

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

In the Matter of

**CERTAIN OUTDOOR AND SEMI-
OUTDOOR ELECTRONIC DISPLAYS,
PRODUCTS CONTAINING SAME,
AND COMPONENTS THEREOF**

Inv. No. 337-TA-1331

**COMPLAINANT MRI'S RESPONSE IN OPPOSITION TO
RESPONDENTS' CONTINGENT PETITION FOR REVIEW OF THE
FINAL INITIAL DETERMINATION FINDING NO VIOLATION**

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TABLE OF ABBREVIATIONS

Abbreviation	Description
'595 Patent	U.S. Patent No. 8,845,595
'322 Patent	U.S. Patent No. 9,173,322
'287 Patent	U.S. Patent No. 9,629,287
'740 Patent	U.S. Patent No. 10,506,740
'142 Patent	U.S. Patent No. 11,013,142
Accused Products	Collectively, the Large-Sized Products and Mid-Sized Products
Asserted Patents	Collectively, the '595, '322, '287, '740, and '142 Patents
Asserted Claims	Collectively, claims 1, 4, 7, and 8 of the '595 Patent; claims 4, 5, 8, 9, 12, and 13 of the '322 Patent, claim 12 of the '287 Patent, claims 1 and 5 of the '740 Patent, and claims 6 and 10 of the '142 Patent
CAD	Computer-aided design
Complainant	Manufacturing Resources International, Inc.
CPet	Complainant's Petition for Review of the Final Initial Determination on Violation of Section 337, EDIS Doc. ID 809332 (Nov. 27, 2023)
CIPostHB	Complainant's Initial Post-Hearing Brief, EDIS Doc. ID 800734 (July 21, 2023)
ID	Final Initial Determination on Violation of Section 337, EDIS Doc, ID 808443 (November 13, 2023)
Karpannen	International Patent Application Publication WO 2007/116116
Kim	U.S. Patent No. 7,800,706
Large-Sized Products	OH75F, OH85F, OH85N, OH85N-D, OH85N-S, OH75A
Mid-Sized Products	OH46F, OH55F, OH55A, OH55A-S, OH46B
MRI	Manufacturing Resources International, Inc.
USPTO	United States Patent and Trademark Office
Respondents	Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung SDS America, Inc., Industrial Enclosures Corporation d/b/a Palmer Digital Group, and Coates US Inc
RPet	Respondents' Contingent Petition for Review of the Final Initial Determination Finding No Violation (Nov. 27, 2023)
Takeuchi	U.S. Patent Application Publication No. 2003/0043091
Tr.	June 26-30, 2023 Hearing Transcript

I. INTRODUCTION

Pursuant to Commission Rule 210.43(c), Complainant Manufacturing Resources International, Inc. (“MRI”) submits this response to Respondents’ Contingent Petition for Review of the Initial Determination.

The November 13, 2023 Initial Determination (“ID”) held for MRI on the majority of the disputed issues, including that Respondents infringe four of the five asserted patents. MRI petitioned for review of the limited errors made in the ID and review of those determinations is needed for the reasons set forth in MRI’s Petition. Respondents’ Petition, by contrast, simply seeks to re-litigate issues on which Respondents lost. With no real defense against the infringement findings, Respondents filed their “contingent” Petition in an apparent attempt to muddy the waters by repeating spurious allegations about MRI’s founder that the ALJ rightly rejected, and effectively arguing no more than that they disagree with the ID’s findings.

Respondents appear to misapprehend the purpose and scope of requests for Commission review of the ID. Commission review is only appropriate if Respondents show that the ID made an error in a legal finding, a clear error in a factual finding, or that the determination affects Commission policy. 19 C.F.R. § 210.43(b)(1). Respondents’ Petition fails to make, or frankly even attempt to make, the required showing. Throughout Respondents’ Petition, there are few mentions of the ID’s findings and even fewer allegations of legal error or clearly erroneous findings of fact. Instead, Respondents essentially argue that if the Commission considers overturning any findings on issues raised by MRI, that Respondents also should get a second bite at the apple to prove issues it lost. This is improper and not the purpose of Commission review. Without the required identification of error, the Commission should deny review of all issues identified by Respondents.

With no meaningful attempt to show legal or clear error, Respondents claim that review is needed to ensure that claims are interpreted consistently. Yet Respondents' positions on issues of infringement and validity are the ones that are fundamentally inconsistent. MRI fully agrees that internal consistency and consistency with the intrinsic record of the asserted patents is required, which is why review of the issues raised by MRI—not those raised by Respondents—is needed. And contrary to Respondents' representations, a reversal on *any one of the issues in MRI's Petition* would result in a finding of violation.

Even if the Commission determines to review one or more issues raised by Respondents, the ID's findings on those issues were legally correct, were supported by substantial evidence, and should not be disturbed. First, Respondents seek review of the ID's denial of Respondents' improper inventorship and inequitable conduct claims. The ID properly relied on multiple pieces of evidence showing that William Dunn, the named inventor on all of the Asserted Patents, invented the subject matter of the Asserted Patents by November 2007 at the latest. Prior to his invention, multiple entities had attempted to create an effective cooling system for outdoor electronic displays, including LCD displays, but had not been successful. While on a trip to Korea, Mr. Dunn conceived of a cooling system that only required two airflow pathways created by fans and did not rely on expensive and faulty air conditioning units. In November 2007, Mr. Dunn sent an email to his patent counsel describing the idea and later had a CAD file (three dimensional drawing) created illustrating his inventive concept. In January 2008, Mr. Dunn additionally sent a proposal to one of its clients describing the idea.

Despite this overwhelming evidence, Respondents insist Mr. Dunn stole the idea from individuals he met in December 2007—*after* he conceived of the idea, *after* he sent his lawyer a letter regarding the new idea, and *after* he had a CAD rendering created of that idea.

Respondents' lengthy recitation of facts is conspicuously incomplete and one-sided, omitting key corroborating evidence such as the January 2008 proposal to MRI's clients and the fact that Mr. Bolton—one of the alleged inventors—said he did not invent the subject matter of the Asserted Patents. At its core, Respondents argument identifies only a single allegedly erroneous finding—the ID's ultimate “decision on the inventorship question.” RPet at 37. Respondents do not identify any other clearly erroneous factual finding or conclusion. Nor do Respondents allege that the ID was in any way legally erroneous.

Respondents attempt to claim that the ID erred by finding that an email from Mr. Dunn to his patent counsel and the “new file from bill” CAD—describing the invention prior to the date when he worked with Bolton and Vertigo—are insufficient evidence that Mr. Dunn did not steal the inventions of the Asserted Patents. Not only does this claim flip the burden of proof on its head—*Respondents bear the burden* to prove improper inventorship by clear and convincing evidence—but it also ignores the law and facts presented at the hearing and should be rejected.

Second, Respondents argue that if the Commission reviews the ID's (clearly erroneous) finding that claim 1 of the '595 Patent is invalid, it should also review the findings that Respondents infringe this claim. Respondents' Petition is contingent upon the Commission applying a *new* claim construction. No party, however, has requested a new claim construction or argued that the ID applied an incorrect construction. Instead, MRI petitioned to have the *same* claim construction the ALJ used to assess infringement also be used to assess invalidity, leaving claim construction unchanged. Review by the Commission to apply the same construction to validity as was applied to infringement does not necessitate review of the infringement finding.

Third, Respondents ask that if the Commission reviews the ID's finding that claim 12 of the '287 Patent is not infringed, it should also review the ID's finding that claim 12 is not

invalid. Respondents concede that they “do not affirmatively challenge” the ALJ’s conclusions regarding the Karppanen reference and thus concede that the ID is not erroneous. MRI has shown that a construction of the claim language in a manner faithful to the intrinsic record of the ’287 Patent requires finding that the accused Mid-Sized Products have an open loop “along the backlight,” and thus infringe. Under same construction, Karppanen does not have an open loop “along the backlight.” Because Respondents agree that the ID’s validity determination was correct, the Commission only needs to review the non-infringement finding and need not review the validity of claim 12.

Fourth, Respondents ask that if the Commission reviews the ID’s finding that Mid-Sized Products do not infringe claims 9, 12, or 13 of the ’322 Patent based on the [REDACTED], then it should also review Respondents’ additional non-infringement bases for those claims. MRI does not oppose review of the *full set* of infringement findings for Claims 9, 12, and 13 of the ’322 Patent not limited to the presence of the [REDACTED]. If the Commission chooses to review any issues of infringement, the Commission should also, as a matter of judicial efficiency, review the erroneous finding that these claims lack written description support to make a full assessment of whether Respondents committed a Section 337 violation as to those claims when they are properly construed.

Fifth, Respondents argue that if the Commission reviews the ID’s finding that claims 4 and 7 of the ’595 Patent or claims 4 and 5 of the ’322 Patent are invalid, then it should also review the ID’s finding that the Large-Sized Products infringe those claims. Respondents’ requested review would serve little purpose, as Respondents never disputed that its products contained the key elements of these claims and should accordingly be rejected.

Finally, Respondents argue that if the Commission reviews the ID’s finding that claims 4

and 7 of the '595 Patent are invalid, then it should also review the ID's finding that the Large-Sized Products infringe those claims. Respondents claim that the ID's finding that the Large-Sized Products have a metal core printed circuit board and thus infringe is erroneous. There would be little point to review on this issue as Respondents do not dispute the ID's findings based on evidence of record including fact and expert testimony from witnesses for both MRI and Respondents. Without challenging the ID's reliance on this evidence, review is not warranted.

II. REVIEW OF THE ISSUES RAISED BY RESPONDENTS IS NOT WARRANTED.

A. The ID Correctly Found that Bill Dunn Invented the Claimed Inventions and Rejected Respondents' Inventorship and Inequitable Conduct Allegations.

Respondents spend half of their Petition attempting to resuscitate their inventorship and inequitable conduct allegations that were front-and-center at the oral hearing and were squarely rejected in the ID. The ALJ heard the evidence, observed the witnesses, evaluated their credibility, and correctly concluded that MRI's patents are not invalid for improper inventorship and are not unenforceable due to inequitable conduct.

To prevail, Respondents must prove (1) that the ID's underlying factual findings were clearly erroneous, (2) that the ID's legal conclusions regarding inventorship and inequitable conduct were erroneous, and (3) that there is clear and convincing evidence that Mr. Dunn is not the correct inventor and committed inequitable conduct. This is an exceedingly high burden, which Respondents do not come close to carrying. In fact, they do not even attempt to claim that a single factual finding on this issue was clearly erroneous. Rather, they simply state that the initial determination "misapprehended or did not address key facts." RPet at 14. Respondents' failure to even allege—much less prove—that the ID made clearly erroneous factual findings is dispositive, and for this independent reason, their petition should be rejected. *See* 19 C.F.R. §

210.43(b)(1); *Certain LED Lighting Devices, LED Power Supplies, & Components Thereof*, No. 337-TA-1081, 2018 WL 6258588, at *2 (Nov. 28, 2018) (“The Commission denies respondents’ petition because it fails to specify a valid ground for review pursuant to Commission Rule 210.43(b)(1).”).

And as explained further herein, Respondents are also unable to show that the ID erred in rejecting their inventorship and inequitable conduct affirmative defenses. To the contrary, the evidence affirmatively confirms that Mr. Dunn is the correct inventor.

1. Mr. Dunn had a long history of innovation in LCD technologies.

Mr. Dunn is a true American innovator and pioneer in the field of digital outdoor displays. He has spent the last 40 years adapting liquid crystal display (“LCD”) technology for use in a wide variety of environments.

In 1991, Mr. Dunn founded Avionic Displays Corporation (“ADC”) to develop LCD panels for use with electronic flight guidance instrumentation in military aircraft. Tr. (Dunn) at 44:17-21. These displays were engineered to survive in the harshest environments in the world, including temperature extremes, shock, explosive decompression, and other realities of military applications. *Id.* at 44:22-45:7. In 1998, Mr. Dunn founded American Panel Corporation (“APC”), which began as a display module supplier for the military and commercial aviation industries. *Id.* at 45:24-46:14. Before the early 2000s, the use of LCDs was limited to small displays in personal computing devices working “in an air-conditioned environment, typically.” Tr. (Credelle) at 1188:1-10. Thermal load for these small, indoor LCD screens (such as monitors, TVs, and laptops) came predominantly from the electronic components that powered the computer and display. *Id.* at 1188:5-10.

By the early 2000s, larger LCDs of 32-inches and above began to appear in the market,

but those larger display screens faced new thermal challenges. Tr. (Credelle) at 1188:1-10, 1187:20-1189:4. The larger size of the display and its backlight generated additional thermal load on the system. *Id.* And when placed in outdoor environments, screens of this size would overheat due to the increased heat generated from the screen and the additional solar thermal load. *Id.* at 1229:20-1230:11.

At the time of the invention, other entities had tried to solve the problem of cooling electronic displays, but their solutions were inadequate. Customers were requesting outdoor electronic displays that could function without damage outdoors. Tr. (Pokharna) at 1230:20-1231:15; Tr. (Credelle) at 1187:11-19. In response, manufacturers attempted to design systems that would be durable enough to maintain a clear image after extended periods of time outdoors.

Samsung itself referred to outdoor electronic displays as a “challenging target” that required an “advanced thermal scheme.” JX-0206C.00010-11; Tr. (Pokharna) at 1233:19-21. Despite [REDACTED] at the time of the invention and filing patents on cooling systems for LCD modules, Samsung attempted to make its own outdoor displays but failed. Samsung began researching development of outdoor LCD displays around [REDACTED]. CX-1917C (Sung Ki Kim Dep. Tr.), at 45:22-46:11. At that time there was no successful outdoor display product on the market. *Id.* at 46:12-17. Samsung itself did not begin producing a working outdoor electronic display product until [REDACTED]. *Id.* at 46:16-21. That display made use of an air-conditioning unit to cool the display. *Id.* at 47:17-20. Samsung’s [REDACTED] between beginning research and launching an outdoor display product illustrates the difficulty of the problems solved by the Asserted Patents. Tr. (Credelle) at 1189:18-1190:12.

2. Mr. Dunn conceived of the invention by November 2007.

This was the state of the art when Mr. Dunn formed MRI in 2004. Tr. (Dunn) at 47:18-48:11, 52:8-53:4. Having enjoyed success in the avionics display market, Mr. Dunn began to explore the outdoor signage business. Tr. (Dunn) at 47:1-14. Through the fall of 2007, APC and MRI designed, developed, and sold various outdoor LCD displays. The first outdoor products included 26-inch and 32-inch gasoline pump-top products, as well as larger 47-inch car wash display units. Tr. (Dunn) at 47:3-14, 54:13-63:9; Tr. (Williams) at 169:18-24; CX-1907C (Bedell Dep. Tr.), at 35:9-41:4. These displays were deployed in Ontario, Canada, where they faced brutally cold winters and hot, humid summers. Tr. (Dunn) at 54:16-55:17. To be visible outdoors during daylight hours, these units were two- to three-times brighter than a typical indoor monitor, which required significantly more powerful—and hotter—backlighting. Tr. (Dunn) at 55:18-56:12. These units were cooled by a combination of heat sinks and open loop (ambient) air, and they performed well. Tr. (Dunn) at 56:13-58:6. Because the pump-top displays were situated under shelters, they were not exposed to direct sunlight.

a. Mr. Dunn's work leading up to conception.

But the 47-inch units created additional issues that were not present in the pump-top displays. In particular, when exposed to direct sunlight, the LCD fluid in the units would overheat and turn black, thus rendering the image unviewable. Tr. (Dunn) at 58:17-59:6. Over the following months, Mr. Dunn tried several methods to alleviate this issue. First, he attempted to fashion a visor or bill to shade the display from the sunlight, but that only worked until the sun descended lower on the horizon. *Id.* at 59:7-18. He also added “side wings” to block the sun from the sides and an “air curtain” to blow exhaust air over the front of the display, but that still did not solve the problem. *Id.* at 59:19-60:9. Relentless in his pursuit of a solution, Mr. Dunn next

developed a liquid cooling system that was a success from a thermal and optical standpoint but ran into practical and environmental issues due to the weight and pressure from the fluid. *Id.* at 62:7-63:9. Ultimately, each of these solutions failed.

Having spent months wrestling with these challenges, in the fall of 2007, Mr. Dunn had a eureka moment and came to the realization that “we can solve all of those static pressure issues, bowing issues, cracking issues, toxic chemical issues, by replacing the liquid coolant with air and having that closed loop of air we then cooled with the intercooler—with the open loop air.” *Id.* at 63:10-64:3. He telephoned his patent attorney about this idea, and on November 27, 2007 followed up with an email explaining his invention. *Id.*; JX-0315C.

Building on what he learned in developing these early products, in the fall of 2007 Mr. Dunn conceived of the idea to use a constricted convection plate to extract heat from the backlight. Tr. (Dunn) at 63:10-64:3. Mr. Dunn also told Mr. David Williams (then an MRI employee, and currently on the board of directors) of this idea no later than mid-December 2007. Tr. (Williams) at 172:3-24.

As the ID recognized, there are multiple pieces of evidence that corroborate Mr. Dunn’s invention story: the testimony of Mr. Williams, the November 27, 2007 email to prosecution counsel (JX-0315C), the “new file from bill” CAD file (CDX-0003C), and the [REDACTED] [REDACTED] (CX-1118C). *See* ID at 307-08.

b. The November 27, 2007 email corroborates Mr. Dunn’s conception.

In the November 27, 2007 email to his prosecution counsel, Mr. Dunn described “another cooling scheme” he wanted to patent that he referred to as “the ‘air-to-air’ intercooler”:

From: Bill Dunn [mailto:bdunn@mri-inc.net]
Sent: Tuesday, November 27, 2007 9:50 AM
To: 'Mark Engle'
Cc: 'Jeff Standley'; 'Emily Shultz'
Subject: RE: Fluid Cooled Display Application - Draft 2

Mark,

Dan will be getting back to you on this shortly. In the mean time, we have come up with another cooling scheme that I want to patent as well. This one I call the "air-to-air" intercooler. This is another one of my hair-brained ideas that came to me while asleep in Korea a few weeks back. The idea is to have a closed loop air circulation over the face of the display, and then cool this closed loop with outside air. The reason for the closed loop air stream is to have "clean air" over the display, and then use cooler, but potentially "dirty" air from outside to cool the "clean air". This scheme still utilizes the "air curtain" to aid in the cooling as well. Please see the attached e-drawing, and feel free to call with any questions. We are moving out to build a prototype of this configuration now. The reason for proceeding with this scheme versus the liquid cooled scheme is as follows:

1. Less expensive to fabricate
2. Eliminates the use of potentially hazardous fluids
3. Less on going maintenance (i.e., no fluid filters, no concern for corrosion of coolant lines, radiators, tanks, etc.). No coolant to periodically replace. No concerns with fluid leaks or fluid freezing under cold conditions
4. Provides the ability to clean the front of the display if contaminants should enter the system (very, very difficult with the liquid cooled scheme)

CDX-0001.00008 (JX-0315C.00002); Tr. (Dunn) at 63:10-64:3.

As the ID recognized, this email supports Mr. Dunn's testimony regarding his conception and subsequent phone call to prosecution counsel in the fall of 2007. ID at 308-09. Respondents have little to say about this evidence, only complaining that it does not include the words "constricted convection." RPet at 29. But as the ID correctly explained, and Respondents do not dispute, "there is no requirement that evidence corroborating conception need to use terms from the patent claims, nor have Respondents cited to any such authority." ID at 311. Respondents' argument here is irrelevant—"case law does not require that evidence have a source independent of the inventors on *every aspect* of conception"; rather, it is sufficient that the evidence "support the credibility of the inventors' story." *E.I. du Pont De Nemours & Co. v. Unifrax I LLC*, 921 F.3d 1060, 1077 (Fed. Cir. 2019) (emphasis added) (citation omitted). That is exactly what Mr. Dunn's November 2007 email does.

Importantly, the asserted patents are presumed valid, and thus the burden is on Respondents to prove by clear and convincing evidence that inventorship is improper. 35 U.S.C. § 282(a); *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 95 (2011). Contrary to Respondents' framing, the burden is not on MRI to prove conception.

Respondents also argue that Mr. Dunn testified that the email describes an invention with two airflow paths, while Figure 9 in the '595 and '322 Patents depicts three cooling pathways. RPet at 30. This argument is a red herring. First, while the written description accompanying Figure 9 discusses an "exemplary embodiment of the constricted convection cooling system, where three cooling pathways are used" (JX-0001 at 7:64-66), it also explains that "[o]ther exemplary embodiments may contain any combination of cooling/heating pathways" (*id.* at 8:10-11). This would necessarily include embodiments with two airflow paths, as recited in the asserted claims and as described by Mr. Dunn. Second, Respondents offer no expert testimony that Mr. Dunn's description was inaccurate, instead relying on conclusory attorney argument. Respondents fail to explain why disclosing a third air pathway in the written description of the '595 and '322 Patents somehow negates the fact that Mr. Dunn conceived of the system described in the email and recited in the asserted claims.

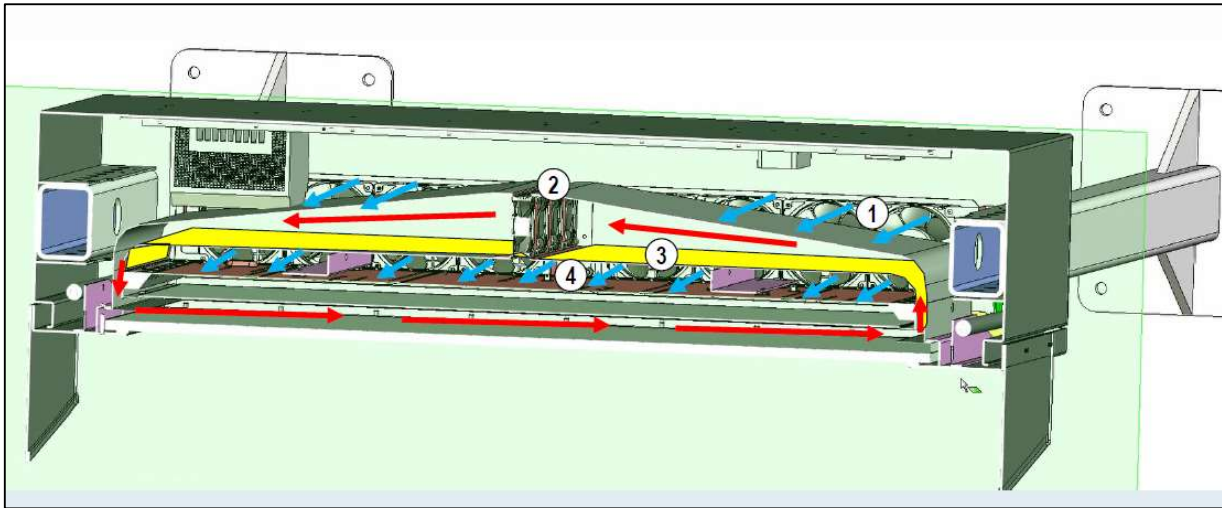
Respondents' argument does not even attempt to identify any clear error in the ID related to the November 2007 email and does not allege that the ID clearly erred in its conclusion that the November 2007 email corroborates Mr. Dunn's conception. Respondents therefore cannot meet their burden of showing that the ID clearly erred in finding that Respondents failed to prove improper inventorship by clear and convincing evidence.

Respondents next argue that Mr. Gavel invented the brackets recited in claims 1 and 5 of the '322 Patent. RPet at 30.¹ As the ID correctly found, there is nothing novel or non-obvious about mounting brackets. ID at 312-13. What is new and nonobvious in the '322 Patent is using a bracket to connect the posterior surface to a constricted convection plate. Mr. Dunn was the first to conceive of this, as confirmed in the “new file from bill” CAD file which shows this use of brackets in November 2007—months before Mr. Gavel’s alleged work. CDX-0002C (CX-0097C); Tr. (Dunn) at 72:4-21. As Mr. Gavel himself admitted at trial, the brackets he developed “reflect[ed] nothing more than common design work.” Tr. (Gavel) at 916:17-23; ID at 312. Because “the basic exercise of ordinary skill in the art, without an inventive act, does not make one a joint inventor,” Mr. Gavel’s common design work of fabricating a mounting bracket does not make him a joint inventor on the '322 Patent. *Trovan, Ltd. v. Sokymat SA, Irori*, 299 F.3d 1292, 1302 (Fed. Cir. 2002).

c. The “new file from bill” CAD file corroborates Mr. Dunn’s conception.

The CAD file titled “new file from bill” and attached to Mr. Dunn’s November 27, 2007 email further corroborates his conception. CX-0097C. As the ID recognized, Mr. Dunn testified at trial that in the annotated figure below, element 1 shows the open-loop fans, element 2 shows the closed-loop fans, element 3 shows a constricted convection plate, and element 4 shows the constricted convection channel:

¹ Respondents also misleadingly claim that MRI “conceded” that Mr. Gavel conceived of the brackets. Not so. MRI never conceded that Mr. Gavel conceived of any limitation of the '595 or '322 Patents but instead only summarized Mr. Gavel’s testimony regarding his “common design work” regarding brackets. CIPostHB at 194.



ID at 309-11; CDX-0002C (CX-0097C); Tr. (Dunn) at 70:5-10, 70:20-23, 72:4-21.

Respondents lead with the superficial argument that this image “bears no resemblance whatsoever to Figure 9 (or any other figure in the ’595 or ’322 Patents).” RPet at 30. This is an irrelevant distraction as Figure 9 is a non-limiting embodiment. Further, as Mr. Dunn explained on the stand, the CAD file is a horizontal cross-section viewed from the top, as contrasted with the exploded view of Figure 9 of the ’595 and ’322 Patents. Tr. (Dunn) at 69:22-70:4. More importantly, there is no genuine dispute that the CAD file shows an open loop (*id.* at 70:5-7) and a closed loop (*id.* at 70:7-9).

Additionally, Respondents again offered no expert testimony on this point, instead relying exclusively on conclusory attorney argument. Thus, Mr. Dunn’s testimony is un rebutted. Accordingly, Respondents cannot even approach meeting their burden of showing that the ID’s factual finding that the “new file from bill” CAD file corroborates Mr. Dunn’s conception is clearly erroneous.

d. The [REDACTED] further un rebutted evidence of Mr. Dunn’s conception.

The ID also recognized that MRI’s “[REDACTED]” is evidence that “sufficiently corroborates Mr. Dunn’s testimony regarding his conception of the claimed inventions.” ID at 311-12. This proposal was sent from MRI to [REDACTED] on or around January 14, 2008 and describes several features of the claimed invention, including [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

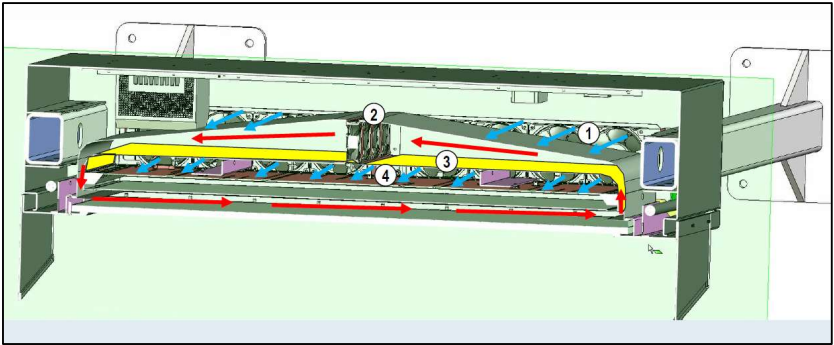
[REDACTED] *Id.* at 311 n.131 (quoting CX-1118C at 1).

Respondents’ Petition completely ignores the [REDACTED] Respondents thus do not even attempt to challenge the ID’s findings or conclusions regarding this evidence. Accordingly, MRI’s evidence and the ID’s findings that the [REDACTED] corroborates Mr. Dunn’s conception is unchallenged and should not be reviewed by the Commission.

3. The corroborating evidence credited in the ID discloses all elements of Claim 9 of the ’595 Patent.

Respondents argue that the November 2007 email and November 2007 “new file from bill” CAD do not teach every limitation in claim 9 of the ’595 Patent. RPet at 29 and 31. In addition to ignoring the [REDACTED] entirely, Respondents’ do not even attempt to rebut MRI’s post-hearing brief setting forth exactly how the corroborating evidence relied on in the ID, taken together, demonstrate that Mr. Dunn conceived of each and every limitation of claim 9 of the ’595 Patent before Mr. Bolton ever disclosed “Vertigo Figure 1” in

March 2008. Respondents' conclusory attorney argument to the contrary should be given no weight and cannot amount to a showing of clear error.

'595 Patent, Claim 9	Nov. 2007 & January 2008 Evidence
A system for cooling an electronic display comprising:	<u>Nov. 2007 email</u>: "we have come up with another cooling scheme that I want to patent as well. This one I call the 'air-to-air' intercooler." JX-0315C.00002. <u>Nov. 2007 CAD</u>:  CX-0097C; CDX-0002C.3 (CX-0097C); CDX-0003 (CX-0097C); Tr. (Dunn) at 67:2-10, 68:11-14. [REDACTED] CX-1118C.00001.
an electronic display comprising a front display surface and a posterior surface;	<u>Nov. 2007 email</u>: "The idea is to have a closed loop air circulation over the face of the display . . . Provides the ability to clean the front of the display[.]" JX-0315C.00002. <u>Nov. 2007 CAD</u>: The above screenshot from the CAD file shows an electronic display with a front display surface and a posterior surface. CX-0097C; CDX-0002C.3 (CX-0097C); CDX-0003 (CX-0097C). [REDACTED] CX-1118C.00001.
a constricted convection plate and	<u>Nov. 2007 CAD</u>: "Item 3 is the front wall of this plenum or duct. It is also what I call the constricted convection plate. And item 4 is the

a pair of sidewalls behind the posterior surface of the display, defining a constricted convection channel having an entrance and exit;	constricted convection channel that squeezes or squishes the air to accelerate the velocity. . . . So Number 4, again, it is a squeezed or reduced or restricted channel intended to accelerate the flow of air.” Tr. (Dunn) at 70:20-23, 72:4-6.
a gaseous closed loop traveling across the front display surface, behind the constricted convection plate, and returning to the front display surface;	<u>Nov. 2007 email</u>: “The idea is to have a closed loop air circulation over the face of the display . . . The reason for the closed loop air stream is to have ‘clean air’ over the display[.]” JX-0315C.00002. <u>Nov. 2007 CAD</u>: “Number 2 is—the closed loop fans down there through the middle . . . propelling the closed loop air, which is denoted by the red arrows. That’s in a continuous circular path. The air comes out of the fan, goes through that ductwork or that passageway or that plenum, is routed around the front of the LCD. Between the back of the cover glass and the front of the LCD, there’s a space or a gap. The air flows across . . . And then it returns back through the closed loop return path, back into the input of the fans, and continuously goes around and around.” Tr. (Dunn) at 70:7-19. [REDACTED] [REDACTED] [REDACTED] [REDACTED] CX-1118C.00001.
a means for propelling gas around the closed loop;	<u>Nov. 2007 email</u>: “The idea is to have a closed loop air circulation over the face of the display[.]” JX-0315C.00002. <u>Nov. 2007 CAD</u>: “Number 2 is—the closed loop fans down there through the middle, those are the fans that are propelling the closed loop air, which is denoted by the red arrows.” Tr. (Dunn) at 70:7-10. [REDACTED] [REDACTED] [REDACTED] CX-1118C.00001.
a means for cooling the gas in the closed loop; and	<u>Nov. 2007 email</u>: “The idea is to have a closed loop air circulation over the face of the display, and then cool this closed loop with outside air . . . The reason for the closed loop air stream is to have ‘clean air’ over the display, and then use cooler, but potentially ‘dirty’ air from outside to

	cool the ‘clean air[.]’” JX-0315C.00002. <u>Nov. 2007 CAD</u>: “Number 1, the open loop fans, the blue arrows would be the open loop, relatively cool airflow.” Tr. (Dunn) at 70:5-7. [REDACTED] [REDACTED] [REDACTED] [REDACTED] CX-1118C.00001.
a means for forcing air through the constricted convection channel.	<u>Nov. 2007 CAD</u>: “Number 1, the open loop fans, the blue arrows would be the open loop, relatively cool airflow . . . Item 3 is the front wall of this plenum or duct. It is also what I call the constricted convection plate. . . . Number 4, again, it is a squeezed or reduced or restricted channel intended to accelerate the flow of air.” Tr. (Dunn) at 70:5-7, 70:20-23, 72:4-6. [REDACTED] [REDACTED] [REDACTED] [REDACTED] CX-1118C.00001.

4. Bolton and Gavel did not contribute to MRI’s invention.

Respondents’ Petition spills much ink trying to shoehorn Vertigo, Mr. Chris Bolton, and Mr. Dwayne Gavel into MRI’s invention story. *See generally* RPet at 14-20, 23-25. But upon even a cursory review of the facts, their story falls apart. For example, both Mr. Bolton and Mr. Gavel admitted to having no contact with Mr. Dunn or MRI before December 2007, which means the concepts disclosed in the November 2007 email and CAD file could not have come from them. Tr. (Bolton) at 814:2-815:14, Tr. (Gavel) at 871:1-9. Further, Mr. Bolton acknowledged that he “did not discuss any of the concepts that are reflected in the” March 4, 2008 CAD rendering with “anybody at MRI before [he] actually sent the email.” Tr. (Bolton) at 870:5-9. Again, this confirms that Mr. Dunn’s November 2007 email, November 2007 “new file from bill” CAD, and [REDACTED] could not have come from Mr. Bolton’s CAD drawing.

In 2007, Gary Young contacted both MRI and Vertigo to provide large format digital displays for bus shelters in Las Vegas. Tr. (Dunn) at 76:4-79:24. Vertigo was to provide mechanical structures known in the industry as “street furniture” inclusive of the bus shelter and “wedge” to house MRI high-bright displays. Tr. (Dunn) at 77:1-80:15, 111:10-112:25; Tr. (Williams) at 176:12-177:10; CX-0074C. Throughout this time period, Vertigo used air-conditioners to provide cooling, which was typical at the time. Tr. (Dunn) at 77:11-79:6; Tr. (Williams) at 177:11-21; Tr. (Gavel) at 818:7-17.

MRI and Vertigo signed an NDA on December 19, 2007. CX-0078C; Tr. (Dunn) at 80:16-81:7. Afterwards, they met to discuss providing outdoor displays to Outdoor Promotions. Tr. (Dunn) at 76:1-23, 81:13-84:16. Between December 19, 2007 (when MRI and Vertigo signed an NDA) and March 2008, MRI and Vertigo representatives attended what the parties call the “Whiteboard Meeting” where Vertigo/Bolton were very interested in MRI’s new method of cooling outdoor displays. Tr. (Dunn) at 79:7-24, 81:13-83:23; Tr. (Williams) at 174:3-180:13; CX-00078C; JX-0048; CX-1907C (Bedell Dep. Tr.) at 49:3-7, 49:18-50:10.

At that meeting, Mr. Dunn disclosed—under NDA—his inventive cooling scheme to Bolton. Tr. (Dunn) at 79:7-24, 81:13-83:23, 174:3-180:13; CX-00078C. As Mr. Dunn described his novel cooling idea (shown in the November 2007 email and “new file from bill” CAD), he instructed Mr. Bedell to draw on the whiteboard what Mr. Dunn was describing, and during the meeting, Bolton copied in his notebook what Mr. Bedell drew on the board. CX-1907C (Ware Bedell Dep. Tr.) at 54:22-55:18; Tr. (Dunn) at 82:82:3-83:23; Tr. (Williams) at 177:11-179:19. Afterwards and at Mr. Dunn’s request, Bolton photocopied the drawing and provided it to Mr. Dunn. Tr. (Dunn) at 83:5-23; 178:13-179:19. Figure 9 of the ’595 and ’322 Patents reflects elements of an embodiment of Mr. Dunn’s invention that he described during the whiteboard

meeting and Bolton copied in his notebook. JX-0039C; JX-0040C; Tr. (Dunn) at 84:17-87:7; Tr. (Williams) at 178:13-179:5.

5. Vertigo's actions and internal documents contradict Respondents' litigation-driven inventorship story.

The actions of Mr. Bolton and Vertigo belie the litigation-driven, fictional inventorship Respondents' concocted for this case. On May 7, 2008, Vertigo filed a U.S. provisional patent application (61/051,197) that included Figure 10(b), which resembles "Vertigo Figure 1" and also Figure 9 of the '595 and '322 Patents. CX-0295. A year later, Vertigo filed PCT Application No. PCT/CA2009/000629, claiming priority to the 61/051,197 provisional, and U.S. Patent No. 8,472,174 issued therefrom. CX-0093. The provisional's Figure 10(b) was not included in the '174 Patent or its PCT application. Tr. (Bolton) at 881:21-24.

Less than a month after Vertigo filed its provisional application, on June 2, 2008, Bolton emailed Mr. Dunn, writing that: "I recognize the MRI patent application for split airpaths." CX-0220C. Bolton admitted that he learned of MRI's application because Mr. Dunn told him about it. Tr. (Bolton) at 860:1-13. Bolton also agreed not to use "split airpath variants" in displays that did not involve MRI. *Id.* And on March 13, 2009, Bolton sent a letter to Mr. Dunn, writing: "It is not our intention to claim any invention or IP of MRI as accredited to Vertigo," and assuring him "[w]e both have patents pending which may make similar claims in different ways." JX-0052C. In short, Bolton never claimed ownership over any MRI patents until litigation began a decade later and actually removed drawings from his own later patent applications that were similar to Figure 9 of the '595 and '322 Patents. Accordingly, Bolton's actions further confirm that he did not believe that he was an inventor of the concept depicted in Figure 9 of the '595 and '322 Patents.

Further, an internal Vertigo document establishes that it did not have technical knowledge or ability in the field of thermal management of digital signage in outdoor environments at the time of Mr. Dunn's invention. In a SR&ED Technical Report dated April 31, 2008, Vertigo acknowledged that its "knowledge base has been limited to 'Print in Post' signage technology to date." JX-21C.00003; Tr. (Bolton) at 874:24-875:23. Thus, Vertigo contemporaneously recognized its own technical limitations given its experience focused on street furniture and printed (non-digital) signage. Contrary to Respondents' manufactured inventorship story, the report confirms that "the technology to ensure a digital signage design that can withstand severe temperature and conditions has not been reached by Vertigo, or for the most part the industry as a whole." *Id.*²

6. Mr. Dunn conceived of the invention shown in Figure 9.

The crux of Respondents' inventorship argument is based on the flawed premise that Mr. Bolton conceived of the invention shown in Figure 9 of the '595 and '322 Patents. *See generally* RPet at 16-21, 27-32. But the ID correctly rejected this argument. The timeline and evidence confirm that Mr. Dunn conceived of the claimed invention months before Mr. Bolton allegedly came up with "Vertigo Figure 1." ID at 311-12. Moreover, the creator of a figure is irrelevant to the determination of inventorship.

a. The evidence confirms that Mr. Dunn's conception predates "Vertigo Figure 1."

A timeline of both parties' development efforts confirms that the ID correctly determined that Mr. Dunn conceived of the claimed invention and that Mr. Bolton and Mr. Gavel did not

² Indeed, using Vertigo's air conditioning cooling system in the collaboration with MRI instead of Mr. Dunn's novel cooling system was a complete failure. Tr. (Dunn) at 83:24-84:16, 90:7-18.

contribute anything to that conception. MRI worked tirelessly over months and years leading up to November 2007 to find a way to manage the temperature of outdoor displays. Tr. (Dunn) at 53:16-75:13. Mr. Dunn’s un rebutted testimony about MRI’s real-world trials and failures led to the invention he described to his patent counsel and in the “new file from bill” CAD in November 2007. *See supra* § II.A.2.

Shortly after Mr. Dunn conceived of the invention, MRI began working with Vertigo. Former MRI employee Mr. Dave Williams testified that Dunn told him about the new cooling system before MRI and Vertigo met in December 2007. Tr. (Williams) at 172:3-24. He also explained how, during a meeting between the parties during the week of December 17, 2007, Dunn—under an NDA—shared his concept with Bolton. *Id.* at 175:11-21, 177:11-178:12. Respondents do not challenge Mr. Williams’s testimony, other than incorrectly describing him as an “interested MRI witness[.]”³ RPet at 29.

Respondents emphasize that “Vertigo won the Outdoor Promotions contract in late November 2007.” RPet at 16. Yet Respondents simultaneously acknowledge that Vertigo proposed a “closed loop air-conditioned cooling system” for the project. *Id.* In other words, in late November 2007, Mr. Dunn and MRI were already moving forward to patent their novel constricted open/closed loop cooling system. But Mr. Bolton and Vertigo remained focused on air conditioning systems.

Also missing from Respondents’ evidence is a single contemporaneous document explaining *why* Bolton allegedly decided to change course and develop a new cooling system

³ Mr. Williams is retired from MRI. Tr. (Williams) at 167:18-22.

after touting the use of air-conditioning units. This further undermines the credibility of Respondents' litigation-created story.

Instead, the evidence confirms Mr. Dunn's conception in November 2007. MRI's witnesses explained how Mr. Dunn, having thought of a new cooling system by November 2007, shared it with a collaborative partner, Vertigo, as early as their first meeting in December 2007, as part of a discussion to find a way to keep displays from overheating in the Las Vegas sun.

Respondents' version of the story simply does not add up. Under Respondents' telling of events, Mr. Dunn withheld his new idea from Mr. Bolton and Vertigo and, instead, kept quiet even after Mr. Bolton sent his March 2008 email to Mr. Dunn attaching Vertigo Figure 1. This simply is not credible on a full record, and the truth is much simpler: Mr. Dunn shared his idea with Mr. Bolton, that led to Vertigo Figure 1, and the patentable concepts in it belong to Mr. Dunn.

b. The identity of the creator of Figure 9 is not relevant to inventorship.

Merely providing the "Vertigo Figure 1" CAD rendering to Mr. Dunn does not render Mr. Bolton a joint inventor. As USPTO Expert Andrew Hirshfeld testified, "the mere drawing of a figure . . . would be a reduction to practice and is not necessarily evidence of conception." Tr. (Hirshfeld) at 1318:2-10. He further explained that, when considering the identity of who drew Figure 9, "the USPTO, looking at inventorship issues, would not be swayed, so to speak, by a mere drawing" because "reduction to practice is not considered conception." *Id.* at 1322:22-1323:8.

Vertigo's own conduct further confirms that it is not at all unusual to incorporate figures created by another in a patent application. The Vertigo provisional application originally listed Mr. Gavel as one of the inventors. CX-2564.0209; Tr. (Gavel) at 908:11-13. But the issued

patent (CX-2523) claiming priority to that provisional did not include Mr. Gavel, and instead substituted Mr. Ralph Idems, one of Vertigo's co-founders. Tr. (Gavel) at 910:13-22. Despite removing Mr. Gavel as a named inventor, Vertigo nonetheless used line art from his CAD renderings for at least eighteen figures in the patent. *Id.* at 911:1-912:11 (confirming that figures 1-6, 9-13, 16, 17, and 21-25 were line art from Mr. Gavel's CAD drawings). Vertigo also included images of off-the-shelf components that it did not create in at least one of the figures in its patent. *Id.* at 913:5-17 (confirming that Figure 22 includes "commercially off-the-shelf" struts that Vertigo did not design). This routine use of figures showing off-the-shelf components and line drawings made by others by both MRI and Vertigo in their respective patent applications is common practice and says nothing about inventorship. As Mr. Hirshfeld explained, the creation of a figure is not relevant to inventorship. Accordingly, the resemblance of Figure 9 to "Vertigo Figure 1" is irrelevant to the issue of inventorship. Tr. (Hirshfeld) at 1318:2-10, 1322:22-1323:8.

7. Respondents' inequitable conduct allegations also fail to allege clear error or legal error.

Respondents raise three inequitable conduct grounds, but all three were properly rejected in the ID.

First, Respondents allege that MRI failed to name Mr. Bolton and Mr. Gavel as joint inventors. RPet at 34-35. But the ID found that "Respondents have failed to meet their burden to show that the '595 and '322 Patents are invalid for failing to name the proper inventors," and thus "there is no basis to conclude that Mr. Dunn signed false oaths" ID at 314. As explained above, Respondents have failed to even allege that the ID clearly erred in any of the factual determinations underpinning the ALJ's findings on inventorship. To the contrary, the evidence confirms that Mr. Dunn conceived of the claimed invention. It follows therefore that there can be no inequitable conduct on this ground.

Second, Respondents allege that MRI engaged in deceptive conduct by allegedly using confidential information of Vertigo and Samsung in its patent applications. RPet at 35-36. The ID found that “the evidence shows that MRI had used at least certain Vertigo images with Vertigo’s knowledge and permission.” ID at 315 n.133 (citing RX-0697 and Tr. (Bolton) at 872:11-874:16). In fact, Respondents admit that the alleged Vertigo allegedly “confidential information” (Vertigo Figure 1) was publicly displayed at the Digital Signage Expo in February 2008—a month before MRI first included Figure 9 in the provisional application filed on March 26, 2008. *See* RPet at 17. Further, the alleged Samsung confidential information was also publicly available and only used to describe a “typical”—i.e., prior art—display. *See* JX-0002, 4:39-41; JX-0066C; Tr. (Dunn) at 164:11-165:13. Accordingly, neither of Vertigo’s or Samsung’s allegedly confidential information was actually confidential, and as explained above, it is not improper to include figures created by others in a patent application.

Third, Respondents allege that MRI should have disclosed to the PTO its 26- and 32-inch pump top displays and 47-inch car wash display. Respondents, however, offered no evidence or expert testimony alleging that these displays were material to patentability. Respondents have not even come close to the required showing that MRI “*made a deliberate decision to withhold a known material reference.*” *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1290 (Fed. Cir. 2011) (citation omitted).

The only case cited by Respondents underscores the difference between this case and one that actually involves inequitable conduct. In *Certain Child Carriers & Components Thereof*, the named inventor “testified unambiguously that he *knew* he was not an inventor . . . when he signed the declaration.” No. 337-TA-1154, 2020 WL 2094128, at *59 (Mar. 10, 2020). To the contrary, no such false statement occurred here. Respondents cannot show inequitable conduct

by clear and convincing evidence.

Finally, Respondents claim that the '287, '740, and '142 Patents are unenforceable due to the doctrine of infectious unenforceability. RPet at 36-37. This fails for at least two reasons. First, because there is no inequitable conduct with respect to the '595 and '322 Patents, there is no unenforceability to infect the other patents in the family. *See In re Omeprazole Pat. Litig.*, 483 F.3d 1364, 1375 (Fed. Cir. 2007). Second, Respondents failed to show an “immediate and necessary relation” between the patents. *Keystone Driller Co. v. Gen. Excavator Co.*, 290 U.S. 240, 245 (1933). At most, Respondents alleged that the patents have related subject matter. But “mere relatedness of subject matter is not a proper basis” for applying the doctrine of infectious unenforceability. *Consol. Aluminum Corp. v. Foseco Int'l Ltd.*, 910 F.2d 804, 810 (Fed. Cir. 1990). Accordingly, Respondents cannot show that any of the asserted patents are unenforceable, and the ID's findings on this issue should not be disturbed.

B. The ID Correctly Found Infringement of Claim 1 of the '595 Patent by the Mid-Sized Products.

Respondents' contingent petition for review of the ALJ's finding that Respondents' Mid-Sized Products infringe Claim 1 of the '595 Patent should be rejected as moot. Respondents have requested that “if the Commission reviews the ALJ's housing-related claim construction as it relates to invalidity, then it also should apply any new construction for purposes of Respondents' non-infringement arguments.” *See* RPet, at 3. No party has asked for any *new* construction of the ALJ's housing-related claim construction. MRI petitioned to have the *same* housing-related claim construction the ALJ used to assess infringement also used to assess invalidity. Because the ALJ's housing-related claim construction will not be changed by performing this legally required invalidity analysis (*i.e.*, there will not be any *new* claim construction), no reassessment of infringement is required.

To be clear, Respondents “do not affirmatively challenge the ALJ’s claim construction” requiring “only the ‘electronic display’ be contained within the housing—not that the entire ‘system for cooling’ be contained within the housing.” *See* RPet, at 37. Likewise, MRI has not challenged that claim construction in its petition. *See* CPet, at 85-86.

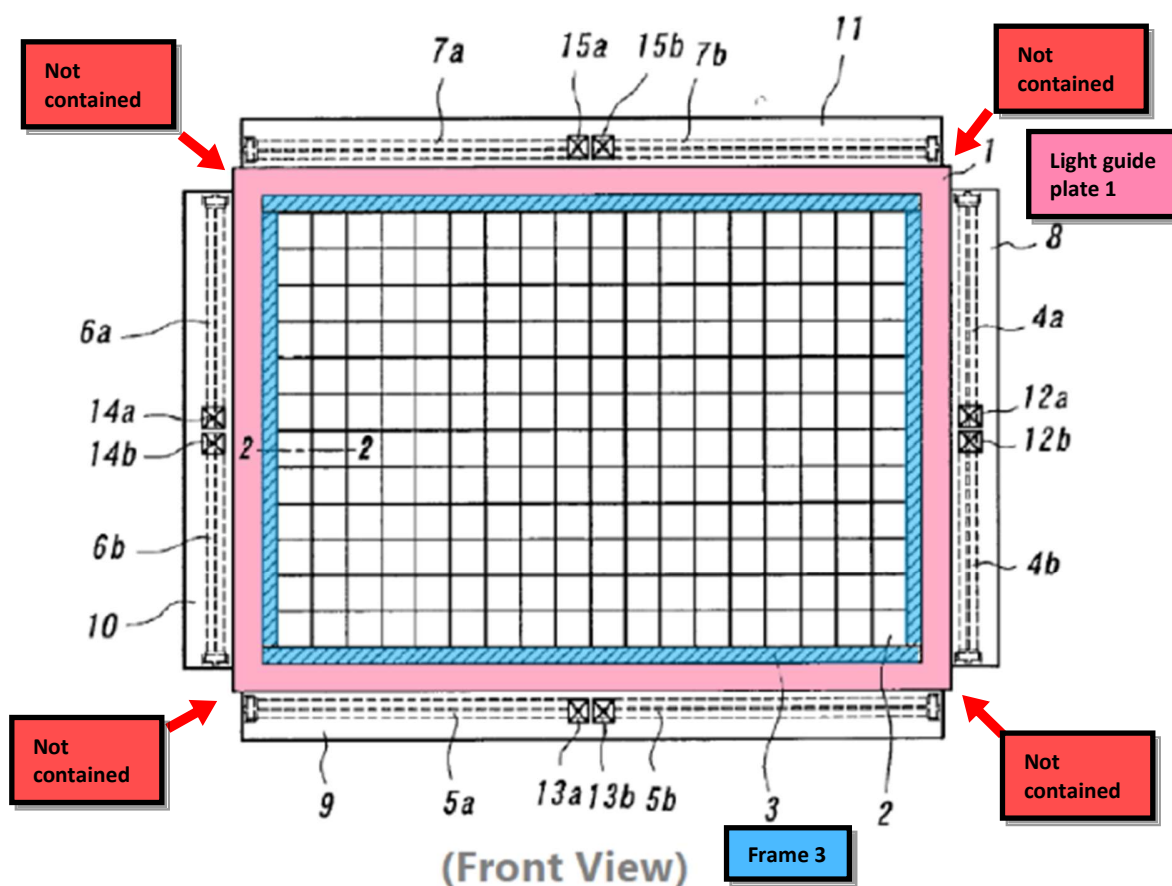
The ID did not, however, consistently apply the same claim construction of the “housing” limitation when assessing both invalidity and infringement. *See* CPet, at 86. The ID used a *broad* construction for invalidity than for infringement. *Id.* Thus, MRI petitioned to have the same construction used for infringement—on which no party has requested review—applied consistently for both infringement and invalidity as required by law. *See e.g., Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1330 (Fed. Cir. 2003) (“It is axiomatic that claims are construed the same way for both invalidity and infringement.”).

For purposes of infringement, the ID assessed whether the electronic display was “contained within the bounds” of the housing. *See* ID at 51-54. The ID, however, *failed* to assess whether Takeuchi’s alleged “electronic display” comprising light guide plate 1 is “contained within the bounds” of its alleged “housing” (frame 3 and rear cover 51).⁴ At the hearing, Respondents’ expert, Mr. Smith-Gillespie, explained that Takeuchi’s Fig. 1 provides “a front view of Takeuchi’s electronic display.” Tr. (Smith-Gillespie) at 927:17-928:3. It is indisputable that Takeuchi’s light guide plate 1 is not “contained within the bounds” of Takeuchi’s alleged housing—or any other structures—as shown in the annotated version of Respondents’ Fig. 1 demonstrative (below) because, for example, the corners of light guide plate 1 (pink) are not

⁴ Respondents asserted Takeuchi’s “housing is comprised of two parts, the “frame 3” and the “rear cover” with reference number “51.” Tr. (Smith-Gillespie) at 931:1-16. Respondents identified Takeuchi’s alleged “electronic display” as light guide plate (1) and panels (16, 17). *See e.g.,* RDX-0007.0017 (annotated Fig. 5 of Takeuchi).

within the bounds of any other structure and thus not “contained.”

FIG. 1



RDX-0007.0015 (showing RX-1367 (Takeuchi), Fig. 1 “Front View” (additional annotations added by Complainant)).

Respondents have agreed “[i]t is black letter law that the same claim construction must apply for purposes of both infringement and invalidity.” RPet, at 2. Because Takeuchi does not meet the “housing” limitation under the claim construction used by the ID for infringement, Takeuchi cannot have anticipated claim 1 of the ’595 Patent. Respondents did not assert or provide any expert testimony arguing a POSITA would have modified Takeuchi so that light

guide plate 1 is “contained within the bounds” of its alleged “housing,” so Respondents also could not have met their burden of proof to show Takeuchi renders obvious claim 1 of the ’595 Patent. Because the ALJ’s claim construction must be applied *consistently*, the Commission should reverse the ID’s finding that Respondents proved by clear and convincing evidence that claim 1 of the ’595 Patent was invalid in view of Takeuchi. The Commission need not review the ID’s infringement finding for claim 1 of the ’595 Patent because neither side has requested any change to the ALJ’s claim construction of the “housing” limitation that was used for infringement.

Respondents have not shown any error or clear error in the ID’s infringement analysis. The ID correctly found the electronic display ([REDACTED]) of the Mid-Sized Products is contained within its housing elements under the unchallenged claim construction. *See e.g.*, ID at 50-54. All components of the Mid-Sized Products are contained within the bounds of the [REDACTED] of the housing as shown below.⁵

⁵ Respondents’ moot arguments relating to the housing and constricted convection plate further contradict Fig. 5D of the ’595 patent, and their own arguments during claim construction. *See* Tr. (Markman, Resp. counsel) at 74:8-75:3 (EDIS Doc. ID 791574); *see also* Respondents’ Opening Claim Construction Brief at 19 (EDIS Doc. ID 789175) (Feb. 1, 2023); *see also* ID at 54, n.10. If the Commission nevertheless *sua sponte* reviews the ALJ’s claim construction regarding “housing,” then the Commission must also review MRI’s full array of infringement theories for the “housing” limitation including that, for example, Respondents use the Mid-Sized Products in the United States inside of additional enclosures that also satisfy the “housing” limitation. *See* CIPostHB at 25-27; CDX-0006.00024 (citing CX-0015C.00007); Tr. (Credelle), 318:21-320:20; CDX-0006.00029 (citing CX-0278.00002, JX-0207C.00005); Tr. (Credelle), 321:20-322:11. The ID did not reach these arguments because it found infringement based on the [REDACTED] under either proposed claim construction for “housing.” ID at 49, 59.

CDX-0006C at 38-39; Tr. (Credelle) at 325:15-326:11.

CDX-0006C at 41; Tr. (Credelle) at 325:15-326:11.

C. The ID Correctly Found No Clear and Convincing Evidence of Invalidity of Claim 12 of the '287 Patent.

Respondents have not identified an error of law or fact that warrants review of the ID's finding that Respondents have not proven obviousness of claim 12 of the '287 Patent by clear and convincing evidence. ID at 237-45. Respondents instead state that they "*do not affirmatively challenge*" the ALJ's conclusion that "Karppanen did not disclose an open loop 'along the backlight' because it shows intervening structures." RPet at 39-40 (emphasis added). With Respondents' agreement that the ID's validity determination was correct, and the lack of an affirmative challenge to that conclusion, there is no reason for the Commission to review the

validity of claim 12.

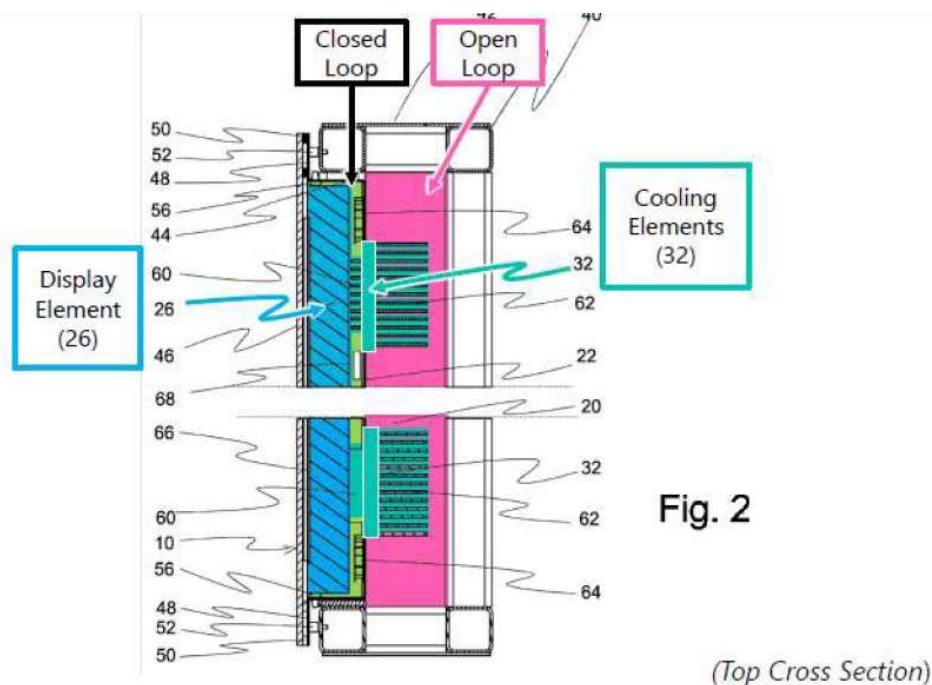
Rather than affirmatively seeking review of ID's validity findings, Respondents anticipate Commission review of the ID's *non-infringement* findings, and their position is effectively a backdoor effort to argue in support of the ID's erroneous infringement analysis. Respondents state that they "only request that consistency be maintained" between the analyses of infringement and validity. RPet at 40. MRI agrees that consistency is necessary and emphatically states that it is *Respondents' non-infringement and invalidity positions* that are fundamentally at odds. By contrast, MRI's position on the correct scope of the claims is consistent with the intrinsic record and its application to the accused products and prior art is faithful to that record. Consistency demands a finding that claim 12 not only is valid (as the ID correctly held) but also is infringed by the Mid-Sized Products.

Respondents express a fear that the Commission could "eliminate the requirement that the open loop be 'right next to the backlight' with 'no significant intervening structures.'" RPet at 40. But there is no dispute that the "along the backlight" term requires the open loop to pass next to the backlight without significant intervening structures or flow paths, as the ID held. CPet at 28 n.4. The *actual dispute* for purposes of both infringement and validity centers on the meaning of the recited "backlight" and whether the structures along which the open loops of the accused products and the prior art pass are part of the "backlight."

The ID held that "the evidence fails to clearly and convincingly show that the open loop of ambient air passes 'along the backlight'" in Karppanen. ID at 241. This finding is correct because the open loop of Karppanen is separated from the display by an intervening wall, an intervening closed loop, and multiple intervening cooling structures—none of which are part of the "backlight." As an initial matter, the ID found that Karppanen does not even disclose the

location or structure of any backlight or its components. ID at 241. Respondents assert that this finding “was clearly erroneous given the testimony that the display is an LCD and that there are limited locations where such a backlight could be located.” RPet at 41. But Respondents do not cite Karppanen or any other evidence or testimony for this bald statement. Respondents cite only to their Post-Hearing Brief, at pages 108-109, where this issue is not discussed, much less supported by evidence. Without cited evidentiary support or effort by Respondents to explain this one-sentence assertion of error, Commission review is not warranted.

The ID further held that Karppanen’s cooling elements are not “part of the ‘backlight’” and that ambient air flowing along these cooling elements is thus not flowing “along the backlight.” ID at 241-42. This finding is plainly correct and is supported by substantial evidence. Karppanen’s ambient air flow (labeled “Open Loop” and highlighted pink) is separated from Karppanen’s display (blue) by a wall, multiple cooling elements (teal), a closed loop air flow pathway (green). CX-2259 (Karppanen), Fig. 2 (as annotated by Respondents’ expert Smith-Gillespie at RDX-0007 at 82). All of these elements are situated between the open loop and the display of Karppanen, and none are described by any evidence, intrinsic or extrinsic to the ’287 Patent, as part of a “backlight.”



It is the alleged “closed loop” of air that passes along the backlight in Karppanen, as shown in Smith-Gillespie’s above annotations and explained by Dr. Pokharna. Tr. (Pokharna) at 1243:14-1244:11. The ambient air, by contrast, is separated from the display by the closed loop, a wall, and multiple cooling elements. Tr. (Pokharna) at 1243:14-1244:11. Thus, the ambient air does not travel “along the backlight” because it is separated from the backlight by these intervening structures and the closed loop. Tr. (Pokharna) at 1244:12-13. Dr. Pokharna explained that a POSITA would not consider Karppanen’s configuration to constitute an open loop passing “along the backlight” where Karppanen’s open loop travels along fins, which are attached to a separation wall, and that separation wall is then attached to another set of fins on the other side, with those fins touching a rear surface of a display on the other side. *Id.* at 1244:14-1245:16. There are simply too many intervening structures between the open loop and the backlight. *Id.* (identifying a first heat transfer part, heat sink, glue, wall, and second heat transfer part). Dr. Pokharna’s opinion comports with the specification of the ’287 Patent, which distinguishes the

invention from “cooling devices for electronic displays of the past” which used “one or more fans and fins” for cooling.” JX-0003 at 2:3-6.

A POSITA would not consider Karppanen’s cooling elements part of the “backlight” itself. Indeed, Respondents admit “Karppanen discloses that the cooling elements are preferably *fastened to the rear surface* of the display element, i.e., the backlight.” RPet at 41 (emphasis added); *see also* CX-2259 (Karppanen) at 8:29-36. This admission highlights the critical distinction between Karppanen’s disclosure (which does not have an open loop along the “backlight”) and the infringing Mid-Sized Products (which have an open loop along the “backlight”). Within the meaning of the ’287 Patent, the “backlight” includes a “rear surface.” JX-0003 at 5:9-12. In the patent, the open loop passes along the “rear surface” of the backlight to allow for convective cooling of the backlight. *Id.* at 4:48-54, 5:9-12. In preferred embodiments, the “rear surface of the backlight” may be metal or other thermally conductive material to “further enhance the convective heat transferring properties.” *Id.* at 5:9-12. By Respondents’ own admission, Karppanen’s cooling elements do not form the rear surface of the display element, i.e., the backlight., but instead are “fastened to the rear surface” in some embodiments. RPet at 41. They are intervening structure, as Dr. Pokharna explained. Tr. (Pokharna), 1243:14-1245:16. In the accused Mid-Sized Products, by contrast, the open loop ambient airflow passes *directly along the rear surface* of the backlight. *See* CPet at 19-29 (detailing the evidence including Samsung’s technical documents, testimony of three experts and the designer of the accused Mid-Sized Products). Respondents cannot reasonably contest that the Mid-Sized Products have an open loop that passes “along the backlight,” particularly in light of Respondents’ inconsistent position that the open loop of Karppanen is along the “backlight.” Review of the ID’s findings regarding validity are not necessary because those findings were

plainly correct. But review of the ID's infringement analysis for claim 12 is necessary because of inconsistency not only with Respondents' validity analysis but also with the '287 Patent specification itself.

The ID further noted that Respondents' expert Mr. Smith-Gillespie's opinion "appears based on a (rejected) claim construction that equates 'along' with any structure 'in thermal communication with' the backlight." *Id.* Respondents' Petition does not challenge the claim construction; thus, Respondents have abandoned their "thermal communication" construction. 19 C.F.R. § 210.43(b)(2). Yet, Respondents nevertheless maintain that Karppanen's open loop travels "along the backlight" because the open loop "is thermally connected to the closed loop via cooling elements 32." RPet at 41. The ID correctly determined that this argument is based on a rejected, and now abandoned, construction.

Finally, Respondents' assertion that Karppanen's "cooling elements 32" are part of the backlight for purposes of trying to invalidate the '287 Patent is fundamentally at odds with Respondents' simultaneous effort to read those same cooling elements as a "heat exchanger" for purposes of invalidating the '740 and '142 Patents. For the '287 Patent, Respondents contend that Karppanen's "cooling elements 32" are "part of the rear of the electronic display." RPet at 41. Yet, in evaluating validity of the '740 and '142 Patents, the ID agreed with Respondents that those same elements were a "heat exchanger." *See* ID at 252. This irreconcilable dichotomy further highlights the need for review of the ID's findings regarding validity of the '740 and '142 Patent. Karppanen's cooling elements cannot be interpreted in one instance as part of the display and in another instance as a heat exchanger located behind the display. In fact, neither is correct. *See* CPet at 90-99. Karppanen teaches exactly what is described in the reference: finned heat sinks (not a heat exchanger) that are located *between* the rear surface of the display and the open

loop. Karppanen takes the approach that was conventional in the art and does not teach the inventions recited in the '287 Patent or the '740 and '142 Patents.

The Commission should decline to review the ID's validity determination for claim 12 of the '287 Patent but should review the ID's non-infringement determination for claim 12 along with the validity determinations for the '740 and '142 Patents.

D. Review of Respondents' Alternative Non-Infringement Arguments for Claims 9, 12, and 13 of the '322 Patent is Unnecessary.

Complainant does not oppose review of the *full set* of infringement findings for Claims 9, 12, and 13 of the '322 Patent. However, the ID also did not find a Section 337 violation as to those claims due to an erroneous assessment of the written description requirement. *See* ID at 229-37. If the infringement findings for these claims are reviewed, the Commission should also, as a matter of judicial efficiency, review the erroneous finding that these claims lack written description support to make a full assessment of whether Respondents committed a Section 337 violation as to those claims when they are properly construed.

E. The ID Correctly Found That the Large-Sized Products Have a Constricted Convection Plate and Channel and Infringe Claims 4 and 7 of the '595 Patent and Claims 4 and 5 of the '322 Patent.

The ID correctly found that the Large-Sized Products infringe claims 4 and 7 of the '595 Patent and claims 4 and 5 of the '322 Patent. ID at 61-81, 85-89. Respondents' contingent Petition, however, is premised on the reversal of the ID's finding that "a constricted convection plate" may have openings. RPet, at 44-45. There is no dispute, however, that "a structure may serve as the 'constricted convention plate' of the Asserted Claims even if it contains openings allowing the passage of air." RPet, at 45. Thus, Respondents' contingent Petition for review of the ALJ's finding that Respondents' Large-Sized Products infringe claims 4 and 7 of the '595 Patent and claims 4 and 5 of the '322 Patent should be rejected as moot. *See id.*

The '595 and '322 Patents teach the use of “access apertures” to enable access to “hardware located behind the constricted convection plate” (e.g., so that wires from the display in front of the constricted convection plate can access electronics behind the constricted convection plate). *See, e.g.*, JX-0001 at 6:24-29. The access apertures are preferably “closed before use using plugs or other similar devices,” but that is not required by the claims at issue. *Id.* The similarities between the constricted convection plates in the Large-Sized Products and the structures *alleged* to disclose constricted convection plates in Takeuchi and Kim end at the [REDACTED]. Thus, Respondents propose the existence of openings as a false litmus test for determining whether a structure is a constricted convection plate. That test has no support in the specification or claim language.

MRI has requested a legitimate legal analysis considering whether Takeuchi and Kim actually teach constricting airflow using a constricted convection plate to form part of a narrow channel like the constricted convection channels described in the '595 and '322 Patents and present in the Large-Sized Products. *See* MRI's Petition for Review at 53-66, 79-85. There is no such teaching in Takeuchi or Kim. Conversely, unlike the prior art, the Large-Sized Products constrict the flow of air through a constricted convection channel and were designed to do exactly that. Moreover, MRI's Petition is not based on the presence of “openings” which is the only focus of Respondents' Petition. Accordingly, there is no tension between a finding that Takeuchi and Kim do not teach a constricted convection channel and constricted convection plate and a finding that the Large-Sized Products include those elements.

The ID correctly found that at trial MRI's expert, Mr. Credelle, explained the Large-Sized Products contain [REDACTED]

[REDACTED]. ID at 66; Tr. (Credelle) at 358:2-360:2; CDX-0006C

at 165; JX-0218C.

A perspective view into one such [REDACTED] within the Large-Sized Products can be seen below:

ID at 67; Tr. (Credelle) at 358:2-360:2; CDX-0006C at 166 (citing JX-0221C).

In response to MRI's Interrogatory No. 6, Samsung Electronics stated it would produce documents "sufficient to show the structure and operation of the Accused Products" and identified pursuant to Rule 210.29(c), *inter alia*, JX-0203C and JX-0204C. *See* CX-

1889C.00020-23. These documents show [REDACTED]

[REDACTED] is illustrated by Samsung's annotated [REDACTED]

See, e.g., Tr. (Credelle), 350:20-351:11; JX-0203C.00010.

CDX-0006.00170 (citing JX-0172C.00006; JX-0203C.00010).

It is undisputed that there is [REDACTED]. The ID correctly explained that the layout of the components within [REDACTED]. ID at 76, n.25; *see also* ID at 68 (citing Tr. (Credelle) at 362:2-9; CDX-0006C at 172; JX-0172C.00032; JX-0173C.00034). As seen in Samsung's [REDACTED]. Modeling performed by Complainant's expert, Dr. Neikirk, confirmed Samsung's internal technical documentation and testing by likewise showing [REDACTED]. RX-1314C.00001; *see* CIPostHB at 44; Tr. (Neikirk) at 780:11-781:8; ID at 76.

Respondents' Petition points to tissue tests performed by their expert, Dr. Neikirk,

showing that [REDACTED]

[REDACTED] when the product is *disassembled*. The ID correctly found, however, that “[w]hen the product is *assembled*, [REDACTED]” so Dr. Neikirk’s test “say[s] very little about how air flows through the product when *assembled*.” ID at 76 (emphasis added). Respondents’ Petition does not show that the ID erred by correctly finding that MRI showed the Large-Sized Products infringe by a preponderance of the evidence—based largely on Samsung’s admissions, technical documents, and other business records.

It is a different story when it comes to the ID’s invalidity analysis. Takeuchi’s “partition plate 53” forms a cooling chamber with no teaching to constrict air flow to increase its velocity and no teaching to form a narrow channel. *See* CPet, at 53-66. Kim likewise teaches a rear “space” where air enters and expands in all directions and is never directed through a narrow channel. *See* CPet, at 79-85. The ID erred by viewing these prior art references through the lens of hindsight rather than considering them for what they truly teach. Correcting the ID’s clear errors in analyzing the prior art does not require reconsideration of its separate finding that the Large-Sized Products infringe claims 4 and 7 of the ’595 Patent and claims 4 and 5 of the ’322 Patent.

F. The ID Correctly Found that the Large-Sized Products Use Metal Core PCBs and Infringe Claims 4 and 7 of the ’595 Patent.

The ID correctly held that the Large-Sized Products contain a metal core printed circuit board (“PCB”), and its finding was based on substantial evidence. This supporting evidence includes testimony of Samsung senior engineer Ji-Su Kim, testimony of MRI engineer Mike Brown who inspected and disassembled physical samples, testimony of MRI’s expert Tom Credelle based on Samsung’s CAD files and Mr. Kim’s testimony, and admissions of

Respondents' expert Dean Neikirk on cross examination. *See* ID at 63-64. Respondents did not affirmatively dispute that the that the Large-Sized Products have metal core PCBs and did not present any contrary evidence. ID at 64. Respondents now make only a cursory challenge while ignoring most of the evidence underpinning the ID's finding. Without a challenge to the ID's factual findings, the Commission should decline Respondents' invitation to review the ID's determination that the Large-Sized Products have metal core PCBs.

The body of evidence supports the ID's determination that the Large-Sized Products contain metal core PCBs. First, Samsung's own engineer, Ji-Su Kim, testified that the Large-Sized Products use metal core PCBs. Mr. Kim testified that "[REDACTED]" in the Large-Sized Products. CX-1916C (Kim Dep. Tr.) at 55:10-17. The ID credited Mr. Kim's testimony. ID at 63. The ID also considered and correctly rejected Respondents' argument that Mr. Kim was referring to [REDACTED], noting Mr. Kim's explanation that [REDACTED] [REDACTED] at 64 (citing CX-1916C (Kim Dep. Tr.) at 54:9-13). Respondents' Petition neither acknowledges nor challenges these findings. *See* RPet at 49.

The ID's finding is further supported by physical samples including a representative Large-Sized Product at the hearing. Mr. Brown presented a teardown of a Large-Sized Product and showed that the backlight uses metal core PCBs. Tr. (Brown) at 268:12-16. During cross-examination, Respondents' expert, Dr. Neikirk, also was asked to inspect Mr. Brown's teardown and admitted that the Large-Sized Product uses a metal core PCB, reversing course from his earlier testimony. *Compare* Tr. (Neikirk) at 686:23-687:4 (on direct, testifying that he had not seen evidence showing a metal core PCB in the Large-Sized Products), *with* Tr. (Neikirk) at

779:8-780:2 (on cross-examination, testifying that he agreed the Large-Sized Products contain a metal core PCB after examining a physical sample). Photographs of these physical exhibits indisputably show Respondents' use of metal core PCBs.

CPX-0005A (back side of metal core PCB); CPX-0005B

). Again, Respondents neither acknowledge nor challenge the ID's findings based on this evidence. *See* RPet at 49.

Finally, MRI's expert, Mr. Credelle, further testified to the use of metal core PCBs in the Large-Sized Products. Mr. Credelle inspected the CAD files for the Large-Sized Products and confirmed that they are all the same, showing the LEDs mounted on the front surface and also having a rear surface. Tr. (Credelle), 357:1-9. Mr. Credelle confirmed from his own experience and his "knowledge about how these products are made" that they are metal core PCBs. *Id.* The ID properly credited Mr. Credelle's testimony as consistent with the actual teardown. ID at 64.

The ID points out that "Respondents do not affirmatively dispute that that these products have a metal core printed circuit board." ID at 64. These are Respondents' own products, and if they actually contended that the products do not use metal core PCBs, they would have offered evidence. They did not. And the fact and expert witness testimony discussed above, including

testimony from Samsung's own engineer and physical product samples, is that the Large-Sized Products use metal PCBs.⁶ The ID was correct to credit this evidence under the applicable preponderance standard where Respondents offered nothing to the contrary.

Respondents' only argument that the ID erred in finding the Large-Sized Products contain a metal core printed circuit board is that "MRI's expert Mr. Credelle conceded he did not examine them to *verify* the existence of a MCPCB." RPet at 49. Mr. Credelle, however, did not need to examine the products to "verify" that they contain a metal core PCB. *See, e.g., Data Line Corp. v. Micro Techs., Inc.*, 813 F.2d 1196, 1200-01 (Fed. Cir. 1987) (holding that the fact finder could rely on testimony of expert witnesses who had not physically inspected the accused product). Mr. Credelle had already determined that the products use metal core PCBs based on his own experience, his examination of product CAD files, and testimony from Samsung's engineer. Tr. (Credelle) at 357:1-9, ID at 63. Respondents improperly ignore the body of evidence upon which the ID based its determination.

The ID correctly determined that the Large-Sized Products contain metal core PCBs and infringe claims 4 and 7 of the '595 Patent. With unchallenged evidence supporting the ID's finding, review by the Commission is not warranted.

⁶ To the extent that Respondents' argument rests on a proposition that the inspections of a physical sample at the hearing by Mr. Brown and Dr. Neikirk was not sufficient to show all models of the Large-Sized Products infringe, Respondents never disputed that the products were representative. And without challenging the representativeness of the Large-Sized Products in their post-hearing brief, Respondents have waived the issue. Regardless, Mr. Credelle presented evidence of a metal core PCB in reliance on the CAD files for all product models (Tr. (Credelle) at 348:10-22) and also on Samsung's engineer who testified regarding *all* of the Large-Sized Products collectively. *See id.* at 357:19-23 (discussing CX-1916C (Kim Dep. Tr.) at 55:10-17).

III. CONCLUSION

For the foregoing reasons, MRI respectfully submits the issues for which Respondents seek review were decided correctly in the ID and do not warrant review by the Commission.

Dated: December 5, 2023

Respectfully submitted,

/s/ Aarti Shah

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PUBLIC VERSION

CERTIFICATE OF SERVICE

I, Pamela A. Freitik, hereby certify that the attached document has been served upon the following parties as indicated below on December 5, 2023.

The Honorable Lisa R. Barton Secretary to the Commission U.S. International Trade Commission 500 E Street SW, Room 112-A Washington, DC 20436	☒ Via EDIS ☐ Via First Class Mail ☐ Via Express Delivery ☐ Via Hand Delivery
The Honorable Monica Bhattacharyya Administrative Law Judge U.S. International Trade Commission 500 E Street SW, Room 317 Washington, DC 20436	☐ Via First Class Mail ☐ Via Express Delivery ☐ Via Hand Delivery ☒ Via Electronic Mail at Bhattacharyya337@usitc.gov
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CERTIFICATE OF SERVICE

I, Pamela A. Freitik, hereby certify that the attached document has been served upon the following parties as indicated below on December 12, 2023.

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