

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY GROUP CORPORATION, SONY CORPORATION, SONY
CORPORATION OF AMERICA AND SONY ELECTRONICS, INC.

Petitioners

v.

INMUSIC BRANDS, INC.

(record) Patent Owner

IPR2023-00294
Patent No. 7,567,498

REPLY TO PATENT OWNER RESPONSE

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Exhibit No.	Description
1001	U.S. Patent No. 7,567,498 (“ the ’498 patent ”).
1002	Declaration of Dr. Todd K. Moon.
1003	C.V. of Dr. Todd K. Moon.
1004	European Pat. App. Pub. EP 0999553 A1 (“ Cortellesi ”).
1005	U.S. Pat. Pub. No. 2004/0089795 A1 (“ Spencer ”).
1006	U.S. Pat. App. Pub. US 2003/0206506 A1 (“ Cohen ”).
1007	Furchgott, “BASICS; from Vinyl to Digital, Hold the Crackle”, <i>The New York Times</i> , January 1, 2004.
1008	File History of U.S. App. Ser. No. 10/862,942.
1009	U.S. Pat. No. 5,740,146 (“ Webster ”).
1010	U.S. Pat. No. 4,587,646 (“ Graham ”).
1011	U.S. Pat. No. 4,918,678 (“ Dolby ”).
1012	Excerpt from <i>Collins Dictionary of Electronics</i> , HarperCollinsPublishers, 2004, p. 433.
1013	U.S. Pat. App. Pub. 2003/0131715 A1 (“ Georges ”).
1014	U.S. Pat. No. 7,376,191 (“ Melick ”).
1015	U.S. Pat. No. 4,369,361 (“ Swartz ”).
1016	U.S. Pat. No. 5,051,799 (“ Paul ”).
1017	U.S. Pat. No. 6,007,228 (“ Agarwal ”).
1018	U.S. Pat. No. 7,072,249 (“ Huang ”).
1019	U.S. Pat. No. 7,191,193 (“ Ben-Yaacov ”).

1020	U.S. Pat. No. 6,801,971 (“ Devine ”).
1021	United States District Courts — National Judicial Caseload Profile, March 31, 2022, available at https://www.uscourts.gov/statistics/table/na/federal-court-management-statistics/2022/03/31-1 .
1022	Excerpt from Docket Navigator “Judge Time To Milestones” Report, August 15, 2022.
1023	Excerpt from Universal Serial Bus Specification, Revision 1.1, September 23, 1998.
1024	Order and Opinion Granting Defendant’s Motion to Dismiss in <i>inMusic Brands, Inc. v. Sony Corporation of America</i> , Case No. 22 Civ. 6602 (AKH) (S.D.N.Y. March 13, 2023).
1025	<i>AviaGames Games, Inc. v. Skillz Platfom Inc.</i> , IPR2022-00530, Decision Denying Institution, Paper 12 (PTAB August 9, 2022).
1026	<i>Volvo Penta of the Americas v. Brunswick Corp.</i> , IPR2022-01368, Paper 15, (PTAB May 2, 2023) (Vidal, Director)
1027	Notice of Appeal by inMusic Brands, Inc., in <i>inMusic Brands, Inc. v. Sony Corporation of America</i> , Case No. 22 Civ. 6602 (AKH) (filed April 10, 2023).
1028	U.S. Patent No. 7,763,843.
1029	Deposition Transcript of Mr. Ivan Zaktovich dated January 31, 2024
1030	“Represent” and “Representative,” Merriam-Webster.com Dictionary, Merriam-Webster, https://www.merriam-webster.com/dictionary/ Accessed 16 Feb. 2024.
1031	Newton’s Telecom Dictionary, 1998, Flatiron Publishing, New York, NY, “Controller” Definition.

Petitioners (“Sony”) respectfully submit the following reply to the Patent Owner Response (“POR”) submitted by Patent Owner InMusic Brands, Inc. (“InMusic”).

I. INMUSIC MISCHARACTERIZES THE ’498 PATENT

InMusic improperly seeks to narrow the relevant art. InMusic’s argument that the prior art at issue is “irrelevant references directed to DJs and turntablism” (POR, 5-7), is baseless.

InMusic states that the ’498 patent “makes no reference to” “turntablism” “or DJs.” (POR, 5). This is incorrect. The ’498 patent states that an “object of the present invention [is] to provide a turntable which maintains the familiar feel of a standard turntable to a *disk jockey or similar operator.*” (Ex. 1001, 1:48-52)(Emphasis added). In describing the background of the invention, the ’498 patent discusses “the standard phonographic turntable”, which it explains “is embedded within the *disk jockey* culture at dance clubs and similar institutions.” (Ex. 1001, 1:22-24)(Emphasis added). The ’498 patent also highlights that “there are currently several devices that allow the phonographic turntable to act as a control device, similar to a computer mouse, to *modulate or apply some effect (such as ‘scratching’)* to audio playing within the computer.” (Ex. 1001, 1:31-34)(Emphasis added). The field relevant to the ’498 patent clearly encompasses devices intended

for use by DJs.¹ (*See* Ex. 2004, ¶¶30-32). InMusic’s clear mischaracterization of the relevant art should be rejected.²

InMusic’s declarant characterizes Stanton Magnetics, Inc. (the assignee listed on the face of the patent) as “a well-known player in the consumer audio products industry” in support of his opinions regarding the relevant art. (Ex. 2004, ¶20). At deposition, however, Mr. Zatkovich testified that at Stanton Magnetics, the inventors “produced equipment for disk jockeys.” (Ex. 1029, 19:5-23).³

II. THE LEVEL OF ORDINARY SKILL IN THE ART

The petition proposed that the level of ordinary skill encompassed a person having a Bachelor’s Degree in electrical engineering or a related field and three years

¹ The Examiner cited Cohen (Ex. 1006) during prosecution, (Ex. 1001, (56)), which further demonstrates the breadth of the field relevant to the claimed invention.

² Mr. Zatkovich opines in his declaration that the prior art references at issue are not analogous art. InMusic does not repeat this argument in its POR and thus it is waived. Nonetheless, InMusic’s declarant’s assertions should be rejected for similar reasons.

³ Certain of the named inventors were in fact working on rotary controller devices for disk jockeys at the relevant time. (*See* Ex. 1028).

of experience relating to audio technology or signal processing, where a higher level of education may substitute for experience. (Pet., 32-33)(*citing* Ex. 1002, ¶69). InMusic proposes a different level of ordinary skill, contending that a PHOSITA “would have had technical knowledge (whether through a college degree or otherwise), along with practical experience and market awareness relating to consumer audio products including turntables.” (POR, 11)(*citing* Ex. 2004, ¶19).⁴

InMusic’s proposed definition lacks clarity. For example, InMusic does not specify what the “technical knowledge” is or how much knowledge a PHOSITA would have had.⁵ This lack of clarity is further amplified by the fact that InMusic defines the relevant art broadly (consumer audio products) while simultaneously excluding turntables relevant to DJs. (*See, e.g.*, POR, 5-6).

Sony’s proposed level of ordinary skill in the art should be adopted in view of its specificity and consistency with the evidence. InMusic itself points out that certain of the named inventors have electrical engineering degrees. (POR, 11)(Ex.

⁴ Mr. Zatkovich himself lacks specific professional experience relating to turntables. (Ex. 1029, 15:8-11, 16:10-12, 17:14-19).

⁵ Mr. Zatkovich testified that he did not know “how much experience any of the inventors had at Stanton Magnetics as of the relevant time frame.” (Ex. 1029, 19:24-20:2).

2008). Furthermore, InMusic does not appear to dispute that engineering knowledge is required to produce consumer audio products.⁶ Petitioners further submit that the prior art and '498 patent themselves—which are directed to the design and manufacturing of audio products—reflect an appropriate level of skill. *Rudolph Techs., Inc. v. Camtek, Ltd.*, 2015-1418, at *11 (Fed. Cir. Dec. 22, 2016). The paucity of disclosure provided by the '498 patent demonstrates that a PHOSITA could have implemented its teachings. (Pet., 15-16)(Ex. 1001, 2:7-52).

Ultimately, InMusic does not argue that its positions or the outcome of this proceeding depend on which definition the Board applies.

III. CLAIM CONSTRUCTION

InMusic proposes to limit the claims in a manner entirely unsupported by the specification. InMusic's proposed constructions should be rejected.

A. Claim 1 — “turntable”

The preamble of claim 1 recites “A turntable including”. (Ex. 1001, claim 1). InMusic seeks to build a number of expressly-recited claim elements into the definition of “turntable”. (POR, 13)(*citing* Ex. 2004 ¶119). This appears to be a non-issue. The parties agree that the claimed device comprises the elements recited

⁶ (*See also* Ex. 1029, 11:25-12:7)(Mr. Zatkovich testifying that the relevant “field is consumer electronics related to audio turntables”).

in the claims, and InMusic does not make any argument to distinguish the prior art on the basis of the definition of “turntable”.

B. Claim 1 — “controller”

InMusic proposes that “controller” be construed as “[a]n electronic device which receives a digital data stream, renders it into a specific data format, and manages the output of that formatted stream on a specific interface.” (POR, 13-14). This would add a number of limitations to the term “controller” that are not present in the claims. Yet InMusic identifies no definitions in the specification, nor any disclaimer, that would justify adding its proposed additional limitations. *See Gemstar-TV Guide Int’l, Inc. v. Int’l Trade Comm’n*, 383 F.3d 1352, 1364 (Fed. Cir. 2004).

InMusic identifies no basis to deviate from the plain and ordinary meaning of the term “controller.” Instead, the plain language of the claims identifies the functions that the claimed controller must be capable of performing. To the extent that “controller” requires construction, it should be construed consistent with its plain and ordinary meaning—*i.e.*, a device for controlling another device and/or circuit. (Ex. 1031)(defining “controller” as “In the truest sense, a device which controls the operation of another piece of equipment....”); *Karl Storz Endoscopy-America, Inc. v. Stryker Corp.*, No. 14-cv-00876-RS, at *14 (N.D. Cal. July 5, 2016)(“‘Controller’ shall be construed as ‘a device for controlling the operation of

other devices.”); *Intellectual Ventures I LLC v. Altera Corp.*, C.A. No. 10-1065-LPS, at *18-19 (D. Del. July 26, 2013)(“The term ‘controller’ means ‘hardware or software that controls a circuit or system.’”)(*Compare* Ex. 1029, 49:22-51:20)(Mr. Zatkovich unable to testify to plain and ordinary meaning of “controller”).

C. Claim 1 — “representative”

InMusic also proposes that the claim term “representative” be construed as “[r]eproducibly indistinguishable to a listener, but in a different format from the original.” (POR, 15). Claim 1 uses the word “representative” three different times—first to refer to “an analog audio signal representative of an audio recording” and second and third to refer to “an output digital audio signal of music or speech representative of an audio recording from an output of said analog to digital converter, representative of said analog audio signal.” (Ex. 1001, claim 1). The specification (outside of the claims) only uses the term “representative” in the context of describing “a conventional analog electrical signal, representative of the audio recording on the LP record.” (Ex. 1001, 2:16-18, 2:37-38). The specification does not use the word representative in the second and third contexts—i.e., with respect to the digital audio signal.

InMusic again provides no basis for its narrowing construction. And its own declarant contradicts its proposed construction by arguing that digital music sounds different to the listener than analog music. (*See* Ex. 2004, ¶¶27-29). To the extent

that “representative” requires construction, it should be construed consistent with its plain and ordinary meaning—*i.e.*, a first object that stands in the place of or corresponds to a second object. (*See, e.g.*, Ex. 1030)(*see also* Ex. 2007, 87:3-89:17).

IV. THE CHALLENGED CLAIMS WERE OBVIOUS OVER CORTELLESI

InMusic’s arguments relating to Grounds 1 and 2 are premised on an unduly restrictive view of Cortellesi reference, and should be rejected.

A. InMusic Mischaracterizes Cortellesi’s Teachings.

Much as InMusic attempts to restrict the field relevant the ’998 patent, it similarly paints Cortellesi’s apparatus as only being relevant to DJs. (*e.g.*, POR, 6). Cortellesi, however, envisions broad applications for its apparatus, including as “music file systems with reduced memory positions.” (Ex. 1004, 5:21-34).

InMusic also suggests that Cortellesi describes its Figures as depicting wholly separate embodiments. (*See* POR, 16, 18). This is not the case. Instead, Cortellesi Figures are each related to the “apparatus” of the invention, and Cortellesi does not suggest any lack of interchangeability between their features. (Ex. 1004, 1:47-52, 2:23-24, 4:22-33).

Specifically, Cortellesi describes Figures 1 and 2 as “block diagram[s]” of an “apparatus”. (Ex. 1004, 1:54-58). Figure 4 is described as “a top plan view of a first embodiment of the apparatus.” (Ex. 1004, 2:8-10). With reference to Figure 1, Cortellesi states that a “preferred embodiment” includes certain features. (Ex. 1004,

2:23-24). It then states that “the block diagram of Fig. 2 is different from the previous diagram by the presence of a virtual disk VD which is connected to an analogue/digital converter” but does not characterize Figure 2 as an incompatible “embodiment” from Figure 1. (Ex. 1004, 4:27-32). Indeed, Cortellesi describes the virtual disk with reference to Figure 1, even though it is not specifically depicted in Figure 1. (Ex. 1004, 2:33-37, 4:22-28)(Ex. 2007, 34:7-14). Similarly, in describing Figure 4, Cortellesi describes the use of the VD, but does not characterize Figure 4 as an unrelated embodiment. (Ex. 1004, 4:40-46). Instead, Cortellesi describes Figure 4 as “a top plan view of a first embodiment of the apparatus provided with a record player carrying the virtual disk provided with a reading sensor.” (Ex. 1004, 2:8-10). Furthermore, the claims of Cortellesi reinforce the relatedness of the various Figures. (*See, e.g.*, Ex. 1004, Claim 2, Claim 11, Claim 16, Claim 20)(virtual disk, USB, and record player provided in same apparatus).

B. Cortellesi Teaches that the Analog to Digital Converter, a Controller, and USB are Included Within its Turntable.

InMusic argues that Cortellesi’s Figure 4 does not disclose a controller or A/D converter within the turntable. (POR, 27). InMusic misreads Cortellesi’s teachings.

Figure 4 shows a turntable apparatus, reproduced here:

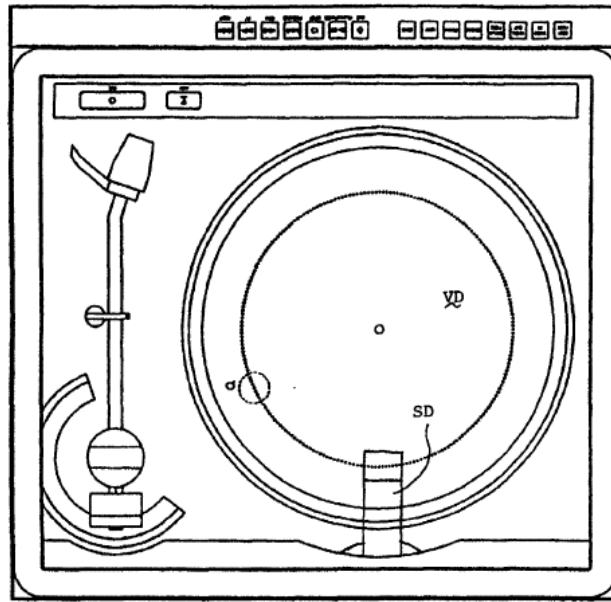


FIG. 4

(Ex. 1004, Fig. 4)(see Ex. 1002, ¶46). Cortellesi expressly describes Fig. 4 as “a top plan view of a first embodiment of the apparatus provided with a record player carrying the virtual disk provided with a reading sensor”. (Ex. 1004, 2:8-10). The “apparatus” is the “[p]ortable apparatus for storing, handling and listening to pieces of music”, according to the title of the patent. (Ex. 1004, Title, Abstract). A PHOSITA would thus understand that this apparatus contains the components shown in Figs. 1 and 2, namely the analog-to-digital converter (CA/D) and the controller (EC), but integrated into the form of a turntable. (See Ex. 1002, ¶95). Furthermore, Cortellesi describes “a directional sensor of magnetic flux SD which is *integral with* the record player,” which further suggests that the directional sensor of magnetic flux forms a part of the record player itself. (See Ex. 1004, 4:40-46)(Emphasis

added). Cortellesi's description of a "common record player" thus is best understood as referring to the fact that a record player which can be used to play common long playing records (LPs), and which can also support the use of a virtual disk, is incorporated into the apparatus. (*See, e.g.*, Ex. 1002, ¶¶53, 62, 89, 93-95).

InMusic contends that because Figure 4 does not explicitly depict certain components of the apparatus in Figure 1 and 2, that those components must not be there. (POR, 26-27). However, Figure 4 is described as a "top plan view," the intent of which is clearly not to depict all components of the apparatus, including those on the side of and inside the housing. (Ex. 2007, 77:5-13, 76:22-24)(Ex. 1029, 54:8-21, 55:18-23)(Mr. Zatkovich testifying that "certainly you couldn't see everything that would be in that device").

InMusic also suggests that because Cortellesi can receive analog signals from an outside source, that this must mean that *all* sources of analog signals must be outside of the apparatus. (POR, 21-22). However, the petition explains why the possibility of an external record player does not preclude the possibility of playing records and digitizing the output from the record player of Fig. 4. (Pet., 29-30).

InMusic next argues that "[i]ncluding the apparatus disclosed in Cortellesi within a turntable would be directly contrary to the purpose of allowing the playback of digitally stored pieces of music 'without the need of having the original musical supports or records.'" (POR, 23)(*citing* Ex. 1004, 1:19-23). This argument fails,

given that a record player is **required** to use Cortellesi's virtual disk functionality. In such a configuration, a DJ using Cortellesi's apparatus need not bring his or her the supporting records but would still require a record player to use the virtual disk. (See Ex. 1002, ¶¶50, 62)(see Ex. 2007, 45:5-14, 59:12-21, 60:3-9, 61:14-62:7, 64:5-66:14, 68:16-69:20).

InMusic also posits that an interpretation of Cortellesi in which the record player is provided inside the apparatus would require that a "radio, tape cassette and so on" also be provided within the apparatus. (POR, 23-24). InMusic's argument is inconsistent with the description and depiction of the apparatus in Figure 4, and further does not grapple with the fact that the record player is different from other potential sources of audio in that a record player is **required** to be able to use Cortellesi's virtual disk.

InMusic also contends that USB is not included within the apparatus depicted in Figure 4. (POR, 28). As explained above, Figure 4 is a "top plan view", meaning that some components are not shown. Furthermore, Cortellesi describes "the apparatus" generally as including a USB-interface, and never states that the "first embodiment of the apparatus" does not include such an interface. (See, e.g., Ex. 1004, 4:8-13)(see also *id.* Claim 2, Claim 11, Claim 16, Claim 20)(virtual disk, USB, and record player provided in same apparatus).

InMusic's attempted distinction between Figures 1 and 2 of Cortellesi is

similarly flawed, as Cortellesi does not distinguish between Figures 1 and 2 based on the presence or absence of USB. (*See* POR, 28). Instead, the sole distinction called out by Cortellesi is the fact that Figure 2 also illustrates the use of a virtual disk. (Ex. 1004, 4:27-33).⁷ Cortellesi contemplates the use of a virtual disk in Figure 1 as well, thus reinforcing that Cortellesi's Figures simply depict different aspects of its "apparatus." (*See, e.g.*, Ex. 1004, 2:33-36).

C. It Would have Been Obvious to Include Cortellesi's Analog to Digital Converter, a Controller, and USB Within its Turntable.

As discussed above, Cortellesi teaches that its invention can be embodied in a turntable as shown in Figure 4. The petition alternatively argued, however, that it would have been obvious to "include" the analog-to-digital converter and controller within the turntable of Fig. 4 and/or integrate an analog-to-digital converter and controller within the turntable of Cortellesi. (Pet., 31-32). The petition identifies clear advantages from doing so. *See id.*

The essence of InMusic's argument on this point is that having a record player within Cortellesi's apparatus would reduce the portability of the device. (POR, 30-

⁷ Patent Owner does not respond to the petition's arguments regarding the "Reception/transmission data interface IDA", a "Digital interface for pocket cartridges ITA", an "Infrared interface INF", and a "Satellite interface ISAT". (Ex. 1004, 3:57-4:20)(Pet., 46-47).

31). Specifically, InMusic argues that there are instances where a DJ will bring a record player to a performance when a record player is not needed.

This argument fails, because there are clearly instances where the Fig. 4 apparatus was desirable. Cortellesi's virtual disk (VD) functionality requires the use of a record player. (Ex. 1004, 4:23-33)(Ex. 2004 ¶79). Furthermore, InMusic itself argues that there is a desire "to make the DJ's performance more engrossing for the audience and to convey the impression that the DJ's setup is larger and more complicated than it actually is." (POR, 29-30)(*see also* POR, 7)("DJs seek to put on a show, manipulating turntable-like devices, even where such is not necessary.")(Ex. 2004, ¶¶39, 40)("[T]here is no goal for DJs or in turntablism to minimize equipment to the fullest extent that technology allows."). The inclusion of a record player within the apparatus serves this goal. InMusic also argues that it would not be desirable to bring a record player to a venue that already has one. (POR, 30-31). However, a venue's equipment may not be reliable, and there are certainly DJs who would prefer to trust their own equipment. (Ex. 1029, 34:3-36:11). Furthermore, InMusic's own declarant testified that it would not be desirable to "put on and take off" the virtual disk frequently. (Ex. 1029, 56:2-10). This supports Sony's argument that it would be desirable to have an apparatus where a DJ can bring his or her own equipment with the VD "pre-installed" as opposed to trying to correctly position it on a venue's record player.

To the extent that InMusic suggests that market dynamics would not have favored a device with a built in record player, it offers no specific evidence in support of that assertion. Regardless, “[t]hat a given combination would not be made by businessmen for economic reasons does not mean that persons skilled in the art would not make the combination because of some technological incompatibility. Only the latter fact would be relevant.” *In re Farrenkopf*, 713 F.2d 714, 718 (Fed. Cir. 1983). Here, there are clearly articulated reasons why the proposed combination would be desirable under certain circumstances, and this is sufficient for obviousness. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006); *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (“[O]ur case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.”).⁸

InMusic argues that the Petition proposes “an all-in-one mega device that not only includes a turntable but also a CD player, as well as radio, tape cassette player, and so on.” (POR, 31). InMusic also argues that it would not be desirable to have

⁸ Patent Owner’s suggestion that Dr. Moon acknowledged that his opinions are supported only by his own *ipse dixit* (POR, 32) is contradicted by the testimony it cites in support. (Ex. 2007, 65:1-70:20).

“an all-in-one unit supporting a less popular format at the time (i.e., LPs), and not supporting the dominant format of the time (i.e., CDs).” (POR, 31). Again, InMusic’s argument does not grapple with the fact that a record player is *required* for Cortellesi’s virtual disk functionality.

InMusic also misstates the proposed combination, arguing that the proposed modification would not result in an apparatus having USB. (POR, 32-33). As the petition explains, the “apparatus” shown in Figure 4 is the “apparatus” of Cortellesi, and that “the apparatus” is provided with a USB-interface and further that it would be obvious of it to outputs the digital audio signal to an external computer via a USB interface. (Pet., 46-48). Cortellesi does not limit its teachings of a USB-interface. (Ex. 1004, Claim 2, Claim 11, Claim 16)(virtual disk and USB provided in same apparatus)(*see id.*, 2:33-36)(describing the use of a virtual disk with reference to Figure 1, which specifically depicts the use of USB).

Finally, Mr. Zatkovich’s opinions regarding purported lack of motivation should be discounted because they are based at least in part on an improperly narrowed conception of the relevant art as discussed above. (*See* Ex. 1029, 20:3-21:19).

D. Cortellesi Renders Obvious the Claimed Controller

The petition demonstrated that Cortellesi renders obvious the claimed “controller responsive to said analog to digital converter” in the form of the central

processing unit EC. (Pet., 41-45). InMusic's argument to the contrary rests on an erroneous interpretation of the challenged claims.

InMusic first argues that Cortellesi does not teach the claimed controller because "there is no indication that the EC is 'an electronic device which receives a digital data stream, renders it into a specific data format, and manages the output of that formatted stream on a specific interface.'" (POR, 34). This argument is premised entirely on InMusic's incorrect narrow claim construction of the claim term "controller" and should be rejected accordingly. Furthermore, Mr. Zatkovich testified that by "specific data format" he means "a data format that is understood by the receiver and the sender of that information." (Ex. 1029, 52:14-53:4). Here, the EC generates serves as a hub for all digital signal processing and transmission in the system. (Ex. 1004, Figs. 1-2, 2:25-32, 2:50-3:5).

InMusic also disputes that Cortellesi's CPU EC "generat[es] an output digital audio signal of music or speech representative of an audio recording from an output of said analog to digital converter." (See POR, 34-35). Essentially, InMusic argues that the output generated by Cortellesi's EC is not audio output, because Cortellesi's playing unit RD/A generates audio output. RD/A's ability to generate audio output signals does not mean the digital audio signals RD/A receives (and that the USB unit receives) are not also digital output audio signals as recited in claim 1. (See Ex. 1029, 46:24-47:11)(signal need not be immediately transmitted outside of the

turntable).

As set forth in the petition, Cortellesi's EC generates output audio signals. Cortellesi teaches that "playing unit, RD/A . . . **receives data from the central processing unit EC** and decodes the same from **digital** to analogue form so as to provide at its output stereo audio signals." (Ex. 1004, 2:50-58)(Emphasis added)(*see* Ex. 1002, ¶90). The digital "data" that the playing unit, RD/A receives from the CPU EC is the claimed "output digital audio signal of music or speech representative of an audio recording." (*See id.*). Cortellesi's RD/A specifically includes a digital to analog converter that converts digital audio signals from the EC "so as to provide at its output stereo audio signals." (Ex. 1004, 2:50-54). Cortellesi also teaches that CPU EC "executes a program for processing the digital information for the operation of the apparatus by means of settings selected on the keyboard or received from the various interface", which further indicates that it processes input audio files. (Ex. 1004, 2:25-33)(*see* Ex. 1002, ¶91). Cortellesi's EC **generates** these digital signals by processing and transmitting them to various output units. (Ex. 1029, 40:13-41:25).

Cortellesi additionally teaches that its system can have a "dedicated hard-disk where it is possible to store digitally several pieces of music". (Ex. 1004, 1:20-22)(*see* Ex. 1002, ¶92). The storage is accomplished by the CPU EC. (Ex. 1004, 5:16-19)(*see* Ex. 1002, ¶92). As the petition explains, it would have been obvious

that, in order to store music on a hard drive, the CPU EC would need to produce an output digital audio signal of music or speech. (Pet., 44). InMusic argues that “no generation occurs in this scenario.” (POR, 35). However, it does not explain why. Cortellesi’s EC *generates* these digital signals by processing and transmitting them for storage, which at the very least requires generating the digital signals on a wire. (Ex. 1029, 40:13-41:25).

E. The Dependent Claims are Rendered Obvious by Cortellesi

The dependent claims are rendered obvious for the reasons set forth above and in the petition. With respect to claim 2, InMusic argues that Cortellesi’s “USB-interface” does not “output digital audio signal uses universal serial bus (USB) protocol.” (POR, 36-37). However, as discussed above, Cortellesi both discloses and renders obvious USB within a turntable to output digital audio.

V. THE CHALLENGED CLAIMS WERE OBVIOUS OVER SPENCER AND COHEN (GROUNDS 3-4)

With respect to Grounds 3-4, InMusic principally argues that Spencer’s turntable does not transmit digital audio signals. This argument is contradicted by Spencer’s disclosures as well as by the testimony of Mr. Zatkovich. InMusic’s additional arguments contesting the obviousness of the claimed controller are similarly unavailing.

A. Spencer Transmits Digital Audio Signals

The petition demonstrated that Spencer’s turntable outputs, through the ports

102, digitized audio signals over a USB interface. (Pet., 69-70)(Ex. 1005 ¶¶0014, 0029, 0030, 0036, 0058, 0064-68, 0073-77, 0080)(*see also* Ex. 1029, 63:8-68:16)(Mr. Zatkovich describing same).

InMusic argues—despite the clear language of ¶0030 of Spencer—that Spencer’s turntable (controller unit 100) must only be transmitting signals representative of audio signals *in analog form* to the data processor unit 200, where it is first “sampled” to create a digital waveform. (POR, 40-42).

InMusic’s reading of Spencer is incorrect—it plays on ambiguities in the words “analog” and “sample”. Here, some background on Spencer’s operation is advisable. Spencer teaches that its system is intended to allow “sound from an analog record [to] be outputted in synchrony with a digital signal of at least one external digital data source.” (Ex. 1005, ¶0029). To do this, the analog record is played using the controller 100. The sound from the analog record is output, in digital form over USB, to data processor unit 200. (Ex. 1005, ¶0029). The data processor unit 200 can then “generat[e] a waveform map of the analog record in a sampling process.” (Ex. 1005, ¶0065). The “waveform map” has sampled portions of the recording on the analog record correlated to information about the stylus position at the time of the sample, and can be used to create a “synchronization map” (Ex. 1005, ¶¶0066, 0070). Later, when the analog record is played back from controller 100, it can be synchronized to music from a digital source (e.g. a compact

disc) by using the waveform and synchronization map. (Ex. 1005, ¶0075).

While Spencer does at times refer to the digital audio data coming from the record players of the controller 100 as the “analog waveform” (e.g., ¶0066), it is clear that the entire process of receiving audio data from the playing of a record on controller 100, the process of waveform sampling, the process of creating a waveform map, and the process of synchronization are all occurring using digital data. First and foremost, it is clear that USB is a digital communications interface (Ex. 1029, 30:1-24), meaning that it can only be used to transmit “digital audio signals”—exactly as ¶0030 of Spencer states. InMusic’s declarant Mr. Zatkovich explained at his deposition that USB communications transmitted “digital data” consisting of “packets” which represent “highs and lows, 1s and 0s” (Ex. 1029, 29:19-32:23). This is consistent with Spencer’s description of data processor 200 as having “input and output ports includ[ing] digital video outputs, monitor outputs, digital audio outputs, network communications connection (e.g., modem, DSL, T1, etc.), one or more SCSI or **USB ports**, or the like *to communicate with one or more controller units.*” (Ex. 1005, ¶0057)(Emphasis added). Spencer describes no method for receiving analog input from Spencer’s controller (the turntable). Second, the data processor unit 200 is a digital computer, as Mr. Zatkovich admits. (Ex. 1029, 62:20-23). Third, the comparison between the “analog waveform” of the record and the digital waveform of the CD, necessary for synchronization is

occurring in the digital domain, using digital data. (Ex. 1029, 64:5-64:15).

Mr. Zatkovich nonetheless argued that the data processor unit 200 was “sampling” an analog waveform from controller 100, where by “sampling”, Mr. Zatkovich meant performing analog-to-digital conversion. However, the term “sampling” in Spencer clearly means taking samples of music to put into a waveform map (Ex. 1005, ¶¶0065-0066), much as one artist may “sample” another’s composition by using portions of song in a new song (Ex. 1029, 36:13-23). “Sampling” in Spencer *cannot* refer to the A/D conversion, because Spencer refers to music sourced from an analog record as the “analog waveform” even *after* sampling. (Ex. 1005, ¶0068). For example, Spencer states that sampling “generates the analog waveform”:

“Assuming the surface of the record is moving past the stylus 123 at the base turntable speed, the base **sampling rate** is the rate at which **the data processor unit 200 generates the analog waveform.**”

(Ex. 1005, ¶0068)(Emphasis added). If the “sampling” of the data processor unit 200 were really the analog-to-digital conversion—as opposed to the more prosaic use of the word “sample” to mean capturing a section of a musical work—then the sampling process would output a *digital* waveform, and not “generate[] the analog waveform”.

As Mr. Zatkovich acknowledged, this means that Spencer is using the term

“analog waveform” as a kind of nickname to refer to the *source* of the data (from an analog record), in order to distinguish it from data originally recorded on a digital medium. (Ex. 1029, 64:16-66:13). That is, Spencer does not use the term “analog waveform” to describe the current *form* of the data (digital vs. analog), but rather *where the data came from*. (*Id.*). Mr. Zatkovich testified as follows:

“Q. Could you turn to paragraph 68 of Spencer.

Q. The last sentence of this paragraph says, "Assuming the surface of the record is moving past the stylus 123 at the base of the turn -- at the base turntable speed, the base sampling rate is the rate at which the data processor unit 200 generates the analog waveform."

Do you see that?

A. I do.

Q. Why is the data processing unit 200 generating the analog waveform?

A. It's, again, describing the waveform as a wave -- for example, a wave pattern that gives it -- I guess you could call it a thumbprint for that position on the turntable. In other words, it's -- it's a thumbprint based on the analog signal at that particular point on the turntable.

Q. But after the sampling process, isn't it a digital waveform?

A. Right, but it's describing it as the analog waveform that it received.

Q. So it's using "analog waveform" more as a name than a description of the format it's in?

MR. BLUM: Objection. Form.

THE WITNESS: **It's -- it's distinguishing in what form that it's received.** It's distinguishing from -- a waveform that's received, for example, from a CD player as a digital waveform from the analog signal that it receives from the turntable.”

(Ex. 1029, 64:16-66:13)(Emphasis added). While Mr. Zatkovich here incorrectly argues that Spencer is distinguishing the “form in which its received”, he admits that Spencer uses the term “analog” to describe digital data, because it ultimately came from an analog source.

The proper interpretation of Spencer is thus the one that is consistent with ¶0030: Spencer transmits a “digitized” version of an analog audio waveform from the controllers (turntable) to the data processor 200 via USB.

B. The Claimed “Controller” is Obvious in View of Spencer and Cohen

The petition explains that it would have been obvious to use an analog-to-digital converter and microprocessor/DSP Block 20 as taught by Cohen, to receive the analog audio signal output by the phono cartridge of Spencer’s turntable, and to in turn output this signal to (USB) ports 102. (Pet., 57-60). The petition explained that a USB interface required a host controller to operate, which can be implemented in software as part of a general-purpose or dedicated processor, or as hardware. (*See id.* at 57-58)(*citing* Ex. 1002, ¶121, Ex. 1020, 1:55-61).

InMusic argues that the use of a “host controller” is “raised out of whole

cloth”. (POR, 51). To the contrary, Sony’s argument is supported by the disclosures of Cohen, (Ex. 1006, Fig. 1, ¶¶0015-0016), together with exhibits that discuss the USB host controller and controllers with analog-to-digital converters and Dr. Moon’s testimony. (Pet., 57-60) (*see also* Ex. 1002, ¶¶121, 124)(*See, e.g.*, Ex. 1020). InMusic’s own declarant also explains the function of a USB host controller. (Ex. 1029, 29:19-30:19).

InMusic suggests that the petition does not explain how such a controller would satisfy the claims. (POR, 51-52). This argument is spurious. The petition makes clear that the function of the controller is to control the output of Spencer’s digital audio via a USB output port on Spencer’s controller 100 such that the controller is “responsive to the analog to digital converter.” (Pet., 57-60, 68-69). The petition further explains that the function of the controller is to control the output of Spencer’s “digitized audio signals” as they reach and leave the output port 102 such that it “generates an output digital audio signal of music or speech representative of an audio recording from an output of said analog to digital converter, representative of said analog audio signal.” (Pet., 57-60, 68-69). Furthermore, the use of a controller to control USB output of digital audio is identical to the use of a controller as set forth in the ’498 patent and thus satisfies this claim limitation under any proper construction. (*See, e.g.*, Ex. 1001, 2:19-28)(Ex. 1029, 53:17-23).

C. The Dependent Claims are Rendered Obvious by Spencer in view of Cohen

InMusic does not present any argument specific to the dependent claims which are rendered obvious for the reasons set forth above and in the petition.

VI. A PHOSITA WOULD HAVE HAD A REASONABLE EXPECTATION OF SUCCESS

A PHOSITA would have had a reasonable expectation of success in using the prior art in the manner discussed in this petition. (Pet., 33, 52, 60-61, 72). The POR at times suggests that it is challenging this aspect of Petitioners' obviousness case but its argument is not clear. (POR, 15, 37, 52). InMusic has put forth no evidence that a PHOSITA would not have been able to implement the proposed modifications to the prior art. Furthermore, InMusic's own declarant's testimony supports a finding of a reasonable expectation of success. InMusic characterizes its own declarant Mr. Zatkovich as testifying that the "technology [was] fairly simple but evolving." (POR, 11)(*citing* Ex. 2004, ¶¶20-22). Furthermore, as set forth above, Mr. Zatkovich testified that there was nothing "surprising or unusual" about the claimed invention. (Ex. 1029, 29:8-18)(*see also id.* 28:10-21)(testifying that "the various components discussed in the '498 patent were -- were known, if not well-known").

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing Reply to Patent Owner Response, together with all exhibits and other documents filed therewith, was served by electronic mail on February 16, 2024, on the Patent Owner's counsel of record at the United States Patent & Trademark Office having the following email addresses:

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the foregoing Reply to Patent Owner Response review contains 5,600 words according to the word processing program used to prepare it.

Date: February 16, 2024

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