ordinary skill in the art, facing the wide range of needs created by developments in the field, would have seen an obvious benefit to upgrading Asano with a sensor.").

For example, with respect to Pruessel, Respondents state:

> Nor does Dr. Direen dispute Dr. Pedram's testimony that 'by incorporating the teachings of Koestler regarding the different upper and lower tolerance band limits, tolerances would be prevented from exceeding the upper and lower limiting values that may cause motor stalls,' thereby resulting in an improved and safer system.

(RIB1 at 32 (citing RX-0001C [Pedram WS] at Q354).) I do not follow the reasoning here and it seems to use a bit of circular logic whereby "upper and lower tolerance band limits" prevent "tolerances" from "exceeding upper and lower limiting values." In a plain and ordinary sense, tolerances are themselves limits for some other measured or observed value. It is also unclear whether Koestler even considers its upper and lower tolerance limits, T1 and T2, to protect against "motor stalls" as Respondents suggest. (*See generally* RX-0012 (no recitation of "stall," "stalls," or "stalling")), or how, once incorporated into Pruessel, motor stalls would be averted.

Pruessel already looks out for when force limit values are exceeding, indicating the possibility of a dangerous trapping event. (*See* RX-0008 at 7:64-8:9.) Overall, I do not find Respondents or their expert have offered a clear and convincing statement on what would motivate a person of ordinary skill, not just to look to Koestler to improve Pruessel, but to actually implement Koestler's "upper and lower tolerance band limits" into Pruessel.

Moving on, with respect to Mullet and Mullet '438, Respondents state "these differences between Mullet [or Mullet '438] and Koestler are irrelevant to the proposed combination, which is to modify Mullet [or Mullet '438] in view of Koestler to utilize a separate process for decreasing a characteristic force value." (RIB1 at 40, 48 (citing RX-0001C at Q277, 311).) What remains unsaid in Respondents' *briefs* is identification or explanation of the benefit Mullet or Mullet '438 receives from a "separate process for decreasing a characteristic force value" (*see* RIB1 at 37-41, 45-48; RRPB1 at 14-18) which is highly detrimental to their case. *PharmaStem*, 491 F.3d at 1360 ("the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device.").

Upon my own review of Dr. Pedram's *testimony*, however, I find a benefit is stated for Mullet and Mullet '438, but it is same motor-stall benefit described above for Pruessel, word-for-word, which I already described as not clear and not persuasive. (*See* RX-0001C at Q277 ("by incorporating the teachings of Koestler regarding the different upper and lower tolerance band limits, tolerances would be prevented from exceeding the upper and lower limiting values that may cause motor stalls"), 311 ("by incorporating the teachings of Koestler regarding the different upper and lower tolerance band limits, tolerances would be prevented from exceeding the upper and lower limiting values that may cause motor stalls").) Moreover, I find

Respondents' copy-and-pasting of this critical fact across different prior art combinations further undercuts its persuasiveness.

Thus, I find Respondents have not shown with clear and convincing evidence that claim 34 is invalid as obvious.

b. Secondary Considerations

Regarding secondary considerations of non-obviousness, CGI argues that "Respondents copied inventive features of the '336 patent" and "the '336 patented features are commercially successful." (*See, e.g.*, CRSB1 at 47-49.)

Regarding copying, CGI claims "TTI supported and encouraged a culture of copying" which "extended to the features accused of infringing the '336 patent including the [ ]" (*Id.*) CGI argues that a particular email, CX-0492C, shows "[ ]'" (*Id.*) CGI also points to hearing testimony from Respondents' Mr. Huggins, where he acknowledged TTi [ ] during development of the Accused Products.] (*See id.* at 48 (citing Hr'g Tr. at 445:18-445:1, 446:1-24).)

Respondents essentially refute that they copied CGI's products in any way. Respondents state clearly, "[f]irst, Respondents did not copy CGI's products—not a screw, not a bolt, and certainly not the technology of the '336 patent." (RIB1 at 70.) TTi points to the testimony of its personnel from the hearing, which it calls "unequivocal," where all witnesses denied that copying took place. (*Id.* at 70-71 (citing Hr'g Tr. at 385:17-386:1, 437:16-24; 496:23-497:2).) Respondents also present the sworn testimony of ET Door's sales manager, where the same claim was denied. (*Id.* at 71 (citing CX-1138C at 155:3-5).)

It is preposterous to claim, as Respondents do, that no copying, whatsoever, of CGI's products took place. I do agree, however, that there is insufficient evidence to show copying of the '336 patent's invention to any meaningful effect. "Copying 'requires evidence of efforts to replicate a specific product.'" *Tokai Corp. v. Easton Enter.'s, Inc.*, 632 F.3d 1358, 1370 (Fed. Cir. 2011) (citing *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010)). Further, copying, as with all secondary considerations of non-obviousness, requires a nexus to the patented invention to be accorded meaningful weight. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995); *see WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1336 (Fed. Cir. 2016) ("copying may indeed be another form of flattering praise for inventive features") (internal citation omitted).

I find the strongest evidence towards a nexus to the invention of the '336 patent is CX-0023C, a presentation in which [

] (*see* CIB1 at 12, 60-61):

[

]

(CX-0023C at 5; *see* Hr'g Tr. at 339:18-20, 339:21-340:3, 340:7-20.) Whether or not the actually as-sold '336 Accused Products can be said to be "[

]

In addition, Respondents' witness, Mark Huggins, in response to my question on where the [ ] feature [

] came from, answered that it came from [

]" (Hr'g Tr. at 446:7-24) even though the same witness confirmed [

] (*id.* at 445:12-22). [

] (CX-1138C at 71:18-73:10.) Performing tests is not the same as copying, but it gets close when the testing [ ]

CGI's other evidence of copying the '336 patent or practicing products is less persuasive. For example, CGI takes great license in characterizing one of Respondents' emails, CX-0492C, between Messrs. Preus and Zimmerman, as an admission that "[

]" (*See* CRSB1 at 47.) The text and imagery content of the email is important, so I present it below:

[

]

[(CX-0492C.) Reading the email, it is clear that [

] (*see* Hr'g Tr. at 384:20-385:16), whether [ ]" (*See* CX-0492C.) This is an extremely relevant question to the '336 patent, because the patent's entire purpose is to do away with these knobs and perform force limit adjustments automatically, according to the algorithms disclosed and claimed:

> To attempt to accommodate such circumstances, many movable barrier operators have a user-adjustment interface (*usually one or two potentiometer-style knobs*) that a user or installer can manipulate to adjust allowed applied force during one or more directions of barrier travel. Unfortunately, even when used correctly, force settings established in this way can become outdated.

....

> Similarly, it should be noted that such a system could be provided with a user-accessible excess force threshold value adjustment interface (not shown) as well understood in the art. Though such an interface can be provided, when properly configured, *these teachings should, at least in a significant number of instances, mitigate against the need to make any such provision.*

('336 patent at 1:54-60, 5:20-26 (emphasis added).)

[

] which are unrelated to automatic adjustment of excess force threshold levels. (*See* Hr'g Tr. at 385:13-16; *see also* CX-0492C ("[

]").) In short, [ ] are talking about two different things; [ ] question was relevant to the '336 patent, [ ] response was not.[13] This email exchange is not, as CGI suggests, an admission that CGI's "[

]" of the '336 Accused Products.

CGI also points to evidence showing Respondents sought to "[

]" (CIB1 at 58 (citing CX-0464C at -27366).) CGI points to CPX-0008, in which plans for some of Respondents' components include such lines as "[

]" (CPX-0008C; *see also* CPX-0065.) Other evidence merely [

---

13 [

]

] (*see* CX-0013C; CX-0015C) and screenshots of [

] (*see* CX-1048; CX-1050). Some of these are certainly evidence of copying, generally, but they are without an identifiable nexus to one of CGI's '336 Domestic Industry Products or the [

] and are therefore without a nexus to the invention of the '336 patent. I also find it is not *impossible* that [

] as Mr. Huggins testified that he would not expect [ ] (Hr'g Tr. at 445:23-446:4) and as suggested in an email from [ ] (CX-1041C ("[

]")). Information on the origin of the code in question would seem to be discoverable, yet very little evidence has been presented on it.

In light of the above, I do not find the Record evidence provided by CGI sufficiently shows copying of the '336 patent's invention in a meaningful way.

Regarding commercial success, CGI argues flatly "[t]he evidence of commercial success compels a finding that the claims are non-obvious." (CRSB1 at 49.) CGI primarily points to the testimony of its own witness that "[the CGI] brand has a reputational component which includes durability and reliability. . . . Autoforce is critical to user experience because it prevents nuisance reversals which a user might otherwise consider a defect or unreliable operation." (*Id.* (citing Hr'g Tr. at 102:4-13; CX-1254C [Sorice WS] at Q62); *see also* CIB1 at 60.)

Here, Respondents challenge the nexus between the commercial success CGI has enjoyed and the invention of the '336 patent. (RIB1 at 73.) Specifically, Respondents argue "CGI has made no showing of nay nexus between 'Adaptive Autoforce' (the feature that allegedly

practices the '336 patent) and the commercial success of CGI's products" and "there are many other features that drive demand for CGI's products." (*Id.* at 73-74.) Respondents point to the testimony of CGI witness Mr. Sorice, who, according to Respondents, "admitted that the top feature that influence demand for GDOs in the United States are 'brand; the power of the unit; the drive chain or belt; connectivity; related accessories; and lighting; and warranty.'" (*Id.* at 74 (citing Hr'g Tr. at 101-24-102:22).)

Respondents also dismiss the relevance of CGI's [ ]% market share in light of Federal Circuit precedent which "has held that when the patentee 'was clearly the market leader … its sales figures cannot be given controlling weight in determining the effect of commercial success.'" (*Id.* (citing *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 316 (Fed. Cir. 1985)).) Finally, Respondents turn around and dismiss Mr. Sorice's testimony on how, if Adaptive Autoforce was removed, sales would suffer because Mr. Sorice "did not quantify how sales would suffer, cite any market studies analyzing how sales would be affected, or provide any empirical evidence of whether sales would suffer, if at all." (*Id.* at 74 (referring to CX-1254C at Q63; Hr'g Tr. at 104:8-105:1).) Respondents also attack the studies Mr. Sorice is said to have relied on as they "make no mention of (1) autoforce; (2) adjusting the force levels automatically to account for varying conditions and force requirements; or (3) nuisance reversals." (*Id.* (citing Hr'g Tr. at 105:6-16; 107:2-109:6; CX-0002C at -25258; CX-218C at -66137).)

I find a tenuous, at best, connection between the alleged commercial success and the invention of the '336 patent. Indeed, on this topic, CGI's responsive briefing fails to address most of Respondents' critiques. (*See* CRSB1 at 49.) While I do not doubt CGI's products have been successful and most, if not all, include the Adaptive Autoforce algorithm, I do not find

sufficient evidence to connect the success with that algorithm as would be needed to affect an obviousness determination. *Tokai Corp.*, 632 F.3d at 1370; *Wyers*, 616 F.3d at 1246; *In re GPAC*, 57 F.3d at 1580.

V. U.S. PATENT NO. 7,161,319

A. Level of Ordinary Skill in the Art

In Order No. 13 I found a person of ordinary skill in the art with respect to the '319 patent at the time of the invention would have had at least an undergraduate degree in computer or electrical engineering (or equivalent education) along with at least two years of industry experience working with embedded computer systems or related technologies involving microcontrollers. (Order No. 13 at 6-8.)

B. Claims-at-Issue

The following claims of the '319 patent are at-issue in this investigation.

> 1. An improved garage door opener comprising a motor drive unit for opening and closing a garage door, said motor drive unit having a microcontroller and a wall console, said wall console having a microcontroller, said microcontroller of said motor drive unit being connected to the microcontroller of the wall console by means of a digital data bus.
>
> 2. The garage door opener according to claim 1 wherein said digital data bus is asynchronous.
>
> 3. The garage door opener according to claim 1 wherein at least one microcontroller controls the travel of said door and said one microcontroller makes calculations of the door's location during its travel.
>
> 4. The garage door opener according to claim 1 further comprising a keypad for operating the garage door opener and wherein said keypad is provided with a switch to turn on or off a light in the motor drive unit in the garage.
>
> 7. The garage door opener according to claim 1 wherein power for the wall console is provided from the drive unit via power conductors of the data bus.

8. The garage door opener according to claim 7 wherein the power conductors convey both data and power.

9. An improved garage door opener comprising a motor drive unit for opening and closing a garage door, said motor drive unit having a controller and a wall console, said wall console having a controller, said controller of said motor drive unit being connected to the controller of the wall console by means of a digital data bus.

10. The garage door opener according to claim 9 wherein said digital data bus is asynchronous.

11. The garage door opener according to claim 9 wherein at least one controller controls the travel of said door and said one microcontroller makes calculations of the door's location during its travel.

12. The garage door opener according to claim 9 further comprising a keypad for operating the garage door opener and wherein said keypad is provided with a switch to turn on or off a light in the motor drive unit in the garage.

15. The garage door opener according to claim 9 further comprising a keypad for operating the garage door opener and wherein said keypad is provided with a switch to turn on or off a light in the motor drive unit in the garage.

16. The garage door opener according to claim 9 further comprising a keypad for operating the garage door opener and wherein said keypad is provided with a switch to turn on or off a light in the motor drive unit in the garage.

(CIB2 at 8, 38.) As can be seen above, claims 1-4, 7, and 8 mirror claims 9-12, 15, and 16; where the latter group replaces recitations of "microcontroller" with "controller." Thus, the claim-by-claim analyses in the parties' briefs and below are grouped as follows: 1 and 9, 2 and 10, 3 and 11, 4 and 12, 7 and 15, 8 and 16.

C. Claim Construction

On May 5, 2017, The Commission construed "wall console" to have its plain and ordinary meaning: "a wall-mounted control unit." (Comm'n Op. (May 5, 2017) at 1-2.)

Respondents point out, and I agree, that this "construction includes 'wall control units with and without PIDs." (RIB2 at 10.) Additionally, during the Markman process, the parties stipulated to that the term "digital data bus" should be construed as "a conductor capable of conveying digital data." (Revised Joint Claim Construction Chart (November 11, 2015) at 15.) Between the post-hearing briefs of both CGI and Respondents, it appears several claim construction disputes remain over the terms "digital data bus," "controller," "motor drive unit," and "wall console" which I address in turn below. (*See* CIB2 at 16-21; CRSB2 at 2-4; RIB2 at 10-12; CRPB2 at 3-8; RRSB2 at 6-14.)

1. Digital Data Bus

As mentioned, during the Markman process, the parties stipulated to that the term "digital data bus" should be construed as "a conductor capable of conveying digital data." (Revised Joint Claim Construction Chart (November 11, 2015) at 15.) Now, CGI contends "Respondents' expert, however, has declined to apply the agreed construction and instead has chosen to interpret this language to mean any 'conductor.'" (CIB2 at 16.) According to CGI, Mr. Lipoff, contends this because "any conductor, *e.g.* a wire, is theoretically 'capable of' conveying digital data in the abstract, then even a wire used in a purely analog system constitutes a 'digital data bus.'" (*Id.* (citing RX-0330C [Lipoff WS] at Q83.) In CGI's view, this is a problem because "[t]he breadth of this interpretation is boundless" (*id.*) and because it contradicts a position Mr. Lipoff took before the Patent Trial and Appeal Board during an *inter partes* review of the '319 patent. (*Id.* at 17 (citing CX-1656 at ¶ 97; Hr'g Tr. at 950:16-951:9).) CGI's proposed solution is:

> [T]hat the bus is actually capable of conveying digital data within the system in which it is employed. CX-1317C (Davis WS) at Q39. In other words, the conductor must be placed in a system having digital circuitry that is capable of transmitting and receiving digital data over the

> conductor. *Id.* Any other interpretation reads the word "digital" out of the agreed upon construction and the claims themselves.

(*Id.*) CGI disputes that it is breaking the agreed stipulation, but rather accuses Respondents of breaking it by "reading out the 'digital' requirement." (CRSB2 at 3.)

Respondents argue that CGI's discussion of the term is nothing but a "renege" on their agreement to avoid prior art problems. (RIB2 at 11.) Respondents argue CGI's proposed solution reads out "capable of" from the agreed construction. (*Id.*) Respondents contend CGI is bound by its stipulation. (*Id.* (citing *Akamai Techs., Inc. v. Limelight Networks, Inc.*, 805 F.3d 1368, 1376 (Fed. Cir. 2015).) Setting aside the stipulation, Respondents suggest that the '319 patent specification's focus on using "existing [analog] wires to carry digital data" (*id.* at 12; *see* RRSB2 at 13) demonstrates the propriety of the agreed construction. Respondents also dispute that Mr. Lipoff has been inconsistent and equate the key phrase he advocated for in the *inter partes* review, "for carrying discrete units of data," with the agreed construction of "capable of conveying digital data." (*Id.* at 13-14.)

I can understand how the breadth agreed construction frustrates CGI and how it conflicts with the position Mr. Lipoff took before the PTAB. I also understand how CGI's desire to revisit the term violates the stipulation in a way that should have been apparent at the time of the stipulation. Unlike CGI, however, I am under no obligation to adopt the agreed construction simply because it was agreed to, *Bancorp Servs, L.L.C. v. Sun Life Assur. Co. of Canada (U.S.)*, 687 F.3d 1266, 1274 (Fed. Cir. 2012), and I do not find that agreed meaning comports with the plain and ordinary meaning of "digital data bus" for the exact reason pointed out by CGI—that it would encompass conductors in analog communications systems. Unless the patentee acts as its own lexicographer, or there is express disavowal of scope, the plain and ordinary meaning controls. *Edwards Lifesciences*, 582 F.3d at 1329; *see GE Lighting Sols.*, 750 F.3d at 1309

("[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal.").

Accordingly, I give the term "digital data bus" its plain and ordinary meaning which is "a conductor or group of conductors which conveys digital data."

2. Controller

The parties proposed constructions for "controller" are below:

Claim Term	CGI's Construction	Respondents' Construction
Controller (claims 9, 11)	microprocessor, a microcontroller, a programmable logic or gate array, or the like	any type of control device, such as a microcontroller

CGI argues the term should be given its plain and ordinary meaning, and that its proposed construction is that ordinary meaning. (CIB2 at 17.) CGI claims that Respondents "in an attempt to support their invalidity arguments, propose an overly broad and ambiguous construction for 'controller.' Respondents propose that 'controller' should mean 'any type of control device, such as a microcontroller.'" (*Id.* at 18.) As an example of Respondents' alleged overreach, CGI states "it could include a television remote control—vague, and does not give effect to the context of the invention described in the '319 patent." (*Id.* (citing *Honeywell Int'l, Inc. v. Universal Avionics Sys. Corp.*, 493 F.3d 1358, 1362 (Fed. Cir. 2007)).) CGI acknowledges that "microcontroller" would be captured by "controller" in a plain and ordinary sense. (*Id.*)

Respondents defend their proposed construction with:

> Although the specification does not define the term "controller," it describes microcontrollers that control portions of the GDO system. JX-7 at 4:2-4 ("microcontroller 56 which interprets signals from the radio receiver 50 as code commands to control other portions of the garage door operator 10"); *see id.* at 2:32-33 ("The microcontroller also controls a

> setpoint signal . . ."), 4:5-9, 4:49-55. This intrinsic evidence supports Respondents' proposed construction: "any type of control device, such as a microcontroller." *See* RX-300C at Q&A 84.

(RIB2 at 12.)

At the outset, I do not appreciate the difference between the parties' proposed constructions. CGI mentions that Respondents' construction is wrong because it would encompass a "television remote control," but CGI does not tell me why that is a problem, for surely there are television remote controls that utilize "microprocessor, a microcontroller, a programmable logic or gate array, or the like," as under their own construction.

Again, unless the patentee acts as its own lexicographer, or there is express disavowal of scope, the plain and ordinary meaning controls. *Edwards Lifesciences*, 582 F.3d at 1329. Accordingly, I give the term "controller" its plain and ordinary meaning which is "any type of control device."

3. Motor Drive Unit

The parties proposed constructions for "motor drive unit" are below:

Claim Term	CGI's Construction	Respondents' Construction
motor drive unit (claims 1, 4, 9, 12)	head unit	a component to drive a motor

To start, CGI points out that Respondents never proposed this term for construction during the claim construction process, but "after the Commission modified the construction for the term 'wall console,' which underpinned Respondents' sole non-infringement position—Respondents offered an eleventh-hour claim interpretation for "motor drive unit" in a transparent attempt to avoid infringement." (CIB2 at 18.) In CGI's view, Respondents construe "motor drive unit" as "limited to only the subcomponent of a head unit that directly activates the motor." (*Id.* (citing CX-0474C [Lipoff WS] at Q85).) CGI contends that "the '319 patent specification,

prosecution history, and all testimony other than Mr. Lipoff's clearly and unequivocally show that 'motor drive unit' means 'head unit.'" (*Id.*) Specifically, CGI argues "the '319 patent [specification] sues the term 'head unit' exactly as the claims use 'motor drive unit'" (*id.* at 19 (citing '319 patent at 2:36-38)) and, importantly, during prosecution the patent applicant provided a direct mapping between "motor drive unit," as used in the claims, with "head unit," as used in the specification (*id.* (referring to JX-0008 at -43537, -43564; CX-1317C [Davis WS] at Q92, 93)):

CLAIMS	DESCRIPTION
1. An improved garage door opener comprising	Fig. 1, item 10; paragraph 27 and 28
a (motor drive unit) including a motor for opening and closing a garage door	(Figs. 1 and 2) item 24) which includes a motor 70 which is used to open and close garage door 16, paragraph 28
said (motor drive unit) having a microcontroller	(Motor drive unit 24) includes a microcontroller 56 (Fig. 2), paragraph 29

(JX-0008 at 43564 (annotated by CGI).) Finally, CGI points to the testimony of its witness and '319 inventor, Mr. Fitzgibbon, that persons having ordinary skill would understand "motor drive unit" to simply mean "head unit." (CIB2 at 19 (referring to CX-1316C [Fitzgibbon WS] at Q55-56).) Regarding Respondents' expected argument, CGI argues that the claim language "for opening and closing a garage door" (as shown in the above table) does not place a limit on the term "motor drive unit" as to exactly those component(s) inside the head unit that do the opening and closing. (*Id.* at 20.) CGI points to testimony from Respondents' witness that a head unit is "the box at the top of the garage that, among other things, operates the belt system or the chain system to open and close the door." (*Id.* (citing Hr'g Tr. at 858:20-859:1; *see* Hr'g Tr. at 859:9-21; CX-1320C [Preus Dep. Tr.] at 83:13-18, 136:18-23).) CGI also criticizes any contrasting opinion from Mr. Lipoff as "litigation-driven," without experience in garage door openers, and

contrary to statements he made during the *inter partes* review of the '319 patent linking "motor drive unit" to "head unit 24." (*See id.* at 20-21 (referring to CX-1656 at ¶¶ 86, 87).).

In its reply brief, CGI disputes Respondents' assertion that it has waived the issue by only now arguing a non-plain meaning for the term. (CRPB2 at 4.) CGI also disputes that "head unit" has "indeterminate boundaries" so as to render "motor drive unit" meaningless, because "[n]one of the experts or fact witnesses in this case had any trouble understanding precisely what the term 'head unit' means in the context of the '319 patent and garage doors in general." (*Id.* at 6 (referring to CX-1317C [Davis WS] at Q50; CX-1316C [Fitzgibbon WS] at Q55-56; Hr'g. Tr. at 859:9-24, 1023:25-1024:2).)

Respondents begin by asserting that CGI has waived any request that "motor drive unit" be construed as "head unit" by not disclosing the issue during claim construction or pre-hearing briefs. (RRSB2 at 6-7.) Beyond that, Respondents argue that CGI's construction of "head unit" is so broad and arbitrary "as to be virtually meaningless." (*Id.*) Respondents state flatly, "[t]he plain and ordinary meaning of the term "motor drive unit" is unambiguous: a component to drive a motor." (*Id.* at 7.) Respondents argue that there is nothing in the patent's specification resembling patentee-specific lexicography to depart from this plain meaning. (*Id.* at 8-9 (citing *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1578 (Fed. Cir. 1996)).) Regarding the prosecution history table displayed above, Respondents argue:

> The chart indicates, at most, that item 24 in Figures 1 and 2 supports "a motor drive unit *including a motor* for opening and closing a garage door" for purposes of 35 U.S.C. § 112 ¶ 1 (pre-AIA). *Id.* (emphasis added to language not found in claims as issued); *see* JX-7 at 3:53 (referring to "head unit 24"). The chart does not say that a motor drive unit and a head unit are the same thing. It does not even say which of the many components of "head unit 24" the applicants claimed provide an enabling description of "a motor drive unit including a motor for opening and closing a garage door." JX-7 at 3:53-4:4 (discussing head unit 24's various components).

(RRSB2 at 9.) Respondents argue "the prosecution history is at best ambiguous." (*Id.*) Respondents also explain how expert testimony, like CGI's expert Dr. Davis, on claim construction is less reliable, as is an inventor's testimony, like Mr. Fitzgibbon. (*Id.* at 10 (citing *SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1195 (Fed. Cir. 2013); *Markman*, 52 F.3d at 983; *Bell & Howell Doc. Mgmt. Prods. Co. v. Altek Sys.*, 132 F.3d 701, 706 (Fed. Cir. 1997)).)

Respondents then turn to their own expert who declared during the *inter partes* review that "a component to drive a motor" is the plain meaning of a "motor drive unit." (*Id.* at 11 (citing CX-1656 at ¶ 85-87).) Respondents conclude by arguing that "head unit" is "so broad as to be virtually meaningless" and effectively ignores the functionality and structure of a "motor drive" that the plain language of the claim requires. (*Id.* at 11-12.) Respondents suggest that "head unit" is indefinite. (*Id.* at 12 (citing *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014)).)

I find that, based on the intrinsic evidence, CGI's construction is more accurate; or rather, Respondents' construction is too narrow. The intrinsic evidence is the first resource for understanding the meaning of a claim term; and the intrinsic evidence includes the claims themselves, the specification, *and the prosecution history*. *Phillips*, 415 F.3d at 1317. It is not often that a patentee provides direct mapping between claim terms and similar, but different, terms used in the specification; yet that is exactly what happened here. The patent examiner challenged the applicant to show support in the specification for "motor drive unit" (JX-0008 at -43537) and the applicant unambiguously pointed to "item 24" (*id.* at -43564) which is also referred to as "head unit 24" ('336 patent at 3:63). This is clear intrinsic evidence that the term "motor drive unit" either equals or includes a "head unit 24" within its scope. Indeed, I find the thoroughness of Respondents' discussion of the prosecution history (*see* RRSB2 at 9-10)

undercuts their claim that it is "at best ambiguous." I do not find any other intrinsic evidence to cause a departure from this conclusion and then arrive at Respondents' narrower construction.

Moreover, the parties seem to have ignored how the term "motor drive unit" is used in other claims. Claim 4 recites, "wherein said keypad is provided with a switch to turn on or off *a light in the motor drive unit* in the garage." ('336 patent at claim 4 (emphasis added).) Clearly, the claims themselves understand the "motor drive unit" to be larger than just the component which drives the motor; specifically, something large enough to include a light (*e.g.*, the head unit). I observe that Respondents do not discuss claim 4 (or its analog claim 12) in their non-infringement discussion even though it merits discussion given its strong tie to the heavily-contested issue of what component(s) can satisfy "motor drive unit." (*See* RRSB2 at 28-31.) I find this omission to be a lesser sign, but a sign nonetheless, that Respondents' strict interpretation of "motor drive unit" is incorrect.

Thus, all else being equal, the correct construction should match the prosecution history and accommodate claim 4. Accordingly, I find the meaning of a "motor drive unit" to be a "unit where a driven motor resides."[14]

D. Infringement

CGI asserts the '319 Accused Products infringe claims 1-4, 7-12, 15, and 16 of the '319 patent. (CIB2 at 8.) Before its limitation-by-limitation discussion, CGI argues generally that "Respondents' expert Mr. Stuart Lipoff conceded all the facts necessary to show infringement during the Hearing" and provided a table for each limitation of asserted claim 1 with corresponding hearing testimony. (*Id.* at 1.) CGI suggests that Respondents' infringement is due

[14] Compared to my construction, CGI's proposed construction of "head unit" is closer than Respondents'.

to their copying CGI's technology so that they could enter the market rapidly—in just the last few years—as opposed to matching CGI's deep research and development investments. (*See id.*) CGI continues:

> Respondents offer but one desperate defense to infringement, resting on a belated claim construction that Respondents injected into the case long after the claim construction process was complete. In particular, Respondents now suggest that the claim language "motor drive unit" cannot be met by the GD200's head unit because the "motor drive unit" in the GD200 is only a portion of the its head unit. This argument fails for many reasons, but most importantly because it directly contradicts the intrinsic evidence, which indicates that "motor drive unit" means "head unit."

(*Id.* at 3.)

In response, Respondents explain that its products "build on generic (and unpatented) garage door functionality by adding innovative features such as plug-and-play accessory modules that provide power sources, parking assistance, cooling, and security." (RRSB2 at 1.) With respect to infringement, it is Respondents' position that its products "[do] not use the connection method from the late 1990s disclosed in the '319 patent for connecting an indoor keypad's controller to the controller driving the GDO's motor." (*Id.*) "Rather," Respondents continue, "[

]" which is important because "[e]very asserted claim of the '319 patent requires a particular connection between two specific microcontrollers." (*Id.*) According to Respondents, their [

]" (*Id.* at 2.)

I find that the '319 Accused Products, represented by the GD200, have been shown to infringe claims 1-4, 7-12, 15, and 16 of the '319 patent. In short, the breadth of these patent

claims makes it easy to infringe. Independent claims 1 and 9 simply require microcontrollers [or controllers] in a garage door opener's "motor drive unit" and wall console, with digital communication between them. (*See* '319 patent at claims 1, 9.) A non-infringing product—which avoids infringement by, for example, omitting a microcontroller in either location—would likely have meaningfully reduced functionality. I find it is because of this reason that Respondents' principle non-infringement defense is based in the law rather than the facts. Specifically, Respondents do not dispute that microcontrollers exist in both their wall console and head unit; rather they dispute whether the head unit can qualify as the patent's "motor drive unit." For reasons described above, Respondents' is not the correct construction, and my infringement determination flows from that.

1. Direct Infringement

a. Claims 1 and 9

Moving on to a limitation-by-limitation analysis, and starting with claims 1 and 9, CGI argues the GD200 is a garage door opener and this is undisputed. (CIB2 at 27 (citing CX-1317C [Davis WS] at Q48, 83-87; CX-0364 at -13115-7; Hr'g Tr. at 1014:6-15).) CGI argues that it is undisputed that the G200 includes "a motor drive unit for opening and closing a garage door" when "motor drive unit" is given its pain meaning of "head unit." (*See id.* at 28 (citing CX-1317C at Q50, 88-93; CX-1499 at -6233; CX-0416C at 106, 107; Hr'g Tr. at 859:22-24, 1014:13-15); *see* also CRPB2 at 9 (citing Hr'g Tr. at 1014:18-20).)

For this limitation, Respondents argue "[

]"" (RRSB2 at 21 (citing RX-0474C at Q92; RX-0241C).) Respondents show [

]

[

]

(*Id.* at 22.) Respondents reference their expert's opinion that "a PHOSITA would understand a subsystem to be its own independent system within a larger setup that is charged with its own communication or function duties." (*Id.* (citing RX-0474C at Q95, 13-29, 97-99).) Respondents highlight how CGI's expert admitted at the hearing "that the [

]" (*Id.* at 23 (citing Hr'g Tr. at 828:23-829:1).) Respondents summarize with "[i]n other words, the [

]Thus, this limitation is not met."

(*Id.* (citing RX-0474C at Q84-105).)

At the outset, I find there is no genuine dispute that the '319 Accused Products meet this limitation. CGI accuses the "head unit" of the '319 Accused Products as serving as the "motor drive unit" because it "contains the motor and other components for opening and closing a garage door, as the claim recites." (CIB2 at 28.) Respondents' opposition, and its discussion of subsystems, [ ] does not dispute this fact. If some kind of dispute is to be divined here, it can only be that the '319 Accused Products' head unit cannot be the "motor control unit" because non-motor-controlling subsystems are also located within. (*See* RRSB2 at 23 ("[

] Thus, this limitation is not met.").) Such an argument would be wrong based on my settled-upon construction of "motor drive unit," but, regardless, it has not really been made. (*See* RRSB2 at 20-23.)

Moving on, CGI argues that it is undisputed that the GD200 includes "said motor drive unit having a microcontroller [or controller]," [ ] (*See* CIB2 at 28 (citing Hr'g Tr. at 1014:21-25; RX-0474C at Q73; CX-1317C at Q51, 59, 94-104; CX-1406C; CX-0416C at -18105, -18106, -18109).) Specifically, CGI contends:

> Respondents admit that the GD200's motor drive unit, or head unit, includes a [
>] Hrg Tr. (Lipoff) at 1014:21-25, *see also* RX-0474C at Q73, CX-1317C (Davis WS) at Q51, 59, 94-104; CX-1406C; CX-0416C at -18105, -18106, -18109. [ ] satisfies claim 1's "microcontroller" requirement as well as claim 9's "controller" requirement, applying either party's proposed "controller" construction.

(CIB2 at 28-29.)

For this limitation, Respondents argue "the [ ] is not a microcontroller of the motor drive unit because it does not control or drive the motor for opening and closing the garage door." (RRSB2 at 23 (citing RX-0474C at Q106-110).) Respondents continue,

"[b]ecause the GD200 has [ ] it has a structure and operation that is fundamentally different than the '319 patent." (*Id.* at 24.) Respondents discuss the specific functions of the [ ] (*id.* at 23-24) and the advantages to [ ]" (*id.* at 24-25).]

Respondents add:

> Even assuming that the GD200's entire head unit is a "motor drive unit" (it is not), CGI still fails to prove literal infringement because it relies upon a microcontroller that does not meet the requirement of "said motor drive unit having a microcontroller."

(*Id.* at 25.) To explain this, Respondents note how the '319 patent's head unit has just one microcontroller ("microcontroller 56") and then turn back to the fact that "the [ ]" (*Id.* at 25-26.) Respondents conclude by touting how "[t]he innovative GD200 module system with [ ] turns the simple GDO system disclosed in the '319 patent on its head." (*Id.* at 26.)

Again, I *see* no genuine dispute over this limitation. The limitation reads, "said motor drive unit having a microcontroller [or controller]." As explained above, I find the "motor drive unit" is not limited to exactly that structure, subsystem, electrical board, etc. that controls the motor. Rather it is "a unit where a driven motor resides" and it is undisputed that within the head unit of the '319 Accused Products, there is a microcontroller. [ ] (*See, e.g.*, RX-0332 at Figure 3; RRSB2 at 21-26; CX-1317C at Q95.) This ends the inquiry. The limitation is met.

Moving on, CGI argues that it is undisputed that the GD200 includes "a wall console." (*Id.* at 29 (citing Hr'g Tr. at 1014:24-25; CX-1317C at Q60, 105-10; CX-0364 at -13158; CX-1320C [Preus Dep. Tr.] at 158:19-159:1).) CGI argues it is undisputed that the GD200 includes

"said wall console having a microcontroller [or controller]." (*Id.* (citing Hr'g Tr. at 1015:1-3; CX-1317C at Q61, 111-16; CX-1465C; CX-0311C; CX-1439C; CX-1561C; CX-1320C at 157:3-158:9; CX-1319C [Huggins Dep. Tr.] at 225:17-226:23).)

For the final limitation, "said microcontroller [or controller] of said motor drive unit being connected to the microcontroller of the wall console by means of a digital data bus," CGI then argues that it is admitted that [ ] is directly connected to the indoor keypad's microcontroller via a digital data bus. (*Id.* (citing, *inter alia*, Hr'g Tr. at 1015:4-8, 1016:5-7).) CGI claims that Respondents' non-infringement argument for this limitation is based on a faulty construction of "motor drive unit," as something narrower than simply "head unit." (*Id.* at 30.)

Respondents argue "[t]he accused products do not meet this limitation because the indoor keypad's microcontroller and the motor drive unit's microcontroller are not connected via a digital data bus." (RRSB2 at 26 (citing RX-0474C at Q111-119; Hr'g Tr. at 1036:14-1037:9; RX-0241C at -18107).) Indeed, Respondents state, [ ] which—for the reasons discussed above—is not the motor drive unit's microcontroller." (*Id.* at 27 (citing RX-0474C at Q94, 103, 113).)

Respondents then argue that even if I "*sua sponte*" consider "whether there is a connection between the Indoor Keypad's microcontroller and [ ] the accused products still would not infringe." (RRSB2 at 27.) Respondents explain:

> When a user presses and releases the Indoor Keypad's Up/Down Button, a command (*i.e.*, data) travels to [ ] RX-474 at Q&A 103. The [ ] that negates one of the specified claim limitations—*i.e.*, there is *no conductor* capable of conveying digital data between the Indoor Keypad's microcontroller and the GDO Board's microcontroller. . . .

> Thus, the [ ] takes the accused products out of the scope of the '319 patent.

(RRSB2 at 27.) Respondents then reference their products' use of "[ ]" and argue this defeats the "conductor" aspect of "digital data bus." (*Id.* at 28 (Hr'g Tr. at 1036:21-1037:9, 837:20-23).] Respondents conclude "Dr. Davis's only argument to the contrary rests on his faulty construction of motor drive unit." (*Id.* (citing RX-0474C at Q111-118).)

Unfortunately for Respondents, Dr. Davis's construction of motor drive unit is not faulty. The "motor drive unit," as used by the '319 patent, is not limited to the particular "subsystem" classification Respondents happen to use for their products. Under the proper construction, "a unit where a driven motor resides," the limitation is met by the '319 Accused Products, because it is undisputed that[ ] and communicates digitally over that wired connection (*i.e.*, "a conductor or group of conductors which conveys digital data"). (RRSB2 at 27; CX-1317C at Q119.)

Even under Respondents' interpretation of "motor drive unit," the limitation is still met. The presence of [ ] does not negate the presence of "conductors" also in the [ ] which is all the claim requires. It has not been alleged the entire end-to-end link is [ ], which would create a colorable argument. The same logic applies for the [ ]

Thus, in light of the above evidence, I find CGI has shown the '319 Accused Products infringe claims 1 and 9 of the '319 patent.

b. Claims 2 and 10

Asserted claims 2 and 10 depend from independent claims 1 and 9, respectively. CGI argues "communications over the two-wire connection [ ]

[ ] and that this is unrebutted. (CIB2 at 30 (citing CX-1317C [Davis WS] at Q65, 125-130; CX-0416C at -18143-4; CX-1322 at 106:24-107:6).) In particular, CGI observes that Respondents' expert, Mr. Lipoff, "admitted that he did even know whether communications between the microcontroller of the wall console and the motor drive unit in the GD200 were synchronous or asynchronous" and didn't even inquire into such. (*Id.* (citing Hr'g Tr. at 1016:18-1017:2, 1017:18-20, 1019:3-6).) CGI alleges that Respondents' dispute here is based on their misinterpretation of "motor drive unit." (*Id.*) Indeed, Respondents do not meaningfully dispute this limitation is met. (*See* RRSB2 at 28-31.)

Thus, in light of the above evidence, I find CGI has shown the '319 Accused Products infringe claims 2 and 10 of the '319 patent.

c. Claims 3 and 11

Asserted claims 3 and 11 depend from independent claims 1 and 9, respectively. For these claims, CGI argues "[t]he microcontroller on the GD200's GDO Board satisfies this limitation." (CIB2 at 31 (citing CX-1317C at Q131-142).) CGI argues that it is undisputed that [ ] directly controls the motor that causes the door to open and close." (*Id.* (citing, *inter alia*, RPB2 at 19; CX-1317C at Q52, 134, 135).) CGI argues this microcontroller "makes calculations of the door's location during travel" through [

]

(*Id.* (citing CX-1317C at Q53-58, 136-141; Hr'g Tr. at 845:17-846:18; CX-1320C [Preus Dep. Tr. at 154:21-156:19; CX-1323C [Yongwen Huang Dep Tr.] at 103:11-104:24).) CGI contends the microcontroller must be making these calculations in order to [

] (*Id.* at 31-32 (citing CX-1317C at Q56, 139; CX-1320C at 148:12-149:6; CX-1323C at 34:22-36:16).) Similarly, according to CGI, "[t]he GD200 must also track the location of the door

during travel to allow a user to set a predetermined stop point for the door to air out the garage." (*Id.* at 32 (citing CPX-0345).) CGI adds that [

]" (*Id.* (citing CX-0416C at -18130, -18132, -18140).)

CGI asserts that Respondents have mischaracterized Dr. Davis's opinion to argue [

] (*Id.*) CGI claims that it is Dr. Davis's opinion that [

] (*Id.* (citing Hr'g Tr. at 845:17-846:18; CX-1317C at Q56, 139; RX-0474C at Q126, 127).) CGI adds that "[n]otably, Respondents do not actually dispute that the GD200 performs this limitation—instead Respondents' expert claims ignorance." (*Id.* (citing Hr'g Tr. at 1019:12-1021:20 ("Q. You don't know one way or the other for sure whether the GD200 performs calculations to determine the door's travel; correct? A. That's correct. I don't know.")).)

In its reply brief, CGI argues "the claims do not require the microcontroller of claims 1 and 9 to be the same microcontroller of claims 3 and 11." (CRPB2 at11.) CGI also explains that it "never argued that the speed of the motor's rotation *alone* equals the door's location during travel." (*Id.* at 11-12 (citing CX-1317C at Q136).) Rather, according to CGI, [

] (*Id.* at 12 (citing CX-1317C at Q136; Hr'g Tr. at 844:8-17, 845:11-846:20).) Finally, CGI argues [

] and "the

GD200's ability to stop the door at preset locations requires the microcontroller to calculate the door's location during its travel." (*Id.* (citing CX-1317C at Q53-58, 137).)

Claims 3 and 11 are the only dependent claims Respondents actively dispute. Respondents present four reasons why they do not infringe. (RRSB2 at 29.) First, Respondents allege Dr. Davis cannot rely on the [ ] for claims 1 and 9, but switch to [ ] [ ] for claims 3 and 11, because "[t]he microcontroller (or controller) of the dependent claims must refer to one of the two microcontrollers (or controllers) identified in claims 1 and 9." (*Id.*) Second, Respondents argue "[i]nstead of 'the door's location,'[

]

(*Id.* at 30 (citing RX-0474C at Q126).) According to Respondents, [

] (*Id.* (citing CX-1321C at 39:22-41:4).) Respondents urge that their witness's testimony that the [ ] is "not an admission that the GDO Board's microcontroller makes any calculation of the door's position based on this measurement for the motor." (*Id.* (citing CX-1319C [Huggins Dep. Tr.] at 28:20-29:9).)

Third, Respondents reference CGI's claim that the [ ] shows that calculations of door position are being made and then argue "the evidence CGI cites does not support that claim." (*Id.* at 30.) Respondents present Mr. Preus's testimony that [

] (CX-1320C [Preus Dep. Tr.] at 148:12-149:6) and point out specifically how he makes no mention of the GDO Board microcontroller. (*Id.* at 31.) Fourth, Respondents argue [ ]

[ ] (*Id.* (citing RX-0474C at Q131; CX-1319C at 22:2-23:15, 24:5-9; RX-0241C at -18131).)

I find CGI has shown the limitation is met by the '319 Accused Products by the preponderance of the evidence. It is reasonable to infer that the '319 Accused Products make calculations, using [

] (*see* RRSB1 at 9) feature. Indeed, the [ ] was strongly implicated by CGI's infringement theory of the '336 patent. As part of that discussion, it stands undisputed that ["

] (*See, e.g.*, RX-0228C at Q422.) To counter the allegation that [ ] "corresponds to force" (an issue for '336 patent infringement), Respondents argued how [

]"

> But [ ] does none of that. Instead, as Dr. Direen admitted during cross-examination, [
>
>]" Hr'g Tr. at 155:18-156:3. Regardless of the direction of travel, it is undisputed that [ ] Hr'g Tr. at 156:4-21; 159:18-23.]

(RRSB1 at 8 (emphasis added).) I find this to be a clear and accurate admission that Respondents' products make calculations of the door's location. Additionally, I find Dr. Davis's testimony [ ] to be credible and persuasive as well. (*See* CX-1317C at Q54, 55 (citing CX-1323C [Yongwen Huang Dep. Tr.] at 103:11-104:24).) Overall, I find credible testimony supports CGI's allegation location calculation and tracking is how the products [

] (CRPB2 at 12 (citing CX-1317C at Q53-56, 137).)

Regarding Respondents' arguments, I do not agree that CGI's theory involves [ ] *themselves* making the calculation as opposed to just[ ] (*see* RRSB2 at 30); and I do not understand how they could (*see, e.g.*, CX-1317C [Davis WS] at Q55). Additionally, it does not matter that "Mr. Preus makes no mention of [ ] in the cited testimony" (*id.* at 30-31) because Respondents' principle non-infringement defense rests on the idea that [ ] is solely responsible for garage door movement. (RRSB2 at 26 ("[ ] responsibility to control the door").) Lastly, Respondents' contention that the [ ] is loosely supported by the cited deposition testimony (*see* RX-0474C at Q131 (citing CX-1319C at 22:3-23:11)) but drastically undercut by testimony just moments later where it is confirmed [ ] (*see* CX-1319C at 23:12-25:3). Perhaps more importantly, if the '319 Accused Products [ ] using a non-infringing technique, it should have been elementary for Respondents to identify and explain that technique. As CGI points out, however, Respondents' expert didn't find out "one way or the other." (Hr'g Tr. at 1019:12-1021:20.)

Thus, in light of the above evidence, I find CGI has shown the '319 Accused Products infringe claims 3 and 11 of the '319 patent.

d. Claims 4 and 12

Asserted claims 4 and 12 depend from independent claims 1 and 9, respectively. CGI argues "[t]he GD200 includes an indoor keypad with a button to turn on and off a light in the head unit, *i.e.* "motor drive unit," of the GD200, as clearly evidenced in the GD200's product manuals and design specifications." (CIB2 at 33 (citing CX-1317C at Q144-148; CX-0364 at -

13125, -13158; CX-0416C at -18141).) Respondents do not meaningfully dispute this limitation is met. (*See* RRSB2 at 28-31.)

Thus, in light of the above evidence, I find CGI has shown the '319 Accused Products infringe claims 4 and 12 of the '319 patent.

e. Claims 7 and 15

Asserted claims 7 and 15 depend from independent claims 1 and 9, respectively. CGI argues "[i]n the GD200, power is supplied to the indoor keypad via [ ] through the two-wire connection from the head unit," and that this is undisputed. (CIB2 at 33 (citing Hr'g Tr. at 1026:12-17).) CGI continues, [ ] (*Id.* at 34 (citing CX-1317C [Davis WS] at Q62, 63, 150-55; CX-1320C [Preus Dep. Tr.] at 170:20-171:4, CX- 1321C [Shao Dep. Tr.] at 24:25-25:14, CX-1139C [Chow Dep. Tr.] at 84:19-22, and CX-1318C [Cao Dep. Tr.] at 50:16-20; CX-1322C [McNabb Tr.] at 107:11-20; CX-1465C, CX-1406C; CX-0416C at -18106, -18107).) Respondents do not meaningfully dispute this limitation is met. (*See* RRSB2 at 28-31.)

In light of the above evidence, I find CGI has shown the '319 Accused Products infringe claims 7 and 15 of the '319 patent.

f. Claims 8 and 16

Asserted claims 8 and 16 depend from independent claims 7 and 15, respectively. CGI argues "[a]gain, the wired connection between [ ] and the indoor keypad includes power conductors that convey data and power, as indicated in the above discussion of claims 7 and 15," and that this is undisputed. (CIB2 at 34 (citing CX-1317C at Q157-161; Hr'g Tr. at 1026:12-17).) Respondents do not meaningfully dispute this limitation is met. (*See* RRSB2 at 28-31.)

Thus, in light of the above evidence, I find CGI has shown the '319 Accused Products infringe claims 8 and 16 of the '319 patent.

2. Indirect Infringement

CGI argues that Respondents induce and/or contribute to infringement of the asserted claims. (CIB2 at 35.) Regarding inducement, CGI argues "Respondents became aware of the '319 patent, and of the Accused Products' infringement since at least May 24, 2016, when CGI filed its complaint asserting the '319 Patent in an action in the Northern District of Illinois" in addition to the service of the Complaint in this investigation. (*Id.*) CGI adds that "Respondents' knowledge of this patent and their infringement may have been as early as February 2016, when they were discussing Chamberlain's patents with a third party while also developing of the Accused Ryobi Products." (*Id.* at 36 (citing CX-0384C; CX-1317C [Davis WS] at Q170).) CGI also suggests that, in the course of copying CGI's products, Respondents were put on notice through patent marking. (*Id.* at 36 (citing CX-1317C [Davis WS] at Q171-2; CX-1322C [McNabb Dep. Tr.] at 25-30, 65-67, 97-98, 149-150; CX-1320C [Preus Dep. Tr.] at 33-53, 58-62, 129-35, 139-42, 143-50, 204-20, 223-28, 260-69, 279-83, 322-23; CX-1319C [Huggins Dep. Tr.] at 155-59, 166-67, 248-57, 271-80, 282-90, 294-08; CX-1488C.).)

With respect to intent, CGI alleges Respondents "routinely engage in discussions with their customers, such as Home Depot, to discuss the performance and intended operation of the Ryobi GDOs." (*Id.* (citing CPX-0029C, CPX-0030C, CPX-0031C, CPX-0032C, CPX-0033C, CPX-0122C, CPX-0123C, CPX-0124C, CPX-0125C, CPX-0126C, CPX-0127C, CPX-0128; CX-1252C at Q176-177).) CGI continues, "Respondents also provided and continue to provide information in product manuals and instructional videos that instruct end users to install and operate the Accused Ryobi Products in a manner that practices the asserted claims of the '319 patents." (*Id.* (citing CX-1317C [Davis WS] at Q177, 178; CX-0364; CX-1485C; CX-1490;

CX-1491; CX-1494C; CX-1496C; CX-1497C; CX-1498C; CX-0361; CX-0363; CPX-0073; CX-1141C at 230-42; CX-1142C at 164:3-7; CX-1145C at 185:10-186:14; CX-1135C at 73:21-24; CPX-73; CX-1152C; CX-1317C at Q178-84; CX-1654C).) CGI finally argues that Respondents "warn harm or damage if the instructions are not followed" and "encourage the infringing use of their products by advertising the features relating to the '319 patent." (*Id.* (citations omitted).)

Finally, with respect to non-infringing uses, CGI explains:

> If it is claimed that the accused Ryobi GDOs embody less than the entirety of the '319 patented invention, then the infringing aspects of the accused Ryobi GDOs constitute a material part of the '319 patented invention. Namely, the Ryobi GDOs are specifically designed to attach to, and control the opening and closing of a garage door. The garage door opening and closing relies on the digital communications between the Ryobi GDO's indoor keypad and the Wi-Fi Board in the head unit. CX-1317C (Davis WS) at Q182.

(*Id.* at 37-38.) CGI claims this is not in dispute. (*Id.* at 38.) CGI summarizes, "[t]he Ryobi GDOs cannot be used for their intended purpose—*i.e.* for opening and closing a garage door—without the digital communications between the microcontroller at the indoor keypad and the microcontroller in the GDO's head unit. (*Id.* (citing CX-1317C at Q183).)

Respondents dispute indirect infringement on three grounds. First, Respondents there is no direct infringement. (RRSB2 at 32.) Second, "CGI cannot show Respondents had any pre-litigation knowledge of the '319 patent, and mere speculation is not proof." (*Id.*) Respondents add that they "have at all times reasonably believed that the accused products do not infringe the '319 patent." (*Id.* (citing RX-0474C at Q145).) Third, Respondents argue that general allegations of an instruction to use the '319 Accused Products is "not the same as 'recommending, encouraging, or promoting an infringing use, or suggesting that an infringing use should be performed.'" (*Id.* (citing *Takeda Pharm. U.S.A., Inc. v. W.-Ward Pharm. Corp.*, 785 F.3d 625, 631 (Fed. Cir. 2015) (internal quotations omitted); *Manville Sales Corp. v.*

Paramount Sys., Inc., 917 F.2d 544, 553 (Fed. Cir. 1990)).) Respondents then suggest that CGI's advertising argument is an improper string citation argument (*id.* at 33 (citing *Certain Kinesiotherapy Devices & Components Thereof*, Inv. No. 337-TA-823, ID at 48 (Jan. 8, 2013))), and, even then, "do not 'advertise' the GD200's internal communication architecture" (*id.*).

As discussed above, I find Respondents directly infringe the '319 patent. I also find Respondents indirectly infringe through inducement. Downstream customers of the '319 Accused Products infringe the '319 patent through use of the GD200's wall console and head unit. Respondents encourage this particular act through, for example, instruction manuals explaining how to install and connect the wall console to the head unit and using the wall console to open and close the door. (*See, e.g.*, CX-0364 at -13147, -13158.) This goes beyond the medical label suggestion at issue in *Takeda* because that label did not "encourage, recommend, or promote infringement." *See Takeda*, 785 F.3d at 632. This is also markedly different from *Manville*, where the particular defendants were held to not indirectly infringe on unrelated grounds. *See Manville*, 917 F.2d at 553-4.

I also find Respondents knew or should have become aware of the '319 patent no later than served with the complaint in the district court litigation referenced by CGI. At that time, and given the simplicity of the '319 patent claims, they should also have become aware that use of the GD200, GD200a, and future use of the GD125, infringe the patent's claims. Respondents' alleged good-faith belief of non-infringement is actually a belief of invalidity (*see* RX-0474C at 38, 145) which is immaterial. *Commil*, 135 S. Ct. at 1928. With this, all elements of induced infringement are met. *C.R. Bard*, 911 F.2d at 675.

Regarding contributory infringement, CGI's allegation is predicated upon it being "claimed that the accused Ryobi GDO's embody less than the entirety of the '319 patented

invention." (CIB2 at 37.) I do not understand Respondents to claim this. (*See* RRSB2 at 31-33.) Moreover, I do not find that the '319 Accused Products are less than the entirety of any asserted claims. Therefore, I do not find this allegation warrants discussion.

E. Domestic Industry – Technical Prong

CGI asserts the '319 Domestic Industry Products practice the same claims asserted against Respondents; namely claims 1-4, 7-12, 15, and 16 of the '319 patent. (CIB2 at 38.) Before its limitation-by-limitation discussion, CGI argues generally "Complainant's expert's opinion on domestic industry went mostly unchallenged. Indeed, Respondents' expert admitted repeatedly that he performed *no analysis* of CGI's domestic industry products whatsoever." (*Id.* (citing Hr'g Tr. at 968:5-8, 965:23-13, 966:8-13).)

Importantly, CGI argues "[d]ocumentation for the CGI GDOs indicates that they share the same general system architecture and the same, or substantially the same, design and operations, at least insofar as the '319 patent claims are concerned." (*Id.* at 40 (citing CX-1317C [Davis WS] at Q205-207, 222-223; CX-1316C [Fitzgibbon WS] at Q42, 43, 48, 49).) CGI continues:

> For example, each CGI GDO includes a head unit with generally the same core components and modules, including an indoor keypad that connected to the head unit via a data bus. Each of the CGI GDOs can be operated using the indoor keypad to open and close the door as well as turn on or off a light in the head end. CX-1317C (Davis WS) at 205-207; CX- 1316C (Fitzgibbon WS) at Q41-2.

(*Id.*) CGI argues "[t]he CGI GDOs also include an indoor keypad, which contains a microcontroller that com CGI GDOs also include an indoor keypad, which contains a microcontroller that communicates over a two-wire connection with the microcontroller in the head unit" and "[t]he CGI indoor keypad is powered through the conductors that connect to the head unit, the same conductors that transmit data." (*Id.* at 41 (citing CX-1317C at Q206, 211-

213, 216; CX-0070; CX-0116 at 6322-23, 6337; CX-1338 at 5403; RX-0069C (Fitzgibbon Tr.) at 296:21-297:3; CX-1380C; CX-1335C at -3444-5).) CGI is clear that references to particular product manuals in its limitation-by-limitation analysis reflect on all the '319 Domestic Industry Products. (*See id.*)

Respondents dispute the technical prong is met for two reasons. (*See* RRSB2 at 33.) First, Respondents allege that CGI "relies on 'broad categories' of products to establish its domestic industry . . . . Without specifically analyzing any particular product, CGI merely string cites over 90 documents without substantively analyzing a single one." (*Id.* at 33-34 (referring to *Kinesiotherapy Devices*, Inv. No. 337-TA-823, ID at 52).) Second, Respondents argue that "CGI does not show that any product actually has the claimed connection [between a microcontroller of a "motor drive unit" and a microcontroller of a "wall console"]." (*Id.* at 34.) Put another way, Respondents argue "CGI does not show any of these particular GDOs have a motor drive unit that is connected to any specific wall console by means of a digital data bus." (*Id.*) Respondents contend that "whether a product conceivably *could* meet a limitation of a claim is not a shortcut that can satisfy CGI's burden." (*Id.* (citing *Microsoft Corp. v. Int'l Trade Comm'n*, 731 F.3d 1354, 1361-62 (Fed. Cir. 2013)).)

Keeping in mind the ultimate burden falls upon CGI to show it has practiced each limitation of one or more claims of the '319 patent, *Microsoft Corp. v. GeoTag, Inc.*, 817 F.3d 1305, 1313 (Fed. Cir. 2016) (quoting *Southwall Techs, Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995)), I first address Respondents' criticisms.

First, Respondents appear to challenge whether these assertions of representative-ness are accurate, but they fail to put forward any evidence or examples to support that challenge. (*See* RRSB2 at 33-34.) This academic argument is not enough, by itself, to overturn the evidence

CGI presents. Second, Respondents' argument regarding the required connection between microcontrollers appear to be rooted in their mistaken interpretation of "motor drive unit" as limited to just an electrical board or other "subsystem" that only operates the motor with no other function. As discussed, and already applied, above, I find "motor drive unit" is properly construed more generally as a "unit where a driven motor resides."

Hence, based on CGI's unrebutted claims and the evidence provided, I find it more likely than not that the '319 Domestic Industry Products practice claims 1-4, 7-12, 15, and 16 of the '319 patent. I also find sufficient evidence supports a determination that the system architecture and operation of the '319 Domestic Industry Products are effectively the same for the purposes of the '319 patent. (*See* CX-1317C [Davis WS] at Q188-203; CX-1316 [Fitzgibbon WS] at Q37-43, 47-50).)

1. Claims 1 and 9

Moving on to a limitation-by-limitation analysis, and starting with claims 1 and 9, CGI argues "the CGI GDOs are garage door openers and, to the extent the preamble is limiting, are improved garage door openers." (CIB2 at 42 (citing CX-1317C at Q234-239; CX-0116, CX-0080, CX-1338).) CGI argues "[t]he CGI GDOs each include a head unit, also known as a motor drive unit. The head unit includes a motor and, because it is a garage door opener, is used for opening and closing the associated garage door." (*Id.* (citing CX-1317C at Q205, 240-245; CX-0116 at 6346; CX-0080 at -3800, -3839; CX-1338 at -5426).) CGI seeks to clarify its position by stating "Dr. Davis identified more than just a motor to satisfy this limitation. . . . Contrary, [sic] to Respondents [sic] assertions, the CGI products have a head unit, also described as 'motor drive unit.'" (*Id.* (citing CX-1317C at Q205, 241, 245).) CGI argues "[t]he head unit in the CGI GDOs each have at least one microcontroller present in their logic boards," and that this satisfies both "microcontroller" and "controller" of claims 1 and 9. (*Id.* at 43 (citing CX-1317C [Davis

WS] at Q246-52; CX-0116 at 6346; CX-068C at 3297; CX-1339C at 6506; CX-1338 at 5426).) CGI avers this is not materially disputed. (*Id.* (citing Hr'g Tr. at 966:8-13).)

CGI argues "[t]he CGI GDO's [sic] can each be opened using an indoor keypad that satisfies this limitation." (*Id.* (CX-1317C at Q253-257; CX-0080 at -3829, 3830; CX-1338 at -5403, -5415; CX-0116 at -6336-37, -6345; CX-1316C at Q41, 42).) CGI avers this is not materially disputed. (*Id.* (citing Hr'g Tr. at 966:8-13).) CGI argues "[t]he CGI GDO's indoor keypad each contain a microcontroller," and that this satisfies both "microcontroller" and "controller" of claims 1 and 9. (*Id.* at 43-44 (citing CX-1317C at Q259-265; CX-1380C; CX-1335C at -3445; RX-0520C [Fitzgibbon Dep. Tr.] at 296:21-297:3).) CGI avers this is not disputed. (*Id.* at 44 (citing Hr'g Tr. at 966:8-13).)

For the final limitation, CGI argues "[t]he CGI GDOs satisfy this claim element under the parties' agreed construction of 'digital data bus' (a conductor capable of conveying digital data)." (*Id.* (citing CX-1317C at Q266-272).) CGI specifically argues:

> [T]he microcontroller in the head unit is connected [ ] to the microcontroller of the indoor keypad. The exchange of data [ ] a digital data bus. This is shown at least by the schematics, which depict [ ], and by product manuals, which show [ ] CX-1380C; CX-1339C at -6504, -6506; CX-1335C at -3445; CX-0080 at 3813; CX-0116 at 6322-23; CX-1338 at -5403.

(*Id.*) CGI avers this is not materially disputed. (*Id.*)

As discussed above, and accurately reported by CGI, Respondents' only dispute over CGI's practice of claims 1 and 9 would be with the "digital data bus" limitation. (*See* RRSB2 at 33-34.) As discussed, I find Respondents' argument to be rooted in an improper interpretation of

"motor drive unit," and thus, unavailing. To the contrary, the evidence shows it is more likely than not that the '319 Domestic Industry Products do include "a conductor or group of conductors which conveys digital data" which enable communication between the microcontrollers in the wall console and head unit.

Thus, in light of the above evidence, I find CGI has shown the '319 Domestic Industry Products practice claims 1 and 9 of the '319 patent.

2. Claims 2 and 10

Asserted claims 2 and 10 depend from independent claims 1 and 9, respectively. CGI argues "[t]he digital data bus within CGI's GDOs communicate asynchronously as previously described." (CIB2 at 44 (referring to CIB2 at 41 and citing CX-1317C at Q273-281; CX-1370C at -49139, -49142; CX-1341C at -12983; CX-1316C at Q43).) Respondents do not dispute this limitation is met. (RRSB2 at 33-34.)

Thus, in light of the above evidence, I find CGI has shown the '319 Domestic Industry Products practice claims 2 and 10 of the '319 patent.

3. Claims 3 and 11

Asserted claims 3 and 11 depend from independent claims 1 and 9, respectively. For these claims, CGI argues:

> The CGI GDO's [sic] microcontroller, which is on the logic board within the head unit, controls the travel of the operator's door which is evident at least from inspecting CGI's schematics that show a motor drive circuit used to control travel of the operator's door, where the motor drive circuit is connected to the microcontroller. CX-1317C (Davis WS) at Q207, 282-85; CX-0116 at 6346; CX-068C at 3297; CX-1339C at 6506; CX-1338 at 5426; CX-0080 at 3829, 3830, CX-1338 at 5415, CX-0116 at 6336, 6345; CX-068C at 3286-87.

(*Id.* at 45.) CGI references the products' ability to segment the travel path into sectors, which "indicates that the microcontroller is making calculations of a door's location during travel."

(*Id.*) Further, CGI argues its slow start and soft stop features "require[] the CGI GDOs to calculate the door's position to determine when the door is nearing the end of the travel path." (*Id.* (citing CX-1317C [Davis WS] at Q286-87; CX-068C at 3286-87; CX-0116 at -6346; CX-1338 at -5422, -5425-26; CX-0072C at -3403-04; CX-1316C at Q48, 49).) CGI avers that any dispute over this limitation from Respondents is not credible or based in evidence. (*Id.*) Indeed, Respondents do not dispute this limitation is met. (RRSB2 at 33-34.)

Thus, in light of the above evidence, I find CGI has shown the '319 Domestic Industry Products practice claims 3 and 11 of the '319 patent.

4. Claims 4 and 12

Asserted claims 4 and 12 depend from independent claims 1 and 9, respectively. CGI argues "[t]he CGI GDOs include an indoor keypad for controlling the head unit, and the keypad includes buttons to turn on or off a light in the head unit," and that this is not credibly disputed. (*Id.* at 46 (citing CX-1317C at Q292-297; CX-0116 at -6337; CX-1338 at -5403; CX-0116 at -6322-23, -6337).) Indeed, Respondents do not dispute this limitation is met. (RRSB2 at 33-34.)

Thus, in light of the above evidence, I find CGI has shown the '319 Domestic Industry Products practice claims 4 and 12 of the '319 patent.

5. Claims 7 and 15

Asserted claims 7 and 15 depend from independent claims 1 and 9, respectively. CGI argues:

> The CGI GDOs uses [ ] to connect the microcontroller of the indoor keypad to the microcontroller of the head unit. The indoor keypad itself does not include a battery or alternate power source, and CGI's technical documentation and schematics show that [ ] CX-1317C (Davis WS) at Q216, 298-303; CX-1335C at 3444; CX-1380CC [sic].

(*Id.*) CGI adds that Respondents do not dispute these facts. (*Id.*) Indeed, Respondents do not dispute this limitation is met. (RRSB2 at 33-34.)

Thus, in light of the above evidence, I find CGI has shown the '319 Domestic Industry Products practice claims 7 and 15 of the '319 patent.

6. Claims 8 and 16

Asserted claims 8 and 16 depend from independent claims 7 and 15, respectively. CGI argues "[t]he data bus within the CGI GDOs convey data as well as power." (*Id.* (citing CX-1317C at Q216, 217, 304-309).) CGI argues this is confirmed, for example, by [

] (*Id.* (citing CX-1335C at -3444; CX-1380C).) CGI avers that Respondents do not dispute these facts. (*Id.* at 47.) Indeed, Respondents do not dispute this limitation is met. (RRSB2 at 33-34.)

Thus, in light of the above evidence, I find CGI has shown the '319 Domestic Industry Products practice claims 8 and 16 of the '319 patent.

F. Validity

Respondents challenged the validity of the asserted claims of the '319 patent under 35 U.S.C. § 103 for obviousness. Respondents describe the challenge as "whether a PHOSITA would have been motivated to add a microcontroller into a CGO's wall console." (RIB2 at 12.) Respondents argue that "nearly every limitation of the asserted claims was already well known to a PHOSITA at the time of the alleged invention" and continue with:

> [I]t was well known that such a configuration would improve a system's functionality. For example, Jacobs discloses a wall console with a microcontroller as part of a system that, like the '319 patent, moves a barrier. RX-300C at Q&A 139-40, 142, 159, 161; RX-41 at 1:5-10, 5:15-17, Figure 1, Figure 24. Eckel teaches a wall-mounted control unit with a microcontroller in a system that, like the '319 patent, controls lighting. RX- 300C at Q&A 104-107; RX-48 at 1:11-17, 1;38-46, 4:11-14, 6:36-41, 6;65-67, Figure 1. And, like the '319 patent, Gilbert discloses wall consoles with microcontrollers connected to home appliances with

microcontrollers. RX-300C at Q&A 99-101; RX-42 at 1:20-23, 2:33-35, 3:35-37, 3:42-47, 3:65-4:8, Figure 1.

(*Id.* at 13-14.) Specifically, Respondents contend three prior art combinations render the claims obvious: (1) UK Patent Application GB 2312540 ("Doppelt") (RX-0040) and U.S. Patent No. 5,467,266 ("Jacobs") (RX-0041); (2) Doppelt, Jacobs, and U.S. Patent No. 5,530,896 ("Gilbert") (RX-0042); and (3) U.S. Patent No. 4,328,540 ("Matsuoka") (RX-0049), Doppelt, and U.S. Patent NO. 5,699,243 ("Eckel") (RX-0048). (*Id.* at 14.) Respondents explain that "adding a microcontroller to the wall console is an obvious technique because it "has been used to improve one device," and a PHOSITA would know it would improve a GDO system in the same way." (*Id.*) Respondents allege that CGI's expert, Dr. Davis, already admitted that "a "a PHOSITA would have understood the capabilities a microcontroller provided" and "*a PHOSITA would understand how to incorporate the microcontroller into a garage door opener.*" (*Id.* (citing CX-1653C [Davis WS] at Q154).)

1. Analogous Art

Respondents' Position

Respondents report that "[t]here is no dispute that Doppelt and Matsuoka are analogous to the '319 patent." (*Id.* at 14 (citing CPB2 at 111-115; RX-0300C [Lipoff WS] at Q130).) Respondents argue Jacobs, Eckel and Gilbert are as well. (*Id.*) Respondents note that "two separate tests define the scope of analogous art"—whether the art is from same filed of endeavor or whether it is reasonably pertinent to the problem faced by the inventor. (*Id.* (citing *Innovention Toys, LLC v. MGA Enter., Inc.*, 637 F.3d 1314, 1321 (Fed. Cir. 2011)).) Respondents argue each of Jacobs, Eckel and Gilbert are analogous art under one or both of these two tests by keeping in mind similar structures with the '319 patent and by not improperly limiting the field of endeavor to only GDOs. (*Id.* at 15.)

More specifically, Respondents argue "[t]he allegedly novel features of the '319 patent claims are not limited to garage door systems. Instead, the '319 patent's subject matter encompasses movable barrier operators, advanced lighting control, and intelligent control systems." (*Id.* at 16 (citing Hr'g Tr. at 955:13-18; *see* RX-300C at Q52-57).) Respondents point to the presence of many of the asserted claim limitations in Jacobs, Eckel, and Gilbert and the lack of dispute that "dispute embedded control systems like those described in the '319 patent can be used in other applications besides garage door systems." (*Id.* (citing Hr'g Tr. at 1066:11-15).) Respondents also argue that "[a]nalogousness is assessed from the perspective of a person of ordinary skill in the art" (*id.* at 17 (citing *In re Bigio*, 381 F.3d at 1326; *Sci. Plastic Prods., Inc. v. Biotage AB*, 766 F.3d 1355, 1359 (Fed. Cir. 2014))), and based on the definition of a PHOSITA in this investigation, that means no GDO-specific experience is acceptable. (*Id.* (referring to Order No. 13 at 7-8).) Thus, according to Respondents, any attempt by CGI to limit the field of endeavor to GDO's must be improper. (*Id.*)

Respondents finally point out that the USPTO's classification of the '319 patent, and the examiner's field of search, were not limited to GDOs. (*See id.* at 17-18.) Respondents also argue that the problem the '319 patent sought to solve is not particular to GDOs because the patent had to do with ambient light detection errors in the course of controlling a light source. (*See id.* at 20-21 (referring to RX-0520C [Fitzgibbon Dep. Tr.] at 223:14-225:13, 227:12-228:4; Hr'g Tr. at 794:12-795:7; '319 patent at 2:36-49, 2:52-55, Figure 12A-12H).) Respondents look to *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1380 (Fed. Cir. 2007), *In re Zweiman*, 25 F. App'x 937, 939 (Fed. Cir. 2001), and *In re Paulsen*, 30 F.3d 1475, 1481-82 (Fed. Cir. 1994) as examples of problems not unique to the particular environment they are discussed with. (*See id.* at 21-22.)

With respect to Jacobs individually, Respondents highlight that Jacobs "teaches a motor-driven system for moving a barrier" and teaches "all aspects of the '319 [sic] *except* a GDO." (*Id.* at 18 (citing, *inter alia*, RX-0300C at Q93-97; Hr'g Tr. at 1067:4-24; CX-1653C at Q242).) Respondents continue, "Although Jacobs teaches a panel system that could, for example, be used to cover a window, none of the differences between that panel system and a GDO relate to the '319 patent's allegedly novel use of a microcontroller in a wall console." (*Id.* at 19.) Jacobs, according to Respondents, is also pertinent to the '319 patent's problem through its teaching of "alternate types of controls, such as 'light sensors, temperature sensors, centralized energy management or building control systems, occupancy detectors and the like' can be connected to a wall console's microcontroller to communicate signals and commands the motor drive unit's microcontroller." (*Id.* at 22 (citing RX-0041 at 19:43-50).)

With respect to Gilbert, Respondents argue it is within the '319 patent's field of endeavor because it is "structurally and functionally similar to the '319 patent." (*Id.* at 19.) In particular, Respondents observe "Gilbert teaches wall consoles with microcontrollers connected to motor operated appliances with microcontrollers via a bidirectional communication network (*e.g.*, a wire)." (*Id.* (citing RX-0042 at 1:18-23, 2:39-44, 3:17-34, 3:49-56, 3:65-4:5, Figures 1-3; Hr'g Tr. at 1067:25-1068:25).)

With respect to Eckel, Respondents argue it is within the '319 patent's field of endeavor because it "discloses an infrastructure for communicating light toggling signals from a wall console with microcontroller to an overhead lighting system, similar to the '319 patent's structure and function." (*Id.* at 20 (citing RX-0048 at 1:12-26).) Respondents add that "lighting control is one of the principal features of both Eckel and the '319 patent, along with embedded control systems. (*Id.*) Eckel, according to Respondents, is also pertinent to the '319 patent's

problem because it "describes a motion sensing system for controlling a light fixture." (*Id.* at 22 (citing RX-0048 at 1:13-16, 1:38-46, 3:66-4:2, Figure 1; Hr'g Tr. at 1083:14-1084:13).) Respondents argue, through their expert's testimony, that intelligent lighting control is "perhaps the major, objective of the '319 patent." (*Id.* at 23 (citing Hr'g Tr. at 962:20-963:7).)

In their reply brief, Respondents characterize CGI's response as "without addressing the case law or evidence Respondents cite in their initial brief, CGI asks the ALJ to limit the '319 patent's field of endeavor so that only art 'within the garage door opener field' would be analogous. (RRPB2 at 4.)

CGI's Position

On this issue, CGI begins by arguing that "the law delineates field of endeavor using fine distinctions," and discusses how in *Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 864 (Fed. Cir. 1993):

> [T]he Federal Circuit held that two references disclosing different types of computer memories were not within the same field of endeavor merely because of the varying memory size and orientation. *Id.* Indeed, the court found a reference disclosing "nine memory chips encapsulated in ceramic dual in-line packages," *id.*, to be within an entirely different field of endeavor from the patent that disclosed "nine memory chips, eight for storing data and one for error detection, mounted in a single row." *Id.* Even though both the patent and the prior art reference broadly related to computer memory chips, the court held that the patent at issue and the reference were not within the same field of endeavor because one involved "memory circuits in which modules of varying sized may be added or replaced, in contrast, the subject patents teach compact modular memories." *Id.*

(CRSB2 at 13-14.) CGI references *Wang Labs* again to argue that whether prior art is reasonably pertinent to the problem to be solved is also "applied with precision." (*Id.* at 14.) CGI looks to *Wang Labs* where it was held "references disclosing a memory device 'developed for use in a controller of large industrial machinery' was directed to a different problem than a

patent disclosing a memory device 'with minimum size, low cost, easy reparability, and easy expandability.'" (*Id.* (citing *Wang Labs*, 993 F.2d at 864-65).)

With this in mind, CGI argues, "[n]one of the references Respondents proposed for combination with Doppelt or Matsuoka are analogous art to the '319 patent." (*Id.* at 14-15.) CGI states clearly, "[t]he '319 patent's field of endeavor is, even at its broadest, garage door openers." (*Id.* at 15.) In contrast, according to CGI, Jacobs is directed to window shades, Eckel is directed to advanced occupancy detectors, and Gilbert is directed to automatic addressing of multiple networked components on a bidirectional communication network. (*Id.* (citations omitted).)

CGI then disputes that any of Jacobs, Eckel, or Gilbert are directed to the "specific" problem of the '319 patent because none of them "would have 'commended itself to an inventor's attention in considering his problem.'" (*Id.* (citing *Circuit Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015)).) CGI contends that:

> The '319 patent addressed the specific problem of converting a garage door opener's simple wall-mounted push button into a platform for interacting with and controlling a garage door opener, while also addressing the potential safety pitfalls associated with this improvement in a garage door opener. CX-1316C (Fitzgibbon WS) at Q57, CX-1653C (Davis WS) at Q147.

(*Id.*) CGI then implies that because Jacobs is a window shade, Eckel is an occupancy detector, and Gilbert is an automatic addressing system, none of seek to solve the same problem as the '319 patent. (*Id.* at 15-16.) CGI also attacks Respondents' theories as: (1) missing the distinction between the structures claimed in the '319 patent with those disclosed; (2) conflating field of endeavor with level of skill in the art;[15] (3) ignoring clear testimony from Mr. Fitzgibbon

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[15] CGI also argues this equivalence, while false, also was not disclosed in Respondents' pre-hearing brief and should be waived. (*Id.* at 17.)

that the '319 patent's problem actually is unique to garage door openers; and 4) presenting similar USPTO classification as strong evidence of analogousness when it is actually weak evidence.[16] (*See id.* at 17-18 (citations omitted).)

Analysis

At the outset, I agree with the parties that Doppelt and Matsuoka are analogous art to one another and the '319 patent, as all three references are in the same field of endeavor—namely, garage door operators. (RIB2 at 14; *see* CRSB2 at 14-18.)

On the other hand, I find Jacobs is not analogous to the '319 patent. First, Jacobs and the '319 patent are not in the same field of endeavor. If Respondents are correct, and the '319 patent's field of endeavor is defined by its "embodiments, function, and structure of the claimed invention," *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (*see* RIB2 at 15), then the '319 patent's claims limit its field of endeavor to systems that control movement of real barriers, like garage doors. (*See* '319 patent at claims 1, 9 (reciting "a motor drive unit *for opening and closing a garage door*"), Abstract (reciting head unit), 1:14-2:8 (background discussing problems unique to garages and garage door operators located within).) Jacobs, on the other hand, has a focus on controlling movement of *coverings for* a barrier (*e.g.*, a window), for mainly decorative purposes. (*See* RX-0041 at claims 1, 4, 5 ("said panels being configured to provide various *aesthetic, light transmitting, or environment controlling characteristics*"), Abstract ("panels connected end-to-end for controlling the transmission of light, heat or air through a window and/or for producing different decorative scenes within a room"), 1:13-2:2 (background

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[16] CGI also argues this classification-argument was not disclosed in Respondents' pre-hearing brief and should be waived. (*Id.* at 18.)

discussing "a window covering from a plurality of diverse panels" and various prior art shades).) I find Jacobs is not in the same field of endeavor as the '319 patent based on such disclosures.

Further, Respondents make an interesting point with "[t]he field of endeavor and the PHOSITA's level of skill cannot be defined inconsistently." (RIB2 at 17.) Respondents provide no law to support this, however (*see id.*), and I do not view treatment of Jacobs as outside the '319 patent's field of endeavor as *inconsistent* with the definition of a PHOSITA for this patent.

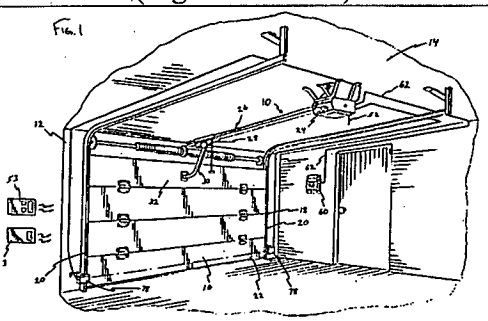
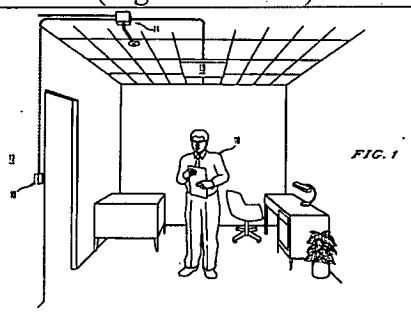
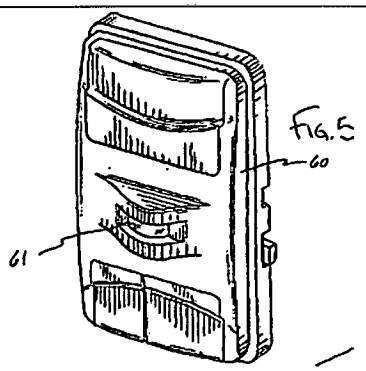
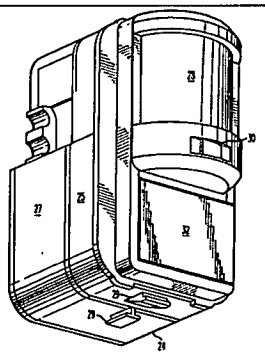
Next, I do not find Jacobs is "reasonably pertinent to the particular problem with which the ['319 inventor] [was] involved," such that Jacobs would have "commended itself to that inventor's attention." *K-TEC*, 696 F.3d at 1375. As Respondents observe, "the '319 patent states, 'it is a principal aspect of the present invention to provide a quickly and easily retrofitted passive infrared detector for controlling the illumination of a garage door operator through conventional signaling channels.'" (RIB2 at 9 (citing '319 patent at 2:64-67).) Indeed, the patent's explicit and consistent focus on infrared detection and lighting control is what caused Respondents to argue, and for me to initially find during the Markman process, that "wall console" be construed as "a wall-mounted control unit including a passive infrared detector." (Order No. 13 at 81.) Respondents connect Jacobs to this problem of the '319 patent through a single paragraph buried in Jacobs' specification which reads:

> Other alternate types of controls, for example receivers for remote wireless controls, light sensors, temperature sensors, timeclocks (such as an astronomical timeclock), centralized energy management or building control systems, wind speed detectors, occupancy detectors and the like can be used in place of controls 31, 32, 631 and 630 or in addition to them and can be connected to serial link bus 652 via an interface circuit.

(RX-0041 at 19:43-50.) I do not find this paragraph, which suggests lighting in addition to a variety of other, unrelated, applications would single-handedly commend Jacobs to the attention of a PHOSITA working with infrared controls and overhead lighting in a garage.

I also find Gilbert is not analogous to the '319 patent. Gilbert's field can fairly be described as a network addressing system for non-descript appliances or apparatuses. (*See* RX-0042 at claims 1 (reciting "addressing" and "functional units"), Abstract, 1:9-15 (describing "field of the invention" as "addressing a functional unit connected to other functional units via a bidirectional communication space.").) Respondents argue "Gilbert is within in the '319 patent's field of endeavor because its system is structurally and functionally similar to the '319 patent." (RIB2 at 19.) I disagree. There is very little structure disclosed in Gilbert beyond generic "control appliances" with "control buttons," "indicator lamps," etc. (*See* RX-0042 at Figure 1, 3:6-56.) Rather, it is clear Gilbert is meant to be an address-system that is hardware agnostic. (*See, e.g.*, RX-0042 at Figures 2-8, claims 1-8.) Respondents even cite expert testimony characterizing Gilbert as "a fairly high level of interconnections structure and network." (RIB2 at 19 (citing Hr'g Tr. at 1067:25-1068:25).) Thus, Gilbert is not in the same field of endeavor as the '319 patent. I note that Respondents do not allege Gilbert meets the second prong of the analogousness test. (*See id.* at 20-23.)

I do find Eckel is analogous to the '319 patent, however. I agree with Respondents that "[l]ighting control is one of the principal features of both Eckel and the '319 patent" (RIB2 at 20), and that the lighting is specifically for intelligently lighting a room of a building (as opposed to vehicle or instrument lighting systems). (*See* '319 patent at 1:14-2:8; RX-0048 at 1:20-2:29.) Even more specifically, both references use infrared or motion detectors that detect passersby to control the light. (*See* '319 patent at 1:14-2:8; RX-0048 at 1:20-2:29.) I present figures showing the use and structure of both patents' apparatuses below:

'319 patent (Figures 1 and 5)	Eckel (Figures 1 and 2)
	
	

In these ways, Eckel is certainly pertinent to the problem addressed by the '319 patent (lighting control via infrared or motion detection) and would have commended itself to a person working on this problem in the perhaps separate field of garage doors. It is thus analogous. *In re Bigio*, 381 F.3d at 1325.

2. Motivation to Combine

a. Doppelt and Jacobs

Respondents' Position

To begin, Respondents explain the Doppelt/Jacobs combination as:

> Doppelt, a CGI-owned patent application, teaches all component parts of the '319 patent except one: a microcontroller in the wall console. RX-300C at Q&A 806-91. However, Jacobs teaches a microcontroller in a

> wall console, which connects to a motor drive unit with microcontroller via digital data bus. *Id.* at Q&A 92-97.

(RIB2 at 23.)

Respondents argue "a PHOSITA would be motivated to combine Doppelt and Jacobs for several reasons." (RIB2 at 23.) "*First*, Doppelt and Jacobs share a field of endeavor—*i.e.*, motor-driven systems for moving a barrier, such as a garage door or window panel." (*Id.* (citing RX-0040 at 5:4-8, 6:9-14; RX-0041 (Jacobs) at 1:5-10, 5:15-17, 4:49-57, 19:65-20:2).) Respondents add that both types of barriers are operated in a building. (*Id.* at 24.) "*Second*, a PHOSITA would be motivated to combine Doppelt and Jacobs because they both seek to improve a movable barrier operator's communication infrastructure." (*Id.*) Respondents contend that a PHOSITA would have been motivated to apply Jacobs's "advanced control capabilities" to a motor drive unit, such as in Doppelt. (*Id.* (citing RX-0300C [Lipoff WS] at Q140).)

"*Third*, a PHOSITA would seek to modify Doppelt's wall console with Jacobs' 'alternate types of controls,' such as 'light sensors, temperature sensors, centralized energy management or building control systems, occupancy detectors and the like.'" (*Id.* (citing CX-0300C at Q141; RX-0041 at 19:43-47).) Respondents explain that Doppelt already discloses three ways of controlling the garage light, including by "pressing a button on the wall console," and adding additional types of controls would be desirable to a PHOSITA because it is "the normal desire of artisans to improve upon what is already generally known." (*Id.* (referencing CX-0300C at Q141 and citing *In re Ethicon*, 844 F.3d at 1351).)

"*Fourth*, a PHOSITA would have been motivated to combine Doppelt and Jacobs because Jacobs shows incorporating a microcontroller 'has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the

same way.'" (*Id.* at 25 (citing *KSR*, 550 U.S. at 417).) In Respondents' view, Jacobs teaches that adding a microcontroller to a wall console allows for:

(1) programming buttons;

(2) updating status lights;

(3) monitoring system interrupts;

(4) more sophisticated displays

(5) more sophisticated controls;

(6) more complex system controls.

(*Id.* (citing RX-0041 at 15:61-65, 16:17-21, 17:11-16, 17:18-19:42, 16:11-16, 6:4-15, 19:51-57, Figure 19, 17:27-36, 5:65-6:15, 17:11-17, Figure 19; RX-0300 at Q142).)

"*Fifth*, as Mr. Lipoff testified, it was a well-known trend at the time of the '319 patent to have devices and controls communicate with one another using digital instead of analog means." (*Id.* (citing RX-0300C at Q144).) Respondents argue "a PHOSITA would have known digital data not only transfers more easily, efficiently, and robustly than analog data, but also requires less power to do so." (*Id.* at 25-26 (citing RX-0300 at Q144 and referencing *KSR*, 550 U.S. at 424 ("The proper question to have asked was whether a pedal designer of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to upgrading [the prior art reference] with a sensor.")).)

"*Sixth*, as Mr. Lipoff testified, combining Doppelt and Jacobs is a predictable use of prior art elements according to their established functions and would have required a straightforward use of techniques well known to a PHOSITA." (*Id.* at 26 (citing RX-0300C at Q145).) Respondents continue, "a PHOSITA would have readily expected this combination to result in 'increased programmability' and advanced controls" and:

> In fact, as Dr. Davis admits, "a PHOSITA would have understood the capabilities a microcontroller provided" and "*a PHOSITA would understand how to incorporate the microcontroller into a garage door opener*." CX-1653C at Q&A 154.

(*Id.*) Finally, Respondents argue "because simple, pushbutton wall console offered limited capabilities, a PHOSITA would know more advanced controls in a wall console would enhance the product line." (*Id.* (citing RX-0300C at Q280).) Respondents suggest this would have been apparent to marketing and general business-personnel (*id.* (referencing *Nat'l Steel Car, Ltd. v. Canadian Pac. Ry., Ltd.*, 357 F.3d 1319, 1339 n.22 (Fed. Cir. 2004))), and "[t]he remaining work to incorporate the microcontroller into the wall console would be 'the work of a skillful mechanic, not that of an inventor'" (*id.* at 27 (referencing *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1367 (Fed. Cir. 2008))).

Regarding CGI's anticipated responses, Respondents argue: "that Jacobs is not a GDO does not undo its teachings as to movable barrier operators" (*id.*); the references are not directed at different problems but rather both "seek to improve a movable barrier operator's communication infrastructure" (*id.*); any claims of electrical interference safety concerns are nothing more than speculation and undermined by CGI's expert's testimony (*id.* at 28 (referencing Hr'g Tr. at 1048:6-1049:9, 1086:13-1090:3)); disclosure of microcontrollers in head unit and portable remote is not "teaching away" of microcontroller in wall console, but rather the opposite (*id.* at 29); impermissible hindsight does not apply because evidence on a PHOSITA's purported knowledge is not coming from patentee's own disclosures (*id.* at 29-30); and whether or not Doppelt "adequately solved the problem recognized" is overridden by the "normal desire of artisans to improve upon what is already known" and does not necessitate dismantling Doppelt's already-disclosed methods of controlling its light (*id.* at 30 (citing *In re Ethicon*, 844 F.3d at 1351)).

In their Reply brief, Respondents address CGI's claims of hindsight generally and argue "the Supreme Court has cautioned against falling victim to the hindsight red herring that would lead to 'rigid preventative rules that deny factfinders recourse to common sense,' which 'are neither necessary under the case law nor consistent with it.'" (RRPB2 at 6 (citing KSR, 550 U.S. at 421).) Respondents also fault CGI for not producing one exhibit to support its claims of safety concerns and for avoiding law that states the added cost of features does not undo the fact of common usage. (*Id.* (referring to *Novartis AG v. Torrent Pharm. Ltd.*, 853 F.3d 1316, 1327 (Fed. Cir. 2017)).) Respondents also allege several of their key points have gone unanswered by CGI and are thus "admitted." (*See id.* at 7-8.) Respondents then dismiss concerns over what the true "innovation" of the '319 patent is, or whether Doppelt and Jacobs disclose a "need" for "improved infrastructure," because, according to *KSR*, "any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed" and "court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions." (*Id.* at 8 (citing *KSR*, 550 U.S. at 420, 417).) Lastly, Respondents dispute that the '319 patent has anything to do with safety and point to the same being supposedly admitted by CGI's expert. (*Id.* (citing Hr'g Tr. at 1048:6-1049:9).)

CGI's Position

CGI argues a "POSITA would not have been motivated to combine the teachings of Doppelt and Jacobs." (CRSB2 at 21.) CGI argues this because "Doppelt and Jacobs are not within the same field of endeavor, nor is Jacobs within the same field of endeavor as the '319 patent." (*Id.* (citing CX-1653 [Davis WS] at Q143).) In short, according to CGI, garage door openers are not the same field as window shade systems, which "implicate[] design and

technological considerations very different than those of garage door openers." (*Id.* (citing CX-1653C at Q144).) CGI notes that garage doors are built for safety and security while window shades are for decoration or adjusting light. (*Id.*) Also, CGI contends, "the Jacobs system enables preset panel locations. . . . Jacobs' precision control system is unlike the controls required for a single garage door system." (*Id.* (citing CX-1653C at Q143-144).)

Moving on, CGI argues the problems faced by Doppelt, Jacobs, and the '319 patent are all different from each other. (*Id.* at 22.) Specifically, CGI argues "the '319 patent discloses the transformation of a simple analog switch into a multifunctional control device capable that sends and receives digital communications to and from the head unit of a garage door opener, while also addressing inherent safety issues." (*Id.* (citing CX-1316C [Fitzgibbon WS] at Q57, CX-1653C [Davis WS] at Q147; '319 patent at claims 1, 9).) CGI continues:

> Thus, one major innovation of the '319 patent was recognizing that incorporating a microcontroller into a basic wall console would transform the unit into a rich platform for interacting with and controlling a garage door opener, while addressing the potential safety pitfalls. CX-1316C (Fitzgibbon WS) at Q57, CX-1653C (Davis WS) at Q147. None of Respondents' references provide any motivation for this transformation.

(*Id.*) CGI then repeats how Doppelt and Jacobs are "irrelevant" to the problem and issues addressed by the '319 patent. (*See id.*)

CGI moves on to argue "safety concerns would have counseled against the Doppelt/Jacobs combination." (*Id.*) CGI refers to an earlier discussion in its responsive brief where it argued "conventional push buttons . . . posed a significantly lower risk of malfunction than a microcontroller-based wall console" (*id.* at 19 (citing CX-1653 at Q137; CX-1316 at Q59)) and "microcontroller-based wall console . . . was subject to electrical interference and noise that could unintentionally trigger an open or close event resulting in erratic and dangerous door operation" (*id.* (citing CX-1653C at Q137; CX-1316C at Q59)).

CGI continues to argue that a Doppelt/Jacobs combination would have been incompatible if attempted. (*Id.* at 23 (citing CX-1653C at Q149).) Specifically, according to CGI, this arises from "conflicting electronic architectures" and "divergent designs for handling user interactions." (*Id.* (citations omitted).) Additionally, CGI claims "Doppelt teaches away from the combination with Jacobs" because of the fact that "Doppelt uses microcontrollers in other parts of the system and specifically does not include a microcontroller in the wall console." (*Id.* (citing CX-1653C at Q154).) CGI claims that Respondents' expert agreed that "Doppelt is specifically 'teaching you not to put a microcontroller in the wall unit.'" (*Id.* (citing Hr'g Tr. at 941:2-942:5).) CGI then returns to a discussion of how the references are not in the same field of endeavor (*see id.* at 23-24) and how neither of Doppelt or Jacobs "indicat[es] a need for improved infrastructure" that a PHOSITA would supposedly be motivated by (*id.* at 24).

Finally, regarding a "trend of digital data transmissions," CGI again points to how "[t]he Doppelt inventors were already aware of the supposed digital 'trend,' as evidenced by the Doppelt system's use of digital communications with certain transmitters and the head unit" but "[s]till . . . employed analog communications between the head unit and wall unit." (*Id.* at 24 (citing CX-1653C at Q153; RX-0040 at 13:7-14:2).) CGI adds that Respondents'' whole trend argument is circular in light of the guidance from *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 882 (Fed. Cir. 1998). (*Id.*)

Analysis

I find Respondents have not shown with clear and convincing evidence that it would have been obvious to combine Doppelt and Jacobs. Specifically, Respondents must, but have not, sufficiently explained what benefit is conferred upon Doppelt by adding a *second*

microcontroller to the system and within the wall console—which is the core premise of the '319 patent's claims.

To begin, Respondents' expert, Mr. Lipoff, testified "[a] PHOSITA would have been motivated to combine *Doppelt* and *Jacobs* for 6 reasons." (RX-0300C at Q138.) The first reason is that "*Doppelt* and *Jacobs* are in the same field of endeavor." (*Id.* at Q139.) Mr. Lipoff adds, "[s]ince these references are in the same field of endeavor, a PHOSITA familiar with *Doppelt* would have looked to the teachings of *Jacobs*." (*Id.*) I do not find this testimony to relate to motivation to combine. Rather it is an assertion that the references are *analogous* and therefore "*qualif[y]* as prior art for an obviousness determination." *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011) (internal citations omitted) (emphasis added). This is a preliminary step towards evaluating whether it would have been obvious to combine them. *Apple Inc. v. Samsung Elec. Co., Ltd.*, 839 F.3d 1034, 1050 n.14 (Fed. Cir. 2016) (*en banc*) ("concluding that the references are within the scope and content of the prior art to be considered for obviousness does not end the inquiry.").

Respondents' second reason is that "the '319 patent recognizes a need for an improved garage door operator. The '319 patent allegedly seeks to solve this need by including a microcontroller in the garage door operator's wall control that communicates over a digital data bus." (*Id.* at Q140.) I can think of no better signal that hindsight is in play for motivation than reliance on the challenged patent's disclosure. *See, e.g.*, *Otsuka Pharm. Co., Ltd. v. Sandoz, Inc.*, 678 F.3d 1280, 1296 (Fed. Cir. 2012) ("The inventor's own path itself never leads to a conclusion of obviousness; that is hindsight. What matters is the path that the person of ordinary skill in the art would have followed, as evidenced by the pertinent prior art."). Nevertheless, with respect to a purported benefit of the combination, Mr. Lipoff states:

> Given the need for improved infrastructure and underlying technology, it would have been obvious for a PHOSITA to look to other references, such as *Jacobs*, to find a solution regarding how to offer advanced control capabilities for it a conventional barrier movement operator—that is, using a microcontroller in the wall console—and how to communicate digital signals to a motor control unit—that is, via a digital data bus.

(*Id.*) Essentially, Mr. Lipoff has testified that a PHOSITA would have looked to Jacobs because that PHOSITA is looking for techniques for "advanced control capabilities." I do not find such generic references to "improved infrastructure" or "advanced capabilities" to be clear and convincing evidence that an invention specifically claiming a first microcontroller in a motor drive unit *in addition* to a second microcontroller in a wall console was obvious. More is needed, such as statements explaining why just one microcontroller is deficient and why it would be obvious, in this art, to have the two microcontrollers communicate with each other. *KSR*, 550 U.S. at 399 ("The proper question was whether a pedal designer of ordinary skill in the art, facing the wide range of needs created by developments in the field, would have seen an obvious benefit to upgrading Asano with a sensor.").

Mr. Lipoff continues with his third of six reasons for combination—that Doppelt's problem of safety hazards created by persons "caught in a dark garage" would be solved by modifying Doppelt's wall console with the sorts of "alternate types of controls" found in Jacobs. (*Id.* at Q141.) More specifically, the "alternate types of controls" are those "which would allow a person to turn on the garage light without having to press a button on the wall control unit or locate a remote transmitter," according to Mr. Lipoff. (*Id.*) For example, Mr. Lipoff points to the Jacobs's disclosure of "[o]ther alternate types of controls, for example receivers for remote wireless controls, light sensors, temperature sensors, timeclocks (such as an astronomical timeclock), centralized energy management or building control systems, wind speed detectors, occupancy detectors, and the like." (*Id.*; RX-0041 at 19:43-47.)

Mr. Lipoff's fourth reason is related to his third. He states "a PHOSITA would also seek to improve the utility of the wall-mounted control unit in *Doppelt* by adding a microcontroller, as in *Jacobs*, because it was well-known that integrating a microcontroller in a wall unit adds advanced controls and capabilities." (*Id.* at Q142.) He continues with six examples from Jacobs:

> For example, as taught in *Jacobs*, a microcontroller in wall control allows for (1) programming preset buttons (as seen at column 15 lines 61 to 65, column 16 lines 17 to 21, and column 17 line 11 to column 19 line 43), (2) updating status lights (as seen at column 16 lines 11 to 16), (3) monitoring system interrupts (as seen at column 16 lines 22 to 28), (4) more sophisticated displays (*e.g.*, digital displays as seen at column 6 lines 4 to 15, column 19 lines 51 to 57, and Figure 19), (5) more sophisticated controls (*e.g.*, pressing multiple buttons at once provides unique control) (as described at column 17 lines 27 to 36), and (6) more complex system controls (*e.g.*, single wall control to control multiple devices as described at column 5 line 65 to column 6 line 15, column 17 lines 11 to 17, and Figure 19).

(*Id.*)

I agree that microcontrollers, or other types of programmable logic, allow for all sorts of "alternate types of controls" and those controls include some that might be useful to improve garage door openers such as Doppelt. This, however, does not answer the critical question which is whether it would have been obvious to have *two* microcontrollers in communication with each other in a barrier movement operator, with one in a motor drive unit and the other in a wall console. (*See* '319 patent at claim 1.) Mr. Lipoff's third and fourth reasons for motivation are not tailored to this question but describe the benefits of microcontrollers generally. Indeed, in the list of six advanced features Mr. Lipoff highlights in Jacobs, I do not recognize any as being particularly suited for wall consoles as opposed to head units.

Mr. Lipoff's fifth reason is "it was a well-known trend at the time of the '319 patent's alleged invention to have devices and controls communicate with one another using digital instead of analog means." (*Id.* at Q144.) I can agree here but this testimony does not solve the

deficiency described above—a failure captured by his unsupported statement that, "[a]s such, a PHOSITA who was aware of the system in *Doppelt* would have immediately recognized the benefits of providing *additional* controls and capabilities *in the wall console* . . ." (*Id.* (emphasis added).)

Finally, Mr. Lipoff's sixth reason for motivation is that it would have been within the capability of a PHOSITA to make the combination with predictable results because all components "employed in the *Jacobs* system were well known." (*Id.* at Q145.) Mr. Lipoff continues "[i]n fact, combining *Jacobs*' well-known components with the *Doppelt* system would have been a straightforward task that used techniques well-known to a PHOSITA, resulting in a combined system to benefit users with increased programmability and control over their garage door systems." (*Id.*)

The problem with this answer is that it is conclusory and resembles attorney argument more than expert testimony. For example, Mr. Lipoff does not explain *why* it would have been "a straightforward task" even though he is the promoted as an expert with valuable insight into the details of what would have been obvious *in this art* and at *the particular time of invention.*

Regardless, even if I accept that it would have been "straightforward" to combine the references, I find that a *prima facie* case of obviousness cannot be made without some clear and convincing statement as to the benefit conferred by the combination beyond generic references to "improved" or "advanced" functionality, or in this particular answer, "increased programmability." Yet this is all Respondents' expert leaves me with. (*See* RX-0300C at Q138-151.) Respondents' effort is easily distinguished from opposite testimony given by CGI's James Fitzgibbon, who explained in very practical terms (*i.e.*, the language of a PHOSITA) "reasons why microcontrollers were not used in wall consoles." (*See* CX-1316C at Q58-59; *see also* RX-

0520C at 223:10-229:2 (discussing in practical terms why two microcontrollers were used, so wall console could "request the light state, are you on or off?").)

With that, I do not find clear and convincing evidence in the Record to show that a combination of Doppelt and Jacobs, to arrive at a first microcontroller in a motor drive unit, and a second microcontroller in a wall console, with communication between the two, would have been obvious to make. This was the same deficiency which precluded my ability to grant Respondents' motion for summary determination over the same prior art combination. (*See* Order No. 35 at 2-3 ("I find an issue over whether a person having ordinary skill in the art would have sufficient reason to add a controller to Doppelt's wall console in conjunction with the controller already present in Doppelt's head unit").)

b. Doppelt, Jacobs, and Gilbert

Respondents' Position

To begin, Respondents explain the Doppelt/Jacobs/Gilbert combination as:

> As stated above, Doppelt in combination with Jacobs renders obvious the '319 patent's asserted claims. *Id.* at Q&A 137, 202. Even if the ALJ agreed with CGI that Jacobs does not disclose a "microcontroller" in the wall console (Respondents maintain it does), a PHOSITA would also be motivated to combine Doppelt and Jacobs with Gilbert, which discloses a communication infrastructure consisting of wall consoles with microcontrollers connected to home appliances with microcontrollers via a digital data bus. *See id.* at Q&A 98-101, 203-71.

(RIB2 at 43.)

Respondents contend that "[a] PHOSITA would have been motivated to combine Doppelt, Jacobs, and Gilbert for several reasons." (RIB2 at 44.) Respondents incorporate their discussion of Doppelt and Jacobs presented previously, and add that "Doppelt and Jacobs also share a field of endeavor with Gilbert—*i.e.*, control systems for motor-controlled appliances." (*Id.* (citing RX-0300C at Q206).) According to Respondents, a PHOSTIA would look to Gilbert,

"which discloses a remote control system for controlling appliances, such as a washing machine, using a bidirectional communication network" including in "home installations." (*Id.* (citing RX-0300C at Q206; RX-0042 at 1:18-23).) Respondents add that Gilbert, like Jacobs, "teaches remote control units having microcontrollers can establish a 'high level interconnection structure and network.'" (*Id.* at 45 (citing Hr'g Tr. at 1067:25-1068:25; RX-0300C at Q99-101, 206).) Respondents allege this represents the "normal desire of artisans to improve upon what is already generally known." (*Id.* (referring to *In re Ethicon*, 844 F.3d at 1351).)

Respondents continue to argue that the trend of replacing analog components with digital ones would provide motivation to combine the three references, and would have experienced the predictable result of "increased programmability and control" from doing so. (*Id.* (citing RX-0300C [Lipoff WS] at Q212; CX-1653C [Davis WS] at Q154).) Respondents contend this could be done "easily" due to suggested similarity between "motor-operated appliances, such as GDOs, automated window blinds, washing machines, and electric air-conditioners." (*Id.* (citing RX-0300C at Q213).)

Regarding CGI's anticipated responses, Respondents argue: Doppelt, Jacobs, and Gilbert are all in the same field of endeavor (*id.* at 46); Gilbert's problem may be different than the '319 patent but that doesn't matter (*id.* (citing *Alcon Research*, 687 F.3d at 1368); *KSR*, 550 U.S. at 420)); actual substitution of elements, which CGI alleges make the references "incompatible" are "legally irrelevant" (*id.* (citing *In re Mouttet*, 686 F.3d 1322, 1332-33 (Fed. Cir. 2012))); any allegation of Gilbert being "unnecessary" or "expensive" does not preclude "the commercial opportunities by improving a product or process" (*id.* at 47 (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006); *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007))).

In their reply brief, Respondents allege several of their key points have gone unanswered by CGI and are thus "admissions." (*See* RRPB2 at 12.) Respondents remind that *In re Mouttet* confirms that "complete, physical compatibility" between references "is not required." (*Id.*)

CGI's Position

CGI begins by arguing that "Doppelt, Jacobs, and Gilbert are not within the same field of endeavor. Gilbert's field of endeavor—at its broadest—is automatic addressing of multiple networked components on a bidirectional communication network." (CRSB2 at 32 (citing RX-0042 at Title, Abstract).) CGI argues "these disparate fields necessarily implicate disparate considerations" in part, because Gilbert involves configuring a network of appliances while "[g]arage door openers are already paired with a wall console and do not require this versatility or the associated technical complications." (*Id.* (citing CX-1653C [Davis WS] at Q161; RX-0042 at 3:24-27.) CGI also suggests that the failsafe considerations of Doppelt and the '319 patent "discourage against including the versatility of Gilbert because additional components could generate a higher risk of accidental door activation." (*Id.* at 32-33 (citing CX-1653C at Q137, 161).)

CGI also claims that a field of endeavor which would link the three references ("motor-controlled appliances") is "so broad as to render it meaningless" and indicative of the hindsight required. (*Id.* at 33.) In other words, according to CGI, "[m]erely because Gilbert and Doppelt can be broadly categorized as "motor-controlled" does means that they share a common field of art or that a POSITA would have been motivated to combine their teacings [sic]." (*Id.* (citing CX-1653C at Q163).) Similarly, CGI alleges Gilbert "is directed to an entirely different problem than the '319 patent itself as well as the problems of Doppelt and Jacobs;" namely "addressing functional units in a network" versus "safety hazards arising from a dark garage" and "hiding

motor and wiring for a movable window panel." (*Id.* (citing CX-1653C at Q164; RX-0042 at 1:47-50; RX-0040 at 1:29-32; RX-0041 at 1:30-32, 1:28-30, 2:25-37).)

Next, CGI argues the references are incompatible "should a combination even be attempted." (*Id.* at 34.) CGI explains how Gilbert relies on specialized programs for a matching process and then argues "[a]ttempting to combine Gilbert with the combined teachings of Doppelt/Jacobs would result in a non-functioning system because neither Doppelt nor Jacobs would execute the specialized functions. Respondents fail to explain how Gilbert's critical features would operate in the combination." (*Id.* (referring to RX-0042 at 3:58-64; CX-1653C [Davis WS] at Q165).) CGI also argues that Gilbert "solved a problem that is irrelevant to the '319 patent and garage door openers" because it "was already solved" by Doppelt's remote transmitters. (*Id.* (citing CX-1653C at Q167).) CGI also claims "Gilbert's technology would have been irrelevant to the hard-wired connection between the microcontroller of the wall unit and the microcontroller of the motor drive unit because of the direct connection [in Doppelt]." (*Id.* at 35 (citing CX-1653C at Q167).) Similarly, according to CGI, Jacobs "would not require this functionality because it already incorporated sophisticated control systems for managing multi-panel displays from a remotely located panel." (*Id.* (citing RX-0041 at 5:65-6:39, Figures 19, 19a).)

Analysis

As Respondents explain it, the difference between the Doppelt/Jacobs combination and the Doppelt/Jacobs/Gilbert combination is merely that Gilbert explicitly discloses wall consoles with microcontrollers, whereas Jacobs has been challenged by CGI for this feature. (RIB2 at 43.) Indeed, Respondents' expert's proposed motivations to combine Doppelt, Jacobs, and Gilbert are effectively identical to the motivations proposed, and discussed above, for just

Doppelt and Jacobs. (*Compare* RX-0300C at Q205, 208, 209, 210, 211, 212 *with* RX-0300C at Q139, 140, 141, 142, 144, 145.) The testimony from Mr. Lipoff which addresses Gilbert on this topic is limited to argument that Gilbert is analogous art or easy to implement. (*See id.* at Q206, 207, 213.) Consequently, Respondents' proposed motivations for the Doppelt/Jacobs/Gilbert combination fail to create a *prima facie* case of obviousness for the same reason as the Doppelt/Jacobs combination—they do not clearly and convincingly identify the obvious benefit conferred by the presence of a microcontroller in a head unit *in addition* to a microcontroller in a wall console, with digital communication there between.

c. Matsuoka, Doppelt, and Eckel

Respondents' Position

To begin, Respondents explain the Matsuoka/Doppelt/Eckel combination as:

> Matsuoka teaches the basic GDO structure recited in the '319 patent with one difference—instead of a microcontroller in the head unit, Matsuoka adds a microcontroller (or controller) to its wall console. *Id.* at Q&A 125-28. Doppelt discloses a microcontroller in the head unit. RX-300C at Q&A 86-91. Eckel adds a microcontroller in a wall console connected to a "digital data bus" as the independent claims require, as well as the characteristics required by the dependent claims. *Id.* at Q&A 104-07.

(RIB2 at 50.)

Respondents argue "a PHOSITA would have been motivated to combine Matsuoka, Doppelt, and Eckel for at least three reasons." (RIB2 at 50.) "*First*, the three references share a field of endeavor—*i.e.*, systems for controlling the operation of electrical equipment in a building." (*Id.* (citing RX-0300C at Q394).) According to Respondents: Doppelt relates to garage door openers with controlled lighting; Matsuoka relates to a door operation control apparatus, including a lamp control; and Eckel relates to an apparatus for controlling light fixtures including a wall control. (*Id.* at 50-51 (referring to RX-0040 at 1:1-5; RX-0049 at 1:4-7,

1:29-32, 3:50-58, Figure 2; RX-0048 at 1:12-26, 4:10-13).) In view of these similarities, Respondents argue:

> [A] PHOSITA seeking to improve the functionality of home-based electric devices (like Doppelt's GDO with remotely controlled lighting) would look to other apparatuses for controlling lighting fixtures (like in Eckel) and improved systems for controlling garage doors and lamps (like in Matsuoka), and would thereby integrate those references' teachings. RX-300C at Q&A 394.

(*Id.* at 51.)

Next, Respondents argue "a PHOSITA would be motivated to combine each reference's teachings about embedded computer system to improve a conventional GDO systems' communication architecture." (*Id.*) Respondents consider Eckel and Matsuoka to "teach that placing a microcontroller in a wall console would offer several advanced controls and capabilities for the controlled system." (*Id.*) More specifically, according to Respondents, Eckel teaches wall control logic-based programming for automatic power up and power down of lighting, while Matsuoka discloses programming that links motor forward-reverse control with lamp illumination. (*Id.* at 51-52 (citing RX-0048 at 2:54-3:6, 6:65-7:19; RX-0049 at 5:50-66, 6:65-10:60, Figures 7-9, 14).) Respondents point to their expert's testimony that "it was well-known at the time of the '319 patent's alleged invention that integrating a microcontroller in a wall unit adds advanced controls and capabilities." (*Id.* at 52 (citing RX-0300C at Q396).)

Third, Respondents argue the combination would have been "a predictable use of well-known prior art elements according to their established functions," and cite their expert testimony in support. (*Id.* at 52-53 (citing RX-0300C at Q397).)

Regarding CGI's anticipated responses, Respondents argue: "Matsuoka, Doppelt, and Eckel are in the same field of endeavor as one another and the '319 patent" (*id.* at 53); Dr. Davis's distinctions between the references' primary purposes are not dispositive because "any

need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed" (*id.* (citing KSR, 550 U.S. at 420)); any alleged safety concerns are speculation (*id.*); and physical incompatibility is not the test under *In re Keller*, 642 F.3d 413, 425 (C.C.P.A 1981) (*id.*).

In their reply brief, Respondents' argue that while CGI argued design differences would prevent a PHOSITA from looking to Eckel's occupancy detector, CGI failed to identify any such differences. (RRBP2 at 13.) Generally, Respondents argue CGI's other distinctions (like amount of time spent in garage versus home) are "superficial." (*Id.*) Regarding Matsuoka specifically, Respondents argue its age is irrelevant under the law as is CGI's characterization of its architecture as "unusual." (*Id.* at 14 (citing *Ethicon*, 844 F.3d at 1352; *Custom Accessories, Inc. v. Jeffrey-Allan Indus.*, 807 F.2d 955, 962 (Fed. Cir. 1986)).) Respondents also contend that "that Matsuoka does not disclose a microcontroller in the motor drive unit (*see* CGI RPHB at 37) does not undo its other teachings and does not preclude a finding of obviousness." (*Id.* (citing *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1363 (Fed. Cir. 2005)).) Respondents then repeat their criticism of CGI's "safety concerns" and physical incompatibilities as unsupported and overly narrow. (*Id.* at 14-15 (citations omitted).) Respondents also highlight that "it is necessary to consider 'the reality of the circumstances'—in other words, common sense—in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor." (*Id.* at 15 (citing *In re Bigio*, 381 F.3d at 1326).)

CGI's Position

CGI begins by claiming that Matsuoka, Doppelt, and Eckel "are not within the same field of endeavor as one another, or within the same field as the '319 patent." (CRSB2 at 37.) CGI

suggests "Eckel's field of endeavor—at its broadest—is advanced occupancy sensors" whereas "Doppelt and the '319 patent, do not require this process because the lights are turned on and off when the door is activated or a user presses a light button on the wall or remote transmitter." (*Id.* at 37 (citations omitted).) CGI continues "Eckel's advanced occupancy detection technology is particularly inapt for application in the garage door opener field given the abbreviated time people typically spend in a garage as compared to an office or living room, where the Eckel system would be employed." (*Id.* (citing CX-1653C at Q172).)

CGI also contends that each reference is "drawn to an entirely different problem, and is not relevant to the specific problem addressed by the '319 patent." (*Id.* at 37-38 (citing CX-1653C [Davis WS] at Q211).) CGI characterizes Doppelt as directed at the "dark garage problem," Eckel to the "advanced occupancy detection problem," and Matsuoka to "the problem of insufficient flexibility in a purely mechanically implemented garage door opener." (*Id.* at 38 (citing CX-1653C at Q211; RX-0049 at 1:17-23).) CGI adds, "[i]n other words, Matsuoka is directed to the enhancing the flexibility of the head unit such that it could be used with multiple doors or could have additional door operating conditions that are not available in purely mechanical system." (*Id.*)

CGI then presents its views that "significant safety concerns discouraged incorporating a microcontroller into the wall console of a garage door opener system" (*id.* (citing CX-1653C at Q212)) and "these three references are technologically incompatible" (*id.* at 38-39). Specifically, according to CGI, "Eckel requires optimal placement of the wall sensor at a height unsuitable for a garage door opener due to the safety hazards" (*id.* at 39 (citing CX-1653C at Q213; RX-48 at 5:3-6; CX-0363)) and "Matsuoka and Doppelt each describe components, such a logic control circuits or microcontrollers, that control the motor of a garage door opener, but the

systems place those controls in different locations" (*id.* (citing CX-1356C at Q213; RX-0049 at Figure 8; RX-0040 at 16:13-25).) CGI claims "the combination of these references would result in two entirely different control systems attempting to send commands to the same garage door motor" and claims this is "redundant and conflicting controls." (*Id.*)

CGI then criticizes Respondents' "alleged field of endeavor for these references, 'systems for controlling the operation of electrical equipment in a building,' . . . is nothing more than an arbitrary classification based on the lowest common denominator of these three references." (*Id.* at 40 (citing CX-1653C at Q210).) CGI concludes with an assertion that because "none of Respondents' garage door opener references includes a microcontroller in a wall console . . . The only reasonable conclusion is that incorporating a microcontroller in a wall console of a garage door opener was not obvious before the invention of the '319 patent." (*Id.*)

Analysis

I find Respondents have not shown with clear and convincing evidence that it would have been obvious to combine Matsuoka, Doppelt, and Eckel. Specifically, Respondents must, but have not, sufficiently explained what benefit is conferred upon Doppelt by adding a *second* microcontroller to the system and within the wall console; or, vice versa, what benefit is conferred upon Matsuoka by adding a *second* microcontroller to the system and within the head unit.

To explain, Respondents' expert, Mr. Lipoff, testified "[a] PHOSITA would have been motivated to combine *Matsuoka*, *Doppelt*, and Eckel for at least three reasons." (RX-0300C at Q393.) The first reason is that the three references are "in the same field of endeavor." (*Id.* at Q394.) Mr. Lipoff adds, "[i]ndeed, a PHOSITA in seeking to improve the functionality of home-based electric devices like a garage door opener with remotely controlled lighting

(*Doppelt*), would look to other apparatuses for controlling lighting fixtures (*Eckel*) as well as improved systems for controlling garage doors and lamps (*Matsuoka*)." (*Id.*) While this testimony is arguably persuasive to show the three references are *analogous*; it is not adequate to establish why it would have been obvious to combine them, which is an entirely separate inquiry. *See In re Klein*, 647 F.3d at 1348; *Apple*, 839 F.3d at 1050, n.14.

Mr. Lipoff does *allude* to a benefit when he refers, *twice* in this answer, to "a PHOSITA seeking to improve the functionality;" but I do not find references to "improved functionality" or "improving performance" to be clear or convincing statements on what motivates a person having ordinary skill in the art. Quite the contrary, Mr. Lipoff's opinions are conclusory and generic (virtually boilerplate) and hence, not credible.

Mr. Lipoff was then asked what his second reason for motivation to combine was, and he begins his answer with the exact same language from his Doppelt/Jacobs combination—"[s]econd, the '319 patent recognizes a need for an improved garage door operator. The '319 patent allegedly seeks to solve this need by including a microcontroller in the garage door operator's wall control that communicates over a digital data bus." (*Id.* at Q396; *see id.* at Q139.) Again, I can think of no better signal that hindsight is in play for motivation than reliance on the challenged patent's disclosure. *See, e.g.*, *Otsuka Pharm.*, 678 F.3d at 1296. Nevertheless, and with respect to a purported benefit of the combination, Mr. Lipoff lands on the same generic reference to "improving" Doppelt or adding "advanced" features:

> A PHOSITA would have recognized that the garage door operator in *Doppelt* could be improved by adding *Eckel* and *Matsuoka*, because *Eckel* and *Matsuoka* would answer the questions of how to offer advanced control capabilities over a conventional barrier movement operator (using a microcontroller in the wall console), and how to communicate digital signals to a its motor control unit (via a digital data bus). For example, both *Eckel* and *Matsuoka* teach several advanced controls and capabilities from placing a microcontroller in a wall control. . . . And, as previously

> discussed, it was well-known at the time of the '319 patent's alleged invention that integrating a microcontroller in a wall unit adds advanced controls and capabilities. As such, a PHOSITA would have recognized the benefits of providing additional controls and capabilities in the garage door operator system of *Doppelt* and *Matsuoka* by adding a microcontroller into the wall console that is capable of communicating via a digital data bus, as taught by *Eckel* and *Matsuoka.*

(*Id.*) Again, generic references to "improvements" or adding "advanced controls and capabilities" is not clear and convincing evidence that an invention specifically claiming a first microcontroller in a motor drive unit *in addition* to a second microcontroller in a wall console was obvious. More is needed, such as statements explaining why just one microcontroller is deficient and why it would be obvious, in this art, to have the two microcontrollers communicate with each other in their specified locations. *KSR*, 550 U.S. at 399 ("The proper question was whether a pedal designer of ordinary skill in the art, facing the wide range of needs created by developments in the field, would have seen an obvious benefit to upgrading Asano with a sensor.").

Mr. Lipoff's third reason for the motivation to combine is "there would have been a reasonable expectation of successfully combining *Matsuoka*, *Doppelt*, and *Eckel* to practice the alleged invention of the '319 patent because the combination is a predictable use of well-known prior art element according to their established functions." (*Id.* at Q397.) Mr. Lipoff continues:

> Specifically, the pertinent components employed in *Matsuoka*, *Doppelt*, and *Eckel* were well known, *e.g.*, wall-mounted control units, microcontrollers in both the motor drive unit and wall-mounted control unit, and digital communication over a digital data bus. It would have been routine for a PHOSITA to combine these references; indeed, it was common knowledge of a PHOSITA at the time of the '319 patent's alleged invention that the references and subject matter disclosed therein could be combined.

(*Id.*) The problem with this answer is that it is conclusory and resembles attorney argument rather than expert testimony. For example, Mr. Lipoff does not explain *why* would it have been

"routine for a PHOSITA to combine these references" even though he is the promoted as an expert with valuable insight into the details of what would have been obvious *in this art* and at *the particular time of invention.*

Regardless, even if I accept that it would have been routine to combine the references, I find that a *prima facie* case of obviousness cannot be made without some clear and convincing statement as to the benefit conferred by the combination beyond generic references to "improved" or "advanced" functionality. Yet this is all Respondents' expert leaves me with. (*See* RX-0300C at Q393-397.)

With that, I do not find clear and convincing evidence in the Record to show that a combination of Matsuoka, Doppelt, and Eckel, to arrive at a first microcontroller in a motor drive unit, and a second microcontroller in a wall console, with communication between the two, would have been obvious to make.

3. Claim-by-Claim analysis

Setting aside that no clear and convincing motivations to combine a motor drive unit with a first microcontroller and a wall console with a second microcontroller have been shown, I nonetheless explore whether Respondents' proposed combinations satisfy all limitations of the asserted claims. As had been done above, I address claims with near identical language together below.

a. Claims 1 and 9

Doppelt/Jacobs Combination

For the Doppelt/Jacobs combination, Respondents claim that Doppelt discloses an "improved garage door opener," and that this is undisputed. (RIB2 at 31 (citing RX-0040 at 1:2-5, 2:4-7, 5:4-8, Figure 1; RX-0300C at Q152).) Respondents claim that Doppelt discloses a "motor drive unit for opening and closing a garage door," and that this is undisputed. (*Id.* (citing

CX-1653C [Davis WS] at Q224-245; RX-0300C at Q153, 154; RX-0040 at 5:4-13, 6:9-18, 16:13-25, Figure 2).) Respondents claim that Doppelt and Jacobs disclose "said motor drive unit having a microcontroller [or controller]," and that this is undisputed. (*Id.* at 32 (citing RX-40 at 3:19-23, 5:28-37, Figure 2, Figure 3; Hr'g Tr. at 1076:2-16; RX-0300C at Q155, 157, 158; RX-0041 at 13:37-51, Figure 21).) Respondents claim that Doppelt and Jacobs disclose "a wall console," and that this is undisputed. (*Id.* (citing CX-1653C at Q223-227; RX-0040 at 3:28-29, 6:7-9, 5:20-22, 12:31-13:5, 14:35-37, 16:13-14, 22:31, Figure 2; RX-0041 at Abstract, 3:1-3, 5:1-2, Figures 1, 18, 19; RX-0300C at Q159, 160).)

Respondents claim that "[t]he Doppelt and Jacobs combination also teaches" "said wall console having a microcontroller [or controller]." (*Id.* at 33.) Respondents point to Jacobs' disclosure of "each of the controls 31, 32, 630 and 631 preferably comprises its own microprocessor and related memory and I/O components, shown in Figure 24," and argue a PHOSITA would understand this to be a microcontroller. (*Id.* (citing RX-0041 at 15:11-21, Figure 1, Figure 24; RX-0300C at Q161, 162).) Specifically, according to Respondents, "microprocessor 800" is the microcontroller required by the claim. (*See id.* at 34 (citing RX-0300C at Q157, 162).) respondents suggest that CGI misreads Jacobs when it argues Jacobs fails to disclose this limitation. (*Id.* at 34.) Then, as an alternative argument, Respondents claim "although Doppelt does not include a microcontroller in its wall console, it would be an obvious extension of Doppelt's teachings, coupled with a PHOSITA's knowledge, to include a microcontroller [or controller] in Doppelt's 'wall control 39.'" (*Id.* at 35 (citing RX-0300C at Q163, 164).) In their reply brief, Respondents argue that their expert's testimony on Doppelt's light switch does not amount to "teaching away" as it applies to non-obviousness. (RRPB2 at 10

(referring to Hr'g Tr. at 942:2-6 and citing *Alcon Research, Ltd. V. Apotex, Inc.*, 687 F.3d 1362, 1368 (Fed. Cir. 2012)).)

CGI disputes that Jacobs teaches this limitation because "Claim 1 requires a microcontroller at the wall console, not a microprocessor as disclosed in Jacobs." (CRSB2 at 26 (citing CX-1653C [Davis WS] at Q233).) CGI explains:

> The '319 patent uses the term microprocessor consistent with its meaning to a POSITA: the disclosed microcontroller could be the PIC 16505—a family of microcontrollers, which itself could incude a microprocessor. *Id.* at Q235, JX-7 at 4:24-27. Similarly, Jacobs identifies item 45 of figure 21 as a MC68HC705C8, a ***microcontroller***. RX-41 at 13:37-39. In that same figure, separate item 540 is a ***microprocessor***. RX-41 at Figure 21. Jacobs discloses only a micro***processor*** 800—not micro***controller***—within the wall unit. RX-41 at Figure 24. Therefore, the Doppelt and Jacobs combination fails to satisfy this limitation.

(*Id.*)

As best as I can understand it, CGI argues that Jacobs's microprocessor 800 is not a microcontroller because a microcontroller necessarily consists of a microprocessor *and additional* circuit elements, as shown in Figure 21 of Jacobs, below, where I have annotated the larger "motor controller circuit 45" (red) versus the smaller "microprocessor 540" (blue):

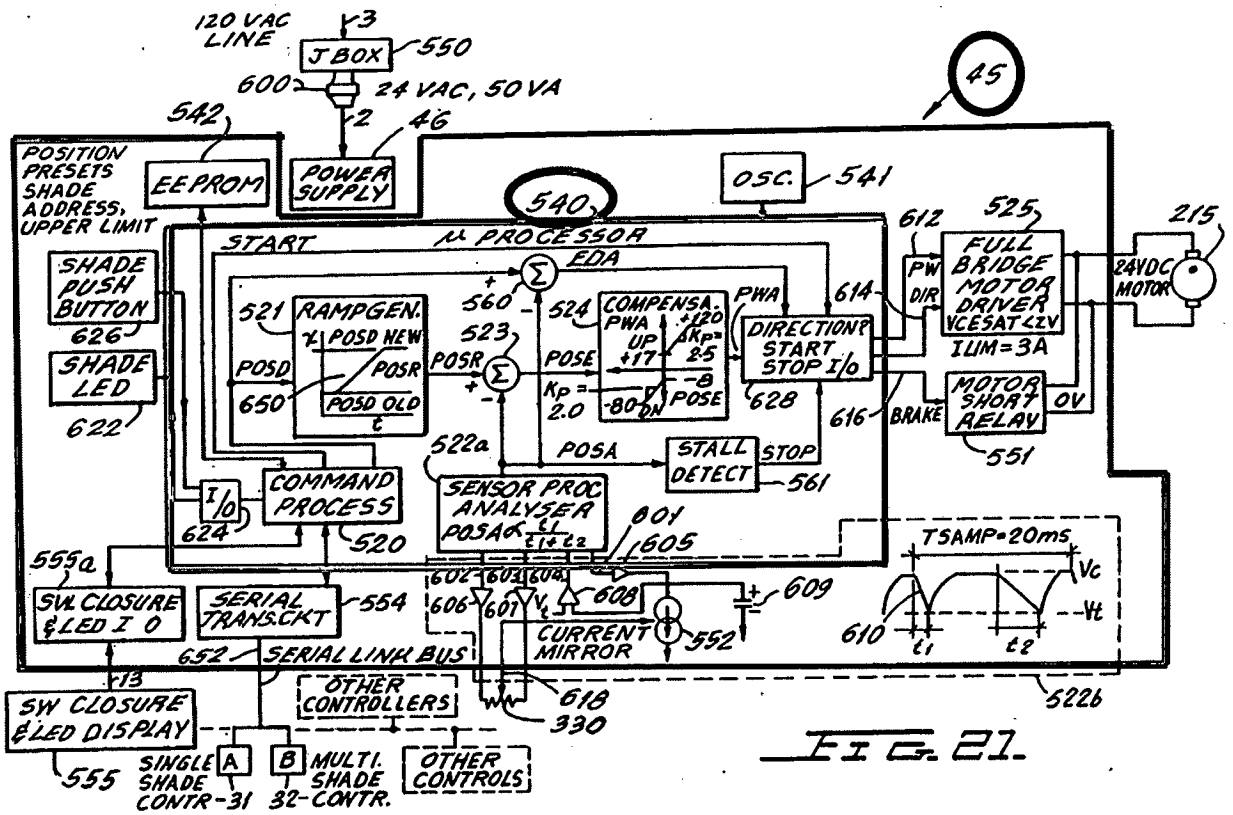


FIG. 21.

(RX-0041 at Figure 21 (annotated).)

I find CGI's argument to be a distinction without a difference. First, CGI's proposed construction for "controller" would seem to capture a microprocessor in addition to "a microcontroller, a programmable logic or gate array, or the like." (CIB2 at 17.) It would stand to reason, then, that if a microprocessor qualifies as a "controller," it likely qualifies as a "microcontroller."

Second, Jacobs discloses a microcontroller or controller in its "head unit," referred to as "motor controller circuit 45." (RX-0041 at 5:15-30, Figure 1.) Jacobs discloses that this "motor controller circuit 45" is connected to a component called "control 31" "via a class 2 control cable such as ribbon cable or telephone type cable." (*Id.* at 5:15-19.) "Control 31" or "controller 31" (*id.* at 5:17, 5:33) is shown as residing in a structure identifiable as a wall console. (*Id.* at Figures 1, 18.) Jacobs discloses clearly, "[e]ach of the controls 31, 32, 630 and 631 preferably

comprises its own microprocessor and related memory and I/O components, *shown in FIG. 24*." (*Id.* at 15:11-13 (emphasis added).) Jacobs also discloses all of controls 31, 32, 630, and 631 as: "substantially similar [in] operation" (*id.* at 16:29-30); having "communications over the serial link bus 652 [with] one or more of the controllers 45" (*id.* at 16:58-60); and located in structures identifiable as wall consoles:

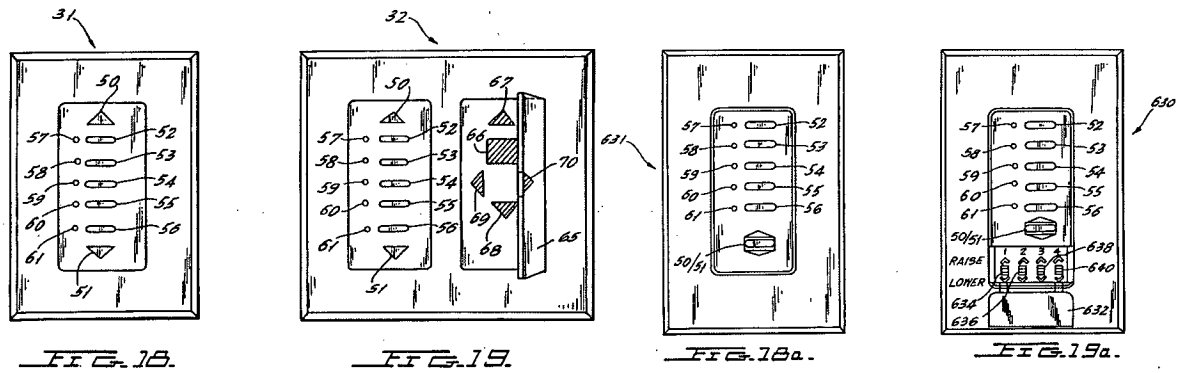


FIG. 18. FIG. 19. FIG. 18a. FIG. 19a.

(*id.* at Figures 18, 19, 18a, 19a.).

Thus, I find it clear and convincing that Jacobs, *by itself*, discloses, not only a microcontroller in a wall console, but also a microcontroller in a "motor drive unit," where the two are in communication with each other over "serial link bus 652." I therefore find that the Doppelt/Jacobs combination discloses "said wall console having a microcontroller [or controller]."

Lastly, Respondents claim that the Doppelt/Jacobs combination discloses "said microcontroller of said motor drive unit being connected to the microcontroller of the wall console by means of a digital data bus." (RIB2 at 35.) Respondents claim that "Dr. Davis does not dispute Jacobs discloses this limitation." (*Id.* (citing CX-1635C at Q242-249).) Respondents point to "serial bus 652" as the "digital data bus" required by the claim since it connects the motor drive unit's microcontroller to the wall console. (*Id.*) In the alternative, Respondents point to Doppelt's "wires 39a" "which are conductors capable of conveying digital data between

"wall control 39" and the motor drive unit's microcontroller 84." (*Id.* at 36 (citing RX-0300C at Q169-171; Hr'g Tr. at 948:3-949:7).) Respondents, through their expert, claim "it was common knowledge at the time of the '319 patent's invention to use conductors, like 'wires 39a,' to convey digital data." (*Id.* (citing RX-0300C at Q170; RX-0041 at 5:15-25, 16:58-65, claim 5).) Respondents urge that CGI's position on Doppelt's "wires 39a" ignores the agreed-upon construction for "digital data bus." (*Id.*) Respondents note that "[e]ven under Dr. Davis' new construction, wires 39a actually convey data when used in the proposed combination, *i.e.*, in view of Jacobs." (*Id.* (citing RX-0300C at Q169-171; Hr'g Tr. at 948:3-949:3, 951:2-9).)

CGI states, very narrowly, that:

> Respondents' proposed combination of Doppelt and Jacobs also fails to satisfy the limitation requiring the microcontroller of the wall console be connected to the microcontroller of the motor drive unit by means of a digital data bus, to the extent Respondents rely on Doppelt to satisfy that limitation. CX-1653C (Davis WS) at Q244-45.

(CRSB2 at 26.) CGI ends its discussion with "[t]hus, Doppelt does not disclose a digital data bus." (*Id.* at 27.)

Based on the above, I do not understand this limitation to be in dispute. The question is, whether the Doppelt/Jacobs combination would disclose the limitation—not Doppelt by itself. As already discussed, Jacobs discloses a "serial link bus 652" which facilitates digital communication between controller 45 and controllers 31, 32, 630 and 631. I also find that when Jacobs's wall console(s) with microcontrollers are utilized *in addition* to the microcontroller in Doppelt's head unit, Doppelt's "wires 39a" would naturally carry digital data as they already are in place to carry the analog signals from Doppelt's "wall control 39." I therefore find it clear and convincing that a Doppelt/Jacobs combination would include a "digital data bus" according to the construction I determined above—" a conductor or group of conductors which conveys digital data."

In light of the above evidence, I find that a Doppelt/Jacobs combination has been shown to meet every limitation of asserted claims 1 and 9.

Doppelt/Jacobs/Gilbert Combination

For the Doppelt/Jacobs/Gilbert combination, Respondents explain:

> The claim-by-claim analysis for the Doppelt, Jacobs, and Gilbert combination is identical to the analysis for the Doppelt and Jacobs combination with three exceptions. Gilbert separately discloses the following limitations of claims 1 and 9: (1) motor drive unit having a microcontroller; (2) said wall console having a microcontroller [or controller]; and (3) said microcontroller of said motor drive unit being connected to the microcontroller of the wall console by means of a digital data bus.

(RIB2 at 47-48.)

Respondents claim CGI does not dispute that Gilbert discloses a "motor drive unit having a microcontroller [or controller]." (*Id.* at 48 (citing CX-1653C at Q283-285; RX-0042 at 3:6-13, 3:35-37, 3:42-47, Figures 1, 2).)

Respondents argue Gilbert teaches "said wall console having a microcontroller [or controller]. . . . by disclosing wall-mounted control appliances, which contain their own microcontrollers." (RIB2 at 48 (citing RX-0042 at 1:38-45, 3:23-34, 3:42-56, 3:65-4:5, Figures 1, 3.) Respondents point to Gilbert's "microcontroller 118" in particular. (*Id.*) Anticipating CGI's dispute, Respondents argue through their expert that "'it was common knowledge of a PHOSITA that control switches for user-based systems' like control appliances 8, 9, and 11, 'are typically located on a wall.'" (*Id.* (citing RX-0300C at Q229).)

CGI contends that "Respondents fail to explain how Gilbert identifies a wall console for a garage door opener" and "[t]he 'intentionally simplified' functional layout of Gilbert's bidirectional communication space does not indicate that the control units are wall consoles."

(CRSB2 at 34-35 (citing CX-1653C at Q287).) CGI notes that Respondents do not even contend that Gilbert discloses this limitation. (*Id.* at 35 (referring to RX-0300C at Q225, 226).)

I agree with CGI here. Respondents state unequivocally, "Gilbert teaches this limitation by disclosing wall-mounted control appliances." (RIB2 at 48.) Upon review of each citation used to support this claim, I find it has no support. (*See* RX-0042 at 1:38-45, 3:23-34, 3:42-56, 3:65-4:5, Figures 1, 3.) Figures which show "control appliances 8, 9, 11" as box-shaped objects which look like they *could be* mounted to a wall are not enough. (*See* RIB2 at 48 ("Dr. Davis' only argument is that Gilbert does not indicate the control units *could be* wall consoles") (emphasis added)).) Thus, I find Gilbert does not disclose "said wall console having a microcontroller [or controller]" and any combination which relies on Gilbert for this limitation fails.

Next, Respondents argue Gilbert teaches "said microcontroller of said motor drive unit being connected to the microcontroller of the wall console by means of a digital data bus" because "microcontroller 18" and "microcontroller 118" are "connected to the space 4 via a bidirectional transmission means 24." (*Id.* at 49 (citing RX-0042 at 3:49-56, 2:39-44, Figures 2, 3).) Respondents continue "Gilbert further discloses its bidirectional transmission may consist of 'hardwired means of transmission,' such as 'a cable.'" (*Id.* (citing RX-0042 at 1:24-29, 3:17-22).) Respondents contend "a PHOSITA would have known such a configuration is 'capable of conveying digital data.'" (*Id.* at 50 (citing RX-0300C at Q237).) In response to CGI argument, Respondents argue that CGI admits a PHOSITA would understand Gilbert is capable of carrying digital data, as would the combined Doppelt/Jacobs/Gilbert system. (RRPB2 at 12-13.)

CGI argues the limitation is not disclosed in Gilbert because "Gilbert does not describe a digital data bus." (CRSB2 at 35.) CGI explains "Gilbert's bidirectional communication space

can consist of radio frequencies and need not include a physical connection at all." (*Id.* (referring to RX-0042 at Abstract, 1:47-50).) CGI continues "Gilbert does not disclose whether the status and control messages transmitted through the bidirectional control space are digital." (*Id.* (citing RX-0042 at 3:10-13).) Essentially, according to CGI, "Gilbert does not disclose the format of the transmitted messages." (*Id.*)

I agree with Respondents here. Gilbert discloses "[t]hree control appliances 8, 9, 11 are also linked to the space 4 to receive the status messages from the working appliances 1 to 3, and to send them control messages and status request messages." (RX-0042 at 3:23-26.) I find Mr. Lipoff's testimony credible where he states that "[a] PHOSITA would readily understand that Gilbert's transmission of status messages and control messages refers to transmission of digital data between microcontrollers." (RX-0300C at Q237.) I further find that Gilbert's focus on network addresses assigned to appliances would further contribute to this understanding by a PHOSITA. (*See, e.g.*, RX-0042 at Abstract.) Thus, it is clear that bidirectional transmission means 24 conveys digital data in the Gilbert system.

In light of the above evidence, I do not find that a Doppelt/Jacobs/Gilbert combination has been shown to meet *every* limitation of asserted claims 1 and 9.

Matsuoka/Doppelt/Eckel Combination

For the Matsuoka/Doppelt/Eckel combination, Respondents claim that Matsuoka and Doppelt disclose an "improved garage door opener," and that this is undisputed. (RIB2 at 54 (citing RX-0049 at 1:4-7, 1:8-45, 2:15-37, Figure 1; RX-0300C at Q399).) Respondents claim that Matsuoka and Doppelt disclose "a motor drive unit for opening and closing a garage door," and that this is undisputed. (*Id.* (citing CX-1653C at Q380-385; RX-0049 at 2:47-56, Figures 2, 3, 8, claims 1, 11).) Respondents claim that Doppelt discloses "said motor drive unit having a

microcontroller [or controller]," and that this is undisputed. (*Id.* (citing CX-1653C at Q380-385; RX-0300C at Q155, 401, 402).) Respondents claim Doppelt and Eckel disclose "a wall console," and that this is undisputed. (*Id.* (citing CX-1653C at Q380-385; RX-0300C at Q404-406; RX-48 at 3:66-4:2, 1:38-46, 4;11-18, 5:44-47, Figures 1, 2).) Respondents then claim that Eckel discloses "said wall console having a microcontroller [or controller]," and that this is undisputed. (*Id.* at 56 (citing CX-1653C at Q386-388; RX-0048 at 5:24-26, 6:36-41, 6:65-67, Figure 5).)

Respondents then argue:

> Nor does Dr. Davis dispute Matsuoka discloses at least a controller, as claim 9 requires. Hr'g Tr. at 1070:14-25 (Davis). Dr. Davis only disputes that Matsuoka discloses a "microcontroller" in its wall console. But Dr. Davis is incorrect.

(*Id.* at 55.) Respondents look to the testimony of their expert to explain that Matsuoka's disclosure of "the control device 13 containing the receiver also contains all the signal processing parts primarily including the logic processing circuit 311" (RX-0049 at 6:1-4) would be understood by a PHOSITA to mean "a microcontroller for control device 13." (*Id.* at 55-56 (citing RX-0300C at Q408-412).) Specifically, Mr. Lipoff testified:

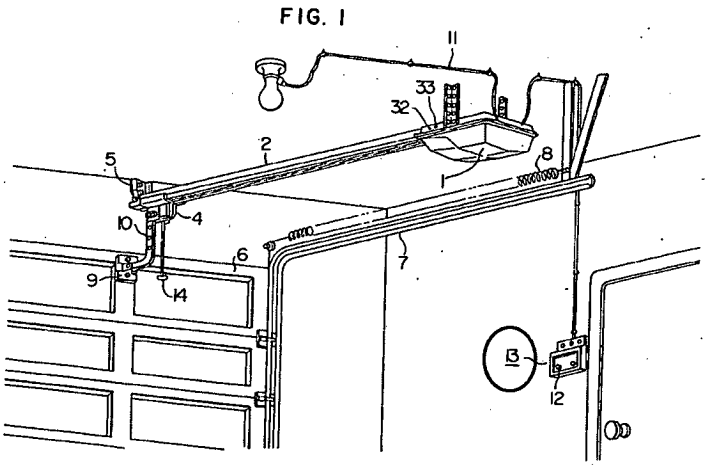
> Therefore, because *Matsuoka*'s logic processing circuit 311 in wall-mounted control device 13 includes a program memory circuit, a command register, a command decoder, and a logic calculation circuit 345 for logic operation, as well as a temporary memory circuit, a PHOSITA would appreciate that logical processing circuit 311 is a microcontroller.

(RX-0300C at Q411.)

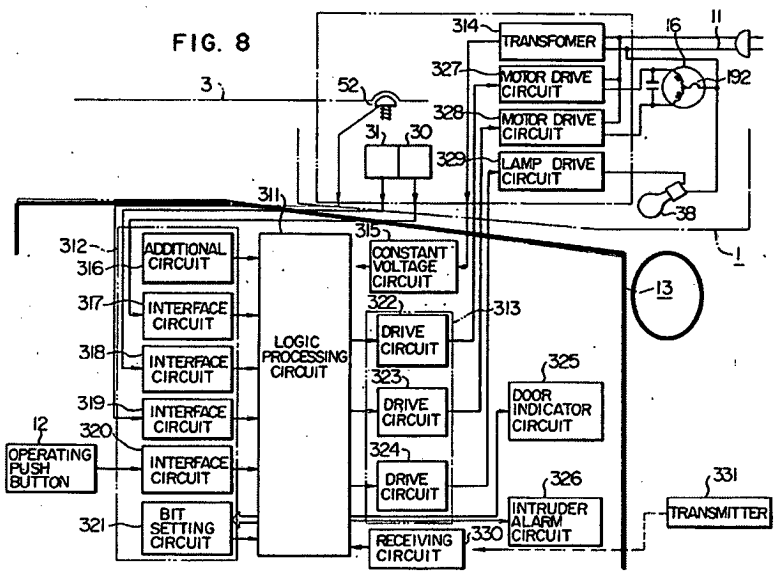
CGI, on the other hand, claims "Respondents admit that Matsuoka does not disclose a controller or microcontroller *in the wall console*." (CRSB2 at 40 (citing RX-0300C at Q409) (emphasis added).) CGI also claims "Matsuoka focuses on the data processing components, such as logic and control circuits, without disclosing an actual microcontroller or controller" and

adds "these data processing circuits control functions associated with controlling the motor and not adding advanced features of communicating with a head unit of a garage door opener." (*Id.* (citing CX-1653C at Q387; RX-0049 at Figure 9).)

I find CGI's argument is rooted in an inaccurate "admission" by Respondents' expert. Matsuoka plainly shows a wall console in Figure 1, "control 13:"



(RX-0049 at Figure 1 (annotated); *see* RX-0049 at 2:40.) Figure 8 shows quite a bit of circuitry within "control 13" including "logic processing circuit 311," "input circuit 312," and "output circuit 313:"



(*Id.* at Figure 8 (annotated); *see id.* at 5:50-53.) I find this to be a clear disclosure of a "wall console having a controller" as required by claim 9.

To the extent there is a genuine dispute over whether Matsuoka's controller is small enough to be considered a "microcontroller" for claim 1 (*see* Hr'g Tr. at 1070:21-25), I do not find CGI's expert's *direct* testimony to be persuasive on this point (*see* CX-1653C at Q387, 388). On cross-examination, however, he explained "[Matsuoka] discloses logic, but it was discrete logic from the 1980s which would certainly not be considered a microcontroller, and at best a rudimentary overall controller, if you're looking at the time frame or timeline of the '319 being submitted." (Hr'g Tr. at 1070:16-20.) I find this to be a more persuasive and credible opinion than Mr. Lipoff's testimony on why a PHOSITA would understand what is disclosed to be a "microcontroller" (RX-0300C at Q411.) Thus, I do not find Matsuoka teaches a "microprocessor" in a wall console as required by claim 1.

Nevertheless, the Matsuoka/Doppelt/Eckel combination includes Eckel, whose microprocessor in a wall console is not disputed. (*See* CRSB2 at 40.)

Moving on, Respondents claim Matsuoka teaches "said microcontroller of said motor drive unit being connected to the microcontroller of the wall console by means of a digital data bus" through its disclosure of "eight conductive wires that are *capable* of conveying digital data, connecting the microcontroller of 'control device 13' to body 1." (RIB2 at 57 (citing RX-0300C at Q416-419; RX-0049 at 6:10-11, Figures 1, 8) (emphasis added).) Respondents contend that "voltage high-voltage low" transmissions on these wires between the wall console and the motor "is the exact 'digital data' the '319 patent contemplates." (*Id.* at 57-58 (citing '319 patent at 7:1-4, Figure 12H; JX-0008 at -43562-4); *see* RRBP2 at 17.) Respondents also claim Matsuoka states "that control 13 houses 'a receiver *for receiving* a signal in the form of electric wave or the

like,' not that control 13 transmits data in the form of a wave to the body 1." (*Id.* at 58 (citing RX-0049 at 2:38-42, 10:9-13, Figure 8; RX-0300C at Q416-419).)

For Eckel, Respondents argue a "remote processing device" connects to wall mounted lighting control system 10 to provide for "downloading of data to, for example, the EEPROM 72 via twisted pair wires or a power line carrier." (*See id.* at 58 (citing RX-0300C at Q420-425; RX-0048 at 15:1-18, claim 32, Figures 1, 5).) Respondents also point to Eckel's disclosure of "LONWORKS Technology" for two-way communication between the microprocessor 70 in its wall console and test equipment or other addressable networks. (*See id.* (citing RX-0048 at 22:35-64; RX-0300C at Q420-422).) Respondents' expert, Mr. Lipoff, testified that LONWORKS is a "comprehensive distributed digital data control system that connects microcontrollers with conductors capable of conveying digital data." (RX-0300C at Q120-124, 422.) Respondents allege that CGI does not dispute this opinion. (RRBP2 at 17.)

For Doppelt, Respondents refer back to their discussion as contained in the Doppelt/Jacobs combination. (RIB2 at 59.)

CGI begins by incorporating its prior discussion of Doppelt and this limitation, as Respondents have done. For Eckel, CGI alleges, "[i]n particular, Respondents identify 'an external data input device' for 'downloading a passcode' to Eckel's wall housing as satisfying this limitation." (CRSB2 at 41 (referring to RIB2 at 58).) CGI argues "the mere disclosure of *any* connection fails to show how the microcontroller of a wall console is connected by means of a digital data bus to the microcontroller of a motor drive unit as the claim requires." (*Id.* (citing CX-1653C at Q312).) CGI adds:

> Respondents also do not identify a connection between a controlling unit (wall console) and a controlled unit (the light or the garage door's head unit), which could be likened to the '319 patent's claimed connection. *Id.*

> Rather, they identify a temporary connection to a programming tool. *Id.* At best they identify nothing more than a wire in support of this theory.

(*Id.*) For Matsuoka, CGI contends that Respondents' chosen "bundle of eight wires" is an untimely argument and neither they nor Matsuoka itself discloses how these wires might convey data, much less digital data as the claim requires. (*See id.* at 41-42.) CGI states clearly, "the fact is that digital data is not communicated to or from the push button 12 to the motor drive unit [in Matsuoka]." (*Id.* at 42.)

I find the Matsuoka/Doppelt/Eckel combination would disclose this limitation. Specifically, I find clear and convincing evidence that Eckel discloses this limitation through its "microprocessor 70," located in 'housing 24" (*see* RX-0048 at 6:36-64), which "can employ two-way communication for test equipment use, as well for interfacing addressable networks (*e.g.*, Echelon® LONWORKS Technology™). . . . This allows access to the microprocessor 70 and the EEPROM 72, or the microprocessor ROM and RAM, for reporting purposes and for configuration of variables" (*id.* at 22:35-48). That this might be a "temporary connection to a programming tool," as CGI observes, is immaterial. It is still a disclosure of a conductor or group of conductors which conveys digital data—the construction I adopt for "digital data bus." When connected to the microcontroller in the motor drive unit of Doppelt, as per this combination (*see* RIB2 at 54), the complete limitation is met. I do, however, agree with CGI regarding Matsuoka, which fails to disclose digital data conveyed by its "eight wires." "Voltage high-voltage low" signals (RIB2 at 57-58) are not clearly and convincingly digital data; they could be simple analog signals.

In light of the above evidence, I find that a Matsuoka/Doppelt/Eckel combination has been shown to meet every limitation of asserted claims 1 and 9.

b. Claims 2 and 10

Doppelt/Jacobs Combination

For the Doppelt/Jacobs combination, Respondents claim that "Jacobs discloses a 'digital data bus' that is 'asynchronous' as claims 2 and 10 require," and that this is undisputed. (RIB2 at 37 (citing CX-1653C at Q146-150; RX-0300C at Q172-178; RX-0041 at 15:56-60, 15:66-16:5, 16:38-45, 16:58-65; JX-0008 at *89; RX-0060 at -14304).) In the alternative, Respondents claim "it would be an obvious extension of Doppelt's teachings and a PHOSITA's knowledge to utilize asynchronous communication over a digital data bus." (*Id.* (citing RX-0300C at Q177; RX-0040 at 12:22, Figure 13).)

As reported by Respondents, CGI does not appear to dispute that the Doppelt/Jacobs combination would meet this limitation through Jacobs's disclosures. Rather, CGI contends "[t]he proposed combination fails to satisfy the limitations of claims 2 and 10 to the extent Respondents rely on Doppelt." (CRSB2 at 27.)

As described above, Respondents do not rely on Doppelt's disclosures for this claim. Thus, I do not see a dispute with whether this claim is obvious over the Doppelt/Jacobs combination, and I find in light of the above evidence that a Doppelt/Jacobs combination has been shown to meet every limitation of asserted claims 2 and 10.

Doppelt/Jacobs/Gilbert Combination

Respondents explain that this combination relies exclusively on the disclosures already discussed under the Doppelt/Jacobs combination. (RIB2 at 48.) CGI understands the same to be true. (CRSB2 at 35.) I incorporate my findings on the Doppelt/Jacobs combination here as well.

Matsuoka/Doppelt/Eckel Combination

For the Matsuoka/Doppelt/Eckel combination, Respondents claim that Matsuoka discloses this limitation. (RIB2 at 59.) Respondents point to their expert's interpretation of

Matsuoka as having a "data stream [that] contains start and stop signals, before and after each unit of transmission." (*Id.* (citing RX-0300C at Q429; RX-0049 at 16:35-43, claim 32, Figure 30).) According to the expert, "a PHOSITA would understand that this method of communication discloses asynchronous communication over the data bus." (*Id.* (citing RX-0300C at Q429).)

Respondents claim that Eckel discloses the limitation too, through its disclosure of the LONWORKS network. (*Id.* (citing RX-0300C at Q431; RX-0054 at § 1-4).) Respondents also claim that "a PHOSITA would have found it routine to transmit data asynchronously to the motor drive unit's microcontroller because Doppelt already discloses asynchronous communication between the remote transmitters' microcontrollers and the motor drive unit's microcontroller." (*Id.* at 60 (citing RX-0300C at 432; RX-0040 at 12:22-30, Figure 13).)

CGI claims that Matsuoka discloses *synchronous* transmission, not *asynchronous*, which Respondents' expert supposedly admitted. (CRSB2 at 42 (citing RX-0300C [Lipoff WS] at Q429).) CGI calls Respondents' derivation of asynchronous transmission from Matsuoka as "inexplicable." (*Id.*) CGI then claims that Respondents misinterpret claim 32 of Matsuoka, whose reference to start and stop signals have to do with motor control, not digital data communication. (*See id.*)

I find that CGI does not dispute Mr. Lipoff's testimony on the LONWORKS technology as utilized in Eckel, nor Doppelt's use of asynchronous communication between its wireless transmitters and head unit. (*See* CRSB2 at 42; RRPB2 at 18.) Given that in Respondents' Matsuoka/Doppelt/Eckel combination, Doppelt's contribution is its microcontroller in its motor drive unit, and Eckel's contribution of a wall console microcontroller, I find that the limitation is clearly disclosed.

In light of the above evidence, I find that a Matsuoka/Doppelt/Eckel combination has been shown to meet every limitation of asserted claims 2 and 10.

c. Claims 3 and 11

Doppelt/Jacobs Combination

For the Doppelt/Jacobs combination, Respondents claim that "Doppelt and Jacobs both disclose every limitation of claims 3 and 11." (RIB2 at 37.) For Doppelt, Respondents characterize its disclosure as "microcontroller 84 calculates the door's location during its travel based on signals received from the up/down limit switches 93 (*i.e.*, position circuitry)" and "microcontroller 85 'repeatedly scans' the 'pulses on conductor 112' to 'identify if the motor 106 is rotating and, if so, how fast the rotation is occurring.'" (*Id.* at 38 (citing RX-0040 at 6:9-23, 15:31-34, 16:13-18 Figure 2).) Respondents also point to Doppelt's "mechanical linkage" which "moves a cog (not shown) in proportion to the actual door movement and the limit switches detect the position of the moved cog." (*Id.* (citing RX-0040 at 16:4-6).) Respondents argue that these limit switches are analogous to the '319 patent's "up limit" and "down limit" signals. (*Id.* (referring to '319 patent at 4:16-20, Figures 2, 3B).) Respondents also argue that pulses from conductor 112 in Doppelt "inform microcontroller 84 that the door is traveling. . . . Microcontroller 84 then uses this information, combined with signals from position switches 93, to calculate the door's location during its travel." (*Id.* at 38-39 (citing RX-0300C at Q181, 182).) From this, Respondents conclude that microcontroller in conjunction with limit switches 93a or 93b "performs the requisite calculations" of door travel. (*See id.* at 39.)

For Jacobs, Respondents point to microprocessor 540 as controlling the panel's travel and calculating the panel's location during that travel. (*Id.* (citing RX-0041 at 12:42-13:2, 13:49-51).) Respondents claim "Jacobs' system determines the 'instantaneous upper roller position' by calculating 'the difference between the signal POSD (desired position) and the signal POSA

(actual position)" and "Jacobs further teaches 'the stall detector 561 continuously takes, mathematically speaking, the derivative of the signal POSA [actual panel position] to ensure that POSA is constantly changing, as it would, as long as the motor 215 continues to rotate." (*Id.* (citing RX-0041 at 20:32-61, Figure 21; RX-0300C at Q186).) Respondents also note Jacobs's "position sensor 310" in Figure 21. (*Id.* at 39-40.) Respondents remind that it is the microprocessor 540 and the stall detector together that "calculate[] the panel's location during its travel." (*Id.* at 40.)

CGI disputes that the claim is met because "Respondents misconstrue this limitation to suggest that the limitation is satisfied without performing any calculations or determining the door's location *during the door's travel,* as the claims plainly recite." (CRSB2 at 27-28.) For Doppelt, CGI challenges whether its limit switches can satisfy the claim because they "do not require any calculations of the door's location during travel. . . . In fact, the limit switches indicate only when a limit is reached." (*Id.* at 28 (citing CX-1653C at Q258).) CGI contends this is not the same as making calculations during the door's travel, and that "Doppelt's limit switches use only mechanical linkages and cogs." (*Id.* (referring to RX-0040 at 15:38-16:6).) CGI adds that any "monitoring of pulses" done by Doppelt "merely indicates whether the motor is turning, but not the door's location as it travels." (*Id.* (citing RX-0040 at 15:28-34).) In short, according to CGI, "Doppelt physically senses when the limit switch is closed." (*Id.* (citing RX-0040 at 16:10-12).)

For Jacobs, CGI complains that "position information in Jacobs is only sensed via a potentiometer and is therefore not 'calculated.'" (*Id.* (citing RX-0041 at 10:64-67, 2:51-64).) CGI continues, "[t]he resistance of the potentiometer is an analog value which is measured to indicate the position." (*Id.* (citing RX-0041 at 11:14-16).) CGI then disputes whether stall

detectors satisfy the limitation because "it indicates only the rate of change in the motor's speed." (*Id.* at 29 (citing CX-1653C at Q263).)

Upon review of the references I find the claim is met by the Doppelt/Jacobs combination. I agree with CGI, that Doppelt (by itself) does not clearly and convincingly disclose "said one microcontroller makes calculations of the door's location during its travel." In relevant part, Doppelt reads:

> The apparatus includes an up limit switch 93a and a down limit switch 93b which detect the maximum upward travel of door 24 and the maximum downward travel of the door. The limit switches 93a and 93b may be connected to the garage structure and physically detect the door travel or, as in the present embodiment, they may be connected to a mechanical linkage inside head end 12, which arrangement moves a cog (not shown) in proportion to the actual door movement and the limit switches detect the position of the moved cog. The limit switches are normally open. When the door is at the maximum upward travel, up limit switch 93a is closed, which closure is sensed at port P20 of microcontroller 85. When the door is at its maximum down position, down limit switch 93b will close, which closure is sensed at port P21 of the microcontroller.

(RX-0040 at 15:35-16:12.) I do not see a *clear* disclosure in this passage that Doppelt's microcontroller makes "calculations of the door's location." In one embodiment limit switches 93a and 93b "physically detect the door travel." In another, they "detect the position of the moved cog" so that when the door is at maximum positions, the switches close. Credible testimony from Dr. Davis explains that detecting maximum positions in this way does not necessarily require calculation, even when a microprocessor coordinates with the switches. (*See* CX-1653C at Q258, 259.) I also observe that Respondents do not claim Doppelt discloses this limitation, but rather, their expert states "a PHOSITA *would understand* Doppelt to disclose that its microcontroller 84 makes calculations of the door's location during its travel based on operation of the up/down limit switches 93." (RX-0300C [Lipoff WS] at Q182 (emphasis

added).) This is a conclusion that needs a credible explanation to be shown *clearly* and *convincingly*. Such an explanation has not been offered.

For the reasons discussed above, I disagree that a PHOSITA would clearly and convincingly understand Doppelt makes "makes calculations of the door's location during its travel." I also do not find, as Respondents suggest, that the '319 patent's "position indicator 80" is the same as Doppelt's "limit switches 93." (*See* RX-0300C at Q181, 182; RDX-0349.)

Jacobs, on the other hand, does clearly and convincingly disclose the elements of this claim. CGI argues:

> Moreover, position information in Jacobs is only sensed via a potentiometer and is therefore not "calculated." CX-1653C (Davis WS) at Q263, RX-41 at 10:64-67, 2:51-64. The resistance of the potentiometer is an analog value which is measured to indicate the position.

(CRSB2 at 28.) I find this reasoning is suspect. CGI admits that the potentiometer is ultimately responsible for the "position information," and does so through sensing resistance, but claims no "calculation" takes place. To the contrary, calculation *must* take place to *convert* the resistance information to position information. Moreover, Jacobs discloses this very process takes place in real-time (*i.e.*, "during its travel"):

> The potentiometer 330 is adapted to produce a unique resistance value between two of its output terminals 340 and 341 for any rotational angle of shaft 332 over its full 10 turns. . . . Thus, the resistance at terminals 340 and 341 is uniquely related to the location of the panel assembly 40 as it moves between the upper and lower roller tubes 170 and 110. Although position sensor 310 is shown as a multiturn potentiometer in the preferred embodiment, there are many alternative methods which can be used to determine the position of the panel assembly. For example, the number of revolutions of the top roller could be counted. Alternatively, a mechanical, optical, magnetic or other type of sensor could be used to determine the position of the panel assembly by applying a mechanical, optical, magnetic or other type of marking to one edge of the panel assembly and sensing the position of the panel assembly directly.

(RX-0041 at 10:64-11:27; *see* CX-1653C [Davis WS] at Q263 ("The claim is not satisfied by performing merely any calculation, it requires making calculations of the door's location during travel.) CGI's remaining argument regarding window shades versus door (CRSB2 at 28) is beside the point and dealt with in the discussion of analogous art above.

In light of the above evidence, I find that a Doppelt/Jacobs combination has been shown to meet every limitation of asserted claims 3 and 11.

Doppelt/Jacobs/Gilbert Combination

Respondents explain that this combination relies exclusively on the disclosures already discussed under the Doppelt/Jacobs combination. (RIB2 at 48.) CGI understands the same to be true. (CRSB2 at 35.) I incorporate my findings on the Doppelt/Jacobs combination here as well.

Matsuoka/Doppelt/Eckel Combination

For the Matsuoka/Doppelt/Eckel combination, Respondents claim that Matsuoka and Doppelt teach this limitation. (RIB2 at 60.) For Doppelt, Respondents refer to their earlier discussion under the Doppelt/Jacobs combination. (*Id.*) For Matsuoka, Respondents argue plainly, "its logic processing circuit 311 (1) controls the GDO's travel, and (2) makes calculations during the door's travel." (*Id.* (citing RX-0300C at Q435; RX-0049 at 4:62-5:4, Figure 6).) Anticipating CGI's argument, Respondents assert that Matsuoka is not purely a time-controlled process because of its procedure for sensing and reacting to obstructions. (*Id.* (citations omitted).) Respondents conclude with "logic processing circuit 311 calculates the door's location during travel, *e.g.*, door is less than one foot from its upper limit, because upon receiving an input signal from the upper limit switch 30 logic processing circuit 311 transfers the door to stationary state 301." (*Id.* at 61 (citing RX-0300C at Q435; RX-0049 at 4:62-5:12).)

CGI, like Respondents, incorporates its earlier discussion of Doppelt. For Matsuoka, CGI contends "Respondents mischaracterize Matsuoka's disclosure to support their theory that Matsuoka is not controlling the rise of the door using a timer." (CRSB2 at 43.) CGI points to Matsuoka's disclosure of:

> In the presence of an obstruction detection input during the downward movement of the garage door 6, on the other hand, the door transfers to the temporary stationary state 305 through the state 310, and after a fixed time length, transfers to the state 306 one foot higher. This one-foot rise is time controlled, so that after a predetermined length of time, the door transfers to the stationary state 301.

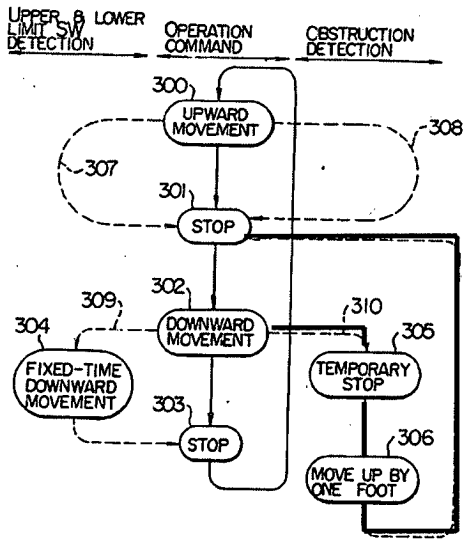
(*Id.* (citing RX-0049 at 4:62-5:7).) According to CGI, "Matsuoka does not calculate the door's location during its travel[;] it energizes the motor for a fixed amount of time allowing the door to move higher by one foot." (*Id.* (citing CX-1653C at Q404).)

As discussed above, I do not find Doppelt discloses this limitation. With respect to Matsuoka, I find CGI to be more persuasive. The limitation reads "microcontroller [or controller] makes calculations of the door's location." ('319 patent at claims 3, 11.) Matsuoka clearly discloses:

> In the presence of an obstruction detection input during the downward movement of the garage door 6, on the other hand, the door transfers to the temporary stationary state 305 through the state 310, and after a fixed time length, transfers to the state 306 one foot higher. This one-foot rise is time controlled, so that after a predetermined length of time, the door transfers to the stationary state 301.

(RX-0049 at 4:67-5:7.) Figure 6 illustrates this process, which I have highlighted in red:

FIG. 6



(RX-0049 at Figure 6 (annotated).)

Based on these teachings, it is not clear that Matsuoka's system is making calculations of the door's location. Rather, the calculation may already have been made so as to know, in a "predetermined" way, how long the motor must run to accomplish one foot of translation (*i.e.*, an open-loop control system). If "calculations of the door's location" were being made, Matsuoka would probably read "this one foot rise is *position controlled*" (*i.e.*, a closed-loop control system). Instead, it reads "this one foot rise is *time controlled.*" (*Id.* at 4:67-5:7 (emphasis added).)

In light of the above evidence, I find that a Matsuoka/Doppelt/Eckel combination has not been shown to meet every limitation of asserted claims 3 and 11.

d. Claims 4 and 12

Doppelt/Jacobs Combination

For the Doppelt/Jacobs combination, Respondents claim that "Doppelt discloses each limitation of claims 4 and 12," and that this is undisputed. (RIB2 at 40 (citing CX-1653C at

Q264-266; RX-0040 at 12:34, 5:22-24, 12:31-14:2, 16:13-19, 16:18-20, 16:24-34, 26:1-9, 34:3-9, Figures 2, 6, 10; RX-0300C at Q180, 188, 189).)

In light of the above evidence, I find that a Doppelt/Jacobs combination has been shown to meet every limitation of asserted claims 4 and 12.

Doppelt/Jacobs/Gilbert Combination

Respondents explain that this combination relies exclusively on the disclosures already discussed under the Doppelt/Jacobs combination. (RIB2 at 48.) CGI understands the same to be true. (CRSB2 at 35.) I incorporate my findings on the Doppelt/Jacobs combination here as well.

Matsuoka/Doppelt/Eckel Combination

For the Matsuoka/Doppelt/Eckel combination, Respondents claim that "Matsuoka, Doppelt, and Eckel disclose each limitation" of this claim and that it is undisputed. (RIB2 at 61 (citing CX-1653C at Q406; RX-0049 at 2:38-42, 3:50-54, 5:64-66, 5:53-66; RX-0048 at 3:62-65, 4:11-14, 12:21-26, 4:51-54, 5:33-35, 12:45-47, Figures 1, 3, 8; RX-0300C at Q189, 441).)

In light of the above evidence, I find that a Matsuoka/Doppelt/Eckel combination has been shown to meet every limitation of asserted claims 4 and 12.

e. Claims 7 and 15

Doppelt/Jacobs Combination

For the Doppelt/Jacobs combination, Respondents claim that "Jacobs discloses each limitation of claims 7 and 15," and that this is undisputed. (RIB2 at 41 (citing CX-1653C at Q267-271; RX-0041 at 15:22-31, Figures 21, 24).) In the alternative, Respondents claim "Doppelt also discloses each limitation of claims 7 and 15." (*Id.*) Respondents argue Doppelt's "motor drive unit's controller then supplies power to wall switch 39 via wire conductors 39a." (*Id.* (citing RX-0040 at 5:21-22, 14:35-37, Figure 3A).) Respondents contend that CGI's

disagreement on this limitation is based on viewing Doppelt in isolation, rather than as a combination with Jacobs.

Indeed, CGI does not dispute that Jacobs teaches claims 7 and 15 but argues Doppelt does not because the power must be provided "via 'power conductors of the data bus'" and Doppelt does not disclose a digital data bus. (CRSB2 at 29.)

In light of the above evidence, I find that a Doppelt/Jacobs *combination* has been shown to meet every limitation of asserted claims 7 and 15 through the undisputed teachings of Jacobs's "serial bus link 652" (*see* RX-0041 at 15:24-28) and Doppelt's undisputed disclosure of its wall console receiving power from its head unit (*see* RX-0040 at 5:21-22, 5:30-34, 6:24-37, 14:35-37, Figure 3A). I note that the '319 patent specification, as opposed to the claims, speaks very little of how power is delivered to the wall console—arguably not at all. Indeed, "power" is used six times but not in a relevant way, "data" is used twice (once in the title, and once for a "data frame" for the light signal), and "bus" is never used. (*See* generally '319 patent.)

Doppelt/Jacobs/Gilbert Combination

Respondents explain that this combination relies exclusively on the disclosures already discussed under the Doppelt/Jacobs combination. (RIB2 at 48.) CGI understands the same to be true. (CRSB2 at 35.) I incorporate my findings on the Doppelt/Jacobs combination here as well.

Matsuoka/Doppelt/Eckel Combination

For the Matsuoka/Doppelt/Eckel combination, Respondents claim Doppelt teaches this limitation for the same reasons described under the Doppelt/Jacobs combination. (RIB2 at 62.) For Matsuoka, Respondents reference the "eight wires" which connect wall "control 13" to the head unit "body 1." (*Id.*) Respondents and their expert alleged, "the drive unit (*i.e.*, body 1) provides power to 'control device 13' via power conductors of the data bus (*i.e.*, eight wires)."

(*Id.* (citing RX-0300C at Q445; RX-0049 at 2:36-37, 6:1-20, Figure 8).) In the alternative, Respondents argue a Doppelt/Eckel combination would meet this limitation. (*Id.* at 63 (citations omitted).)

CGI, like Respondents, references its previous discussion of Doppelt. (CRSB2 at 43.) CGI also claims "contrary to the requirements of claims 7 and 15, Eckel shows that power to the wall housing comes from a hardwired 5v source, not a motor drive unit." (*Id.* (citing RX-0048 at Figures 5, 16).) For Matsuoka, CGI claims Respondents changed their theory in a way that "alone shows that Respondents failed to meet their burden." (*Id.* at 43-44.) Even the new theory, CGI contends, fails because power source 11 is "not a power line of a digital data bus. . . . The power for the motor drive circuits is provided by different conductors." (*Id.* at 44 (citing RX-0049 at Figure 8).) "In fact," CGI continues, "Matsuoka distinguishes between power flowing on cable 11 . . . and the eight wires connecting the data processing unit to the motor drive circuits." (*Id.* (citing RX-0049 at 2:36-37; 6:10-11).)

I find the limitation is disclosed as Respondents suggest. Respondents argue, "Matsuoka's drive unit (*i.e.*, body 1) provides power to the wall console (*i.e.*, control device 13) via power conductors of the data bus (*i.e.*, eight wires)." (RRPB2 at 19.) I find Matsuoka clearly discloses "[t]he control device 13 is connected to the body 1 by way of eight wires. The primary source voltage supplied by the power cord 11 is reduced to AC 14 V by the transformer 314, and converted into a constant voltage to DC 10 V by the constant voltage circuit 315." (RX-0049 at 6:10-14.) From this, it is more than fair to infer that one of those eight wires transmits the power from transformer 314 (inside head unit) to voltage circuit 315 (inside wall console). Thus, in Matsuoka, the wall console receives power through the structure identified as the digital data bus. CGI does not meaningfully dispute this; its discussion of "power for the

motor drive circuits" is irrelevant. (CRSB2 at 43-44.) Doppelt is the same. It is undisputed that Doppelt discloses that its wall console receives its power from its head unit. (*See* RX-0040 at 5:21-22, 5:30-34, 6:24-37, 14:35-37, Figure 3A.) Moreover, while neither Matsuoka nor Doppelt, in isolation, discloses a "digital data bus," Eckel does. (*See* RX-0048 at 6:36-64, 22:35-48.) When the three references are considered in combination, it is obvious that power would be provided through that bus from the motor drive unit to the wall console as had been already done in both of the garage door opener references Matsuoka and Doppelt.

In light of the above evidence, I find that a Matsuoka/Doppelt/Eckel combination has been shown to meet every limitation of asserted claims 7 and 15.

f. Claims 8 and 16

Doppelt/Jacobs Combination

For the Doppelt/Jacobs combination, Respondents claim that "Doppelt and Jacobs also disclose claims 8 and 16." (RIB2 at 42.) For Jacobs, Respondents point to "communications over the serial link bus 652" which Respondents explain is labeled "communications and power bus" in Figure 24 and "unambiguously . . . 'provides both communications and power.'" (*Id.* (citing RX-0041 at 15:25-26, 3:1-4; 5:17-19.) Respondents, anticipating CGI's dispute, argue the data bus is not limited to the specific RS232 or 422 protocols (*id.*), and even if so limited, a PHOSITA would know that RS232 could convey both data and power (*id.* (citing RX-0300C at Q50).) Respondents also argue that "CGI's argument as to the "preregulated DC voltage" on Jacobs' serial link bus 652 is based on CGI's misunderstanding of the patent's teachings." (RRPB2 at 11.)

For Doppelt, Respondents claim that "wires 39a, which convey power, also covey data" because "[t]he motor drive unit's microcontroller 'responds to signals received from wall switch

39' via this connection." (RIB2 at 43 (citing RX-0040 at 16:13-18, 22:29-32, 6:7-14, 12:31-14:2, Figure 3A).)

Much like claims 7 and 15, CGI disputes that Doppelt's wires 39a can meet the present limitations because they are not of a "digital data bus" as required by claim 1. (CRSB2 at 30.) For Jacobs, CGI argues:

> Jacobs discloses two aspects of serial link bus 652 that prevent it from conveying both power and data along the same conductors. First, Jacobs discloses that "communications over the serial link bus 652 between the controls 31, 32, 630, or 631 and one or more of the controllers 45 proceeds . . . by using standard hardware and protocols such as those associated with RS232 or 422 serial data channels." RX-41 at 16:58-65. A POSITA would understand that RS232 and 422 were serial *data* channels that did not have power conductors to convey both data and power. CX-1653C (Davis WS) at Q277, CX-1316C (Fitzgibbon WS) at Q60. Second, Jacobs further confirms that "[*t*]*he power distributed on serial link bus 652 is a preregulated DC voltage*." RX-41 at 27-31. As such power and data in Jacobs could not have been transmitted along the same wires because the voltage was a constant fixed value and thus would be unsuitable for transmission of data. CX-1653C (Davis WS) at Q277. Further, the standard protocols, such as RS-232, did not describe how power was transmitted along the data wires. CX-1316C (Fitzgibbon WS) at Q60.

(*Id.*)

At the outset, I do not find Doppelt's limited disclosures are enough to satisfy this narrow claim which requires a *particular* conductor within the "digital data bus" group of conductors (*i.e.*, wires 39a) to convey both power and data. Respondents acknowledge this difference. (*See* RIB2 at 62 (distinguishing claim 7 from claim 8).)

Regarding Jacobs, I do agree with Respondents that "voltage regulator 802," and its provision of 5 volts DC, is not setting the electrical signal across data bus 652, but is rather a separate circuit to power microprocessor 800 safely. (RX-0041 at 15:28-35.) Indeed, if CGI's interpretation were true—that "because the voltage was a constant fixed value and thus would be unsuitable for transmission of data" (CRSB2 at 30)—then "digital data bus 652" would be

entirely incapable of transmitting data. This would render the entire Jacobs apparatus inoperable. I decline to take up such an interpretation.

I find, however, that Jacobs's disclosure of "[c]ontrol 630 is connected to controller(s) 45 via serial link bus 652 *which provides both communications and power*" is not, by itself, enough to disclose the limitation either. (*See* RX-0041 at 15:24-26 (emphasis added).) Again, claim 8 and claim 16's requirement of "wherein the power conductors convey both data and power" is more specific than just using a conductor within the "digital data bus" to convey power; it must be the same conductor.

Thus, whether the limitation would be obvious turns on Mr. Lipoff's testimony regarding the RS-232 protocol, and how it "was also *capable of* conveying power" (RX-0300C at Q50 (emphasis added)), or as Respondents themselves put it, "a PHOSTIA would have known an RS232 interface *could* convey both data and power" (RIB2 at 42 (emphasis added)). I do not find this testimony which uses "capable" or "could" to satisfy Respondents burden on the issue, especially given that Jacobs references this protocol for its communication attributes—not power:

> In general, *communications* over the serial link bus 652 between the controls 31, 32, 630, or 631 and one or more of the controllers 45 proceeds in the basically conventional mode involving *transmission of digital words/bytes* which individually or in groups define commands and supply status data for the controls and the controllers, for example, by using standard hardware and protocols *such as those associated with RS232* or 422 serial data channels.

(*See* RX-0041 at 16:58-65 (emphasis added).)

In light of the above evidence, I find that a Doppelt/Jacobs *combination* has not been shown to meet every limitation of asserted claims 8 and 16.

Doppelt/Jacobs/Gilbert Combination

Respondents explain that this combination relies exclusively on the disclosures already discussed under the Doppelt/Jacobs combination. (RIB2 at 48.) CGI understands the same to be true. (CRSB2 at 35.) I incorporate my findings on the Doppelt/Jacobs combination here as well.

Matsuoka/Doppelt/Eckel Combination

For the Matsuoka/Doppelt/Eckel combination, Respondents claim Doppelt teaches this limitation for the same reasons described under the Doppelt/Jacobs combination. (RIB2 at 63.) For Eckel, Respondents claim the limitation is disclosed through:

> The microprocessor 70 can employ two-way communication for test equipment use, as well for interfacing addressable networks (e.g., Echelon® LONWORKS Technology™). In a network capable product, the power supply circuit board (FIG. 17) can be enhanced with a configurable transceiver on or off the board which allows interfacing to numerous system addressable, physical network types (e.g., twisted pair, radio frequency, link power, infrared transmission, power line communication, and so on).

(RX-0048 at 22:35-44.) Respondents also point to Eckel's disclosure of "to permit the downloading of data to, for example, the EEPROM 72 via twisted pair wires or a power line carrier." (RIB2 at 63 (citing RX-0048 at 15:1-18).) Respondents allege, *inter alia*, that through a disclosure of "conveying data and power through a power line carrier or link power, a PHOSITA would readily understand Eckel to disclose power conductors that convey both data and power." (*Id.* at 63-64 (citing RX-0300C at Q452, 453).) CGI does not meaningfully dispute this. (*See* CRSB2 at 44.)

I find the limitation is disclosed by Eckel as Respondents contend. I find Mr. Lipoff's testimony on LONWORKS and power line communication credible. (*See* RX-0300C at Q452, 453.) Eckel discloses the simultaneous conveyance of data and power in a single one of the conductors which has heretofore been identified as the "digital data bus" in the Matsuoka/Doppelt/Eckel combination.

In light of the above evidence, I find that a Matsuoka/Doppelt/Eckel combination has been shown to meet every limitation of asserted claims 8 and 16.

4. Secondary Considerations

CGI's Position

CGI argues in its opening brief that "the '319 patent's validity is confirmed by substantial evidence of objective indicia of non-obviousness: including: Respondents' copying of the inventions disclosed in the '319 patent, commercial success, and praise by others." (CIB2 at 47.) CGI contends a "clear nexus" exists between these indicia and the invention of the '319 patent. (*Id.*)

Regarding copying, CGI contends "Respondents' documents confirm specifically that Respondents copied Chamberlain products during design and development of the Accused Products. Respondents' copying specifically extends to features protected by the '319 patent." (*Id.* at 48 (citing CX-1653 [Davis WS] at Q426).) CGI points to Respondents' use of the [ ], which CGI claims was admitted by Respondents' witness, Mr. Preus. (*Id.* (citing CX-1320C [Preus Dep. Tr.] at 38:9-25; CX-1317C [Davis WS] at Q188).) CGI then points to one of Respondents' lists of design issues during the development of the GD200 that:

> [
>
>] CX-1265C, CX-1653C (Davis WS) at Q428.

(*Id.*) CGI also describes certain emails as "exchanged between Respondents and a consultant show that Respondents were [

] (*Id.* at 48-49 (citing CX-0507C).) Moving on, CGI points to presentation slides regarding early development of the GD200 that shows TTi

specifically [ ]—*i.e.* the 'wall console' of the '319 patent claims—which [ ] (*Id.* at 49 (citing CX-1454C at -3167).) CGI adds that "the design document also indicates that Respondents [ ] (*Id.*) CGI then recounts how, in its view, Respondents [ ] (*Id.* (citing CX-1319C at 245-248; CX-0464C).) CGI argues [ ] relies on the patented digital connection and communications between the wall console and the head unit for control." (*Id.* (citing CX-1653C at Q433).)

CGI argues that Respondents "attempt to downplay" this evidence is based on the testimony of a discredited engineer, Mr. Preus (*id.* at 49-50 (citing Hr'g Tr. at 864:6-8)), who also "could not deny that Respondents[ ] the features protected by the '319 patent" (*id.* at 50 (citing Hr'g Tr. at 860:7-12, 861:7-10)). CGI argues "TTi spent weeks investigating how CGI products performed the features protected by the '319 patent" [ ] (*Id.* (citing Hr'g Tr. at 864:24-865:2, 879:20-24).)

Regarding commercial success, CGI points to its status as a market leader in the garage door opener industry and surveys of CGI customers. (*Id.* at 50-51.) CGI explains that it:

> [C]onducted a study to determine the value of specific garage door opener features to its customers. CX-1653C (Davis WS) at Q437, CX-1400 at 2. This study shows that one of the most valuable features to customers was the wall console that connects to and communicates with the head unit. *Id.* This was confirmed by another CGI study finding that customers placed a high value on the wall control keypad when making the decision to buy a garage door opener. CX-1653C (Davis WS) at Q438, CPX-0298C.

(*Id.* at 51.)

Regarding praise by others CGI argues it has received "overwhelming industry praise for the innovation captured by the '319 patent." (*Id.* (citing CX-1653C at Q440).) CGI points loosely to articles which "praise CGI's products and technology, and recognize the novelty and innovation of Chamberlain's patented technology." (*Id.* (citing CX-1452C; CX-0169C; CX-1351C; CX-1392C; CX-1428C; CX-1393C, CX-0013C, CX-0015C, CX-0016C, CX-0017C; CX-1451C; CX-1452C; CX-0020C).) CGI argues there is a nexus between this praise and the invention of the '319 patent because "the patented features of the '319 are used throughout these Chamberlain products and Respondents own copying of the Chamberlain patented features is itself a form of industry praise—*i.e.* mimicking by others in the market." (*Id.* (citing CX-1653C at Q441).)

In its responsive brief, CGI repeats its contention that any testimony from Respondents' witness, Mr. Preus, regarding lack of copying is not credible. (*See* CRSB2 at 44-45.) CGI then points to Respondents" [ ] as evidence that "Respondents copied the '319 patent, or at a minimum tried to." (*Id.* at 45.) CGI adds, "Respondents point to no case law indicating that copying, for purposes of non-obviousness, requires the copying to have been successful or in direct relationship to the accused product." (*Id.*)

In its reply brief, CGI argues the requisite nexus between its alleged copying, success, and praise and the '319 patent is "clear." (CRPB2 at 14.) CGI describes Respondents as "cultivat[ing] a copying culture." (*Id.*) CGI disputes Respondents' position that the actual accused products need to have been the result of copying, as contrary to law. (*Id.* (citing *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010)).) CGI adds that "Respondents' own documents and admissions show systemic copying of CGI products." (*Id.* (referring to CPX-0310C; CPX-0065C; CX-1256C).) CGI claims that Respondents' only response to this charge is

the testimony of Mr. Preus, who has no credibility after trying to claim "that the copying was for an entirely different product—a product not disclosed until the hearing." (*Id.* at 14-15 (citing Hr'g Tr. at 864:6-8, 863:24-864:12, 860:7-12, 861:7-10, 879:20-24, 864:24-865:2).) CGI concludes "Mr. Preus' testimony demonstrates that Respondents copied, in general, CGI's products and specifically copied features that the '319 patent protects." (*Id.* at 15.)

Respondents' Position

Regarding copying, Respondents vehemently claim that:

> Unequivocal and unrebutted testimony establishes that Respondents did not copy any aspect of CGI's products or the '319 patent. It simply did not happen. Michael Preus, the engineer who worked on the development of the Ryobi GDO, has repeatedly testified that it was developed independently, and that *nothing* in the GD200 was copied.

(RIB2 at 64 (referring to Hr'g Tr. at 385:17-20, 879:1-3; RX-0480C [Preus WS] at Q14, 15, 51, 60-69, 88-102).) Respondents point to the testimony of Messrs. Huggins and Farrah for additional support. (*Id.* at 65 (citing Hr'g Tr. at 437:16-24, 496:23-497:2; RX-0002C at Q38).)

Respondents take a moment to specifically explain the "[ ]" (*Id.*) Respondents argue that the "[ ] was to show "it could bring innovation to the moribund GDO market that CGI dominated. (*Id.* (citing Hr'g Tr. at 441:10-442:1; CX-1320C at 48:14-49:20).) Respondents continue, "[ ] (*Id.* (citing Hr'g Tr. at 442:5-20).) Respondents argue this is not "copying," and afterwards, they designed the GD200 "'from the ground up'" so that "'nothing in that demo unit was included in the final GD200 product.'" (*Id.* (citing RX-0480C [Preus WS] at Q72, 73; CX-1320 at 49:4-20; Hr'g Tr. at 335:24-336:6, 344:6-13, 493:24-494:5, 496:10-497:2; RX-0300C at Q461).)

Respondents then explain [ ] which they claim "is not evidence of copying either" because it was a "separate product TTi considered developing." (*Id.* (citing RX-

480C at Q22; CX-1145C [Preus Dep. Tr.] at 259:25-260:2; RX-0042C).) Respondents claim [

] (*Id.* (citing Hr'g Tr. at 873:24-874:13; RX-0480C at Q22; CX-1145C at 279:1-6, 282:22-283:10, 259:18-260:6).) Respondents argue that [

] (*Id.* at 67 (citing RPX-0042C; Hr'g Tr. at 880:4-20; CX-0507C).) Respondents point to Mr. Preus's testimony where he stated he [ ] and stopped the project when it was dropped. (*Id.* (citing Hr'g Tr. at 876:19-878:4; RX-0480C at Q23-25, 28).) "Importantly," Respondents state, "nothing from the issue list notes or the email was ever integrated into Ryobi GDO product." (*Id.* (citations omitted).) Respondents urge this point when discussing evidence relating to [

] (*Id.* at 68 (citing RX-0480C at Q35-69).)

Respondents then argue that there is no nexus between the alleged copying and the '319 patent because "Dr. Davis admitted that the '319 patent does not claim a wireless keypad, and the MyQ app is not covered by any claim of the '319 patent" and "the '319 patent does not claim any specific body or button materials, wire connection methods, or learning key designs." (*Id.* (citing Hr'g Tr. at 1079:13-1080:1).) Respondents add that Mr. Preus only "intended to investigate 'how others in the market had physically connected wires from the head unit to the printed circuit board inside the keypad'" (*id.* (citing RX-0480C at Q49)) and that this cannot be

copying because "[t]he '319 patent does not pertain to methods for physically connecting a wire, such as by screws or solder" (*id.*).

Regarding commercial success, Respondents argue there is no nexus to the '319 patent which renders the evidence irrelevant. (*Id.* at 68-69 (citing *In re Cree*, 818 F.3d 694, 703 (Fed. Cir. 2016)).) Respondents argue the two studies CGI relies upon do not say anything "about a microcontroller in the wall control, or a digital data bus between the wall control and any other component." (*Id.* at 69 (CX-1400C; CPX-0298C; Hr'g Tr. at 1080:2-1081:19).) Respondents contend that it is actually unrelated features which drive demand for CGI products (*id.* (citing CPX-0298C; CX-1400C at 6-7; Hr'g Tr. at 101:24-102:22)) and nexus cannot be assumed based on CGI's market share (*id.* (citing *Pentec*, 776 F.2d at 316)).

Regarding industry praise, Respondents argue none of the documents CGI's expert, Dr. Davis, relies on "relate to the '319 patent." (*Id.* (referring to CX-1653C [Davis WS] at Q440).) Respondents continue "[a]t most, CGI may have been praised generally, but this is irrelevant without a nexus." (*Id.* at 69-70 (citing *Geo M. Martin Co. v. Alliance Mach. Sys. Int'l LLC*, 618 F.3d 1294, 1305 (Fed. Cir. 2010)).) In this way, Respondents argue "[a]ny praise for CGI's MyQ app is irrelevant because MyQ is unrelated to the '319 patent." (*Id.* at 70 (citing CX-1653C at Q440; Hr'g Tr. at 1079:24-1080:1).)

In their responsive brief, Respondents argue "CGI's alleged secondary considerations should be afforded no weight in the obviousness analysis. But even if it they were considered, they it does not overcome the strong evidence of invalidity discussed in Respondents' Initial Post-Hearing Brief." (RRSB2 at 35 (citing *Leapfrog Enters.*, 485 F.3d at 1162).) Respondents repeat their position that "[n]othing in the GD200 was copied from CGI's products or patent." (*Id.* (citing Hr'g Tr. at 385:17-20, 437:16-24, 496:23-497:2, 879:1-3; RX-0002C at Q38; RX-

0480C at Q14, 15, 51, 60-68, 88-102).) Respondents claim "[i]f Respondents had actually copied CGI, it would be easy to prove. CGI would do a side-by-side comparison of the GD200 and CGI's own products and show that the relevant structures are the same. But CGI studiously avoided that analysis because Respondent's and CGI's products are not the same." (*Id.*) Respondents assert that "infringement is a different issue from copying." (*Id.* at 36 (citing *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1351 (Fed. Cir. 2002)).) Returning to the "demonstration unit," Respondents argue "the demo unit has no bearing on Respondents' products." (*Id.* (citing *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004)).) Returning to the "[ ]" Respondents repeat that "[t]he GD200's communications protocol was developed independently, and nothing in the issue list or email was ever integrated into the product." (*Id.* at 37 (citations omitted).) Respondents then discuss a [ ] but claim it and the eventual GD200 keypad "looks nothing like CGI's keypad." (*Id.* (referring to CX-1454C at -3167).)

Respondents then dispute that CGI's use of [ ] has a nexus to the '319 patent because the patent requires a wired connection through its claimed "digital data bus." (*Id.* (citing Hr'g Tr. at 1079:13-15).) Respondents also argue [ ] was "not wrongful; to the contrary, it is an everyday occurrence in business." (*Id.* at 38.) Respondents claim "[n]othing in the record suggests that TTi tried to, or even hoped to, copy CGI's MyQ app." (*Id.*) Finally, Respondents dispute the presence of any nexus between the '319 patent and the alleged success and praise argued by CGI. (*See id.* at 38-39.)

In their reply brief, Respondents reassert that Mr. Preus "repeatedly testified that no aspect of the GD200 was copied" and that he "is in a position to know." (RRBP2 at 19 (citations omitted).) Respondents continue, "in any case, the '319 patent does not claim particular

communications protocols or encryption methods; it claims a specific physical connection between two particular microcontrollers." (*Id.* at 20.) Respondents then describe, how, in their view, "CGI's theory all along has been that Respondents copied CGI to create the Accused Products. . . . Now faced with the full record, CGI retreats to the claim that it does not matter whether any alleged copying related to the Accused Products." (*Id.*) Respondents claim this change in theory "is merely an admission that the copying theory it promoted for a year is baseless." (*Id.*)

Analysis

I find that the Record shows some level of copying of CGI's technology by Respondents in their development of their own products; technology that has a nexus to the invention of the '319 patent. The evidence shows that Respondents used a *repackaged* CGI domestic industry product, the HD930EV, to demonstrate the expected functionality of its own under-development product to Home Depot. (CX-1320C at 38:9-25, 39:11-22; Hr'g Tr. at 338:16-343:22.) Mr. Preus, the builder of Respondents' prototype, testified:

> Q. And the reason that TTi, who never developed a garage door opener in the past, was able to demo a garage door opener in such a quick time frame was because TTi basically demoed the Chamberlain garage door opener with a different covering around it and with some gadgets that TTi had developed; is that correct?
>
> A. Yes.

(Hr'g Tr. at 339:21-340:3.) The most credible explanation for this act is that Respondents perceived CGI functionality to be desirable and wanted to give the impression that their future product would be similar. This is a form of praise.

Yet, when Mr. Preus was asked about why a CGI product was used in this way, he answered, "I don't remember." (CX-1320C at 39:1-6.) Respondents repeatedly hold Mr. Preus out as a credible witness on this topic, but, as stated at the hearing (Hr'g Tr. at 864:2-5), I do not

find him to be credible and especially not given documents showing his name next to [

]

(CX-1454C at 5);

(*id.* at 7). I also find the nexus between this copying and the '319 patent could not be easier to see. These slides show the [ ]

[ ] Claim 1 of the '319 patent, for example, is entirely focused on the "motor drive unit" and "wall console." (*See* '319 patent at claim 1.)

Whether or not characteristics or specific structures of CGI's domestic industry product made it into what would eventually become an accused product to this investigation, is immaterial. CGI accurately observes that "Respondents point to no case law indicating that copying, for purposes of non-obviousness, requires the copying to have been successful or in direct relationship to the accused product" (CRSB2 at 45) and has presented evidence of praise through imitation. In another example, even after the prototype demonstration, [

] (Hr'g Tr. at 445:12-22; CX-1138C [Chen Dep. Tr.] at 71:18-73:10.) I find Respondents, at least early on, modeled themselves after CGI for the primary components recited in the '319 patent claims. This is meaningful evidence of copying. *Tokai Corp.*, 632 F.3d at 1370 ("Copying 'requires evidence of efforts to replicate a specific product.'") (citation omitted); *see WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1336 (Fed. Cir. 2016) ("copying may indeed be another form of flattering praise for inventive features").

Regarding commercial success and industry praise, I agree more with Respondents. I do not see the requisite nexus to the invention of the '319 patent in the evidence presented by CGI. For example, CGI's expert, Dr. Davis, points to slide 8 of CX-1400C (*see* CX-1653C at Q437) for an alleged nexus between commercial success and the wall console of the '319 patent, but slide 8 reflects consumers' [

] and even then, does not speak to whether the wall console should be "intelligent" (*i.e.*, have its own microcontroller). CGI's credibility diminishes when they argue "[t]his study

shows that one of the most valuable features to customers was the wall console that connects to and communicates with the head unit." (CIB2 at 51.)

Dr. Davis also points to CPX-0298C (CX-1653C at Q438), but this slide references [ ] Again, it does not speak to the importance or commercial success based on an "intelligent" wall console, as opposed to a normal wall console. "If commercial success is due to an element in the prior art, no nexus exists." *Tokai Corp.*, 632 F.3d at 1369-70. CGI further strains credulity by arguing this document shows "one the features [sic] that CGI customers found most valuable is a feature embodied in the claims of the '319 patent." (CIB2 at 51.)

With that said, I do not deny that customers, once instructed on the advanced features that a wall console with a microcontroller *in addition* to a head unit with a microcontroller brings, could report that the invention of the '319 patent was important to them. CGI's proffered evidence, however, does not show this.

Regarding praise by others, I agree with Respondents that none of the documents cited by CGI have a link to the invention of the '319 patent. (*See* CIB2 at 51; CX-1452C; CX-169C; CX-1351C; CX-1392C; CX-1428C; CX-1393C, CX-0013C, CX-0015C, CX-0016C, CX-0017C; CX-1451C; CX-1452C; CX-0020C.) Notably, CGI does not discuss any of these documents individually or take general note of their contents. (*See* CIB2 at 51-52; CX-1653C at Q440-441.)

Thus, in light of the above, I find that only the secondary consideration of copying has been shown to have meaningful weight in an obviousness determination.

VI. DOMESTIC INDUSTRY - ECONOMIC PRONG

A. Relevant Law

In a patent-based complaint, a violation of Section 337 can be found "only if an industry in the United States, relating to the articles protected by the patent ... concerned, exists or is in

the process of being established." 19 U.S.C. § 1337(a)(2). Under Commission precedent, this "domestic industry requirement" of Section 337 consists of an economic prong and a technical prong. *Stringed Instruments*, Inv. No. 337-TA-586, Comm'n Op. at 12-14. The complainant bears the burden of establishing that the domestic industry requirement is satisfied. *See Certain Set-Top Boxes and Components Thereof*, Inv. No. 337-TA-454, ID at 294 (June 21, 2002) (not reviewed by Commission in relevant part).

The economic prong of the domestic industry requirement is defined in subsection (a)(3) of Section 337 as follows:

> (3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark or mask work concerned --
>
> (A) Significant investment in plant and equipment;
>
> (B) Significant employment of labor or capital; or
>
> (C) Substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. § 1337(a)(3). The economic prong of the domestic industry requirement is satisfied by meeting the criteria of any one of the three factors listed above.

Under Section 337(a)(3)(A) and (B), "a complainant's investment in plant and equipment or employment of labor or capital must be shown to be "significant" in relation to the articles protected by the intellectual property right concerned." *Imaging Devices*, Inv. No. 337-TA-690, Comm'n Op. at 26. Before *Lelo*, the Commission had emphasized that "there is no threshold test for what is considered 'significant' within the meaning of the statute." *Kinesiotherapy Devices*, Inv. No. 337-TA-823, Comm'n Op. at 33 (July 12, 2013). Instead, the Commission stated the determination is made by "an examination of the facts in each investigation, the article of

commerce, and the realities of the marketplace." *Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm'n Op. at 39 (August 1, 2007) ("*Male Prophylactics*").

Section 337(a)(3)(C) provides for domestic industry based on "substantial investment" in the enumerated activities, including licensing of a patent. *See Certain Digital Processors and Digital Processing Systems, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-559, ID at 88 (May 11, 2007) ("*Digital Processors*"). Mere ownership of the patent is insufficient to satisfy the domestic industry requirement. (*Id.* at 93 (citing the Senate and House Reports on the Omnibus Trade and Competitiveness Act of 1988, S.Rep. No. 71.) However, entities that are actively engaged in licensing their patents in the United States can meet the domestic industry requirement. (*Id.*)

The most recent precedential decision by Court of Appeals for the Federal Circuit addressing issues relevant to this investigation is *Lelo Inc. v. Int'l Trade Comm'n*, 786 F.3d 879 (Fed. Cir. 2015). In *Lelo,* the Federal Circuit restated law applicable to a number of issues surrounding the economic prong of domestic industry. In particular, the Federal Circuit held that the statutory terms "'significant' and 'substantial' refer to an increase in quantity, or to a benchmark in numbers" and "[a]n 'investment in plant and equipment' therefore is characterized quantitatively, *i.e.*, by the amount of money invested in the plant and equipment." *Lelo*, 786 F.3d at 883. Continuing, the CAFC held that: "[a]ll of the foregoing requires a quantitative analysis in order to determine whether there is a 'significant' increase or attribution by virtue of the claimant's asserted commercial activity in the United States." *Id.* In short, "Qualitative factors cannot compensate for quantitative data that indicate insignificant investment and employment." *Id.* at 885. Although not specifically addressed, it also makes sense to apply the same rationale to labor costs.

B. Parties' Contentions for the '336 Patent

1. CGI's Contentions

CGI alleges it is engaged in significant domestic R&D, engineering, and service and support activities in the United States that are critical to the success of articles protected by the '336 patent (the Domestic Industry products or DI), as outlined in the following chart:

Asserted Patent	Practiced Claims	Domestic Industry Products
'336 patent (JX-0001)	14, 19, 34	• GDOs without Wi-Fi (Security +2.0) • Wi-Fi GDOs

(CIB1 at 60-61, (footnotes omitted) (citing CX-1251C [Direen WS] at Q31; CDX-0005.8; CX-1256C [Fitzgibbon WS] at Q28-49).) CGI alleges the viability of its DI products is evidenced by the increasing share of the "DI Products in its total product sales from just 2013 through the filing of the Complaint," to wit:

Table 1 '336 Patent	FY2013	FY2014	FY2015	1H 2016
Total Sales in U.S. of DI Products	[ ]	[ ]	[ ]	[ ]
Total Sales in U.S. of all CGI Products	[ ]	[ ]	[ ]	[ ]
DI Products as % of Total Sales	[ ]	[ ]	[ ]	[ ]

(CIB1 at 60-61, (footnotes omitted) (citing CX-1255C at Q45-53, 60-63; CDX-0002.5C; CPX-0043C; CPX-0052C; CPX-0046C; CX-1253C [Hansen WS] at Q116-120; CX-1213C; CPX-0044C).) Continuing, CGI alleges the evidence its U.S. expenditures for the '336 patent under subsections (A), (B), and (C) are as follows:

Table 2	Elmhurst plant and equipment	[ ]	Elmhurst labor	[ ]
'336 patent	TSC plant and equipment	[ ]	TSC labor	[ ]
	Total Investment (2014-1H 2016)	**[$1,466,417]**	**Total Investment (2013-2015)**	**[$28,964,091]**
	GDO Platform Program Labor		[ ]	
	GDO Platform Program Non-Labor Expenses		[ ]	
	Total Investment (2007-2016)		**[$21,384,011]**	

(CIB1 at 61.) Moreover, CGI avers Respondents have not substantively challenged, through the use of evidence or other means, the ultimate conclusion that CGI's investments satisfy subsections 337(a)(3)(A), (B), and (C) for the '336 patent. (CIB1 at 62.)

a. CGI's Allegations of Significant Investment in Plant and Equipment

CGI contends it invests in numerous facilities throughout the U.S. to support its domestic activities, which includes facilities in Elmhurst, Illinois and Tucson, Arizona. (*Id.*) Specifically, CGI's Elmhurst facilities include its Corporate Office (approx. [ ] sq. ft.), Industrial Design Center (approx. [ ] sq. ft.), Product Test Laboratory (approx. 32,000 sq. ft.), and Corporate Office Annex (approx. [ ] sq. ft.), for which it paid a [ ] and[ ] in 2014, 2015, and 1H 2016, respectively. (*Id.* (citing CX-1255C at Q133-138, 140-44; CX-1256C at Q28-30; CX-1253C [Hansen WS] at Q205-217; CX-1208C; CX-0064C; CPX-0042C; CX-0065C; CX-0066C; CX-0151C).)

CGI avers it invested [ ] and [ ] in equipment for its engineering activities from 2014, 2015, and the first half of 2016, respectively, including equipment used in its Product Test Laboratory and computer hardware and software used by its engineers. (*Id.*) CGI also explains that it expanded its facility space in Illinois to support the growth of its MyQ

team and invested in disaster recovery servers in Elmhurst and these sums are not included in the above-recited costs. (*Id.* at 63.)

CGI explains that its Tucson facilities include its: (1) Technical Support Center ("TSC"), which services and supports its customers in the U.S., Canada, and Latin America via a customer call center; and [ ] (*Id.*) According to CGI, the TSC occupies approximately [ ] sq. ft., and its costs CGI over [ ] of rent for this facility per year, including approximately [ ] for 1H 2016 alone. (*Id.* (citing CX-1255C at Q147-149; CX-0067C; CX-0152C; CX-1110C at ¶ 11).) In addition, CGI invested at least [ ] for equipment at the TSC in 2014, which includes machinery and equipment, leasehold improvements, fixtures, and computer expenses to support the service and support function at the TSC, but does not account for CGI's [ ] (*Id.*)

CGI asserts it can allocate its facility investments to the DI Products by first using an employee headcount to allocate a portion of the facilities to appropriate activities related to CGI's domestic industry and then using a sales-based allocation to further allocate to the DI Products. (*Id.* at 63-64 (citing CX-1255C at Q145-146, 151; CX-1253C at Q218).) According to CGI, Respondents do not dispute that the CGI's Elmhurst and Tucson facilities and equipment are used to support CGI's engineering, R&D, and customer support activities that include the DI Products. (*Id.* at 63.)

CGI contends that in analyzing the employee headcount used in allocating a portion of the facilities to the relevant domestic industry, the number of engineers grew from 2013 through 1H 2016 and accounted for [ ] of all employees at Elmhurst during that period, to wit:

Table 3 **Headcount**	**2013**	**2014**	**2015**	**1H 2016**
Engineering employees	[ ]	[ ]	[ ]	[ ]
Total Elmhurst Facilities employees	[ ]	[ ]	[ ]	[ ]
% Engineering	[ ]	[ ]	[ ]	[ ]

(*Id.* at 63-64 (citing CX-1255C at Q40-43; CPX-0041C; CX-1253C at Q212, 213, 218, 19; CX-1208C; CX-1189C).)

Continuing, CGI alleges its investment in plant and equipment at its Elmhurst facilities attributable to the DI Products is as follows:

Table 4 **Elmhurst Facilities**	**2014**	**2015**	**1H 2016**	**2014 – 1H 2016**
Total Expense	[ ]	[ ]	[ ]	[ ]
'336 DI Products	[ ]	[ ]	[ ]	[ ]

(Id. at 64 (footnote omitted) (citing CX-1208C).)

Next, CGI illustrates through an allocation by percentage of U.S. sales to DI products to CGI's total U.S. engineering capital expenditures, an approximation of CGI's engineering equipment investment in the '336 patent:

Table 5 **Elmhurst Capital Equipment**	**2014**	**2015**	**1H 2016**	**2014 – 1H 2016**
Total Expense	[ ]	[ ]	[ ]	[ ]
'336 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* (footnote omitted).)

CGI contends the portion of its investment in its Tucson Support Center attributable to articles protected by the patent can be calculated in a manner similar to how it calculated

Elmhurst and contends that approximately [ ] of TSC employees are engaged in customer support activities, hence CGI offers the following table:

Table 6 **Headcount**	**2013**	**2014**	**2015**	**1H 2016**
TSC Customer Support Employees (excluding administrative and training)	[ ]	[ ]	[ ]	[ ]
Total TSC	[ ]	[ ]	[ ]	[ ]
% Customer Support	[ ]	[ ]	[ ]	[ ]

(*Id.* 64-65 (citing CX-1255C at Q40-43; CPX-0041C; CPX-0045C; CX-1253C at Q192-194, 236-239; CX-1190C; CX-1254C [Sorice WS] at Q9, 10.)

Following discussion of investment in plant and equipment in Tucson, CGI provided a table in which it applied an allocation by percentage of U.S. vs. Americas sales, by employee headcount, and by percentage of U.S. sales of DI products to its total TSC facilities investment to approximate CGI's TSC plant investment in the '336 patent:

Table 7 TSC Facility	**2014**	**2015**	**1H 2016**	**2014 – 1H 2016**
Total Expense	[ ]	[ ]	[ ]	[ ]
'336 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* at 65 (footnote omitted) (citing to CX-1110C at ¶ 11; CX-0152C).) CGI alleges that because approximately [ ] of its sales to the Americas are sales to U.S. customers, [ ] of its TSC operations are attributable to U.S. customers. (*Id.*) Next CGI provides a table where it allocates (by percentage of U.S. vs. Americas sales and by percentage of U.S. sales to DI products to CGI's total TSC capital investment) its approximate TSC equipment investment in the '336 patent:

Table 8 TSC Capital	2014	2015	1H 2016	2014 – 1H 2016
Total Expense	[ ]	[ ]	[ ]	[ ]
'336 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* at 66 (footnotes omitted).)

The upshot of all of CGI's charts is its allegation that its investment (from 2014 through the first half of 2016) in plant and equipment allocable to the '336 patent is approximately and conservatively [ ]. (*Id.*) Moreover, CGI reiterates its allegation that:

> [D]omestic investments in plant and equipment are crucial components of its efforts to develop and exploit the '336 patent. Without its domestic facilities and equipment, CGI would be unable to continue to exploit the '336 patent or design, develop, and sustain its DI Products in the U.S. market.

(*Id.* at 66.)

b. Significant Employment of Labor or Capital

CGI alleges it employs more than [ ] engineers in Illinois that develop, design, engineer, test, and sustain its products and more than [ ] personnel in Tucson to support its U.S. customers, which is more than [ ]% of its entire U.S. workforce as of June 2016. (*Id.* (citing CX-1255C at Q40-44; CPX-0041C; CX-1256C at Q31; CX-1253C at Q71-74, 183, 184, 187, 188).) CGI alleges it expanded its U.S. workforce over the years, including its MyQ team and in effect [ ] number of its engineers since 2013 so that it can perform the vast majority of its R&D and engineering activities for its DI products in the U.S, to include new product development and sustaining engineering activities. (*Id.*)

CGI asserts that it tracks its engineers' labor and labor-related costs through its engineering cost center (separately from its Sales & Marketing cost center) which includes expenses for employee compensation, fringe benefits, building and office supplies, utilities, telecommunications, computer expenses, repair and maintenance, equipment rental and lease,

and other expenses that support the engineering function. (*Id.* at 67.) CGI alleges it invested more than [ ] million in its U.S. engineering activities from 2013 through 2015, including more than [ ] million for R&D. (*Id.* (citing CX-1255C at Q64-70; CDX-0002.7C; CDX-0002.8C; CPX-0044C; CX-1256C at Q32, 33).)

CGI also asserts it tracks similar costs for its service and support activities at the TSC resulting in an allocation of costs to the TSC of more than [ ] million from 2013 through 2015. (*Id.* (citing CX-1255C at Q28-39, 77-79, 83, 84; CDX-0002.9C; CPX-0044C; CX-1256C at Q32).) According to CGI, it supports over [ ] products connected to its MyQ technology platform, and in that in just 2015 it handled over [ ] customer calls at the TSC. (*Id.*)

CGI alleges Respondents do not dispute that part of the labor costs it invests through its engineers and TSC employees is devoted to designing, engineering, and supporting DI Products, but rather that Respondents seek to impose standards contrary to Commission precedent in accounting for and allocating these costs. (*Id.* at 67-68 (citing *Stringed Instruments*, Inv. No. 337-TA-586, Comm'n Op. at 26 ("A precise accounting is not necessary, as most people do not document their daily affairs in contemplation of possible litigation."); *Certain Toner Cartridges*, Inv. No. 337-TA-740, Order No. 26 at 14 (June 1, 2011) (not reviewed in relevant part) (identifying "an allocation method based on available production and sales figures" as "accepted by the Commission"); *Certain Laminated Floor Panels*, Inv. No. 337-TA-545, Order No. 17 at 4 (Mar. 2, 2006) (not reviewed) (accepting sales-based allocation for employee and facility investments under section 337(a)(3)(A) and (B))).)

CGI asserts that because sustaining engineering efforts relate to products already on the market and because new product development efforts relate to work performed for products not yet reflected in product sales, its method of using a sales-based allocation for both cost pools is

reasonable. (*Id.* at 68.) In support of this assertion, CGI created a table premised upon a sales-based allocation which it use to determine the value of CGI's engineering labor attributable to products protected by the '336 patent:

Table 9 Elmhurst Labor	2013	2014	2015	2013 – 2015
Total Expense	[ ]	[ ]	[ ]	[ ]
'336 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* at 68 (footnotes omitted).) CGI also created a table that applies a sales-based allocation to determine the value of CGI's customer support labor attributable to articles protected by the '336 patent:

Table 10 TSC Labor	2013	2014	2015	2013 – 2015
Total Expense	[ ]	[ ]	[ ]	[ ]
'336 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* at 68-69.)

According to CGI, the reasonableness of using a sales-based allocation to allocate TSC labor is also supported by CGI's customer support call hour data, which provides an alternative basis for allocating TSC labor specific to the DI Products. (*Id.* at 69 (citing CX-1255C at Q88, 89; CPX-0050C).) CGI explains that [ ]of the call hours received by CGI in 2015 were for CGI's GDOs, and the portion of that [ ] specific to DI Products can be estimated by calculating the percentage of sales of DI Products out of CGI's total sales for GDOs (as opposed to CGI's total product sales), as shown in the following chart:

Table 11	**FY2015 Sales**
DI Products	
Wi-Fi GDO	[ ]
GDO without Wi-Fi	[ ]
Total LiftMaster GDO sales, including RJOs (CPX-0043C)	[ ]
Total GDO retail sales (CPX-0052C)	[ ]
Total GDO Sales	[ ]
% '336 DI Products of total GDO sales	[ ]
% Call Hours Allocated to '336 DI Products	[ ]

(*Id.* at 69 (citing CX-1253C [Hansen WS] at Q185-86; CX-1188C; CPX-0050C).) CGI alleges this alternative calculation shows a 2015 percentage of CGI's investments attributable to the DI Products is the same as the 2015 percentage calculated from dividing DI Product sales into CGI's total U.S. product sales. (*Id.*)

Next, CGI contends its domestic investment from 2013 through 2015 in labor and labor-related costs for the '336 patent is approximately [ ] million, an amount that excludes labor charged to other cost centers supporting DI products. (*Id.* at 70 (citing Table 2; CX-1254C [Sorice WS] at Q23).) According to CGI, for 2015 alone, it incurred approximately [ ] million in labor and labor related costs. (*Id.* (citing Tables 9, 10).) CGI alleges its employment of engineers and customer and support personnel in the U.S. is essential to the development and salability of its DI Products in the U.S. market, which by 2015 had grown to a [ ] share of the market. (*Id.*) Continuing, CGI alleges its investment in labor for the '336 patent is significant in view of the articles of commerce at issue, and the realities of the marketplace. (*Id.* (citing CX-1253C at Q20, 21, 269-271; *Male Prophylactics*, Inv. No. 337-TA-546, Comm'n Op. at 39; *see also Certain Video Displays, Components Thereof, and Prods. Containing the Same*, Inv. No. 337-TA-687, Order No. 20, at 5 (May 20, 2010) (proof of the economic prong is not dependent

on a "minimum monetary expenditure" or "need to define or quantify the industry itself in absolute mathematical terms")).)

c. Substantial Exploitation of the '336 Patent

CGI alleges it made a significant investment in U.S. research and development activities, independently demonstrated by its multi-year [ ] totaling more than [ ] engineering hours and an estimated $[ ] million in capital and non-labor expenses in its [ ] from January 2007 through the filing of the Complaint. (*Id.* (citing CX-1255C at Q97-110; CDX-0002.12C; CDX-0002.13C; CPX-0047C; *Certain Marine Sonar Imaging Devices*, Inv. No. 337-TA-921, Comm'n Op. at 55-56, 64 (Jan. 6, 2016) (concluding complainant's expenditures from 2009 to 2014 in domestic design and development of LSS-1 products constituted a substantial investment under section 337(a)(3)(C)) ("*Sonar Imaging*"); *Certain Elec. Devices*, Inv. No. 337-TA-701, Order No. 58 at 16-17 (Nov. 18, 2010) (finding domestic industry satisfied based on past substantial R&D investments for protected articles and undisputed facts showing ongoing activities with respect to the protected articles)).)

CGI asserts its R&D efforts represent the largest R&D effort CGI made to exploit the'336 patent and that this effort resulted in the launch of numerous DI Products. (*Id.* at 71 (citing CX-1255C at Q97; CX-1256C [Fitzgibbon WS] at Q37, 47; CPX-0047C at -5, -7; CX-1253C at Q108, 109, 131-39).) CGI points out that approximately [ ] of the total engineering hours it recorded during its [ ] were from U.S. engineers. (*Id.* (citing CX-1255C at Q34, 35, 94-96; CPX-0011C; CPX-0017C; CX-1253C at Q94, 95).) Moreover, CGI asserts the [ ] caused the design and development of [ ] (*Id.*) Another part of the [ ] CGI alleges was its further exploitation of the'336 patent by ensuring lower forces were used by the operator

during opening and closing of a door. (*Id.* at 71 (citing CX-1256C at Q35-40; CX-1255C at Q97, 98; *Certain Elec. Imaging Devices*, Inv. No. 337-TA-850, Final ID at 208-09 (Sept. 30, 2013), *aff'd*, Comm'n Op. at 95-96 (Apr. 21, 2014) (finding that "to the extent that research and development activities relate to [articles that incorporate the disputed technology], a sufficient nexus exists")).) CGI further claims Respondents did not challenge the foregoing facts at the hearing, nor Mr. Fitzgibbon's explanation of why the Canadian SKUs resulting from the [ ] (*e.g.*, SKUs ending in "C" or beginning with "101") come from activities exploiting the '336 patent. (*Id.* at 72 (citing CX-1256C at Q43-49; CX-1255C at Q99-101; CPX-0047C).)

CGI next alleges that when it used its historically calculated engineering hour labor costs (a unit of cost estimated and used in CGI's own budgeting and forecasting), the evidence shows CGI invested a total of approximately [ ] in its [ ] from 2007 through the filing of the Complaint, as demonstrated in the following table:

Table 12. GDO Platform Program Labor Hours and Cost			
Year	**Total Engineering Labor Hours**	**CGI Engineering Per Hour Average Cost**	**Estimated Labor Cost**
2007	[ ]	[ ]	[ ]
2008	[ ]	[ ]	[ ]
2009	[ ]	[ ]	[ ]
2010	[ ]	[ ]	[ ]
2011	[ ]	[ ]	[ ]
2012	[ ]	[ ]	[ ]
2013	[ ]	[ ]	[ ]
2014	[ ]	[ ]	[ ]
2015	[ ]	[ ]	[ ]
2016 (through September)	[ ]	[ ]	[ ]
Total	**[ ]**	**[ ]**	**[ ]**

(*Id.* at 71-72 (footnotes omitted) (citing CX-1255C at Q129-133; CPX-0047C at -9; CPX-0049C; CPX-0179C; CX-1253C [Hansen WS] at Q148-151.) Concurrently, CGI alleges it invested at least $[ ] in capital and non-labor expenses on this program. (*Id.* (citing CPX-0047C at -10).) According to CGI, around [ ] of this investment, or $[ ] in labor and $[ ] in capital, is solely attributable to its U.S. engineering efforts, which means it invested at least $[ ] in the exploitation of the'336 patents through its U.S. R&D efforts in the [ ] leading up to and through the filing of the Complaint. (*Id.* at 72.)

CGI alleges that subsection (C) requires no patent-by-patent allocation. (*Id.* at 72-73 (citing *Certain Elec. Imaging Devices*, Inv. No. 337-TA-850, Final ID at 208-09; *see also Sonar Imaging*, Inv. No. 337-TA-921, Comm'n Op. at 64-66 (observing that the Commission does "not seek[] precise numerical allocation" and finding several years of R&D investments of which substantially all occurred in the U.S. to satisfy subsection (C))).) CGI also contends that pre-manufacturing investments in R&D may satisfy subsection (C) when protected articles are

manufactured abroad. (*Id.* at 73 (citing *Certain Integrated Circuits, Processes for Making Same, and Prods. Containing Same*, Inv. No. 337-TA-450, ID at 151-52 (USITC Pub. No. 3624) (May 6, 2002)).)

CGI summarizes by arguing that the [ ] demonstrates a substantial investment by CGI in R&D efforts to exploit the '336 patent, asserting it invested over $[ ] million in its U.S. R&D efforts in the period from 2013 through the first half of 2016. (*Id.* (citing CX-1255C [Fitzgerald WS] at Q68, 69; CDX-0002.8C; CPX-0044C).) Additionally, CGI explains that its exploitation of the '336 patent through the [ ] comprises over [ ] of its total U.S. research and development expenses from 2013 through the first half of 2016 and that over [ ] is represented by its investment in U.S. labor which is a substantial exploitation of the'336 patent. (*Id.*)

2. Respondents' Contentions

a. Burden of Proof

Respondents allege CGI has not met its burden to prove that it has a domestic industry in the '336 patent. (RRSB1 at 38.) Respondents contend that as of the day it filed the Complaint, CGI had all of the relevant domestic industry evidence in its files and thus should and could have had its DI analysis ready to go. (*Id.*)

Once the Investigation was underway, Respondents point out CGI had a duty to make a complete G.R. 7.3 disclosure of its DI contentions and to timely produce relevant information, but did not do so. (*Id.*) Instead, rather than being ready to proceed and make required disclosures, Respondents allege CGI withheld key evidence, filed a DI declaration with the Complaint that included numerous false statements, and thus made its domestic industry case an ever-moving target. (*Id.* (citing Hr'g Tr. at 123:23-124:2; 125:9-21, 127:15-19; CX-1110).) Then, according to Respondents, CGI offered new theories in its DI Contentions in November

2016, only to abandon them in favor of a different analysis in a January 2017 expert report from Mr. Hansen. (*Id.*) However, Respondents contend Hansen based his analysis on evidence that CGI withheld until after the close of fact discovery and thus the late-produced documents and Hansen's related opinions were properly struck. (*Id.* (citing Order No. 21 at 6).) Thus, CGI heavily redacted Hansen's witness statement (including all of his conclusions about CGI's investment levels) and withdraw most of his work papers. (*Id.*) Then, Respondents allege CGI injected another set of DI assertions into the case with its Pre-Hearing Brief, some of which were allowed "after much deliberation," and some of which were struck, including "CGI's *only* arguments that its investments under 19 U.S.C. § 1337(a)(3)(A) and (B) are significant. (*Id.* (citing Order No. 26 at 13-14).)

According to Respondents, "CGI has presented at least four very different versions of its DI case, claiming different amounts, derived using different methodologies, and relying on different documents." (*Id.*) Respondents allege they have been prejudiced by CGI's withholding of evidence and shifting DI case, which Respondents allege continued changing after rebuttal evidence was submitted) and in effect, Respondent' Responsive Post-Hearing Brief is allegedly their first opportunity to address CGI's actual DI case. (*Id.* at 39 (citing Order No. 26 at 14 (which provided Respondents may present additional DI rebuttal arguments in their Post-Hearing Brief)).)

Respondents assert CGI has consistently argued it should not be held to too a high a standard on domestic industry, and that the analysis need not be all that precise. (*Id.* at 39.) Thus, CGI has, from the beginning of this investigation, been asking the Commission and Respondents to "give it a pass on the evidence and assume CGI must have a DI. (*Id.*) Respondents assert CGI must prove its case using credible evidence and not as Respondents

allege, merely offer "slapdash" proof. (*Id.*) According to Respondents, without the excluded documents and testimony, CGI cannot meet its burden to show that it has a domestic industry because it: (1) lacks basic evidentiary support for its claimed investments; (2) cannot tie its costs or investments to the '336 patent; and (3) cannot show its claimed costs or investments are "significant" or "substantial." (*Id.*)

b. CGI Has Not Proven a DI under Subsection (A)

Respondents assert CGI fails to support its claimed plant and equipment costs with reliable evidence or sound analysis. (*Id.*) Respondents allege half of CGI's facilities costs are hypothetical and most of its other costs "are based on uncorroborated evidence from an impeached witness." (*Id.*) Continuing, Respondents claim CGI cannot prove its investments were "significant" because the only argument in CGI's Pre-Hearing Brief was not properly disclosed and was therefore correctly struck. (*Id.* (citing Order No. 26 at 12-14).)

i. CGI cannot claim theoretical investments

Respondents state that nearly [ ] per year in in rental costs alleged by CGI was never pa*id.* (*Id.*) According to Respondents: [

] (*Id.* at 39-40 (citing RX-0230C [Fitzgerald Dep. Tr.] at 116:12-14, 116:18-117:17; CX-1255C at Q138; CX-64C).) The effect of removing these "hypothetical amounts" means the CGI's allocated Elmhurst facilities DI investments should be reduced from $[ ] to $[ ] (*Id.* at 40 (citing CX-1208C; CPB1 at 64).)

ii. Fitzgerald evidence is unreliable

Respondents assert CGI's DI case hinges on allegedly "conclusory documents Fitzgerald created (or had others create) for this Investigation, and on his uncorroborated testimony on

matters about which CGI keeps detailed financial records." (*Id.*) Respondents contend that even if Mr. Fitzgerald's evidence (written and oral) were reliable, it would be insufficient to meet CGI's burden of proof, but since he allegedly admitted he gave false testimony in the instant investigation, nothing he has proffered or said should be given any weight. (*Id.* (citing Hr'g Tr. at 123:23-124:2, 125:9-21, 127:15-19; CX-1110).)

Respondents contend CGI has no leases, invoices, leger entries, or other documentation showing 2014 or 2015 Tucson rental payments but only Mr. Fitzgerald's bald opinions in the contained in the same sworn declaration where he made numerous false statements. (*Id.* (citing CX-1110 at ¶ 11).) Absent reliable evidence, Respondents allege CGI's alleged 2014 and 2015 Tucson facilities costs should be excluded.

Respondents further allege that CGI's equipment investment claims depend on another conclusory document created by Mr. Fitzgerald for this litigation. (*Id.* (citing CPX-0044C; RX-0230C [Fitzgerald Dep. Tr.] at 130:1-7, 134:19-135:3).) Respondents aver CGI's only real evidence is a list of annual totals consisting of two lines on a spreadsheet. (*Id.* (citing CPX-0044C).) Even though CGI tracks its capital costs in detail, Respondents contend there are no documents of Record showing the purpose of the claimed investments or establishing any relation to CGI's DI products. (*Id.*) Instead, Respondents allege the only evidence of purpose is Mr. Fitzgerald's conclusory (and meaningless) testimony that the sums concerned things like machine and equipment," computer costs, "furniture and fixtures," and "land and leasehold improvements." (*Id.* at 40-41 (citing CX-1255C at Q74, 78; *Male Prophylactics*, Inv. No. 337-TA-546, ID at 109 (June 30, 2006) (rejecting claimed investments where "the record contains no reliable evidence to explain what equipment was purchased")).)

iii. CGI makes improper allocations

In addition to not basing its total plant and equipment investments on solid evidence, Respondents allege CGI also failed to properly allocate costs to the '336 patent. (*Id.* at 41.) Respondents contend that as of the result of the proper exclusion of Mr. Hansen's relevant analysis, CGI has only attorney argument and an unreliable sales-based allocation to offer. (*Id.*)

Respondents contend CGI's use of sales to allocate plant and equipment costs is speculative. (*Id.* (citing RX-0227C [Green WS] at Q110-118).) Respondents allege that although a sales-based allocation may be appropriate for certain costs (*e.g.*, manufacturing), CGI [ ] and its relevant U.S. activities are only development and support and thus Respondents assert there is no evidence directly correlating annual sales to the facilities or equipment used in that same year to develop or support the products sold. (*Id.*) Rather, according to Respondents, development costs more properly relate to products not yet on sale, and lack a relationship with currently sold products. (*Id.* (citing RX-0227C at Q113; CX-1253C at Q117; CX-1255C at Q93).) Respondents also assert CGI is unable to rely upon Mr. Hansen's heavily redacted testimony to support its applying a sales-based allocation to the total costs it uses because his different approach to different data has been struck and reliance on snippets of his remaining testimony is misleading. (*Id.*) This, Respondents argue, makes CGI's sales-based allocation "guess-work" and does not support a finding that CGI has a domestic industry. (*Id.*)

Respondents next allege that CGI's sales-based allocation percentage is based on unreliable evidence for the reason that CGI's 2013, 2014 and 2016 total U.S. sales were struck from evidence. (*Id.*) In consequence, CGI now relies on Mr. Fitzgerald's memory to estimate U.S. sales. (*Id.* (citing CX-1255C at Q62, 63).) Respondents argue Mr. Fitzgerald's uncorroborated estimate should not be allowed to be a substitute for specific data CGI actually

has and could have timely produced. (*Id.* at 42 (citing *Certain Nor & Nand Flash Memory Devices & Prod. Containing the Same*, Inv. No. 337-TA-560, 2008 WL 2622574, Comm'n Op. at *28 (June 2008) (complainant failed to meet its burden of proof on DI because the evidence was "unreliable and unpersuasive" where the complainant relied on estimates and projections "rather than any concrete figures")).) Respondents reject and criticize CGI's resort to the evidence it has produced when CGI had much better records than Mr. Fitzgerald's memory, especially since it does not base its internal financial reporting and forecasting processes on Fitzgerald's memory. (*Id.* (citing Hr'g Tr. at 130:4-8).)

iv. CGI waived its argument of significant plant and equipment investments

Respondents allege CGI cannot show its alleged plant and equipment investments are significant because the only significance argument it made in its Pre-Hearing Brief was struck because it was not disclosed in CGI's DI Contentions. (*Id.* (citing Order No. 26 at 14; RPB1 at 140).) Respondents contend any argument not made in the Pre-Hearing is waived pursuant to G.R. 11.2 and in regardless, there is no evidence in the Record to suggest approximately $[ ] per year, which is approximately [ ] of CGI's 2015 U.S. sales—is "significant" in light of market realities. (*Id.* (citing CPX-0046).)

c. CGI Has Not Proven a DI under Subsection (B)

Respondents generally allege that CGI has not even proven approximately how much it invested in labor related to the '336 patent. (*Id.*) Respondents maintain CGI's claimed labor costs include unknown levels of non-labor costs and expenditures irrelevant to "the articles protected by the patent" as required by 19 U.S.C. § 1337(a)(3). (*Id.*) According to Respondents, CGI's sales-based allocation fails to address these problems and is also unreasonable. (*Id.*)

Closing its general reply, Respondents aver CGI cannot show its labor investments were substantial. (*Id.*)

i. CGI's claimed labor costs are unsupported and overstated

According to Respondents, CGI keeps highly detailed records of its employees and labor costs, but these costs are not in the Record. (*Id.* at 43 (citing RX-0230C at 31:3-10, 146:20-147:5).) Respondents allege that instead, CGI bases its claimed "labor" costs on the same conclusory document Mr. Fitzgerald created for this litigation and which CGI relies upon for its capital costs under subparagraph (A). (*Id.*) Respondents contend CGI's "Total Engineering Spend" "US" is a list of bottom-line numbers, that lack information about underlying records or any explanation concerning how the allegedly underlying data was queried or analyzed, but rather only Mr. Fitzgerald's say so, which Respondents allege is scant, inappropriate, and unconvincing. (*Id.*)

Respondents further claim CGI's claimed "labor" costs include all expenses charged to CGI's engineering and support cost centers, not just salaries and benefits. (*Id.* (citing CPX-0044C).) Respondents note documents detailing the included non-labor and labor costs CGI produced late were struck, but even the incomplete evidence in the Record shows the cost centers include a variety of non-labor costs, such as advertising, insurance, office supplies, telecommunications, equipment rental, depreciation, repairs, computers, and even utilities. (*Id.* (citing CX-1255C [Fitzgerald WS] at Q73, 77).) Respondents allege the costs CGI proffers are not labor costs anticipated by § 337(a)(3)(B), and CGI cannot distinguish costs it CGI actually spent on relevant labor from labor directed to non-DI products or other items and thus CGI lacks reliable evidence to meet its burden of proof. (*Id.* (citing *Certain Coaxial Cable Connectors &*

Components Thereof & Prod. Containing Same, Inv. No. 337-TA-650, ID at *10 (Nov. 1, 2011)).)

ii. A sales-based allocation cannot reliably assess engineering and customer support labor costs

Respondents allege CGI's sales-based allocation of labor costs creates no basis to assume that sales have any direct relationship to engineering costs or service and support costs. (*Id.* at 43-44 (citing RX-0227C at Q111-115).) Respondents allege that it claims CGI even acknowledges product development work concerns future products and this means there is no direct connection between revenues and product development work performed in that same year. (*Id.* at 44 (citing CX-1255C [Fitzgerald WS] at Q93; CX-1256C [Fitzgibbon WS] at Q35 ("New product development refers to all the activities we undertake to design, develop, and ultimately launch a product onto the market.")).)

Respondents allege the cases CGI cite as approving sales-based allocations are inapposite, for those cases concern manufacturing investments, which do correlate with sales, not R&D or product support that do not. (*Id.* (citing RX-0227C at Q113; RDX-0308; *Certain Toner Cartridges*, Inv. No. 337-TA-740, Order No. 26 (June 1, 2011); *Certain Laminated Floor Panels*, Inv. No. 337-TA-545, Order No. 17 (Mar. 2, 2006)).) As a result, Respondents assert CGI's sales-based allocations are insufficient to reliably identify DI investment and thus CGI does not meet its burden of proof. (*Id.* (citing *Certain Semiconductor Chips & Prods. Containing the Same*, Inv. No. 337-TA-753, Comm'n Op. at 49 (Aug. 17, 2012) ("Without an adequate evidentiary basis for evaluating the level of investments … the Commission is left without sound footing for evaluating whether any such investments are 'substantial.'")).)

iii. CGI cannot show its investments were substantial

Respondents claim that in CGI's Pre-Hearing Brief, CGI only argued its labor investments were substantial based on the ratio of its claimed DI investment to its total labor costs for Elmhurst engineering and Tucson service and support. Respondents point out this new argument was properly struck and all other arguments were waived. (*Id.* (citing CPB1 at 144; Order No. 26 at 14; G.R. 11.2).) Nevertheless, Respondents assert CGI now argues that its labor investments are significant because the DI products are certain share of the market. (*Id.*) Respondents maintain that because CGI did not make this argument in its Pre-Hearing Brief, it is too late for it to make this claim now. (*Id.* (citing G.R. 11.2).) Continuing, Respondents assert that even if CGI's argument were permissible, it fails because CGI provides no analysis of the "market realities." (*Id.* at 44-45 (citing *Male Prophylactics*, Inv. No. 337-TA-546, Comm'n Op. at 39 (a determination of significance must consider "the realities of the marketplace") (citations and quotations omitted)).)

Respondents next challenge CGI's reliance on evidence proffered by Mr. Hansen as being "particularly problematic" because Mr. Hansen based his opinions on the analysis detailed in and later struck from his witness statement. (*Id.* at 45.) Respondents contend that any suggestion that Hansen's opinions apply to CGI's later and different analysis is misleading and also point out that Order No. 21 struck Mr. Hansen's entire quantitative analysis. (*Id.*) Thus, Respondents argue there is no basis for Mr. Hansen to opine that CGI's investments were "significant" without the benefit of the underlying analysis. (*Id.* (citing *Lelo*, 786 F.3d at 883, 885 (the economic prong requires a quantitative analysis, and "qualitative factors alone are insufficient to show significant investment")).)

d. CGI Has Not Proven a DI under Subsection (C)

Respondents contend CGI has not shown that its [ ] constituted a "substantial investment" in the exploitation of the '336 patent as required by 19 U.S.C. § 1337(a)(3)(C). (*Id.*) Respondents argue CGI presented insufficient evidence and over-inflated DI claims without the benefit of establishing the required nexus between its GDO program and the '336 patent. (*Id.*)

i. There is no nexus between the GDO program and the '336 patent

Respondents admit that even though investments in articles protected by the patent may be considered under subparagraphs (A) and (B), subparagraph (C) includes "an additional requirement that the investment constitutes an exploitation of the asserted patent." (*Id.* (citing *Certain Integrated Circuit Chips*, 337-TA-859, Comm'n Op. at 48 (Aug. 22, 2014); *Certain Wireless Standard Compliant Elec. Devices, Including Communication Devices & Tablet Computers*, Inv. No. 337-TA-953, Order No. 40 at 12 (Dec. 18, 2015) ("expenditures qualify under subparagraph (C) only if they relate to the specific patent at issue, not to a product containing the patented technology")).)

Respondents next allege CGI's claimed 2007-2016 GDO program investments are not related to the development of the '336 patent. (*Id.* at 45-46 (citing '336 patent (application filed 2004)).) Instead, Respondents aver the GDO program "focused on [ ] (*Id.* at 46 (citing CX-1256C [Fitzgibbon WS] at Q38).) Respondents claim the focus included developing [ ] none of which had anything to do with the '336 patent. (*Id.* (citing CX-1256C at Q39; CPX-0047 at 3; Hr'g Tr. at 97:8-100:6).)

Respondents allege that even though Mr. Fitzgibbon claims the GDO program [ ] (CX-1256C at Q40), there is no evidence what, if anything, that has to do with the particular technology claimed by the '336 patent. While admitting that CGI also emphasized [ ] (CIB1 at 71), Respondents assert there is no evidence connecting that work to the '336 patent (RRSB1 at 46). Respondents go further and also allege there is no evidence that "any" aspect of the GDO program was directly connected to the technology of the '336 patent. (*Id.*) Regardless, Respondents aver that if some GDO work could be connected to the '336 patent, Mr. Fitzgibbon admitted there is no way to separate which GDO program hours were spent implementing the features of the patent from those that did not. (*Id.* (citing RX-0069C at 181:12-182:8).) Respondents also claim that were it true that some products associated with the GDO program practice the '336 patent, that is still not enough to establish the required nexus. (*Id.* (citing *Certain Television Sets, Television Receivers, Television Tuners, & Components Thereof*, Inv. No. 337-TA-910, 2015 WL 6755093, Comm'n Op. at *36 (Oct. 30, 2015) ("For subsection 337(a)(3)(C), the claimed R&D and engineering investments must be in exploitation of the patent.") ("*Certain Television Sets*")).)

ii. CGI's evidence is facially insufficient

Respondents claim that even if they set aside the nexus issues, CGI has not carried its burden of proof. (*Id.*) Respondents claim that CGI has claimed [ ] worth of investments based on a single summary power point presentation created for purposes of this investigation and this proof is inadequate. (*Id.* (citing CPX-0047C at 9; CX-1255C [Fitzgerald WS] at Q99, 100; RX-0230C [Fitzgerald Dep. Tr.] at 137:16-138:8).) Moreover, Respondents aver this particular hearsay document "describes the GDO program and purports to summarize information about engineering hours and investments that was requested but never produced."

(*Id.* at 46-47.) According to Respondents, one unsubstantiated and self-serving document created by a non-witness should not be sufficient carry CGI's burden of proof. (*Id.* at 47 (citing *Certain Digital Processors & Digital Processing Sys., Components Thereof, & Prod. Containing Same*, Inv. No. 337-TA-529, 2005 WL 1327335, Order No. 8 at *3 (May 9, 2005) ("Failure of proof regarding the existence of a domestic industry precludes a finding that Section 337 has been violated.")).)

Respondents claim that CGI as also failed to provide specific information about its claimed GDO program expenses, to include "no information about what CGI actually invested in, when it spent the money (which for all the Record shows could be as long ago as [ ] or whether these expenditures have anything at all to do with the '336 patent." (*Id.*) Respondents assert that even though CGI keeps detailed information on these expenditures, it did not provide it. (*Id.* (citing RX-0230C at 42:21-43:7).) Hence, Respondents allege CGI's claimed GDO Platform capital and expense investments should be disregarded as having no bearing on the DI analysis. (*Id.* (citing *Male Prophylactics*, Inv. No. 337-TA-546, ID at 109).)

iii. CGI did not allocate costs

Respondents allege it is undisputed the GDO program relates to both DI and non-DI products (nearly half). (*Id.* (citing CX-1256C at Q48).) Despite this almost equal share, CGI did not allocate GDO program costs between DI and non-DI products, but instead allocated [ ] of them as DI investments, which is wrong. (*Id.* (citing Order No. 24 at 2-3; RX-0227C [Green WS] at Q149-152, 154, 155.) According to Respondents it is at least speculative to include all GDO program expenses. (*Id.*)

Respondents also aver that CGI claimed GDO program investments from [ ] forward when there is no evidence the alleged DI products were sold before 2013 (*Id.* at 47-48 (citing CX-1191C).) Respondents next allege that almost [ ] of CGI's claimed labor investments

occurred in 2012 or before and just [ ] percent occurred in 2016, a very relevant time period for DI. (*Id.* at 48 (citing CPX-0047C).) Moreover, according Respondents, CGI did not explain these "discrepancies" or to show how engineering efforts or expenditures made many years before the earliest identified DI product relate to this Investigation. (*Id.* (referencing *Certain Video Game Sys. & Controllers*, Inv. No. 337-TA-743, 2011 WL 6210524, Remand ID at *89 (Nov. 2, 2011), *aff'd* Comm'n Op. at 7 (Jan. 20, 2012) (investment activities at least 3.5 years before the filing of the complaint, were "far too remote to be considered" in the DI analysis)).)

iv. CGI has not shown its investments were substantial

Respondents aver CGI's only basis for arguing that its GDO program costs were substantial is a comparison [ ] years of GDO platform costs between [ ] years of total U.S. R&D costs [ ] which Respondents claim is a meaningless as an "apples to oranges comparison." (*Id.*) Respondents assert CGI has not provided its annual pre-2013 R&D spend or established when it incurred the claimed GDO program costs. (*Id.*) However, Respondents contend the evidence there is shows that CGI's claimed [ ] GDO program labor costs are less than [ ] of its total U.S. R&D spend during that same time. (*Id.*) Moreover, Respondents aver CGI did not address the garage door market at all and thus cannot show that its investments are "substantial" in light of market realities. (*Id.* (citing *Certain Dimmable Compact Fluorescent Lamps & Prods. Containing the Same*, Inv. No. 337-TA-830, ID at 68 (Feb. 27, 2013) ("The Commission is clear that the magnitude of the investment cannot be assessed without consideration of the nature and importance of the complainant's activities to the patented products in the context of the marketplace or industry in question.")).)

3. CGI's Reply to Respondents' Contentions

CGI alleges its domestic industry, as presented in its post-hearing brief, is consistent with all Ground Rules and Order Nos. 21 and 26 in this Investigation. (CRPB1 at 18.) CGI states it

has already narrowed its domestic industry case from its pre-hearing brief to its post-hearing brief. (*Id.* at 19 (referencing Order No. 26 at 14 (where CGI had to remove certain 2013 and 2016 investments and significance evaluations)).) Moreover, CGI alleges that for all of the subsections 19 U.S.C. § 1337(a)(3)(A), (B), and (C), Respondents failed to muster, throughout this Investigation, any evidence contradicting CGI's domestic investments in the protected articles, and offer no analysis, including from their expert Mr. Green, showing why any of their criticisms are material, or result in anything less than a significant investment. (*Id.*)

a. Significant Investment in Plant and Equipment

CGI first contends that Respondents claim that "no amount of [

] is ever designated as relating to occupancy" is controverted by Respondents' own citation. (*Id.* (citing RRSB1 at 39; RX-0230C at 117:4-6 ("[

]")).)

CGI also asserts that Respondents' attack upon Mr. Fitzgerald's misunderstanding of the legal term "domestic industry products" in July 2016 (which CGI asserts Mr. Fitzgerald later corrected at his deposition and at the hearing) does not impeaches his collection of documentary evidence and records for the domestic industry product SKUs and cost centers at issue. (*Id.* (citing Hr'g Tr. at 123:3-5; RX-0230C [Fitzgerald Dep. Tr.] at 100:7-12; CX-1255C [Fitzgerald WS] at Q28).) CGI asserts as an example that Mr. Fitzgerald's testimony concerning Tucson rent for 2014 and 2015 is supported by the Tucson lease agreement. (*Id.* at 18-19 (citing CX-0067C at -2922).) Moreover, CGI explains that Mr. Fitzgerald's personal knowledge of expenses cataloged in CPX-0044C is supported by day-to-day responsibilities at CGI and documents created in the normal course of business, all of which confirm CGI does not typically

generate reports on a one-to-one correlation with this Investigation. (*Id.* at 19 (citing CX-1255C at Q4, 16-27, 31-39).)

CGI asserts that Respondents are ignoring the maxim that most people "do not document their daily affairs in contemplation of possible litigation" and thus the ITC accepts using sales based allocations to make reasonable estimates of R&D and service and support investments. (*Id.* at 19 (citing *Certain Elec. Devices*, Inv. No. 337-TA-794, ID at 601-604 (Sept. 14, 2012), *not reviewed in relevant part* (accepting use of sales-based allocation to provide reasonable estimate of allocated R&D and customer support investments)).) CGI also observes that Mr. Green, who at most offers general observations, identifies "no CGI-specific testimony or documents discrediting the reasonable use of a sales-based allocation here (in addition to an allocation by headcount)." (*Id.* (citing and contrasting RX-0227C [Green WS] at Q110-118 with CX-1253C [Hansen WS] at Q116-118; CX-1255C [Fitzgerald WS] at Q145, 146, 151; RX-0230C [Fitzgerald Dep. Tr.] at 217:5-18).) In addition, CGI's alleges that its sales-based allocations, are supported by total U.S. sales figures (CPX-0046C), total Americas sales figures (CPX-0044C), and Mr. Fitzgerald's testimony (as the former Retail Commercial Controller for all of the Americas) that U.S. sales are typically [ ] of Americas sales and other documents such as the total U.S. 2015 sales in CPX-0046C as compared to total Americas sales in CPX-0044C. (*Id.* (referring to CIB1 at 65).)

CGI claims it drew its significance arguments directly from its corresponding section in CGI's pre-hearing brief, but removed that which Order No. 26 struck, which means Respondent's waiver argument is wrong. (*Id.*) According to CGI, Respondents do not dispute that CGI's facilities and equipment are critical to enabling CGI's U.S. R&D and service and support activities relating to the protected articles. (*Id.*)

b. Significant Employment of Labor or Capital

CGI accuses Respondents of mischaracterizing the evidence. (*Id.* at 20.) Specifically, CGI accuses Respondents of turning a blind eye to the more than hundreds of documents, including those presented by Mr. Fitzgerald, Mr. Sorice, and Mr. Hansen showing CGI's significant employment of labor for the '336 patent. (*Id.*)

CGI maintains its collection of records is reliable and Mr. Fitzgerald fully discusses their source, their normal maintenance at CGI, and how they were collected for this Investigation. (*Id.* (citing CX-1255C at Q1-5, 12-27, 31-39).) CGI posits that Respondents' decision to rely on Mr. Fitzgerald's deposition testimony to support its argument that CGI "keeps highly detailed records" bolsters Mr. Fitzgerald's credibility of Mr. Fitzgerald's testimony. (*Id.*) Moreover, if Respondents are premising their arguments on what is not in the Record because they have been excluded, their arguments should be given little weight. (*Id.*) CGI also challenges Respondents' allegation that the inclusion of an engineer's or TSC employee's "insurance, office supplies, telecommunications, equipment rental, depreciation, repairs, computers, and utilities" costs should not be considered because CGI includes these costs in its own business practice for estimating labor costs. (*Id.* (citing CX-1255C at Q129-133; CX-1253C at Q150, 151.) Further, CGI notes that Respondents, beyond criticizing the inclusion of the costs, fail to offer any evidence as to why CGI's estimation of labor costs would be materially different if any of these costs were excluded. (*Id.*)

CGI reiterates that the Commission permits sales-based allocations of non-manufacturing investments. (*Id.*) CGI alleges it reasonably uses a sales-based allocation to allocate engineering and TSC cost center spends and this is supported by the testimony of Mr. Hansen and Mr. Fitzgerald. (*Id.* (citing CIB1 at 68-69).) CGI also asserts there is a sequential connection between revenues and product development because R&D labor from a prior year results in

products sold the next year. (*Id.* at 20-21.) Hence, CGI contends that using a sales-based allocation for revenues and R&D work in the same year understates the amount of R&D labor devoted to a DI product SKU in that year. (*Id.* at 21 (citing CIB1 at 61 (Table 1, showing DI product sales ratios [ ] from 2013 to 2016)).) CGI avers that Mr. Green's suggestion it must offer "linear regressions" or "records that track time of engineers to specific products" is neither realistic nor consistent with Commission precedent. (*Id.* (citing CIB1 at 68; RX-0227C at Q111, 114; CX-1255C at Q33; Mar. 13, 2017 RSUMF at Fact 36).)

CGI maintains, "contrary to Respondents' overzealous allegations of 'waiver,' that its post-hearing brief properly presents numerous facts for consideration as to significance, including the percentage of DI products as a total of 2015 U.S. sales." (*Id.* (citing CPB1 at 134 (Table 2)).) Thus, CGI contends that what Respondents now wrongly label as "undisclosed," was actually conceded by Respondents to be timely *disclosed* two months ago. (*Id.* (citing Resp. MIL No. 4 at 8 (stating that CGI's pre-hearing brief argues "that the significance of its alleged DI investments is shown by the[ ] share of CGI's total sales represented by DI products")).) Nor, according to CGI, do Respondents challenge CGI's employment of U.S. labor is crucial to developing and launching CGI's protected articles; nor do they offer any reason why any "market realities" warrant a different conclusion. (*Id.*) CGI also alleges that Mr. Hansen fully evaluated the evidence of Record and concluded CGI's investments were significant. (*Id.* (citing CX-1253C at Q27, 34, 35, 38, 39, 71-89, 91, 92, 116-121, 179-202, 269-271; CX-1169C; CPX-0044C; CX-1180C; CX-1213C; CX-1161).)

c. Substantial Exploitation of the '336 Patent

With regard to (C), CGI accuses Respondents of misinterpreting the law and their own evidentiary citations. (*Id.* at 22.) First, CGI avers that Respondents incorrectly suggest CGI's R&D activities must be those which resulted in the filing of the '336 patent in 2004, as contrary

to Commission precedent, which recognizes continued R&D activities exploiting the patented technology, including their incorporation into newer, improved products, satisfy this subsection. (*Id.* (citing *Certain Television Sets*, Inv. No. 337-TA-910, Comm'n Op. at 69 & n.82 (Oct. 30, 2015) ("Unlike *Toy Vehicles*, [complainant] here did not move on to newer or improved products.")).) CGI also alleges the evidence establishes the [ ] is the R&D effort that began [ ] of CGI's DI products using the '336 patent as a base between 2011 and the filing of the Complaint. (*Id.* (citing CIB1 at 70-73; CPX-0047C at -5, -7; RX-0230C at 14:22-15:4, 59:3-7).) CGI claims the existing facts like those discussed above and Respondents' failure to identify any rebuttal evidence prove a strong DI case, even in view of the decisions cited by Respondents. (*Id.* (citing *Certain Television Sets*, Comm'n Op. at 69 (identifying past decision "finding domestic industry exists where complainant had substantial past investments in engineering and R&D related to discontinued protected articles and continued to exploit the patent through further development of existing products at the time of the complaint"); *Certain Integrated Circuit Chips*, Inv. No. 337-TA-859, Comm'n Op. at 50 (Aug. 22, 2014) (distinguishable because Respondents made "persuasive demonstration that [complainant's] domestic investment is unrelated to the [asserted] patent")).)

CGI alleges its exhibits and testimony "establish by a preponderance of evidence that the [ ] incorporated the force profile claimed in the '336 patent into at least [ ], new U.S. product SKUs. (*Id.*) CGI alleges this conclusion "is supported by the testimony of Mr. Fitzgibbon (who Respondents chose not to cross-examine) as well as program, labor-hour, and expense summaries sourced from Larry Strait, CGI's Vice President of Global Engineering Services (who Respondents chose not to even depose)." (*Id.* at 22-23 (citing CIB1 at 71; CX-1227C).) CGI maintains that Respondents' over broad criticism does not

acknowledge the '336 patent claims much more than a few lines of source code. (*Id.* at 23 (citing '336 patent at claims 14, 19, 34 (also claiming a "moveable barrier operator," "moveable barrier," and "monitoring operation of a motor," in addition to other elements)).) CGI continues by claiming the weakness of Respondents' position is emphasized by their resorting to "gross mischaracterizations of CGI's evidence, which provide specific project names, goals, hours, expenses, product SKUs, and product samples." (*Id.* (citing CPX-0047C; CX-1227C at -8163-4 (describing number of employees and expenses for production tooling and equipment)).) CGI further asserts Respondents' untenable position ignores the undisputed fact that CGI maintains its information in its electronic SAP and PDW are databases, which means CGI must extract the data into documentary form. (*Id.* (citing CX-1255C at Q25-27, 35-39; Mar. 13, 2017 RSUMF at Facts 23-29, 151-52).) CGI argues that for Respondents to falsely accuse it of retaining evidence that "was requested but never produced," "despite CGI having produced exactly what Respondents asked for and having to defend against three motions in response, demonstrates that the only failure of proof here is from Respondents." (*Id.* (citing RRSB1 at 47).)

CGI alleges Respondents have identified no precedent requiring a product-based allocation of CGI's R&D efforts exploiting the '336 patent and pointed out it had been recognized [ ] were being discussed under 1337(a)(3)(C) where product based allocation is unnecessary as long as a nexus is established. (*Id.* (citing Order No. 24 at 3 n.1; CIB1 at 72-73).) CGI notes Respondents identify no evidence rebutting the reasonableness of considering all of CGI's [ ] investments, where efforts are undertaken primarily for U.S. products. (*Id.* (citing CIB1 at 71-73).) Further, CGI asserts the Commission permits relying on past expenditures, particularly here where Respondents do not dispute that the [ ] was ongoing and still launching products as of the filing of the

Complaint. (*Id.* at 23-24 (citing CPX-0047C at -9; RX-0230C at 145:6-17; Mar. 13, 2017 RSUMF at 159; CIB1 at 70; *Certain Automated Teller Machines*, Inv. No. 337-TA-972, ID at 196-98 (Nov. 30, 2016) (finding domestic industry based on R&D activities occurring ten years before filing of the complaint); *Certain Television Sets*, Comm'n Op. at 68 ("Past expenditures may be considered to support a domestic industry claim so long as those investments pertain to the complainant's industry with respect to the articles protected by the asserted IP rights and the complainant is continuing to make qualifying investments at the time the complaint is filed."); *Certain Video Game Sys. & Controllers*, Inv. No. 337-TA-743, Remand ID at 167, 170 (Nov. 2, 2011)).)

CGI begins its last argument by alleging Respondents:

> [A]sk the ALJ to take an extremely narrow view of CGI's investment in the [ ] one that ignores the [ ] million worth of labor and capital costs, that ignores the more than [ ] employees that have worked on this program from its incipience, and that ignores the fact that without these activities, CGI would not have launched [ ] new U.S. product SKUs exploiting the '336 patent.

(*Id.* at 24 (citing CIB1 at 60, n.2-3, 72; CX-1227C at -8163; CPX-0047C at -5, -7).) CGI also maintains that even though Respondents identified alternative DI metrics, their alternative metrics support finding of substantiality. (*Id.*) CGI contends that devoting [ ] of its entire U.S. engineering labor force from 2007 through 2016 to the [ ] is substantial and notes that after correcting Respondents' math, CGI's 2013-2016 GDO program labor costs ($[ ]) is really [ ]% of its total U.S. R&D expenditures during this period ($[ ]) is substantial. (*Id.* (citing CIB1 at Table 12; CPX-0044C at line 19).)

CGI also argues that Respondents' demand that I consider only 2016 metrics is unreasonable because products exploiting the '336 patent began development in 2007 and launched in 2011. (*Id.* (citing RX-0230C at 14:22-15:4, 59:3-7).) CGI explains that compared

to the only other fact situation Respondents presented, that of TTi, who has foreign respondent ET Door design, code, and manufacture its garage door openers, CGI's decision to keep R&D in the U.S. is a quintessential example of substantial exploitation of the '336 patent in the U.S. (*Id.* at 24-25 (citing Hr'g Tr. at 364:13-16, 488:8-13, 522:4-10).)

C. Analysis for the '336 Patent

1. Findings of General Applicability

Respondents' argument to the contrary, whether CGI was ready to proceed with its DI case from the time of the Complaint, is not the issue. Instead, I must decide whether CGI has established DI, not how neatly or nicely CGI acted in establishing the Economic Prong required by 19 U.S.C. § 1337(a)(3). Hence, what matters is whether the Record supports CGI's allegations of Domestic Industry by the preponderance of the evidence. In turn, the Record must consist of sufficient reliable and credible evidence for me to find that CGI met its burden of proof.

Despite Respondents' vehement allegations to the contrary (*e.g.,* RRSB1 at 40), I find Mr. Fitzgerald to be a credible witness. I do not find any material evidence produced by him or associated with him has been the subject of impeachment. Instead, the witness was asked if he had said something (in a declaration accompanying the Complaint) he now knew to untrue and he admitted he had. (Hr'g Tr. at 124:18-125:14.)[17] Hence, despite Respondents' attacks, I find the testimony offered by Mr. Fitzgerald to be credible and that the facts he testified to be established.

I also do not find the documentary evidence produced by CGI to be unreliable. While I would have preferred CGI had presented their DI evidence in a more organized and timely

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[17] *See also* CRPB2 at 16.

manner that would have permitted me to have considered more of it, the evidence before me is not ambiguous. Moreover, I find the witnesses sponsoring the evidence presented by CGI that has been admitted to the Record, have first-hand knowledge of the evidence they sponsored and in general the evidence is internally consistent.

I also note the burden of proof does matter. It is simply not enough for one party or the other to argue its version of the facts is unchallenged. While relevant, those facts in evidence must also be credible on their face and be proffered through competent testimony.

2. Qualitative Significance

I find, as alleged by CGI and not more than cursorily challenged by Respondents, that CGI's U.S. activities, including R&D and customer support, are critical to the viability of its many DI products in the market place. (*See* CIB1 at 60-61.)[18] I am also persuaded by: (1) CGI's proof that its U.S. sales of the '336 DI products have risen steadily since 2013 (Table 1) while its engineer headcount at Elmhurst has also been increasing (Table 3); (2) a steady and significant increase in '336 patent related DI labor expenses at Elmhurst (Table 9); and (4) with similar increases in manpower and costs at its Tucson facility during the same time period (Tables 6 and 10). (*See* CIB1 at 60-69.) Taken together, this evidence establishes a direct correlation between CGI's sales and its employment of manpower and other resources and is strong evidence of the criticality of these efforts or expenditures. Thus, I find qualitative significance.

3. Quantitative Significance Under (A) and (B)

I am not persuaded CGI has established quantitative significance under (A). Simply put, while CGI can prove, at the best, that it expended approximately $[ ] million in arguably

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[18] All Table references under this section discussing DI in the context of the '336 patent are found in CIB1.

eligible costs[19] (CGI's allegation, *see* Tables 4, 5, 7, and 8) at Elmhurst and Tucson, I am unaware of any credible evidence of any kind in the Record sufficient to establish these costs are quantitatively substantial to CGI on the basis of its approximately $[ ] million in sales of U.S. DI products (Table 1) during the same time period. In fact, these costs are less than [ ] of CGI's sales during the relevant time period. However, I find that since CGI has elected to rely on sales based costs and allocations as the basis of its establishment of DI, as it claims throughout its briefing (and as summarized herein), then this is a consequence CGI must accept.

Unlike quantitative significance under (A) I find CGI, as it has alleged, has established quantitative significance by the preponderance of the evidence under (B). CGI has proven that it spent [ ] in labor costs between 2013 and 2015 for both Elmhurst and TSC (Tables 1, 9, and 10). Most of this [ ] in allocable labor costs are engineering R&D costs CGI incurred in support of the DI products[20] (engineers typically represent [ ] or more of all of CGIs Elmhurst labor effort (Table 3)). In total, the Elmhurst costs equal [ ] and by themselves represent a quantitatively significant employment of labor over just a three year span by any standard.

Adding the TSC labor costs of [ ] established by CGI (Tables 2 and 10) to the total Elmhurst labor costs CGI established are related to the DI products, would increase the significance of CGI's allegedly DI related labor costs to the [ ] Since the [ ] amount is quantitatively larger than the Elmhurst labor costs I have already found to be significant, this amount only buttresses CGI's allegation.

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[19] I recognize that CGI has sales figures from 2013 through the first half of 2016, but that the capital costs do not include 2013. I have, therefore, only used DI sales for an equivalent period.

[20] Products practicing the '336 patent.

Moreover, after fully considering Respondents allegations (RRSB1 at 37-45) I find no evidence in the Record sufficient to rebut the credible evidence CGI put forth to establish the significance of its employment of labor for the DI products protected by the '336 patent. In fact, I find Respondents' arguments to be particularly unpersuasive in view of the Record and CGI's generally correct application of applicable precedent.

4. Substantial Exploitation Under (C)

The core of CGI's allegations to sustain is substantial exploitation case of the '336 patent under subsection (C) is the work (engineering hours, capital expenses, and non-labor expenses) accomplished on the [ ] (CIB1 at 71.) While, there is no appreciable doubt that CGI incurred the costs claimed, evidence that the effort outlined by CGI was actually related to actual exploitation of the '336 patent, as Respondents argue, is at best sparse and ambiguous. (RRSB1 at 45-46.) In fact, CGI's own evidence has little if any relevance to the subject matter of the '336 patent. (*See* CIB1 at 71-72.) Hence, the evidence proffered by CGI falls far short of a preponderance of the evidence standard.

As Respondents correctly assert, based upon the testimony of a CGI witness (Fitzgibbon), the [ ] focused on [ ] with a focus on [

] (RRSB1 at 46 (citing excerpts from CX-1256C; CPX-0047 at 3; Hr'g Tr. at 97:8-100:6).) I find these efforts have only, at best, a tangential relationship to force profile (Adaptive Autoforce) or to the exploitation thereof which is the point of the '336 patent. Hence, CGI has not met the nexus requirement through the [

]

Were there any way for CGI to have proven nexus with the evidence of Record, I would find their investments to be quantitatively significant. CGI alleges the amount of money

associated with U.S. [ ] effort between 2007 and September of 2016 (based upon its apportionment of effort to the '336 patent that I rejected for a lack of nexus) is [ ] in engineering labor costs and[ ] in capital costs for a total of [ ] (CIB1 at 71-74.) This sum would be quantitatively substantial under any test.

D. Parties' Contentions for the '319 Patent

1. CGI's Contentions

CGI alleges its domestic investments exceed the preponderance of evidence standard required for showing that a domestic industry exists for the '319 patent under subsections 337(a)(3)(A) and (B), due to its investments relating to the protected articles and subsection 337(a)(3)(C), through its significant R&D and engineering efforts exploiting the '319 patent. (CIB2 at 52.) CGI explains that the DI products identified for the '319 patent include all of the DI products for the '336 patent, but also include wall control consoles and residential jackshaft operators, to wit:

Asserted Patent	Practiced Claims	Domestic Industry Product(s)
'319 patent (JX-0007)	1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16	• GDOs without Wi-Fi (Security +2.0) • Wi-Fi GDOs • Residential Jackshaft Operators ("RJO") • Wall control consoles

(*Id.* (footnotes omitted) (citing CX-1317C [Davis WS] at Q188; CDX-0013.11).) As it did for the '336 patent, CGI alleges its U.S. activities, described in detail below, are critical to the viability of its '319 Domestic Industry Products in the marketplace. (*Id.* at 52-53 (citing CX-1316C [Fitzgibbon WS] at Q21-46; CX-1255C [Fitzgerald WS] at Q40-44, 64-67, 83-94; CX-1253C [Hansen WS] at Q20, 21, 79, 80).) CGI contends the significance of its investment, is reflected in the growing share of DI Product sales among CGI's total product sales since 2013, to wit:

Table 1 '319 Patent	FY2013	FY2014	FY2015	1H 2016
Total Sales in U.S. of DI Products	[ ]	[ ]	[ ]	[ ]
Total Sales in U.S. of all CGI Products	[ ]	[ ]	[ ]	[ ]
DI Products as % of Total Sales	[ ]	[ ]	[ ]	[ ]

(*Id.* at 53 (footnotes omitted) (citing CX-1255C at Q45-53, 57; CDX-0002.5C; CPX-0043C; CPX-0052C; CPX-0046C; CX-1253C at Q116-20; CX-1213C; CPX-0044C; RX-0521C [Fitzgerald Dep Tr.] at 62:3-63:21).)

CGI's summarizes its allegedly significant expenditures under subsections (A), (B), and (C), as follows:

Table 2	Elmhurst plant and equipment	[ ]	Elmhurst labor	[ ]
'319 patent	TSC plant and equipment	[ ]	TSC labor	[ ]
	Total Investment (2014 – 1H2016)	**[$1,601,506]**	**Total Investment (2013 – 2015)**	**[$31,854,455]**
	[ ] Labor		[ ]	
	[ ] Non-Labor Expenses		[ ]	
	Total Investment (2007-2016)		**[$21,384,011]**	

(*Id.*) CGI generally states that Respondents have neither substantively challenged the ultimate conclusion that CGI's investments satisfy the economic prong of the domestic industry requirement, nor elicited any evidence or testimony to undermine such a conclusion. (*Id.* at 54.)

a. CGI's Investment in Plant and Equipment

CGI explains that it invests in numerous facilities in the U.S. to support its domestic activities, including at its Elmhurst, Illinois, and Tucson, Arizona facilities. (*Id.*) The Elmhurst

facilities contains CGI's Corporate Office (approx. [ ] sq. ft.), Industrial Design Center (approx. [ ] sq. ft.), Product Test Laboratory (approx. [ ] sq. ft.), and Corporate Office Annex (approx. [ ] sq. ft.), for which CGI expended a total of [ ] in 2014, 2015, and 1H 2016, respectively. (*Id.* (citing CX-1255C at Q134-38, 140-44; CX-1316C at Q23, 24; CX-1253C at Q205-217; CX-1208C; CX-0064C; CPX-0042C; CX-0065C; CX-0066C; CX-0151C).)

CGI alleges it invested [ ] in equipment for its engineering activities during 2014, 2015, and the 1H of 2016, respectively, including equipment used in CGI's Product Test Laboratory and engineer utilized computer hardware and software. (*Id.* (citing CX-1255C at Q68, 74-76; CDX-0002.7C; CPX-0044C).) CGI also recently expanded its facility space in Illinois to support the growth of its MyQ team, and invested in disaster recovery servers in Elmhurst—expenses not included in the above-recited costs. (*Id.* (citing CX-1255C at Q75; CX-1254C [Sorice WS] at Q20, 21, 24, 25; Hr'g Tr. at 91:24-93:7, 112:10-113:1).)

CGI contends its Tucson facilities include its Technical Support Center (TSC), where CGI services and supports customers of its products in the U.S., Canada, and Latin America through its customer call center and also contains [ ] (*Id.* at 54-55 (citing CX-1255C at Q83-87; CX-1254C at Q45-55; CDX-0001.5; CPX-0009C; Hr'g. Tr. at 110:24-111:23).) The TSC occupies approximately [ ] sq. ft., and for which CGI pays over [ ] in rent per year, including approximately [ ] for 1H 2016 alone. (*Id.* at 55 (citing CX-1255C at Q147-149; CX-0067C; CX-0152C; CX-1110C at ¶ 11).)

CGI's claims it also invested [ ] for in equipment devoted to its domestic industry at the TSC in 2014, including machinery and equipment, leasehold improvements, fixtures, and computer expenses to support the service and support function at the TSC, but does not account for CGI's server farm. (*Id.* (citing CX-1255C at Q68, 77-79; CDX-0002.9C; CPX-0044C; CX-1254C at Q24, 53-55).)

CGI's asserts it can allocate its facility investments to the DI Products by first using an employee headcount to allocate a portion of the facilities to appropriate activities related to CGI's domestic industry and then using a sales-based allocation to further allocate to the DI Products. (*Id.* (citing CX-1255C at Q145, 146, 151; CX-1253C at Q218).) According to CGI, Respondents do not dispute that the CGI's Elmhurst and Tucson facilities (totaling approx. 221,000 sq. ft.) and equipment support CGI's engineering, R&D, and customer support activities including the DI Products. (*Id.* (omitting footnotes) (citing CX-1255C at Q43, 44, 67; CDX-002.4; CX-1253C at Q75-78).)

CGI explains that its Elmhurst based engineers increased from 2014 through 1H 2016 and accounted for [ ] of all employees at Elmhurst as shown by the following chart:

Table 3 **Headcount**	**2013**	**2014**	**2015**	**1H 2016**
Engineering employees	[ ]	[ ]	[ ]	[ ]
Total Elmhurst Facilities employees	[ ]	[ ]	[ ]	[ ]
% Engineering	[ ]	[ ]	[ ]	[ ]

(*Id.* at 55-56 (citing CX-1255C at Q40-43; CPX-0041C; CX-1253C at Q212, 213, 218, 219; CX-1208C; CX-1189C).)

Using the following table, CGI takes percentages from Tables 1 (sales-based allocation) and Table 3 (headcount-based allocation) to calculate the value of CGI's investment in plant and equipment at its Elmhurst facilities attributable to articles protected by the '319 patent:

Table 4 Elmhurst Facilities	2014	2015	1H 2016	2014 – 1H 2016
Total Expense	[ ]	[ ]	[ ]	[ ]
'319 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* (citing without footnote).)

Next, CGI uses a table where it applies an allocation by percentage of U.S. sales to DI products (Table 1) to CGI's total U.S. engineering capital expenditures to approximate CGI's engineering equipment investment in the '319 patent:

Table 5 Elmhurst Capital Equipment	2014	2015	1H 2016	2014 – 1H 2016
Total Expense	[ ]	[ ]	[ ]	[ ]
'319 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* at 56-57.) CGI alleges it does not need any additional allocation by headcount for CGI's Elmhurst equipment investments since equipment procured by engineering (*e.g.*, hardware, software, fixtures, etc.) are used in CGI's engineering activities. (*Id.* at 57 (citing CX-1255C at Q74-76; CX-1316C at Q22-24).)

CGI next assert the portion its investment in the TSC that is attributable to articles protected by the patent can be calculated by a sales-based and headcount-based allocation as well. (*Id.*) CGI premises its calculation on its belief that approximately [ ] of the TSC employees (excluding employees classified as "Admin" and "Train[ing] Academy") are engaged in customer support activities, to wit:

Table 6 **Headcount**	**2014**	**2015**	**1H 2016**
TSC Customer Support Employees	[ ]	[ ]	[ ]
Total TSC	[ ]	[ ]	[ ]
% Customer Support	[ ]	[ ]	[ ]

(*Id.* (citing CX-1255C at Q40-43; CPX-0041C; CPX-0045C; CX-1253C at Q192-194, 236-239; CX-1190C; CX-1254C at Q9, 10).)

CGI then applies an allocation by percentage of U.S. vs. Americas sales, using employee headcount percentage customer support) (Table 6), and by percentage of U.S. sales to DI products (Table 1) to CGI's total TSC facilities investment to approximate CGI's TSC plant investment in the '319 patent:

Table 7 TSC Facility	**2014**	**2015**	**1H 2016**	**2014 – 1H 2016**
Total Expense	[ ]	[ ]	[ ]	[ ]
'319 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* at 57-58.) CGI asserts that because approximately [ ] of its sales to the Americas are to U.S. customers, [ ] of CGI's operations in the TSC are attributed to U.S. customers. (*Id.* at 58 (citing CX-1255C at Q53, 62, 63, 68; CPX-0044C, CPX-0046C; CX-0152C; CX-1100C).) These allocations by CGI account for small portion of the TSC supporting customers in Canada and Latin America, the small portion of the TSC is devoted to administrative and training activities, and that portion of the products supported at the TSC are DI Products. (*Id.*)

CGI asserts the following table applies an allocation by percentage of U.S. vs. Americas sales and by percentage of U.S. sales to DI products (Table 1) to CGI's total TSC capital investment to approximate CGI's TSC equipment investment in the '319 patent:

Table 8 TSC Capital	2014	2015	1H 2016	2014 – 1H 2016
Total Expense	[ ]	[ ]	[ ]	[ ]
'319 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.*) CGI states it need not make any additional allocation by headcount is needed for TSC equipment investments because that equipment includes machinery, equipment, leasehold improvements, fixtures, and computer expenses for this facility. (*Id.* (citing CX-1255C [Fitzgerald WS] at Q78, 79).)

CGI states that its investment from 2014 through the first half of 2016 in plant and equipment allocable to the '319 patent is approximately [ ] million, calculated by adding the "'319 DI Product" totals for 2014 through the first half of 2016 as reflected in Table 2. (*Id.* at 59).) CGI then unequivocally claims its domestic investments in plant and equipment are crucial components of its efforts to develop and exploit the '319 patent. (*Id.*) CGI asserts the [ ] million it spent in plant and equipment (just from 2014 through the first half of 2016) which it allocated to the protected articles is significant because it supports CGI's protected articles that represent [ ] of CGI's total U.S. sales in fiscal year 2015. (*Id.*) Absent its domestic facilities, CGI explains it "would be unable to continue to leverage its decades of experience within the U.S. market and dedicated efforts to ensure consumer safety for its '319 patent's protected articles." (*Id.* (footnote omitted).)

b. Significant Employment of Labor or Capital

CGI states it employs more than [ ] engineers in Illinois responsible for developing, designing, engineering, testing, and sustaining its products and more than [ ] personnel in Tucson supporting its U.S. customers, more than [ ] of CGI's entire U.S. workforce as of June 2016. (*Id.* (citing CX-1255C at Q40-44; CPX-0041C; CX-1316C at Q25; CX-1253C at Q71-74,

183, 184, 187, 188).) CGI asserts "the expansion of its U.S. workforce in recent years includes growing CGI's MyQ and engineering teams." (*Id.* (citing CPX-0041C; CX-1254C [Sorice WS] at Q5-10, 16-25).) CGI also notes the vast majority of its R&D and engineering activities for its DI products are U.S. based, both for new product development and sustaining engineering activities. (*Id.* (citing CX-1255C at Q64, 65, 91-94; CX-1316C at Q31, 32).)

CGI explains that it tracks engineer labor and labor-related costs through its engineering cost center separately from its Sales & Marketing cost center. (*Id.* at 59-60 (citing CX-1202C; CPX-0189C; CX-1255C at Q12-39).) CGI further explains that its engineering labor and labor related expenses include employee compensation, fringe benefits, building and office supplies, utilities, telecommunications, computer expenses, repair and maintenance, equipment rental and lease, and other expenses that support the engineering function and equate to an investment of more than [ ] million in its U.S. engineering activities from 2013 through 2015, of which more than [ ] million is specific to R&D. (*Id.* at 59-60 (citing CX-1255C at Q64-70; CDX-0002.7C; CDX-0002.8C; CPX-0044C; CX-1316C at Q26-29).)

CGI also asserts it tracks engineering labor and related costs for its service and support activities at the TSC, where it expended more than [ ] million in the TSC from 2013 through 2015. (*Id.* at 60 (citing CX-1255C at Q28-39, 77-79, 83, 84; CDX-0002.9C; CPX-0044C; CX-1316C [Fitzgibbon WS] at Q26).) By way of explanation, CGI states it supports over [ ] products connected to its MyQ technology platform and in 2015 alone fielded over [ ] customer calls at the TSC. (*Id.* (citing CX-1255C at Q85-90; CPX-0050C; CPX-0009C; CX-1254C [Sorice WS] at Q11-15, 53-55; CX-0138C at -533).)

CGI alleges Respondents do not dispute that some of the labor costs that CGI invests through its engineers and TSC employees is devoted to designing, engineering, and supporting

DI Products, but instead Respondents seek to impose allocability standards contrary to Commission precedent. (*Id.* at 60-61 (citing *Stringed Instruments*, Inv. No. 337-TA-586, Comm'n Op. at 26 ("A precise accounting is not necessary, as most people do not document their daily affairs in contemplation of possible litigation."); *Certain Toner Cartridges*, Inv. No. 337-TA-740, Order No. 26 at 14 (June 1, 2011) (not reviewed in relevant part) (identifying "an allocation method based on available production and sales figures" as "accepted by the Commission"); *Certain Laminated Floor Panels*, Inv. No. 337-TA-545, Order No. 17 at 4 (Mar. 2, 2006) (not reviewed) (accepting sales-based allocation for employee and facility investments under section 337(a)(3)(A) and (B))).)

CGI maintains that because sustaining engineering efforts relate to products in the market and because new product development efforts relate to work performed for products not yet in product sales, it is reasonable to CGI to use a sales-based allocation for both sustaining engineering and new product development efforts. (*Id.* at 61 (citing CX-1253C at Q116-18; RX-0521C [Fitzgerald Dep. Tr.] at 217:5-18).)

In the following table, CGI applied a sales-based allocation (from Table 1) to determine the value of its engineering labor attributable to products protected by the '319 patent:

Table 9 **Elmhurst Labor**	**2013**	**2014**	**2015**	**2013 – 2015**
Total Expense	[ ]	[ ]	[ ]	[ ]
'319 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.*) CGI asserts that because the identified labor and labor-related costs are incurred by CGI engineers and [ ] such as Sales and Marketing in CGI's facility investments in Elmhurst, it does not need to make an additional allocation by headcount for these labor investments. (*Id.* (citing CPX-0044C).)

Using the following table, CGI applies a sales-based allocation to determine the value of CGI's TSC customer support labor attributable to articles protected by the '319 patent, to wit:

Table 10 **TSC Labor**	**2013**	**2014**	**2015**	**2013 – 2015**
Total Expense	[ ]	[ ]	[ ]	[ ]
'319 DI Products	[ ]	[ ]	[ ]	[ ]

(*Id.* at 61-62.) CGI offers that because the TSC cost center includes all employees, it applied a [ ] allocation factor to include employees engaging in customer support activities, as opposed to administrative or training activities. (*Id.* at 62.) Continuing, CGI explains that because TSC employees also support Canada and Latin America, allocated [ ] which includes only the portion of TSC service and support labor applicable to CGI's U.S. products, before it allocated further to the DI products. (*Id.*)

CGI asserts its sales based allocation method is reasonable (for allocating TSC labor) because its TSC labor is supported by CGI's customer call hour data, which can be used as an alternative allocation method for discerning TSC labor specific to the '319 protected articles. (*Id.*) CGI notes, for example, that [ ] of the call hours received by CGI in 2015 were for CGI's GDOs (including its RJOs). (*Id.* (citing CX-1188C; CPX-0050C).) Hence, CGI estimates the portion of that [ ] specific to DI Products by calculating the percentage of sales of DI Products out of CGI's total sales for GDOs (as opposed to CGI's total product sales), as shown here:

Table 11	**FY2015 Sales**
DI Products	
Wi-Fi GDO	[ ]
GDO without Wi-Fi	[ ]
RJO	[ ]
Total GDO Sales (including RJOs) (CPX-0043C, CPX-0052C)	[ ]
% '319 DI Products of total GDO sales (including RJOs)	[ ]
% Call Hours to GDOs (including RJOs) (CPX-0050C; CX-1188C)	[ ]
% Call Hours Allocated to '319 DI Products	**[ ]**

(*Id.* at 62-63.) CGI's alternative calculation shows [ ] of the call hours received at the TSC can be allocated to the '319 patent, the same as the [ ] 2015 sales percentage of DI products allocated to the '319 patent and calculated differently in Table 1. (*Id.* at 63 (noting that readers should compare Table 1 (last row) and Table 11 (last row)).) CGI argues that "[t]he similarity of the results derived from these alternative methods (call hours, or sales) confirms the reasonableness of using a sales-based allocation" used by CGI in this instance. (*Id.* (citing CX-1253C at Q195-202).)

CGI claims its total domestic investment between 2013 and 2015 for labor and related costs for the '319 patent was approximately [ ] a sum reflecting total Elmhurst engineering and TSC service and support labor investment allocable to the DI Products and reflected in Table 2. (*Id.*) In 2015, CGI alleges its labor investment in the '319 patent was approximately [ ] (*Id.* (referring to Tables 9 and 10 (adding the 2015 allocated labor investments in Tables 9 and 10)).) CGI reiterated that its employment of engineers and customer and support personnel in the U.S. is essential to the development and exploitation of its innovations embodied in the DI Products that practice the '319 patent. (*Id.* (citing CX-1316C [Fitzgibbon WS] at Q44).) CGI claims the domestic labor activities it has allocated to the '319 patent are directly related to its DI Products started as a result of targeted R&D efforts and CGI's

continued sustaining engineering efforts devoted to supporting its products. (*Id.* (citing CX-1316C at Q31, 44, 45).)

CGI asserts there is no rigid quantitative formula it must follow to satisfy the economic prong of the domestic industry requirement. (*Id.* at 63-64 (citing *Certain GPS Chips*, Inv. No. 337-TA-596, Order No. 37 at 3 (Feb. 27, 2008)).) Under the facts of this Investigation, the articles of commerce at issue, and the realities of the marketplace, CGI claims it has proven its labor investments in '319 are significant by a preponderance of the evidence. (*Id.* at 64 (citing *Imaging Devices*, Inv. No. 337-TA-690, Comm'n Op. at 27).) Continuing, CGI alleges its total labor:

> [I]nvestment for the '319 protected articles for 2015 alone (approximately [ ] is [ ] of its total U.S. engineering spend in 2015 [ ] of its total expenditures in the U.S. on R&D activities in 2015 (approximately [ ] and more than 1.3 times CGI's total investment in 2015 for the TSC (approximately [ ]

(*Id.*)

c. Substantial Exploitation of the '319 Patent

CGI argues its significant investment in U.S. R&D activities is further confirmed by its multi-year [ ] an effort of more than [ ] engineering hours and an estimated [ ] million in capital and non-labor expenses in this program alone from January 2007 through the filing of the Complaint. (*Id.* at 64-65 (citing CX-1255C [Fitzgerald WS] at Q97-110 & CDX-0002.12C, CDX-0002.13C; CPX-0047C; *Sonar Imaging*, Inv. No. 337-TA-921, Comm'n Op. at 55-56, 64, 66 (Jan. 6, 2016) (Public Version) (concluding complainant's expenditures from 2009 to 2014 in domestic design and development of LSS-1 products constituted a substantial investment under section 337(a)(3)(C), and separately under 337(a)(3)(B)); *Certain Elec. Devices*, Inv. No. 337-TA-701, Order No. 58 at 16-17 (Nov. 18,

2010) (finding domestic industry satisfied based on past substantial R&D investments for protected articles and undisputed facts showing ongoing activities with respect to the protected articles)).)

CGI alleges the [ ] is its largest R&D effort to exploit the '319 patent resulted in the launch of a number of product SKUs over the past few years and a significant number of these are DI Products. (*Id.* at 65 (citing CX-1255C at Q97; CX-1316C at Q33-35, 44, 45; CPX-0047C at -5, -7; CX-1253C at Q108, 109, 131-139).) CGI explains that Mr. Fitzgibbon, a named inventor of the '319 patent who networked with engineers working on this project from 2007 through 2016, testified "that through this program, CGI implemented [

] that incorporates and uses the '319 patented technology into CGI's products (*Id.*) Mr. Fitzgibbon testified that the effort of the engineers required [

] (*Id.* (citing CX-1316C at 44-45; CDX-0012.6C; *Certain Elec. Imaging Devices*, Inv. No. 337-TA-850, Final ID at 208-09 (Sept. 30, 2013) (finding that "to the extent that research and development activities relate to [articles that incorporate the disputed technology], a sufficient nexus exists"), *aff'd*, Comm'n Op. at 95-96 (Apr. 21, 2014)).) CGI notes Respondents neither cross-examined Mr. Fitzgibbon on the facts concerning the [

] at the hearing, nor questioned his explanation of why the Canadian SKUs resulting from the [ ] (*e.g.*, SKUs ending in "C" or beginning with "101") come from activities exploiting the '319 patent. (*Id.* (citing CX-1316C at Q46; CX-1255C at Q97-101; CPX-0047C).)

CGI claims it used its historically calculated engineering hour labor costs (a unit of cost estimated and used in CGI's own budgeting and forecasting), to show it invested a total of approximately [ ] in its [ ] from 2007 through the filing of the Complaint, to wit:

Table 12. [ ] Labor Hours and Cost			
Year	**Total Engineering Labor Hours**	**CGI Engineering Per Hour Average Cost**	**Estimated Labor Cost**
2007	[ ]	[ ]	[ ]
2008	[ ]	[ ]	[ ]
2009	[ ]	[ ]	[ ]
2010	[ ]	[ ]	[ ]
2011	[ ]	[ ]	[ ]
2012	[ ]	[ ]	[ ]
2013	[ ]	[ ]	[ ]
2014	[ ]	[ ]	[ ]
2015	[ ]	[ ]	[ ]
2016 (through September)	[ ]	[ ]	[ ]
Total	[ ]	[ ]	[ ]

(*Id.* at 65-66 (footnotes omitted) (citing CX-1255C at Q129-33; CPX-0047C; CPX-0049C; CPX-0179C).) According to CGI, [ ] of the [ ] is solely for U.S. engineering efforts, which means CGI invested approximately [ ] in R&D labor and approximately [ ] in R&D capital for a total of approximately [ ] to exploit the '319 patent in the U.S. through ongoing R&D efforts beginning in 2007 and continuing through the filing of the Complaint. (*Id.* at 66-67 (citing CX-1255C at Q94-96; CPX-0011C; CPX-0017C; CX-1253C [Hansen WS] at Q94, 95; CPX-0047C; CPX-0011C; CPX-0017C).)

The crux of CGI's case under subsection (C) is that no patent-by-patent allocation of costs is required. (*Id.* at 67 (citing *Certain Elec. Imaging Devices*, Inv. No. 337-TA-850, Final

ID at 208-209; *Sonar Imaging*, Inv. No. 337-TA-921, Comm'n Op. at 64-66 (observing that the Commission does "not seek[] precise numerical allocation" and finding several years of R&D investments of which substantially all occurred in the U.S. to satisfy subsection (C)).) CGI also asserts that pre-manufacturing investments in R&D may satisfy subsection (C) if protected articles are manufactured abroad. (*Id.* (citing *Certain Integrated Circuits, Processes for Making Same, and Prods. Containing Same*, Inv. No. 337-TA-450, ID at 151-152 (U.S.I.T.C. Pub. No. 3624) (May 6, 2002)).)

CGI alleges the evidence proves its domestic investment in the [ ] is crucial to its effort to develop and exploit the '319 patent and protected articles. (*Id.*) In turn, CGI maintains that without its domestic investment in the [ ] it would not have been able to continue to leverage its decades of experience within the U.S. market and dedication to consumer safety to ensure that its innovations in its protected articles are fully exploited. (*Id.*) CGI claims it invested over [ ] million in U.S. R&D efforts in 2013 through the first half of 2016. (*Id.* (citing CX-1316C at Q44; CX-1255C at Q68, 69, CDX-0002.8C; CPX-0044C).) Of this [ ] million plus, CGI claims its investment in the [ ] comprised over [ ] of CGI's total U.S. research and development expenses over the past three years, where over [ ] is CGI's [ ] investment in U.S. labor alone, a fact establishing CGI's substantial exploitation of the '319 patent. (*Id.*) According to CGI, its long and continued program focused at engineering the patented technology into CGI's products over the past decade demonstrates a significant investment by CGI in engineering labor and capital to exploit the '319 patent, whose protected articles in 2015 comprised at least [ ] of CGI's total U.S. sales. (*Id.*)

Alternatively, and for the same reasons discussed above, CGI alleges its investment in the [ ] also satisfies subsection (A) and (B) with research and development investments in equipment and labor. (*Id.* (citing *Sonar Imaging*, Inv. No. 337-TA-921, Comm'n Op. at 54, 59, 63, 64; *Optoelectronic Devices for Fiber Optic Commc'ns*, Inv. No. 337-TA-860, Comm'n Op. at 15 (May 9, 2014) (permitting R&D investments to be pled in the alternative under subsection (A) and (B))).) Moreover, CGI asserts Respondents have identified no evidence disputing that the labor invested in the [ ] are directly related to DI products, whose sales are approximately nine times more than their Canadian counterparts. (*Id.* at 67-68 (citing CX-1255C [Fitzgerald WS] at Q62).)

2. Respondents' Contentions

a. CGI Has Not Proven It Has a Domestic Industry

As with the '336 patent, Respondents reiterate their allegation that CGI has offered a "slapdash" domestic industry case inadequate to meet its burden of proof. (RRSB2 at 39.) Respondents claim CGI ignores every flaw, inaccuracy, and hole in its DI evidence, waives its hands and argues "close enough." (*Id.*) According to Respondents, CGI: (1) lacks evidentiary support for its claimed investments; (2) cannot tie its evidentiary support to the '319 patent; and (3) cannot show that its investments are significant or substantial. (*Id.*)

b. CGI Has Not Proven a DI under Subsections (A) or (B)

Respondents note the parties have already presented their complete domestic industry cases under Subparagraphs (A) and (B) as part of the May 1-3, 2017 hearing and completed post-hearing briefing on the '336 patent. (*Id.*) Respondents state CGI relies on the same plant, equipment, and labor DI evidence for the '319 patent as for the '336 patent, and it is undisputed that the issues are the same, *e.g.*, CIB1 at 52-64 and CIB2 at 60-70 contain substantially identical text with slightly different total claimed amounts. (*Id.* (citing Hr'g Tr. at 734:20-735:23).) Thus,

Respondents state CGI failed to prove a DI in the '319 patent under Subparagraphs (A) and (B) for all of the same reasons it did not prove a DI in the '336 patent. (*Id.* at 39-40 (referring to RIB1 at 38-45).) Hence, Respondents have declined to repeat the same arguments and evidence at the hearing and have reasonably elected to summarize CGI's allegedly key failings in proving its DI case under (A) and (B). (*Id.* at 40.) Respondents summarize:

> The three most persistent flaws in CGI's evidence and analysis under (A) and (B) are (1) its dependence on wholly unreliable "evidence" created for purposes of this case, (2) its inaccurate and unreliable allocations, and (3) its failure to make the required quantitative showing that its investments are "substantial" or "significant" in light of market realities. *See Lelo Inc. v. Int'l Trade Comm'n*, 786 F. 3d 879 (Fed. Cir. 2015).

(*Id.*)

i. CGI relies on inadequate and manufactured evidence

Respondents argue that CGI's DI case turns on uncorroborated documents Mr. John Fitzgerald created. (*Id.*) Respondents allege Mr. Fitzgerald admitted he filed a false declaration under oath and that he either created or had others create (for this Investigation) documents based on his unconfirmed testimony on matters about which CGI keeps detailed financial records.[21] (*Id.*)

Respondents allege CGI's attempt to shrug off Mr. Fitzgerald's alleged false testimony as a misunderstanding, CGI's assertion the DI amounts it formerly claimed were mistaken underscores the importance of credible, corroborated evidence subject to full and fair discovery. (*Id.*) As an experienced litigant, CGI (having brought 30 patent infringement suits in 17 years, and initiated two different section 337 investigations during that time), CGI should be well acquainted with the DI requirement as should its highly capable counsel. (*Id.*)

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[21] The original is grammatically challenging and involves convoluted syntax. I believe I understand what was meant, if not what was said.

Respondents then accuse CGI of either knowingly submitted a false DI declaration in this Investigation or being indifferent to the truthfulness of its DI claims and thus it submitted a false declaration. (*Id.*) Respondents allege that in either case, CGI's and Fitzgerald's false assertions "underscore how critical it is that CGI's factual claims be supported by reliable evidence, particularly including corroborating evidence kept in the normal course of CGI's business." (*Id.* at 40-41.) Respondents maintain this is the kind of evidence that CGI does not have. (*Id.* at 41.)

Respondents allege that CGI manufactured the key evidence upon which it relies, it is still insufficient. (*Id.*) Respondents allege that for almost all of its claimed costs, CGI derived its investment numbers from "(1) a single unverified document drafted for purposes of this Investigation with bottom-line annual total expenses and *no* other information or underlying evidence, or (2) from Fitzgerald's uncorroborated say-so." (*Id.*)

Respondents allege conclusory and self-serving documents created for litigation do not substitute for CGI's business records. (*Id.*) Respondents note that Federal Rule of Evidence 1006 ("Summaries to Prove Content") provides: "The proponent may use a summary, chart, or calculation to prove the content of voluminous writings" but the proponent "must make the originals or duplicates available for examination or copying, or both, by other parties at a reasonable time and place." (*Id.* (citing Fed. R. Evid. 1006).) According to Respondents CGI failed to comply with Rule 1006 and thus should not be rewarded for its obvious effort to shield its business records from scrutiny and accordingly, the documents it used, while admissible in this Investigation, should be given little or no weight. (*Id.*)

Respondents allege CGI's factual claims show the importance of relying on real data, not documents drafted for purposes of litigation. (*Id.*) Respondents claim Mr. Fitzgerald's sworn DI

declaration filed with the Complaint included a breakdown of CGI's 2015 U.S. revenue in five product categories, but evidence produced later provided 2015 revenue in the same five product categories, but with significantly different totals for each category. (*Id.* (citing CX-1110 at 2; RX-0230C [Fitzgerald Dep. Tr.] at 91:16-93:5).) Respondents aver that:

> CGI's suggestion that created-for-litigation documents are trustworthy because they summarize information pulled from CGI's systems is just another way of saying "trust us," and ignores the reality that CGI's factual claims are conclusory, uncorroborated, and in some cases demonstrably questionable.

(*Id.* at 41-42.)

ii. CGI's improper allocation

Respondents complain CGI improperly allocated its investments under subsections (A) and (B) to the '319 patent and that CGI's sales-based allocation is speculative because there is no evidence the claimed expenses vary directly with contemporaneous sales. (*Id.* at 42 (citing RIB1 [sic] at 41-44).) Respondents also allege CGI's sales-based allocation is wrong since it equates [ ] of CGI's U.S. engineering with [ ] of its U.S. sales even though CGI's U.S. engineering work relates to both domestic and foreign products and foreign engineering work relates to U.S. products. (*Id.* (citing CX-1316C at Q32, 46 (approximately [ ] of products associated with [ ] are non-U.S. products).) Respondents assert CGI's sales-based allocation percentage is unsupported because the 2013, 2014 and 2016 allocations are based on Mr. Fitzgerald's memory since there is no Record evidence of CGI's total U.S. sales. (*Id.* (citing RIB1 [sic] at 41-42).) Closing its allocation argument Respondents allege CGI's 2015 sales are insufficient in isolation to meet its burden of proof by showing only those 2015 investments because needs to prove it had a DI as of the filing of the Complaint in July 2016. (*Id.*)

iii. CGI has not shown the significance of its investments

Respondents reject CGI's arguments concerning its alleged '319 patent investments as being significant for the same reasons as for the '336 patent. (*Id.* (citing RIB1 at 42, 44-45; Order No. 26 (striking several of CGI's economic prong arguments, including all arguments concerning the "significance" of CGI's investments in plant and equipment, and in labor or capital)).)

Respondents allege CGI offers a new argument comparing its labor investments to certain of its other investments. (*Id.*) Respondents argue CGI waived this argument because it necessarily applies with equal force to both the '319 and '336 patents and was not included in CGI's '336 patent Pre-Hearing Briefing. (*Id.* at 42-43 (citing G.R. 11.2).) Respondents next aver CGI's argument is an "apples-and-oranges" comparison and thus not meaningful, for any litigant "can pick a convenient denominator that yields a large percentage." (*Id.* at 43.) Respondents posit that self-serving analysis and attorney argument, absent expert testimony about why the analysis is relevant or any other supporting evidence cited is insufficient evidence to meet CGI's burden. (*Id.* (citing *Lelo*, 786 F. 3d at 883, 885; RX-0227C at Q173-89).)

c. CGI Has Not Proven DI Under Subsection (C)

Respondents argue CGI has not proven its [ ] constituted a "substantial investment" in the exploitation of the '319 patent. (*Id.*) Respondents allege:

> CGI relies on wholly inadequate evidence and over-inflated DI claims. *See* Resp'ts' IPHB at 45-49 (discussing evidentiary failures); *see also* CPX-47C at 9; CX-1255C (Fitzgerald) at Q&A 99-100; RX-230C (Fitzgerald) at 137:16-138:8.
>
> CGI fails to identify its relevant costs, or to allocate those to the DI products. *See* Resp'ts' IPHB at 46-48. *Compare* CPX-47C at 5, 7, *with* CX-1317C at Q&A 189; CX-1256C at Q48; CX-1316 at Q&A 46. In fact, CGI claims exactly the same amount of Subsection (C) investment for the '319 patent as for the '336 patent, even though the patents claim very different technology, and have different DI products. This underscores the error of CGI's failure to allocate.

> CGI overstates its investments in an effort to show substantiality, and ignores the required "market realities" analysis. *See* Resp'ts' IPHB at 48-49.

(*Id.*)

Respondents contend it is important that CGI entirely relies (for its'319 patent DI case) on a single PowerPoint presentation drafted for this Investigation, but where there are two inconsistent versions of the document, each with different claimed engineering hours, key data used by CGI's to base its Subparagraph (C) claims. (*Id.* at 43-44 (citing CPX-0047C at 9; CX-1227C at 9; RX-0230C [Fitzgerald Dep. Tr.] at 191:5-192:6).)

Respondents allege it is fatal that CGI cannot show the nexus between its [ ] and the '319 patent. (*Id.* at 44.) Respondents agree that investments in articles protected by the patent may be considered under subparagraphs (A) and (B), Respondents assert subparagraph (C) includes "an additional requirement that the investment constitutes an exploitation of the asserted patent." (*Id.* (citing *Certain Integrated Circuit Chips*, Inv. No. 337-TA-859, Comm'n Op. at 48 (Aug. 22, 2014); *Certain Wireless Standard Compliant Elec. Devices, Including Comm'cn Devices & Tablet Computs.*, Inv. No. 337-TA-953, Order No. 40 at 12 (Dec. 18, 2015) ("expenditures qualify under subparagraph (C) only if they relate to the specific patent at issue, not to a product containing the patented technology")).)

Respondents assert CGI's claimed 2007-2016 [ ] investments are unrelated to the '319 patent's development, noting the application was filed in 2003 and provisional application filed in 1999. (*Id.* (citing '319 patent).) Rather, Respondents allege the [ ] "focused on completely redesigning our operator technology into new products." (*Id.* (citing CX-1256C [Fitzgibbon WS] at Q38).) Respondents assert the [ ] included developing [ ]" among other things. (*Id.*

(citing CX-1256C at Q39; CPX-0047 at 3; CX-1316C at Q34, 35).) Respondents assert nothing connected these activities to the technology of the '319 patent, and things like MyQ, Wi-Fi, power, and the look or packaging of the product are clearly irrelevant. (*Id.*) Respondents also claim there is no evidence that any of the work performed on the logic board as part of the [ ] is related to the '319 patent. (*Id.*) Respondents further argue that at the most, CGI asserts (without specific proof) that its activities connect to components used to practice the '319 patent, components that relate to a variety of other technologies. (*Id.*)

Respondents claim there is "no evidence that any aspect of the GDO program was directly connected to the particular technology of the '319 patent." (*Id.* at 44-45.) Going further, Respondents assert that if CGI could connect some [ ] work to the '319 patent, Fitzgibbon admitted "there is no way to identify which GDO program hours were spent implementing the features of the patent, and which were not." (*Id.* at 45 (citing RX-0520C at 181:12-182:8).) Without evidence showing how much, if any, of CGI's investment in the [ ] related to the '319 patent, Respondents contend CGI can never show that its investments were quantitatively significant. (*Id.* (citing *Lelo*, 786 F. 3d at 883, 885).)

Respondents close their arguments by asserting the required nexus will not be present just because some products associated with the [ ] may practice the '319 patent. (*Id.*) Instead, Respondents note the claimed R&D and engineering investments must be in exploitation of the patent under (a)(3)(C). (*Id.*) Respondents point out that in *Integrated Circuit Chips*, Comm'n Op. at 38, it was held, "[a]s a matter of statutory construction, an investment in the article is not automatically an investment in the asserted patent. Were it so, it would impermissibly read out of subparagraph (a)(3)(C)." (*Id.* (also citing *Certain Television Sets*, Inv. No. 337-TA-910, 2015 WL 6755093, Comm'n Op. at *36 (Oct. 30, 2015)).)

3. CGI's Reply to Respondents' Contentions

CGI repeats its overarching contention that Respondents have provided no specific rebuttal to its specific domestic industry evidence. (CRPB2 at 15.) Explaining that while Respondents criticize CGI's allocations, Respondents offered no alternative calculation or any explanation of how any such alternative calculation would make a material difference. (*Id.*) CGI also challenges what it calls Respondents' attempt to circumvent the agreed upon page limits by incorporating by reference its arguments for the '336 patent and urges they should be rejected under Ground Rule 15.1. (*Id.*) Accordingly, CGI, elected to reply only to those arguments actually set forth in Respondents' responsive brief for the '319 patent. (*Id.*)

a. CGI's Significant Investment in Plant and Equipment and Labor

CGI alleges Respondents' focus on Mr. Fitzgerald's misunderstanding of the legal term "domestic industry products" in July 2016 (later corrected at his deposition and at the hearing) is not a reason to ignore his testimony regarding the collection of documentary evidence and records for the CGI's domestic industry product SKUs and cost centers at issue. (*Id.* at 16 (citing Hr'g Tr. at 123:3-5; RX-0521C [Fitzgerald Dep. Tr.] at 100:7-12; CX-1255C [Fitzgerald WS] at Q28).) By way of explanation and justification, CGI notes that Mr. Fitzgerald's has personal and substantial knowledge of expenses cataloged in CPX-0044C because of his day-to-day responsibilities at CGI and because of documents created in the normal course of business that confirm CGI does not typically generate reports on a one-to-one correlation with this Investigation. (*Id.* (citing CX-1255C at Q4, 16-27, 31-39).) Further, CGI contends the Record contains ample documentary evidence corroborating Mr. Fitzgerald's knowledge as to CGI's costs and sales and addressing Respondents' criticisms, *e.g.*, Mr. Fitzgerald explained the total revenues in his declaration were corrected for clerical errors in CGI's domestic industry

contentions at his deposition. (*Id.* (citing RX-0521C at 92:5-93:13).) Finally, CGI notes Mr. Fitzgerald's testimony is consistent with other CGI witnesses attesting to CGI's U.S. activities. (*Id.* (citing CX-1316C at Q21-36; CX-1254C [Sorice WS] at Q1-55).)

CGI further justifies it sales based approach by arguing the Commission accepts using sales-based allocations to make reasonable estimates of R&D and service and support investments. (*Id.* (citing *Certain Elec. Devices*, Inv. No. 337-TA-794, ID at 601-604 (Sept. 14, 2012), not reviewed in relevant part (understanding that most people "do not document their daily affairs in contemplation of possible litigation"); CIB2 at 60).) CGI alleges R&D efforts from a prior year result in products sold the next year and "using a sales-based allocation for revenues and R&D work in the same year actually understates the amount of R&D work devoted to a DI product SKU in that year." (*Id.* (citing CIB2 at 53).) While admitting some R&D work results in products sold in Canada, CGI alleges this is irrelevant, where as in this investigation, undisputed testimony explains how such efforts are primarily focused on U.S. products and only secondarily cater to Canadian counterparts with minor modifications. (*Id.* at 16-17 (citing CX-1316C at Q46).) Moreover, CGI asserts its sales figures are based on more than memory, for the [ ] ratio of U.S. sales to Americas sales is supported by the Record. (*Id.* at 17 (citing CPX-0044C; CPX-0046C).) CGI asserts this is also true for the 2013, 2014, and 2015 total Americas sales number, which permits the derivation of total U.S. sales for 2013 and 2014. (*Id.* (citing CPX-0044C).) CGI asserts the derivation of the foregoing sales figures discussed immediately above corroborates Mr. Fitzgerald's testimony and experience as the former Retail Controller for CGI's Americas sales. (*Id.* (citing CX-1255C at Q3, 62, 63).) Moreover, CGI asserts sales trend leading to the filing of the Complaint in July 2016 show and Respondents have demonstrated nothing different. (*Id.*)

CGI asserts Respondents are wrong to suggest the scope of waiver for CGI's significance arguments is equal between the '336 patent and '319 patent. (*Id.*) CGI claims its pre-hearing brief for the '319 patent provides more comparisons that show significance than which it used in its pre-hearing brief for the '336 patent. (*Id.*) Specifically, CGI asserts—the difference is that that it presented additional theories disclosed in its domestic industry contentions for the '319 patent, subject to Order No. 26, which were not the subject of any motion *in limine* by Respondents. (*Id.* (citing CIB2 at 59, 63-64.) Hence, CGI avers Respondents cannot depend upon their '336 patent arguments here to dispute significance. (*Id.*) CGI reiterates one of its overarching points by arguing Respondents have offered no alternative calculation or comparison of their own to rebut any conclusion its investments are significant. (*Id.*) Continuing, CGI reiterates that Respondents have not disputed that "CGI's facilities, equipment, and labor investments are critical to enabling CGI's U.S. R&D and service and support activities relating to the protected articles." (*Id.*)

CGI next argues Respondents have not disputed "that CGI's employment of U.S. labor is crucial to developing and launching CGI's protected articles; nor do they dispute the fact that CGI in one year invested more than six times in U.S. labor than what TTi spent to develop (and outsource) the accused products over multiple years. (*Id.* at 17-18 (citing RX-0227C [Green WS] at Q92; CIB2 at 60-61).) CGI also alleges that Mr. Hansen, who also considered the evidence, found CGI's investments were significant and Respondents chose not to question him on this conclusion. (*Id.* (citing CX-1253C [Hansen WS] at Q27, 34, 35, 38, 39, 71-89, 91, 92, 116-21, 179-202, 269-71; CX-1169C; CX-1180C; CX-1213C; CX-1161).)

b. Substantial Exploitation of the '319 Patent

As an initial matter, CGI asserts Respondents do not dispute a [ ] million domestic investment in R&D by CGI is substantial under subsection 337(a)(3)(C). (*Id.* at 18.) Rather,

CGI asserts, Respondents' base their arguments upon faulty characterizations of the facts and incorrect analysis of law. (*Id.*)

CGI asserts Respondents' attack on its evidence rests on how information about engineering hours and labor costs were gathered from the [ ] databases and produced in summary form in this Investigation. (*Id.*) CGI alleges Respondents offer no evidence to support their allegation of "wholly inadequate evidence" or "over-inflated DI claims." (*Id.*)

According to CGI, Respondents identify no precedent requiring a product-based allocation of CGI's R&D efforts exploiting the '319 patent. (*Id.* (citing Order No. 24 at 3, n.1 (noting presentation of [ ] projects "implied they were being discussed under 1337(a)(3)(C) and would be accompanied by an explanation of their nexus to the asserted patents (obviating the need for any product-based allocation")).) CGI avers Respondents' observation that the claimed investment for exploiting the '319 patent is the same as that for the '336 patent is consistent with Commission precedent, which does not require patent by patent allocation. (*Id.*) Continuing, CGI asserts Respondent's assertion is consistent with the deposition testimony of Mr. Fitzgibbon (cited by Respondents), that explained that implementation of patented features is "threaded through" the engineering labor. (*Id.* (citing CIB2 at 67; RX-0520C [Fitzgibbon Dep. Tr.] at 181:21-182:5).) CGI notes the only live testimony at the hearing on domestic industry was under subsection (C) when Mr. Fitzgibbon took the stand and where Respondents chose not to question Mr. Fitzgibbon on this issue. (*Id.* at 18-19.) Instead, CGI asserts Respondents' cross-examination only confirmed Mr. Fitzgibbon's testimony, since it established the '319 patent involved work on at least the microcontroller, wall console, head unit, and communication protocol. (*Id.* at 19 (citing Hr'g Tr. at 795:2-7).)

Although alleging market realities should be used to establish quantitative substantiality, CGI alleges Respondents offered no reason why such realities would show anything other than a substantial R&D investment in the '319 patent based upon the sums it proved. (*Id.*) Similarly, CGI claims Respondents provided no analysis why a slight change in total hours in the [ ] summaries (CPX-0047C and CX-1227C) matters. (*Id.*) CGI notes that the difference between the two summaries is approximately [ ] hours and if [ ] for labor is used as an estimate, there is less than [ ] of a discrepancy, which is irrelevant to the significance of CGI's more than [ ] million investment in this program. (*Id.* (citing CIB2 at 66).)

CGI also disputes Respondents' suggestion that its R&D activities must be those that led to the filing of the '319 patent in 1999. (*Id.*) CGI claims such an argument is contrary to Commission precedent, which recognizes continued R&D activities exploiting the patented technology, including their incorporation into newer, improved products, satisfy subsection (C). (*Id.* (citing *Certain Television Sets*, Inv. No. 337-TA-910, Comm'n Op. at 69 & n.82 (Oct. 30, 2015) ("Unlike *Toy Vehicles*, [complainant] here did not move on to newer or improved products.")).) CGI next claims that Respondents have contradicted their claim that "[n]othing ties [the [ ] activities to the technology of the '319 patent" by acknowledging [ ] "develop[ed] new logic boards" and "add[ed] MyQ and Wi-Fi" since both of these developments used the data communications method used between the wall console and head unit invented by the '319 patent. (*Id.*) CGI also alleges Respondents failed to acknowledge the testimony of Mr. Fitzgibbon, a named inventor, who describes the relationship between the [ ] and the '319 patent. (*Id.* at 19-20 (citing CX-1316C [Fitzgibbon WS] at Q44, 45).) Accordingly, CGI contends Respondents have offered no basis to rebut the nexus existing between the [ ] and the '319 patent,

especially since the[ ] created more than thirty-six of the protected articles here. (*Id.* at 20.)

E. Analysis for the '319 Patent

1. Findings of General Applicability

Much of the arguments made by both parties pertaining to DI are similar or even shared between the '336 and '319 patents. Accordingly, I will not repeat my general comments of General Applicability from the '336, which pertain equally to the '319 patent.

2. Qualitative Significance

I find, as alleged by CGI and not more than cursorily challenged by Respondents, that CGI's U.S. activities, including R&D and customer support, are critical to the viability of its many DI products practicing the '319 patent in the market place, which also includes many more DI products than the '336 patent. (*See* CIB2 at 52-53.)[22] I am also persuaded by: (1) CGI's proof that its U.S. sales of the '319 DI products have [ ] steadily and significantly since 2013 (Table 1) while its engineer headcount at Elmhurst has also been increasing (Table 3); (2) a steady and significant increase in '319 patent DI labor expenses at Elmhurst (Table 9); and (3) with similar increases in headcount and manpower costs at its Tucson facility during the same time period (Tables 6 and 10). (CIB1 at 52-62.) Taken together, this evidence establishes a direct correlation between CGI's sales and its employment of manpower and other resources and is thus strong evidence of the criticality of these efforts. Hence, I find qualitative significance.

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[22] All Table references under this section discussing DI in the context of the '319 patent are found in CIB2.

3. Quantitative Significance Under (A) and (B)

I am not persuaded CGI has established quantitative significance under (A). Simply put, while CGI can prove, at the best, that it expended approximately [ ] million in eligible costs[23] (CGI's allegation, *see* Tables 2, 4, 5, 7, and 8) in arguably eligible costs at Elmhurst and Tucson, I am unaware of any credible evidence of any kind in the Record sufficient to establish these costs are quantitatively substantial to CGI on the basis of its approximately [ ] million in sales of U.S. DI products (Table 1 – sum of 2013 through the first half of 2016) during the same time period. In fact, these costs are less than [ ] of CGI's sales during the relevant time period. However, I find that since CGI has elected to rely on sales based costs and allocations as the basis of its establishment of DI, as it claims throughout its briefing (and as summarized herein), then this is a consequence CGI must accept.

Unlike quantitative significance under (A) I find CGI, as it has alleged, has established quantitative significance by the preponderance of the evidence under (B). CGI has proven that it spent [ ] in allocable labor costs between 2013 and 2015 for both Elmhurst and TSC (Tables 1, 9, and 10) Most of this [ ] in labor costs are engineering R&D costs CGI incurred in support of the DI products[24] (engineers typically represent [ ] or more of all of CGIs Elmhurst labor effort (Table 3)). In total, the Elmhurst costs equal [ ] and by themselves represent a quantitatively significant employment of labor over just a three year span by any standard.

Adding the TSC labor costs of [ ] established by CGI (Tables 2 and 10) to the total Elmhurst labor costs CGI established are related to the DI products, would increase the

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[23] I recognize that CGI has sales figures from 2013 through the first half of 2016, but that the capital costs do not include 2013. I have, therefore, only used DI sales for an equivalent period.

[24] Products practicing the '319 patent.

significance of CGI's allegedly DI related labor costs to the already mentioned [ ] Since the [ ] amount is quantitatively larger than the Elmhurst labor costs I have already found to be significant, this amount only buttresses CGI's allegation.

Moreover, after fully considering Respondents allegations (RRSB2 at 39-43) I find no evidence in the Record sufficient to rebut the credible evidence CGI put forth to establish the significance of its employment of labor for the DI products protected by the '319 patent. In fact, I find Respondents' arguments to be particularly unpersuasive in view of the Record and CGI's generally correct application of applicable precedent.

4. Substantial Exploitation under (C)

As with its arguments concerning the '336 patent, the core of CGI's allegations to sustain is substantial exploitation case of the '319 patent under subsection (C) is the work (engineering hours, capital expenses, and non-labor expenses) accomplished on the [ ] (CIB2 at 64.) As already explained in this decision, CGI claims the relevancy of the [ ] is that it is its largest effort to exploit the '319 patent and that it resulted in a large number of separate product launches over the past few years and that a significant number of the products are DI products. (*Id.* at 65.) Also as discussed in this decision, Respondents allege CGI did not prove its case because CGI: (1) relied upon inadequate and unreliable evidence and (2) cannot establish nexus (exploitation). (RRSB2 at 43-44.)

The investment effort claimed by CGI and at issue under subsection (C) for the '319 patent, consists of more than [ ] engineering hours for an estimated labor cost of [ ] (Table 12 of CIB2 at 66) and an estimated [ ] million in capital and non-labor expenses incurred by CGI in its [ ] between January 2007 through the filing of the Complaint. (CIB2 at 64.)

According to Mr. Fitzgibbon, a named '319 inventor, the [ ] implemented an improved form of data communication between the wall console and the motor drive unit, or the head unit, that incorporates and uses the '319 patented technology into CGI's products. Based on these facts CGI convincingly argued the [ ] necessarily required designing and developing microcontroller based logic board assemblies in the motor drive unit of the protected GDOs and RJOs and in the wall control consoles. (CIB2 at 65 (citing CX-1316C [Fitzgibbon WS] at 44-45; CDX-0012.6C).)

As CGI convincingly argues, there is little doubt the [ ] million in domestic investment exploitation costs it has identified (labor and capital) is substantial, because Respondents do not argue it is not substantial. (CRPB2 at 18; *see* RRSB2 at 43-44.) Regardless of whether Respondents dispute substantiality or not, I do find that the approximately [ ] million identified by CGI as domestic investment is undoubtedly substantial under any standard or test. Hence, the only matter that remains is the issue of exploitation or nexus.

I also note that I find CGI's evidence to be probative and reliable. For example, and contrary to Respondents' position, I find it proper for CGI to have gathered its costs from [ ] [ ] databases and produced in summary form. (CRSB2 at 18.) I note if there was something unreliable about CGI's gathering of cost data that Respondents had ample opportunity to present credible evidence challenging CGI's documents or methodology. Since Respondents chose not to present any kind of credible evidentiary rebuttal, I give their complaint no weight. Moreover, rhetorically speaking, it is sensible to ask what else could CGI have done?

Another issue is Respondents' claim that CGI did not consider market realities. Other than to voice a complaint, I find Respondents have done nothing substantive to further their

argument. (*See* CSRB2 at 19.) Moreover, given the large dollar value of CGI's investments, such a complaint must carry little weight.

One issue that is readily apparent to me and that Respondents have obviously chosen to ignore is the broad nature of the '319 patent. Just as I have found the breadth of the '319 patent claims makes it easy to infringe, I also hold it is easier for CGI to establish exploitation. More specifically, independent claims 1 and 9 simply require microcontrollers [or controllers] in a garage door opener's "motor drive unit" and wall console, with digital communication between them. (*See* '319 patent at claims 1, 9.) Thus, effort spent developing microcontrollers that reside in either the head unit or the wall console and developed as part of the [ ] more likely than not have the required nexus to the patent.

CGI tellingly reiterates and establishes that the [ ] work included developing [ ] and added MyQ and Wi-Fi (both of which used the data communication between the wall console and the head unit invented in the '319 patent). (CRPB2 at 19.) Interestingly, as I noted in finding no nexus for the '336 patent, Respondents correctly asserted, based upon the testimony of a CGI witness (Fitzgibbon), that the [ ] focused on [

]. (RRSB1 at 46 (citing excerpts from CX-1256C; CPX-0047 at 3; Hr'g Tr. at 97:8-100:6).) For the reason that Mr. Fitzgibbon has reasonably and convincingly described the strong relationship between the [ ] and the '319 patent, I find CGI has met its burden of proof to establish the nexus between the [ ] Program and the '319 patent. I also find Respondents have offered no credible rebuttal to CGI's proof of Record that [ ] constitutes exploitation of the '319 patent.

Based upon the evidence in the Record, I find CGI's estimated allocation of labor costs of [ ]constitutes a substantial exploitation of the '319 patent under any test and thus constitutes domestic industry as anticipated by subsection (C). (CIB2 at 66.) I also find CGI's estimated allocation of capital and non-labor costs of [ ] million constitutes a substantial exploitation of the '319 patent. When combined, as CGI alleges they should be and with which I agree, I find CGI invested approximately [ ] in allocable investment costs to exploit the '319 patent and I hold this amount to be a very substantial exploitation of the '319 patent, which constitutes domestic industry as required by subsection (C). (*Id.*)

VII. CONCLUSIONS OF LAW

1. The Commission has personal jurisdiction over the parties and subject-matter jurisdiction over the accused products.

2. The importation or sale requirement of Section 337 is satisfied.

3. CGI's '336 Domestic Industry Products practice claims 12, 14, 15, 19, and 34 of U.S. Patent No. 7,339,336.

4. The domestic industry requirement is satisfied with respect to the '336 patent.

5. Respondents do not directly infringe claim 34 of the '336 patent.

6. Respondents do not indirectly infringe claim 34 of the '336 patent.

7. Claims 15, 19, and 34 of the '336 patent have been shown to be invalid under 35 U.S.C. § 101.

8. Claim 15 of the '336 patent has been shown to be invalid under 35 U.S.C. § 102.

9. Claims 12, 14, and 19 of the '336 patent have not been shown to be invalid under 35 U.S.C. § 102.

10. Claim 34 of the '336 patent has not been shown to be invalid under 35 U.S.C. § 103.

11. There is no violation of Section 337 with respect to the '336 patent.

12. CGI's '319 Domestic Industry Products practice claims 1-4, 7-12, 15, and 16 of U.S. Patent No. 7,161,319.

13. The domestic industry requirement is satisfied with respect to the '319 patent.

14. Respondents directly infringe claims 1-4, 7-12, 15 and 16 of the '319 patent.

15. Respondents indirectly infringe claims 1-4, 7-12, 15 and 16 of the '319 patent.

16. Claims 1-4, 7-12, 15 and 16 have not been shown to be invalid under 35 U.S.C. § 103.

17. There is a violation of Section 337 with respect to the '319 patent.

VIII. INITIAL DETERMINATION AND ORDER

Based on the foregoing,[25] it is my Initial Determination that there is a violation of Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain access control systems and components thereof, in connection with the asserted claims of U.S. Patent No. 7,161,319.

Furthermore, it is my determination that a domestic industry in the United States exists that practices or exploits each of the asserted patents.

The undersigned hereby CERTIFIES to the Commission this Initial Determination, together with the Record of the hearing in this investigation consisting of the following: the transcript of the evidentiary hearing, with appropriate corrections as may hereafter be ordered; and the exhibits accepted into evidence in this investigation as listed in the appendices hereto.[26]

Pursuant to 19 C.F.R. § 210.42(h), this Initial Determination shall become the determination of the Commission unless a party files a petition for review pursuant to 19 C.F.R. § 210.43(a) or the Commission, pursuant to 19 C.F.R. § 210.44, orders on its own motion a review of the Initial Determination or certain issues therein.

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[25] The failure to discuss any matter raised by the parties or any portion of the Record herein does not indicate that said matter was not considered. Rather, any such matter(s) or portion(s) of the Record has/have been determined to be irrelevant, immaterial or meritless. Arguments made on brief which were otherwise unsupported by Record evidence or legal precedent have been accorded no weight.

[26] The pleadings of the parties filed with the Secretary need not be certified as they are already in the Commission's possession in accordance with Commission rules.

Confidentiality Notice:

This Initial Determination is being issued as confidential, and a public version will be issued pursuant to Commission Rule 210.5(f). Within seven (7) days of the date of this Initial Determination, the parties shall jointly submit: (1) a proposed public version of this opinion with any proposed redactions bracketed in red; and (2) a written justification for any proposed redactions specifically explaining why the piece of information sought to be redacted is confidential and why disclosure of the information would be likely to cause substantial harm or likely to have the effect of impairing the Commission's ability to obtain such information as is necessary to perform its statutory functions.[27]

SO ORDERED.

Thomas B. Pender
Administrative Law Judge

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[27] Under Commission Rules 210.5 and 201.6(a), confidential business information includes:

> information which concerns or relates to the trade secrets, processes, operations, style of works, or apparatus, or to the production, sales, shipments, purchases, transfers, identification of customers, inventories, or amount or source of any income, profits, losses, or expenditures of any person, firm, partnership, corporation, or other organization, or other information of commercial value, the disclosure of which is likely to have the effect of either impairing the Commission's ability to obtain such information as is necessary to perform its statutory functions, or causing substantial harm to the competitive position of the person, firm, partnership, corporation, or other organization from which the information was obtained, unless the Commission is required by law to disclose such information.

See 19 C.F.R. § 201.6(a). Thus, to constitute confidential business information the disclosure of the information sought to be designated confidential must ***likely have the effect of*** either: (1) impairing the Commission's ability to obtain such information as is necessary to perform its statutory functions; or (2) ***causing substantial harm*** to the competitive position of the person, firm, partnership, corporation, or other organization from which the information was obtained.

IN THE MATTER OF CERTAIN ACCESS CONTROL SYSTEMS AND COMPONENTS THEREOF

337-TA-1016

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **PUBLIC INITIAL DETERMINATION** has been served upon the following parties via first class mail and air mail where necessary on

NOV 21 2017

Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street SW, Room 112A
Washington, DC 20436

FOR COMPLAINANT THE CHAMBERLAIN GROUP, INC.	
Joseph V. Colaianni Jr., Esq. **FISH & RICHARDSON P.C.** The McPherson Building 901 15th Street N.W., 7th Floor Washington, DC 20005	( ) Via Hand Delivery (X) Express Delivery ( ) Via First Class Mail ( ) Other: _____
FOR RESPONDENTS TECHTRONIC INDUSTRIES CO. LTD., TECHTRONIC INDUSTRIES NORTH AMERICA, INC., ONE WORLD TECHNOLOGIES INC., OWT INDUSTRIES INC., RYOBI TECHNOLOGIES, INC. & ET TECHNOLOGY (WUXI) CO., LTD.	
Eric S. Namrow, Esq. **MORGAN, LEWIS & BOCKIUS LLP** 1111 Pennsylvania Avenue, N.W. Washington, DC 20004	( ) Via Hand Delivery (X) Express Delivery ( ) Via First Class Mail ( ) Other: _____