UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

CIVIL MINUTES - GENERAL

Case No.	CV 21-6758-GW-DFMx	Date	December 21, 2022
Title	*Maxell, Ltd., et al. v. VIZIO, Inc.*		

Present: The Honorable	GEORGE H. WU, UNITED STATES DISTRICT JUDGE	
Javier Gonzalez	None Present	
Deputy Clerk	Court Reporter / Recorder	Tape No.

Attorneys Present for Plaintiffs:	Attorneys Present for Defendants:
None Present	None Present

PROCEEDINGS: IN CHAMBERS - FINAL RULINGS ON *MARKMAN*/CLAIMS CONSTRUCTION

Attached hereto is the Court's Final Rulings on *Markman*/Claim Construction.

Initials of Preparer JG

I. Introduction

Plaintiff Maxell, Ltd. ("Maxell" or "Plaintiff") brought this action against VIZIO, Inc. ("VIZIO" or "Defendant"), alleging infringement of U.S. Patent Nos. 9,578,369 (the "'369 Patent"); 10,321,206 (the "'206 Patent"); 7,986,858 (the "'858 Patent"); 7,730,507 (the "'507 Patent"); and 7,760,213 (the "'213 Patent") (collectively, "the Asserted Patents").[1] Complaint, Docket No. 1; First Amended Complaint ("FAC"), Docket No. 100.

The Court heard VIZIO's motion to dismiss infringement counts relating to the'369 Patent as ineligible under 35 U.S.C. § 101 on March 9, 2022. Order re Motion to Dismiss, Docket No. 87. In connection with those proceedings, the Court held a technology tutorial hearing on February 14, 2022. Following the tutorial, the parties filed supplemental briefing concerning whether any claim construction disputes prevented resolving the § 101 patent eligibility issues. The Court denied VIZIO's motion as to the '369 Patent because it could not determine whether the terms "communication unit" and "control unit" supplied an inventive concept without the benefit of claim construction. *Id.* at 27-29.

Now pending are the parties' claim construction disputes, including the disputes related to the '369 Patent, discussed above. The parties submitted a Joint Claim Construction and Prehearing Statement. *See* Docket No. 132. The parties also filed various claim construction briefs and supporting documents:

- Plaintiff Maxell's Opening Claim Construction Brief (Docket No. 143);
- Defendant VIZIO's Opening Claim Construction Brief (Docket No. 144);
- Plaintiff Maxell's Responsive Claim Construction Brief (Docket No. 148);
- Defendant VIZIO's Responsive Claim Construction Brief (Docket No. 149).

Per the Court's November 22, 2022 Order, the parties limited their disputes to ten claim terms. Docket No. 151. The Court construes the ten disputed terms as stated herein.

II. Background

The Asserted Patents generally relate to modern television technology. Details of and representative claims from each of the patents is set forth below.

[1] Maxell initially included claims for patent infringement of U.S. Patent Nos. 10,339,893 and 8,107,007. Complaint. The Court dismissed those claims with prejudice. Order re Motion to Dismiss, Docket No. 87.

A. The '369 Patent

The '369 Patent, titled "Portable terminal, information processing apparatus, content display system and content display method," issued on February 21, 2017. It relates to "a portable terminal, an information processing apparatus, a content display system, and a content display method." '369 Patent at 1:20-22. In view of the proliferation of smart phone and smart TVs, "a technique in which a content received by a cellular phone is viewed by a television set with higher usability and a technique in which a cellular phone is employed as a remote control device to operate a television set [was] under discussion." *Id.* at 1:27-31. The prior art included the ability to view something on a phone and then watch it again at home on a television, but still "there exist[ed] a desire in which a content just being viewed by a portable terminal is to be passed to a video playback device to continuously view[] the content thereon." *Id.* at 1:32-36. The prior art required, for example, the user to stop watching the video on the portable terminal and then select from a list of past programs viewed to switch to watching the video on the television. *Id.* at 1:41-45. This led to "an increased number of operation steps." *Id.* at 1:45-46. To achieve a "smoother cooperative operation" between components, the patent sought to "to provide a portable terminal, an information processing apparatus, a content display system, and a content display method wherein viewing of a content on a portable terminal is smoothly passed to an information processing apparatus." *Id.* at 3:8-12. Therefore, the invention disclosed generally "a portable terminal including a receiving unit which receives content information," an external communications unit, a display unit, an information acquiring unit, an operation unit that receives instructions from the user, and a control unit that allows content being viewed on the portable terminal to switch to the display unit. *Id.* at 3:15-29.

Maxell alleges that, by selling certain smart televisions, VIZIO infringes claims 1, 2, 10, and 11 of the '369 Patent. FAC ¶ 24. Claim 1 is representative and recites:

> 1. An information processing apparatus for displaying a content acquired via the internet, the information processing apparatus comprising:
> ***a communication unit*** arranged to conduct communication with a mobile terminal;
> a display unit arranged to display a video content; and
> ***a control unit*** arranged to control the display unit, wherein the control unit is arranged to:
> control the display unit to display a first video content;
> ***control the display unit to terminate displaying of the first video content and to start displaying a second video content acquired via the***

> ***internet when the communication unit receives first information from the mobile terminal***, wherein the second video content is a same video content as a video content displayed on the mobile terminal before the mobile terminal sends the first information to the information processing apparatus, and wherein a state of displaying of the video content on the mobile terminal at a time when the first information is sent from the mobile terminal is taken over to a state of displaying of the second video content on the display unit at a time when the display unit starts displaying the second video content, based on the first information;
>
> ***control displaying of the second video content on the display unit based on second information for operating the second video content displayed on the display unit when the communication unit receives the second information from the mobile terminal***; and
>
> ***control the display unit to terminate displaying of the second video content when the communication unit receives third information from the mobile terminal***.

'369 Patent, Claim 1 (emphasis added). The parties request construction of the emphasized terms in claim 1, which also appear in independent claims 2, 10, and/or 11.

B. The '858 Patent

The '858 Patent, titled, "Image Processing Apparatus and Image Processing Method," issued on July 26, 2011. It relates to an image enlarging apparatus that performs high accuracy upscaling of features. "When[] televisions or displays each display an image, they convert the number of pixels of the image data into the number of pixels of the panel." '858 Patent at 1:19-22. Modern televisions have a large number of pixels, i.e., are high resolution. *Id*. at 18-19. Using conventional, prior art methods, "pixel values are corrected sequentially for each of a plurality of [] sample values. Therefore, the correction processing is time consuming, so that unfavorably the high resolution processing cannot be carried out at a high speed." *Id*. at 1:43-48. The '858 Patent purports to solve this problem by "temporarily storing the results of correction quantities, thus allowing for the parallel operation of calculation units involved in high resolution pixel value correction." Docket No. 143 at 16. Thus, the claimed systems and methods may enable quicker outputting of high resolution data. *Id*. Claim 1 is representative and recites:

> 1. An image enlarging apparatus comprising:
>
> ***a luminance data calculation unit*** configured to set a reference frame from a video image which has a plurality of pixels, and to calculate first luminance data for a high resolution video image, the high resolution video image obtained by interpolating supplementary luminance data into the reference frame

having second luminance data, the number of pixels of the high resolution video image being larger than the video image;

a position calculation unit configured to set target pixels in at least one of frames included in the video image except the reference frame, and to calculate corresponding positions to the target pixels in the reference frame with decimal accuracy;

a correction amount calculation unit configured to calculate correction amounts of the first luminance data for the corresponding positions based on the first luminance data, third luminance data of the target pixels, and the corresponding positions, the correction amounts being parallelly calculated for the respective corresponding positions;

an addition unit configured to calculate sum of correction amounts from the correction amounts; and

a luminance data correction unit configured to correct the first luminance databased on the sum of the correction amounts.

'858 Patent, Claim 1 (emphasis added). The parties request construction of the emphasized terms in claim 1.

C. The '507 Patent

The '507 Patent, titled "Broadcast receiving apparatus and starting method thereof," issued on June 1, 2010. It relates to "a broadcast program receiving apparatus, such as a television, that contains two waiting conditions with different electric power consumptions, such as television with two different power standby modes, and where the lower power mode turns off the television's decoder and processor containing its operating system." Docket No. 143 at 21. "However, with a broadcast receiving apparatus . . . it takes times for receiving the digital broadcasting signal, in particular, just after turning ON an electric power of a set, until when it displays an image on a screen after receiving a channel, comparing to the receiving of the conventional analog broadcasting signal." '507 Patent at 1:41-50. The '507 purports to teach a system that "is still effective even in case of shifting into the digital broadcast, and in particular, an object thereof is to provide a broadcast receiving apparatus and a method for staring thereof, for enabling to shorten the waiting time after starting of that apparatus, irrespective of mounting the CPU and/or the LSI installing the OS therein, as well as, suppressing consumption of electric power during when the apparatus is in waiting condition." *Id*. at 2:23-30. Claim 1 is representative and recites:

1. A broadcast program receiving apparatus to display a program broadcast via a digital broadcasting signal, comprising:

a first controller configured to control a waiting mode of the broadcast program receiving apparatus; and

> ***a second controller*** configured to be started up by a predetermined OS to control a processing of a received digital broadcasting signal via a decoder;
> a display portion, which is configured to display an image using a signal processed by the second controller;
> an electric power source unit which is configured to supply predetermined electric power;
> a remote control signal receiving portion, which is configured to receive a remote control signal for operating the display portion; and
> where the first controller being smaller in consumption of electric power than the second controller, and configured to control the electric power supplied from the electric power source unit, responsive to the remote control signal received by the remote control signal receiving portion,
> ***wherein the waiting condition in which an image is not displayed after stopping a supply of the electric power to the display portion, is controlled by the first controller, so as to be placeable into either of a first waiting condition or a second waiting condition***,
> the first controller is controlled to be set in operation via supply of the electric power from the electronic power source unit thereto, under the first or second waiting condition,
> the electric power supplied from the power source unit is controlled, so as to supply the electric power to the remote control signal receiving portion, as well as, not to supply the electric power to the second controller including the decoder, under the first waiting condition, and
> the electric power supplied from the power source unit is controlled so as to supply the electric power to the remote control signal receiving portion and the second controller including the decoder, under the second waiting condition.

'507 Patent, Claim 1 (emphasis added). The parties request construction of the emphasized terms in claim 1 and the term "a sub-control circuit" and "a main control circuit" in claim 2.

D. The '213 Patent

The '213 Patent, titled "Contrast adjusting circuitry and video display apparatus using same" issued on June 20, 2010. It relates to "a video display apparatus, such as a television, that adjusts the contrast of video images based on the luminance level information of the video signal and processes black level adjustments in the case where the contrast is adjusted to increase." Docket No. 143 at 25. "A generally known problem of a video display unit using a device comprising fixed pixels in a matrix, such as a PDP and a liquid crystal display panel, is that the contrast of a video image displayed on it is inferior to that displayed on a video display unit using a Braun tube or cathode ray tubes." '213 Patent at 1:24-36. The '213 Patent purports to solve this problem with "contrast adjusting circuitry . . . which converts analog video signals to digital video signals and displays video images." *Id*. at 1:48-51. "The contrast adjusting circuitry includes

amplifying means and A/D conversion means for analog-to-digital conversion of video signals amplified by the amplifying means. The contrast adjusting circuitry is constructed to perform a contrast adjustment by changing the gain made by the amplifying means, based on maximum picture level data and average picture level data for analog-to-digital converted luminance signals." *Id.* at 1:51-60. Claim 1 is representative and recites:

> 1. A video display apparatus which displays a video image based on a video signal using a fixed-pixel type device, comprising:
> ***a contrast adjusting unit*** to adjust the contrast of the video image by controlling the gain of the video signal based on a maximum luminance level information and an average luminance level information of the video signal; and
> ***a black level extension unit*** to perform black level extension processing for the video signal,
> wherein the black level extension unit is configured to decrease an output luminance level corresponding to an input luminance level which is equal to or lower than a starting level set for the video signal in the case where the contrast is adjusted to increase by the contrast adjusting unit.

'213 Patent, Claim 1 (emphasis added). The parties request construction of the emphasized terms in claim 1, which also appear in claims 2 and 5.

III. Legal Standard

A. *Claim Construction*

Claim construction is an interpretive issue "exclusively within the province of the court." *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996). It is "a question of law in the way that we treat document construction as a question of law," with subsidiary fact-finding reviewed for clear error to Fed. R. Civ. P. 52(a)(6). *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S.Ct. 831, 837-40 (2015). The claim language itself is the best guide to the meaning of a claim term. *See Vederi, LLC v. Google, Inc.*, 744 F.3d 1376, 1382 (Fed. Cir. 2014). This is because the claims define the scope of the claimed invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005). But a "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent." *Id.* at 1313. Thus, claims "must be read in view of the specification," which is "always highly relevant to the claim construction analysis." *Phillips*, 415 F.3d at 1315 (internal quotations omitted).

Although claims are read in light of the specification, limitations from the specification must not be imported into the claims. *Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1288 (Fed. Cir. 2009). "[T]he line between construing terms and importing limitations can be discerned with

reasonable certainty and predictability if the court's focus remains on understanding how a person of ordinary skill in the art would understand the claim terms." *Phillips*, 415 F.3d at 1323.

The prosecution history may lack the clarity of the specification, but it is "another established source of intrinsic evidence." *Vederi*, 744 F.3d at 1382. "Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent." *Phillips*, 415 F.3d at 1317 (citations omitted). "Furthermore, like the specification, the prosecution history was created by the patentee in attempting to explain and obtain the patent." *Id.* "Yet 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.*

Claim construction usually involves resolving disputes about the "ordinary and customary meaning" that the words of the claim would have had "to a person of ordinary skill in the art in question at the time of the invention." *Phillips*, 415 F.3d at 1312-13 (internal quotations and citations omitted). But in some cases, claim terms will not be given their ordinary meaning because the specification defines the term to mean something else. "[A] claim term may be clearly redefined without an explicit statement of redefinition," so long as a person of skill in the art can ascertain the definition by a reading of the patent documents. *Id.* at 1320; *see also Trustees of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1364 (Fed. Cir. 2016).

Where the patent itself does not make clear the meaning of a claim term, courts may look to "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean," including the prosecution history and "extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Phillips*, 415 F.3d at 1314 (internal quotations omitted). Sometimes, the use of "technical words or phrases not commonly understood" may give rise to a factual dispute, the determination of which will precede the ultimate legal question of the significance of the facts to the construction "in the context of the specific patent claim under review." *Teva*, 135 S. Ct. at 841, 849. "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314. "In such circumstances, general purpose dictionaries may be helpful." *Id.*

B. Means Plus Function Claim Terms

A claim limitation may also be phrased as "a means or step for performing a specified function without the recital of structure, material, or acts in support thereof." 35 U.S.C. § 112, ¶ 6; 35 U.S.C. § 112(f).[2] Such limitations "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." *Id*. This "means plus function" interpretation applies "only to purely functional limitations that do not provide the structure that performs the recited function." *Philips*, 415 F.3d at 1311.

If a claim term does not use the word "means," there is a presumption that means-plus-function claiming does not apply. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015); *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir.2002). The presumption may be overcome if the claim term recites a function without reciting sufficiently definite structure for performing that function. *See Williamson*, 792 F.3d at 1349. Courts may consider both intrinsic and extrinsic evidence to determine whether a claim limitation is "so devoid of structure that the drafter constructively engaged in means-plus-function claiming." *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1357 (Fed. Cir. 2011), *rev'd on other grounds, Williamson*, 792 F.3d at 1349.

To construe a means-plus-function claim, first, "the court must first identify the claimed function." *Williamson*, 792 F.3d at 1351. Second, "the court must determine what structure, if any, disclosed in the specification corresponds to the claimed function." *Id.* Structures in the specification are "corresponding structure[s]" when "the intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Id.* at 1352. If the patent does not disclose an "adequate corresponding structure, the claim is indefinite." *Id.*; *see also* § 112, ¶ 2 ("a patent's specification must conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention."); *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014) ("a patent's claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty.").

[2] Section 112, ¶ 6 was renamed as § 112(f) by the America Invents Act, Pub. L. No. 112-29, which took effect on September 16, 2012. The asserted patents have priority dates to applications filed before the Act took effect. As such, the Court refers to the § 112, ¶ 6 nomenclature in considering § 112 issues, including means-plus-function claiming and indefiniteness.

C. Indefiniteness

A patent's specification must conclude "with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention." 35 U.S.C. § 112(b); *see also* 35 U.S.C. § 112 ¶ 2 (2006). In order to meet this "definiteness" requirement, "a patent's claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc. ("Nautilus I")*, 572 U.S. 898, 910 (2014). The Supreme Court in *Nautilus I* emphasized that patents must be precise enough to afford clear notice of what is claimed, thereby "appris[ing] the public of what is still open to them," while recognizing that absolute precision is unobtainable given "the inherent limitations of language." *Id.* at 899, 910 (quoting *Markman*, 517 U.S. at 373).

General claim construction principles apply to indefiniteness challenges, but the burdens are slightly different. *See Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1332 (Fed. Cir. 2010) ("In the face of an allegation of indefiniteness, general principles of claim construction apply") (internal quotations and citations omitted). While courts construing claim language sit in relative equipoise, a patent is "presumed valid under 35 U.S.C. § 282." *Biosig Instruments, Inc. v. Nautilus, Inc. ("Nautilus II")*, 783 F.3d 1374, 1377 (Fed. Cir. 2015). "[C]onsistent with that principle, a fact finder is instructed to evaluate . . . whether an invalidity defense has been proved by clear and convincing evidence." *Id.* (quoting *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 111 (2011)) (emphasis added, brackets removed); *Young v. Lumenis, Inc.*, 492 F.3d 1336, 1345 (Fed. Cir. 2007) ("Because a patent is presumed to be valid, the evidentiary burden . . . is one of clear and convincing evidence.").

"[A] means-plus-function clause is indefinite if a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim." *Noah Sys. Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012) (quoting *AllVoice Computing PLC v. Nuance Commc'ns., Inc.*, 504 F.3d 1236, 1241 (Fed. Cir. 2017)). "[W]hile it is true that the patentee need not disclose details of structures well known in the art, the specification must nonetheless disclose some structure." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339-40 (Fed. Cir. 2016) (quoting *Biomedino LLC v. Waters Techs. Corp.*, 490 F.3d 946, 952 (Fed. Cir. 2007)).

IV. Discussion

A. Agreed Upon Claim Terms

The parties have agreed to the following constructions:

Term	Agreed Construction
"communication unit" ('369 Patent, Claims 1, 2, 10, and 11)	35 U.S.C. § 112 ¶ 6 applies: **Function:** conduct[ing] communication with a mobile terminal The parties did not agree on a corresponding structure.
"a video processing unit to conduct video processing to both a video content acquired via the broadcast signal and a video content acquired via the internet" ('369 Patent, Claims 3 and 12)	35 U.S.C. § 112 ¶ 6 applies: **Function:** to conduct video processing to both a video content acquired via the broadcast signal and a video content acquired via the internet **Corresponding Structure:** a processing device, such as an Application Specific Integrated Circuit (ASIC), a Field Programmable Gate Array (FPGA), or a Micro Processing Unit (MPU), that receives a video signal, converts the video signal into a signal suitable for input to the display unite, and outputs the converted video signal to the display unit
"acquired via [a/the] broadcast signal" ('369 Patent, Claims 2, 3, 11, and 12)	obtained by tuning a receiver to a television station signal received via an antenna or a cable
"triggering, in response to the intermediate interface has been completely loaded, the AV application, . . ., to release an AV decoder" ('206 Patent, Claim 1) "in response to the intermediate interface has been completely loaded, trigger the AV application, . . ., to release an AV decoder" ('206 Patent, Claim 9)	causing the current AV application occupying the decoder to release the decoder when the intermediate interface is completely loaded
"a luminance data correction unit" ('858 Patent, Claim 1)	35 U.S.C. § 112 ¶ 6 applies: **Function:** configured to correct the first luminance data based on the sum of the correction amounts **Corresponding Structure:** a CPU that is configured to correct the first luminance data based on the sum of the correction amounts
"an addition unit" ('858 Patent, Claim 1)	35 U.S.C. § 112 ¶ 6 applies: **Function:** configured to calculate sum of

	correction amounts from the correction amounts **Corresponding Structure:** the CPU that is configured to calculate sum of correction amounts by adding the correction amounts calculated by the correction amount calculate unit

Joint Claim Construction and Pre-Hearing Statement, Docket No. 132 at 2-3. The parties' agreed constructions are accepted and binding. *See MyMail, Ltd. v. Am. Online, Inc.*, 476 F.3d 1372, 1377–78 (Fed. Cir. 2007) (rejecting appellate challenge to claim construction agreed to by party in district court).

B. Disputed Claim Terms

1. "*communication unit*" ('369 Patent, Claims 1, 2, 10, and 11)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
35 U.S.C. § 112 ¶ 6 applies: The parties agree on the function. **Function:** conducting communication with a mobile terminal The parties do not agree on a corresponding structure. **Structure:** networking component implemented with hardware (e.g., network communication unit 207 or data transmission and reception unit 210) and software (e.g., communication module) within an information processing or display apparatus that: (1) conducts communication with a mobile terminal via radio communication according to standards of, for example, Bluetooth or the wireless Local Area Network (LAN) or IRDA; and (2) connects to the internet using a communication protocol of, for example, HTTP, or equivalents thereof	35 U.S.C. § 112 ¶ 6 applies: The parties agree on the function. **Function:** conduct communication with a mobile terminal The parties do not agree on a corresponding structure. **Structure:** a communication device that is arranged to communicate with a mobile terminal according to standard communication protocols, including Bluetooth, wireless Local Area Network (LAN), or IRDA

The parties dispute the scope of the structure corresponding to "communication unit." Maxell argues the proper construction for the structure must capture all corresponding structures identified in the specification, listed above. Docket No. 143 at 10. Maxell points to the language of claim 1 and the specification of the '369 Patent at 5:57-61, 6:15-21, and 8:62-9:3 in support of its construction. *Id.* VIZIO argues the only components identified in the specification as

communicating with a mobile terminal are "Data Transmission and Reception Unit 210" and "Infrared-Ray Transmitting and Receiving Unit 600." Docket No. 144 at 8 (citing '369 Patent at Figs. 2, 6 and 6:15-21, 13:45-49). Per VIZIO, Maxell's construction is too broad because it imports structure and functionality not necessary to perform the claimed function. *Id.* at 9. Maxell responds that VIZIO's proposed construction is improper because it eliminates structures that facilitate communication via the internet. Docket No. 148 at 6. VIZIO argues Maxell has no basis to import internet functionality or structure into "communication unit." Docket No. 149 at 9.

The parties agree that the structure should include "a communication device that is arranged to communicate with a mobile terminal according to standard communication protocols, including Bluetooth, wireless Local Area Network (LAN), or IRDA." However, they dispute whether the structure should also include a "networking component . . . that . . . connects to the internet using a communication protocol of, for example, HTTP, or equivalents thereof."

Structures in the specification are "corresponding structure[s]" when "the intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Williamson*, 792 F.3d at 1352. Here, the parties agree that the function is "conduct[ing] communication with a mobile terminal." Accordingly, the specification must disclose any corresponding structure(s) as specifically "conduct[ing] communication with a mobile terminal." The specification discloses "a communication device which conducts radio communication with an external terminal such as the mobile terminal 101 according to standards of, for example, Bluetooth or the wireless Local Area Network (LAN)." '369 Patent at 6:5-21. The specification also describes a network communication unit 207 which access the internet. *See*, *id.* at 5:57-61. However, the specification does not describe the network communication unit as "conducting communication with a mobile terminal" via the internet. Therefore, the specification does not link the structure "networking component implemented with hardware and software within an information processing or display apparatus that connects to the internet using a communication protocol of, for example, HTTP, or equivalents thereof" with the agreed upon function. Accordingly, the Court adopts VIZIO's proposed structure.

2. *"control unit"* ('369 Patent, Claims 1, 2, 10, and 11)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
35 U.S.C. §112 ¶6 applies. **Function**: controlling the display unit	Indefinite under 35 U.S.C. §112 for failure to disclose sufficient structure with respect to the "*second video content acquired via the internet*"

Structure: an information processing device within an information or display processing apparatus, for example an MPU or microprocessor, that: (1) controls operations of processing units required to reproduce digital content; (2) accesses the internet; and (3) controls the display unit based upon information received from the communication unit	**In the alternative:** 35 U.S.C. §112 ¶6 applies. **Recited Functions:** **F1:** control the display unit[3]; **F2:** control the display unit to display a first video content[4]; **F3:** control the display unit to terminate displaying of the first video content and to start displaying a second video content acquired via the internet when the communication unit receives first information from the mobile terminal (Claims 1/2) /control the display unit to terminate displaying of the first video content and to start displaying a second video content acquired via the internet when a first communication between the mobile terminal and the information processing apparatus [/ display apparatus] is conducted (Claims 10/11)[5]; **F4:** control displaying of the second video content on the display unit based on second information for operating the second video content displayed on the display unit when the communication unit receives the second information from the mobile terminal (Claims 1/2) / control displaying of the second video content on the display unit based on a second communication between the mobile terminal and the information processing apparatus [/ display apparatus] for operating the second video content displayed on the display unit when the second communication is conducted (Claims 10/11)[6]; and

[3] Claims 8 and 17 also require the "control unit" to "control the communication unit."

[4] Claims 2, 4, 11 and 13 require "a first video content acquired via the broadcast signal" and claims 6, 8, 15, and 17 require "a broadcast video content acquired via the broadcast signal."

[5] Claims 1, 2, 4, 6, and 8 require the function to be performed "when the communication unit receives first information," and claims 10, 11, 13, 15, and 17 require the function to be performed "when a first communication … is conducted."

[6] Claims 1, 2, 4, 6, and 8 require the function to be performed "based on second information for operating the internet video content displayed on the display unit when the communication unit receives the second information," and claims 10, 11, 13, 15, and 17 require the function to be performed "based on a second communication … for operating the second video content displayed on the display unit when the second communication is conducted."

	F5: control the display unit to terminate displaying of the second video content when the communication unit receives third information from the mobile terminal (Claims 1/2) / control the display unit to terminate displaying of the second video content based on a third communication between the mobile terminal and the information processing apparatus when [/ based on] the third communication is conducted (Claims 10/11)[7] **Corresponding Structure:** a microprocessor (or processor) that is arranged to: **S1:** control operations, including the recited functions, to reproduce video on the display unit; **S2:** (1) receive information related to a request to display a first video content; and (2) cause display of the first video content on the display unit; **S3:** (1) receive a first information[8], such as data (*e.g.*, URL), or communication[9] via the communication unit; (2) cause the termination of the first video content on the display unit; and (3) initiate display of the second video content on the display unit **S4:** (1) receive a second information, such as operation data (*e.g.*, "move" or "select"), or communication via the communication unit; and (2) control the display unit to reflect the information or communication to control displaying of the second video content; and **S5:** (1) receive a third information, such as data indicating termination, or communication via the communication unit; and (2) cause the second video content on the display unit to terminate**.**

[7] Claims 1, 2, 4, 6, and 8 require the function to be performed "when the communication unit receives third information," claim 10 requires the function to be performed "based on a third communication," claims 10, 11, 13, 15, and 17 require the function to be performed "when a third communication … is conducted," and claim 6, 8, 15, and 17 require "start displaying the broadcast video content acquired via the broadcast signal."

[8] VIZIO does not propose that the recited "*information*" (*e.g.*, "*first*," "*second*," and "*third*" "*information*") requires separate construction beyond plain and ordinary meaning.

[9] VIZIO does not propose that the recited "*communication*" (e.g., "*first*," "*second*," and "*third*" "*communication*") requires separate construction beyond plain and ordinary meaning.

The parties dispute both the function(s) and structure(s) for "control unit." Maxell argues its proposed "controlling the display" function encompasses all five of VIZIO's proposed functions. Docket No. 143 at 11. Maxell further argues its structure construction encompasses all five of VIZIO's proposed structures, citing to the '369 Patent specification at 5:28-31, 8:11-25, and 8:49-9:3. *Id*. Therefore, Maxell argues, the Court should not adopt VIZIO's construction because it is both unnecessary and confusing. *Id*. VIZIO argues that because the claims themselves recite five functions of the control unit, "control unit" must be construed to perform all five functions. *Id*. The only disclosed corresponding structure is "System Control Unit 202." Docket No. 144 at 11. (citing '369 Patent at 5:28–31, 8:6–20, 8:49–61, 11:23–48, Figs. 2 and 6.) The "System Control Unit 202" includes a microprocessor ('369 Patent at 5:28-31) and algorithm to perform each of the five functions. *Id*. (citing '369 Patent at 5:28-31, 8:49–61, 9:63–10:66[10], 11:23–48, Figs. 2, 5, 6.)

VIZIO also argues that "control unit" is indefinite because the specification does not disclose adequate corresponding structure. *Id.* at 10. Specifically, the control unit does not, as Maxell contends, access the internet. *Id*. at 12. Rather, the claim language specifies that the second video content must be acquired from the internet but not that the control unit must access the internet to acquire the second video content. *Id*. Since the "System Control Unit 202," does not access the internet, Maxell's construction is indefinite. *Id*. at 12-13 (citing '369 Patent at 8:62-9:10). Maxell responds that internet access is required for the control unit to display second video content acquired from the internet. Docket No. 148 at 7. However, Maxell argues this access may be indirect, as disclosed in the specification, and does not render Maxell's construction indefinite. *Id*. (citing '369 Patent at 5:57-6:2 and 8:56-61).

As to the function, Claim 1 discloses, " a control unit arranged to control the display unit." Accordingly, the function is "control[ling] the display unit." Claim 1 goes on to list five specific steps that the control unit accomplishes by controlling the display unit. "Ordinary principles of claim construction govern interpretation of the claim language used to describe the function." *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296 F.3d 1106, 1113 (Fed. Cir. 2002). Accordingly, the Court finds that the function need not be broken down into five specific functions where the claim expressly discloses, "control[ling] the display unit" as the function prior to listing the five distinct steps.

[10] This portion of the specification refers to "system control unit 301" instead of "system control unit 202."

As to structure, the parties agree that the corresponding structure is a microprocessor or processor. The parties disagree regarding what the microprocessor is configured to do. Structures in the specification are "corresponding structure[s]" when "the intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Williamson*, 792 F.3d at 1352. Turning to the specification at 5:28-31, "the system control unit 202 includes, for example, a microprocessor and controls operations of processing units required to reproduce digital broadcast and those required to access the internet." At 10:47-51, "the system control unit 301 controls the display unit 305 and the like to terminate the display of the internet site on the cellular phone." The cellular phone is a mobile terminal. *See* '369 Patent at FIG. 1. Thus, the disclosed structure is: "a microprocessor or processor that is arranged to: (1) control operations of the processing units required to reproduce digital content, (2) control operations of the processing units required to access the internet, and (3) control operations of the display unit to terminate the display of content on the display apparatus." As to (2), the Court finds "control unit" is not indefinite due to inadequate structure. Though the specification does not disclose that the communication unit accesses the internet *to conduct communication with the mobile terminal*, the disclosed internet access may relate to other functions. *See, e.g.*, '369 Patent at 8:49-9:3. Accordingly, the Court adopts Maxell's proposed construction with modifications to avoid broadening not supported by the specification.

3. "*first information*" / "*second information*" / "*third information*" ('369 Patent, Claims 1 and 2)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
"First information": Receiving, using a communication scheme in which a communication link is established between a TV and a mobile terminal, control information that is interpreted by the information processing apparatus to perform a TV operation of terminating displaying of the first video content and starting displaying of a second video content acquired via the internet, the control information being different from general infrared-ray or RF command used in a TV set's remote controller	Construed in the context of the claim limitation "control unit" above. Otherwise, plain and ordinary meaning.

"second information": Receiving, using a communication scheme in which a communication link is established between a TV and a mobile terminal, control information that is interpreted by the information processing apparatus to perform a TV operation of operating the second video content acquired via the internet, the control information being different from general infrared-ray RF command used in a TV set's remote controller **"third information":** Receiving, using a communication scheme in which a communication link is established between a TV and a mobile terminal, control information that is interpreted by the information processing apparatus to perform a TV operation of terminating displaying of the second video content, the control information being different from general infrared-ray RF command used in a TV set's remote controller	

Maxell argues the terms "[first/second/third] information" are "tied to a communication scheme being used to control operations of a TV and are different from the general infrared-ray command used in a TV set." Docket No. 143 at 12 (citing '369 Patent at 8:36-9:10, 10:44-11:55, 12:14-36). "[VIZIO] argues that the 'first information,' 'second information,' and 'third information' are not actually structural limitations, but input variables that are not part of the claimed invention." Docket No. 87 at 24. In other words, "information" is merely "data." Docket No. 149 at 10-11 (citing '369 Patent at 8:49-55, 11:6-9, 11:35-37).

Affirmative constructions are necessary in only two situations: (1) when a patentee defines the term in the specification, or (2) when the patentee disavows the full scope of a term in the specification or during prosecution. *Thorner v. Sony Comput. Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). Though explicit redefinition is not necessary, the specification must support any proposed construction. Here, the specification does not support Maxell's proposed constructions for "first / second / third information" or any other specialized definition. Accordingly, the Court does not construe these terms. "First / second / third information" shall take its plain and ordinary meaning.

4. "*luminance data calculation unit*" ('858 Patent, Claims 1 and 4)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
35 U.S.C. §112 ¶6 applies. **Claim 1** **Function:** configured to set a reference frame from a video image which has a plurality of pixels, and to calculate first luminance data for a high resolution video image, the high resolution video image obtained by interpolating supplementary luminance data into the reference frame having second luminance data **Corresponding Structure:** a CPU that is configured to: (1) set a frame of the video image, which has a plurality of pixels, as a reference frame; and (2) calculate, by interpolating supplementary luminance data into the reference frame from second luminance data of the reference frame	35 U.S.C. § 112, ¶ 6 applies. **Claim 1** **Function:** configured to set a reference frame from a video image which has a plurality of pixels, and to calculate first luminance data for a high resolution video image, the high resolution video image obtained by interpolating supplementary luminance data into the reference frame having second luminance data **Corresponding Structure**: a CPU that is configured to: (1) set a frame of the video image, which has a plurality of pixels, as a reference frame; and (2) calculate, by using a filtering processing with a Sinc function based on a sampling theorem (a cubic convolution algorithm or a BiCubic algorithm), first luminance data for a high resolution video image by interpolating supplementary luminance data into the reference frame from second luminance data of the reference frame

Maxell generally argues that VIZIO's construction for "luminance data calculation unit," improperly limits the claim scope to a subset of examples. Docket No. 143 at 17. Maxell's construction captures all disclosed structures described in the specification. *Id*. at 18 (citing '858 Patent at 5:22-42). Specifically, the luminance data calculation unit is configured where high resolution video images are obtained by interpolating supplementary luminance data into the reference frame. '858 Patent, Claim 1. The specification provides examples of "interpolation processing," including, but not limited to, "filtering processing with a Sinc function based on the sampling theorem (a cubic convolution method or a BiCubic method)." *Id*. at 5:22-42.

VIZIO argues that, as a matter of law, the corresponding structure must be a central processing unit ("CPU") specifically programmed with the algorithms disclosed in the '858 Patent to perform the function the parties agreed upon. Docket No. 144 at 16. Any CPU, regardless of how it is programmed, that performs the claimed functions should not infringe because that would amount to prohibited, pure functional claiming. *Id*. at 17.

For patents including "special purpose computer-implemented means-plus-function limitation[s]," the specification must "disclose an algorithm for performing the claimed function." *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012). The specification can express the algorithm "in any understandable terms including as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure." *Id*. (quoting *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008)). "Simply disclosing software, however, 'without providing some detail about the means to accomplish the function[,] is not enough.'" *Id.* at 1312 (quoting *Finisar*, 523 F.3d at 1340–41).

Though structure for a means-plus-function limitation can be established based upon the possibilities a person of ordinary skill in the art would understand to be available from the specification, some specificity is required. *See Aristocrat Techs. Australia Pty Ltd. v. Intn'l Game Tech.*, 521 F.3d 1328, 1336 (Fed. Cir. 2008). For instance, reference to a technical article describing a known structure, in the specification, may be sufficient. *Id*. at 1337. In other situations, the specification may clarify that particular well-known mathematical operations may provide the needed structure without spelling out the algorithms. *See*, *id*. at 1336. Courts need not limit structure to a single algorithm where the specification otherwise provides adequate support for a broader construction. *See Broadcom Corp. v. Netflix Inc.*, No. 3:20-CV-04677-JD, 2022 WL 1619151, at *6 (N.D. Cal. May 23, 2022).

Here, the parties agree that "luminance data calculation unit" is a means-plus-function term, agree upon its function, and agree that the recited function is performed by a processor. They disagree on whether the structure should be limited to expressly disclosed algorithms. The specification provides adequate structure at 5:22-42, with reference to FIG. 2. Specific to "interpolation processing," the specification teaches use of a filtering process with a Sinc function, "or the like." '858 Patent at 5:33-38. The "or the like" signifies that this specific filtering process or equivalents known in the art may be used. This language is consistent with general means-plus-function claim construction principals. *See* 35 U.S.C. § 112, ¶ 6 (such limitations "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.") It does not, however, open the doors to the broad construction Maxell proposes because the requisite specificity is lacking. Accordingly, the Court adopts VIZIO's construction.

5. "*a position calculation unit*" ('858 Patent, Claim 1)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
35 U.S.C. §112 ¶6 applies. **Function:** configured to set target pixels in at least one of frames included in the video image except the reference frame, and to calculate corresponding positions to the target pixels in the reference frame with decimal accuracy **Corresponding Structure:** a CPU that is configured to: (1) set pixels in one or more frames contained in the video image, except the reference frame, as target pixels; and (2) calculate positions of the target pixels corresponding to the reference frame with decimal accuracy	35 U.S.C. §112, ¶6 applies. **Function:** configured to set target pixels in at least one of frames included in the video image except the reference frame, and to calculate corresponding positions to the target pixels in the reference frame with decimal accuracy **Corresponding Structure:** the CPU that is configured to: (1) set pixels in one or more frames contained in the video image, except the reference frame, as target pixels one by one; and (2) calculated, by using: (a) a matching error interpolation algorithm, (b) an oversampling algorithm, or (c) detection by a gyrocompass, positions of the target pixels corresponding to the reference frame with decimal accuracy

Maxell generally argues that VIZIO's construction for "a position calculation unit" improperly limits the claim scope to a subset of examples. Docket No. 143 at 17. Maxell's construction captures all disclosed structures described in the specification. *Id.* at 18 (citing '858 Patent at 3:66-4:19). The specification provides "[e]xamples of the method of calculation to decimal accuracy" and explains that "alternative" methods of "calculation with decimal accuracy" may be used. '858 Patent at 3:66-4:19 and 5:43-51. VIZIO again argues that the structure must be a CPU specifically programmed with the algorithms disclosed in the '858 Patent to perform the function the parties agreed upon. Docket No. 144 at 16.

As discussed above, the structures must be described with some specificity in the specification, or the specification must make the options clear to a person of ordinary skill in the art. Here, as to the method of calculation to decimal accuracy, the specification provides the following options: (1) "a method in which the matching error is determined at the pixel interval of the low resolution image data, and a continuous symmetric function is applied, thereby to determine such a position of decimal accuracy as to minimize the matching error (matching error interpolation method)," (2) "a method (oversampling method) in which the low resolution image data is enlarged, and the corresponding positions are determined with the pixel interval in the enlarged image," and (3) "physically detect the corresponding positions with decimal accuracy by

mounting a gyrocompass on a camera, and measuring the jitter of the camera." '858 Patent at 4:6-19. Accordingly, the Court adopts VIZIO's construction, which includes the disclosed structures.

6. "*a correction amount calculation unit*" ('858 Patent, Claim 1)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
35 U.S.C. §112 ¶6 applies. **Function**: configured to calculate correction amounts of the first luminance data for the corresponding positions based on the first luminance data, third luminance data of the target pixels, and the corresponding positions, the correction amounts being parallelly calculated for the respective corresponding positions **Corresponding Structure:** a CPU that is configured to calculate, by parallel processing, correction amounts of the first luminance data for the corresponding positions based on the first luminance data, third luminance data of the target pixels, and the corresponding positions	Indefinite under 35 U.S.C. § 112, ¶2, to the extent that the claimed "*a correction amount calculation unit*" does not disclose "*calculate correction amounts . . . parallelly*" by using the POCS or iterative back projection algorithms.

Maxell generally argues that VIZIO's construction for "a correction amount calculation unit," improperly limits the claim scope to a subset of examples. Docket No. 143 at 17. Maxell's construction captures all disclosed structures described in the specification. *Id* (citing '858 Patent at 4:20-31). The specification provides "[e]xamples of the method for calculating the correction quantity of the provisional high resolution pixel quantity" with citations to prior art purportedly describing example methods. '858 Patent at 4:20-37. VIZIO argues this term is either indefinite for not disclosing adequate structure or its must be construed to be limited to the specific algorithms disclosed in the specification. Docket No. 144 at 18. VIZIO argues the term is indefinite because the specification does not disclose individual algorithms but rather an entire class of algorithms that may perform the function, without the required level of detail. *Id*. at 19.

Here, the limitation is not indefinite because the specification teaches ample structure at 4:20-31. The Court adopts Maxell's construction with the additional specificity provided at 4:20-31 of the specification. Accordingly, the corresponding structure is: "a CPU that is configured to

calculate, by parallel processing[11], correction amounts of the first luminance data for the corresponding positions based on the first luminance data, third luminance data of the target pixels, and the corresponding positions, wherein the method for calculation the correction quantity of the provisional high resolution pixel quantity is (1) a POCS or (2) an Iterative Back-Projection method, as taught in S. Park, et. al., Super-Resolution Image Reconstruction: A Technical Overview."

7. "*a first controller*"/ "*a sub-control circuit*"[12] ('507 Patent, Claims 1 and 2)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
Not governed by 35 U.S.C. §112 ¶ 6. Plain and ordinary meaning.	Indefinite under 35 U.S.C. §112 to the extent: (1) "*the waiting condition*" lacks antecedent basis; and (2) the patent fails to sufficiently disclose the claimed "*waiting mode . . .*" **In the alternative:** 35 U.S.C. § 112, ¶ 6 applies. **Recited Function:** **(F1.1)** control a waiting mode of the broadcast program receiving apparatus; **(F1.2)** control the electric power supplied from the electric power source unit, responsive to the remote control signal received by the remote control signal receiving portion; and **(F1.3)** the waiting condition in which an image is not displayed after stopping a supply of the electric power to the display portion, is controlled by the first controller, so as to be placeable into either of a first waiting condition or a second waiting condition **Corresponding Structure:** a sub-CPU configured to: **(S1.1)** set the broadcast program receiving apparatus into the first waiting condition or the second waiting condition; **(S1.2)** (a) receive a signal from the remote control signal receiving portion corresponding to a remote control signal; and (b) responsively transmit a control signal to the electric power

[11] VIZIO argues that term "parallel processing" is indefinite and thus renders "a correction amount calculation unit" indefinite. The parties did not select the term "parallel processing" for construction following the Court's November 22, 2022 Order. Accordingly, the term "parallel processing" takes its plain and ordinary meaning.

[12] The Court presumes the parties agree these terms share a definition because the Court asked the parties to select ten terms for construction in its November 22, 2022 Order and the parties now list these terms together. The Court construes "a first controller," considering the parties respective arguments for that term.

	source unit to control the electric power supplied from the electric power source unit; and **(S1.3)** (a) when the waiting condition in which an image is not displayed after stopping a supply of the electric power to the display portion is in a first or second waiting condition, determine whether to place the waiting condition into a first or second waiting condition; and (b) place the waiting condition into the first or second waiting condition according to the determination

Maxell argues that the term "controller" is not a means-plus-function claim term because it is known in the art to refer to a definite structure. Docket No. 143 at 23-24. "Controller," as used in claim 1 of the '507 Patent, is consistent with the plain and ordinary meaning. *Id.* Descriptions in the specification are also consistent. *Id*. (citing '507 Patent at 4:63-5:58, 6:4-19, and 7:42-8:30). VIZIO insists "controller" is a means-plus-function term because it fails to recite sufficient structure to perform the claimed functions. Docket No. 144 at 23.

If a claim term does not use the word "means," there is a presumption that means-plus-function claiming does not apply. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015); *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir.2002). The presumption may be overcome if the claim term recites a function without reciting sufficiently definite structure for performing that function. *See Williamson*, 792 F.3d at 1349. Courts may consider both intrinsic and extrinsic evidence to determine whether a claim limitation is "so devoid of structure that the drafter constructively engaged in means-plus-function claiming." *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1357 (Fed. Cir. 2011), *rev'd on other grounds, Williamson*, 792 F.3d at 1349.

Here, the Court finds that "controller" is not a means-plus-function claim term. First, there is a presumption that means-plus-function claiming does not apply because "controller" is not a typical nonce word. Next, the function recited is "control[ling] a waiting [condition] of the broadcast program receiving apparatus." Per Maxell, a "controller" is "a processing component that manages the flow of data between the computer and peripheral devices." Docket No. 143 at 23. Thus, a controller, as extrinsically defined and known in the art, provides sufficient structure to carry out the claimed function. VIZIO points to *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1350 (Fed. Cir. 2015) for the proposition that words, such as "mechanism," "element," and "device," are nonce words because they "reflect nothing more than verbal constructs." However,

"controller," as used in the '507 Patent, is not of the same class as these terms. Unlike these terms, which are largely fungible, "controller" requires coordination among devices as part of a computer system. Though both parties acknowledge the Federal Circuit has not opined regarding whether the specific term "controller" is a means plus function claim term, in any context, VIZIO points to *Egenera, Inc. v. Cisco Sys.*, 972 F.3d 1367 (Fed. Cir. 2020), as the closest analogous authority. There, the Court found the term "logic to modify" was a means plus function claim term. *Egenera*, 972 F.3d at 1374-75. Here, the Court finds the term "controller" implies more structure than the term "logic to modify" and thus does not find *Egenera* analogous.

Instead, though not controlling, the Court finds *Sound View Innovations, LLC v. Facebook, Inc.* instructive. There, the Court found that "controller" is not, per se, a nonce word and that it may connote a class of structures. *Sound View Innovations, LLC v. Facebook, Inc.*, No. 16-CV-116 (RGA), 2017 WL 2221177, at *5 (D. Del. May 19, 2017), on reconsideration, No. 16-CV-116 (RGA), 2017 WL 3444687 (D. Del. Aug. 10, 2017). The specification of the patent at issue in that case stated: "[t]hose skilled in the art should be familiar with the use of controllers in processing environments generally and, more specifically, with main memory databases. Controllers may be implemented in software, firmware, hardware, or some suitable combination of at least two of the three." *Id*. The Court found this language suggested "controller" should be interpreted in its ordinary sense and that "controller" was not indefinite or overbroad because it did not connote "anything that controls." *Id*. Here, the parties agree that controllers can be implemented in hardware, software, or an appropriate combination of the two, which is consistent with the statements in the patent at issue in *Sound View*. Further, like the claim at issue in *Sound View*, the claim at issue here does not merely recite a controller. Rather, it recites a controller "configured to control a waiting mode . . . ." Thus "controller," as used in the '507 Patent, cannot mean "anything that controls."

Accordingly, the Court declines to construe "controller" as a means-plus-function claim term. "Controller" shall take its plain and ordinary meaning.

VIZIO also argues that the claim limitation "wherein the waiting condition in which an image is not displayed after stopping a supply of the electric power to the display portion, is controlled by the first controller, so as to be placeable into either of a first waiting condition or a second waiting condition" is indefinite because (1) "the waiting condition" lacks antecedent basis, (2) Maxell's correction is not applicable here, and (3) "waiting condition" is itself indefinite. The

Courts finds the first two arguments unpersuasive and addresses the indefiniteness of "waiting condition" on the merits.

The burden for proving invalidity is clear and convincing evidence. *Biosig Instruments, Inc.*, 783 F.3d at 1377. Here, VIZIO has not met its burden. VIZIO first argues that "a POSITA would have understood the plain language of Claim 1 to require the existence of a broader "waiting condition" that is placeable into either of a first waiting condition or a second waiting condition." Docket No. 144 at 27. The specification does not disclose this "broader waiting condition." *Id.* The Court disagrees. It is possible that a POSITA would understand the first/second waiting condition to be a binary option that is simply not available when the display is turned on. Thus, there is no "third waiting condition," as VIZIO contends, and there is no need for a "broader waiting condition" because a POSITA would understand that the waiting condition binary only applies when the display is turned off and that the waiting condition is a binary limited to a first and second waiting condition. This understanding is at least as likely as the understanding proposed by VIZIO. Thus, VIZIO has not met is burden to prove indefiniteness by clear and convincing evidence.

8. "*a second controller[/main control circuit]*"[13] ('507 Patent, Claims 1 and 2)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
Not governed by 35 U.S.C. §112(6). Plain and ordinary meaning.	35 U.S.C. §112, ¶ 6 applies. **Function:** control a processing of a received digital broadcasting signal via a decoder **Corresponding Structure:** a processor configured to control: (1) a video decoder to decode a video signal; and (2) providing the decoded signal to the display portion.

Maxell and VIZIO's arguments, summarized above, with respect to "controller" apply equally here. *See* Docket No. 143 at 23-24; Docket No. 144 at 23-29. Accordingly, for the reasons discussed above, "controller" is not a means-plus-function claim term. Plain and ordinary meaning governs.

9. "*a contrast adjusting unit*" ('213 Patent, Claims 1 and 2)

Plaintiff's Proposed Construction	Defendant's Proposed Construction

[13] The Court presumes the parties agree these terms share a definition because the Court asked the parties to select ten terms for construction in its November 22, 2022 Order and the parties now list these terms together.

35 U.S.C. §112 ¶6 applies. **Function:** to adjust the contrast of the video image by controlling the gain of the video signal based on a maximum luminance level information and an average luminance level information **Corresponding Structure:** a video processing device within a video display apparatus, for example a microcomputer, that: (1) detects maximum luminance level information and the average luminance level information of luminance signals for a predetermined period; (2) determines one of the predefined luminance regions within which the maximum luminance level information falls and one of the predefined luminance regions within which the average luminance level information falls; and (3) controls the gain of the video signal	35 U.S.C. §112 ¶6 applies. **Function**: to adjust the contrast of the video image by controlling the gain of the video signal based on a maximum luminance level information and an average luminance level information of the video signal **Corresponding Structure**: a circuit component to receive average luminance level information and maximum luminance level information and then generate and output a control signal, and a circuit component to apply the control signal to the video signal

Maxell argues the structure is a video processing device with a video display apparatus which performs the three tasks listed by Maxell. Docket No. 143 at 26. Maxell argues the claim language itself teaches these three tasks and the specification supports Maxell's construction. *Id.* at 27 (citing '213 Patent at 2:49-60, 6:23-28, 6:37-40). VIZIO argues its construction properly includes only structure recited in the specification in connection with the function. Docket No. 144 at 29. VIZIO argues the structure for controlling the gain of the video signal is the "gain controller 20." *Id.* (citing '213 Patent at 7:10-20, 8:64-9:2, 12:10-17). VIZIO argues the structure for adjusting the contrast of the video image is either the "video amplifier 11" or a "color matrix circuit 32." *Id.*

The parties agree that "a contrast adjusting unit" is a means-plus-function claim term and that the function is "to adjust the contrast of the video image by controlling the gain of the video signal based on a maximum luminance level information and an average luminance level information." Thus, the only remaining task for the Court is to identify the corresponding structure disclosed in the specification in connection with the function. The '213 Patent explains that "contrast adjusting circuitry" carries out gain control." '213 Patent at 2:49-60. The '213 Patent further discloses "a gain controller that generates a control signal for controlling the gain made by the video amplifier 11 and other control signals." *Id.* at 6:23-28. It also explains that "the APL

region determiner 18, MPL region determiner 19, and gain controller 20 may be integrated into a single entity of hardware, for example, a microcomputer." *Id.* at 6:37-40. An average picture level is input to the gain controller 20, and APL region determiner 18. *Id.* at 7:10-20. The "gain controller" generates a control signal. *Id.* at 8:64-9:2. The average picture level is input from the APL region determine 18 to the gain controller. *Id.* at 12:10-17.

Given the above disclosures, the broadest clearly identified structure is "contrast adjusting circuitry" configured to detect maximum and average luminance levels for a predetermined period, determine a predefined luminance region within which the maximum luminance level falls, determine a predefined luminance region within which the average luminance level falls, and based on the determined luminance regions, carry out luminance signal gain control. *See*, *id.* at 2:49-60.

10. "*a black level extension unit*" ('213 Patent, Claims 1 and 5)

Plaintiff's Proposed Construction	Defendant's Proposed Construction
35 U.S.C. §112 ¶6 applies. **Function:** to perform black level extension processing for the video signal **Corresponding Structure**: a video processing device within a video display apparatus that controls black level extension processing for the video signal based on the gain of the video signal	Indefinite under 35 U.S.C. § 112, ¶¶ 2 and 6 for failure to sufficiently disclose a structure for the function of "performing black level extension processing for the video signal" **In the alternative:** 35 U.S.C. §112 ¶6 applies. **Function**: to perform black level extension processing for the video signal **Corresponding Structure**: a circuit component to receive a control signal as an input and output a signal producing a video image with sharper black portions

Maxell argues its proposed constructions are supported by the language of claim 1 as well as the specification at 3:37-39, 5:29-40, 6:28-31, Figs. 5A, 5B, 7:25-27, 7:38-41, 8:27-29, 9:2-4, 10:11-17, 12:21-25, 12:33-38. Docket No. 143 at 29. VIZIO argues the term is indefinite because the specification does not disclose sufficient structure to perform the function. Docket No. 144 at 20. The specification does not use the term "black level extension unit" but instead discloses a "black level extension circuit." *Id.* (citing '213 Patent at 7:28-43, 3:33-35, 6:28-30, 7:25-27).

Here, the parties agree that "black level extension unit" is a means-plus-function term and agree that the function is "to perform black level extension processing for the video signal."[14] Structures in the specification are "corresponding structure[s]" when "the intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Williamson*, 792 F.3d at 1352. The specification states "[r]eference number 30 denotes a black level extension circuit that carries out black level extension processing." '213 Patent at 9:2-4. Thus, the specification teaches a structure that performs the agreed upon function. The only remaining question is whether the specification adequately describes the "black level extension circuit 30." The specification explains that the "black level extension circuit" performs "black level processing" which does not add anything to a POSITA's understanding of the required structures. However, the parties agree that black level processing is known in the art. Therefore, this description does not render the term "black level extension circuit" indefinite. Additionally, the specification explains "[t]he black level extension circuit performs black level extension processing for digital luminance signals." *See*, *id*. at 3:35-37. The specification also explains that black level extension processing is controlled by the second control signal. *Id*. at 7:38-41. Thus, the Court finds the corresponding structure is "a circuit configured to receive a luminance signal and perform black level extension processing on the luminance signal wherein the black level extension processing is controlled by a control signal." *See*, *id*. at 7:31-41.

V. Conclusion

For the reasons stated, the Court would construe the disputed terms as follows:

Term	Asserted Claim(s)	Court's Construction
"communication unit"	The '369 Patent, Claims 1, 2, 10, and 11	35 U.S.C. § 112 ¶ 6 applies: **Function:** "conduct[ing] communication with a mobile terminal" **Structure:** a communication device that is arranged to communicate with a mobile terminal according to standard communication protocols, including Bluetooth, wireless Local Area Network (LAN), or IRDA
"control unit"	The '369 Patent, Claims 1, 2, 10, and 11	35 U.S.C. § 112 ¶ 6 applies: **Function:** "control[ling] the display unit" **Structure:** "a microprocessor or

[14] VIZIO agrees to the extent the term "black level extension unit" is not indefinite.

		processor that is arranged to: (1) control operations of the processing units required to reproduce digital content, (2) control operations of the processing units required to access the internet, and (3) control operations of the display unit to terminate the display of content on display apparatus."
"first/second/third information"	The '369 Patent, Claims 1 and 2	Plain and ordinary meaning.
"luminance data calculation unit"	The '858 Patent, Claims 1 and 4	35 U.S.C. § 112, ¶ 6 applies **Function:** configured to set a reference frame from a video image which has a plurality of pixels, and to calculate first luminance data for a high resolution video image, the high resolution video image obtained by interpolating supplementary luminance data into the reference frame having second luminance data **Corresponding Structure**: a CPU that is configured to: (1) set a frame of the video image, which has a plurality of pixels, as a reference frame; and (2) calculate, by using a filtering processing with a Sinc function based on a sampling theorem (a cubic convolution algorithm or a BiCubic algorithm), first luminance data for a high resolution video image by interpolating supplementary luminance data into the reference frame from second luminance data of the reference frame
"a position calculation unit"	The '858 Patent, Claim 1	35 U.S.C. §112, ¶6 applies. **Function:** configured to set target pixels in at least one of frames included in the video image except the reference frame, and to calculate corresponding positions to the target pixels in the reference frame with decimal accuracy **Corresponding Structure:** the CPU that is configured to: (1) set pixels in one or more frames contained in the video image, except the reference

		frame, as target pixels one by one; and (2) calculated, by using: (a) a matching error interpolation algorithm, (b) an oversampling algorithm, or (c) detection by a gyrocompass, positions of the target pixels corresponding to the reference frame with decimal accuracy
"a correction amount calculation unit"	The '858 Patent, Claim 1	35 U.S.C. §112 ¶6 applies. **Function**: configured to calculate correction amounts of the first luminance data for the corresponding positions based on the first luminance data, third luminance data of the target pixels, and the corresponding positions, the correction amounts being parallelly calculated for the respective corresponding positions **Corresponding Structure:** a CPU that is configured to calculate, by parallel processing, correction amounts of the first luminance data for the corresponding positions based on the first luminance data, third luminance data of the target pixels, and the corresponding positions, wherein the method for calculation the correction quantity of the provisional high resolution pixel quantity is (1) a POCS or (2) an Iterative Back-Projection method, as taught in S. Park, et. al., Super-Resolution Image Reconstruction: A Technical Overview.
"a first controller"/ "a sub-control circuit"	The '507 Patent, Claims 1 and 2	Plain and ordinary meaning.
"a second controller"/ "main control circuit"	The '507 Patent, Claims 1 and 2	Plain and ordinary meaning.
"a contrast adjusting unit"	The '213 Patent, Claims 1 and 2	35 U.S.C. §112 ¶6 applies. **Function**: "to adjust the contrast of the video image by controlling the gain of the video signal based on a maximum luminance level information and an average luminance level information of the video signal" **Corresponding Structure**: contrast adjusting circuitry configured to detect

		maximum and average luminance levels for a predetermined period, determine a predefined luminance region within which the maximum luminance level falls, determine a predefined luminance region within which the average luminance level falls, and based on the determined luminance regions, carry out luminance signal gain control.
"a black level extension unit"	The '213 Patent, Claims 1 and 5	35 U.S.C. §112 ¶ 6 applies. **Function**: "to perform black level extension processing for the video signal" **Corresponding Structure:** a circuit configured to receive a luminance signal and perform black level extension processing on the luminance signal wherein the black level extension processing is controlled by a control signal