

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CANON INC., CANON U.S.A., INC.,
CANON FINANCIAL SERVICES, INC., FUJIFILM CORPORATION,
FUJIFILM HOLDINGS AMERICA CORPORATION,
FUJIFILM NORTH AMERICA CORPORATION, JVC KENWOOD
CORPORATION, JVCKENWOOD USA CORPORATION,
NIKON CORPORATION, NIKON INC., OLYMPUS CORPORATION,
OLYMPUS AMERICA INC., PANASONIC CORPORATION,
PANASONIC CORPORATION OF NORTH AMERICA,
SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

PAPST LICENSING GMBH & CO. KG,
Patent Owner.

Case IPR2016-01199
Patent 8,966,144 B2

Before JONI Y. CHANG, JENNIFER S. BISK, and
MIRIAM L. QUINN, *Administrative Patent Judges*.

CHANG, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318 (a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Petitioner, listed above, filed a Petition requesting an *inter partes* review of claims 1–8, 10, 14–20, 22, 26, 28, 29, 38, 52, 56, 57, 59–65, 67, 71–74, 77–80, 84, 86, and 87 of U.S. Patent No. 8,966,144 B2 (Ex. 1003, “the ’144 patent”) and a Declaration of Paul Reynolds, Ph.D. (Ex. 1001). Paper 1 (“Pet.”). Patent Owner, Papst Licensing GmbH & Co., KG (“Patent Owner”), filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). We instituted the instant *inter partes* review as to claims 1–8, 10, 14–20, 22, 28, 29, 38, 52, 56, 57, 59–65, 67, 71–74, 77–80, 84, 86, and 87, but not with respect to claim 26. Paper 8 (“Dec.”).

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 12, “PO Resp.”) and a Declaration of Mr. Thomas Gafford (Ex. 2005). Petitioner filed a Reply. Paper 14 (“Reply”). A transcript of the oral hearing held on September 14, 2017, has been entered into the record as Paper 17 (“Tr.”).¹

This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). For the reasons that follow, Petitioner has demonstrated by a preponderance of the evidence that claims 1–8, 10, 14–20, 22, 28, 29, 38, 52, 56, 57, 59–65, 67, 71–74, 77–80, 84, 86, and 87 of the ’144 patent are unpatentable.

¹ This was a consolidated hearing with related cases IPR2016-01200, IPR2016-01213, and IPR2016-001214. *See* Tr. In addition, on September 13, 2017, we held hearings for several other related cases IPR2016-01211, IPR2016-01212, IPR2016-01216, and IPR2016-01225. Because of the overlap in issues in all the related cases, the transcripts for those hearings are also entered into the record in this case. Papers 18–19.

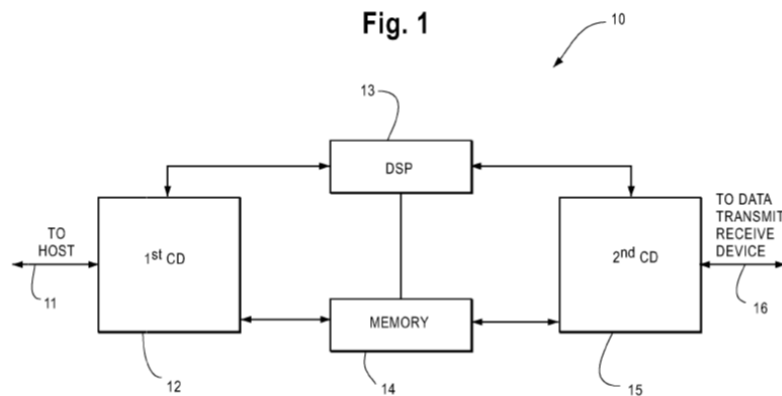
A. Related Matters

The parties indicate that the '144 patent is involved in *Papst Licensing GmbH & Co. KG v. Canon Inc.*, Case No. 1:15-cv-01692 (D.D.C.) and other proceedings. Pet. 4–6; Paper 5, 1–3. A final written decision in each of the following proceedings is entered concurrently with this decision: IPR2016-01212, IPR2016-01214, IPR2016-01216, and IPR2016-01225.

B. The '144 Patent

The '144 patent describes an interface device for communication between a computer host device and a data transmit/receive device (e.g., a multi-meter, transmitting measured data to a computer). Ex. 1003, 1:18–22, 1:54–57. According to the '144 patent, using a specific driver to match very closely to an individual host system would achieve high data transfer rates across the interface, but the specific driver cannot be used with other host systems. *Id.* at 2:4–19. Several solutions to this problem were known in the art. *Id.* at 2:20–3:25. For example, IOtech introduced an interface device for laptops, using a plug-in card for converting the personal computer memory card association (PCMCIA) interface into a known standard interface (IEEE 1284). *Id.* at 2:23–29. The plug-in card provided a printer interface for enhancing data transfer rates. *Id.* at 2:29–33. In another example, a floppy disk drive interface was used for connecting a host device to a peripheral device. *Id.* at 3:10–14. The interface appeared as a floppy disk drive to the host, allowing a floppy disk drive and another peripheral device to be connected to the host device. *Id.* at 3:17–19.

The '144 patent indicates that the “invention is based on the finding that both a high data transfer rate and host device-independent use can be achieved if a driver for an input/output device customary in a host device” is utilized. *Id.* at 3:33–37. Figure 1 of the '144 patent, reproduced below, illustrates a block diagram of an interface device.



As shown in Figure 1 above, interface device 10 connects to a host device via host line 11, and to a data transmit/receive device via output line 16. *Id.* at 4:62–5:10. Interface device 10 includes first connecting device 12, second connecting device 15, digital signal processor 13, and memory means 14. *Id.* In a preferred embodiment, the interface device is attached to a host device via a multi-purpose interface—e.g., a small computer systems interface (SCSI)—which includes both an interface card and the driver for the interface card. *Id.* at 3:51–57, 8:42–46. According to the '144 patent, SCSI interfaces were known to be present on most host devices or laptops. *Id.* at 8:42–46. By using a standard interface of a host device and by simulating an input/output device to the host device, the interface device “is automatically supported by all known host systems without any additional sophisticated driver software.” *Id.* at 11:38–44.

C. Illustrative Claim

Of the challenged claims, claims 1, 84, and 86 are independent. Claims 2–8, 10, 14–20, 22, 28–29, 38, 52, 56–57, 59–65, 67, 71–74, 77–80 depend ultimately from claim 1; claim 85 depends from claim 84; and claim 87 depends from claim 86. Claim 1 is illustrative:

1. An analog data generating and processing device (ADGPD), comprising:

an input/output (i/o) port;

a program memory;

a data storage memory;

a sensor designed to transmit data;

a *processor* operatively interfaced with the i/o port, the program memory, the data storage memory and the sensor;

wherein the processor is adapted to be involved in *a data generation process* by which the sensor generates analog data, the analog data is processed, and the processed analog data is stored in the data storage memory as at least one file of digitized analog data;

wherein the processor also is adapted to be involved in *an automatic recognition process* in which, when the i/o port is operatively interfaced with a *multi-purpose interface* of a computer, the processor executes at least one instruction set stored in the program memory and thereby causes at least one parameter which provides identification information regarding the ADGPD to be automatically sent through the i/o port and to the multi-purpose interface of the computer

(a) without requiring any end user to load any software onto the computer at any time,

(b) without requiring any end user to interact with the computer to set up a file system in the ADGPD at any time,

(c) before a time when the computer is able to receive the at least one file of digitized analog data from the data storage memory, and

(d) regardless of the identity of a manufacturer of the computer, wherein the at least one parameter is consistent with the ADGPD being responsive to commands issued from a *customary driver*;

wherein the processor is further adapted to be involved in *an automatic file transfer process* in which, when the i/o port is operatively interfaced with the multi-purpose interface of the computer, and after the at least one parameter has been received by the multi-purpose interface of the computer, the processor executes at least one other instruction set stored in the program memory and thereby causes the at least one file of digitized analog data to be transferred to the computer regardless of the identity of the manufacturer of the computer and without requiring any user-loaded file transfer enabling software to be loaded on or installed in the computer at any time.

Ex. 1003, 11:56–12:36 (emphases added).

D. Prior Art Relied Upon

Petitioner relies upon the references listed below.

Aytac US 5,758,081 May 26, 1998 (Ex. 1004)

Aytac's source code in U.S. Patent Application No. 08/569,846 (Ex. 1006, 77–527, "Aytac's source code").

AMERICAN NATIONAL STANDARDS INSTITUTE, INC., *American National Standard for Information Systems – Small Computer System Interface-2*, ANSI X3.131-1994 (1994) (Ex. 1005, "the SCSI Specification").²

² Citations to the SCSI Specification refer to the original page numbers.

Admitted Prior Art (*see, e.g.*, Ex. 1003, 3:37–46, 4:20–22, 5:11–14, 5:21–23, 5:37–47, 8:45–50, 10:26–33).

E. Instituted Ground of Unpatentability

We instituted this trial based on the sole ground that claims 1–8, 10, 14–20, 22, 28, 29, 38, 52, 56, 57, 59–65, 67, 71–74, 77–80, 84, 86, and 87 are unpatentable under § 103(a)³ as obvious over Aytac, in combination with the SCSI Specification and the Admitted Prior Art.⁴ Dec. 41.

II. DISCUSSION

A. Claim Construction

In an *inter partes* review, claim terms in an *unexpired* patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b). Under the broadest reasonable interpretation standard, claim terms generally are given their

³ Because the claims at issue have a filing date prior to March 16, 2013, the effective date of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), we apply the pre-AIA version of 35 U.S.C. § 103 in this Decision.

⁴ As noted in the Institution Decision (Dec. 7 n.3), although the Admitted Prior Art is relied upon in Petitioner’s analysis, the Admitted Prior Art is omitted inadvertently from the statement of the asserted ground. Pet. 70–72. Therefore, we treated the statement of the asserted ground as mere harmless error and presumed that Petitioner intended to assert that the challenged claims are unpatentable based, in part, on the Admitted Prior Art. Dec. 7, n.3.

ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Claims of an *expired* patent are given their ordinary and customary meaning similar to the construction standard applied by the U.S. district courts. *See Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc); *In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012); *see also Black & Decker, Inc. v. Positec USA, Inc.*, 646 F. App'x. 1019, 1024 (non-precedential) (applying the U.S. district court standard to construe the claims of an expired patent in an *inter partes* review). “In many cases, the claim construction will be the same under [both] standards.” *In re CSB-System Int’l, Inc.*, 832 F.3d 1335, 1341 (Fed. Cir. 2016).

Here, in the Decision on Institution, we applied the broadest reasonable interpretation standard, as is proper for unexpired patents, to construe several claim terms. Dec. 7–20. We note, however, that the ’144 patent claims, under 35 U.S.C. § 120, the benefit of the filing date of U.S. Patent No. 6,470,399 (“the ’399 patent”), through a chain of continuing applications. Ex. 1003, [60]. After institution of the instant proceeding, Patent Owner, in related cases, indicated that the ’399 patent will expire on March 3, 2018 (20 years from the ’399 patent’s March 3, 1998 filing date). *See, e.g.*, Case IPR2016-01839, Ex. 1001, [22]; Paper 14; Case IPR2017-00443, Paper 6, 7 n.1. In the Institution Decisions in those related cases involving the ’399 patent, we did not apply the broadest reasonable interpretation standard, instead adopting the claim constructions set forth in

In re Papst Licensing GmbH & Co. KG Litig. v. Fujifilm Corp., 778 F.3d 1255 (Fed. Cir. 2015) (Ex. 1011).⁵ See, e.g., Case IPR2017-00443, Papers 7–8.

In the instant proceeding, neither party provides, nor can we discern, any reason on which the broadest reasonable interpretation standard would lead to a different result than the district court claim construction standard. Indeed, in the Institution Decision, we adopted with modifications, as the broadest reasonable interpretation of several claim terms, the claim construction proposed by Patent Owner in the related district court litigation. Pet. 16–20; Ex. 1009; Dec. 7–20.

With a few exceptions, addressed below, both Petitioner and Patent Owner agree with our claim constructions set forth in the Institution Decision. PO Resp. 14–24; Reply 3–4. While Petitioner urges us not to adopt any new construction in the Final Decision, Patent Owner advances several modifications. PO Resp. 14–24. We address below each of Patent Owner’s proposed claim construction modifications in turn to the extent necessary to resolve the controversy regarding the patentability of the challenged claims. See *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary

⁵ The ’144 patent and the ’399 patent share the same Specification and some of the same claim terms are used in both patents (e.g., interface device). Our interpretations herein are consistent with the Federal Circuit’s decision.

to resolve the controversy’’) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

1. “*analog data generating and processing device*”

The claim term “analog data generating and processing device” or “ADGPD” appears in each independent claim of the ’144 patent. Ex. 1003, 11:57–58, 16:11–12, 17:25–26. In the Institution Decision (Dec. 8–9), we noted that, apart from the title and claims, the Specification does not use the term “analog data generating and processing device.” *See generally* Ex. 1003. Rather, the Specification focuses on an interface device for communication between a host device and a data transmit/receive device. *See, e.g., id.* at Abstract., 1:18–22, 3:29–32, Figs. 1, 2. We further noted that claims 1 and 2 define an “analog data generating and processing device” as an interface device having, at least, a sensor. In that light, we construed the claim term “analog data generating and processing device” or “ADGPD” to *encompass* “an interface device having a sensor.” Dec. 8–9. After institution, Patent Owner objects to this construction “[i]f intended to be a full construction.” PO Resp. 14. This construction is intended to provide an example of what the phrase *encompasses* as necessary for the analysis below. *See Nidec Motor*, 868 F.3d at 1017. We discern no reason to modify the construction. Therefore, for purposes of this Final Written Decision, we maintain our construction for the term “analog data generating and processing device.”

2. “sensor”

Each independent claim recites “a sensor designed to transmit data.” *See, e.g.*, Ex. 1003, 11:62. Claim 17, which depends directly from claim 1, requires the “sensor” to comprise a “data transmit/receive device.” *Id.* at 13:7–8. In the Institution Decision (Dec. 9), we noted that, apart from the claims, the term “sensor” does not appear in the Specification of the ’144 patent. Rather, as noted above, the Specification focuses on an interface device for communication between a host device and a *data transmit/receive device*. Ex. 1003, 1:18–22, 3:29–32, 6:11–13, Figs. 1, 2. In that light, we construed a “sensor” to encompass a “data transmit/receive device”—a device that is capable of transmitting and/or receiving data. Dec. 9. After institution, both parties indicate that they agree with this claim construction. PO Resp. 15; Reply 3–4. We discern no reason to modify the construction and, therefore, we maintain our construction as to the term “sensor.”

3. “multi-purpose interface”

Each independent claim recites “the i/o port is operatively interfaced with a multi-purpose interface of a computer.” *See, e.g.*, Ex. 1003, 12:5–7. The Specification of the ’144 patent describes “the interface device according to the present invention is to be attached to a host device by means of a *multi-purpose interface* of the host device which can be implemented, for example, as a *small computer systems interface (SCSI) interface* or as an enhanced printer interface.” *Id.* at 3:51–56 (emphases added). The Specification also indicates that SCSI interfaces are present on most host devices or laptops. *Id.* at 8:45–46. Petitioner’s Declarant, Paul F.

Reynolds, Ph.D., testifies that SCSI is “a standard for attaching a range of peripheral device types to computers,” and “SCSI is designed to be multi-purpose: to both support a variety of devices and to operate with a variety of operating systems.” Ex. 1001 ¶ 46.

In light of the Specification and the evidence before us regarding the general knowledge of an ordinarily skilled artisan, we construed a “multi-purpose interface” to *encompass* a “SCSI interface” in the Institution Decision. Dec. 9–10. Patent Owner appears to object to this construction insofar as a multi-purpose interface is *limited to* a SCSI interface. PO Resp. 16. This construction is intended to provide an example of what the term *encompasses* as necessary for the analysis below. *See Nidec Motor*, 868 F.3d at 1017. We discern no reason to modify the construction. Therefore, for purposes of this Final Written Decision, we maintain our construction for the term “multi-purpose interface.”

4. “customary driver”

The claim term “customary driver” appears in each independent claim. Ex. 1003, 12:22–23, 17:10, 18:24. For instance, claim 1 recites “the at least one parameter is consistent with the ADGPD being responsive to commands issued from *a customary driver*.” *Id.* at 12:20–23 (emphasis added). Claim 29, which depends directly from claim 1, further recites “wherein the at least one parameter is consistent with the ADGPD being responsive to *a SCSI inquiry command*.” *Id.* at 13:38–40 (emphasis added).

The Specification of the ’144 patent indicates that “both a high data transfer rate and host device-independent use can be achieved if a *driver* for

an input/output device *customary* in a host device, *normally present in most commercially available host devices*, is utilized.” Ex. 1003, 3:33–37 (emphases added). The Specification further explains that “[d]rivers for input/output devices *customary* in a host device which are *found in practically all host devices* are, for example, *drivers for hard disks, for graphics devices or for printer devices*.” *Id.* at 3:37–40 (emphases added). The Specification also indicates that SCSI interfaces are present on most host devices or laptops, and SCSI drivers are “normally included by the manufacturer of the multi-purpose interface.” *Id.* at 8:45–46, 10:23–33.

In light of the Specification, we construed, in the Institution Decision, a “customary driver” to encompass “a driver normally present in a commercially available computer system (e.g., a hard disk driver or a SCSI driver).” Dec. 10–12. After Institution, Patent Owner maintains that “customary driver” means “a set of software routines normally part of commercially available computer systems,” but does not point to any additional evidence to support this position. PO Resp. 16–17. We discern no reason to modify the construction and, therefore, we maintain our claim construction as to the term “customary driver.”

5. “*the processor adapted to be involved in a data generation process*”

Each independent claim recites “the processor is adapted to be involved in a data generation process by which the sensor generates analog data, the analog data is processed, and the processed analog data is stored in the data storage memory as at least one file of digitized analog data.” *See, e.g.,* Ex. 1003, 11:66–12:3. In the Institution Decision, we determined that

the claimed sensor can be operatively interfaced with the processor of the interface device *locally or remotely*, declining to adopt Patent Owner’s implicit claim construction that requires the sensor to be connected with the processor *locally* (Prelim. Resp. 50–51). Dec. 12–13. Neither party challenges our determinations. PO Resp. 17; Reply 3–4. For this Final Decision, we maintain our determination in the Institution Decision. Dec. 12–13. We need not further construe this phrase to resolve the issues before us. *See Nidec Motor*, 868 F.3d at 1017.

6. “*automatic recognition process*”

Each independent claim requires the processor to be adapted to be involved in an “automatic recognition process,” sending “identification information regarding the ADGPD” to the multi-purpose interface of the computer. *See, e.g.*, Ex. 1003, 12:4–36. In the Institution Decision (Dec. 13–14), we noted that the word “automatic” normally does not exclude all possible human intervention. *See WhitServe, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 19 (Fed. Cir. 2012); *CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1235 (Fed. Cir. 2005). According to the Specification of the ’144 patent, the communication between the host system and the interface device “is based on known standard access commands as supported by all known operating systems (e.g., DOS®, Window®, Unix®).” Ex. 1003, 5:11–14. When the host system is connected to the interface device and is booted, “usual BIOS routines or multi-purpose interface programs issue an instruction, known by those skilled in the art as the INQUIRY instruction.” *Id.* at 5:17–23. In response to the INQUIRY

instruction, the interface device sends a signal to the host system, *identifying a connected hard disk drive*. *Id.* at 5:24–30. In light of the Specification, we adopted the parties’ proposed construction, construing an “automatic recognition process” as “a process by which the computer recognizes the ADGPD upon connection with the computer without requiring any user intervention other than to start the process.” Both parties agree with this claim construction. PO Resp. 17; Reply 3–4. For this Final Decision, we maintain our claim construction as to “automatic recognition process.”

7. “*automatic file transfer process*”

Each independent claim requires the processor to be adapted to be involved in an “automatic file transfer process,” sending a digitized analog data file to the computer. *See, e.g.*, Ex. 1003, 12:24–36. The Specification describes that a user interacts with the host computer to request transfer of the digitized analog data, and the transfer occurs automatically after the request is made. Ex. 1003, 6:2–5 (“If the user now wishes to read data from the data transmit/receive device via the line 16, the host device sends a command, for example ‘read file xy,’ to the interface device.”). In the Institution Decision (Dec. 14–15), we construed an “automatic file transfer process” to encompass a file transfer process that allows user intervention to initiate the process or make a transfer request. *See WhitServe*, 694 F.3d at 19; *CollegeNet*, 418 F.3d at 1235. Neither party challenges this claim construction. PO Resp. 14–24; Reply 3–4. For this Final Decision, we maintain our claim construction for “automatic file transfer process.”

8. “*without requiring*”

Each independent claim recites an apparatus with several negative limitations. For instance, claim 1 requires the automatic recognition process to occur “*without requiring* any end user to load any software onto the computer at any time,” and requires the automatic file transfer process to occur “*without requiring* any user-loaded file transfer enabling software to be loaded on or installed in the computer at any time.” Ex. 1003, 12:4–36 (emphases added).

In this regard, the parties initially agreed to adopt the construction proposed by Patent Owner in the related district court proceeding—“without requiring the *end user* to install or load specific drivers or software for the . . . ADGPD . . . *beyond that included in the operating system or BIOS.*” Prelim. Resp. 21; Pet. 17–18 (citing Ex. 1009) (emphasis added). Patent Owner’s proposed claim construction was intended to clarify the aforementioned “without requiring” limitations so that they would not be read out of context with the rest of the claim language. Ex. 1009, 42.

However, in light of the Specification, we noted that Patent Owner’s construction improperly excludes *SCSI drivers and drivers for multi-purpose interfaces*, which do not necessarily reside in the operating system or BIOS. Dec. 15–16. In our Institution Decision, we construed the “without requiring” limitations as “without requiring the *end user* to install or load specific drivers or software for the ADGPD beyond that included in the operating system, BIOS, *or drivers for a multi-purpose interface or SCSI*

interface,” adding “drivers for a multi-purpose interface or SCSI interface” to Patent Owner’s proposed construction. *Id.* (emphases added).

After institution, Petitioner agrees with our claim construction and urges us not to adopt a new construction. Reply 3–4. Nevertheless, Patent Owner disagrees with our claim construction, arguing that “a driver for a multi-purpose interface or SCSI interface that must be installed by a user would be inconsistent with these limitations.” PO Resp. 18 (citing Ex. 2005 ¶ 48). However, Patent Owner’s argument and Dr. Gafford’s testimony (Ex. 2005 ¶ 48) are not consistent with the Specification. As our reviewing court has explained, the correct inquiry “is an interpretation that corresponds with what and how the inventor describes his invention in the specification.” *In re Smith Int’l, Inc.*, 871 F.3d 1375, 1382–83 (Fed. Cir. 2017).

Notably, the Specification indicates that, at the time of the invention, multi-purpose interfaces can be, *but are not necessarily*, integrated into the BIOS system. Ex. 1003, 3:59–4:1. The Specification also makes clear that

communication between the host device and the multi-purpose interface can take place *not only* via drivers for input/output device customary in a host device which reside in the BIOS system of the host device *but also via specific interface drivers* which, in the case of SCSI interfaces, are known as *multi-purpose interface ASPI (advanced SCSI programming interface) drivers*.

Id. at 10:23–29 (emphases added). Interpreting the “without requiring” limitations to exclude the drivers for a multi-purpose interface would be unreasonable when the very same claim, claim 1, also requires a multi-purpose interface. *Id.* at 12:6–7. Claim 29, which depends from claim

1, also requires a SCSI driver to issue a SCSI INQUIRY command. *Id.* at 13:38–40. *Id.* at 13:38–40. As described in the Specification, the SCSI driver or the driver for the multi-purpose interface enables the automatic recognition process and automatic file transfer process, regardless of whether the SCSI driver is installed by the manufacturer or user. *Id.* at 3:51–56, 5:17–33, 11:14–23. Therefore, Patent Owner’s proposed construction would be inconsistent with the Specification and those claims.

More importantly, the issue in dispute centers on whether the “without requiring” limitations *prohibit* an end user from installing or loading other drivers. In that regard, we are guided by the Federal Circuit’s analysis in *Celsis In Vitro v. CellzDirect, Inc.*, 664 F.3d 922, 926–27 (Fed. Cir. 2012), concerning a claim reciting “without requiring,” which is similar to the language we have here. In that decision, our reviewing court stated: “‘without requiring’ means simply that the claim does not require the [recited] step,” and “performance of that step does not preclude a finding of infringement.” *Id.* Here too, the claim language is not as restrictive as Patent Owner argues. The claim language, under a plain reading, means that the end user is “not required” to load or install the recited software for transferring a file or recognizing a device. The claim language, however, *does not prohibit* the end user from ever installing or loading the recited software. The key word in the claim language is “requiring”—if the software is not required, then it does not matter whether the end user loaded or installed the software.

In addition, Patent Owner relies on a proposed claim construction for the term “end user,” which we determine is incorrect. PO Resp. 17–24. For the reasons stated below in our analysis concerning the term “end user,” we do not agree that the term “end user” includes the “system administrator” and “all persons intended to use a computer.”

In view of the foregoing reasons, we maintain our claim construction, interpreting the “without requiring” limitations as “without requiring the *end user* to install or load specific drivers or software for the ADGPD beyond that included in the operating system, BIOS, *or drivers for a multi-purpose interface or SCSI interface.*”

9. “end user”

Each of the independent claims recites “without requiring any *end user* to load any software onto the computer at any time,” and “without requiring any *end user* to interact with the computer to set up a file system in the ADGPD at any time.” *See, e.g.,* Ex. 1003, 12:4–23 (emphasis added).

In the Institution Decision (Dec. 17–18), we gave the claim term “end user” its ordinary and customary meaning—“[t]he ultimate user of a computer or computer application in its finished, marketable form”—citing two dictionary definitions. Dec. 18; *see also* MICROSOFT COMPUTER DICTIONARY at 176 (3rd ed. 1997) (Ex. 3001, 3) (defining “end user” as “[t]he ultimate user of a computer or computer application in its finished, marketable form”); BARRON’S DICTIONARY OF COMPUTER AND INTERNET TERMS at 158 (6th ed. 1998) (defining “end user” as “the person ultimately intended to use a product, as opposed to people involved in developing or

marketing it”), 453 (defining “system administrator” as “a person who manages a multiuser computer”) (Ex. 3002, 3). We rejected Patent Owner’s argument that the claim term “end user” should not be limited to “actual end user,” but instead should include a “system administrator” who sets up a computer for another or “a technically competent individual who understood how to install device drivers.” Prelim. Resp. 24–26.

After institution, Patent Owner does not dispute that “both the Board’s cited definitions are consistent with the ordinary meaning of end user as it is used in the ’144 patent,” but maintains that “end user” requires no construction. PO Resp. 18. Nonetheless, Patent Owner argues that the term “end user” “encompasses a system administrator, as well as ‘a technically competent individual who understands how to install device drivers,’ who are *all persons intended to use a computer*.” *Id.* at 18–19 (emphasis added).

Patent Owner’s proposed claim construction again broadly includes *anyone* that intended to use a computer. For example, Dr. Reynolds testifies, “[a] technically competent individual who understood how to install device drivers in my opinion was *not necessarily an end user*.” Ex. 2006, 85:21–23, 86:16–17 (emphasis added). We agree with Dr. Reynolds that a system administrator can be, *but is not necessarily*, an end user. *Id.* at 87:12–18. Therefore, the plain meaning of “end user” is a type of user, but it does not encompass *all users*.

Moreover, Patent Owner’s proposed construction would essentially redefine the claim term “end user” as “user,” rendering the word “end” insignificant, if not wholly superfluous. “[C]laims are interpreted with an

eye toward giving effect to all terms in the claim.” *Stumbo v. Eastman Outdoors, Inc.*, 508 F.3d 1358, 1362 (Fed. Cir. 2007) (denouncing claim constructions which render terms or phrases in claims superfluous).

More importantly, Patent Owner does not identify any language in the Specification or the prosecution history that redefines the claim term “end user” to necessarily include system administrators or “all persons intended to use a computer.” There is a “heavy presumption” that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted). To overcome this presumption, the patentee must “clearly set forth” and “clearly redefine” a claim term away from its ordinary meaning. *Bell Atlantic Network Servs., Inc. v. Covad Commc’ns Grp., Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001). The disavowal must be “unmistakable” and “unambiguous.” *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1322 (Fed. Cir. 2012). Here, the portion of the prosecution history cited by Patent Owner does not even mention the term “system administrator” much less include unmistakable and unambiguous language redefining the claim term “end user” to include a “system administrator.” Ex. 1007, 783, 785–801.

We are not persuaded by Patent Owner’s arguments that the patentee of the ’144 patent intended to use “user” and “end user” interchangeably. PO Resp. 20–24. The purported examples cited by Patent Owner to support its arguments are merely examples where the patentee was using the term “user” as a *short hand* for “end user.” *Id.* Notably, in support of Patent Owner’s claim construction brief submitted at the district court, Dr. Zeidman

testified that an ordinarily skilled artisan would have understood the “without requiring any end user to load software” limitations—“without requiring any *end user* to load any software onto the computer at any time,” “without requiring any *user-loaded* file transfer enabling software to be loaded,” and “there is no requirement for any *user-loaded* file transfer enabling software to be loaded”—to mean “without requiring the *end user* to install or load specific drivers or software” Ex. 1009, 75, ¶¶ 93–94 (emphases added). In fact, Patent Owner expressly stated in its district court claim construction brief that these limitations “capture one of the central concepts of the new patents [including the ’144 patent]—that an *end user* need not install or load any software onto the computer or host device in order to connect to the interface device.” *Id.* at 42 (emphasis added).

For the foregoing reasons, we decline to adopt Patent Owner’s proposed claim construction. PO Resp. 18–19. Rather, we maintain our construction, giving the claim term “end user” its ordinary and customary meaning—“[t]he ultimate user of a computer or computer application in its finished, marketable form.” Ex. 3001, 3.

10. “a first computer” and “a second computer that is manufactured by a company other than the company that manufactured the first computer”

Claim 86 requires an automatic recognition process and an automatic transfer process to occur for a “first computer” and a “second computer that is manufactured by a company other than the company that manufactured the first computer.” Ex. 1003, 17:41–18:18. In the Institution Decision, we adopted Patent Owner’s proposed claim construction, interpreting these

limitations of claim 86 to refer to, respectively, a first computer and a second computer “regardless of the identity of a manufacturer of the computer.” Dec. 19–20; Prelim. Resp. 48–49. After institution, both parties agree with our claim construction. PO Resp. 24; Reply 3–4. Therefore, for this Final Written Decision, we maintain our claim construction for these limitations of claim 86.

B. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). 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.⁶ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966)

C. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art;

⁶ Neither party proffers any objective evidence of nonobviousness in this proceeding.

prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). As noted in our Institution Decision (Dec. 20–21), Dr. Reynolds testifies that a person having ordinary skill in the art at the time of the invention “would have had at least a four-year degree from a reputable university in electrical engineering, computer science, or related field of study, or equivalent experience, and at least two [years of] experience in studying or developing computer interfaces or peripherals.” Ex. 1001 ¶ 39. Dr. Reynolds further testifies that such an artisan also would “be familiar with operating systems (e.g., MS-DOS, Windows, Unix) and their associated file systems (e.g., a FAT file system), device drivers for computer components and peripherals (e.g., mass storage device drivers), and communication interfaces (e.g., SCSI and PCMCIA interfaces).” *Id.*

Patent Owner confirms that Petitioner’s statements regarding the level of ordinary skill in the art are mostly consistent with Patent Owner’s view, but nonetheless contends that an ordinarily skilled artisan would have one more year of experience, or, alternatively, five or more years of experience without a bachelor’s degree. Prelim. Resp. 21; PO Resp. 13–14; Ex. 2005 ¶ 17. Patent Owner presents no argument as to why Petitioner’s proposal is erroneous or why Patent Owner’s proposal is more appropriate for this proceeding. More importantly, no argument presented hinges on whether either party’s proposed level of ordinary skill in the art is adopted.

We find Dr. Reynolds' testimony persuasive as it presents more than just the educational level of a person of ordinary skill in the art. Petitioner's proposal is more helpful as it identifies the familiar objects of the technology used by a person of ordinary skill at the time of the invention: operating systems (e.g., MS-DOS, Windows, Unix) and their associated file systems (e.g., a FAT file system), device drivers for computer components and peripherals (e.g., mass storage device drivers), and communication interfaces (e.g., SCSI and PCMCIA interfaces). Ex. 1001 ¶ 39. We therefore determine that Petitioner's level of ordinary skill in the art is appropriate. We further note that the prior art in the instant proceeding reflects the level of ordinary skill in the art at the time of the invention. See *Okajima v. Bourdeau*, 261 F.3d 1350, 1354–55 (Fed. Cir. 2001).

D. Obviousness over Aytac in view of the SCSI Specification and Admitted Prior Art

Petitioner asserts that claims 1–8, 10, 14–20, 22, 28, 29, 38, 52, 56, 57, 59–65, 67, 71–74, 77–80, 84, 86, and 87 are unpatentable under § 103(a) as obvious over Aytac, in combination with the SCSI Specification and Admitted Prior Art, which supply additional details about the SCSI standard not made explicit in Aytac. Pet. 23–90. Petitioner explains how the combination of the prior art references teaches or suggests the claimed subject matter, and proffers articulated reasoning as to why a person of ordinary skill in the art would have combined the prior art teachings in the manner asserted, citing to Dr. Reynolds's Declaration for support. *Id.* (citing Ex. 1001). Notably, Petitioner notes that Aytac describes its preferred

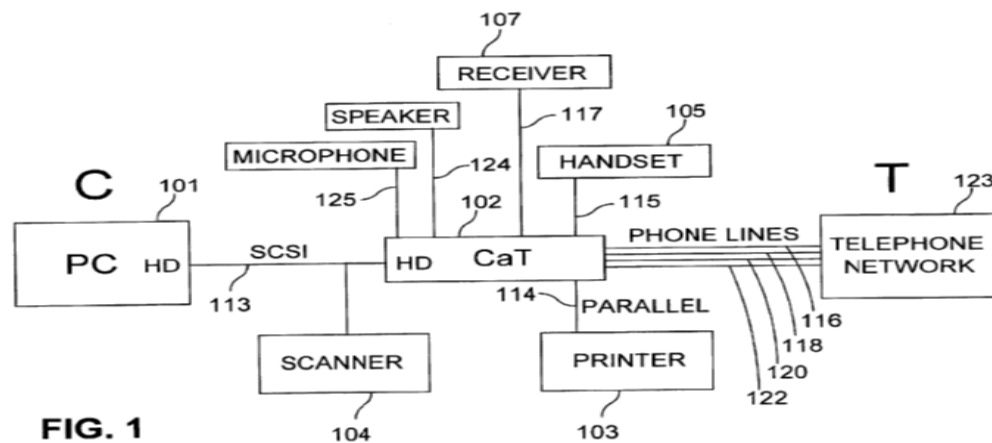
embodiment as emulating a SCSI disk and expressly references the SCSI Specification. *Id.* at 24–25 (citing Ex. 1004, 4:50–53).

Patent Owner does not challenge Petitioner’s reasons to combine the prior art teachings, but nevertheless argues that Petitioner fails to show the prior art combination discloses certain claim limitations. PO Resp. 24–46.

Upon consideration of the parties’ contentions and supporting evidence, we determine that Petitioner has demonstrated by a preponderance of the evidence that Aytac, in combination with the SCSI Specification and Admitted Prior Art, renders obvious the challenged claims. In our discussion below, we begin with a brief overview of the prior art, and then we address the parties’ contentions in turn, focusing on the disputed claim limitations.

Overview of Aytac

Aytac discloses an interface device (CaTbox) that is connected to a host PC and a plurality of peripheral devices. Ex. 1004, Abs. Figure 1 of Aytac is reproduced below.



As illustrated in Figure 1 of Aytac, CaTbox 102 connects to host PC 101 via SCSI bus 113 and telephone network 123 via phone lines 116, 118, 120, 122. *Id.* at 8:63–9:4. CaTBox 102 is an interface device between host PC 101 and peripheral devices, including printer 103, scanner 104, telephone handset 105, receiver 107, speaker 124, and microphone 125. *Id.* According to Aytac, CaTbox runs an operating system, CaTOS, and contains a hard disk accessible to the PC, as a SCSI disk called CaTdisc. *Id.* at Abs. CaTbox receives faxes, voice mails, emails, and stored them on CaTdisc. *Id.*

Overview of the SCSI Specification

The SCSI Specification is a technical specification published by the American National Standard for Information Systems to set forth the SCSI standards. According to the SCSI Specification, the SCSI protocol “is designed to provide an efficient peer-to-peer I/O bus with up to 16 devices, including one or more hosts.” Ex. 1005, Abs. The primary objective of the SCSI interface is “to provide host computers with device independence within a class of devices.” *Id.* at 6. The SCSI-2 “standard defines an input/output bus for interconnecting computers and peripheral devices.” *Id.* at 1. “It includes the necessary specification of the mechanical, electrical, and functional characteristics of the interface to allow interoperability of conforming devices.” *Id.* “SCSI-2 includes command sets for magnetic and optical disks, tapes, printers, processors, CD-ROMs, scanners, medium changers, and communications devices.” *Id.* at Abs. “The command set definitions allow a sophisticated operating system to obtain all required initialization information from the attached SCSI-2 devices.” *Id.* at 6

Overview of the Admitted Prior Art

As we noted in the Institution Decision (Dec. 24), the '144 patent describes drivers for hard disks were known to be customary drivers “in practically all host devices.” Ex. 1003, 3:37–46, 4:20–22. The '144 patent indicates that SCSI interfaces and SCSI drivers were known in the art at the time of the invention. *Id.* at 8:45–50, 10:26–29. According to the '144 patent, SCSI interfaces were present on most host devices or laptops, and SCSI drivers were “normally included by the manufacturer of the multi-purpose interface.” *Id.* at 8:45–46, 10:27–33. Moreover, certain standard access commands, including the SCSI INQUIRY command, were “supported by all known operating systems (e.g., DOS®, Windows®, Unix®).” *Id.* at 5:11–14, 5:21–23, 5:37–47. The '144 patent further discloses that it was known to those skilled in the art that a virtual boot sequence includes “the drive type, the starting position and the length of the file allocation table (FAT), [and] the number of sectors.” *Id.* at 5:43–47.

Patent Owner argues in its Response that some of the statements Petitioner relies on are not admissions of prior art. PO Resp. 12. Patent Owner particularly refers to the portion of the Specification that describes sending a virtual boot sequence, at column 5, lines 37–47 (Ex. 1003). *Id.* Patent Owner’s argument is conclusory. That portion of the Specification describes “sending to the host device a virtual boot sequence which, in the case of actual drives, includes the drive type, the starting position and the length of the file allocation table (FAT), the number of sectors, etc., *known to those skilled in the art.*” Ex. 1003, 5:37–47 (emphasis added). This

statement unequivocally conveys that applicant deemed known that the virtual boot sequence of a hard drive, when sent, includes various pieces of information such as the drive type, the starting position and the length of the FAT, and the number of sectors. At a minimum, we infer that the applicant admits a person of skill in the art would have known this information at the time of the invention. Such statement is therefore an admission by applicant that the knowledge was in the prior art.

Moreover, the Specification also indicates that “[c]ommunication between the host system or host device and the interface device is based on *known standard access commands as supported by all known operating systems (e.g., DOS®, Windows®, [and] Unix®).*” Ex. 1003, 5:11–14 (emphasis added). The ’144 patent further indicates that “[t]hose skilled in the art know that communication between a processor and a hard disk consists of the processor transferring to the hard disk the numbers of the blocks or clusters or sectors whose contents it wishes to read,” and “[b]y reference to the FAT, the processor knows which information is contained in which block.” *Id.* at 6:20–25.

In view of the ’144 patent, we are not persuaded by Patent Owner’s argument that the statement regarding *sending* of a virtual boot sequence is not an admission of prior art. In any event, we do not rely on this admission in our obviousness analysis below.

Whether Aytac’s source code is available as prior art

Petitioner asserts that Aytac’s source code (Ex. 1006, 77–527) was filed on paper, as part of the original disclosure of the application that issued

as Aytac's patent. Pet. 14–15. Petitioner acknowledges that the Office did not print the source code as part of Aytac's patent, but nevertheless argues that Aytac's source code qualifies as prior art under § 102(e). *Id.*

As noted in the Institution Decision (Dec. 24–26), we agreed with Patent Owner that Aytac's source code is not prior art under § 102(e) as to the challenged claims because it was not published with Aytac's patent and Aytac's patent does not contain a reference to the source code. Prelim. Resp. 37–41. We also found that Aytac's source code is not prior art under § 102(a) or § 102(b) as to the claims at issue.

After institution, Petitioner disagrees with our determination that Aytac's source code is not prior art, but indicates that “the source code merely supplements the Aytac patent's disclosure and is not necessary to any argument.” Reply 10 n.3. Petitioner's disagreement is conclusory and provides no reason sufficient for us to reconsider our determination. *Id.*

Petitioner concedes that the Aytac's patent was not printed with the source code, and proffers no evidence to indicate otherwise. Pet. 14–15. Petitioner does not identify any reference in Aytac's patent itself to the source code. *Id.* Nor does Petitioner proffer any evidence to show that a certificate of correction has ever been issued to have the source code properly added to Aytac's patent. *Id.*

We maintain that Aytac's source code is not considered part of the patent disclosure. *See Southwest Software, Inc. v. Harlequin, Inc.*, 226 F.3d 1280, 1291 (Fed. Cir. 2000) (the source code that was filed with the application could not be considered as part of the patent disclosure because

the patent was not printed with the source code and the certificate of correction adding the source code to the patent did not issue prior to the filing of the lawsuit). Therefore, Petitioner has not established sufficiently that Aytac's source code is prior art under § 102(e) as to the challenged claims.

Furthermore, even if the source code were a printed publication as of *May 26, 1998*, the issued date of Aytac's patent, when the file record of Aytac's patent became publicly available, Aytac's source code still would not be prior art under § 102(a) or § 102(b) as to the '144 patent, which appears to have an effective filing date of *March 3, 1998*. On its face, the '144 patent claims under 35 U.S.C. §§ 120 and 365(c), through a series of continuation and division applications, the benefit of the filing date (March 3, 1998) of International Application No. PCT/EP98/01187 that entered the national stage (U.S. Patent Application No. 09/331,002) after compliance with 35 U.S.C. 371. Ex. 1003, at [60], [30]; Ex. 3003, at [21], [22], [86]. Accordingly, Petitioner has not established sufficiently that Aytac's source code is available as prior art under § 102(a) or § 102(b) as to the challenged claims.

Although Aytac's source code does not qualify as prior art, Aytac's source code may be relied upon to show the level of ordinary skill in the art at or around the time the invention was made. *Thomas and Betts Corp. v. Litton Sys., Inc.*, 720 F.2d 1572, 1581 (Fed. Cir. 1983) (noting that references "though not technically prior art, were, in effect, properly used as indicators of the level of the ordinary skill in the art to which the invention

pertained”). As discussed above, Aytac’s source code was publicly available as of May 26, 1998 (less than three months after the effective filing date of the challenged claims), when Aytac’s patent was issued and the file record of Aytac’s patent that includes the source code was available to the public. *See In re Wyer*, 655 F.2d 211, 226–27 (CCPA 1981) (concluding that when the specification is not issued in printed form but is announced in an official journal and anyone can inspect or obtain copies, it is sufficiently accessible to the public to constitute a “printed publication”). Moreover, Aytac’s source code is an implementation of the invention that is described in the specification of Aytac’s patent. *See generally* Ex. 1004. Therefore, Aytac’s source code may be relied upon to show the level of ordinary skill in the art at or around the time the invention was made.

Claims 1, 2, 28, 64, 65, 84, 86, and 87

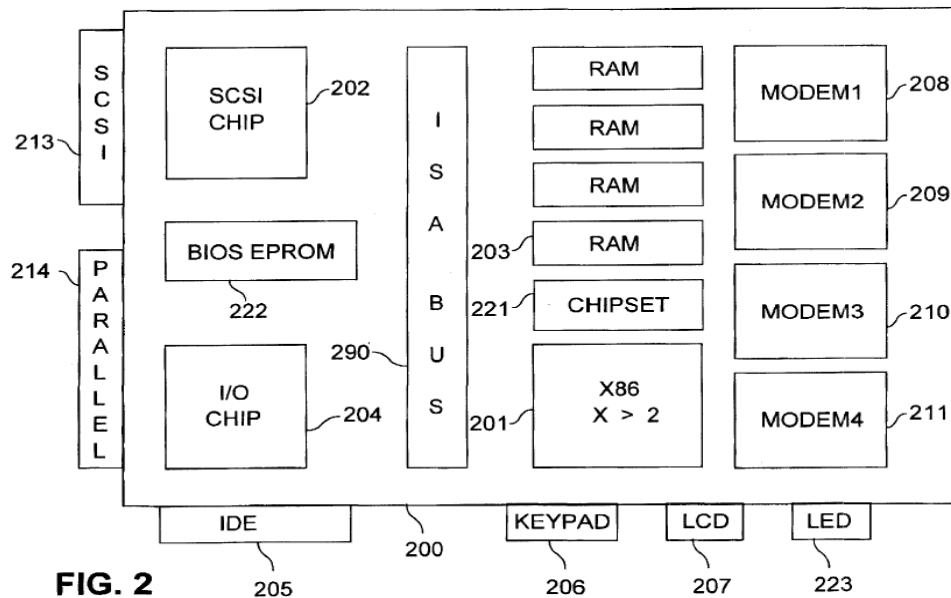
An analog data generating and processing device

Claims 1 and 2 require an “analog data generating and processing device” having an *interface device*—which includes an input/output (i/o) port, a program memory, a data storage memory, and a processor—and a *sensor*. Ex. 1003, 11:57–65. Claims 84 and 86 also require a similar limitation. *Id.* at 16:11–19, 17:25–33.

Petitioner asserts that Aytac, in combination with the SCSI Specification and the Admitted Prior Art, teaches or suggests this claim limitation. Pet. 26–31, 37–46. In particular, Petitioner takes the position that Aytac’s CaTbox (an interface device) and the microphone, one of its

peripheral devices, jointly form an “analog data generating and processing device.” *Id.* at 27, 37–38.

Petitioner cites to Figure 2 of Aytac, which illustrates a block diagram of the CaTbox motherboard and is reproduced below (Pet. 38–46).



As shown by Figure 2 above, CaTbox 102 includes SCSI protocol chip 202 connected to SCSI connector 213 for transferring data to and from an external host computer. Ex. 1004, 9:5–15. SCSI protocol chip 202 and SCSI connector 213 comprises an input/output port. *Id.* CaTbox 102 also includes program memories (RAM memories 203, BIOS EPROM 222, and CaTdisc 301) and data storage memories (CaTdisc 301 and buffer memories within the modems). *Id.* at 9:10–22, 10:14–37, 11:58–64, 12:13–39, Fig. 5. CaTbox 102 further includes X86 processor 201 and associated chipset 221, which operatively interfaced with the i/o port, the program memory, the data storage memory and the sensor. *Id.* at 9:5–15.

Petitioner explains that the CaTbox receives inputs transmitted from the analog peripheral devices, (e.g., the microphone). Pet. 27, 37–38, 42–43. According to Petitioner, analog data inputted from the scanner and microphone are digitized and processed by the CaTbox. *Id.* at 27, 37; Ex. 1001 ¶¶ 41, 42. Petitioner further indicates that the CaTbox communicates with the host computer over a SCSI interface, via SCSI bus on behalf of the peripheral devices. Pet. 43.

Based on the evidence before us, we are persuaded by Petitioner’s showing that Aytac’s CaTbox along with the microphone jointly form an “analog data generating and processing device.” Patent Owner does not proffer separate, specific arguments as to Petitioner’s contentions regarding the aforementioned limitation. In view of the foregoing, we determine that Petitioner has established by a preponderance of the evidence that Aytac, in combination with the SCSI Specification and Admitted Prior Art, teaches or suggests an “analog data generating and processing device” having an interface device and sensors, as required by claims 1, 2, 84, and 86.

Data generation process

Claim 1 recites “wherein the processor is adapted to be involved in a data generation process by which the sensor generates analog data, the analog data is processed, and the processed analog data is stored in the data storage memory as at least one file of digitized analog data.” Ex. 1003, 11:66–12:3. Claims 84 and 86 also recite a similar limitation. *Id.* at 16:20–24, 17:34–38. Claims 64 and 65, each of which depends from claim 1, further recite, “the processor is adapted to be employed in the data

generation process,” and “the processor is adapted to be directly involved in all aspects of the data generation process,” respectively. *Id.* at 15:22–26.

Petitioner asserts that the processor of Aytac’s CaTbox is directly involved in all aspects of the data generation process. Pet. 87. For example, Petitioner points out that the microphone connected to the CaTbox utilize a sensor to generate analog data, and the processor of the CaTbox stores the data on the CaTdisc as digitized analog data files by using the MS-DOS file management software. *Id.* at 47–49 (citing Ex. 1001 ¶ 82–84; Ex. 1004, Table 1, Fig. 1).

Patent Owner counters that Petitioner has not shown that the CaTbox processor is directly involved in all aspects of the data generation process—the sensor generates analog data, the analog data is processed, and the processed analog data is stored in the data storage memory as at least one file of digitized analog data. PO Resp. 45–46.

However, as Patent Owner acknowledges (*id.* at 28), Aytac describes that the CaTbox is “the open, programmable, *single site for processing* for the answering machine, fax machine, copier, and telephone,” and its “invention takes out the processing core from each one of these gadgets and gives the tasks to *a single central processing unit* that is the CaTbox.” Ex. 1004, 5:9–13 (emphases added). Furthermore, Petitioner identifies at least one CaTbox feature to support its contentions. Pet. 47–48. For example, Petitioner points to Aytac’s microphone 125 that “generates analog

audio signals and transmits those signals to CaTbox.” *Id.*⁷ Petitioner directs our attention to Table I of Aytac, which describes “Standalone Functions of CaTbox,” including “receive voice mail and store them on CaTdisc.” Ex. 1004, 10:14–27.

As support, Dr. Reynolds testifies that the CaTbox has the capability to process multimedia data—text, image, audio, and video data. Ex. 1001 ¶¶ 82–84 (citing Ex. 1004, 10:28–31, 18:55–67). Dr. Reynolds testifies that, in the process of generating voicemail (analog data) using a microphone and receiving and storing in files on the CaTdisc, the processor of the CaTbox is “involved in a data generation process by which the sensor generates analog data, the analog data is processed, and the analog data is stored in the data storage memory as at least one file of digitized analog data.” *Id.* ¶ 83. We credit Dr. Reynolds’s testimony (Ex. 1001 ¶ 82–84) as it is consistent with the prior art in this record (e.g., Ex. 1004, 6:12–15, 8:7–19, 10:28–31, 18:55–67).

Based on the evidence before us, we determine that a person of ordinarily skill in the art, reading Aytac as a whole, would have understood that the CaTbox’s processor is adapted to be directly involved in all aspects

⁷ Petitioner also supports the microphone example with an excerpt of source code that discloses “a program for recording a voice message using a microphone connected to CaTbox.” Pet. 49. As noted above, although Aytac’s source code does not qualify as prior art, the source code submitted with Aytac’s original disclosure is an implementation of the invention that is described in Aytac’s patent and may be relied upon to show the level of the ordinary skill in the art. *Thomas*, 720 F.2d at 1581.

of the data generation process. *See Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1361 n.3 (Fed. Cir. 2008) (“What a prior art reference discloses or teaches is determined from the perspective of one of ordinary skill in the art.”); *In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (explaining that “in considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom”); *In re Hedges*, 783 F.2d 1038, 1041 (Fed. Cir. 1986) (noting that when evaluating claims for obviousness, “the prior art as a whole must be considered”). Accordingly, we determine that Petitioner has established by a preponderance of the evidence that Aytac, in combination with the SCSI Specification and Admitted Prior Art, teaches or suggests the “data generation process” limitations, as required by claims 1, 64, 65, 84, and 86.

Automatic recognition and file transfer processes

Each of independent claims 1, 84, and 86 requires the processor of the ADGPD to be involved in (1) an automatic recognition process, sending at least one parameter which provides identification information regarding the ADGPD to the multipurpose interface of the computer, and (2) an automatic file transfer process, sending a digitized analog data file to the computer. *See, e.g.*, Ex. 1003, 12:4–36. The claims additionally require each automatic process to occur without requiring any end user to load any software or set

up a file system, and to occur “regardless of the identity of the manufacturer of the computer.” *Id.*

Petitioner takes the position that Aytac, in combination with the SCSI Specification and Admitted Prior Art, teaches or suggests these limitations. Pet. 49–73. In particular, Petitioner asserts that automatic recognition of a peripheral device was known in the art at the time of the invention because, as described in the SCSI specification (Ex. 1005), the SCSI standard provides an effective specification for such a process. Pet. 51. Petitioner also notes that, in Aytac, the CaTbox simulates a SCSI disk to the host PC, and communicates with the host PC using a SCSI interface and SCSI cable. *Id.* at 55; Ex. 1004, 4:49–53, 7:61–62, 9:5–15. As support, Dr. Reynolds testifies that an ordinary skilled artisan would have recognized that, in light of the SCSI specification (Ex. 1005, 123–27), the CaTbox of Aytac would respond, involving its processor and RAM, to an INQUIRY command by sending identifying information about a simulated SCSI disk drive to the SCSI interface of the host computer. Ex. 1001 ¶ 91. In addition, Petitioner asserts that the prior art combination discloses the claimed “automatic file transfer process,” in that Aytac’s host PC can access and read the digitized data files on the CaTdisc of the CaTbox, using the SCSI interface and SCSI READ command. Pet. 63–67.

Petitioner further explains that there is no need for the end user to load any software onto the computer because the SCSI drivers that enable the host computer to access the simulated SCSI hard disk of the CaTbox would have been installed prior to use of the computer by the end user. *Id.* at 60

(citing Ex. 1001 ¶ 101). Petitioner also indicates that there is no need for any end user to set up a file system because the CaTbox uses the MS-DOS operating system, which has its own file system. *Id.* (citing Ex. 1004, 6:42–46, 12:9–12; Ex. 1001 ¶¶ 102, 103).

Petitioner additionally asserts that Aytac’s automatic recognition and file transfer processes would occur “regardless of the identity of a manufacturer of the computer,” noting that the SCSI protocol and drivers used by Aytac “were independent of any computing platform or computer manufacturer,” and Aytac discloses that “[a]lthough, CaTbox is an embedded PC, running DOS augmented with multitasking, the present invention could also be realized using any other operating system and processor pair.” *Id.* at 62 (citing Ex. 1004, 7:51–54).

Upon consideration of this full record, we are persuaded by Petitioner’s explanation and supporting evidence. In its Response, Patent Owner opposes, advancing two contentions. PO Resp. 27–44. We address below each of Patent Owner’s contentions in turn.

1. Transferring a file without requiring any user-loaded file transfer enabling software.

Relying on Mr. Gafford’s testimony for support, Patent Owner contends that Aytac does not disclose the claimed automatic file transfer process because Aytac’s CaTbox requires specific user-loaded software (CATSYNC, CATCAS, and CATSER) to read files properly from the CaTdisc for the CaTbox to execute its intended multitasking purpose. *Id.* at 27–40 (Ex. 2005 ¶¶ 38–45, 51–61). Patent Owner argues that

Dr. Reynolds improperly modifies Aytac by suggesting that a user need not install CATSYNC. *Id.* at 34–36. Patent Owner also maintains that, without CATSYNC, the CaTbox would be inoperable. *Id.* at 34–40. Patent Owner avers that one of ordinary skill in the art would have had no reason to modify Aytac to not install its specialized drivers, which would render it inoperable for its intended multitasking purpose. *Id.* at 27–40.

Patent Owner’s arguments and Mr. Gafford’s supporting testimony, however, are based on the premise that the “without requiring” limitation *prohibits* a user from installing *any data-handling software*. The term “without requiring” does not mean “prohibiting,” but rather, if the software is *not required for transferring a file* from the storage memory of the interface device to the host computer, then it does not matter whether an end user installs the software. *See Celsis*, 644 F.3d at 926–27. Even if we were to construe “without requiring” as “prohibiting,” the claims, at most, prohibit only a user from installing “file transfer enabling software” for *transferring a file* from the storage memory of the interface device to the host computer. The claim limitation is not so broad to preclude the installation of *any data-handling software*.

To be clear, the disputed limitation recites “at least *one file* of digitized analog data to be *transferred to the computer . . . without requiring any user-loaded file transfer enabling software* to be loaded on or installed in the computer at any time.” Ex. 1003, 12:32–36 (emphases added). As discussed above, we construe the “without requiring” limitation as “without requiring the *end user* to install or load specific drivers or

software for the ADGPD beyond that included in the operating system, BIOS, or *drivers for a multi-purpose interface or SCSI interface.*” See *supra* Section II.A.8.

There is no dispute that Aytac uses the SCSI protocol and Advanced SCSI Programming Interface (ASPI) drivers to transfer at least one file from the CaTdisc to the computer, similar to the preferred embodiment disclosed in the ’144 patent. Ex. 1004, 4:49–53 (“CaTbox look like a SCSI disk to the PC”), 5:44–45, 5:58–61 (“The PC may not even have a hard disk: it could use the CaTdisc as a hard disk”), 6:16–21, 9:55–10:58; Ex. 1001 ¶¶ 100, 111–119; Pet. 59–60, 63–67; Ex. 1003, 8:42–50, 10:23–56, 11:14–19. Indeed, Mr. Gafford admits that Aytac’s “CaTbox would reliably transfer good data” when acting as “a remote hard disc for the PC.” Ex. 2005 ¶ 61. Mr. Gafford also confirms in his cross-examination testimony that ASPI drivers were known at the time of the invention to be *included normally by the manufacturer* of the multi-purpose interface, and this is consistent with the Admitted Prior Art. Ex. 1003, 10:29–33; Ex. 1013, 44:6–13. In addition, Dr. Reynolds testifies that the end user is not required to install the ASPI drivers, in Aytac. Ex. 1001 ¶ 100; Ex. 2006, 85:5–86:19. We credit Dr. Reynolds’ testimony as it is consistent with the Admitted Prior Art and Mr. Gafford’s cross-examination testimony.

An ordinarily skilled artisan would have understood that Aytac discloses transferring at least one file from CaTdisc (a storage memory) in CaTbox (an interface device) to the computer using the SCSI protocol and

ASPI drivers (file transfer enabling software), *without requiring* an end user to install the ASPI drivers. *See Sundance*, 550 F.3d at 1361 n.3. Even if we were to apply Patent Owner’s proposed claim construction—e.g., interpreting “without requiring” as “prohibiting”—Aytac, in combination with the SCSI Specification and Admitted Prior Art, would teach or suggest the claimed file transfer process, as required by claims 1, 84, and 86.

Patent Owner’s arguments also conflate the ASPI drivers (the file transfer enabling software) with other drivers to *prohibit* a user from installing those other drivers. *See Celsis*, 644 F.3d at 926–27. Patent Owner does not show sufficiently why those other drivers are required for *transferring a file* from the CaTdisc to the host computer. Notably, those other drivers, in Aytac, merely provide additional functionalities—synchronization, cache clearing/disabling, enhanced reliability, and multitasking. Ex. 1004, 10:58–11:64. Mr. Gafford confirms in his cross-examination testimony that the claims at issue do not require those additional functionalities. Ex. 1013, 52:2–10 (“Q. Does claim 1 of the ’144 patent specify any degree of reliability for the file transfer process? [Mr. Gafford’s answer:] It doesn’t speak to reliability. It just says it happens.”), 56:18–23, 57:4–11. Indeed, those drivers or their functionalities are not recited in the disputed limitation. It is well established that limitations not appearing in the claims cannot be relied upon for patentability. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982). Therefore, Patent Owner’s argument that Aytac requires specific user-loaded software to execute its intended multitasking purpose is misplaced.

Furthermore, we are not persuaded by Patent Owner's argument that Dr. Reynolds improperly modifies Aytac by suggesting that a user need not install CATSYNC. Patent Owner draws the wrong inference from Dr. Reynolds' testimony. Dr. Reynolds testifies that only the SCSI protocol and ASPI drivers are needed to transfer a file, similar to the '144 patent. Ex. 1001 ¶¶ 100, 111–120. Dr. Reynolds also testifies that CATSYNC is “intended only to provide synchronization and coordination among multiple on-going activities between the host computer and the CaTbox/CaTdisc,” and this driver is *not required for reading data files from the CaTdisc* because, if it were not installed, the host computer's requests to READ files “would default to LUN 0, the logical unit number for the CaTdisc (Ex. 1004, 11:25–27).” Ex. 1001 ¶ 101. Dr. Reynolds did not suggest modifying Aytac to not install CATSYNC, but rather pointing out that Aytac discloses transferring a file from CaTdisc to the host computer using the SCSI protocol and ASPI drivers, regardless of whether CATSYNC was installed or not, and CATSYNC is not required *for the file transfer*. *Id.* ¶¶ 101, 111–120. We credit Dr. Reynolds' testimony as it is consistent with the SCSI Specification and Admitted Prior Art. Ex. 1005; Ex. 1003, 3:37–46, 4:20–22, 5:11–14, 5:21–23, 5:37–47, 8:45–50, 10:26–33.

Patent Owner also incorrectly interprets Dr. Reynolds' cross-examination testimony that CATSYNC is “involved in the file transfer,” as confirming that Aytac “discloses the need for user-loaded, specialized software on the host computer, contrary to the explicit requirements of the '144 claims.” PO Resp. 32–33. Mere involvement in

the file transfer process does not necessarily indicate that CATSYNC is “file transfer enabling software” for transferring a file to the host computer. As described in Aytac, CATSYNC “implements the synchronization between the operating system of PC 101 and that of CaTbox 102 that access the same CaTdisc 301.” Ex. 1004, 10:60–63. As noted above, Mr. Gafford confirms that these additional functionalities (e.g., synchronization and enhanced reliability) are not required by the claims at issue. Ex. 1013, 52:2–10, 56:18–23, 57:4–11. Dr. Reynolds testifies that only the SCSI protocol and ASPI drivers are needed, in Aytac, to transfer a file from the CaTdisc to the computer, similar to the ’144 patent. Ex. 1001 ¶¶ 100, 111–120. Dr. Reynolds also testifies that CATSYNC is not required for reading data files from the CaTdisc. Ex. 1001 ¶ 101. In fact, Mr. Gafford admits that, without using CATSYNC, Aytac’s “CaTbox would reliably transfer good data” when acting as “a remote hard disc for the PC.” Ex. 2005 ¶ 61. Based on the evidence before us, we find that CATSYNC is *not a file transfer enabling software that is required for transferring a file* from CaTdisc to the host computer, contrary to Patent Owner’s interpretation of Dr. Reynolds’ cross-examination testimony and Aytac’s disclosure. Therefore, even if we were to interpret “without requiring” as “prohibiting,” the claims do not *prohibit* a user from installing CATSYNC. Patent Owner’s argument that, without CATSYNC, the CaTbox would be inoperable is without merit.

We also are not persuaded by Patent Owner’s argument that one of ordinary skill in the art would have had no reason to modify Aytac to not

install the additional drivers when that would render it inoperable for its intended multitasking purpose. PO Resp. 27–40. Petitioner did not propose such modification in its Petition or Reply. Pet. 23–24, 49–67; Reply 19–21. More importantly, such modification is not required for rendering the claims obvious. As discussed above, the ASPI drivers are the only file transfer enabling software needed for transferring a file to the host computer, similar to the '144 patent. *See, e.g.*, Ex. 1004, 4:49–53; Ex. 1001 ¶¶ 100, 111–119; Ex. 2005 ¶ 61. Patent Owner improperly assumes removing the additional drivers (e.g., CATSYNC) is necessary, in Aytac, because its arguments rest on the premise that the “without requiring” limitation *prohibits* a user from installing *any data-handling software*. Once again, Patent Owner relies upon its incorrect proposed claim construction and incorrect interpretation of Dr. Reynolds’ testimony and Aytac’s disclosure. Therefore, Patent Owner’s argument that the modification of removing the additional drivers would render Aytac’s system inoperable for its intended purpose is inapposite.

For the foregoing reasons, we conclude that Petitioner has established by a preponderance of the evidence that Aytac, in combination with the SCSI Specification and the Admitted Prior Art, teaches or suggests transferring a file from the storage memory of the interface device to the computer without requiring any user-loaded file transfer enabling software, as recited in claims 1, 84, and 86.

2. *Regardless of the identity of a manufacturer of the computer*

Citing to Mr. Gafford's testimony for support, Patent Owner contends that the prior art combination does not disclose an automatic recognition process or an automatic file transfer process that occurs "regardless of the identity of a manufacturer of the computer," as required by claims 1, 84, and 86.⁸ PO Resp. 41–44 (citing Ex. 2005 ¶¶ 65, 67). Patent Owner advances several arguments. *Id.* at 41–43.

First, Patent Owner maintains that Aytac "does not disclose that it could function with non-PC computers, Macs, workstations, or *computers without SCSI interfaces*." However, that argument is based on an improper claim construction, importing a negative limitation into the claims—"computers *without SCSI interfaces*." Neither Patent Owner nor Mr. Gafford explains sufficiently why the limitation requires the interface device to send identification information to a computer *without SCSI interface*, when, for example, claim 1 itself requires the i/o port to be "operatively interfaced with a *multi-purpose interface* of a computer" and requires the interface device to send the identification information "to the

⁸ As noted above, after institution, the parties agree to construe "a second computer that is manufactured by a company other than the company that manufactured the first computer" as "regardless of the identity of a manufacturer of the computer." PO Resp. 24; Reply 3–4. Therefore, it is not necessary for us to address the parties' arguments regarding whether applicant disavowed the first computer and second computer as limitations of the claim. Pet. 72–73; PO Resp. 43–44.

multipurpose interface of the computer.” PO Resp. 41–44; Ex. 2005 ¶¶ 65, 67; Ex. 1003, 12:5–13 (emphases added).

Patent Owner, in fact, agrees with our construction that a “multi-purpose interface” encompasses a *SCSI interface*. PO Resp. 16; Dec. 9–10. Moreover, claims 14 and 29, both of which depend from claim 1, require the i/o port comprises a *SCSI connector*, and “the ADGPD being responsive to a SCSI inquiry command,” respectively, implicitly require a SCSI interface and SCSI driver. *Id.* at 12:66–67, 13:39–40. The Specification of the ’144 patent describes “the interface device according to the present invention is to be attached to a host device by means of a *multi-purpose interface* of the host device which can be implemented, for example, as a *small computer systems interface (SCSI) interface* or as an enhanced printer interface.” Ex. 1003, 3:51–56 (emphases added). Therefore, Patent Owner’s implicit construction is inconsistent with the claims and Specification. As such, Patent Owner’s argument that Aytac “does not disclose that it could function with non-PC computers, Macs, workstations, or *computers without SCSI interfaces*,” is unavailing.

Second, Patent Owner argues that “Aytac does not contemplate host device independence, nor does it disclose an interface device that would be operable with any type of host computer or operating system.” PO Resp. 41–43. As Petitioner notes (Pet. 55), however, Aytac’s CaTbox uses a SCSI interface and appears as a SCSI disk to the host PC. Ex. 1004, 4:51–53, 5:44–45, 5:59–61, 6:16–21. Dr. Reynolds testifies that, at the time of the invention, SCSI was “a standard for attaching a range of peripheral

device types to computers, and communicating with them, independent of the manufacturer of the computer, or the operating system running on it.” Ex. 1001 ¶ 46 (citing Ex. 1005). Dr. Reynolds also explains that SCSI was “designed to be multipurpose: to both support a variety of devices and to operate with a variety of operating system.” *Id.* Dr. Reynolds further testifies that the SCSI standards, by design, were independent of any computing platform, and that “SCSI was operational in PC’s based on the IBM PC architecture, Apple computers, Sun Microsystems computers and those of other manufacturers who also chose to adopt or support the SCSI standard.” *Id.* ¶ 106 (citing Ex. 1005). The SCSI Specification also discloses that “[t]he primary objective of the [SCSI] interface is to provide the host computers with device independence within a class of devices [and thus], different disk drives, tape drives, printers, optical media drives, and other devices can be added to the host computers without requiring modifications to generic system hardware or software.” Ex. 1005, 6. We credit Dr. Reynolds’ testimony as it is consistent with the prior art of record, including the SCSI Specification. Ex. 1001 ¶¶ 46, 106.

Notably, the ’144 patent also confirms that a SCSI interface is a multi-purpose interface, and that SCSI interfaces were commonly present on most host devices or laptops at the time of the invention. Ex. 1003, 3:53–62, 8:45–46. The ’144 patent indicates that “host device-independent use can be achieved if a driver for an input/output device customary in a host device, normally present in most commercially available host devices, is utilized.” *Id.* at 3:33–37. According to the ’144 patent, by using a standard interface

of a host device and simulating an input/output device to the host device, the interface device is “automatically supported by all known host systems without any additional sophisticated driver software.” *Id.* at 11:38–44. Therefore, Patent Owner’s argument that “Aytac does not contemplate host device independence, nor does it disclose an interface device that would be operable with any type of host computer or operating system” is not supported by the evidence in the record.

Third, relying on its arguments presented previously in connection with the “without requiring” limitation, Patent Owner argues that Aytac’s CaTbox requires additional drivers (CATSYNC, CATCAS, and CATSER) designed to operate on a PC running Windows 95 to function. PO Resp. 41–43. Patent Owner also argues that Aytac does not teach that the CaTbox was adapted to be involved in the automatic processes without the specific Windows-based software. *Id.*

However, the CaTbox is not limited to a PC running Windows 95. As Petitioner points out (Pet. 62), Aytac expressly states that “the present invention could also be realized using *any other operating system and processor pair.*” Ex. 1004, 7:51–55. Furthermore, we acknowledge that Patent Owner proffers arguments that other drivers, in addition to CATSYNC.VXD, are involved, such as CATCAS.EXE and CATSER.VXD. According to Mr. Gafford, the CATCAS and CATSER drivers are involved in the transfer of faxes and modems. Ex. 1013, 49:4–23. Because we do not rely on either the fax or modem functions of Aytac, the impact, if any, of the CATCAS or CATSER drivers is irrelevant to our determination. We also

have addressed Patent Owner's arguments that Aytac requires the additional drivers to function for its intended purpose of multitasking in our analysis above concerning the "without requiring" limitation, and determine those arguments are likewise unavailing here.

Importantly, Patent Owner does not dispute that the SCSI protocol and APSI drivers, in Aytac, perform the automatic recognition process using the SCSI INQUIRY command, and performs the automatic file transfer process using the SCSI READ command, similar to the preferred embodiment of the '144 patent. PO Resp. 41–44. In fact, Patent Owner agrees that the SCSI and ASPI drivers used in Aytac, are "independent of any computing platform or computer manufacturer." *Id.* at 41. Mr. Gafford indicates in his cross-examination testimony that he believes Aytac's CaTbox "could communicate with the host computer regardless of the identity of the manufacturer of the computer." Ex. 1013, 45:21–24.

Based on the evidence before us, we determine that Petitioner has demonstrated by a preponderance of the evidence that Aytac, in combination with the SCSI Specification and Admitted Prior Art, teaches or suggests automatic recognition and file transfer processes that occur "regardless of the identity of a manufacturer of the computer," as recited in claims 1, 84, and 86.

Mass storage device

Claim 84 "wherein the at least one parameter is consistent with the ADGPD being a mass storage device that operates in a manner consistent with a hard disk drive." Ex. 1003, 17:5–7. Claims 28 and 87 each also

require a similar limitation. *Id.* at 13:35–37, 18:47–49.

Petitioner asserts that Aytac, in combination with the SCSI Specification and Admitted Prior Art, teaches this limitation.⁹ Pet. 70–71, 83. Petitioner explains that when the CaTbox is connected with the host computer via a SCSI interface, the CaTbox identifies itself and appears to the computer as a SCSI hard disk, communicating with the computer and responding to commands issued from the ASPI drivers. *Id.* (citing Ex. 1004, 4:49–53, 7:61, 62; Ex. 1001 ¶¶ 108–110, 133).

We are persuaded by Petitioner’s contentions. Notably, the portion of Aytac cited by Petitioner, which is reproduced below, supports Petitioner’s contention that the CaTbox emulates a SCSI disk to the host PC:

CaTbox would look like a hard disk to the PC and it would be attached to it via a cable. The preferred embodiment has CaTbox look like a SCSI disk to the PC. A specification of SCSI is given in X3.131 SMAIL COMPUTER SYSTEMS INTERFACE-2 REV:10L.

Ex. 1004, 4:49–53 (emphases added). In addition, Dr. Reynolds testifies that, when the CaTBox responds to an INQUIRY command by providing identifying information to the SCSI interface of the host computer, the identifying information includes a “Peripheral device type” of “00h,” indicating a “Direct-access device (e.g., magnetic disk),” as described in the SCSI Specification (Ex. 1005, 123–127). Ex. 1001 ¶ 133. Dr. Reynolds

⁹ As noted in our Institution Decision, We consider Petitioner’s arguments and supporting evidence for claims 28, 84, and 87 in connection with this limitation, collectively, as a whole. Dec. 36–37.

explains that a direct-access device such as a hard disk is a type of mass storage device. *Id.*

In view of the foregoing, we determine that Petitioner has established by a preponderance of the evidence that Aytac in combination with the SCSI Specification and Admitted Prior Art discloses the “mass storage device” limitation, as recited in claims 28, 84, and 87.

File system information

Claim 84 requires the processor to cause the following file system information to be sent to the i/o port: (1) file system information, indicating *the type of a file system* that is used to store the digitized analog data files; (2) file allocation table information, indicating *a start location of a file allocation table*; and (3) a virtual boot sequence, including *a number of sectors* of a storage disk. Ex. 1001, 16:25–17:21. The claim additionally requires the process to occur without requiring any end user to load any software or set up a file system, and to occur “regardless of the identity of the manufacturer of the computer.” *Id.*

Petitioner provides detail explanations as to how Aytac, in combination with the SCSI Specification and Admitted Prior Art, discloses this “file system information” limitation, relying on Dr. Reynolds’ testimony for support. Pet. 67–72 (citing Ex. 1001 ¶¶ 38, 56–57, 68–72, 85–87, 93–106, 108–110). Patent Owner does not address this limitation with separate, specific arguments, other than those already addressed above in connection with the “automatic file transfer” limitation. We have addressed those arguments in our analysis above, and determine the arguments are

likewise unavailing here. More importantly, having considered Petitioner's explanations and supporting evidence, we are persuaded by Petitioner's contention that Aytac, in combination with the SCSI Specification and Admitted Prior Art, teaches or suggests the "file system information" limitation as recited in claim 84.

As Petitioner explains, when the SCSI connector of the CaTbox is operatively interfaced with the SCSI interface of the host computer via the SCSI bus, the CaTbox and host computer follow an automatic SCSI protocol in order for the host computer to acquire device identification information and file system information from the CaTbox. *Id.* at 68. In response to an INQUIRY command from the host computer, the CaTbox automatically sends a parameter identifying CaTbox as a SCSI hard disk to the host computer. *Id.* at 69. After that, in response to a boot sector read from the host computer, the CaTbox automatically sends file system information to the host computer. *Id.* (citing Ex. 1001 ¶¶ 56–57, 68, 71, 94–98).

Citing to the MS-DOS Encyclopedia (Ex. 1010, 91), Dr. Reynolds testifies that "[f]or most computers, when a disk drive is found to be attached (e.g. via the SCSI INQUIRY exchange), the computer's operating system will attempt to identify a bootable partition and/or file system information on the first section of the disk," and "[t]his file system information will inform the computer about how to access files on the disk – in particular, where that information can be found." Ex. 1001 ¶ 56. Dr. Reynolds further explains that it was conventional at the time of the invention that the host computer's request for file system information was

carried out by sending a SCSI READ command to read the direct access device's "sector zero" information. *Id.* ¶ 59. The information includes "file system type, device size information, and location of important file system data structures containing the file system's directory and file location information." *Id.* (citing Ex. 1010, 93–102). Dr. Reynolds notes that, in a FAT-based file system for MS-DOS, the file allocation table contains information about where portions of files are stored on the disk drive, and the directory contains name, file attributes and location of first FAT entry for each file. *Id.* ¶ 61. In addition, Dr. Reynolds testifies that, in a FAT-based MS-DOS file system, as used in the CaTbox, the file system information sent to the host computer includes a virtual boot sequence, including the drive type, the starting position and the length of the file allocation table (FAT), and the number of sectors. *Id.* ¶ 95; Ex. 1004, 8:20–26, 12:10–12. As Dr. Reynolds points out, the file system information is needed to ensure that subsequent file system accesses functioned properly. Ex. 1001 ¶ 95. We credit Dr. Reynolds' testimony as it is consistent with Aytac's disclosure and other prior art of record. Ex. 1001 ¶¶ 38, 56–57, 68–72, 85–87, 93–106, 108–110; Ex. 1004, 8:20–26; Ex. 1010, 91, 93–102.

Furthermore, as discussed above, there is no need for any end user to set up a file system, in Aytac, because the CaTbox uses the MS-DOS operating system, which has its own FAT-based MS-DOS file system. Pet. 60; Ex. 1004, 6:42–46, 12:9–12; Ex. 1001 ¶¶ 102, 103. Using the SCSI protocol and drivers, which by design were independent of any computing platform, the transmission of the file system information would occur

regardless of the identity of a manufacturer of the computer. Pet. 62, Ex. 1001 ¶¶ 105–106.

In view of the foregoing, we determine that Petitioner has established by a preponderance of the evidence that Aytac, in combination with the SCSI Specification and Admitted Prior Art, discloses the “file system information” limitation, as recited in claim 84.

Conclusion as to claims 1, 2, 28, 64, 65, 84, 86, and 87

For the foregoing reasons, we conclude that Petitioner has established by a preponderance of the evidence that claims 1, 2, 28, 64, 65, 84, 86, and 87 are unpatentable under 35 U.S.C. § 103(a) as obvious over Aytac, in combination with the SCSI Specification and Admitted Prior Art.

Remaining claims

We also have considered Petitioner’s explanation and supporting evidence as to the remaining claims—namely, dependent claims 3–8, 10, 14–20, 22, 29, 38, 52, 56, 57, 59–63, 67, 71–74, and 77–80—and find them persuasive. Patent Owner does not address the limitations expressly recited in the remaining claims with separate, specific arguments, but rather relies upon its arguments in connection with independent claims 1, 84, and 86. PO Resp. 44–45. We have addressed those arguments in our analysis above, and determine those arguments are likewise unavailing here.

Based on the evidence before us, we determine that the explanations and supporting evidence presented by Petitioner sufficiently show how Aytac, in combination with the SCSI Specification and Admitted Prior Art,

renders the remaining claims obvious. Pet. 74–90; Ex. 1001 ¶¶ 123–148. For example, for claim 57 that requires allowing the host computer to control other aspect of the ADGPD’s operation, Petitioner explains that, to the host computer, CaTbox looks like a SCSI hard disk (CaTdisc), a print server, a remote data/voice/fax modem(s), and a remote fax device(s). Pet. 85 (citing Ex. 1004, 8:1–6). Petitioner further points out that Aytac discloses the “ability to update CaTbox software via the host computer, by loading it to CaTdisc.” *Id.* (citing Ex. 1004, 4:54–55). We are persuaded by Petitioner’s showing because, at least, allowing the PC to update the CaTbox software qualifies as controlling an aspect of a CaTbox operation, as required by claim 57.

We agree with Petitioner’s explanations and Dr. Reynolds’ testimony as to the remaining claims. Pet. 74–90; Ex. 1001 ¶¶ 123–148. We credit Dr. Reynolds’ testimony (Ex. 1001 ¶¶ 123–148) as it is consistent with the prior art in this record, and we adopt his analysis, as our own. Based on the evidence before us, we determine that Petitioner has established by a preponderance of the evidence that Aytac, in combination with the SCSI Specification and Admitted Prior Art, renders obvious claims 3–8, 10, 14–20, 22, 29, 38, 52, 56, 57, 59–63, 67, 71–74, and 77–80.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–8, 10, 14–20, 22, 28, 29, 38, 52, 56, 57, 59–65, 67, 71–74, 77–80, 84, 86, and 87 of the

'144 patent are unpatentable under § 103(a) as obvious over Aytac, in combination with the SCSI Specification and Admitted Prior Art.

IV. ORDER

In light of the foregoing, it is

ORDERED that claims 1–8, 10, 14–20, 22, 28, 29, 38, 52, 56, 57, 59–65, 67, 71–74, 77–80, 84, 86, and 87 of the '144 patent are held unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

Case IPR2016-01199
Patent 8,966,144 B2

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