

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORPORATION,
Petitioner,

v.

BLITZSAFE TEXAS, LLC,
Patent Owner.

Case IPR2016-00422
Patent 7,489,786 B2

Before JAMESON LEE, THOMAS L. GIANNETTI, and HUNG H. BUI,
Administrative Patent Judges.

LEE, *Administrative Patent Judge.*

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. *Background*

On December 30, 2015, Petitioner filed a Petition (Paper 1, “Pet.”) to institute *inter partes* review of claims 1, 2, 4–8, 10, 13, 14, 23, 24, 44, 47, 57, 58, 60–65, 86, 88–92, 94, 97, and 98 of U.S. Patent No. 7,489,786 B2 (Ex. 1001, “the ’786 patent”). On April 11, 2016, Patent Owner filed a Preliminary Response (Paper 9, “Prelim. Resp.”).

To institute an *inter partes* review, we must determine that the information presented in the Petition shows “that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Having considered both the Petition and the Preliminary Response, we determine that Petitioner has *not* demonstrated a reasonable likelihood that it would prevail in establishing the unpatentability of any claim. Thus, we do not institute an *inter partes* review of any claim of the ’786 patent.

B. *Related Matters*

The parties indicate that the ’786 patent was asserted in five infringement actions before the United States District Court of the Eastern District of Texas and two infringement actions before the United States District Court for the District of New Jersey. Pet. 1–2, Paper 5, 1–2. The ’786 patent also is involved in IPR2016-00421. Related Patent 8,155,342 B2 is involved in IPR2016-00118, IPR2016-00418, and IPR2016-00419.

C. *The ’786 Patent*

The ’786 patent is titled “AUDIO DEVICE INTEGRATION SYSTEM.” Ex. 1001 (54). “One or more after-market audio devices, such as a CD player, CD changer, MP3 player, satellite receiver, DAB receiver,

or the like, is integrated for use with an existing OEM or after-market car stereo system, wherein control commands can be issued at the car stereo and responsive data from the audio device can be displayed on the stereo.” *Id.* at Abstr. The ’786 patent describes:

Control commands generated at the car stereo are received, processed, converted into a format recognizable by the audio device, and dispatched to the audio device for execution. Information from the audio device, including track, disc, song, station, time, and other information, is received, processed, converted into a format recognizable by the car stereo, and dispatched to the car stereo for display thereon.

Id. Additional auxiliary sources also may be integrated together, and “a user can select between the [audio] device or the one or more auxiliary input sources by issuing selection commands through the car stereo.” *Id.* A docking station is provided for docking a portable audio or video device for integration with the car stereo. *Id.* Figures 2A–2C are reproduced below:

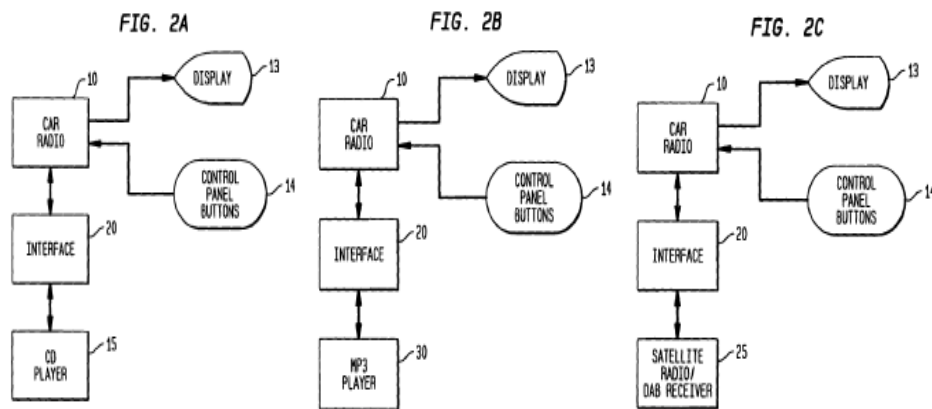


Figure 2A illustrates an embodiment integrating a CD player with the car stereo; Figure 2B illustrates an embodiment integrating a MP3 player with a car stereo; and Figure 2C illustrates an embodiment integrating a satellite or

DAB receiver with a car stereo. *Id.* at 3:14–23. A more versatile embodiment is shown in Figure 1:

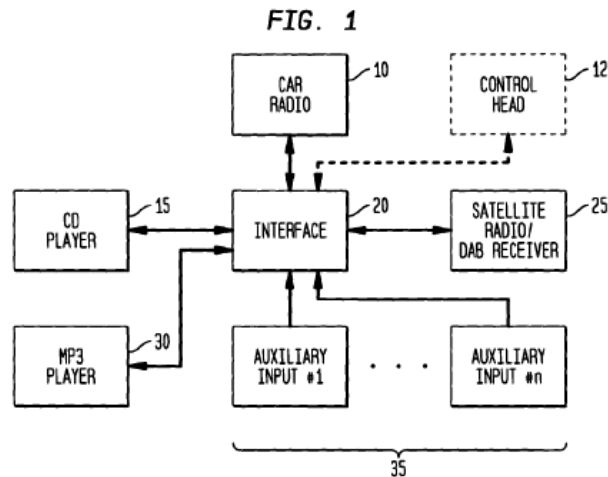


Figure 1 illustrates an embodiment integrating a CD player, a MP3 player, a satellite radio or DAB receiver, and a number of auxiliary input sources with a car stereo. *Id.* at 3:12–13. As shown in the above figures, central to the '786 patent is an “interface” positioned between the car stereo and the audio device(s) and auxiliary input(s) being integrated.

With regard to Figure 2B, the '786 patent describes:

The interface 20 allows data and audio signals to be exchanged between the MP3 player 30 and the car radio 10, and processes and formats signals accordingly so that instructions and data from the radio 10 are processable by the MP3 player 30, and vice versa. Operational commands, such as track selection, pause, play, stop, fast forward, rewind, and other commands, are entered via the control panel buttons 14 of car radio 10, processed by the interface 20, and formatted for execution by the MP3 player 30. Data from the MP3 player, such as track, time, and song information, is received by the interface 20, processed thereby, and sent to the radio 10 for display on display 13. Audio from MP3 player 30 is selectively forwarded by the interface 20 to the radio 10 for playing.

Id. at 6:11–24 (emphasis omitted). Similar description is provided with respect to Figures 2A and 2C. *Id.* at 5:49–55, 6:35–43.

Claims 1, 44, 57, 86, and 92 are independent. Claim 1 is directed to a system that connects an after-market audio device as well as one or more auxiliary input sources to a car stereo. In particular, it recites a first connector electrically connectable to a car stereo, a second connector electrically connectable to an after-market device, and a third connector electrically connectable to one or more auxiliary input sources. *Id.* at 21:33–38. Claim 1 also recites an interface connected between the first and second electrical connectors, and that the interface includes a microcontroller pre-programmed to execute:

- a first pre-programmed code portion for remotely controlling the after-market audio device using the car stereo by receiving a control command from the car stereo through said first connector in a format incompatible with the after-market audio device, processing the received control command into a formatted command compatible with the after-market audio device, and transmitting the formatted command to the after-market audio device through said second connector for execution by the after-market audio device;
- a second pre-programmed code portion for receiving data from the after-market audio device through said second connector in a format incompatible with the car stereo, processing the received data into formatted data compatible with the car stereo, and transmitting the formatted data to the car stereo through said first connector for display by the car stereo; and
- a third pre-programmed code portion for switching to one or more auxiliary input sources connected to said third electrical connector.

Id. at 21:44–64.

Claim 57 is directed to a system including an interface that connects a portable MP3 player to a car stereo. Claim 86 is directed to a system including an interface that connects an after-market video device to a car stereo. Claim 92 is directed to a system including an interface that connects a portable audio device with a car stereo. Claims 57, 86, and 92 are reproduced below:

57. An audio device integration system comprising:
- a first electrical connector connectable to a car stereo;
 - a second electrical connector connectable to a portable MP3 player external to the car stereo
 - an interface connected between said first and second electrical connectors for transmitting audio from a portable MP3 player to a car stereo, said interface including a microcontroller in electrical communication with said first and second electrical connectors,
- said microcontroller pre-programmed to execute:
- a first pre-programmed code portion for generating a device presence signal and transmitting the signal to the car stereo to maintain the car stereo in an operational state; and
 - a second pre-programmed code portion for remotely controlling the MP3 player using the car stereo by receiving a control command from the car stereo through said first electrical connector in a format incompatible with the MP3 player, processing the control command into a formatted control command compatible with the MP3 player, and transmitting the formatted control command to the MP3 player through said second electrical connector for execution by the MP3 player.

Id. at 26:13–37.

86. A device for integrating video information for use with a car stereo, comprising:

- a first electrical connector connectable to a car stereo;
- a second electrical connector connectable to an after-market video device external to the car stereo;
- an interface connected between said first and second electrical connectors for transmitting video information from the after-market video device to the car stereo, the interface including a microcontroller in electrical communication with said first and second electrical connectors, said microcontroller pre-programmed to execute:
 - a first pre-programmed code portion for generating a device presence signal and transmitting the signal to the car stereo through said first electrical connector to maintain the car stereo in an operational state responsive to signals generated by the after-market video device.

Id. at 28:40–56.

92. An audio device integration system comprising:
- a car stereo;
 - a portable audio device external to the car stereo;
 - an interface connected between the car stereo and the portable audio device, the interface including a microcontroller pre-programmed to execute:
 - first pre-programmed means for generating a device presence signal and transmitting the signal to the car stereo to maintain the car stereo in an operational state;
 - second pre-programmed means for remotely controlling the portable audio device using the car stereo by receiving a control command from the car stereo in a format incompatible with the portable audio device, processing the control command into a formatted control command compatible with the portable audio device, and transmitting the formatted control command to the portable audio device for execution thereby; and
 - means for transmitting audio from the portable audio device to the car stereo.

Id. at 29:11–31.

Claim 44 is directed to an apparatus for docking a portable device for integration with a car stereo. *Id.* at 25:1–2. A docking portion is recited as physically mating with the portable device. *Id.* at 25:5–6. A data port is recited as being in communication with the docking portion. *Id.* at 25:7–8. An interface is recited as “connected to said data port and to the car stereo” and “channeling audio from the portable device to the car stereo.” *Id.* at 25:10–12. Claim 44 recites that the interface includes a microcontroller in electrical communication with the car stereo, and with the portable device through the data port. *Id.* at 5:12–14. Claim 44 further recites that the microcontroller is:

pre-programmed to execute first program code for remotely controlling the portable device using the car stereo by processing control commands generated by the car stereo in a format incompatible with the portable device into formatted control commands compatible with the portable device, and dispatching formatted control commands to the portable device for execution thereby.

Id. at 25:14–22.

D. Evidence Relied Upon

Petitioner relies on the following references:¹

¹ For certain alleged grounds of unpatentability, Petitioner also relies on what it refers to as “known bus technology.” Hereinafter, we refer to that material as “KBT.” We understand Petitioner to have presented KBT as common knowledge and routine skill within the level of ordinary skill in the art that does not require citation of any particular reference.

Reference		Date	Exhibit
Lau	International Pub. No. WO 01/67266 A1	Sept. 13, 2001	Ex. 1003
XR-C5120	SONY® 3-865-814-11(1) Operating Instructions, Model No. XR-C5120 /4890	1999	Ex. 1005
XA-C30	SONY® 9-923-535-11 Source Selector Service Manual XA-C30	March, 1996	Ex. 1006
Bhogal	U.S. Patent No. 6,629,197 B1	Sept. 30, 2003	Ex. 1008

Petitioner also relies on the Declaration of Thomas G. Matheson, Ph.D. Ex. 1015.

C. The Asserted Grounds

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	Basis	References
44, 57, 58, 60, 63, 64, 86, 88, 90, and 91	§ 102(b)	Lau
92, 94, and 97	§ 103(a)	Lau
1, 2, 4–8, 10, 13, 14, 23, 24, 61, and 62	§ 103(a)	Lau, XR-C5120, and XA-C30
47, 65, 89, and 98	§ 103(a)	Lau and KBT
24	§ 103(a)	Lau, XR-C5120, XA-C30, and KBT
44, 57, and 92	§ 103(a)	Lau and Bhogal

II. ANALYSIS

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference.

Net MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

One seeking to establish obviousness based on more than one reference also must articulate sufficient reasoning with rational underpinnings to combine teachings. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007).

With regard to the level of ordinary skill in the art, we determine that no express finding is necessary, on this record, and that the level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, No. 15–446, 2016 WL 3369425, at *12 (U.S. June 20, 2016) (upholding the use of the broadest reasonable interpretation standard as the claim construction standard to be applied in an *inter partes* review proceeding). Consistent with the rule of broadest

reasonable interpretation, claim terms also are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

“Claims are not interpreted in a vacuum, but are part of and are read in light of the specification.” *Slimfold Mfg. Co. v. Kinkead Indus., Inc.*, 810 F.2d 1113, 1116 (Fed. Cir. 1987). Although it is improper to read a limitation from the specification into the claims, *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993), the claims still must be read in view of the specification of which they are a part. *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1347 (Fed. Cir. 2004).

If a limitation of an embodiment described in the specification is not necessary to give meaning to a claim term, it would be “extraneous” and should not be read into the claim. *See Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 950 (Fed. Cir. 1993); *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988). If the applicants for a patent desire to be their own lexicographer, the purported definition must be set forth in either the specification or prosecution history. *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). Such a definition must be set forth with reasonable clarity, deliberateness, and precision. *See Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998); *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). However, only terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

1. *“interface”*

Of all challenged claims, claims 1, 44, 57, 86, and 92 are independent, and each recites an “interface.”

Claims 1, 57, and 86 require the interface to be connected between a first electrical connector and a second electrical connector, where the first connector is connectable to a car stereo and the second connector is connectable to an after-market audio device (claim 1), a portable MP3 player (claim 57), or an after-market video device (claim 86). Claim 92 requires the interface to be connected between the car stereo and a portable audio device. Claim 44 recites a docking portion that mates with a portable device, and an interface that is connected to the car stereo as well as to a data port that communicates with the docking portion.

Also, claim 57 recites that the interface is “for transmitting audio from a portable MP3 player to a car stereo”; claim 86 recites that the interface is “for transmitting video information from the after-market video device to the car stereo”; claim 1 recites that the interface is “for channeling audio signals to the car stereo from the after-market audio device”; claim 44 recites an interface for “channeling audio from the portable device to the car stereo”; and claim 92 recites that the interface includes a microcontroller pre-programmed to execute “means for transmitting audio from the portable audio device to the car stereo.”

Petitioner proposes the proper construction of “interface” is “a microcontroller that is functionally and structurally separate component from the car stereo, which integrates an after-market device with a car stereo,” and notes that that is the construction determined by the district

court in related action involving the '786 patent. Pet. 12–13. For several reasons, the proposal is unpersuasive.

First, as is noted by Patent Owner, even if the interface is deemed “functionally and structurally separate” from the car stereo, the proposed construction is incomplete in that it omits any requirement of separation or distinctness of the interface from the portable or after-market device connected thereto. Prelim. Resp. 6–7. Second, the proposed construction is too narrow by specifying that the interface “integrates an after-market device with a car stereo.” We note that the Specification of the '786 patent provides a special definition for “integration” or “integrated.” Ex. 1001, 4:47–52. We discern no reason to import limitations into a claim if they are unnecessary to accord meaning to the claim.

Third, the proposed construction is too narrow by requiring the interface to be a microcontroller. In the Specification of the '786 patent, the term “interface” is described as including not only a microcontroller but also several discrete components, such as resistors, diodes, capacitors, transistors, oscillators, amplifiers, and multiplexers, shown in various embodiments of Figures 3A, 3B1–3B2, 3C1–3C2, and 3D. Ex. 1101, 9:8–20, 10:19–33, 11:4–18, 11:59–67. As such, the term “interface” itself is not limited to a microcontroller. In that regard, note that if the interface itself is construed as a microcontroller, as Petitioner proposes, then the additional claim language reciting that the interface includes a microcontroller would serve no meaningful purpose.

With regard to an “interface,” the Specification states:

Thus, as can be readily appreciated, the interface 20 of the present invention allows for the integration of a multitude of

devices and inputs with an OEM or after-market car radio or stereo.

Ex. 1001, 5:33–36 (emphasis omitted).

As mentioned earlier, the interface 20 of the present invention allows for a plurality of disparate audio devices to be integrated with an existing car radio for use therewith.

Id. at 6:4–7 (emphasis omitted).

Data from the MP3 player, such as track, time, and song information, is received by the interface 20, processed thereby, and sent to the radio 10 for displaying on display 13. Audio from the MP3 player 30 is selectively forwarded by the interface 20 to the radio 10 for playing.

Id. at 6:19–24 (emphasis omitted). Thus, the Specification refers to the interface receiving information from an audio device and forwarding information to the car stereo, and to the interface allowing integration of a plurality of disparate audio devices with a car radio.

During prosecution, the Applicants of the '786 patent distinguished U.S. Patent 6,993,615 B2 (“Falcon”),² in part by arguing that the reference failed to disclose an interface connected between a car stereo and an external audio source. Ex. 1002, 0267. Specifically, in distinguishing the invention from Falcon, Applicants stated: “[Falcon’s graphical user interface] is an entirely different concept than the interface of the present invention, which includes a physical interface device connected between a car stereo system and an external audio source (e.g., a plurality of auxiliary input sources).”

Id.

² Falcon discloses a portable computing device connectable to a car stereo through an interface configurable within the portable computing device. Ex. 3001, Abstr.

Construing the term “interface” in light of the Specification, other language in the claims, as well as the prosecution history noted by Petitioner, we determine that—*interface is a physical unit that connects one device to another and that has a functional and structural identity separate from that of both connected devices.*

In the specific context of claims 1 and 86, the connected devices are the car stereo and an after-market device. In the specific context of claims 44, 57, and 92, the connected devices are the car stereo and a portable device. Each of claims 1, 44, 57, 86, and 92 further requires the interface to include a microcontroller.

*B. Alleged Anticipation of Claims 44, 57,
58, 60, 63, 64, 86, 88, 90, and 91 over Lau*

We have reviewed the Petition and the Preliminary Response, and determine that Petitioner has not shown a reasonable likelihood that it would prevail in establishing that any of claims 44, 57, 58, 60, 63, 64, 86, 88, 90, and 91 is anticipated by Lau.

1. Lau

Lau is titled “VEHICLE SOUND SYSTEM,” and states that “there is a need for an improved automobile audio system that does not require cassettes or compact discs, can be used with reusable media and can play music downloaded from a computer or other device.” Ex. 1003 (54), 2:24–26. Lau indicates that pre-existing portable solid state music players that store music downloadable from a computer are unsatisfactory for use with an automobile audio system, i.e., a car stereo. *Id.* at 3:1–11. For instance, it is explained that all of the controls are on the portable player, and thus a driver is unable to use the controls of the car stereo to control the music player. *Id.* at 3:12–16.

Figure 1 of Lau is reproduced below:

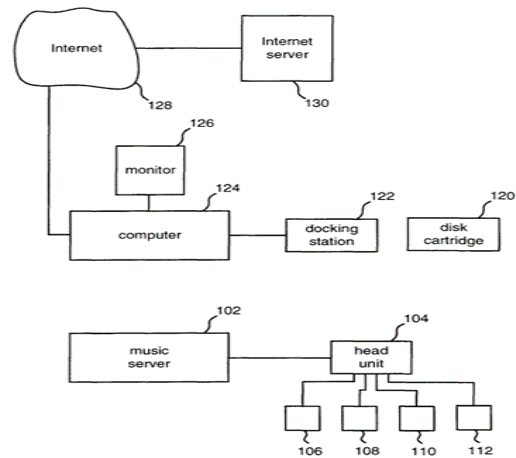


Fig. 1

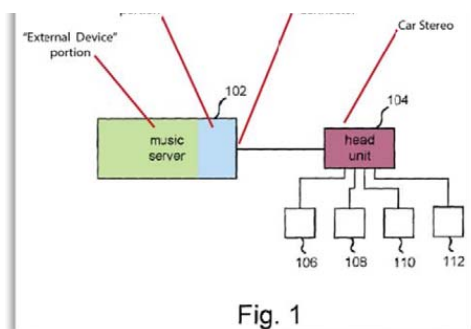
Figure 1 illustrates an embodiment of Lau's vehicle sound system. *Id.* at 5:18. Head unit 104 is a standard automobile head unit and is connected to speakers 106, 108, 110, and 112. *Id.* at 7:17–20. Music server 102 is an audio/visual server and emulates a disc changer. *Id.* at 7:12–14. Lau explains that music server 102 is not an actual disc changer but only acts like a disc changer would act, based on communications to and from head unit 104. *Id.* at 7:14–17. Music server 102 communicates with head unit 104. *Id.* at 7:19. Lau describes that music server 102 may be mounted in the trunk of a car and head unit 104 is mounted in the dash board. *Id.* at 8:21–24.

Disk cartridge 120 can be inserted by a user either into music server 102 or docking station 122 connected to computer 124. *Id.* at 8:16–21. Computer 124 is a standard personal computer and is connected to Internet server 130, via Internet 128, for downloading tracks and information about tracks, and in one embodiment, tracks are songs. *Id.* at 8:4–15. After a user

downloads tracks onto disk cartridge 120, disk cartridge 120 is removed from docking station 122 and inserted into music server 102, and then the user can use head unit 104 to access and play tracks on disk cartridge 120. *Id.* at 8:20–26.

2. *Claims 57 and 86*

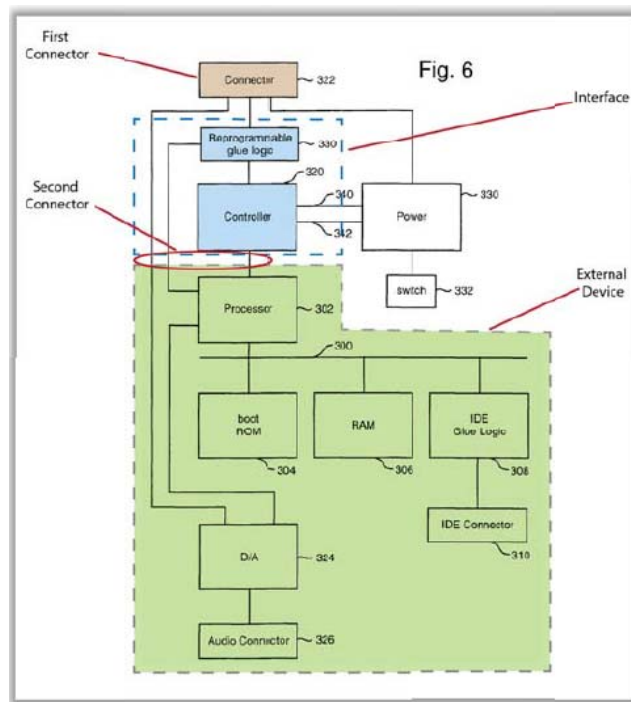
Determinative of our conclusion with respect to the alleged anticipation of claims 57 and 86 by Lau is our construction of the term “interface”—*interface is a physical unit that connects one device to another and that has a functional and structural identity separate from that of both connected devices*. In the context of claim 57, the two devices connected by the interface is the car stereo and a portable MP3 player. In the context of claim 86, the two devices connected by the interface is the car stereo and an after-market video device. Petitioner relies on different internal parts of Lau’s music server 102 to meet the interface of claims 57 and 86, the portable MP3 player of claim 57, and the after-market video device of claim 86. Figure 1 of Lau, as annotated by Petitioner, is reproduced below:



The annotated figure appears on page 22 of the Petition and illustrates the car stereo and interface of claims 57 and 86, the portable MP3 player of

claim 57, and the after-market video device of claim 86. Petitioner asserts: “Lau’s ‘head unit 104’ includes a car stereo. See, Lau, Abstract, 2:51-53; Ex. 1015 at ¶ 87. In Lau, the ‘interface’ (identified as microcontroller 320 and glue logic 330) is located within Lau’s music server 102.” Pet. 22. Petitioner further asserts: “This ‘interface’ is connected to circuitry dedicated to processing stored content for playback (processor 302 and associated components) that corresponds to the claimed external device (or ‘after-market device,’ as recited in claim 86).” *Id.*

Figure 6 of Lau, as annotated by Petitioner, illustrates the internal structure of Lau’s music server 102, and is reproduced below:



The annotated figure appears on page 22 of the Petition and illustrates the parts regarded by Petitioner as the “interface” in blue and surrounded by

dashed lines, and the parts regarded by Petitioner as the portable or after-market device in green and surrounded by dashed lines. We are unpersuaded by Petitioner's identification of the part colored blue in the above-reproduced illustration to meet the requirement of the interface in claims 57 and 86.

First, there is insufficient showing of *separate structural identity* between the alleged "interface" and the portion colored green by Petitioner in the same illustration and alleged as by Petitioner as the external device. Both blue and green portions are component parts within Lau's music server 102. It would be incorrect to regard them as having separate structural identities. Petitioner has not adequately explained what accords these portions separate structural identities, e.g., separate supporting frames, independent housing, etc. Also, Petitioner has not identified any description within Lau that refers to the combination of parts labeled in blue as collectively constituting a unit of any kind, or that refers to the combination of parts labeled in green as collectively constituting a unit of any kind. Thus, the separate structural identity requirement between the alleged interface and a portable MP3 player (claim 57) or an after-market video device (claim 86) is not met.

Second, there also is insufficient showing of *separate functional identity* between the alleged "interface" colored in blue and the portion colored green by Petitioner and alleged as the external device. Portions of Lau are reproduced below, which refute any assertion that controller 320 and glue logic 330 colored in blue, and processor 302 colored in green, have separate functional identities:

Glue logic 330 is reprogrammable. For example, glue logic 330 can be an FPGA or a PLD (as well as other suitable reprogrammable logic devices). Glue logic 330 is connected to and programmed by processor 302. Glue logic 330 provides latches, inverters and other glue logic that is specific for each head unit and used to make communication from controller 320 compatible with the particular head unit.

Ex. 1003, 13:5–9.

The flash memory internal to controller 320 stores firmware to program controller 320 to interface with the appropriate head unit. If music server 102 is initially set up to communicate with a first head unit and the user subsequently installs music server 102 into a different automobile with a different head unit, controller 320 can be reprogrammed to communicate with the new head unit by changing the firmware in the internal flash memory of controller 320.

Id. at 14:13–18.

As discussed above, a portion of the internal flash memory of controller [320] is used to store the firmware (interface program code) for programming controller 320 to communicate with head unit 104. In step 548, controller 320 requests that processor 302 access hard disk drive 178 and read the firmware version number stored in the /microcontroller config directory. In step 550, controller 320 receives the firmware version number from processor 302.

Id. at 15:13–18.

If in step 552 controller 320 determines that there is a firmware update on hard disk drive 178, then the method loops to step 554. In step 554, controller 320 sends a request to processor 302 to load new firmware. In step 556, the new firmware is received by controller 320.

Id. at 16:16–20.

If a firmware update is requested, the method of Figure 10 loops to step 740. In step 740, processor 302 accesses and reads new firmware from the /microcontroller config directory of hard disk drive 178. Step 740 also includes accessing and reading new

code to program glue logic 330. In step 742, the firmware is sent to controller 320. In step 744, processor 302 programs glue logic 330 according to the code read in step 740. The code used in step 744 may vary by head unit and/or firmware version.

Id. at 17:11–17.

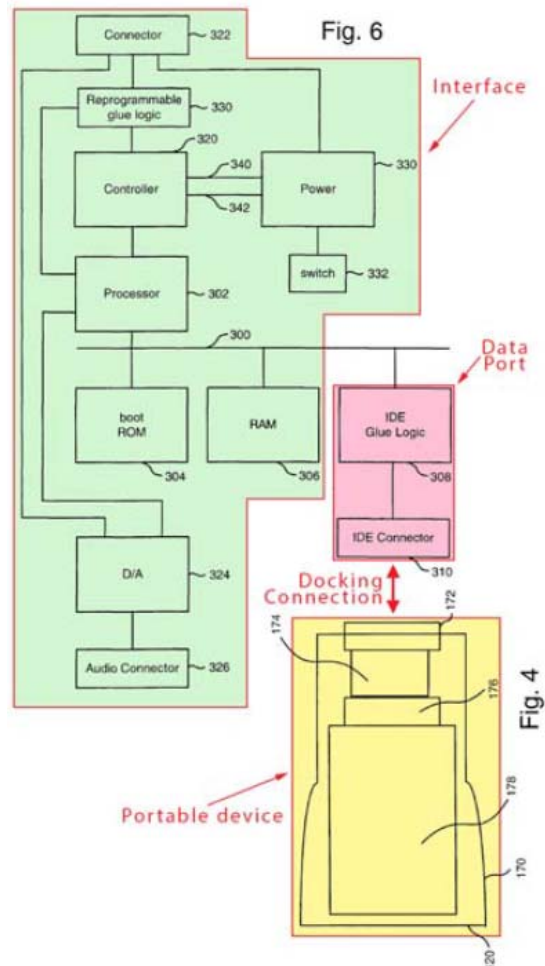
It is evident from the above-quoted descriptions in Lau that processor 302 controls what firmware is used to program controller 320 and also programs the configuration of glue logic 330. Thus, the separate functional identity requirement between the alleged interface (colored in blue) and the portable or after-market device (colored in green) is not met.

3. *Claims 58, 60, 63, 64, 88, 90, and 91*

Each of claims 58, 60, 63, 64, 88, 90, and 91 depends directly or indirectly from either claim 57 or 86. The deficiency noted above with regard to claims 57 and 86 carries through to the claims depending therefrom. Accordingly, Petitioner has not shown a reasonable likelihood that it would prevail in establishing that any of claims 58, 60, 63, 64, 88, 90, and 91 is anticipated by Lau.

4. *Claim 44*

For claim 44, Petitioner draws anew the annotated borders it provided above in connection with its arguments directed to claims 57 and 86. Now, Petitioner regards most of the portions previously colored blue, green, and orange, together with the previously uncolored parts, but sans IDE Glue Logic 208 and IDE Connector 310, as the alleged interface, and regards disk cartridge 120, connectable to IDE Connector 310, as the portable device. Pet. 34–35. Lau’s Figure 6, re-annotated by Petitioner to provide different borders and different coloring for the same parts, is reproduced below:



The annotated figure appears on page 34 of the Petition and illustrates the parts regarded by Petitioner as the “interface” colored in green, and the part regarded by Petitioner as the portable device colored in yellow. Pet. 34. Petitioner asserts that Lau’s disk cartridge 120 is the portable device colored in yellow. *Id.* For reasons discussed below, we are unpersuaded by Petitioner’s identification of the part colored in green above to satisfy the

requirement of the interface in claim 44, relative to Lau's disk cartridge 120 as the portable device.

As construed above, "interface" is a *physical unit that connects one device to another and that has a functional and structural identity separate from that of both connected devices*. Thus, what Petitioner identifies as the interface in Lau must have a functional and structural identity separate from those of what Petitioner identifies as the portable device.

With regard to separate structural identity, that indeed is the case, because Lau's disk cartridge 120 is removable from music server 102 and can be reinserted into music server 102 by a user. Ex. 1003, 8:16–21. The same, however, cannot be said as to separate functional identity relative to the alleged interface. In that regard, we note that disk cartridge 120 includes shell 170, connectors 172 and 176, and hard disk drive 178. *Id.* at 9:22–10:4. Hard disk drive 178 stores the firmware that processor 302 uses to reprogram controller 320 and the code that processor 302 uses to program glue logic 330 for communication with the car stereo. *Id.* at 16:16–20; 17:11–17. Furthermore, Lau describes that hard disk drive 178 stores the operating system for music server 102 as well as drivers including IDE driver, audio drivers, and a driver for the serial interface between processor 302 and controller 320. *Id.* at 11:17–21. Lau also describes that "music server 102 will not operate unless disk cartridge 120 is properly inserted in music server 102." *Id.* at 13:24–25. Based on all of these characteristics, disk cartridge 120 does not have separate functional identity relative to the alleged interface that includes processor 302 and controller 320. Rather, it is very much intertwined with and essential to the operation of the alleged interface.

Additionally, we determine that Lau’s disk cartridge 120 is insufficient to constitute the portable device of claim 44. That is because disk cartridge 120, as described in Lau, includes only a shell casing, connectors, simple elements like capacitors and resistors for decoupling signals, and a hard disk drive. *Id.* at 9:22–10:4. As described in Lau, disk cartridge 120 is without any processing logic with which to execute control commands from the car stereo. Yet, such capability is implicit in claim 44, which recites that the microcontroller is pre-programmed to execute program code for remotely controlling the portable device “by processing control commands generated by the car stereo in a format incompatible with the portable device into formatted control commands compatible with the portable device, and *dispatching formatted control commands to the portable device for execution thereby.*” *Id.* at 25:17–22 (emphasis added). Accordingly, the portable device of claim 44 must include processing logic capable of executing control commands. Petitioner has not sufficiently shown that disk cartridge 120 includes such processing logic.

Accordingly, Petitioner has not shown a reasonable likelihood that it would prevail in establishing that claim 44 is anticipated by Lau.

C. *Alleged Obviousness of
Claims 92, 94, and 97 over Lau*

For reasons discussed below, we determine that Petitioner has not shown a reasonable likelihood that it would prevail in establishing unpatentability of claims 92, 94, and 97 as obvious over Lau.

Claim 92, as reproduced above, includes several elements in the format of a “means”:

first pre-programmed means for generating a device presence signal and transmitting the signal to the car stereo to maintain the car stereo in an operational state;

second pre-programmed means for remotely controlling the portable audio device using the car stereo by receiving a control command from the car stereo in a format incompatible with the portable audio device, processing the control command into a formatted control command compatible with the portable audio device, and transmitting the formatted control command to the portable audio device for execution thereby; and

means for transmitting audio from the portable audio device to the car stereo.

Claim 94 depends from claim 92 and claim 97 depends from claim 94.

Paragraph 6 of 35 U.S.C. § 112 states:³

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The above-quoted recitations of claim 92 presumptively set forth elements under 35 U.S.C. § 112, ¶ 6, and are construed to cover the corresponding structure, material, or acts described in the specification and equivalents

³ Paragraphs 1 through 6 of § 112 were renamed as paragraphs (a) through (f) when § 4(c) of the Leahy-Smith America Invents Act, Pub. L. No. 112–29, 125 Stat. 284, 329 (2011) (“AIA”) took effect on September 16, 2012. Because the patent application resulting in the ’786 patent was filed before the effective date of the AIA, we refer to the pre-AIA version of § 112.

thereof. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc).

For a means-plus-function element under 35 U.S.C. § 112, ¶ 6, the Board’s trial rules require the Petition to identify the corresponding structure, material, or acts corresponding to each claimed function. Specifically, 37 C.F.R. § 42.104(b)(3) governs the content of a petition with respect to claim construction and provides: “[w]here the claim to be construed contains a means-plus-function or step-plus-function limitation as permitted under 35 U.S.C. § 112 [, ¶ 6], the construction of the claim must identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.”⁴ 37 C.F.R. § 42.104(b)(3).

The “construction” referred to by 37 C.F.R. § 42.104(b)(3) is the construction proposed by the Petitioner, one that Petitioner believes is the correct construction under applicable law and should apply in the involved proceeding. Here, Petitioner did not comply with 37 C.F.R. § 42.104(b)(3).

For each means-plus-function recitation in claim 92, Petitioner provided the construction of the United States District Court for the District of New Jersey. Pet. 16–20. However, Petitioner does not take ownership of the district court’s constructions by indicating, in some way, that it agrees with, proposes, or adopts the construction of this district court. Indeed, for two means-plus-function elements, i.e., (1) first pre-programmed means for

⁴ 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. *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1334 (Fed. Cir. 2004); *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296 F.3d 1106, 1113 (Fed. Cir. 2002).

generating a device presence signal (“generating means”), and (2) first pre-programmed means for . . . transmitting the [device presence] signal to the car stereo to maintain the car stereo in an operational state (“transmitting means”), Petitioner asserts that the district court’s constructions are incorrect. Pet. 17–18. For the transmitting means, Petitioner does offer its own construction as is required by 37 C.F.R. § 42.104(b)(3). Pet. 18–19. But for the generating means, Petitioner does not offer its construction by identifying corresponding structure, material, or acts in the Specification. Instead, for the transmitting means, Petitioner asserts that there is no corresponding structure, material, or acts in the Specification of the ’786 patent, and characterizes the means-plus-function element as indefinite. Pet. 17.

Without expressly identifying a ground of unpatentability based on indefiniteness under 35 U.S.C. § 112, ¶ 2, Petitioner nonetheless has mounted, effectively, a challenge of claims 92, 94, and 97 as indefinite under 35 U.S.C. § 112, ¶ 2. We note that if there is no corresponding structure, material, or acts in the specification for a means-plus-function claim element, the claim is indefinite under 35 U.S.C. § 112, ¶ 2. *See In re Dossel*, 115 F.3d 942, 946 (Fed. Cir. 1997). Except for a narrow exception explained in *In re Katz*, 639 F.3d 1303, 1316 (Fed. Cir. 2011), concerning generic functions performed by a general purpose computer, such as “processing,” “receiving” and “storing,” a computer-implemented means-plus-function element is indefinite unless the specification discloses the specific algorithm used by the computer to perform the recited function. *Eon Corp. IP Holdings LLC v. AT&T Mobility LLC*, 785 F.3d 616, 621–23 (Fed. Cir. 2015); *Function Media, LLC. v. Google, Inc.*, 708 F.3d 1310,

1318 (Fed. Cir. 2013); *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1385 (Fed. Cir. 2009); *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008); *Finisar Corp. v. DirectTV Group, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008); and *Aristocrat Technologies Australia Pty Ltd. v. Int'l Game Techs. Inc.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). Petitioner may not, however, in an *inter partes* review, assert a ground of unpatentability based on indefiniteness under 35 U.S.C. § 112, ¶ 2. *See* 35 U.S.C. § 311(b).

In any event, with regard to alleged obviousness of claims over prior art, Petitioner has not identified structure, material, and acts in the Specification of the '786 patent that correspond to the generating means of claim 92. Therefore, Petitioner has not accounted for how such unidentified structure, material, and acts would have been met by the prior art.

Furthermore, claim 92 requires an interface connected between a car stereo and a portable audio device. Petitioner relies on its arguments presented for claim 57 to explain how Lau discloses an interface connected between a car stereo and a portable audio device. Pet. 38, 43. We already rejected those arguments in the context of claim 57, as discussed above in Section II(B)(2). The arguments are no more persuasive for claim 92.

For the foregoing reasons, we determine that Petitioner has not shown a reasonable likelihood that it would prevail in establishing unpatentability of claims 92, 94, and 97 as obvious over Lau.

*D. Alleged Obviousness of Claims
44, 57, and 92 over Lau and Bhogal*

This alleged ground of unpatentability combines Bhogal's teachings with those of Lau. Specifically, Bhogal is added to buttress the teachings of Lau with respect to the claim limitations requiring a device that is "portable"

to be connected to the interface. Thus, as applied by Petitioner, Bhogal does not cure the deficiencies of the Petition, already addressed above, with regard to claims 44, 57, and 92. Accordingly, Petitioner has not shown a reasonable likelihood that it would prevail in establishing the unpatentability of any of claims 44, 57, and 92 as obvious over Lau and Bhogal.

E. Alleged Obviousness of Claims 47, 65, 89, and 98 over Lau and KBT

Claim 47 depends from claim 44. Claim 65 depends from claim 64 which depends from claim 57. Claim 89 depends from claim 88 which depends from claim 86. Claim 98 depends from claim 97 which depends from claim 92. The deficiencies of Petitioner's assertions with respect to claims 44, 57, and 86, as discussed above, are not cured by Petitioner's application of KBT. Accordingly, Petitioner has not shown a reasonable likelihood that it would prevail in establishing the unpatentability of any of claims 47, 65, 89, and 98, as obvious over Lau and KBT.

F. Alleged Obviousness of Claims 1, 2, 4–8, 10, 13, 14, 23, 24, 61, and 62 over Lau, XR-C5120, and XA-C30

We have reviewed the Petition and the Preliminary Response, and determine that Petitioner has not shown a reasonable likelihood that it would prevail in establishing the unpatentability of any of claims 1, 2, 4–8, 10, 13, 14, 23, 24, 61, and 62 as obvious over Lau, XR-C5120, and XA-C30.

1. Claim 1

Claim 1, like claim 57, recites an interface connected between the first and second electrical connectors and for channeling audio signals to the car stereo from another device, where the first connector is connectable to the car stereo and the second connector is connectable to an audio device. In

claim 57, that audio device is a portable MP3 player. In claim 1, that audio device is an after-market audio device.

Further as compared to claim 57, claim 1 (a) adds a third connector that is electrically connectable to one or more auxiliary input sources external to the car stereo and the after-market audio device, (b) adds a code portion in the microcontroller within the interface, that is “for switching to one or more auxiliary input sources connected to said third electrical connector,” and (c) adds a code portion in the microcontroller within the interface, that is “for receiving data from the after-market audio device through said second connector in a format incompatible with the car stereo, processing the received data into formatted data compatible with the car stereo, and transmitting the formatted data to the car stereo through said first connector for display by the car stereo.”

For the addition of the third connector and the code portion for switching to one or more auxiliary input sources, Petitioner relies on XR-C5120 and XA-C30. Pet. 45–48. XR-C5120 is the Operating Instructions for Sony’s model XR-C5120 car stereo. Ex. 1005. It lists as optional equipment: “Source selector XA-C30.” *Id.* at 18. As noted above, for this decision we use the identification “XA-C30” to refer to the service manual of Sony’s Source Selector XA-C30 (Exhibit 1006). The service manual discloses how the source selector may be connected between a car stereo and multiple input sources. Ex. 1006, 2–3.

A diagram of the Sony Source Selector XA-C30 is reproduced below:

Connections

Precautions

- Before making any connection, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the yellow power input leads only after all other leads have been connected.

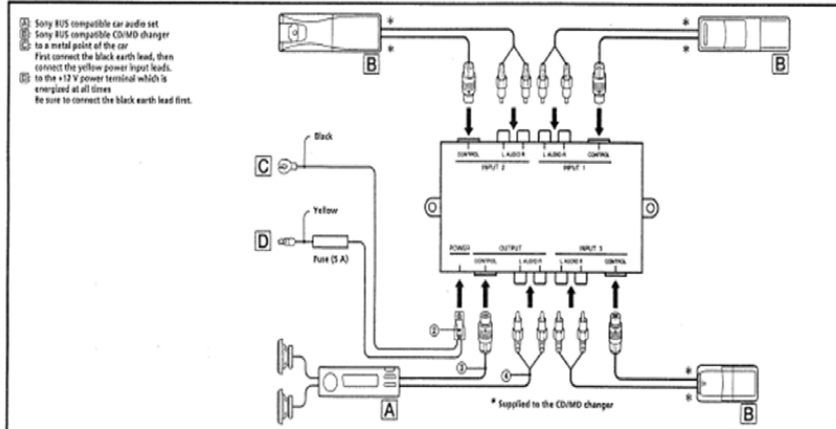
- Be sure to connect the unit's ground wire securely to a metal point of the car. A loose connection may cause the unit to malfunction.

Notes

- If you are having an in-car stereo or navigation system installed, disconnecting the car battery's negative terminal can cause their navigation. In such a case, make sure that all the connections except the yellow power input and are complete before connecting the yellow power input lead.

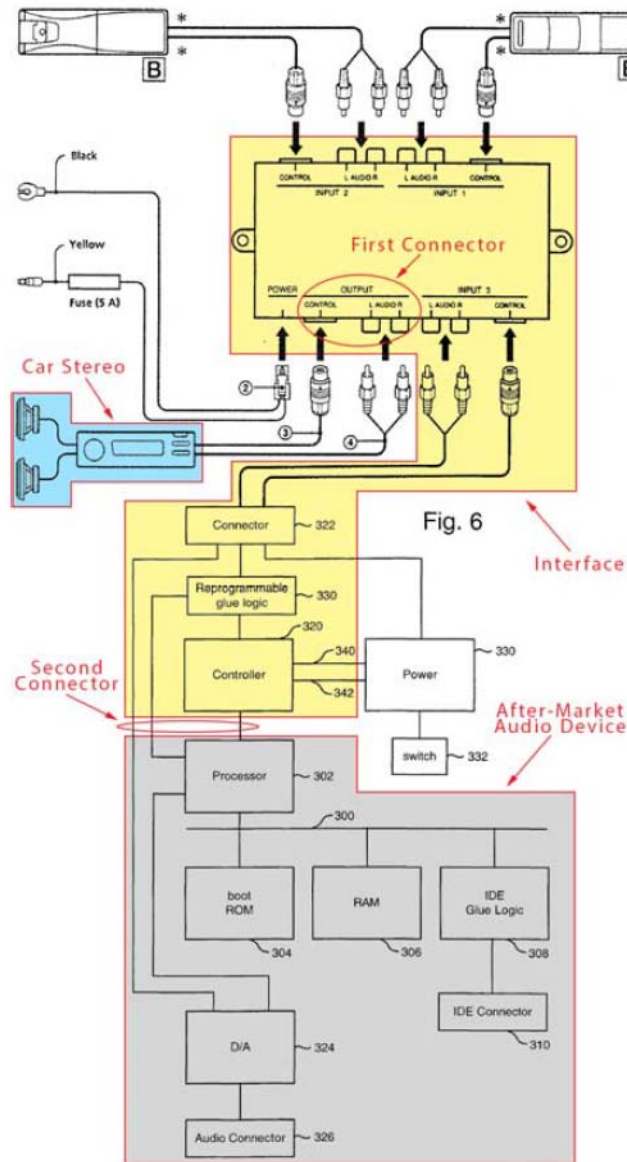
- This unit is compatible with the CDX-45MP, CDX-718P and XH-X388P, but it is not compatible with the CDX-45MF, CDX-518P or CDX-528P hi-fi stereo units.

Connection diagram



Ex. 1006, 2. The above figure illustrates a connection diagram for Sony's Source Selector XA-C30.

Petitioner illustrates its combination of Sony's Source Selector XA-C30 with the car audio system of Lau as follows:



This annotated figure appears on page 46 of the Petition and illustrates the parts regarded by Petitioner as the “interface” in yellow, the part regarded by Petitioner as the after-market audio device in grey, and the car stereo colored in blue. Pet. 45–46. For reasons discussed below, we are unpersuaded that

Petitioner's combination of Lau, XR-C5120, and XA-C30, as illustrated above, meets all requirements of claim 1.

Based on our construction of "interface," the interface in claim 1 has to have separate functional and structural identity relative to the after-market audio device of claim 1, just as the interface in claim 57 has to have separate functional and structural identity relative to the portable MP3 player of claim 57. For the same reasons that the interface Petitioner identified in Lau for claim 57 does not have separate functional or structural identity with respect to what Petitioner identifies in Lau as the portable MP3 player of claim 57, the interface Petitioner identified in Lau for claim 1 does not have separate functional or structural identity with respect to what Petitioner identifies in Lau as the after-market audio device of claim 1.

With respect to claim 1's requirement of a microcontroller having a code portion "for remotely controlling the after-market audio device," Petitioner points to controller 320 as the microcontroller. Pet. 29, 33, 51. With respect to claim 1's requirement of a microcontroller having a code portion "for switching to one or more auxiliary input sources connected to said third electrical connector," Petitioner quotes this description in Lau: "The directory / microcontroller config [in disk cartridge 120] includes a series of files for configuring controller 320 (see Figure 6) to communicate with head unit 104. One file is a text file with a set of flags which indicate any of the following: disk cartridge change, *other devices connected*, head unit text on/off, time elapsed to be displayed up or down, etc." Pet. 52. (citing Ex. 1003, 10:25–11:2).

However, the fact that disk cartridge 120 contains a flag indicating "other devices connected" appears unrelated to the Sony Source Selector

XA-C30 (that part of the yellow portion above the car stereo in the above illustration) that connects the car stereo to controller 320 and a plurality of auxiliary input source as Petitioner has shown in the above illustration. Petitioner has not provided adequate explanation in that regard. There is insufficient basis to conclude that microcontroller 320 includes a code portion for switching to one or more auxiliary input sources connected to the third electrical connector, especially where, as here, the Sony Source Selector XA-C30 includes its own microprocessor controller IC1 (Ex. 1006, 8). Petitioner makes no explanation as to why it is not the controller within the Sony Source Selector XA-C30 that is “for switching to one or more auxiliary input sources connected to said third electrical connector.”

2. *Claims 2, 4–8, 10, 13, 14, 23, 24, 61, and 62*

Each of claims 2, 4–8, 10, 13, 14, and 23 depends from claim 1. Claim 24 depends from claim 23. Each of claims 61 and 62 depends from claim 60, which depends from claim 57. The deficiencies discussed above with regard to claim 1 carry through to claims 2, 4–8, 10, 13, 14, 23, and 24. Also, the deficiencies discussed above with regard to claim 57, in the context of alleged anticipation of claim 57 by Lau, carry through to claims 61 and 62 and are not cured by Petitioner’s application of XR-C5120 and XA-C30. Accordingly, Petitioner has not shown a reasonable likelihood that it would prevail in establishing unpatentability of any of claims 2, 4–8, 10, 13, 14, 23, 24, 61, and 62 as obvious over Lau, XR-C5120, and XA-C30.

G. *Alleged Obviousness of Claim 24 over Lau, XR-C5120, XA-C30, and KBT*

Claim 24 depends from claim 23, which depends from claim 1. The deficiencies of Petitioner’s assertions with respect to claim 1, as discussed above, are not cured by Petitioner’s application of KBT to the combined

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teachings of Lau, XR-C5120, and XA-C30. Petitioner has not shown a reasonable likelihood that it would prevail in establishing the unpatentability of claim 24 as obvious over Lau, XR-C5120, XA-C30, and KBT.

III. CONCLUSION

Petitioner has *not* demonstrated a reasonable likelihood that it would prevail in establishing the unpatentability of any of claims 1, 2, 4–8, 10, 13, 14, 23, 24, 44, 47, 57, 58, 60–65, 86, 88–92, 94, 97, and 98 of the '786 patent.

III. ORDER

It is

ORDERED that the Petition is *denied* and no *inter partes* review is instituted for any claim on any alleged ground of unpatentability.

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