IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION

MAXELL LTD., Plaintiff, v. APPLE INC, Defendant.	§ § § § § § § § § §	CIVIL ACTION NO. 5:19-CV-00036-RWS

CLAIM CONSTRUCTION MEMORANDUM AND ORDER

On January 8, 2020, the Court held an oral hearing to construe the disputed claim terms of the patents-in-suit. Having considered the parties' claim-construction briefing and based on the intrinsic and extrinsic evidence, the Court construes the disputed terms in this Memorandum and Order as detailed below. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318 (2015); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005).

BACKGROUND

Plaintiff Maxell brings suit alleging that Apple infringes the following ten patents: U.S. Patent Nos. 6,748,317 (the " '317 patent); 6,580,999 (the " '999 patent"); 6,430,498 (the " '498 patent"); 8,339,493 (the " '493 patent"); 6,329,794 (the " '794 patent"); 6,408,193 (the " '193 patent"); 6,928,306 (the " '306 patent"); 10,084,991 (the " '991 patent"); 7,116,438 (the " '438 patent"); and 10,212,586 (the " '586 patent). Eight of the asserted patents contain disputed terms.

Maxell previously asserted five of the patents (the '438 patent, the '317 patent, the '493 patent, the '193 patent and the '794 patent) against other defendants in prior litigation—*Maxell Ltd. v. Huawei Device USA, Inc.*, 297 F. Supp. 3d 668 (E.D. Tex. 2018). However, the Court has not construed any of the presently disputed terms.

APPLICABLE LAW

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.' " *Phillips*, 415 F.3d 1303 at 1312 (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc*., 381 F.3d 1111, 1115 (Fed. Cir. 2004)). The Court first examines a patent's intrinsic evidence to define the patented invention's scope. *Id*. at 1313–14; *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc*., 262 F.3d 1258, 1267 (Fed. Cir. 2001). Intrinsic evidence includes the claims themselves, the specification and the prosecution history. *Phillips*, 415 F.3d at 1312–13; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004). . The general rule—subject to certain specific exceptions discussed *infra*—is that each claim term is construed according to its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the patent. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003); *see also Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1347

(Fed. Cir. 2014) ("There is a heavy presumption that claim terms carry their accustomed meaning in the relevant community at the relevant time.").

"The claim construction inquiry . . . begins and ends in all cases with the actual words of the claim." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). "[I]n all aspects of claim construction, 'the name of the game is the claim.' " *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014) (quoting *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998)). First, a term's context in the asserted claim can be instructive. *Phillips*, 415 F.3d at 1314. Other asserted or unasserted claims can also aid in determining the claim's meaning, because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id*. For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id*. at 1314–15.

"[C]laims 'must be read in view of the specification, of which they are a part.' " *Id*. (quoting *Markman v. Westview Instruments, Inc*., 52 F.3d 967, 979 (Fed. Cir. 1995)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.' " *Id*. (quoting *Vitronics Corp. v. Conceptronic, Inc*., 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). In the specification, a patentee may define his own terms, give a claim term a different meaning than it would otherwise possess, or disclaim or disavow some claim scope. *Phillips*, 415 F.3d at 1316. Although the Court generally presumes terms possess their ordinary meaning, this presumption can be overcome by statements of clear disclaimer. *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc*., 242 F.3d 1337, 1343–44 (Fed. Cir. 2001). This presumption does not arise when the patentee acts as his own

lexicographer. *See Irdeto Access, Inc. v. EchoStar Satellite Corp.*, 383 F.3d 1295, 1301 (Fed. Cir. 2004).

"Although the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. "[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history is another tool to supply the proper context for claim construction because, like the specification, the prosecution history provides evidence of how the U.S. Patent and Trademark Office ("PTO") and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. However, "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* at 1318; *see also Athletic Alternatives, Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (ambiguous prosecution history may be "unhelpful as an interpretive resource").

Although extrinsic evidence is useful, it is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862) (internal quotation marks omitted). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide

definitions that are too broad or may not be indicative of how the term is used in the patent. *Id*. at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are not useful. *Id*. Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id*.

A. Functional Claiming and 35 U.S.C. § 112, ¶ 6(pre-AIA)/ § 112(f) (AIA)

A patent claim may be expressed using functional language. *See* 35 U.S.C. § 112 ¶ 6; *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 & n.3 (Fed. Cir. 2015) (en banc in relevant portion). Section 112, Paragraph 6, provides that a structure may be claimed as a "means . . . for performing a specified function" and that an act may be claimed as a "step for performing a specified function." *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002).

But § 112 ¶ 6 does not apply to all functional claim language. There is a rebuttable presumption that § 112 ¶ 6 applies when the claim language includes "means" or "step for" terms and that it does not apply in the absence of those terms. *Masco Corp*., 303 F.3d at 1326; *Williamson*, 792 F.3d at 1348. The presumption stands or falls according to whether one of ordinary skill in the art would understand the claim with the functional language, in the context of the entire specification, to denote sufficiently definite structure or acts for performing the function. *See Media Rights Techs., Inc. v. Capital One Fin. Corp*., 800 F.3d 1366, 1372 (Fed. Cir. 2015) (Section 112, ¶ 6 does not apply when "the claim language, read in light of the specification, recites sufficiently definite structure" (internal quotation marks omitted) (citing *Williamson*, 792 F.3d at 1349; *Robert Bosch, LLC v. Snap-On Inc*., 769 F.3d 1094, 1099 (Fed. Cir. 2014))); *Personalized Media Communications, L.L.C. v. Int'l Trade Commission*, 161 F.3d 696, 704 (Fed. Cir. 1998)

(" '[W]here a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format' even if the claim uses the term 'means' ").

When it applies, § 112 ¶ 6 limits the scope of the functional term "to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof." *Williamson*, 792 F.3d at 1347. Construing a means-plus-function limitation involves multiple steps. "The first step . . . is a determination of the function of the means-plus-function limitation." *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001). "[T]he next step is to determine the corresponding structure disclosed in the specification and equivalents thereof." *Id*. A "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *Id*. The focus of the "corresponding structure" inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is "clearly linked or associated with the [recited] function." *Id*. The corresponding structure "must include all structure that actually performs the recited function." *Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). However, § 112 does not permit "incorporation of structure from the written description beyond that necessary to perform the claimed function." *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999).

AGREED TERMS

Before the *Markman* hearing, the parties agreed to construction for the following terms:

TERM	AGREED CONSTRUCTION
"function devices" ('794 patent, claims 1, 3, 6)	Function: equipped with independent functions

	Structure: modem devices, audio communication devices and videophone devices; or equivalents thereof
"component devices" ('794 patent, claims 9, 14)	Function: performing different functions Structure: modem devices, audio communication devices and videophone devices; or equivalents thereof
"a time zone which is set up in advance" ('306 patent, claim 14)	"a duration of time or a range of hours set up in advance"
"an authentication process for allowance to use said display apparatus" ('438 patent, claim 1)	"a process that authorizes the user to use the display apparatus"
"an authentication process for allowance to use said information-processing terminal" ('438 patent, claim 4)	"a process that authorizes the user to use the information-processing terminal"
"A cellular telephone adapted to be used in a CDMA system" ('193 patent, claims 1, 7)	The preamble is limiting.
"variable amplitude amplifier" ('193 patent, claims 1, 6, 7)	"an amplifier whose output amplitude may be varied and that provides a variable gain in response to a control signal"
"function defining a relation between bias data and gain data stored in said memory" ('193 patent, claim 7)	"a relationship between bias data and gain data stored in memory such that each gain data value has a corresponding bias data value"
"voice signal code" and "voice code signal" ('193 patent, claims 1, 7)	The two terms have the same meaning.
"an image-instability detector" ('493 patent, claims 4, 6)	"a detector, such as a gyroscopic sensor or the like, capable of detecting an image instability of the electric camera"
"an image-instability of the electric camera" ('493 patent, claims 4, 6)	"instability caused by vertical and/or horizontal movement of the electric camera"
"a device for getting a direction information denoting an orientation of said portable terminal"	Function: getting direction information denoting an orientation of said portable terminal

('317 patent, claims 1, 10; '498 patent, claims 1, 10; '999 patent, claim 1)	Structure: a compass, gyroscope, and/or sensor such as a clinometer in conjunction with a CPU, or equivalents thereof

The Court adopts the constructions agreed to by the parties as listed above.

DISPUTED TERMS

A. The '371, '498 and '999 Patents

The '317 patent, the '498 patent and the '999 patent share a specification. The '317 patent is a continuation of the '999 patent, which is a continuation of the '498 patent. The patents have the same title: "Portable Terminal with the Function of Walking Navigation." The '317 patent's abstract is reproduced below:

> A portable terminal has a function of walking navigation. The direction of a destination is displayed by an indicating arrow that always points in the direction of the destination. In the navigation processing, the user enters data to select a menu and/or set retrieving conditions on the setup screen. At first, the user gets the location information of the portable terminal, represented by a latitude/longitude or coordinates and an altitude, for example. Then, the user gets the direction information of the portable terminal, which is the direction of the tip of the portable terminal as determined by a compass, a gyro, or a clinometer. The location information and the direction information are set as terminal information for the retrieving conditions. The system controls retrieving of the database and retrieves the information corresponding to the selected menu, such as route guidance.

More particularly, the patents disclose a portable terminal which includes devices for obtaining a location and direction of the user's present place so that the user does not have to input such information. '317 patent at 2:51–3:26. A block diagram of a portable terminal is illustrated in Figure 10 in the '317 patent. In the figure, the portable terminal has various devices (input device, display device, etc.) coupled to a CPU that provides for the walking navigation functions described in the patent.

Claim 1 of the '317 patent is an asserted claim and is reproduced below:

1. A portable terminal, comprising:

a device for getting location information denoting a present place of said portable terminal;

a device for getting a direction information denoting an orientation of said portable terminal;

an input device for inputting a destination; and

a display,

wherein said display displays positions of said destination and said present place, and a relation of said direction and a direction from said present place to said destination, and

said display changes according to a change of said direction of said portable terminal orientation for walking navigation.

The Court construed various terms in the '317 in the prior litigation, but none of them are currently disputed.

The parties dispute four terms in the '317, '498 and '999 patents. All are agreed to be means-plus-function limitations. Three of the disputed terms have the same dispute as to the corresponding structure and are thus grouped together for similar analysis.

1. "a device for getting location information denoting a present place"

Maxell's Proposed Construction	**Apple's Proposed Construction**
Agreed function: getting location information denoting a present place of said portable terminal Structure: a wireless or cellular antenna, a GPS, a PHS, or the like; such a data receiver as an infrared ray sensor, or the like; and a CPU for analyzing received data; or equivalents thereof.	Agreed function: getting location information denoting a present place of said portable terminal Structure: a wireless or cellular antenna, or a GPS, or a Personal Handyphone System (PHS); and an infrared ray sensor; and a control unit for analyzing received data, with the control unit calculating location information as disclosed in '498 at 5:48-56 and Fig. 2; or equivalents thereof

The term "a device for getting location information denoting a present place" appears in claims 1 and 10 of the '317 patent, claims 1 and 10 of the '498 patent and claim 1 of the '999 patent.

(1) The Parties' Positions

The parties agree that the term is a means-plus-function term and agree on the recited function. The parties dispute whether the corresponding structure must include an "infrared ray sensor" or whether it may include other "data receivers."

The parties first dispute whether statements made in a prior IPR proceeding mandate the inclusion of an "infrared ray sensor" as opposed to a general "data receiver." *See, e.g.*, Docket No. 161 at 26. Apple asserts that Maxell disclaimed claim scope to defeat an *Inter Partes* review ("IPR") petition filed by ASUStek Computer Inc. ("ASUS"). *Id.* Specifically, Maxell distinguished each prior art reference in the petition as lacking an infrared ray sensor. *Id.* To Apple, "by distinguishing the claimed invention over prior art, [Maxell has] indicat[ed] what the claims do not cover." *Id.* at 26 (quoting *Bd. of Regents of the Univ. of Texas Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 1373 (Fed. Cir. 2008)). Apple argues this is a "clear disclaimer of claim scope." *Id.*

Maxell asserts that the Court is not bound by the PTAB's claim interpretation because, at the time of the IPR in question, the PTAB had a different claim construction standard.[1] Docket No. 136 at 28. Maxell further contends that it did not clearly disclaim claim scope. Docket No. 165 at 10. Instead, Maxell asserts that it used ASUS's proposed construction to argue that ASUS failed to meet the PTAB's requirements, but did not adopt its construction, reserving its right to contest that construction later. *Id.*

Apple then asserts that, even if the IPR proceedings are not binding, the corresponding structure is limited to an "infrared ray sensor." Docket No. 161 at 28. Apple notes that the specification depicts a "device for getting location information" in Figure 10 and describes the

[1] The PTAB has since abandoned the broadest reasonable interpretation standard and adopted the *Phillips* standard for claim construction. *See* 37 C.F.R. 41.100(b).

structure of this device as containing three components: (1) a wireless antenna, GPS or PHS; (2) an infrared ray sensor; and (3) a control unit. *Id.* Apple asserts that "because an 'infrared ray sensor' is part of the only disclosed embodiment for performing the recited function," the claim construction must include an "infrared ray sensor." *Id.* at 28 (citing *Mettler-Toledo, Inc. v. B-Tek Scales, LLC*, 671 F.3d 1291, 1296 (Fed. Cir. 2012)). Apple asserts that the phrase "such a receiver as an infrared ray sensor" does not disclose any structure beyond an infrared ray sensor because "data receiver" itself is not sufficiently definite structure. *Id.*; Docket No. 187 at 17:10–11.

Maxell asserts that Apple's construction is overly narrow because it "rewrites the non-limiting phrase of 'such a data receiver as an infrared ray sensor or the like' to 'and an infrared ray sensor.' " Docket No. 136 at 27.[2] Maxell also contends that in the context of the patent—portable telephones—and the rest of the corresponding structure, "data receiver" recites sufficient structure. Docket No. 187 at 26:21–27:4.

(2) Analysis

The parties agree that the term is a means plus function term and that the recited function is "getting location information denoting a present place of said portable terminal." "[T]he next step is to determine the corresponding structure disclosed in the specification and equivalents thereof." *Id.* Under § 112 ¶ 6, means-plus-function terms are limited "to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof." *Williamson*, 792 F.3d at 1347. Consistent with the claims, the specification discloses that the portable terminal has a "device for getting location information 77," depicted in

[2] Maxell also asserted in briefing that the patents disclose "data receiver" as an alternative to a GPS or PHS. Docket No. 136 at 27. However, during the *Markman* hearing, Maxell agreed that "data receiver" was a separate requirement from the GPS or PHS. Docket No. 187 at 28:4–6.

Figure 10 of the '498 patent. Both parties agree that device 77 is corresponding structure for the recited function. The specification describes device 77 as follows:

> The device for getting location information 77 is provided with such a wireless antenna, a GPS or PHS, or the like; such a data receiver as an infrared ray sensor, or the like; and a control unit for analyzing received data, thereby calculating location information.

'498 patent at 9:40–44. The parties dispute whether the "infrared ray sensor" is an exemplary "data receiver," which is itself disclosed structure, or whether the corresponding structure requires an "infrared ray sensor." For the reasons detailed below, the Court finds that the corresponding structure is not limited to an infrared ray sensor.

Maxell's statements during the IPR proceedings are not a clear disavowal of claim scope. In its IPR petition, ASUS proposed a construction for the corresponding structure of the currently disputed limitation: "a wireless or cellular antenna, OR a GPS, OR a Personal Handyphone System, AND an infrared ray sensor; AND a control unit for analyzing received data, with the control unit calculating information as disclosed in 5:48–56, and Fig. 2." Docket No. 165-4 at 18–19. ASUS then applied this limitation to the prior art. *Id.*

Maxell responded:

> While Patent Owner ***does not contend that such a construction is proper***, for purposes of the IPR, it is Petitioner's burden to propose a construction and then explain how the construed claim is unpatentable. *See* 37 C.F.R. § 42.104(b)(4). The Petition fails to do so. Thus, the Petition does not comply with the requirements set forth in 37 C.F.R. § 42.104, and for this reason alone, the Petition should not be instituted.

Id. at 14 n.4 (emphasis added). Maxell then argued that ASUS had failed to meet its burden of demonstrating that institution of the IPR was warranted because it had not shown that the cited prior art included an infrared ray sensor, part of ASUS's own proposed construction. *Id.* at 14–15. Maxell never agreed that the corresponding structure is limited to an "infrared ray sensor" and

instead expressly reserved its right to contest the construction. *Id.* at 10–11, n. 3. Maxell had no reason to contest the propriety of ASUS's construction because Maxell successfully used ASUS's own proposed construction to defeat the IPR petition. These statements are far from clear and unmistakable surrender of claim scope.

Turning to the traditional claim construction analysis, then, Apple's proposed structure improperly limits the corresponding structure. Section 112 ¶ 6 requires that a means-plus-function term be given the full scope of the structure described in the specification. *IP Innovation LLC v. Red Hart, Inc.*, No. 2:07-cv-447, 2009 WL 2460982, at *6 (E.D. Tex. Aug. 10, 2009); *see also Home Diagnostics, Inc v. LifeScan, Inc.*, 381 F.3d 1352, 1357 (Fed. Cir. 2004). The description for the "device for getting location information 77" recites "such a data receiver as an infrared ray sensor." '498 patent at 9:40–44. "Data receiver" is clearly associated with the agreed function. *See Williamson*, 792 F.3d at 1352 (Corresponding structure is adequate if "a person of ordinary skill in the art would be able to recognize the structure in the specification and associate it with the corresponding function of the claim.").

Just as a non means-plus-function term may cover a broad class of structures, the corresponding structure in a means-plus-function term can include a broad class of structures if the class of structures is identifiable by a person of ordinary skill in the art. *See Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1322 (Fed. Cir. 2004) (holding that corresponding structure is not limited to a single structure); *Network Appliance Inc. v. Sun Microsystems, Inc.*, No. C-07-06053 EDL, 2008 WL 4193049, at *20 n.7 (N.D. Cal. 2008) (confirming that *Linear Tech's* holding applies to corresponding structure of MPF terms).

Courts routinely conclude that "receiver" connotes sufficiently definite structure. *See, e.g.*, *EnOcean GmbH v. Face Intern. Corp.*, 742 F.3d 955, 959 (Fed. Cir. 2014) ("The term receiver

presumptively connotes sufficiently definite structure to those of skill in the art."); *Ambato Media, LLC v. Clarion Co., Ltd.*, No. 2:09-cv-242-TJW, 2011 WL 2912764, at *8–9 (E.D. Tex. July 18, 2011) (declining to limit corresponding structure for means-plus-function term to a subset of exemplary receivers "such as television receivers, VCRs, cable interface boxes and the like" because broader "receiver" was structure clearly linked to the function); *see also Mobile Telecommunications Tech. LLC v. LG Elec. Mobilecomm USA, Inc.*, No. 2:13-cv-947-JRG-RSP, 2015 WL 2250418, at *18 (E.D. Tex. May 13, 2015) (construing a "receiver" as corresponding structure for a means-plus-function term). Apple's expert does not opine that "data receiver" is not structural. Instead, Apple's expert stated that not all data receivers were capable of determining location information in the same way as infrared ray sensors and that "infrared ray sensor" was the only example of a data receiver disclosed. *See* Docket No. 161-5 at ¶ 34. This does not render data receiver not structural.

Because "data receiver" is structure that is clearly linked to the recited function, data receiver is disclosed structure. *See Ambato Media*, 2011 WL 2912764, at *8–9 (construing means-plus-function term to have corresponding structure of "receiver" because receiver was structure linked to the recited function for the disputed term). Limiting the corresponding structure to require more specifically an "infrared ray sensor" would be improper. *Id.*

It would also be improper for the construction to include "infrared ray sensor" as an exemplary data receiver. The phrase "such a data receiver as an infrared ray sensor" is properly read as disclosing a "data receiver" and providing "infrared ray sensor" as an example. Such exemplary language could be interpreted as limiting. *See Hitachi Consumer Elecs. Co. Ltd. v. Top Victory Elecs. (Taiwan) Co. Ltd.*, No. 2:10-cv-260-JRG, 2012 WL 5494087, at *13 (E.D. Tex. Nov. 13, 2012) (omitting exemplary language from the construction because examples were

"unnecessary and might be read as limiting"). That would be improper for the reasons discussed above.

Accordingly, the Court construes "**a device for getting location information denoting a present place**" to mean:

Function: getting a location information denoting a present place of said portable terminal

Structure: a wireless or cellular antenna, a GPS, a PHS, or the like; a data receiver; and a CPU for analyzing received data; or equivalents thereof.

2. "device for getting a location information . . ." / "device for retrieving"

Term	**Maxell's Proposed Construction**	**Apple's Proposed Construction**
"a device for getting a location information of another portable terminal from said another portable terminal via connected network" ('317 patent, claim 10)	Agreed function: getting a location information of another portable terminal from said another portable terminal via connected network Structure: CPU and device for data communication 76 of a portable terminal; or equivalents thereof	Agreed function: getting a location information of another portable terminal from said another portable terminal via connected network Structure: CPU 71 and device for data communication 76 of a portable telephone and a Personal Handyphone System (PHS) terminal (Figure 10, '317 Patent at 9:40–50); or equivalents thereof
"a device for getting a location information of another portable terminal"; ('999 patent, claim 1)	Agreed function: getting a location information of another portable terminal Structure: [same as above]	Agreed function: getting a location information of another portable terminal Structure: [same as above]
"a device for retrieving a route from said present place to said destination" ('317 patent, claim 15)	Agreed function: retrieving a route from said present place to said destination Structure: [same as above]	Agreed function: retrieving a route from said present place to said destination Structure: [same as above]

The disputed term "a device for getting a location information of another portable terminal from said another portable terminal via connected network" appears in claim 10 of the '317 patent.

The disputed term "a device for getting a location information of another portable terminal" appears in claim 1 of the '999 patent. The disputed term "a device for retrieving a route from said present place to said destination" appears in claim 15 of the '317 patent.

(1) Parties Positions

The parties agree that the terms are means-plus-function terms. The parties also agree on the recited functions and that the corresponding structure for each of the above disputed terms is the same.

Maxell asserts that the patents disclose as corresponding structure "portable terminals," including a "portable telephone and Personal Handyphone System (PHS) . . . and a personal data assistance (PDA) terminal provided with portable telephone or PHS data communication functions." Docket No. 136 at 29 (citing '498 patent at 1:5–10). As such, Maxell argues the portable terminal is not limited to a device for data communication of both a portable telephone and a PHS. *Id.* at 29. To Maxell, the patents provide "exemplary structures" and additional disclosures refer to the use of a portable telephone or a PHS. *Id.* Maxell concludes that using "device for data communication 76 of a portable terminal" ensures that the disclosed embodiment of the PDA is not excluded. *Id.*

Apple notes that in the prior litigation the Court construed a means-plus-function term in claim 6 of the '317 patent—"a . . . device connected to said server outputting said location information and said direction information and receiving retrieved information based on said outputted information at said server"—as having the corresponding structure a "device for data communication, which is 'described in the specification as a device for data communication 76 of an ordinary portable telephone and a PHS [Personal Handyphone System] terminal.' " *Id.* at 29–30 (citing *Huawei*, 297 F. Supp. 3d at 722). Apple asserts that the corresponding structure for both

this term and the term construed in the prior litigation are the same, and therefore the Court's prior construction must control. Docket No. 161 at 30.

Maxell responds that the Court's prior construction of a different term is not controlling. Docket No. 165 at 10.

(2) Analysis

As an initial matter, the prior term is not the same or similar to the currently dispute term, so collateral estoppel does not apply. Nevertheless, the Court agrees with Apple's proposed construction. Claim 10 of the '317 patent discloses in part:

- A device for getting location information denoting a present place of said portable terminal;
- A device for getting direction information denoting an orientation of said portable terminal;
- A device for getting a location information of another portable terminal from said another terminal via connected network

Consistent with claim 10, the specification discloses in Figure 10 a portable terminal with (1) "a device for getting location information 77"; (2) a "device for getting direction information 78"; and (3) "a device for data communication 76." '317 patent at Fig. 10. The specification further describes Figure 10 as including a "CPU 71, which is a control unit" and "a device for data communication 76 of an ordinary portable telephone and a PHS [Personal Handyphone System] terminal." '317 patent at 9:47–49. This is the only structure disclosed and clearly linked to the function in claim 10. The parties agree that the corresponding structure for the disputed terms includes a CPU and device for data communication 76.

Maxell's argument regarding the specification is also unpersuasive. The specification's references to "portable telephone and/or a PHS terminal" do not overcome the clear disclosure of device for data communication 76's structure: "an ordinary portable telephone and a PHS." '317

patent at 9:47–49 (emphasis added). Those other references in the specification are not "clearly linked" to the recited function or the specific device for data communication 76. *See Mettler-Toledo*, 671 F.3d at 1296 (rejecting a broader corresponding structure of A/D converter because, although referenced in the specification, such broader structures were not clearly linked to the function). In fact, the specification's reference to "portable telephone and/or a PHS terminal" often describes the inventions display component, not the function of getting location information. *See, e.g.*, '317 patent at 2:55–5'6 (reciting the "use of a narrow screen of a portable telephone and/or PHS terminal").

Accordingly, the Court adopts Apple's proposed construction and construes the disputed terms to have the agreed recited functions and the following corresponding structure: **CPU 71 and device for data communication 76 of a portable telephone and a Personal Handyphone System (PHS) terminal (Figure 10, '317 Patent at 9:40–50); or equivalents thereof.**

B. The '794 Patent

The '794 patent is entitled "Information Processing Device and Method for Controlling Power Consumption Thereof." The patent relates to an information processing device in which a plurality of independent function devices are driven by a common power supply, where the device prioritizes power to independent function devices with higher usage priorities. '794 patent at 1:6–8, 49–52. "Another object of the present invention is to provide a method for controlling power consumption of an information processing device." *Id.* at 1:52–54. The'794 patent's abstract recites:

> A power supply section includes a capacity detector capable of detecting the remaining capacity in a battery and a controller issuing power consumption reduction instructions to independently operable function devices based on usage priorities thereof. This allows power consumption operations to be performed such as stopping function devices with low priorities first based on the remaining battery capacity. As a result, power to function devices with higher priorities can be

> maintained. Based on the remaining battery capacity, the controller controls the operations of the function devices and uses a display to show information allowing the operator to identify operable and inoperable function devices as the battery capacity drops.

More particularly, the '794 patent describes a device that sets priority levels for individual function devices in the information processing device and prioritizes battery time or power consumption for function devices with higher priorities. *See, e.g.*, 2:21–27, 3:57, 4:12, Figs. 8 and 9. The device turns off power to individual function devices based on the priority levels set for the function devices and the remaining battery capacity. In this manner, a lower prioritized function device can be turned off when a first battery capacity is reached, while a higher prioritized function device remains powered. This enables longer operation of function devices with higher priority. *Id.* at 5:17–27.

The '794 patent discloses a "capacity detector" that detects a remaining capacity of a battery. *See, e.g., id.* at 1:34–40; 4:18–34; Figs. 1 and 4. Figure 1 shows capacity detector 107 and Figure 4 shows various operations the capacity detector performs according to one embodiment. The '794 patent was asserted in prior litigation, and the prior parties agreed that the "capacity detector" term had its plain and ordinary meaning. *See, e.g., Maxell*, 297 F. Supp. 3d. at 684.

3. "capacity detector" ('497 patent claims 1 and 9)

Maxell's Proposed Construction	**Apple's Proposed Construction**
Plain and Ordinary Meaning	Function: detecting a remaining capacity of a battery Structure: Capacity Detector 107 (as configured in Figs. 1, 6, 10, or 11) performing the steps shown in Fig. 4.; or equivalents thereof

The disputed term appears in claims 1 and 9 of the '497 patent.

(1) The Parties' Positions

Maxell contends that "capacity detector" is readily understood by one of skill in the art and should have its plain and ordinary meaning. *See, e.g.*, Docket No. 136 at 3–5. Maxell points out that the term had its plain and ordinary meaning in the prior litigation, and the parties, experts and jury in that case had no trouble understanding the term without construction. *Id.* at 3. Maxell also argues that capacity detector has sufficient structure to one of skill in the art—both as to the term "detector" itself and the word "capacity detector." Maxell further contends that both parties' experts "agree that the term connotes sufficient structure to a person of ordinary skill in the art," and they identified software and hardware solutions for implementing the capacity detector. *Id.* at 5.

Apple contends that "capacity detector" is a means-plus-function term because it "merely describes the function of detecting battery capacity without reciting any structure." Docket No. 161 at 7–8. Apple argues that, although "detector" has identified structure in unrelated contexts, Maxell presented no evidence that "capacity detector" has meaning in the relevant field—power management. *Id.* at 6–7 (citing *Kensey Nash Corp. v. Perclose, Inc.*, No. 98-1629, 2001 U.S. Dist. LEXIS 12754, at *18–19 (E.D. Pa. Aug. 21, 2001) (finding "location detector" to be a means-plus-function term because it "recites no specific structure or material for performance of location detection")). Apple also asserts that Maxell "mischaracterizes" Apple's expert reports because neither expert testified that "capacity detector" connotes structure. *Id.* at 7.

As to the corresponding structure, Apple asserts that the only structure disclosed in the specification is the Capacity Detector 107, shown as a box in Figures 1, 6, 10 and 11. Apple asserts that the corresponding structure must also include the algorithm associated with Capacity Detector

107, in the specification shown in the flowchart of Figure 4. *Id.* at 8 (citing '794 patent at 2:55–57 ("FIG. 4 is a flowchart showing the operations performed by a capacity detector . . . .").

Maxell disputes Apple's application of § 112 ¶ 6. First, Maxell asserts that "detector" alone connotes sufficient structure to avoid the ambit of § 112 ¶ 6. Docket No. 136 at 4 (citing *Apple*, 757 F.3d at 1299 (noting that courts find "detector" to be a structural term)). Maxell also emphasizes that the claim language and specification connotes sufficient structure to the term. *Id.*

Maxell further disputes Apple's proposed corresponding structure as "an attempt to shoehorn additional limitations into the claims." *Id.* at 5. Specifically, Maxell contends that Apple's proposed structure includes steps (402–405) which are not stated functions of the capacity detector, such as "providing a notification when the battery reaches a particular capacity." *Id.*

(2) Analysis

Section 112 ¶ 6 presumptively does not apply to a claim term that does not use "means." *Williamson*, 792 F.3d at 1349. The presumption is rebuttable if a party can "demonstrate[] that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.' " *Id.* (quoting *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed. Cir. 2000)).

Here, "capacity detector" does not recite the word "means," and § 112 ¶ 6 presumptively does not apply. Apple has not demonstrated that "capacity detector" "fails to recite sufficiently definite structure" or else "recites function without reciting sufficient structure for performing that function" so as to overcome this presumption. *See Williamson*, 792 F.3d at 1349.

The term "capacity detector" has sufficiently specific structure. In claim 1, the "capacity detector" is described as a component in a "power supply circuit." '794 patent at 8:33–36 ("said power supply circuit including a battery, a capacity detector for detecting a remaining capacity of

said battery"). The claim language connotes sufficient structure by describing how the "capacity detector" operates within the claim invention. *See Free Stream Media Corp. v. Alphonso Inc.*, No. 2:15-cv-1725-RWS, 2017 WL 1165578, at *25 (E.D. Tex. Mar. 29, 2017).

The specification further establishes the structural character of "capacity detector." *See Finjan, Inc. v. Proofpoint, Inc.*, No. 13-cv-05808-HSG, 2015 WL 7770208, at *11 (N.D. Cal. Dec. 3, 2015) (finding "content processor" had sufficient structure because the specification described how the processor interacted with the invention's other components and illustrated the processor's location and relationship to other components). The specification describes "capacity detector 107" as a "capacity detector circuit." '794 patent at 4:48. Figure 11 further illustrates capacity detector 107's location in "power supply circuitry" and its relationship to other components in the invention. '794 patent at Fig. 11. These structural descriptions, which show how the elements are connected together and show "how the function is achieved the context of the invention," removes "capacity detector" from means-plus-function usage. *See Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1358 (Fed. Cir. 2011); *Williamson*, 792 F.3d at 1349; *Apple Inc.*, 757 F.3d at 1298–1300; *Personalized Media*, 161 F.3d at 704–05.

The expert testimony Apple relies on does not negate the intrinsic evidence showing that "capacity detector" is a known class of structure. "Extrinsic evidence may not be relied upon during claim construction when intrinsic evidence unambiguously defines the disputed claim language." *Personalized Media*, 161 F.3d at 706. Indeed, Apple's expert was able to identify structures for the "capacity detector" term. *See* Docket No. 161-2 ¶ 63. Further, consistent with the structural descriptions in the specification, Maxell's expert explained that a person of ordinary skill would have known of "several commercially available integrated circuits designed for measuring analog signals, including, for example, integrated circuits manufactured by Texas

Instruments and National Semiconductor, and others such as Linear Technology's LTC1325 Battery Management IC." *See* Docket No. 136-1 ¶ 32. Based upon these factors, Apple has not rebutted the presumption that "capacity detector."

Accordingly, the Court construes the term "**capacity detector for detecting a remaining capacity of said battery**" to have its **plain and ordinary meaning**.

C. The '306 Patent

The '306 patent is entitled "Portable Mobile Unit." The patent generally relates to a portable mobile unit for alerting a user of an incoming signal by ringing and, in particular, to a portable mobile unit suitable for alerting a user of an incoming phone call using a ringing sound. '306 patent at 1:6–10. The'306 patent's abstract is reproduced below:

> A portable mobile unit for alerting on incoming of a signal by a ringing sound, comprises: a ringing sound generator for generating the ringing sound in a plurality of patterns; and a controller for controlling operations of the portable mobile unit, wherein the controller select one pattern from the a plurality of patterns based on conditions which are set up in advance, when the signal comes in, so as to control the ringing sound generator to generate the ringing sound for alerting a user of the incoming call, thereby providing the portable mobile unit being superior in the usability, with which various conditions can be grasped by means of change in the ringing sound when the telephone call comes in, while achieving the discrimination of the ringing sound for alerting of the incoming call.

Figure 15 of the '306 patent depicts a "ringing sound generator 1519" within the structure of the "portable mobile unit. '306 Patent at Fig.15. Figure 1 shows the "ringing sound generator 1519" and its operation with a communication controller 1516, in more detail. *Id.* at Fig.1.

4. "ringing sound generator"

Maxell's Proposed Construction	**Apple's Proposed Construction**
Plain and Ordinary Meaning	Function: to generate a ringing sound Structure: Element 1519 in Figure 15 comprising 1, 3a- 3c, and 4a-4c in Figure 1; or equivalents thereof

(1) Parties' positions

Maxell contends that "a person of ordinary skill in the art would have understood the meaning of this term when used in the context of a 'portable mobile,' as claimed." Docket No. 136 at 7 (citing Docket No. 136-4 ¶ 31). Specifically, Maxell contends that, in context, " 'ringing sound generator' refers to a class of structure, namely the circuitry and software in portable devices that produces audio alerts." *Id.* Maxell cites to the claims and the specification, which both describe exemplary structures for the ringing sound generator, and an expert report as showing that a person of ordinary skill in the art would have understood the meaning of the term. *Id.* at 8. Maxell's expert opined that "ringing sound" refers to the notification of an incoming call and "ringing sound generator," in context, recites structure. Docket No. 136-4 ¶ 35.

Apple asserts that the phrase "ringing sound generator" is a means-plus-function term because it "does not connote sufficiently definite structure to a POSA" and because it is not the "name of a known structure in the field of portable mobile devices." Docket No. 161 at 9. Apple asserts that courts have found similar phrases, such as "alert sound generator" and "symbol generator," to be means-plus-function terms. *Id.* at 9 (citing *Mobilemedia Ideas, LLC v. Apple Inc.*, 178 F. Supp. 3d 209, 218–19 (D. Del. 2016) and *Advanced Ground Info. Sys. v. Life360, Inc.*, 830 F.3d 1341, 1346–49 (Fed. Cir. 2016)). Apple's expert opined that "one of ordinary skill in the art would understand that 'ringing sound generator' could be anything that generates a ringing sound. For example, a person ringing a cowbell could be a 'ringing sound generator.' " Docket No. 161-3 ¶ 33. The expert further stated that, even considering the fields of electrical engineering, computer engineering or computer science, he could identify "many different classes of structures that could generate a ringing sound." *Id.* ¶ 34.

Apple then proposes construing the term as a means-plus-function term with the function to generate a ringing sound" and Ringing Sound Generator 1519 in Figure 15 as the corresponding structure. Docket No. 161 at 9. Apple adds that the corresponding structure includes the details shown in Figure 1, *i.e.*, elements 1 ("reproduction timing memory"), 3a–3c (multiple "sound source[s]") and 4a–4c ("multiple "sound data reproduction portion[s]"). *Id.* (citing '306 patent at 4:34–65, Fig.1). Apple also asserts that the specification's disclosure of MP3 as potential "data" does not disclose "structure" for the ringing sound generator. *Id.* at 9–10.

Maxell responds that Apple's expert testimony regarding the potential class of structures such as a cowbell "ignores the context of the patent (mobile phones)." Docket No. 136 at 7. Maxell also argues that Apple's proposed structure is improper because it limits the term to one embodiment to the exclusion of others. Specifically, Maxell contends that the proposal excludes the specification's teaching that "the sound data of the MP3 method can be used." '306 patent at 5:1–8.

(2) Analysis

Section 112 ¶ 6 presumptively does not apply to "ringing sound generator" because it does not use the word "means." Apple has not demonstrated that the term "fails to recite sufficiently definite structure" or else "recites function without reciting sufficient structure for performing that function" to overcome this presumption. *See Williamson*, 792 F.3d at 1349.

The claims show that "ringing sound generator" is structural. The claims provide some detail as to how the ringing sound generator interacts with other components of the claim invention and describes the input data for the "ringing sound generator." *See Linear Tech* 379 F.3d at 1319–21 (finding "circuit [for performing a function]" to be sufficient definite structure where claims recite the circuit's "operation in sufficient detail to suggest structure to persons of ordinary skill in

the art"); *Free Stream Media*, 2017 WL 1165578, at *25 ("declining to construe "client device" as a means-plus-function term because "the claims themselves connote sufficiently definite structure by describing how the 'client device' operates within the claims invention to achieve its objections"). For example, claim 1 discloses a "ringing sound generator having a plurality of sound sources therewith" and a controller that "controls the ringing sound generator so as to generate the ringing sound using at least two of said sound sources when the signal comes in."

The specification confirms that "ringing sound generator" connotes structure. *See Inventio AG*, 649 F.3d at 1358 (finding term structural based on description in specification); *Finjan, Inc.*, 2015 WL 7770208, at *11. Figure 15 depicts the ringing sound generator as a component in the "circuit constructions of the cellular phone" where it is connected to a communication controller and a speaker. '306 patent at 15:50–51. The specification describes the operation of the "ringing sound generator 1519":

> A reference numeral 1519 indicates a ringing sound generator for generating the ringing sound when it receives the radio-wave signal, and a 1520 speaker for outputting the alerting signal that is reproduced in the ringing sound generator 1519 audibly. Further . . . "reproduce" means to output a sound data that is stored or a sound data that is received with the incoming call, or to put an audible frequency signal that is converted from an inputted sound data.

Id. at 4:24–33. In Figure 1, the patent shows additional "details of the communication controller 1516 and the ringing sound generator 1519," further describing how the controller and ringing sound generator operate to "reproduce" sound data. *Id.* at 4:34–65. These structural descriptions confirm that "ringing sound generator" is not a means-plus-function term. *See Free Stream Media*, 2017 WL 1165578, at *25 (E.D. Tex. Mar. 29, 2017); *Finjan, Inc*, 2015 WL 7770208, at *11.

Apple's expert testimony does not negate the intrinsic evidence showing that the full phrase "ringing sound generator" is structural. *See Personalized Media*, 742 F.3d at 706. Though "generator" may connote a broad class of structures, the context of the term in mobile phone

technology and the "ringing sound" modifier limits the potential class of structures. *See Williamson*, 792 F.3d at 1351; *Free Stream Media*, 2017 WL 1165578, at *24–25 (noting that a modifier "further narrows the scope of these structure covered by the claim") (citations omitted). Further, though the "ringing sound generator" covers a broad class of structures and identifies the structure by its function, this does not necessarily render it insufficiently structural. *See Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1019 (Fed. Cir. 2017) (finding a term may be sufficiently structural "even if the term covers a broad class of structures and even if the term identifies the structure by their function' "); *Personalized Media*, 161 F.3d at 705 ("Even though the term 'detector' does not specifically evoke a particular structure, it does convey to one knowledgeable in the art a variety of structures known as 'detectors.' ").

The structural descriptions in the specification distinguish this case from *Mobilemedia Ideas*, which Apple cites for the proposition that a ringing sound generator has no structural meaning. There, the court found "alert sound generator for generating an alert sound when the call is received from the remote caller" to be means-plus-function in part because the specification did not describe the term. *Mobilemedia Ideas*, 178 F. Supp. 3d at 218–19. Importantly, the court subsequently concluded that "alert sound generator" provided sufficient corresponding structure for the means-plus-function limitation because, in the context of a cellular phone, the alert sound generator was "understood by persons of ordinary skill in the art to refer to an electronic circuit, including a speaker or vibrator, that was capable of generating sounds, as well as stopping the generation of such sounds." *Id.* The Court thus concluded that "those of skill in the art would recognize the structure in the specification and associate it with the corresponding functions in the claim." *Id.* *Advanced Ground Info* is similarly unavailing because the patentees in that case

acknowledged that the term "symbol generator" was coined for purposes of the patent. 830 F.3d at 1348.

For these reasons, the Court construes "**ringing sound generator**" to have its **plain and ordinary meaning**.

D. The '438 Patent

The '438 patent, entitled "Terminal for Information Processing," "relates to an information-processing terminal having a communication function and relates to a system for displaying information on a notice board at a request made by the information-processing terminal." '438 Patent at 1:6–10. "More particularly the present invention relates to an electronic notice-board system having an information processing terminal in addition to a display apparatus." *Id.* at 1:10–12. An object of the patent is to provide an electronic notice-board system that simplifies a command to start use of a nearby notice board and allows only users close to the notice board to contribute an article to the notice board and/or inspect the notice board. *Id.* at 1:46–50. Maxell asserts claims 1 and 4 of the '438 patent which are:

> **1**. An information-processing terminal comprising:
>
> an input unit for receiving an input entered by a user;
>
> a first short-distance communication unit for carrying out a short-distance communication with a display apparatus; and
>
> a second communication unit for carrying out a communication with said display apparatus through a network; wherein
>
> said first short-distance communication unit using said input, carries out an authentication process for allowance to use said display apparatus;
>
> said second communication unit carries out data exchange with said display apparatus if said authentication process is affirmed; and
>
> said second communication unit does not carry out data exchange with said display apparatus if said authentication process is not affirmed. . . .

> **4.** A display apparatus for presenting information to users surrounding said display apparatus, comprising:
>
> a first short-distance communication unit for carrying out a short-distance communication with an information processing terminal; and
>
> a second communication unit for carrying out a communication with said information-processing terminal through a network; wherein
>
> said first short-distance communication unit carries out an authentication process for allowance to use said information-processing terminal;
>
> said second communication unit carries out data exchange with said information-processing terminal if said authentication process is affirmed; and
>
> said communication unit does not carry out data exchange with said information-processing terminal if said authentication process is not affirmed.

The '438 patent describes a preferred embodiment "implementing an electronic notice-board system provided by the present invention." *Id.* at 2:60–62. The embodiment discloses a mobile terminal, illustrated in Figure 2, and a display terminal, whose internal configuration is shown in Figure 3.

5. "an input unit for receiving an input entered by a user"

Maxell's Proposed Construction	**Apple's Proposed Construction**
Plain and Ordinary Meaning	Function: to receive input entered by a user Structure: a keyboard; or equivalents thereof

The disputed term "an input unit for receiving an input entered by a user" appears in claim 1 of the '438 patent.

(1) Parties' arguments

Maxell asserts that "an input unit for receiving an input entered by a user" is readily understood by a person of ordinary skill in the art and that the specification uses the term "input unit" consistent with its plain and ordinary meaning. Docket No. 136 at 9–10. Maxell further

argues that extrinsic evidence—including the dictionary definition of input unit—reflects that the term refers to a definite class of structures that are used to receive an input entered by a user. *Id.* at 10 (citing IBM's 1994 Dictionary of Computing at 343 (defining "input unit" as a "device in a data processing system by means of which data can be entered into the system")).

Apple contends that "unit for" is a nonce phrase, and "input" imparts no further structure. Docket No. 161 at 10–11. Apple asserts that "input unit" is defined "only by its function . . . without imposing any structural limits." *Id.* at 11. Accordingly, Apple asserts that the term must be construed according to § 112 ¶ 6 and proposes a recited function of "to receive input entered by a user" and, as structure, "a keyboard; or equivalents thereof." *Id.* at 10.

(2) Analysis

The parties dispute whether this term is a means-plus-function term according to § 112 ¶ 6. Because the claims do not recite the word "means," there is a rebuttable presumption that § 112 ¶ 6 does not apply. While "unit" is a nonce term that can be "tantamount using the word means," *Williamson*, 792 F.3d at 1350, the full term in question is "input unit." The "input" modifier imparts structural significance to the term, and, as such, "input unit" is structural. *See id.* (holding that modifiers can provide structure to otherwise nonce nonstructural terms); *Alcatel USA Resources Inc. v. Microsoft Corp.*, No. 6:06-cv-500, 2008 WL 2625852, at *17 (E.D. Tex. Jun 27, 2008) (finding term "input unit" sufficiently structural). Apple has not overcome the presumption that "input unit" connotes structure.

One of ordinary skill would understand that an input unit connotes structure. *See Alcatel USA Resources*, 2008 WL 2625852, at *17 (finding "input unit" not a means-plus-function term and applying plain and ordinary meaning); *see TiVo Inc. v. EchoStar Commc'ns Corp.*, No. 2:04-

CV-1, 2005 U.S. Dist. LEXIS 46879, at *25 (E.D. Tex. Aug. 18, 2005) (applying the plain and ordinary meaning to "input section").

The specification provides some structural description for the term. The specification discloses an embodiment comprising a "mobile terminal" and a "display terminal." The mobile terminal serves as the "information processing terminal" and, as depicted in Figure 2, contains an "input/output unit" connected to other components. Specifically, the input/output unit is connected to a processor, a storage unit, a transmission/reception unit, a camera unit and a short distance communication unit which are all "connected to each other by an internal bus so that they are capable of exchanging information with each other." '438 patent at 3:39–42, Fig. 2. The specification further provides an exemplary structure for the input/output unit, including but "not limited to the liquid crystal display device and the ten-key board." '438 patent at 50–67; *Cf. Linear Tech.*, 379 F.3d at 1320 (finding that the term "circuit" when coupled with a description of the circuit's operation is sufficiently structural). The specification also describes the operation of the input/output unit, allowing a user to enter a comment to be displayed, and examples of inputs received by the user. *Id.* at 8:5; 8:57–60.

Extrinsic evidence further indicates that "input unit" connotes structure. *See, e.g.*, IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONICS TERMS, "input device," 524 (6th ed. 1997) (defining "input device" as a "device used to enter data into a computer system" and listing "input unit" as a synonym for input device."); *see also MIT*, 462 F.3d at 1355 (relying on technical dictionaries to determine whether the term "circuitry" connotes structure). The fact that a term is described according to its function does not necessarily mean that the term fails to designate structure. *See Skky*, 859 F.3d at 1019 (Fed. Cir. 2017) (citing *TecSec, Inc. v. Int'l Bus. Machs. Corp.*, 731 F.3d 1336, 1347 (Fed. Cir. 2013)).

Apple's expert recognized that "input unit" refers to various known structures such as a "mouse, keyboard, touch screen, touch-pen, [and] voice activated inputs." Docket No. 136-2 ¶ 79. Nevertheless, the expert stated that "input unit" is not a term in the field "because many different classes of structure can act as an 'input unit.' " *Id.* However, as discussed previously, the fact that "a disputed term is not limited to a single structure does not disqualify it as corresponding structure, as long as the class of structures is identifiable by a person of ordinary skill in the art." *Linear Tech*, 379 F.3d at 1322. Even if the term covers a broad class of structures, it is sufficient if the claim term is used by persons of ordinary skill in the art to designate structure. *Id.*; *Skky,* 859 F.3d at 1019 (Fed. Cir. 2017); *see also Personalized Media*, 161 F.3d at 704–05 (finding the term "detector" to not be a means-plus-function limitation because it conveyed to one of skill in the art a variety of structures known as "detectors"). The fact that an "input unit" may refer to a "wide variety of structures" does not render the term nonstructural, nor does the fact that term is defined by its structure. *Personalized Media*, 161 F.3d at 704–05.

Accordingly, the Court construes "**an input unit for receiving an input entered by a user**" according to its **plain and ordinary meaning**.

6. "means for selecting an object displayed on said display apparatus"

Maxell's Proposed Construction	**Apple's Proposed Construction**
Agreed function: "selecting an object displayed on said display apparatus" Structure: Input/output unit 103 and associated software that allows for the claimed selection function.	Agreed function: "selecting an object displayed on said display apparatus" Structure: input/output unit 103, including a liquid crystal display device and a keyboard, and associated software; or equivalents thereof

(1) Parties' Positions

The parties agree that the term is a means-plus-function term and that the recited function is "selecting an object displayed on said apparatus." The parties also agree that the corresponding

structure relates to input/output unit 103 but dispute whether the associated structure requires further specificity.

Maxell argues that the disclosed structure is "input/output unit 103 and associated software that allow for the claimed function." Docket No. 136 at 13. Maxell asserts that the input/output unit connotes sufficient structure. *Id.* at 14.

Apple cites its arguments for the previous term asserting that "for the same reasons that 'input unit' is a means-plus-function limitation . . . 'input/output unit' does not recite sufficiently definite structure." Docket No. 161 at 12. Apple contends that "Maxell's construction simply replaces a black box that performs a recited function with another black box." *Id.* at 12 (citing *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1383–84 (Fed. Cir. 2009)). Apple then asserts that "a liquid crystal display device and ten-key board" are the only disclosed structures.

(2) Analysis

Input/output unit 103 is clearly linked to the function of selecting an object displayed on said display apparatus. *See* '438 patent at 8:57. For the reasons discussed for the previous term, the Court finds that input/output unit connotes sufficient structure to one of ordinary skill in the art. Accordingly, the Court construes "**means for selecting an object displayed on said display apparatus**" as a means-plus-function term:

Function: "**selecting an object displayed on said display apparatus**" and

Structure "**Input/output unit 103 and associated software that allows for the claimed selection function.**"

7. "display apparatus"

Maxell's Proposed Construction	**Apple's Proposed Construction**
"a display device comprising a first short-distance communication apparatus for carrying out a short distance communication with an information processing terminal and a second communication apparatus for carrying out a communication with the information-processing terminal through a network"	"an electronic notice board"

(1) The Parties' Positions

Maxell contends that the inventors of the '438 patent acted as lexicographers and defined "display apparatus" in the summary of the invention, describing the "display apparatus" according to the recited limitations in claim 4. *See, e.g.*, Docket. No. 136 at 11–12. Maxell argues that Apple's proposed construction improperly limits the term to a preferred embodiment. *Id.* Maxell further contends that Apple's construction violates the doctrine of claim differentiation because dependent claims 6 and 7 explicitly limit "display apparatus" to an "electronic notice board." Docket No. 165 at 6.

Apple agrees that the term has special meaning within the context of the '438 patent but argues for a narrower construction. *See* Docket. No. 161 at 12–13. Apple argues that the patent's repeated description of the invention as an "electronic notice-board system" limits the invention's scope and trumps claim differentiation. *Id.* at 12–14. In accordance with such limitation, Apple asserts that the patent uses the terms "electronic notice board" and "notice board" to describe the claimed "display apparatus" *Id.* at 13 (citing Docket No. 161-1 ¶ 73). Apple further asserts that the patent describes a "display apparatus" as a "display terminal," which is in turn defined as an "electronic notice board." *Id.* at 13–14 (citing '438 patent at 4:27–28; 4:46–47; 9:33–36). Accordingly, Apple asserts that "display apparatus" should be construed as an "electronic notice board."

Apple further asserts that Maxell's construction improperly attempts to import the specification's paraphrasing of claim 4 to define "display apparatus" which would render claim 4 superfluous. *Id.* at 14.

(2) Analysis

The parties' dispute amounts to a conflict, familiar in claim construction analysis, between the teachings in the specification and claim differentiation. *See, e.g.*, *Marine Polymer Tech. Inc. v. HemCon, Inc.*, 672 F.3d 1350 (Fed. Cir. 2012) (where an evenly divided en banc panel split over whether a construction dictated by the specification or a construction dictated by claim differentiation was more proper).

The claims support Maxell's proposal. Claims 1 and 4 define the invention from opposite directions: claim 1 is directed to and claims an "information-processing terminal" that communicates with a "display apparatus," while claim 4 is directed to and claims a "display apparatus" that communicates with an "information processing terminal." Claim 4 claims a "display apparatus . . . comprising a first short-distance communication apparatus for carrying out a short distance communication with an information processing terminal and a second communication apparatus for carrying out a communication with the information-processing terminal through a network." The "display apparatus" term also appears in claims 1–3 and 5–7. For example, claim 1 specifies that an "information processing terminal" has a "first short-distance communication unit" and a "second communication unit" for communicating with a "display apparatus." Unlike claim 4, claim 1 provides no further detail on the "display apparatus."

The parties agree that the "display apparatus" in claims 1 and 4 is the same. It follows that claim 4's limitations are incorporated into "display apparatus" in all the claims. Such a construction does not violate the principles of claim differentiation because claim differentiation

principles operate differently in the context of two independent claims. *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381 (Fed. Cir. 2006) (explaining that claim differentiation arguments have less force in the context of two independent claims because "two claims can use different terminology to define the exact same subject matter").

Apple asserts that "display apparatus" should be limited to an "electronic notice board." However, dependent claims 6 and 7 claim an electronic notice board system "including a display apparatus . . . wherein said display apparatus is an electronic notice board." The doctrine of claim differentiation therefore creates a rebuttable presumption that "display apparatus" is not limited to an "electronic notice board." *Liebel-Flarsheim*, 358 F.3d at 910. This presumption is strongest where, as here, "the limitation sought to be 'read into' an independent claim is the only meaningful difference between the two claims." *InterDigital Commns. LLC v. Inter. Trade Com'n*, 690 F.3d 1318, 1324 (Fed. Cir. 2012); *Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001); *SunRace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed.Cir.2003).

Apple argues that the written description overcomes the presumption against claim differentiation because it teaches that "display apparatus" is limited to an "electronic notice board." Apple argues that the patent repeatedly and consistently characterizes the invention as an electronic notice board system and characterizes the "display apparatus" as an "electronic notice board." *Id.* (citing *Verizon Servs. Corp. v. Vonage holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007) (when a patent describes the features of the "present invention" as a whole, this description limits the scope of the invention)). Apple also argues that "the specification uses the terms 'electronic notice board' and 'notice board' 47 times to describe the claimed 'display apparatus.' " *Id.* at 13 (citing *GPNE Corp. v. Apple, Inc.* 830 F.3d 1365 (Fed. Cir. 2016) ("A patent's repeated and consistent characterization of a claim term in a particular way may require the claim term to be

construed in accordance with that characterization.")). Apple asserts that these statements in the specification overcome the presumption from claim differentiation. *Id.*

Apple does not, however, overcome the strong presumption of claim differentiation here. While the specification does discuss the "present invention" as relating to an "electronic notice board system," the specification also describes the invention as containing a general "display apparatus," not an "electronic notice board." '438 patent at 1:10–12 ("[T]he present invention relates to an electronic notice-board system having an information-processing terminal in addition to a display apparatus"); *see id.* at 2:5–17 (describing the "display apparatus of the present invention" in broad terms as used in claim 4).

The patent includes a single preferred embodiment "implementing an electronic-notice board system provided by the present invention." *Id.* at 2:61–63. The description of this embodiment does not use "electronic notice board" in place of "display apparatus." Instead, the specification describes a "display terminal" with generic components that serves as the "display apparatus" in the embodiment.

The patentees' broad descriptions of "display terminal" shows that they did not intend to limit "display apparatus" to an "electronic notice board." The patent discloses a broad "display apparatus" capable of serving as an electronic notice board in an electronic notice board system. For example, rather than simply disclosing an "electronic notice board," the embodiment describes a generic "display unit" which "serv[es] as a notice board" in the embodiment. '438 patent at 4:46–47. Moreover, the embodiment describes installing an "electronic notice-board program for implementing an electronic notice board function" on the display terminal, which again suggests that the display terminal/display apparatus is broader than an electronic notice board. *Id.* at 4:66–5:33.

That the inventors anticipated the invention being used in an electronic notice board system does not limit the scope of the patent to that narrow context where, as here, the specification uses broader terms to describe the invention. *See Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1301 (Fed. Cir. 2003) ("[T]he fact that the inventor anticipated that the invention may be used in a particular manner does not limit the scope to that narrow context."); *Vehicular Techs. Corp. v. Titan Wheel Int'l.* 141 F.3d 1084 (Fed. Cir. 1998). Advantages described in the body of the specification are not *per se* limitations to the claimed invention. *Vehicular Techs.*, 141 F.3d at 1096. The principal invention—the display terminal and display apparatus capable of performing two-way communication—appears to be useful in contexts outside of the electronic notice board system. Thus, the patentee's focus on the effect of the claimed invention in electronic notice board systems does not clearly "disavow the use of the invention outside the context of the electronic notice board system." *See Teleflex*, 299 F.3d at 1328. Ultimately, the specification's discussion of the invention in relation to an electronic notice board system does not "compel" a contrary construction despite the claim differentiation presumption. *See Marine Polymer* (Dyk, J., dissenting in part) (explaining that courts should adopt a construction violating the principles of claim differentiation only if it is the only construction consistent with the claim language and the written description).

With that said, Maxell's reasoning is also unpersuasive. Maxell asserts that the repetition of claim 4's language in the Summary of Invention is an express definition. The Court disagrees. Repeating claim language in the Summary of the Invention is a common practice by patent practitioners and does not ordinarily constitute an express definition. Moreover, the Court declines to include the phrase "display device" in the construction as Maxell proposes. "Display device" as used in the specification, refers to structure *within* the display terminal/display apparatus, not

structure for the display apparatus itself. *See* '438 patent at 4:50–52 (explaining that the "display unit" in the "display terminal" can be "any display device as long as the display device is capable of displaying information"). It would be improper to use "display device" in the construction of "display apparatus."

Accordingly, the Court construes "**display apparatus**" to mean **"a display comprising a first short-distance communication apparatus for carrying out a short distance communication with an information processing terminal and a second communication apparatus for carrying out a communication with the information-processing terminal through a network."**

7. "adding a comment to contributed data"

Maxell's Proposed Construction	**Apple's Proposed Construction**
Plain and Ordinary Meaning	"written content responsive to the contributed data"

The disputed term "adding a comment to contributed data" appears in claim 2 of the '438 patent.

(1) The Parties' Positions

Maxell asserts that the term is readily understood by those of skill in the art and requires no construction. *See* Docket No. 136 at 12–13. Maxell argues that the term is not limited to "written content" and that Apple inserts words that do not appear in the specification. *Id.* at 13.

Apple asserts that a construction is required because the word "comment" has different meanings in different contexts. Docket No. 161 at 15 (citing Docket No. 161-11 at 98:3–23). Apple then asserts that the specification requires that a comment added to contributed data be a "written content responsive to that data." *Id.* (citing '438 patent at 8:64–9:6 ("Subsequently, the user . . . ***writes a comment*** into the display field 1302. The content ID 502 is an ID identifying a

content for which the ***comment is written***. . . . Finally, the user selects a transmission button 1303 to start a process to select the content and input the ***written comment***.") (emphasis added)). To Apple, its construction is supported by the patent's goal—writing and posting text on an electronic notice board in response to "contributed data" already on the board. *Id.* (citing Docket No.161-2 ¶ 92).

(2) Analysis

Nothing in the intrinsic evidence supports limiting the meaning of "adding a comment to contributed data." Claim 2, for example, requires that the information-processing terminal of claim 1 have (i) a function of contributing data to said display apparatus and (ii) a function of adding a comment to contributed data. This language does not require the comment to be "written." To the extent that Apple's proposed requirement that the comment be "responsive" is different than the plain meaning of "adding . . . to contributed data," such limitation finds no support in the claim language.

Likewise, the specification does not support limiting the meaning of "adding a comment to contributed data." Apple has not pointed to language of lexicography, disavowal or disclaimer mandating that the content must be written or responsive. *See GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014); *Cordis Corp. v. Boston Sci. Corp.*, 561 F.3d 1319, 1329 (Fed. Cir. 2009). The descriptions in the Background of the Invention and Summary of the Invention do not indicate any intent to limit the term to written and responsive content.

Instead, Apple cites non-limiting descriptions of the preferred embodiment to support its proposed construction. However, "even where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words of expressions of manifest exclusion or restriction." *Arlington Indus.*,

Inc. v. Bridgeport Fittings, Inc., 632 F.3d 1246, 1254 (Fed. Cir. 2011); *see Innova/Pure Water*, 381 F.3d at 1117. Even within the description of the preferred embodiment, the patent does not describe "written" and "responsive" content as relevant or necessary to the patent's goal.

Apple has not demonstrated a clear intent to limit the claim term from its plain and ordinary meaning. The embodiment's description of a comment as written does not suggest a clear intent to limit the scope. The Court hereby construes the term "**adding a comment to contributed data**" to have its **plain and ordinary meaning**.

E. The '493 Patent

The '493 patent is entitled "Electric Camera." The patent generally relates to an electric camera that solves a problem of conventional electric cameras incapable of taking both moving and static images of satisfactory quality. *Id.* at 2:62–3:7. The'493 patent's abstract is reproduced below:

> An electric camera includes an image sensing device with a light receiving surface having N vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines M of a display screen of a television system, a driver to drive the image sensing device to vertically mix or cull signal charges accumulated in individual pixels of K pixels to produce, during a vertical effective scanning period of the television system, a number of lines of output signals which corresponds to 1/K the number of vertically arranged pixels N of the image sensing device, K being an integer equal to or less than an integral part of a quotient of N divided by M, and a signal processing unit having a function of generating image signals by using the output signals of the image sensing device.

More particularly, the '493 patent describes an electric camera including an image sensing device having a number (*e.g.*, 1200 pixels) of vertically arranged pixels and a number (*e.g.*, 1600 pixels) of horizontally arranged pixels. *Id.* 4:34–48. When taking still images, all of the effective pixels on the image sensing device are used to produce signals with as high a resolution as possible. *Id.* at 7:31–39. When taking moving video, a number (*e.g.*, 1200/240 = 5) of the vertically arranged pixels are mixed or culled so that the number of lines of output signals conforms to the number of

effective scanning lines (*e.g.*, 240 lines if in an NTSC system) of a television monitor. *See, e.g.*, 4:64–5:6; 9:30–43.

Claim 1 of the ’493 patent is reproduced below:

1. An electric camera comprising:

an image sensing device with a light receiving sensor having an array of pixels arranged vertically and horizontally in a grid pattern, in an N number of vertically arranged pixel lines, wherein N is equal to or greater than three times a number of effective scanning lines M of a display screen;

a signal processing unit, that generates image signals by using the output signals of the image sensing device; and

a display unit with the display screen, to display an image corresponding to the image signals;

wherein during monitoring in a static image mode, the signal processing unit generates the image signals by mixing or culling signal charges accumulated in the N number of vertically arranged pixel lines to provide pixel lines only at pixel intervals of K1 pixels;

wherein during recording in a moving video mode, the signal processing unit generates image signals by mixing or culling signal charges accumulated in the N number of vertically arranged pixel lines to provide pixel lines only at pixel intervals of K2 pixels, a value of K1 being different from a value of K2; and

wherein during recording in the static image mode, the signal processing unit generates the image signals by using all signal charges accumulated in the N number of vertically arranged pixel lines, to provide N pixel lines.

8. “effective scanning lines . . . of a display screen”

Maxell’s Proposed Construction	**Apple’s Proposed Construction**
“lines on a display screen corresponding to an actually displayed image”	“the lines displayed in a single field of an interlaced scanning display”

The disputed term “effective scanning lines . . . of a display screen” appears in claim 1 of the ’493 patent.

(1) The Parties' Positions

The parties' dispute centers on whether the patent is limited to "interlaced scanning" displays. Interlaced scanning involves displaying half of the pixel lines in one frame and the other half in the next frame. Docket No. 136 at 18. Another scanning technique, developed after interlaced scanning, is progressive scanning, which involves displaying each of the pixel lines in sequence for each frame. *Id.* at 19. According to Maxell, by the time of the invention of the '493 patent, those of skill in the art were familiar with progressive scanning techniques. *Id.* at 19.

Maxell claims that the term should be construed to mean "the number of lines on a display screen corresponding to an actually displayed image." Docket No. 136 at 18. Maxell contends that the term "effective" is used consistently to refer to "that which is actually being used." *Id.* at 20. As such, Maxell argues that "effective scanning lines" mean the "lines actually being utilized to display an image." *Id.* at 20. At bottom, Maxell asserts that descriptions of interlaced scanning and the use of terms such as "field" and "vertical blanking period" relate only to a nonlimiting embodiment. *Id.* at 22.

According to Apple, a person of ordinary skill would have understood that television displays at the time of the alleged invention utilized interlaced scanning. *Id.* at 19. Apple's expert acknowledges that "interlaced" and "progressive" scanning were both known at the time of the patent but states that interlaced scanning displays were more "common." Docket No. 161-4 ¶ 34.

Apple asserts that the invention aims to produce "signals conforming to a television system such as NTSC and PAL," and all disclosed embodiments refer to interlaced television standards. *Id.* at 21 (citing '493 patent at 1:30–34; 10:18–21). Accordingly, Apple argues that the construction of "effective scanning lines" should reflect this goal. Docket No. 161 at 18.

Apple argues that its proposed construction is consistent with the specification's definition of "effective scanning line" as part of a display field, a term relevant only in interlaced scanning systems.

> The NTSC system, for example, performs interlaced scanning on ***two fields, each of which has an effective scanning line*** number of about 240 lines (the number of scanning lines actually displayed on the monitor, which is equal to the number of scanning lines in the vertical blanking period subtracted from the total number of scanning lines in each field).

'438 patent at 1:39–43.

Maxell argues that Apple's proposed construction impermissibly excludes progressive scanning displays. *Id.* at 19. According to Maxell, the claim language does not support such a limitation. Maxell further points to the specification, which states that the "invention can also be applied to other television systems," to allege that the invention covers progressive scanning systems. Docket No. 136 at 21 (citing '493 patent at 10:18–21).

(2) Analysis

The claims do not support limiting the term to interlaced scanning. The term appears in claim 1 of the '493 patent, which is reproduced below in relevant part:

> An electric camera comprising:
>
> > an image sensing device with a light receiving sensor having an array of pixels arranged vertically and horizontally in a grid pattern, in an N number of vertically arranged pixel lines, wherein N is equal to or greater than three times a number of **effective scanning lines M of a display screen**; …

'493 patent at 15:57–63 (emphasis added). The claim specifies that pixels are arranged vertically and horizontally in a grid pattern, where N is the number of vertically arranged pixel lines and M is the number of effective scanning lines. The claim does not reference "interlaced" scanning, nor does it mention a "single field," "vertical blanking period" or any other term unique to interlaced scanning.

Nor does the specification support limiting the term to interlaced scanning. The specification describes the patent in general terms as relating to "photography of video cameras, camcorders, digital still cameras and others using solid state image sensing device, and more particularly to an electric camera using a solid state image sensing device with a large number of pixels." *Id.* at 2:57–61. This does not support any limitation.

Contrary to Apple's position, the patent's stated goal is quite broad: to solve issues in the prior art by providing an "image sensing device with a sufficient number of pixels for still images and enables taking of highly details still images of a moving video taking with reduced image quality degradation without increasing circuitry such as field memory." '438 patent at 3:8–13. The patent discusses limitations in prior art systems adapted to interlaced scanning systems. *See* '493 patent at 1:51–53 (describing prior art image sensing devices designed to take moving images according to the NTSC system). However, describing the patent as providing an advantage over these systems, without more, is not a *per se* limitation to the claimed invention. *See Teleflex*, 299 F.3d at 1328. The patent's use of NTSC standards in the embodiments similarly fails to limit the term. *See Comark Commc'ns, Inc.*, 156 F.3d at 1187 ("Although the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims."); *Arlington Indus.*, 632 F.3d at 1254; *Innova/Pure Water*, 381 F.3d at 1117; *see also Liebel-Flarsheim Co.*, 358 F.3d at 906. Both parties rely on the following portion of the specification to define "effective scanning lines."

> The NTSC system, for example, performs interlaced scanning on two fields, each of which has an effective scanning line number of about 240 lines (the number of scanning lines actually displayed on the monitor which is equal to the number of scanning lines in the vertical blanking period subtracted from the total number of scanning lines in each field).

'493 patent at 1:30–50 (emphasis added). This discussion of the NTSC standard is a non-limiting example in the specification used to explain the limitations of prior art systems. *See Comark Commc'ns, Inc*, 156 F.3d at 1187. This phrase is best read as both broadly defining "effective scanning lines"—the number of scanning lines actually displayed on the monitor—and applying that meaning to the exemplary NTSC system. Consistent with this provision, the term "effective scanning lines" refers to the "number of scanning lines actually displayed on the monitor."

Accordingly, the Court construes "**effective scanning lines**" as "**the number of scanning lines displayed on the display screen.**"[3]

9. "culling" and "mixing"

Term	**Maxell's Proposed Construction**	**Apple's Proposed Construction**
"mixing … signal charges"/ "mixed"	"combining signal charges from multiple pixels" / "combined"	"collecting charges from multiple pixels for combined transfer" / "collected"
"culling signal charges" / "culled"	Plain and ordinary meaning	"selecting pixels for output by skipping pixels at predetermined intervals" / "selected"

The disputed terms "culling signal charges" / "culled" and "mixing . . . signal charges" / "mixed" appear in claims 1, 4, 5 and 10 of the '493 patent. These terms are combined for analysis based on the similarity of the terms as used in the patent and the parties' positions as to these terms.

(1) The Parties' Positions

Maxell proposes construing "mixing" to mean "combining signal charges from multiple pixels" and "mixed" as "combined." Maxell asserts that its proposed constructions use language from Apple's constructions and supported by the specification. Docket No. 136 at 25. Maxell

[3] The court utilizes the term "display" instead of "monitor" to remain consistent with the language in the claims referring to displays.

argues that Apple's construction is unclear and improperly limits the claims to an undefined "combined transfer."

Apple asserts that further clarification is necessary. Apple argues that the patent "consistently describes 'mixing' as collecting charges from multiple pixels for combined transfer" and that " 'mixing' occurs as part of the charge transfer process." *Id.* at 22. Apple further explains that the specification's disclosure that pixels are "mixed together to reduce the number of output lines from the image sensing device" teaches that the combination "of pixel charges occurs as part of charge transfer to reduce the number of output lines from the image sensor." *Id.* Apple further asserts that post-transfer processing is "disparaged" by the '493 patent. *Id.* (citing '493 patent at 2:10–17). Specifically, the patent criticizes prior art systems that combined signal charges after they were read out from the image sensing device as requiring "a large processing circuit, such as field memory." *Id.* at 23 (citing '493 patent at 2:18–25). Because the patent purports to eliminate the need for field memory, Apple asserts that the mixing must be " part of the transfer process."

As to "culling," Maxell contends that it requires no construction because one of ordinary skill in the art would have no difficulty understanding its meaning. Docket No. 136 at 23 (citing 136-8 ¶¶ 49–50). Maxell asserts that Apple's construction is unduly limiting and at least "partially redundant" with the other limitations because "skipping" and "predetermined intervals" are not used to describe "culling" and because the patent's description of "culling" would be familiar to and easily understood by persons of ordinary skill. Docket No. 136 at 23.

Apple and its expert assert that "culling" has special meaning within the context of the '493 patent. Docket No. 161-12 at 66:18–68:18. Apple argues that the specification's only explanation of "culling"—which equates culling with skipping pixel lines—supports its construction. *Id.* at 24; Docket No. 161 at 23 (citing '493 patent at 10:9–12 ("The number of

lines of output signals can also be reduced by a so-called culling operation, by which only one line of signal charges of pixels is read out for every predetermined number of lines.")). Apple argues that Maxell's construction stretches "culling" to cover any operation that results in fewer than all pixels in the array.

(2) Analysis

The claim language does not expressly define the "mixing" or "culling" terms. Rather, the surrounding claim language specifies the result of the mixing/culling operations. *See* '493 patent at 16:1–6. The claims explain that mixing/culling results in pixel lines only at pixel intervals of K1 pixels (for claim 1) or pixel lines separated from one another by intervals of a first/given distance (claims 5 and 10). Claim 1 further explains that the "signal processing unit" performs the mixing/culling operation using the "output signals of the image sensing device." *Id.* at 15:64–16:5.

The specification has numerous references to the "mixing" and "culling" terms. Consistent with the claims, the specification makes clear that "mixing" or "culling" reduces the number of pixel lines of output signals. *See* '493 patent at 1:6–12 ("vertically adjoining pixels are mixed together to reduce the number of output lines"); 5:3–5 ("vertically mixing five pixels (1200 pixel rows/240 scanning lines) can match the number of lines of output signals from the image sensing device to the number of effective scanning lines"); 1:43–50 (describing that for an image sensing device having about 480 pixel rows, two vertically adjoining pixels in each field are mixed together inside or outside the image sensing device to generate 240 scanning lines). The joint usage of "mixing" and "culling" in the patent suggests that the operations use on the same input and result in a similar output (*i.e.*, a reduced number of pixel lines), and are performed by the same device. The main difference appears to be the manner by which the pixel rows are reduced.

The parties agree that "mixing" involves combining signal charges. Apple's expert describes the "mixing" process as "combining signal charges from multiple pixels." *See* Docket No. 161-4 at ¶ 49 (further describing lines of pixels as "vertically mixed together by combining charges accumulated in four pixels"). Maxell's construction incorporates this understanding; indeed, Maxell proposes aconstruction using Apple's expert's own language: "combining signal charges from multiple pixels." Maxell's construction also comports with the teaching of the claim and specification that the "mixing" function combines pixels to reduce signal lines.

Apple argues that a more limited construction is required based on the patent's disparagement of the prior art. But the phrases "collecting" and "combined transfer" are not found anywhere in the claims or specification.

Apple explains that its proposed construction limits the mixing process to "part of transferring the charges from the sensor" rather than including the post-transfer processing approach disparaged by the patent (Maxell's position)." Docket No. 161 at 22. According to Apple, the only way to distinguish the invention from the prior art "is to perform mixing as part of the signal transfer, to combine these charges ***as it is being transferred from image sensor to another device.***" Docket No. 153 at 35 (emphasis added). Apple's expert testimony likewise suggests that Apple's construction aims to restrict the mixing function specifically to the image sensing device. Docket No. 161-4 ¶ 52 (stating that Maxell's construction is too broad because it "permits the combination of pixels to occur anywhere in the system, for example, in the camera system after all effective pixels were read out from the image sensing device"). Apple's counsel likewise asserted in the *Markman* hearing that the only way for the invention to make sense "is to perform mixing as part of the signal transfer, to combine the charges as it is being transferred from image sensor to another device." Docket No. 187 at 153:1–7.

Apple's proposed construction does not clearly limit the mixing operation as Apple suggests. Apple's construction makes no mention of the image sensing device. Notably, Apple's counsel later stated during rebuttal that that its "construction is that mixing can occur inside the image sensor ***or outside the image sensor***" but that the "mixing operation has to be performed as part of a signal transfer from one place to another." *Id.* at 154:19–20 (emphasis added).

If Apple's construction requires the mixing process to occur in the image sensing device or as signals are transferred from the image sensing device, then the construction would contradict the language of claim 1, which states:

> a signal processing unit, that generates signals by using ***the output signals of the image sensing device***; . . . wherein . . . the signal processing unit generates the image signals by mixing or culling signal charges accumulated in the N number of vertically arranged pixel lines to provide pixel lines only at pixel intervals of K1 pixels.

Under Claim 1, then, mixing occurs *after* the image sensing device outputs the charges to the signal processing unit.

The specification's criticism of a prior art system utilizing post-transfer processing does not overcome the plain language of claim 1. The specification does not describe the invention as requiring mixing to occur before transfer from the image sensing device or as part of the transfer process. The specification des not "repeatedly extoll the virtues" of combined transfer or repeatedly criticize post transfer processing. *See UltimatePointer, L.L.C. v. Nintendo Co., Ltd.*, 816 F.3d 816 (Fed. Cir. 2016) (finding the "repeated description of the invention as a direct pointing system, the repeated extolling of the virtues of direct pointing, and the repeated criticism of indirect pointing clearly indicated that "handled device" should be limited to "direct-pointing device"). And in fact, the specification also criticizes a prior art system that performs mixing

inside the image sensing device. *See* '493 patent at 2:44–53. Ultimately, neither the claims nor the specification requires mixing to occur as signals are transferred from the image sensing device.

Apple's alternative argument that the mixing function may occur anywhere, so long as it is performed "as part of a transfer process," is likewise unsupported by the claims. Again, neither the claims nor the specification contains this language. Claim 1 explains that the mixing is performed by the "signal processing unit" and does not discuss any related transfer operation. Apple's argument appears to be derived from the patent's discussion of an embodiment. '493 patent at 5:56–66 (explaining, in the context of the embodiment, that signals are mixed in the "horizontal transfer unit 33" of an image sensing device). As discussed previously, terms will not be narrowed according to embodiments in the specification absent a clear intent to so limit the terms. Further, this embodiment is targeted to a system where the image sensing device performs the mixing function. However, the patent clearly did not intend to limit the invention to this embodiment because Claim 1 performs the mixing operation on signals output from the image sensing device. Further, the specification does not indicate that this process is necessary to address limitations in prior art. Ultimately, Apple has not shown that its construction is required pursuant to prior art disparagement or that its construction is otherwise supported or mandated.

As to the "culling" and "culled" term, Apple and Maxell's experts disagree as to whether term is understood by persons of ordinary skill in the art. As discussed above, the claims themselves do not define "culling." However, the specification defines "culling:"

> The number of output signals can also be reduced by a so-called culling operation, by which only one line of signal charges of pixels is read out for every predetermined number of lines.

'493 patent at 10:9–12.

Though provided in the context of an embodiment, this statement is not simply a description of an embodiment or a single example of the culling operation. Instead, it explains the

"culling operation" referred to in the invention. Though there is always tension in determining "whether a statement was designed to define the claim term or to describe a preferred embodiment," *E-Pass Technologies, Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003), an express definition should not be ignored just because it appears in the context of a preferred embodiment, as the term does here. *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322 (Fed. Cir. 2009). Accordingly, culling should be construed consistent with this description.

Apple asserts that its construction imports the same meaning. The Court disagrees. First, the phrase "selecting" is not explained or consistent with any language in the specification. Further, the specification requires one line of signal charges of pixels to be read out for every predetermined number of lines—*e.g.* reading out any one line for every five pixels. Apple's construction appears more limiting, requiring skipping pixels at predetermined intervals—*e.g.* always selecting the first line and skipping the next four. Though the result is the same—one pixel line for every 5 pixels—the operation is not the same. Ultimately, such rephrasing, even if true to the outcome described in the patent, is unnecessary because the definition in the patent is clear on its own.

Accordingly, the Court construes "**mixing . . . signal charges**" and "**mixed**" as "**combining signal charges from multiple pixels"** and **"combined."** Further, the Court construes "**culling signal charges**" and "**culled**" as "**reading out only one line of signal charges of pixels for every predetermined number of lines**" and "**only one line of signal charges of pixels is read out for every predetermined number of lines**."

F. The '991 Patent

The '991 patent is entitled "Communication Apparatus and Method for Receiving an Inbound Videophone Call Notice While Displaying Digital Information on the Display." The

Background of the patent explains that a telephone communication system and a TV broadcast system are independent systems and different apparatuses, and various problems exist with a conventional telephone and TV system. *See* '991 patent at 1:39–2:31. To provide a solution to conventional systems, the '991 patent discloses "a new and improved TV receiver with TV function (referred to as videophone function-added TV 35 receiver hereafter) set having videophone call handling functionality, which performs both the reception of a digital broadcast program signal and the transmission and reception of a videophone signal between itself and another videophone function-added TV receiver at the other end of a 40 communication line." *Id.* at 2:32–40.

Maxell asserts claim 1 of the, reproduced below:

> A communication apparatus for transmitting and receiving digital information to and from another communication apparatus, comprising:
>
> a network interface configured to receive first digital information which is received from a contents server which is coupled to the communication apparatus via the network interface and second digital information from the another communication apparatus;
>
> a camera configured to generate video information which is included in third digital information;
>
> a display configured to display at least the first and the second digital information; and
>
> a processor;
>
> wherein when the processor receives an inbound videophone call notice while displaying the first digital information on the display, the processor pauses the displaying of the first digital information and renders the camera operative;
>
> wherein the processor outputs the third digital information to the another communication apparatus and displays the second digital information of the videophone call on the display; and
>
> wherein when the processor receives an input for stopping the videophone call, the processor stops output of the third digital information and stops the camera.

10. "communication apparatus"

Maxell's Proposed Construction	Apple's Proposed Construction
Plain and Ordinary Meaning	"videophone function-added TV receiver"

The disputed term "communication apparatus" appears in claims 1–4, 8–10 and 12 of the '991 patent.

(1) The Parties' Positions

Maxell asserts that a person of ordinary skill in the art would understand "communication apparatus" according to its plain and ordinary meaning. Docket No. 136 at 15 (citing *Biscotti Inc. v. Microsoft Corp.*, No. 2:13-cv-01015, 2016 U.S. Dist. LEXIS 155336, at *16 (E.D. Tex. Nov. 9, 2016) (construing "communication device" according to its plain and ordinary meaning)).

Apple asserts that "communication apparatus" should be construed according to the patent's "repeated and consistent characterization of the alleged invention" as a "videophone function-added TV receiver." Docket No. 161 at 15–16 (citing *GPNE*, 830 F.3d at 1370). Apple notes that the phrase "communication apparatus" is not used anywhere in the specification, whereas "videophone function-added TV receiver" is used 284 times. *Id.* According to Apple, such a construction is consistent with the patent's goal of improving television receivers. *Id.* at 16. Apple also asserts that its proposed construction is consistent with the prosecution history because, throughout the substantive examination, the application was titled "Television Receiver with a TV Phone Function." *Id.* at 17.

Maxell responds that Apple's construction is improper for two reasons. First, Maxell asserts that the proposed construction excludes preferred embodiments which describe a "video telephone system using but not including the videophone function-added TV receiver sets."

Docket No. 136 at 16 (citing '991 patent at 3:29–33; 4:8–10; 5:16–28; 6:8–10). Maxell also argues that Apple's expert "confuses repetition with redefinition." *Id.* at 16.

Apple argues that its construction does not exclude alternative embodiments because such embodiments include a plurality of videophone function-added TV receiver sets. *Id.* at 16 n.8 (citing '991 patent at 2:56–60).

(2) Analysis

The parties dispute centers on whether the specification's repeated characterization of the invention limits the construction of "communication apparatus." The claim terms themselves do not require limitation. However, the specification is always highly relevant to claim construction analysis. "Usually it is dispositive; it is the single best guide to the meaning of a disputed term." *Honeywell Intern. Inv. v. ITT Industries, Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006).

Describing features of the "present invention" as a whole can be "clear and unmistakable statements constituting disavowal or disclaimer." *Luminara Worldwide, LLC v. Liown Elecs. Co.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016); *Honeywell Int'l Inv.*, 452 F.3d at 1318; *Verizon Serv. Corp*, 503 F.3d at 1308. Similarly, when a patent "repeatedly and consistently characterizes a claim term in a particular way, it is proper to construe the claim term in accordance with that characterization." *See, e.g., GPNE.*, 830 F.3d at 1370; *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1318 (Fed. Cir. 2014).

Here, the patent characterizes the invention as relating to videophone function-added TV receivers. In the "Summary of the Present Invention," the specification describes in detail eight features of the "technology" of the invention, each time referring to a "videophone function added TV receiver." *See* '991 patent at 2:33–3:26. ("This technology provides a new and improved TV receiver with TV function (referred to as a videophone function-added tv receiver hereafter");

2:56-57; 3:29–30; 4:8–10; 4:53–54; 5:26–27; 5:58-59; 6:78. Each embodiment similarly describes using a "videophone function-added TV receiver." The specification never uses the phrase "communication apparatus," but uses the phrase "videophone function-added TV receiver" over 200 times. These statements impose a limit on the term "communication apparatus." Maxell has not demonstrated that Apple's proposed construction excludes any embodiments. In fact, every embodiment is focused on features of the "video telephone-function added TV receiver," even those embodiments disclosing a "video telephone system." "When, as here, the written description clearly identifies what the invention is, an expression by a patentee during prosecution that he intends his claims to cover more than what his specification discloses is entitled little weight." *Honeywell*, 452 F.3d at 1319; *see also Biogen, Inc. v. Berlex Labs*, 318 F.3d 1132, 1140 (Fed. Cir. 2003).

Accordingly, the Court construes "**communication apparatus**" as "**videophone function-added TV receiver.**"

CONCLUSION

The Court adopts the constructions above for the disputed and agreed terms of the '317, '999, '498, '493, '794, '193, '306, '991 and '438 patents. Furthermore, the parties should ensure that all testimony that relates to the terms addressed in this Order is constrained by the Court's reasoning. However, in the presence of the jury the parties should not expressly or implicitly refer to each other's claim construction positions and should not expressly refer to any portion of this Order that is not an actual construction adopted by the Court. The references to the claim construction process should be limited to informing the jury of the constructions adopted by the Court.

So ORDERED and SIGNED this 18th day of March, 2020.

ROBERT W. SCHROEDER III
UNITED STATES DISTRICT JUDGE