

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

**Before the Honorable Monica Bhattacharyya
Administrative Law Judge**

**In the Matter of
CERTAIN OUTDOOR AND SEMI-
OUTDOOR ELECTRONIC DISPLAYS,
PRODUCTS CONTAINING SAME, AND
COMPONENTS THEREOF**

Investigation No. 337-TA-1331

RESPONDENTS' OPENING CLAIM CONSTRUCTION BRIEF

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JXM-001	U.S. Patent No. 8,854,595
JXM-002	U.S. Patent No. 9,173,322
JXM-003	U.S. Patent No. 9,629,287
JXM-004	U.S. Patent No. 11,013,142
JXM-005	U.S. Patent No. 10,506,740
RXM-001	DAVE S. STEINBERG, COOLING TECHNIQUES FOR ELECTRONIC EQUIPMENT 2 (John Wiley & Sons, 1980) (“Steinberg”) (RESPONDENTS001464 -RESPONDENTS001718)
RXM-002	Heat Transfer Sys. & Method for Elect. Displays, U.S. Patent No. 5,991,153 (filed Oct. 30,1998) (issued Nov. 23, 1999) (“Heady”) (RESPONDENTS002184-RESPONDENTS002197)
RXM-003	Environmentally-Sealed, Convectively-Cooled Active Matrix Liquid Crystal Display (LCD), U.S. Patent No. 5,748,269 (filed Nov. 21, 1996) (issued May 5, 1998) (“Harris”) (RESPONDENTS004392-RESPONDENTS004406)
RXM-004	E.J. Margetts, <i>A Demonstration That an Axial Fan in a Ducted Inlet Ducted Outlet Configuration Generates Predominantly Dipole Noise</i> , 117 J. SOUND & VIBRATION 399, 403 (1987) (RESPONDENTS004542-RESPONDENTS004549)
RXM-005	Webster’s Collegiate Dictionary (11th Ed. 2007) (“Webster’s Collegiate 2007”) (RESPONDENTS004539-RESPONDENTS004541)
RXM-006	The Oxford English Dictionary (2d. Ed. 1989) (“Oxford 1989”) (RESPONDENTS004407-RESPONDENTS004416)
RXM-007	Random House Webster’s College Dictionary (2d Ed. 2000) (“Random House Webster’s 2000”) (RESPONDENTS004417-RESPONDENTS004419)
RXM-008	File history of U.S. Patent No. 9,089,079 (RESPONDENTS004095-RESPONDENTS004391)
RXM-009	Declaration of Robert Smith-Gillespie, dated January 17, 2023

Ex. No.	Description
RXM-010	Memorandum Opinion, D.I. 150, <i>Manufacturing Resources Int'l, Inc. v. Civiq Smartscapes, LLC, et al.</i> , Civil Action No. 17-269-RGA (D. Del. Sept. 27, 2018)
RXM-011	Excerpt of Corrected Joint Claim Construction Brief, D.I. 124, <i>Manufacturing Resources Int'l, Inc. v. Civiq Smartscapes, LLC, et al.</i> , Civil Action No. 17-269-RGA (D. Del. July 31, 2018)
RXM-012	Webster's Third New International Dictionary (2002) ("Webster's 2002")
RXM-013	Merriam-Webster's Collegiate Dictionary (11th Ed. 2007) ("Merriam-Webster's 2007")
RXM-014	Random House Webster's College Dictionary (2000)
RXM-015	Excerpt of Markman Hearing Transcript from <i>Manufacturing Resources Int'l, Inc. v. Civiq Smartscapes, LLC, et al.</i> , Civil Action No. 17-269-RGA (D. Del. Sept. 19, 2018)
RXM-016	Excerpt of Information Disclosure Statement, U.S. Application No. 16/933,932 ('142 patent), submitted August 26, 2020
RXM-017	Order [Regarding Markman Hearing], D.I. 146, <i>Manufacturing Resources Int'l, Inc. v. Civiq Smartscapes, LLC, et al.</i> , Civil Action No. 17-269-RGA (D. Del. Sept. 16, 2018)
RXM-018	DeAgazio, "Thin is In: LED Backlight Units are Becoming Thinner and Brighter to Meet Consumer-Product Requirements," <i>Information Display</i> , 16-20 (Feb. 2009)
RXM-019	Information Disclosure Statement, U.S. Application No. 15/789,331 ('740 patent), submitted December 11, 2018

TABLE OF ABBREVIATIONS

Abbreviation	Description
'595 patent	U.S. Patent No. 8,854,595
'322 patent	U.S. Patent No. 9,173,322
'287 patent	U.S. Patent No. 9,629,287
'142 patent	U.S. Patent No. 11,013,142
'740 patent	U.S. Patent No. 10,506,740
Asserted Patents	Collectively, the '595 patent, '322 patent, '287 patent, '142 patent, and '740 patent
Complainant or MRI	Complainant Manufacturing Resources International, Inc.
JCCS	Joint Claim Construction Statement, filed Jan. 25, 2023
Coates	Respondents Coates Signco Pty Limited and Coates US Inc.
Palmer	Respondent Industrial Enclosures Corporation d/b/a Palmer Digital Group
Respondents	Collectively, Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung SDS Co. Ltd., and Samsung SDS America, Inc.; Coates Signco Pty Limited and Coates US Inc.; and Industrial Enclosures Corporation d/b/a Palmer Digital Group
LED	Light emitting diode
Mem. Opinion	Memorandum Opinion, D.I. 150, <i>Manufacturing Resources Int'l, Inc. v. Civiq Smartscapes, LLC, et al.</i> , Civil Action No. 17-269-RGA (D. Del. October 3, 2018)
<i>MRI v. Civiq</i> Litigation	<i>Manufacturing Resources International, Inc. v. Civiq Smartscapes et al.</i> , Civil Action No. 17-269-RGA (D. Del)
PCB	Printed circuit board
POSITA	Person of ordinary skill in the art
Smith-Gillespie Decl.	Declaration of Robert Smith-Gillespie

I. INTRODUCTION

Respondents respectfully submit this brief and expert declaration in support of their proposed constructions. Respondents’ proposed constructions reflect a POSITA’s understanding of the disputed terms in the context of the intrinsic and extrinsic evidence and provide guidance for understanding some of the key scope issues in this Investigation. In contrast, Complainant resorts to “plain and ordinary meaning” constructions for most of the terms, without defining that meaning or otherwise addressing the parties’ disputes as to key scope issues.

II. BACKGROUND

A. The Asserted Patents

Complainant asserts the following patents and claims:

Patent	Asserted Claims ¹	Domestic Industry Claims
U.S. Patent No. 8,854,595	1, 4, 7, 8	1, 4, 7, 9, 13, 16, 18
U.S. Patent No. 9,173,322	4, 5, 8, 9, 12, 13, 16	1-5, 7
U.S. Patent No. 9,629,287	1, 4, 8, 9, 10, 11, 12, 15, 21, 22, 23	12, 17-19
U.S. Patent No. 10,506,740	1, 5, 6	1-3, 5, 6, 8, 10, 13, 15-18, 20
U.S. Patent No. 11,013,142	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	6, 7, 10, 12, 15

The five Asserted Patents are all part of the same patent family, connected by chains of continuation and continuation-in-part applications. William Dunn—the founder of MRI—is an inventor on all five patents, which fall into three buckets. First, the ’595 and ’322 patents share a common specification because the ’322 patent is a continuation of the ’595 patent. Second, the ’740 and ’142 patents share a common specification because the ’740 patent is a continuation of the ’142 patent. The ’740 and ’142 patents stem from an application filed as a continuation-in-

¹ MRI does not assert the ’740 or ’142 patent against Respondents Palmer or Coates.

part of the '595 patent. Third, the '287 patent also stems from an application filed as a continuation-in-part of the '595 patent.

B. Procedural Background

Complainant previously asserted the '595, '322, and '287 patents in *Manufacturing Resources International, Inc. v. Civiq Smartscales et al.*, Civil Action No. 17-269-RGA (D. Del) (“*MRI v. Civiq* Litigation”). The presiding judge, the Honorable Richard G. Andrews, issued a Memorandum Opinion regarding claim construction on September 27, 2018. RXM-010. In that Opinion, Judge Andrews construed four of the seven terms disputed herein. *Id.* As reflected in the chart below, for these four terms, Respondents propose constructions consistent with those adopted by Judge Andrews. In contrast, Complainant largely rejects those constructions even though Complainant itself proposed them or assented to them after they were first presented as “tentative constructions.” RXM-010.007-8, 010-11.

Term	<i>MRI v. Civiq</i> Litigation Construction/ Respondents' Proposed ITC Construction	MRI's Proposed Construction in <i>MRI v. Civiq</i> Litigation	MRI's Proposed ITC Construction
“Constricted convection channel”	“constricted channel through which air may flow to remove heat from the posterior display surface”	“a narrow passage immediately behind the posterior display surface formed by the constricted convection plate and the posterior display surface and the side panels through which outside air can pass through to remove heat from the posterior display surface through convective heat transfer”	A narrowed air flow path in contact with the [posterior display surface / posterior surface] formed by a flat structure, distinct from the housing, located in proximity to the [posterior display surface / posterior surface] to increase the effectiveness of convective heat transfer from the display.

“Posterior display surface”	“rear-facing surface of the display assembly”	“the rear side of the back of the display” or no construction needed	Plain and ordinary meaning
“between”	“in the space that separates”	“in the space that separates” or no construction necessary	Plain and ordinary meaning
“closed loop”	“gas pathway within a display housing containing gas that is essentially isolated from external air”	“gas pathway within a display housing that is isolated from external air outside the pathway to the extent that dust and contaminants may not substantially enter the pathway”	Plain and ordinary meaning

C. Technical Background

The alleged inventions are directed to cooling of electronic displays, including Liquid Crystal Displays (“LCD”), using forced convection. Such systems and methods were well known in the prior art. Indeed, according to the Background of the Art section of the Asserted Patents, “[c]onductive and convective heat transfer systems for electronic displays are known.” ’595 patent, 1:52-53²; ’287 patent, 1:63-64. For example, “systems of the past have relied primarily on fans for moving air past the components to be cooled and out of the display.” ’595 patent, 1:56-57; *see* ’287 patent, 2:2-6 (“cooling devices for electronic displays of the past have generally used convective heat dissipation systems that function to cool an entire interior of the display by one or more fans and fins, for example”); ’142 patent, 2:2-5 (“[S]ystems of the past have relied primarily on fans for moving internal air (or ingested ambient air) within the housing past the components to be cooled and out of the display.”); ’740 patent, 1:63-67 (same). The specification explains that

² As discussed above, the ’595 and ’322 patents share the same specifications. Citations to the ’595 patent specification thus also refer to the ’322 patent.

“[t]his helps to uniformly cool a display with an LED backlight” as “individual LEDs may fail prematurely if exposed to high levels of heat for an extended period of time.” ’595 patent, 3:5-8.

III. PERSON OF ORDINARY SKILL IN THE ART

Respondents’ proposed definition of the level of ordinary skill held by a person of ordinary skill in the art (“POSITA”) at the time of the alleged invention of the Asserted Patents is largely identical to that proposed by MRI in the *MRI v. Civiq* Litigation. RXM-011.014. Specifically, a POSITA would have had a (1) Bachelor’s degree in a pertinent discipline, such as mechanical engineering, physics, product design, or a related field and (2) have 2-4 years of experience in working with electronic displays and have an understanding of product design issues and failure modes associated with electronic displays. RXM-009.009 (Smith-Gillespie Decl.). Alternatively, a POSITA would have had 5-7 years of experience in the field working with electronic displays and have a similar understanding of product design issues and failure modes associated with electronic displays. *Id.* To the extent necessary, a POSITA would have been able to collaborate with one or more other persons of skill in another art (e.g., one of skill in the art of electrical engineering) for one or more aspects with which the other person may have expertise, experience, and/or knowledge that was obtained through her own education, industrial or academic experience. *Id.*

IV. UNDISPUTED TERMS

The parties agreed to the constructions set forth in the January 25, 2023 JCCS, and request entry of those constructions.

V. DISPUTED TERMS

A. '595 and '322 Patents

1. **“a fan positioned to draw air through the constricted convection channel” / “a fan placed to draw air from outside of the housing through the constricted convection channel”**

Claims	Respondents' Construction	Complainant's Construction
'595: 1, 4	“a fan positioned to pull air [from outside the housing] through and out of the constricted convection channel”/ “a fan positioned to pull [ambient] air through and out of the space that separates the constricted convection plate and the [rear posterior/posterior surface]”	Plain and ordinary meaning

“a fan placed to draw ambient air between the constricted convection plate and the rear posterior” / “a fan positioned to draw air between the constricted convection plate and the posterior surface”

Claims	Respondents' Construction	Complainant's Construction
'322: 1, 4	“a fan positioned to pull air [from outside the housing] through and out of the constricted convection channel”/ “a fan positioned to pull [ambient] air through and out of the space that separates the constricted convection plate and the [rear posterior/posterior surface]”	Plain and ordinary meaning

The parties' dispute as to this term focuses on what qualifies as “draw[ing]” air with a fan pursuant to the Asserted Claims, and corresponding efforts by Complainant to effectively read out the “drawing” aspect to more broadly cover “forcing” air flow systems. Because there is a dispute between the parties which will impact the scope of the claims, a “plain and ordinary meaning” construction as proposed by Complainant is not appropriate. *See O2 Micro Int'l, Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008); *Eon Corp IP Holdings LLC v. Silver*

Springs Networks, Inc., 815 F.3d 1314, 1318-19 (Fed. Cir. 2016). Moreover, nothing in the intrinsic record supports rewrite so as to encompass both “drawing” and “forcing” fans. Rather, the ’595 and ’322 patent claims, and the language in the shared specification, use “a fan positioned to draw” consistent with the term’s well-known meaning in the art to refer to a fan that ***pulls*** air into and through (*i.e.*, draws) the constricted convection channel as opposed to one that ***pushes*** air into (*i.e.*, forces) the channel.

**a. The Language of the Patent Claims and the Specifications
Support Respondents’ Proposed Construction**

As discussed more fully below in the next section, a POSITA generally differentiates between “drawing” operations and “forcing” / “pushing” operations when designing air flow systems in consumer electronics devices. The claims and shared specification of the ’595 and ’322 patents indicate that the patentee understood “drawing” fans to be distinct from “forcing” fans and intentionally used those terms in different claims to refer to different embodiments of the alleged invention. The relevant claims here reference “drawing” operations as opposed to “forcing” operations and thus do not read on fans positioned to “force” air into the relevant channel.

It is well established that “[t]here is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims.” *Tandon Corp. v. U.S. Int’l Trade Comm’n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987). Here, the patentee made a choice to draft some claims directed to “drawing” fans while drafting other claims directed to “forcing” fans. Compare ’595 patent, claims 1 & 4 (“a fan [placed/positioned] to draw air [from outside of the housing] through the constricted convection channel”) with *id.*, claim 9 (“a means for forcing air through the constricted convection channel”).

A fan placed inside a “constricted convection channel” can both draw air (by pulling it in from outside the entrance and pulling it through the channel) and force air (by pushing it through

the remainder of the channel). Indeed, the dependent claims recognize such a possibility by noting that forcing and drawing fans can be placed “near” an entrance or exit rather than “at” the entrance or exit. For example, claim 7 of the ’595 patent depends from claim 4 (which claims a drawing fan) and requires that “the fan is placed near the exit of the constricted convection channel” such that air is drawn through the constricted convection channel in a direction that flows from the entrance to the exit. RXM-009.025 (Smith-Gillespie Decl.). Likewise, claim 16 of the ’595 patent depends from claim 9 (which claims a forcing fan) and states that the “means for forcing air through the constricted convection channel comprises a plurality of fans placed near the exit of the constricted convection channel.” And claim 13 of the ’322 patent, which depends from claims 9 and 12 (which claim forcing fans), requires that “the means for forcing air . . . comprises a plurality of fans placed near the entrance aperture.” Thus, the claims themselves indicate that a “drawing” fan is located somewhere other than the entrance of the channel, such that air is drawn, or pulled, through the channel from the entrance to the exit, while a “forcing” fan is located somewhere other than the exit such that air is forced, or pushed, into the channel. *See id.*

Respondents’ proposed construction also finds support within the shared specification of the ’595 and ’322 patents, which consistently distinguishes between “drawing” and “forcing” fans when discussing fans located *at* an entrance or exit. For example, “[t]he fans **52** may either *force* the air through the constricted convection channel **50** or *pull* the air through the constricted convection channel **50**.” ’595 patent, 5:50-52 (emphasis added). Likewise, the shared specification specifies that “[o]ne or more fans may be used to *draw* the cooling air,” but “[i]n other embodiments, one or more fans may be used to *force* air through the constricted convection cooling channel.” *Id.*, 2:65-3:2 (emphasis added). In each of these examples, the shared specification describes a “drawing” fan as one that pulls air from outside the housing through and

out of the constricted convection channel, and in fact the two terms are expressly used as synonymous actions.

Consistent with the patent claims, the shared specification also distinguishes between fans located at the entrance and those located at the exit. For example, the patents explain, “fan **52** may be associated with the exit opening **64** and may *draw* air from the constricted convection channel **50**.” *Id.*, 7:43-45. In contrast, “fan **52** may be associated with the entrance opening **62** and may force air into the constricted convection channel **50**.” *Id.*, 7:45-47. Therefore, whether a fan “draws” or “forces” depends on its location relative to the entrance and exit of the channel. A “drawing” fan is located anywhere other than the entrance and, therefore, acts to pull air into the housing, through the constricted convection channel, and exhaust it out of the housing at the outlet. In contrast, a “forcing” fans is located anywhere other than the exit, and, therefore, acts to “force” air from outside of the housing into the constricted convection channel. RXM-009.026 (Smith-Gillespie Decl.). Fans located at a location other than the entrance or exit can be both forcing and drawing fans.

This distinction between “drawing” and “forcing” fans with regard to fan location is illustrated in exemplary embodiments shown in the patent figures. For example, “drawing” fans located at the exit of the constricted convection channel are illustrated in the embodiments depicted in Figures 5B and 5D, each of which depict a side view of the constricted convection system:

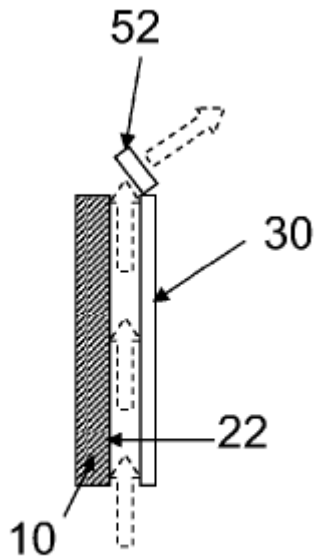


Fig. 5B

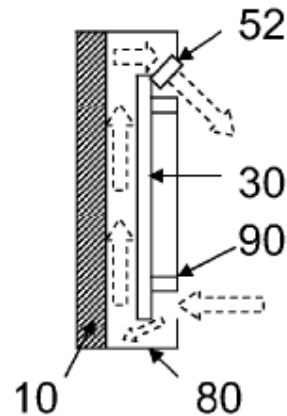
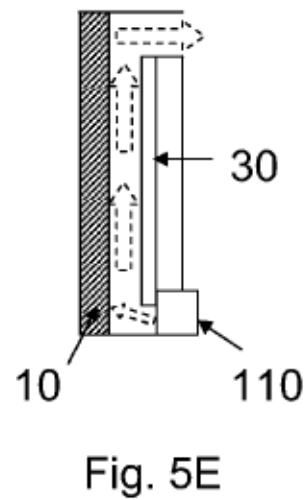
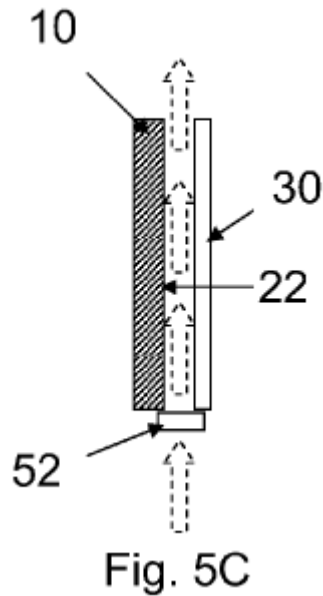


Fig. 5D

'595 patent, Figs. 5B, 5D; *id.*, 6:1-2. As the shared specification notes, in Figure 5B, “one or more fans **52** are used to *draw* ambient air between the posterior display surface **22** and the constricted convection plate **30**.” *Id.*, 6:2-5. Similarly, the shared specification notes that in the embodiment depicted in Figure 5D, “the housing **80** and the septum **90** are used to direct the flow of air,” but is otherwise “similar to FIG. 5B.” *Id.*, 6:7-9. Therefore, a POSITA would have understood from the disclosures in the shared specification that the fans **52** in Figures 5B and 5D are drawing (or exhaust) fans located at the exit opening, and that these fans function by drawing or pulling air through and out of the constricted convection channel. RXM-009.026-27 (Smith-Gillespie Decl.).

The shared specification contrasts the “drawing” fans shown in Figures 5B and 5E with the forcing fans at the entrance of the constricted convection channel shown in Figures 5C and 5E below:



'595 patent, 6:1-10, Figs. 5C & 5E. Specifically, the embodiment depicted in Figure 5C shows a side view of a fan **52** located at the entrance of the constricted convection channel, which is “used to *force* ambient air between the posterior display surface **22** and the constricted convection plate **30**.” *Id.*, 6:5-7. Figure 5E shows “an air conditioning unit **110**,” located at the entrance to the constricted convection channel, which “is used to both cool the air and to *force* the cooled air between the posterior display surface **22**.” *Id.*, 6:9-11. Therefore, the shared specification supports Respondents’ construction.

The Federal Circuit recently addressed an issue very similar to that presented here in *Tippmann Engineering, LLC v. Innovative Refrigeration Systems Inc.*, No. 2022-1318, 2023 WL 18559 (Fed. Cir. Jan. 3, 2023). There, the parties disputed the meaning of the phrases “an air inlet and an air outlet” and “a fan positioned to direct the air into the airflow chamber from the air inlet and exhaust air into the warehouse space through the air outlet” (collectively referred to as the “Air Flow Terms”). *Id.* at *2. Specifically, the parties disputed whether the Air Flow Terms “require a negative-pressure arrangement (also called an induced air arrangement), in which air is

drawn or sucked through the products to be frozen, or whether the Air Flow Terms also encompass a positive-pressure arrangement, in which air is forced or pushed through the products to be frozen.” *Id.* The Federal Circuit affirmed that district court’s construction that the Air Flow Terms cover only arrangements where “air is drawn or sucked through” and excluded those where “air is forced or pushed through” because the specification disclosed only drawing fans to direct airflow in and out of the chamber. *See id.* at *4-5. Likewise, the drawing terms should be limited to fans positioned to pull air from outside the housing through and out of the constricted convection channel because such a limitation is consistent with how the word “draw” is used in the specification and there is no instance where a drawing fan is located near an entrance.

b. Extrinsic Evidence Supports Respondents’ Proposed Construction

As noted previously, extrinsic evidence, including technical treatises and dictionaries, differentiates between “drawing” operations and “forcing” / “pushing” operations per Respondents’ proposed construction and the intrinsic record.

For example, the reference work “Cooling Techniques for Electronic Equipment” details the use of fans in cooling electronic equipment. RXM-001.179 (Dave S. Steinberg, Cooling Techniques for Electronic Equipment 2 (John Wiley & Sons, 1980)). Steinberg notes that “[w]hen a fan is used for cooling electronic equipment, the air flow direction can be quite important.” *Id.* (“The fan can be used to draw air through a box or to blow air through a box.”). Specifically, Steinberg distinguishes between fans that draw, or pull air through and out of an electronic system and those that force air into an electronic system. *Id.* As Steinberg explains, forcing fans induce positive pressure within the housing relative to the outside while drawing fans induce negative pressure relative to the outside. *Id.* Steinberg illustrates the difference between fans that “blow”

air and are placed at the entrance or inlet and fans that “draw” air and are placed at the exit or outlet:

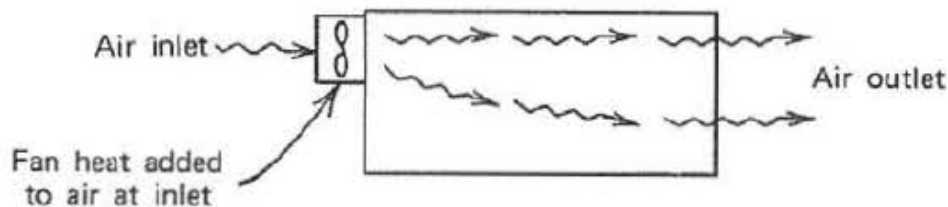


Figure 6.1 Axial flow fan blowing cooling air through a box.

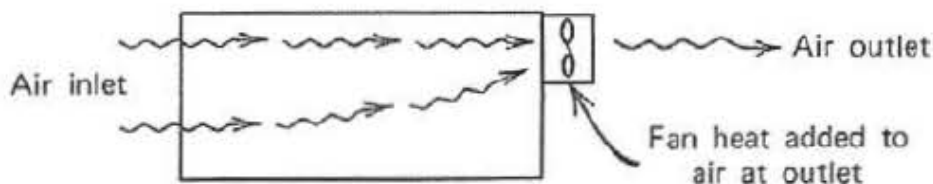


Figure 6.2 Axial flow fan drawing cooling air through a box.

RXM-001.179-80. Therefore, a POSITA would have understood that “drawing” and “forcing” refer to distinct types of fan systems that operate in different ways, with different results. RXM-009.028 (Smith-Gillespie Decl.).

In addition, numerous general purpose dictionaries confirm that a POSITA would have understood that “draw” is generally understood to mean “pull.” For example, Webster’s Collegiate Dictionary defines “draw” as “to *pull* up or out of a receptacle or place where seated or carried.” RXM-005.003 (emphasis added). Similarly, the Oxford English Dictionary 1989 defines draw as “[t]o cause (anything) to move toward oneself by the application of force; to *pull*.” RXM-006.003 (emphasis added); *see also* RXM-007.003 (Random House Webster’s 2000) (defining “draw” as “to cause to move in a particular direction by or as if by a *pulling* force; *pull*; drag” (emphasis added)).

Therefore, both the intrinsic and extrinsic evidence support Respondents’ proposed construction. Complainant’s attempt to avoid construction of this term in an attempt to blur the clear distinction between “forcing” and “drawing” fans in the intrinsic record should be rejected.

2. “between”

Claims	Respondents’ Construction	Complainant’s Construction
’322: 1, 4, 9	“in the space that separates”	Plain and ordinary meaning

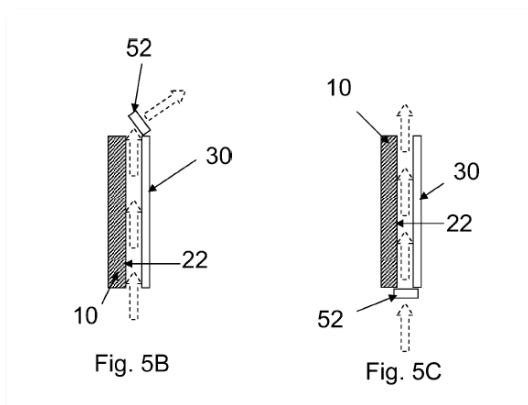
It is unclear to Respondents where the dispute lies as to the “between” term, as Respondents propose the same construction *proposed by Complainant* in the *MRI v. Civiq* Litigation and adopted by Judge Andrews as “giv[ing] effect to the ordinary and plain meaning of the term in the context of the patent.” RXM-010.009. While Complainant purportedly requests a “plain and ordinary meaning” construction, it has not explained whether or how such a construction differs from the construction that it previously proposed in the *MRI v. Civiq* Litigation as reflecting the plain and ordinary meaning of the term. RXM-011.042-43 (“Plaintiff MRI’s proposed definition applies the ordinary meaning of the words ‘between.’ (*i.e.*, ‘between’ = ‘in the space that separates’)); *id.*, 046 (“A [POSITA] would understand from the context of the ’322 Patent, that the term ‘between’ is used according to its ordinary meaning or ‘in the space that separates.’”).

a. The Language of the Patent Claims and the Specifications Support Respondents’ Proposed Construction

The plain language of the claims supports Respondents’ construction. Independent claims 1 and 9 are expressly directed to “[a] system for cooling an electronic display.” Claims 1, 4 and 9 all require air flow “between” the constricted convection plate and another surface—the rear posterior (claim 1), the posterior surface of the PCB (claims 4 and 7), or the posterior surface of the electronic display (claims 9, 12, and 13). For example, claim 4 of the ’322 patent requires “a fan positioned to draw air *between* the constricted convection plate and the posterior surface [of

the PCB].” Accordingly, the claims require airflow “in the space that separates” the constricted convection plate and the specified other surface to achieved the intended cooling function.

The '322 patent specification further supports Respondents' construction. For example, the Abstract of the '322 patent states that “[f]ans may be used to propel or pull air *between* the constricted convection plate and the rear surface of an electronic display.” '322 patent, Abstract (emphasis added). In addition, with reference to Figures 5B and 5C, the specification describes that “[i]n FIG. 5B, one or more fans **52** are used to draw ambient air *between* the posterior display surface **22** and the constricted convection plate **30**” and that “[i]n FIG. 5C, one or more fans **52** are used to force ambient air *between* the posterior display surface **22** and the constricted convection plate **30**”:



Id., 6:2-7 (emphasis added); *see also id.*, Figs. 5B & 5C. The dashed arrows in Figures 5B and 5C represent the flow of air “in the space that separates” the posterior display surface **22** and the constricted convection plate **30**. Finally, the specification describes a “gap distance *between* the display posterior **22** and the constricted convection plate.” *Id.*, 4:49-51; *see also id.*, 8:18-20 (“A constricted convection channel **50** is defined by the gap between the constricted convection plate **30**, and the display posterior.”). That gap defines the “space that separates” that display posterior **22** and the constricted convection plate.

b. Extrinsic Evidence Supports Respondents' Proposed Construction

Extrinsic evidence also supports Respondents' proposed construction for "between." For example, general purpose dictionaries define "between" as "in the space that separates." RXM-012.003 (Webster's 2000); *see also* RXM-013.003 (Merriam-Webster's 2007) ("in the time, space, or interval that separates"), RXM-014.003 (Random House Webster's 2000) ("in the space separating"). In fact, Complainant relied on Webster's 2002 as the basis for its proposed construction in the *MRI v. Civiq* Litigation. RXM-011.045. Accordingly, the plain and ordinary meaning of "between" is "in the space that separates." This is consistent with how other courts have interpreted the plain and ordinary meaning of "between." *See, e.g., Wonderland NurseryGoods Co. v. Thorley Indus., LLC*, 988 F. Supp. 2d 479, 504 (W.D. Pa. 2013), *aff'd*, 644 F. App'x 1011 (Fed. Cir. 2016) (construing "between" to mean "in the space that separates").

Therefore, both the intrinsic and extrinsic evidence support Respondents' proposed construction. Complainant's attempt to avoid construction of this term, when it previously proposed the exact construction that Respondents propose, should be rejected.

3. "constricted convection plate"

Claims	Respondents' Construction	Complainant's Construction
'595: 1, 4, 8, 9 '322: 1, 3, 4, 5, 7, 8, 9, 12, 13	No construction necessary; in the alternative, plain and ordinary meaning.	A flat structure, distinct from the housing, located in proximity to the[posterior display surface /posterior surface] to narrow an air flow path, thereby directing airflow into contact with the [posterior display surface /posterior surface] to increase the effectiveness of convective heat transfer from the display

The parties disagree about whether the term "constricted convection plate" needs to be construed. Respondents propose that no construction is necessary because the term is used consistent with its plain and ordinary meaning in the claims and the specification of the '595 and

'322 patents. Complainant's proposed construction should be rejected because it is duplicative of its construction for "constricted convection channel," inconsistent with the claim language, and imports limitations, including a method step, that are superfluous and unsupported by the specification, and that would render the term indefinite. Accordingly, Complainant's proposal should be rejected.

a. "Constricted Convection Plate" Does Not Require Construction

In each of the relevant claims in the '595 and '322 patents, "constricted convection plate" describes a surface placed behind the posterior display surface and used to facilitate an airflow pathway therebetween or to form a "constricted convection channel." This plain and ordinary meaning is readily apparent to a POSITA, and thus need not be separately construed per Complainant's proposal. For example:

'595 Patent, Claim 1

A system for cooling an electronic display having a posterior display surface and contained within a housing, the system comprising:

a constricted convection plate placed posterior to the posterior display surface;

two side panels placed adjacent to the *constricted convection plate* and the posterior display surface, defining a constricted convection channel having an entrance and an exit; and

a fan placed to draw air from outside of the housing through the constricted convection channel.

'322 Patent, Claim 9

A system for cooling an electronic display comprising: an electronic display comprising a front display surface and a posterior surface where no electronics are mounted to the posterior surface of the electronic display;

a constricted convection plate behind the posterior surface of the display covering a majority of the posterior display surface; and

a means for forcing air between the *constricted convection plate* and the posterior surface of the electronic display.

Consistent with the claims, the “constricted convection plate” is described in the shared specification of the ’595 and ’322 patents as defining a part of the “constricted convection channel.” For example, the specification describes the “constricted convection plate” as “defin[ing] a constricted convection cooling channel immediately behind the posterior display surface.” ’595 patent, 2:54-56. Similarly, the specification explains that the “[t]he constricted convection plate **30** and the display posterior **22** define a constricted convection cooling channel **50** immediately behind the display posterior **22**.” *Id.*, 6:17-19. The specification does not define the “constricted convection plate” in any way other than in relation to the “constricted convection channel.” Therefore, no construction of “constricted convection plate” is needed. *Summit 6, LLC v. Samsung Elecs. Co., Ltd.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015) (“[b]ecause the plain and ordinary meaning of the disputed claim language is clear, the district court did not err by declining to construe the claim term”).

b. Complainant’s Proposed Construction Should Be Rejected

First, Complainant’s constructions for “constricted convection plate” and “constricted convection channel” are duplicative of one another, even though both terms appear in claims 1, 4, 8, and 9 of the ’595 patent, and presumably have different meaning. In fact, Complainant’s constructions contain nearly the same words arranged in a different order:

Complainant's Proposed Constructions	
Constricted Convection Plate	Constricted Convection Channel
“A flat structure, distinct from the housing, located in proximity to the [posterior display surface /posterior surface] to narrow an air flow path, thereby directing airflow into contact with the [posterior display surface / posterior surface] to increase the effectiveness of convective heat transfer from the display.”	“A narrowed air flow path in contact with the [posterior display surface /posterior surface] formed by a flat structure, distinct from the housing, located in proximity to the [posterior display surface / posterior surface] to increase the effectiveness of convective heat transfer from the display”

The duplication is even more apparent when both constructions are inserted into claims where both terms appear, like claim 1 of the '595 patent:

A system for cooling an electronic display having a posterior display surface and contained within a housing, the system comprising:

a [A flat structure, distinct from the housing, located in proximity to the posterior display surface to narrow an air flow path, thereby directing airflow into contact with the posterior display surface to increase the effectiveness of convective heat transfer from the display] placed posterior to the posterior display surface;

two side panels placed adjacent to the [A flat structure, distinct from the housing, located in proximity to the posterior display surface to narrow an air flow path, thereby directing airflow into contact with the posterior display surface to increase the effectiveness of convective heat transfer from the display] and the posterior display surface, defining a [A narrowed air flow path in contact with the posterior display surface formed by a flat structure, distinct from the housing, located in proximity to the posterior display surface to increase the effectiveness of convective heat transfer from the display] having an entrance and an exit; and

a fan placed to draw air from outside of the housing through the [A narrowed air flow path in contact with the posterior display surface formed by a flat structure, distinct from the housing, located in proximity to the posterior display surface to increase the effectiveness of convective heat transfer from the display].

'595 patent, claim 1 (modified to include Complainant's proposed constructions). At least because of the duplication, Complainant's proposed constructions should be rejected.

Second, Complainant's proposed construction is inconsistent with the claim language, and imports limitations, including a method step, that are superfluous and unsupported by the specification, and that would render the term indefinite. Respondent addresses each limitation in turn.

“A flat structure distinct from the housing.” Unlike independent claim 1 in each of the '595 and '322 patents, independent claims 4 and 9 of the '595 and '322 patents do not require a housing. As such, Complainant's proposed construction improperly reads “a housing” into those claims. *TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co.*, 264 F.3d 1111, 1123 (Fed. Cir. 2001) (“There is no basis for reading a limitation from the preferred embodiment into the language of the claim. That is particularly true where another claim restricts the invention in exactly the manner suggested by the district court's narrow claim construction.”) (citation omitted). In addition, for claim 1 of each of the '595 and '322 patents, which do require “a housing,” Complainant's construction improperly reads in the unclaimed requirement that the “constricted convection plate” and the housing are distinct. *See In re Papst Licensing Digital Camera Patent Litig.*, 778 F.3d 1255, 1262-63 (Fed. Cir. 2015) (rejecting district court's construction that “interface device” is limited to a “stand-alone device” because the “claim language . . . does not limit “interface device” to a device not permanently attached to (readily detachable from) a data device.”).

“Located in proximity to the posterior display surface.” Each of the independent claims '595 and '322 patents already limits the constricted convection plate to placement behind (or posterior to) the posterior display surface. *See* '595 & '322 patents, claim 1 (requiring the plate is “placed posterior to the posterior display surface”); '595 & '322 patents, claim 4 (requiring the plate is “placed behind [and substantially parallel with] the posterior surface of the PCB”); '595 &

'322 patents, claim 9 (requiring the plate to be “behind the posterior surface of the display”). Accordingly, this part of Complainant’s construction improperly reads a limitation into the claim. Moreover, this limitation introduces ambiguity. As the specification does not even use the term “in proximity,” a POSITA would have no idea how close the “constricted convection plate” would have to be to the posterior display surface to satisfy the claim.

“To narrow an air flow path, thereby directing airflow into contact with the posterior display surface to increase the effectiveness of convective heat transfer from the display.”

Complainant seeks to improperly import a functional limitation or method step—“to narrow an air flow path, thereby directing airflow into contact with the [posterior display surface /posterior surface] to increase the effectiveness of convective heat transfer from the display”—into the “constricted convection plate” term. Moreover, Complainant’s introduction of terms of degree like “narrow” and “increase the effectiveness” introduce ambiguity into the claims as discussed further below with respect to the “constricted convection channel” term. A POSITA would not understand what “to narrow” means in the context of the ’595 or ’322 patents; nor would a POSITA understand how to “increase the effectiveness” of the convective heat transfer because “effectiveness” is not described in the patents. Accordingly, Complainant seeks to import additional limitations, including a method, into the constricted convection plate term that fails to provide a POSITA with the reasonable scope of claims 1, 4, 8, and 9 of the ’595 patent and 1, 3, 4, 5, 7, 8, 9, 12, and 13 of the ’322 patent.

Therefore, Complainant’s proposed construction should be rejected.

4. “constricted convection channel”

Claims	Respondents’ Construction	Complainant’s Construction
'595: 1, 4, 7, 9, 16	“constricted channel through which air may flow to remove heat from the posterior display surface”	A narrowed air flow path in contact with the[posterior display surface / posterior surface] formed by a flat

Claims	Respondents' Construction	Complainant's Construction
		structure, distinct from the housing, located in proximity to the [posterior display surface / posterior surface] to increase the effectiveness of convective heat transfer from the display.

The parties agree that the “constricted convection channel” should be construed, and that the channel facilitates airflow to remove heat from the display. The parties’ dispute lies with Complainant’s attempt to read in superfluous, ambiguous, and unsupported language, whereas Respondents’ proposed construction mirrors the construction adopted by Judge Andrews in the *MRI v. Civiq* Litigation—to which MRI previously agreed.

**a. The Language of the Patent Claims and the Specifications
Support Respondents’ Proposed Construction**

The claims and shared specification of the ’595 and ’322 patents support the prior *MRI v. Civiq* Litigation construction as proposed by Respondents. First, the plain claim language provides that the channel allows airflow to remove heat from the posterior surface. For example, claim 1 of the ’595 patent recites:

A system for cooling an electronic display having a posterior display surface and contained within a housing, the system comprising:

a constricted convection plate placed posterior to the posterior display surface;

two side panels placed adjacent to the constricted convection plate and the posterior display surface, defining a ***constricted convection channel*** having an entrance and an exit; and

a fan placed to draw air from outside of the housing through the constricted convection channel.

’595 patent, claim 1 (emphasis added).

Second, the '595 specification repeatedly teaches that the constricted convection channel facilitates the removal of heat from the posterior surface of the display.³ For example, the specification states the “heat which is generated by the LEDs may be transferred to the posterior surface of the of the [*sic*] backlight assembly, *and subsequently removed by air within the constricted convection channel.*” ’595 patent, 4:55-60 (emphasis added). The specification further states that “the use of one or more fans **52** may provide increased velocity of the air traveling through the constricted convection cooling channel **50**, thus increasing the speed *with which heat is transferred from the display posterior 22.*” *Id.*, 5:54-58 (emphasis added). In describing Figure 6, the specification states “constricted convection channel **50** directs the air into contact with the display posterior **22** *increasing the heat transfer from the display.*” *Id.*, 6:33-35 (emphasis added).

Third, Complainant has given no cogent reason for departing from the same construction adopted by the court in the *MRI v. Civiq* Litigation. RXM-010.010-011. Judge Andrews proposed this construction during the *Markman* hearing in that case and MRI stated on the record that they were “fine with [Judge Andrews’] proposed definition.” *See* RXM-015.009, 33:3-5, 34:4-5. MRI should be held to the construction that they agreed to in the prior litigation.

b. Complainant’s Proposed Construction Impermissibly Imports Additional Limitations into the Claims

Complainant’s proposed construction is inconsistent with the claim language, and imports limitations that are superfluous and unsupported by the specification, and that would render the term indefinite. Respondent again addresses each limitation in turn:

³ While the parties disagree as to the meaning of “posterior display surface” / “posterior surface of the electronic display,” the parties agree that the two terms should be construed identically.

“A narrowed air flow path.” The term “narrowed” would add further ambiguity to the claims because it fails to inform a POSITA, with reasonable certainty, as to the scope of the claims. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901, (2014). “Narrowed” is never used in relation to the “constricted convection channel” in the specification. Instead, “narrow(ed)” is used in two places in the specification—to describe the depth of the channel passing in front of the display **10** and to describe the gas chamber **104**—neither of which describe the constricted convection channel. ’595 patent, 8:62-64. With respect to the “constricted convection channel,” the specification teaches that its width “may vary according to the thermal requirements of a particular application.” *Id.*, 5:14-16. For example, “in some embodiments, the constricted convection channel **50** may be one-half inch or less,” while in other embodiments, it could be “between one-half inch and one-inch,” or “between one and five inches.” *Id.*, 5:17-21. A POSITA would not understand where “narrowed” falls within the disclosed widths of the “constricted convection channel.” Indeed, in declining to adopt Complainant’s construction, Judge Andrews found that importing “narrow” into the claim was imprecise. RXM-010.010.

“In contact with the [posterior display surface / posterior surface].” Complainant’s proposed construction impermissibly reads specific embodiments into the claim language. For example, “in contact with the posterior display surface” is a limitation described in only two of the embodiments in the specification—Figures 3 and 6—and is not required by the claim. *See* RXM-010.011 (rejecting construction that sought to “capture the idea that the air must be in contact with the posterior display surface to remove heat” because the construction “impermissibly reads limitations from embodiments into the claim language”).

“Formed by a flat structure, distinct from the housing, located in proximity to the [posterior display surface / posterior surface] to increase the effectiveness of convective heat

transfer from the display.” In addition to the reasons explained above with respect to the “constricted convection plate” term, this part of Complainant’s construction is improper because it is duplicative of, and inconsistent with, the plain claim language. For example, claim 1 of the ’595 patent already defines the constructed convection channel as formed by: “two side panels placed adjacent to the constricted convection plate and the posterior display surface, defining a constricted convection channel.” Complainant’s proposed construction duplicates claim elements like “posterior display surface” and attempts to further inconsistently define the parameters of the channel:

A system for cooling an electronic display having a posterior display surface and contained within a housing, the system comprising:

a constricted convection plate placed posterior to the posterior display surface;

two side panels placed adjacent to the constricted convection plate and the posterior display surface, defining a *[A narrowed air flow path in contact with the posterior display surface formed by a flat structure, distinct from the housing, located in proximity to the posterior display surface to increase the effectiveness of convective heat transfer from the display]* having an entrance and an exit; and

a fan placed to draw air from outside of the housing through the constricted convection channel.

’595 patent, claim 1 (modified to include Complainant’s proposed constructions).

At least because it adds these redundant limitations, MRI’s construction should be rejected. *See Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 951 (Fed. Cir. 2006) (rejecting construction that would render other terms meaningless).

Finally, MRI’s proposed construction should be rejected because it is nearly the same construction previously advanced and subsequently abandoned in *MRI v. Civiq* for the same reasons it should be rejected here:

MRI Proposed Constructions for Constricted Convection Channel	
<i>Abandoned MRI v. Civiq</i> Litigation	This Investigation
“a <u>narrow</u> passage immediately behind the posterior display surface <u>formed by</u> the constricted convection plate and the posterior display surface and the side panels through which outside air can pass through to remove heat from the posterior display surface through convective heat transfer”	“A <u>narrowed</u> air flow path in contact with the [posterior display surface /posterior surface] <u>formed by</u> a flat structure, distinct from the housing, located in proximity to the [posterior display surface / posterior surface] to increase the effectiveness of convective heat transfer from the display”

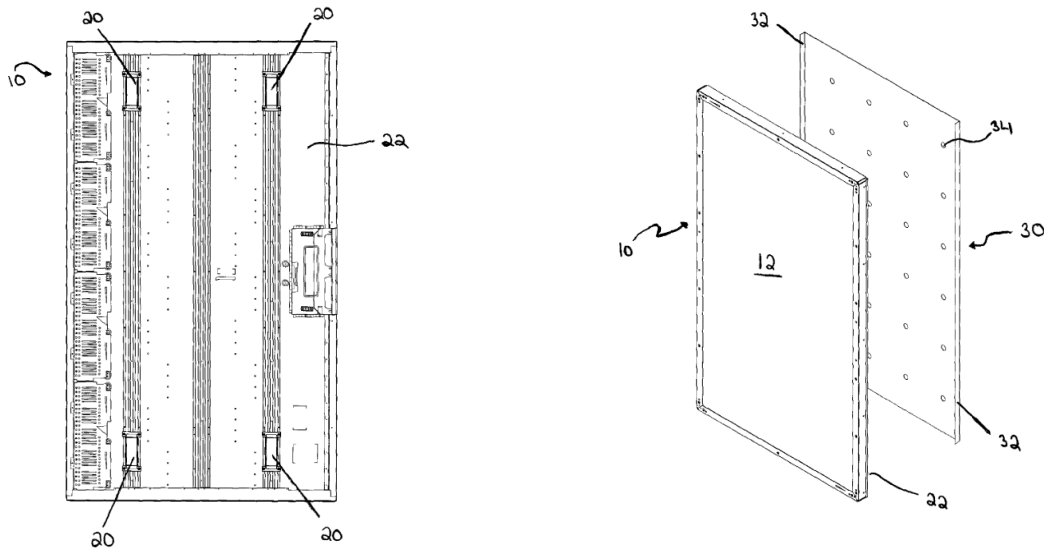
RXM-010.010; RXM-011.049-051; JCCS at 5.

5. “posterior display surface” / “posterior surface of the electronic display”

Claims	Respondents’ Construction	Complainant’s Construction
’595: 1 ’322: 3, 9	“rear-facing surface of the display assembly”	Plain and ordinary meaning

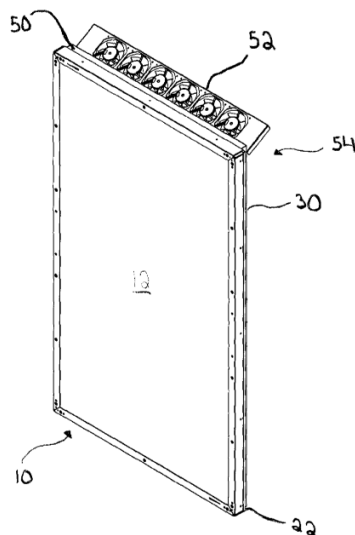
As with prior terms, it is unclear to Respondents where the parties diverge on this term as Respondents propose the same construction adopted by Judge Andrews in the *MRI v. Civiq* Litigation, which reflects the plain and ordinary meaning of the term and the intrinsic record. RXM-010.006-008. Like other terms discussed herein, Complainant acquiesced to this construction at the *Markman* hearing in the *MRI v. Civiq* Litigation. RXM-010.006-007.

The shared specification supports the prior *MRI v. Civiq* Litigation construction. For example, in Figure 2 of the ’595 and ’322 patents, a posterior view of a display **10**, shows the posterior display surface **22**, as does Figure 4, which is an exploded view of the constricted convection plate **30** and the display **10**, which has posterior display surface **22**:



'595 patent, Figs. 2, 4, 5:25-29. As can be seen in both of these figures, the posterior display surface **22** is the rear-facing surface of the display **10**.

The shared specification further describes the posterior display surface **22** in defining the bounds of the constricted convection channel. As shown in Figure 2 above, “the display posterior **22** may include four mounting brackets **20**,” to which a constricted convection plate **30** (shown in Figure 4 above) may be mounted. *Id.*, 4:39-46. Figure 5A shows the constricted convection plate **30** mounted to the posterior display surface **22**:



Id., 5:34-35, Fig. 5A. As explained in the shared specification, the constricted convection cooling channel **50** is defined as the space between the constricted convection plate **30** and “immediately behind the display posterior **22**.” *Id.*, 5:37-39. Thus, the display posterior **22** is the rear-facing surface of the display and is parallel to the constricted convection plate **30**.

In addition, in the Summary of the Exemplary Embodiments section of the shared specification, the patent notes that “[t]he constricted convection plate is preferably mounted to the *posterior display surface*.” ’595 patent, 2:49-51 (emphasis added). The shared specification further provides that “[t]his posterior display surface may be the posterior surface of the backlight assembly or the posterior surface of any other thin panel display assembly (OLED, plasma, etc.).” *Id.*, 2:51-54; *see also id.*, 4:52-53 (“[T]he display posterior may be the posterior surface of a backlight assembly.”). As Judge Andrews noted in the *MRI v. Civiq* Litigation, this passage from the specification indicates that “backlight assembly” and “thin panel display assembly” are specific examples of a “display assembly.” RXM-010.008 (Mem. Opinion). Indeed, this is consistent with the claim language itself. Specifically, independent claim 9 of the ’322 patent includes the limitation “the posterior surface of the display.” Dependent claim 16 specifies that “the posterior surface is the rear surface of a backlight assembly.” ’322 patent, claim 16. This is consistent with Respondents’ proposed construction and with Judge Andrew’s conclusion that a “backlight assembly” is an example of a “display assembly.” *See* RXM-010.008 (Mem. Opinion).

Moreover, there is no disclosure in either the specification, prosecution history or claims where the “posterior display surface” could not be anything other than the rear-facing surface of the display assembly. For example, other claims in the ’595 patent and ’322 patent cover a constricted convection channel located between a constricted convection plate and a “posterior surface on the rear side of the PCB.” *See* ’595 patent, claim 4; ’322 patent, claim 4. When the

applicant meant to refer to a posterior surface of something other than the rear surface of the display assembly, it knew how to do so.

Finally, in the *MRI v. Civiq* Litigation, before acquiescing to the construction that Respondents propose herein, MRI proposed that the term “posterior display surface” be construed as “the rear side of the back of the display.” RXM-011.026. MRI argued that its “proposed definition applies the ordinary meaning of the words ‘posterior display surface.’ (*i.e.*, ‘posterior’ = ‘back/rear’ and ‘surface’ = ‘side’).” *Id.* Accordingly, MRI has previously agreed that the “posterior display surface” is the “rear-facing surface of the display,” and should be held to that agreement here.

Therefore, the *MRI v. Civiq* Litigation construction as proposed by Respondents, “rear-facing surface of the display assembly,” is consistent with the intrinsic record, acquiesced to by Complainant, and should be adopted for the purposes of this Investigation.

B. '287, '740, '142, and '595 Patents

1. “closed loop”

Claims	Respondents’ Construction	Complainant’s Construction
'287: 1, 2, 4-8, 11, 12, 17-19, 21, 22 '740: 1, 5, 6, 8, 15, 16, 17, 20 '142: 1, 3, 6, 12, 15 '595: 9	“gas pathway within a display housing containing gas that is essentially isolated from external air”	Plain and ordinary meaning

The parties’ dispute as to this term concerns the point at which an otherwise “open” loop becomes a “closed” loop and thus falls within the scope of the claim – *i.e.*, how “closed” an airflow pathway must be from external air (e.g., ambient air). In vaguely referencing “plain and ordinary meaning” and otherwise refusing to define the boundary between “open” versus “closed” loops,

Complainant fails to address a key claim scope dispute between the parties. This matters because, in some products, ambient air is permitted to mix with the airflow pathway – i.e., an “open loop” – that MRI has nonetheless alleged satisfies the “closed loop” limitation in the asserted patents.

a. According to the Claims, Specification and Prosecution History, a “Closed Loop” Must Be “Essentially Isolated” From External Air

The phrase “closed loop” appears in asserted infringement and domestic industry claims in four of the five Asserted Patents. As evident by a review of the claims, the phrase “closed loop” is used in the same way in all patents: to characterize a pathway which cools an electronic display.⁴

'287 patent

1. An electronic display assembly comprising:
an electronic display housing;
a ***gas-containing closed loop gas cooling chamber*** located within the electronic display housing;
an electronic display positioned within the electronic display housing but outside of the ***closed loop gas cooling chamber***; and
an open loop ambient air pathway through the electronic display housing;
wherein the electronic display is coolable by a combination of gas circulation within the ***closed loop gas cooling chamber*** and ambient air flow through the open loop ambient air pathway in the electronic display housing.

12. An electronic display assembly comprising:
a housing;
a liquid crystal display (LCD) positioned within the housing and having a backlight;
wherein the electronic display is coolable by a combination of a ***closed loop of isolated gas*** which circulates within the housing and an open loop of ambient air which passes through the housing and along the backlight.

18. An electronic display assembly comprising:
a housing;

⁴ The phrase “closed loop” also appears in dependent asserted infringement and domestic industry claims 2, 4-8, 11, 17, 19 and 22 of the '287 patent; claims 5, 6, 15, 16 and 20 of the '740 patent; and claims 3 and 15 of the '142 patent. The phrase is used in the dependent claims in a manner consistent with the independent claims.

an electronic display positioned within the housing;

...

wherein the front surface of the electronic display is coolable by a ***closed loop of isolated gas*** and the rear surface of the electronic display is coolable by an open loop of ambient air.

21. An electronic display assembly comprising:

an electronic display housing;

a ***closed loop of cooling gas*** adapted for circulation within the electronic display housing;

an open loop ambient air pathway through the electronic display housing; and

an electronic display positioned within the electronic display housing such that the electronic display is isolated from the ***closed loop of cooling gas*** but contactable by ambient air flowing through the open loop ambient air pathway;

wherein the electronic display is coolable by a combination of ***closed loop cooling gas circulation*** within the electronic display housing, and ambient air flow through the open loop ambient air pathway in the electronic display housing.

'740 patent

1. An electronic display comprising:

an electronic image assembly having a front portion and a rear portion;

an open loop ambient air flow path behind the rear portion of the electronic image assembly;

a ***closed loop gas circulation path*** about the electronic image assembly;

a common heat exchanger located in the pathway of both the ***closed loop gas circulation path*** and the open loop ambient air flow path;

....

8. An electronic display comprising:

an electronic image assembly having a front portion and a rear portion;

a ***closed loop gas circulation path*** encircling the electronic image assembly;

an open loop ambient air flow path behind the rear portion of the electronic image assembly;

...

a common heat exchanger in gaseous communication with both the ***closed loop gas circulation path*** and the open loop ambient air flow path;

at least one fan positioned to force circulating gas through the ***closed loop gas circulation path***;

....

17. A cooling system for an electronic image assembly, comprising:
an open loop ambient air flow path at a rear portion of the electronic image assembly;

a ***closed loop gas circulation path*** encircling the electronic image assembly;

a common heat exchanger in gaseous communication with both the ***closed loop gas circulation path*** and the open loop ambient air flow path;

a front channel . . . forming a part of the ***closed loop gas circulation path***;

...

at least one fan positioned to force circulating gas through the ***closed loop gas circulation path*** and the common heat exchanger; and

....

'142 patent

1. A cooling system for an electronic image assembly, the cooling system comprising:

a housing for the electronic image assembly;

...

a ***closed loop airflow pathway*** passing through the housing, wherein said ***closed loop airflow*** passes around said electronic image assembly and is configured to accommodate circulating gas, and wherein at least a portion of said ***closed loop airflow pathway*** extends between said electronic image assembly and said cover panel;

...

at least one air circulation device positioned to force the circulating gas through ***the closed loop airflow pathway*** when activated

....

6. A cooling system for an electronic image assembly, the cooling system comprising:

a housing for the electronic image assembly;

...

a ***closed loop gas circulation pathway*** contained within the housing, wherein a portion of said ***closed loop gas circulation pathway*** passes between said transparent cover panel and said electronic image assembly;

...

a gas circulation device positioned along said ***closed loop gas circulation pathway*** to force circulating gas around the ***closed loop gas circulation pathway*** when activated;

a heat exchanger . . . wherein a second portion of said heat exchanger forms part of said ***closed loop gas circulation pathway***; and one or more solar energy reduction layers located at said transparent cover panel, wherein each of said one or more solar energy reduction layers is configured to prevent a portion of solar energy entering said transparent cover panel from thermally interacting with the circulating gas at said portion of said ***closed loop gas circulation pathway*** passing between said transparent cover panel and said electronic image assembly

12. A method for cooling an electronic image assembly, said method comprising the steps of:
placing said the electronic image assembly within a housing;
forcing circulating air through a ***closed loop airflow pathway*** within said housing, wherein at least a portion of said ***closed loop airflow pathway*** extends between an electronic image assembly and a cover panel forming a front portion of said housing and spaced apart from said electronic image assembly,
. . . .
providing one or more solar energy reduction layers at an inward facing surface of said cover panel, wherein each of said one or more solar energy reduction layers is configured to reduce an amount of solar energy transferred to said circulating air in at least said portion of said ***closed loop airflow pathway***.

'595 patent

9. A system for cooling an electronic display comprising:
an electronic display comprising a front display surface and a posterior surface;
a constricted convection plate and a pair of sidewalls behind the posterior surface of the display, defining a constricted convection channel having an entrance and exit;
a ***gaseous closed loop*** traveling across the front display surface, behind the constricted convection plate, and returning to the front display surface;
a means for propelling gas around the ***closed loop***;
a means for cooling the gas in the ***closed loop***; and
a means for forcing air through the constricted convection channel.

While the claims say nothing about how “closed” an airflow pathway must be from external air to be considered a “closed loop,” the specifications for the ’287, ’595, ’740, and ’142 patents make clear that a “closed loop” should be “essentially isolated from external air.”⁵

Respondents’ proposed construction arises directly from definitional language in the specification. Figure 2 is an embodiment of the invention claimed in the ’287 patent and which includes an “isolated gas cooling chamber 20” which “comprises a closed loop which includes a first gas chamber 30 and a rear cooling chamber 40”:

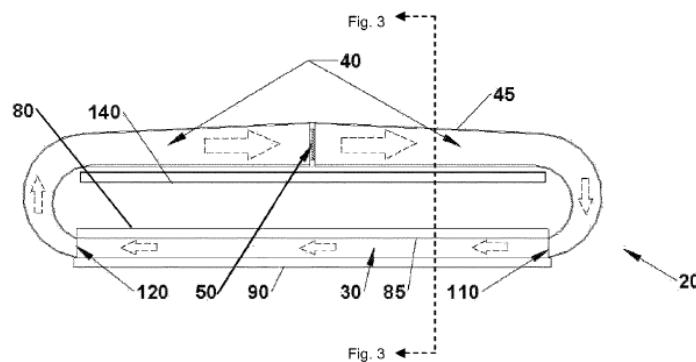


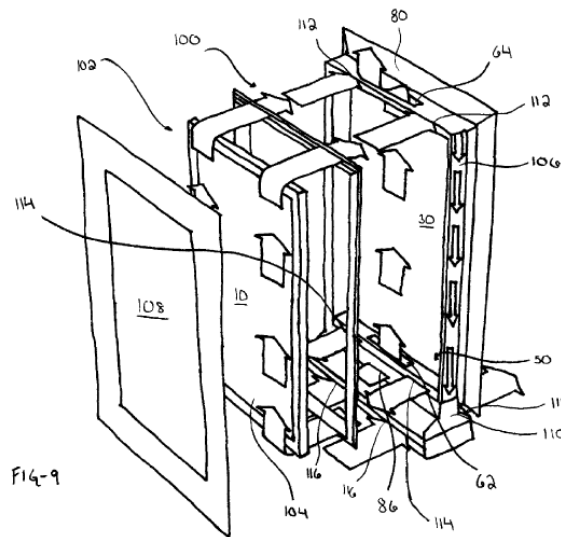
Fig. 2

’287 patent, 4:4-7, Fig. 2. “The term ‘isolated gas’ refers to the fact that the gas within the isolated gas cooling chamber 20 is essentially isolated from external air in the housing of the display.” *Id.*, 4:9-11. This “essentially isolated” language is consistent with other descriptions for the “isolated gas cooling chamber.” *See, e.g., id.*, 4:19-23 (“the isolated gas cooling chamber need not necessarily be hermetically sealed from the external air”).

Nearly identical language appears in the ’595 patent. *See* ’595 patent, 8:35-50. One embodiment (which is encompassed by claim 9) is depicted in Figure 9, which uses “three cooling

⁵ The phrase “closed loop” appears twice in the specification of the ’595 patent, four times in the specification of the ’287 patent and over a dozen times in the shared specification of the ’142 and ’740 patents.

pathways,” one of which is “a closed loop and is comprised of the isolated gas cooling system **100**.”



Id., 7:64-8:2, Fig. 9. The “closed loop . . . includes a gas chamber **104** and return air passage **106**.”

Id., 8:32-34. “The term ‘isolated gas’ refers to the fact that the gas within the isolated gas cooling chamber **102** is essentially isolated from the external air.” *Id.*, 8:35-38.

As for the ’740 and ’142 patents, the specification states that “[t]he closed loop path travels across the front surface of the image assembly, continues to the rear of the display where it may enter a heat exchanger, finally returning to the front surface of the image assembly.” ’740 patent, 2:40-43. There is no embodiment in the intrinsic record for the ’740 and ’142 patents wherein the “closed loop” air is permitted to mix with external air. Indeed, MRI submitted the *MRI v. Civiq* Litigation claim construction of “closed loop” to the Examiner during prosecution for both the ’740 patent and the ’142 patent and never disclosed or implied any alternative meaning for “closed loop” during prosecution. RXM-016.001-002; RXM-019.003; ’740 patent, page 4; ’142 patent, page 7.

The fact that the identical language is used in the ’287 patent and the ’595 patent to describe the closed loop and that the ’740 and ’142 patents are related to the ’595 patent as continuations-

in-part is further evidence why the term “closed loop” should be construed consistently across the patents. *See, e.g., Samsung Elecs. Co. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1378 (Fed. Cir. 2019) (“Where multiple patents derive from the same parent application and share many common terms, we must interpret the claims consistently across all asserted patents.”); *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003) (“[W]e presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed meaning.”).

b. Complainant’s Position Here Contradicts Its Positions in the *MRI v. Civiq* Litigation

Respondents’ proposed construction here is identical to Judge Andrew’s construction in the *MRI v. Civiq* Litigation (where the ’595 and ’287 patents were each asserted). MRI here argues that the phrase “closed loop” need not be construed and, instead, says that the phrase should be given its plain and ordinary meaning without saying what the plain and ordinary meaning is. ***It took the opposite position in the MRI v Civiq Litigation.*** The defendants in the *MRI v. Civiq* Litigation argued that the phrase “closed loop” did not require construction. RXM-010.008; RXM-011.034, 36-37. In response, MRI argued that “because this term is not a commonplace technical term for a lay juror, MRI submits that it would be helpful to construe the claim should the case proceed to trial.” RXM-011.037-038. Specifically, MRI argued that the phrase “closed loop” means “gas pathway within a display housing that is isolated from external air outside the pathway to the extent that dust and contaminants may not substantially enter the pathway.” *Id.*, 037.

After the district court agreed with MRI that “closed loop” required construction, it first issued what would become its construction as a “tentative” construction. RXM-017.001. In response, MRI stated that it would not “try to dissuade” the Court and that it was “prepared to accept” the tentative construction. RXM-015, 77:21-78:5. Courts have routinely observed that

flipping positions after a court adopts its proposed position, as MRI seeks to do, should not be countenanced. *See, e.g., Key Pharms. v. Hercon Lab 'ys Corp.*, 161 F.3d 709, 715 (Fed. Cir. 1998) (“The impropriety of asserting a position which the trial court adopts and then complaining about it on appeal should be obvious on its face, and litigants hardly need warning not to engage in such conduct.”); *Solomon Techs., Inc. v. Toyota Motor Corp.*, No. 8:05-CV-1702-T-MAP, 2010 WL 715243, at *2-3 (M.D. Fla. Jan. 26, 2010) (noting that, after the patentee stipulated to a construction before the ITC but sought to argue for a different construction at the district court that “[Patentee’s] positions . . . are patently inconsistent; its stipulation and then retraction create an inappropriate perception; and, if its new arguments were to be accepted and judicial estoppel were not to apply, it would unfairly benefit).

Moreover, MRI consistently argued in the *MRI v. Civiq* Litigation that Respondents’ proposed construction here is the proper meaning of “closed loop.” *See, e.g.,* RXM-011.035 (“The parties agree that a ‘closed loop’ is a ‘gas pathway with[in] a display housing’ and that gas within the closed loop is ‘essentially isolated’ from external air.”).

For these reasons, Respondents’ proposed construction of “closed loop” should be adopted.

C. '287 Patent

1. “open loop of ambient air which passes through the housing and along the backlight”

Claims	Respondents’ Construction	Complainant’s Construction
'287: 12	“open loop of ambient air which passes through the housing and is in thermal communication with, the backlight”	Plain and ordinary meaning

The parties dispute two aspects of what it means for the open loop of ambient air to be passing “along the backlight.” Specifically: (i) does ambient air need to pass along a surface in which the backlight is located to be considered traveling “along the backlight”? and (ii) how far

removed from the backlight can the ambient air be located to nonetheless be considered to be traveling “along the backlight”?

Respondents’ answer to question one is: “yes” and its answer to question two is: “any distance so long as the ambient airflow is in thermal communication with the backlight.” This matters because the parties dispute whether the claims can be read onto products in which no ambient air passes along a surface in which the LEDs which comprise the backlight are located. Such a configuration is commonly referred to as one using edge-lit backlighting, where LEDs are placed along the edges of the display. This is contrasted from direct-lit backlights in which LEDs are oriented in a grid like structure as shown below:

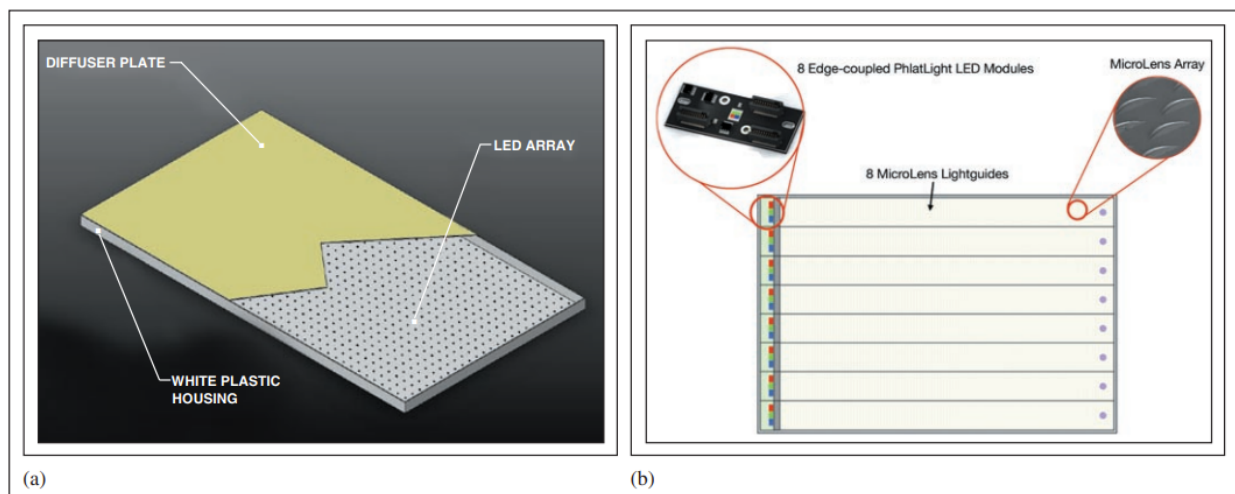


Fig. 2: (a) LED arrays are very high in brightness and typically consist of a matrix of LED chips mounted in a white plastic frame on the PC board behind the LCD. In larger displays, such as those used in LCD TVs, the LEDs needed for direct illumination will number in the thousands. (b) Using edge lighting coupled with MicroLens and PhlatLight technologies, a 46-in.-diagonal LCD TV that requires thousands of LEDs using direct lighting with LED arrays can be backlit to the same brightness using eight PhlatLight chipsets, each containing only three LED chips.

RXM-018.002 (DeAgazio, “Thin is In: LED Backlight Units are Becoming Thinner and Brighter to Meet Consumer-Product Requirements”, *Information Display*, 16-20 (Feb. 2009)). The only backlight example disclosed in the ’287 patent is for a direct view backlight where a “plurality of lights [are] mounted to the side [of a printed circuit board] facing the electronic display.” ’287 patent, 4:64-5:17.

For the reasons discussed below, Respondents’ proposed construction, which stays true to the plain and ordinary meaning of “along the backlight” and the intrinsic record, should be adopted.

a. The Claims and Specification Support Respondents’ Proposed Construction

The intrinsic evidence demonstrates that ambient air must be in thermal communication with the backlight in order to satisfy the “along the backlight” limitation. The “along the backlight” limitation appears once in claim 12 of the ’287 patent:

An electronic display assembly comprising:

a housing;

a liquid crystal display (LCD) positioned within the housing and having a backlight;

wherein the electronic display is coolable by a combination of a closed loop of isolated gas which circulates within the housing and ***an open loop of ambient air which passes through the housing and along the backlight.***

The ’287 patent is directed to an “electronic display assembly” “positioned within a housing where the display is cooled by a combination of airflows” including “an open loop of ambient air which passes through the housing in order to cool the display,” specifically “the rear surface of the display.” ’287 patent, Abstract. Respondents’ proposed construction is consistent with this statement of purpose, which should be considered in construing the claims. *See, e.g., In re Power Integrations, Inc.*, 884 F.3d 1370, 1376–78 (Fed. Cir. 2018) (holding that the patent at issue “strives to eliminate unnecessary components,” so it would be unreasonable to construe a claim term to include a “bulky [component],” which would be “inconsistent with the ’876 patent’s focus on minimizing circuit size”); *CardSoft, (assignment for the Benefit of Creditors), LLC v. VeriFone, Inc.*, 807 F.3d 1346, 1350 (Fed. Cir. 2015) (reversing construction of “virtual machine” as “a computer programmed to emulate a hypothetical computer for applications relating to

transport of data” as incomplete because the specification also emphasized the need to create a complete portable environment identified the need for such applications as a problem to be addressed).

The phrase “along the backlight” does not appear anywhere in the specification. But in every disclosed embodiment where ambient air is depicted as moving near a backlight, the ambient air is in thermal communication with the backlight. For example, Figure 3A of the ’287 patent, which is a cross-sectional view of Figure 2 (*supra*, p.33), includes a “transparent plate **90**,” “first gas chamber **30**,” “electronic display **80**,” “backlight **140**,” “rear cooling chamber **40**” and “[o]ne or more constricted convection fans **200** [that] may be used to draw air between the backlight **140** and the rear cooling chamber **40**.” ’287 patent, 4:42-52. According to the specification, “[t]he close proximity of [the backlight **140** and rear cooling chamber **40**] in part, creates the constricted convection cooling of the backlight **140**.” *Id.* Meanwhile, in Figure 3B, “the constricted convection fan **200** is used to push air between the backlight **140** and the rear cooling chamber **40**.” *Id.*, 5:18-22.

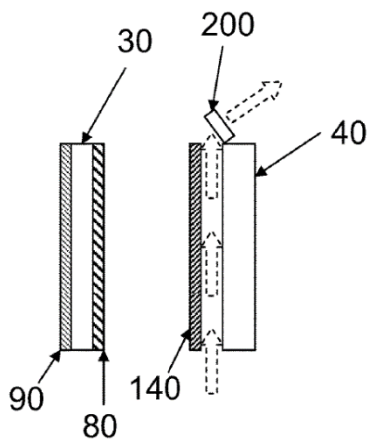


Fig. 3A

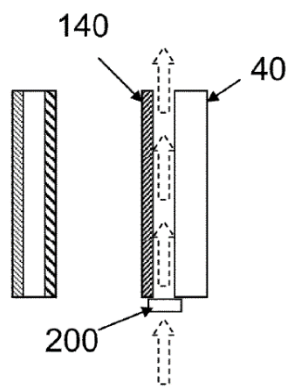
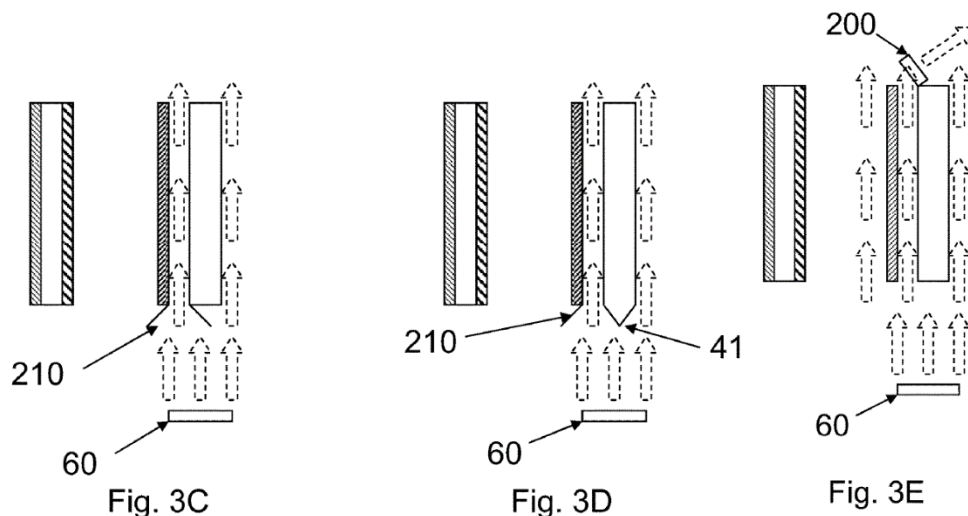


Fig. 3B

And in the remaining embodiments (Figures 3C-3E), ambient air is likewise directly contacting the rear surface of the backlight as shown in the images below (backlight unlabeled):



See id., 5:22-36.

b. The Prosecution History Supports Respondents' Proposed Construction

While the “along the backlight” term was not discussed during prosecution of the application which resulted in the '287 patent, it was discussed during prosecution of U.S. Patent No. 9,089,079 (“’079 patent”) (of which the '287 patent is a continuation).

There, the examiner rejected a pending claim covering ambient air moving “along the backlight” based on *Heady* (depicted below) where ambient air flows through a heat exchanger **210** mounted to the side of the display. RXM-008.201-206 ('079 patent file history). In *Heady*, the open loop fan (not shown) cools the fins **210** (RXM-002, 6:67), mounted to the rear of the display **110** and, while in thermal communication with the display, the cooling air does not actually contact the backlight **220, 232, 235, 237, 230**:

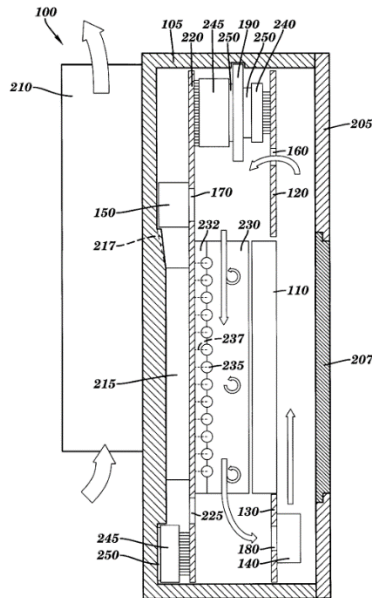


FIG. 3

RXM-002.004.

Yet the Examiner nonetheless considered this to be “along the backlight” and stated that “[a]lthough the cooling air is separated from the rear surface, it travels ‘along’ the rear surface of the backlight.” RXM-008.204 (’079 patent file history). In response to the Examiner’s rejection, rather than trying to traverse the characterization of Heady, the patentee instead amended the claim to recite “contacting the . . . backlight” as shown in the excerpt from the prosecution history below:

17. **(currently amended)** A thermally regulated liquid crystal display assembly, the system comprising:

- a liquid crystal stack having a display surface;
- an LED backlight with a thermally conductive rear surface positioned posterior to the liquid crystal stack;
- a glass plate placed in front of the display surface, the space between the glass plate and display surface defining a channel;
- a closed loop of circulating gas positioned to surround the liquid crystal stack and LED backlight where circulating gas flows through the channel; and
- an open loop of cooling air contacting ~~travelling along~~ the rear surface of the LED backlight ~~where the cooling air is not permitted to mix with the circulating gas.~~

Id. at 204. The applicant further stated that “the Examiner has acknowledged that the open loop of cooling air does not contact the rear surface of the LED backlight, since the cooling air ‘is separated from the rear surface’ of the LED backlight.” *Id.* at 226. The applicant is thus acknowledging that air traveling on a surface in thermal communication with the backlight is sufficient and that, of course, actual contact between the ambient air is merely a sufficient, but not necessary, condition. Thus, both the examiner and applicant recognized that the meaning of this limitation is consistent with Respondents’ proposed construction. The prosecution history in the related patent is undoubtedly a relevant part of the intrinsic record. *See, e.g., Wang Labs., Inc. v. Am. Online, Inc.*, 197 F.3d 1377, 1383-84 (Fed. Cir. 1999) (common subject matter in related patent prosecution histories is relevant intrinsic evidence); *Jonsson v. Stanley Works*, 903 F.2d 812, 817 (Fed. Cir. 1990) (same).

c. Extrinsic Evidence Supports Respondents’ Proposed Construction

As discussed in the accompanying declaration of Robert Smith-Gillespie, a POSITA would understand the meaning of the “along the backlight” term consistent with Respondents’ proposed construction. *See* RXM-009.029. Moreover, courts routinely construe phrases containing the word “along.” *See, e.g., Gentex Corp. v. Revision Mil. Ltd.*, No. CV 19-921 (MN), 2020 WL 1875529, at *1 (D. Del. Apr. 15, 2020) (construing “along a bend in a bottom edge” to mean “running on or adjacent to a bend in the bottom edge”); *Wonderland Switzerland AG v. Evenflo Co., Inc.*, No. CV 18-1990-RGA, 2020 WL 374750, at *4 (D. Del. Jan. 23, 2020) (construing “along” to mean “next to”); *Wright’s Well Control Servs., LLC v. Oceaneering Int’l, Inc.*, No. CV 15-1720, 2017 WL 9287494, at *6 (E.D. La. Nov. 6, 2017) (construing “located along the housing” to mean “located at a point on the housing”).

Respondents’ proposed construction should thus be adopted.

VI. CONCLUSION

For at least the reasons set forth above, Respondents respectfully request that the ALJ adopt Respondents' proposed constructions.

DATED: February 1, 2023

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the **RESPONDENTS' OPENING CLAIM CONSTRUCTION BRIEF** has been served on February 1, 2023, as indicated, on the following:

The Honorable Katherine M. Hiner Acting Secretary to the Commission U.S. International Trade Commission 500 E Street, S.W., Room 112 Washington, DC 20001-5327	VIA EDIS
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