

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.,
Petitioner,

v.

INMUSIC BRANDS, INC.
Patent Owner.

IPR2023-00294
U.S. Patent 7,567,498

**PATENT OWNER'S RESPONSE
UNDER 37 C.F.R. 42.120**

Mail Stop: Patent Board

Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

TABLE OF EXHIBITS	iv
II. INTRODUCTION	1
III. Background of the '498 Patent and Petitioner's Misunderstanding of the State of the Art.....	1
A. The '498 Patent	1
B. The Petition's Misunderstanding of the State of the Art	3
IV. SONY FAILED TO CARRY ITS BURDEN TO SHOW ANY OF THE CHALLENGED CLAIMS ARE OBVIOUS	8
A. Sony Views the Invention and References Using the Wrong Level of Skill in the Art.....	9
B. Claim Construction.....	12
1. "turntable"	12
2. "controller"	13
3. "representative"	14
C. Sony Has Failed to Show that Any Claims Were Obvious Over Cortellesi	15
1. Background of Cortellesi	15
2. Cortellesi Does Not Disclose or Render Obvious the Limitations of the Challenged Claims.	20
D. Sony Has Failed to Show that Spencer and Cohen Render Obvious Any of the Claims of the '498 Patent.	37
1. Background of Spencer and Cohen	38

IPR2023-00294
Patent 7,567,498

2.	Spencer and Cohen Do Not Disclose or Render Obvious the Limitations of the Challenged Claims.	40
3.	Sony’s Combination with Cohen Does Not Save or Make up for the Failings of Spencer.	49
4.	Sony’s Combination of Spencer and Cohen Does Not Satisfy the Claim’s “Controller” Limitation.	51
5.	The Dependent Claims are Also Not Rendered Obvious by Spencer and Cohen	52
V.	CONCLUSION.....	52
	CERTIFICATE OF SERVICE	54
	CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION.....	54

TABLE OF EXHIBITS

Exhibit No.	Description
2001	Order and Opinion Granting Defendant’s Motion to Dismiss, <i>inMusic Brands, Inc. v. Sony Corporation of America</i> , Case 1:22-cv-06602-AKH (S.D.N.Y. Mar. 13, 2023).
2002	Dan Bagatell, <i>Fed. Cir. Patent Decisions in 2022: An Empirical Review</i> , Law360 (Jan. 9, 2023), <i>available at</i> https://www.law360.com/articles/1562614/fed-circ-patent-decisions-in-2022-an-empirical-review (last accessed April 25, 2023).
2003	Docket Report for <i>Skillz Platform Inc. v. AviaGames Inc.</i> , Case No. 5:21-cv-02436-BLF (N.D. Cal.).
2004	Expert Declaration of Ivan Zatkovich
2005	“The Year’s Best Turntable – Audio Note TT1” What HiFi? Magazine (“TT1”), <i>available at</i> https://www.audionote.co.uk/files/ugd/3e7c3b5880b72e4038426d9c70895fb3842b02.pdf (accessed Nov. 3, 2023).
2006	The Complete MIDI 1.0 Detailed Specification (“MIDI Spec”)
2007	Deposition of Dr. Todd K. Moon (“Moon Dep.”)
2008	LinkedIn Profiles of Alan Flum, Mark Demouy, and Darrin Young
2009	Manual for EZ-USB FX2LP USB Microcontroller High-Speed USB Peripheral Controller, <i>available at</i> https://www.infineon.com/dgdl/Infineon-CY7C68013A_CY7C68014A_CY7C68015A_CY7C68016A_EZ-USB_FX2LP_USB_Microcontroller_High-Speed_USB_Peripheral_Controller-DataSheet-v31_00-EN.pdf?fileId=8ac78c8c7d0d8da4017d0ec9f7974252 (accessed Nov. 3, 2023).

2010	Image of CY3689 EZ-USB FX2LP Discovery Kit, <i>available at</i> https://www.infineon.com/export/sites/default/images/product/evaluation-boards/CY3689_0.png_1892450672.png (accessed Nov. 3, 2023).
2011	Excerpts from the U.S. Music Revenue Database, Recording Industry Association of America, <i>available at</i> https://www.riaa.com/u-s-sales-database (accessed Nov. 6, 2023).
2012	J.D. Biersdorfer, <i>Convert Stacks of Wax into Digital Music Files</i> , New York Times (Oct. 7, 2004).
2013	J.D. Biersdorfer, <i>Napster's Descendants; His Beyoncé, Her Beatles: A Primer on Trading</i> , New York Times (Sept. 18, 2003).
2014	Seth Schiesel, <i>File Sharing's New Face</i> , New York Times (Feb. 12, 2004).
2015	Johana Jainchill, <i>Mixing and Scratching, Ruling the Club</i> , New York Times (Nov. 17, 2002).

I. INTRODUCTION

Patent Owner, inMusic Brands, Inc. (“inMusic”), submits the following Response to the Petition for *Inter Partes* Review (“IPR”) of Claims 1–6 of U.S. Patent 7,567,498 (“the ’498 patent”) filed by Petitioners Sony Group Corporation, Sony Corporation, Sony Corporation of America, and Sony Electronics, Inc. (collectively, “Sony”). *See* 37 C.F.R. § 42.120.

Sony and its expert attempt to distort the disclosure of the various prior art references to support their alleged obviousness grounds while ignoring disclosures in the references that make clear the proposed combinations would not be made by a person of ordinary skill in the art. Further, Sony’s rationale in support of the alleged obviousness combinations amounts to nothing more than *ipse dixit* from Sony’s expert, who ignores the state of the art and even acknowledged at deposition that he does not rely on the references for his alleged motivations to combine and to modify the prior art of record. Because Sony cannot establish obviousness of any of the challenged claims in either of the asserted grounds, the patentability of all challenged claims should be confirmed.

II. BACKGROUND OF THE ’498 PATENT AND PETITIONER’S MISUNDERSTANDING OF THE STATE OF THE ART

A. The ’498 Patent

The ’498 patent is entitled “Phonographic turntable with built-in audio to USB or firewire device.” Ex. 1001 at Title. As described in the Abstract and

depicted in Figure 1, the specification of the '498 patent is generally directed to a “turntable which includes an internal analog to digital converter [highlighted in gold] and a controller [highlighted in blue] for a standard digital format.” *Id.* at Abstract & Fig. 1; Ex. 2004 ¶ 62. “This allows a jack for a standard digital format to be incorporated into the turntable, so that digital signals are generated to be received by the soundcard of an external computer or similar piece of digital equipment” [highlighted in pink]. Ex. 1001 at Abstract & Fig. 1; Ex. 2004 ¶ 63.

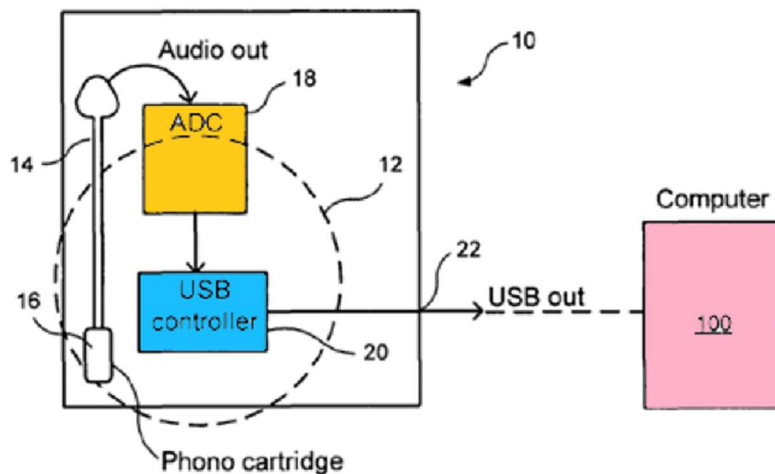


FIG. 1

Claim 1 of the '498 patent recites:

1. A turntable including:
 - [a] a rotatable platter;
 - [b] a tonearm for receiving a phono cartridge for generating an analog audio signal representative of an audio recording;
 - [c] an analog to digital converter for receiving an analog audio signal from the phono cartridge; and
 - [d] a controller responsive to said analog to digital converter for generating 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;
- [e] wherein said analog to digital converter and said controller are included within said turntable; and
- [f] wherein said output digital audio signal is output from said turntable and uses standard computer protocol.

Ex. 1001. Claims 2 and 3 both depend from Claim 1 and recite, respectively, “wherein said output digital audio signal” uses “universal serial bus (USB protocol)” and “firewire (IEEE-1394) protocol.” *Id.*

Claims 4 also depends from Claim 1 and recites that the turntable includes “a jack for outputting said output digital audio signal.” *Id.* Claim 5, depending from Claim 1, further recites that the rotatable platter is “configured and arranged to receive a record with an audio recording thereon.” *Id.* And Claim 6, depending from Claim 5, recites that the tonearm is “configured and arranged to engage a phono cartridge against a record with an audio recording thereon, the record being supported by said rotatable platter.” *Id.*

B. The Petition’s Misunderstanding of the State of the Art

The ’498 patent, as described above, is directed to a turntable that outputs the music or speech recorded on a conventional LP record to a computer, for example, via USB or firewire. Ex. 2004 at § 5.1. To fully understand the invention, it is important to understand the context of the music industry at the time. While sales of LP records dominated the industry throughout the 1970s and throughout

Patent 7,567,498

much of the 1980s, their sales began to precipitously decline in the late 1980s and throughout the 1990s. *See* Ex. 2004 ¶ 24 (citing Ex. 2011).

By 2004 at the time of the invention of the '498 patent, sales of LPs made up less than 1% of the market. *Id.* By that point in time, digital CDs dominated the commercial market, and the next generation of downloadable/digital music was on the horizon. *Id.* Indeed, while downloadable music (such as MP3s) made up less than 10% of the market by 2004, there was a much larger “underground” scene for digital music transferred through the Internet. *Id.* ¶ 25. Internet-savvy individuals in the early 2000s were widely downloading music (in some cases illegally) through different online services such as Napster, Limewire, and BitTorrent. *Id.*; Ex. 2013; Ex. 2014.

At the time of the invention in 2004, record players (or turntables) were a niche product for consumers, as demonstrated by the very low market share of LPs at the time. Ex. 2004 ¶ 26. In particular, certain listeners in that era liked the sound of vinyl better than CDs or digital or had a nostalgic feeling for the pops, crackles and hisses of vinyl, although that made up a very small percentage of the population in 2004. *Id.* ¶ 27. In more recent years, this view has increased, with vinyl once again overtaking CDs in sales. However, in terms of objective measures, such as distortion, noise, frequency response and dynamic range, digital music is superior. *Id.* ¶ 28. Turntables in the early 2000s also remained in use with

Patent 7,567,498

disc jockeys (“DJs”) who practiced “turntablism,” *i.e.*, the art of manipulating sounds and creating new music, sound effects, mixes and other creative sounds and beats. Turntablists often use two or more turntables and a cross fader-equipped DJ mixer, which in turn is plugged into additional audio equipment. *Id.* ¶ 30.

Turntablists manipulate records by moving the records with their hands and by touching or moving the platter of the turntable or record to stop, slow down, or speed up the record. DJs can often move the turntable platter back and forth, creating the popular “scratching” effect. *Id.* ¶¶ 30-32.

While the references relied on by Petitioners are directed to inventions utilized by DJs, the ’498 patent is not directed to turntablism. *Id.* ¶ 33. It makes no reference to such concepts or DJs. *Id.* Instead, the ’498 patent is directed to allowing consumers with large vinyl record collections to transfer the music or speech on those records to a computer through USB or firewire, given the transition from vinyl to CDs to digital music that was occurring in the early 2000s. *Id.* ¶ 34. Prior to the invention, a number of references disclosed using conventional turntables and other stand-alone external equipment to digitize music on LP albums, such as the arrangement disclosed in the New York Times article cited by Sony. Ex. 2004 ¶ 35; *See also* Ex. 1007 at 1-2 (disclosing the use of

Patent 7,567,498

separate pre-amplifiers, which may include an “audio-to-digital converter,”¹ to connect the record player to the computer); Ex. 2012 (an article, after the present patent’s filing date but in 2004, describing an “Instant music box” device that connected a conventional turntable to a computer, potentially using a pre-amplifier). No references or prior art, however, disclosed the turntable as recited in the present patent. Ex. 2004 ¶ 36. Indeed, the examiner of the ’498 patent indicated as much in the Notice of Allowance, stating “[a]lthough many prior art of record disclose converting analog audio signal reproduced from the record into a digital audio signal . . . none of [] them teach having an analog to digital converter and a controller responsive to the analog to digital converter [] built inside a turntable.” Ex. 1007 at 197; Ex. 2004 ¶ 36.

Unable to find relevant and invalidating prior art, Sony relies on irrelevant references directed to DJs and turntablism that do not even make up for the shortcomings identified during examination. In using these references, Sony’s Petition and its expert’s declaration evince a lack of understanding of this separate field. Turntablism is not just about engineering and music quality. It is an art in itself, and DJs are part of the show, putting on a performance. Ex. 2004 ¶ 37. The

¹ While Ex. 1007 makes reference to an “audio-to-digital converter,” a POSA would understand such term to refer to an analog-to-digital converter.

Patent 7,567,498

references, such as Cortellesi, Spencer and Cohen, discuss using turntables (or turntable-like devices) as controllers to control digital music stored on a computer.

Id. ¶ 38. That way, a DJ can appear to be manipulating and scratching records as was traditionally done with common turntables, but in reality all of the music and musical effects are happening digitally. *Id.*

Petitioner's arguments, and in particular the opinions expressed by its expert, Dr. Moon, reflect a distinct lack of understanding of the very references they rely upon. Disc jockeys set up their equipment in the DJ booth or table. *Id.* ¶ 39. Their equipment must be portable in the sense that they can bring it to different venues, each of which may have a different level of technology present. *Id.* But there is no goal for DJs or in turntablism to minimize equipment to the fullest extent that technology allows. *Id.* For example, one can simply play music from an iPhone, but a show involving plugging an iPhone into a speaker setup is hardly engrossing to the attendees. *Id.* ¶ 40. Consequently, DJs seek to put on a show, manipulating turntable-like devices, even where such is not necessary from a purely technological perspective. *Id.*; see also Ex. 2015 (discussing "turntablists" and "spinoff" battles).

Petitioner and its expert miss this nuance of the music industry, and propose that it would be obvious to make modifications to prior art—none of which disclose the inventive aspects of the '498 patent—in a manner directly inconsistent

Patent 7,567,498

with the references' disclosures. As discussed below, the turntables discussed in the cited references are simply used as a controller for controlling and manipulating digital music. Because Sony misreads what the prior art discloses, and its view of obviousness in the Petition is predicated on a misunderstanding of the industry, it has failed to show any claims of the '498 patent are obvious.

III. SONY FAILED TO CARRY ITS BURDEN TO SHOW ANY OF THE CHALLENGED CLAIMS ARE OBVIOUS

Sony raises two main alternative grounds of invalidity on the merits: (1) that Claims 1-2 and 4-6 of the '498 patent are obvious over **Cortellesi** (Ex. 1004) in Ground 1, and (2) that Claims 1-2 and 4-6 are obvious over **Spencer** (Ex. 1005) in view of **Cohen** (Ex. 1006) in Ground 3. *See* Paper 2. In both grounds, however, Sony looks at the art through the prism not of a person of ordinary skill in the art determining whether the claims would have been obvious at the time of the invention, but instead as a highly-skilled engineer attempting to reverse engineer the claimed invention despite the teachings of the prior art. Sony also operates under incorrect claim constructions, and further mistakes or misrepresents the art and what the references disclose. Sony, therefore, fails to establish a likelihood of success that the prior art invalidates any of the challenged claims.

In Grounds 2 and 4, Sony adds **Georges** (Ex. 1013) to build on Grounds 1 and 3, respectively, in arguing that Claim 3 is invalid. *Id.* Georges is used only for the additional limitation of Claim 3 and its teaching of Firewire. Georges is not

Patent 7,567,498

used to correct any defects in the grounds with respect to the independent claim and its limitations. As such, Grounds 2 and 4 do not change that Sony fails to establish a likelihood of success as to independent Claim 1 or any claim of the '498 patent.

A. Sony Views the Invention and References Using the Wrong Level of Skill in the Art.

The Petition alleges the level of ordinary skill encompasses “a person having a Bachelor’s Degree in electrical engineering or a related field and three years of experience relating to audio technology or signal processing, where a higher level of education may substitute for experience.” Paper 2 at 32-33. Sony’s only support for this level is the *ipse dixit* of its expert witness, Dr. Moon. *See id.* (citing Ex. 1002 ¶ 69).

Dr. Moon recites a purported level of skill, and even provides lip service to the factors used to determining the proper level of ordinary skill. *See* Ex. 1002 ¶ 69 (referring to “types of problems encountered in the field,” among others). Dr. Moon, however, does not analyze any of the factors set forth in case law. At his deposition, he did not even know there were factors for determining the level of ordinary skill. Ex. 2007 at 14:12-15:12. Indeed, Dr. Moon testified that his recitation was based on a “subjective understanding,” and he circularly explained that his opinions are “from the point of view of an engineer who has worked with people of ordinary skill,” ignoring the question as to what level those “people of

Patent 7,567,498

ordinary skill” have. *Id.* By failing to properly account for the level of ordinary skill in the art with specific reasoning based on evidence, Sony necessarily failed to meet its burden to establish any of the claims of the ’498 patent are obvious.

Under Federal Circuit law, factors in determining the level of ordinary skill in the art, for purposes of deciding the issue of obviousness, include: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). Here, neither Sony nor Dr. Moon have analyzed any of those factors. Instead, they simply regurgitate, with no analysis, that the level of skill is an electrical engineer with several years of experience. “The question of obviousness is resolved on the basis of underlying factual determinations, including . . . the level of skill in the art.” *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1996). “To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Here, Sony did not meet that burden.

Mr. Zatkovich, however, has engaged in the proper analysis and reached a different conclusion regarding the level of skill in the art than that reached by Dr. Moon. *See* Ex. 2004 § 3.1. With respect to the first factor set forth in *Daiichi*, Mr. Zatkovich noted that while some of the inventors had an electrical engineering degree, others did not but had relevant experience in the music and audio industries. *Id.* ¶ 22 (noting that one of the inventors had a Psychology degree and not a technical degree). Mr. Zatkovich also concluded for the sixth factor that similar experience is representative of active workers in the field. *Id.* ¶¶ 20-21. As to the second through fifth factors, Mr. Zatkovich noted that the technology is fairly simple but evolving, and that a “POSITA would have been aware of the pace of innovation in consumer electronics and the need for consumer products to be inexpensive and reliable, and thus would have avoided attempting to apply technology packages that were complex or not directly applicable” and also would have been aware of the market dynamics regarding turntables. *Id.*

Accordingly, as Mr. Zatkovich explains “a person having ordinary skill in the art (‘POSITA’) 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.” *Id.* ¶ 19.

B. Claim Construction

“In an inter partes review proceeding, a claim of a patent . . . shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b).

1. “turntable”

Claim 1, in the preamble, recites a “turntable.” *See* Ex. 1001. “Turntable” does not require any limiting construction, given that the claim itself defines a “structurally complete” turntable invention. *See Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997) (“[W]here a patentee defines a structurally complete invention in the claim body . . . the preamble is not a claim limitation.”). To the extent it is construed, however, Sony’s construction should be rejected.

Sony and Dr. Moon construed “turntable” as “an appliance for playing records that included a rotatable platter.” Paper 2 at 21; Ex. 1002 at 22. This construction, however, is inconsistent with their actual analyses. Dr. Moon explained that “turntable” in the ’498 patent “is not *merely* the platter and associated drive mechanism.” Ex. 1002 at 21 (emphasis in original). His analysis continued, stating “[t]he fact that the turntable [of the ’498 patent] includes a

Patent 7,567,498

‘cabinet’ indicates that the ’498 patent refers to the entire device, rather than just the platter and drive mechanism.” *Id.*

As Mr. Zatkovich explains, “turntable” as used in the claims of the ’498 patent more accurately should be construed as “an appliance for playing records that includes a rotatable platter, stationary platform (*e.g.*, cabinet), tonearm, and phono cartridge.” Ex. 2004 ¶¶ 119. Such a construction is more consistent with Dr. Moon’s and Sony’s analyses than their own construction, and it additionally lines up with the intrinsic evidence, as Mr. Zatkovich explains. *Id.* ¶¶ 113-115 (detailing how “turntable” is used throughout the ’498 patent). Perhaps this is actually what Dr. Moon intended, *i.e.*, that the “appliance” in his construction would include these other elements. In any event, to the extent “turntable” is construed, Patent Owner’s construction should be adopted. In addition, it should be noted that the claims of the ’498 patent further require both an analog-to-digital converter and controller to be located within the turntable, as Dr. Moon and Sony agree. *See* Ex. 1002 ¶ 42; Ex. 2004 ¶ 120; Paper 2 at 20.

2. “controller”

With respect to the claim term “controller,” the ’498 patent describes the controller as follows in the specification:

- “The output of the analog to digital converter 18 is digital and is received by the USB controller 20. Both the analog to digital converter 18 and the USB

controller 20 are within the turntable 10. This results in a USB signal being generated from the turntable 10 from a USB jack 22 which is on the cabinet of the turntable 10.” Ex. 1001 at 2:19-25; Ex. 2004 ¶ 122.

- “The output of the analog to digital converter 18 is digital and is received by the firewire controller (link layer) 26. The output of the [fi]rewire controller (link layer) 18 is received by physical (PHY) layer 28. The analog to digital converter 16, the firewire controller (link layer) 26 and the physical SHY) layer 28 are all contained within the turntable 10. This results in a [] signal being generated from the turntable 10 from a firewire jack (IEEE-1394) 30 which is on the cabinet of the turntable 10.” *Id.* at 2:40-48; Ex. 2004 ¶ 122.

Based on these uses, as well as his familiarity with controllers in the prior art, Mr. Zatkovich opines that the term should 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.” Ex. 2004 ¶ 123.

3. “representative”

With respect to the claim term “representative,” the ’498 patent uses the term in the following ways:

- “a conventional analog electrical signal, representative of the audio recording on the LP record” (Ex. 1001 at 2:16-18, 2:37-38);

- “an analog audio signal representative of an audio recording” (*id.* at 2:63-64);
- “an output digital audio signal of music or speech representative of an audio recording” (*id.* at 2:67-3:1); and
- “an output of said analog to digital converter, representative of said analog audio signal” (*id.* at 3:1-3). Ex. 2004 ¶ 124.

Based on these uses, and the overall description in the '498 patent of an improved turntable that digitizes the analog signal created from the audio recording on a vinyl LP and outputs that digital audio signal, Mr. Zatkovich opines that the term “representative” should be construed as “[r]eproducibly indistinguishable to a listener, but in a different format from the original.” Ex. 2004 ¶ 128.

C. Sony Has Failed to Show that Any Claims Were Obvious Over Cortellesi

In Ground 1, Sony argues that Claims 1-2 and 4-6 were obvious over Cortellesi. Sony, however, misstates and mischaracterizes the teachings of Cortellesi. A person of ordinary skill in the art would not have found any claim of the '498 patent obvious in view of this reference, and thus Sony has failed to establish a reasonable likelihood of success.

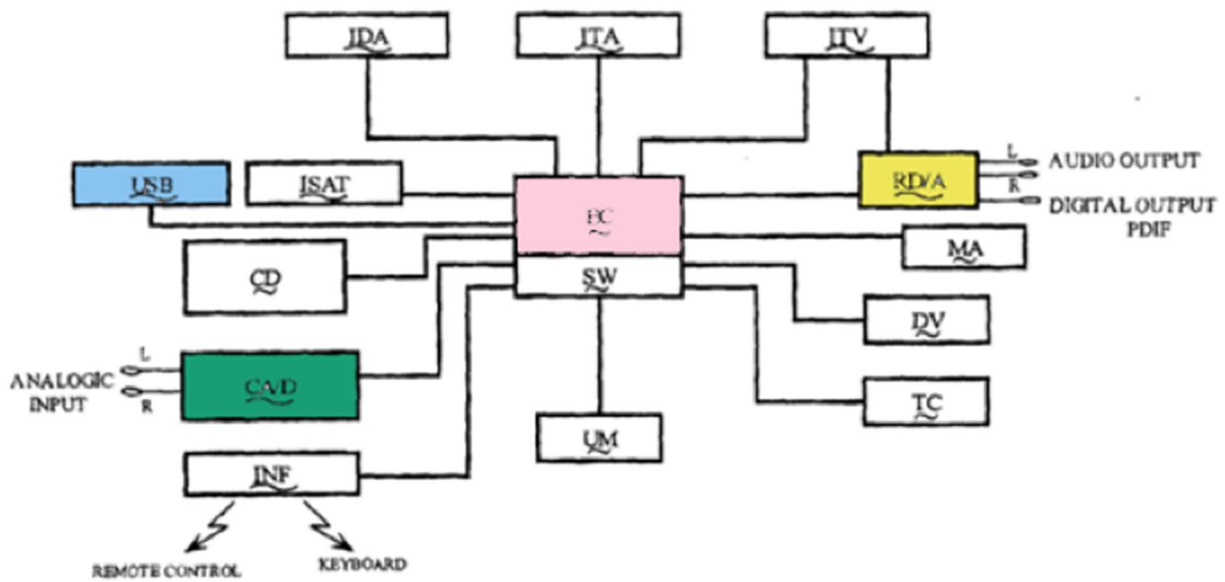
1. Background of Cortellesi

Cortellesi is directed to an “apparatus for disk jockeys [DJs] to store, handle and play pieces of music in succession,” including “means for receiving and

Patent 7,567,498

storing the desired pieces of music in digital form, means for the digital/analogue conversion of the selected pieces of music to play/listen to them, and means for allowing the disk jockey to change manually the rhythm of the pieces of music to be played in real time.” Ex. 1004 at Abstract; *see also* Ex. 2004 ¶ 67. With the apparatus, a DJ can play music “without the need of having the original music supports or records,” since it can “record pieces of music” from external sources such as (a) “live” music “through microphone or preamplified line connection,” as well as (b) recorded music “from standard playing units, such as compact disk players, tape recorders, and record players.” Ex. 1004 at 1:18-23, 1:30-34; Ex. 2004 ¶ 67.

The detailed description of Cortellesi describes several “preferred embodiments of the invention.” Ex. 1004 at 1:47-52. One embodiment is illustrated by Figure 1, which is “a first block diagram of the storing, playing apparatus.” *Id.* at 1:54-55; Ex. 2004 ¶ 68.



In the embodiment of Figure 1, (a) “EC” [shown in pink] is the “central processing unit”; (b) “CA/D” [shown in green] is a “digital/analogue converter ... for storing directly from audio analogue sources (vinyl records, tapes, radio, live)”; (c) “UM” is a “storage unit” including for “digital data for the music reproduction”; (d) “RD/A” [shown in yellow] is a “playing unit” that either (1) decodes the digital data into analog stereo audio signals for output to analog speakers or (2) encodes the digital data into the S/PDIF standard for output in a digital form; € “DV” is a “display”; (f) “TC” is a “control keyboard,” and

(g) “MA” are “knobs.” Ex. 1004 at 2:25-3:23²; see also Ex. 2004 ¶ 69. The “knobs MA” are used for “selecting the piece of music and controlling position, speed, start, stop (scratching).” Ex. 1004 at 3:6-8; Ex. 2004 ¶ 80.

Another embodiment is depicted in Figure 2 of Cortellesi. Ex. 2004 ¶¶ 77-78. The diagram of Figure 2 differs from Figure 1 in key ways. In particular, Figure 2 differs “by the presence of a virtual disk VD” [shown in orange] and “sensor of magnetic flux SD” [shown in blue]. Ex. 1004 at 4:27-32, 4:40-46; Ex. 2004 ¶¶ 77-78. As described and depicted below, this virtual VD and sensor SD allows control of digital music, including “scratching” effects (which was performed by the knobs MA in Figure 1), which is more akin to how DJs controlled and manipulated music on LPs using conventional turntables. Ex. 1004 at 4:22-32; Ex. 2004 ¶ 79. Other differences between Figures 1 and 2 include the absence of “USB,” “Infrared interface INF” and other elements from Figure 2. *See* Ex. 1004 at 4:14-17 (describing “Infrared interface INF” in the embodiment of Figure 1); *see also id.* at Figures. 1 & 2.

² Fig. 1 includes additional abbreviations and acronyms, which are either not relevant for this Preliminary Response (*e.g.*, IDA, ITV, ITA) or that are self-explanatory (*e.g.*, CD and USB [shown in blue]).

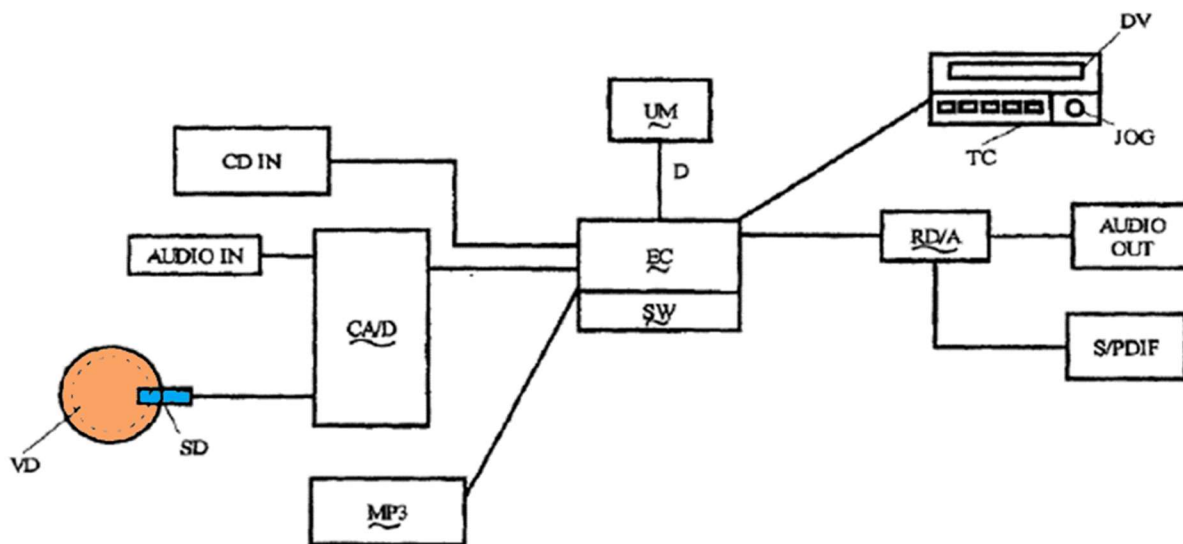


FIG. 2

The virtual disk of Figure 2, shown in more detail in Figure 3, “is placed on the turntable of a *common record player* and handled as a common long playing record (L.P.), however, without using any pick-up arm,” and instead using a “directional sensor of magnetic flux SD.” *Id.* at 4:40-46 (emphasis added); Ex. 2004 ¶¶ 77-79. A magnetic flux SD (aka “sensor SD”) on a common record player can be seen in Figure 4. *Id.* The “sensor SD” detects information such as “the position of the disk” and “its speed of rotation,” which is then used to control the playback of digital music, “so that a perfect synchronization with the manual operations of the disk jockey on said virtual disk VD is carried out.” Ex. 1004 at 4:47-5:3; Ex. 2004 ¶ 77. That is, the virtual disk is not used to play music from the turntable; it is not a standard LP and so there is no analog audio signal to extract

from it. Ex. 2004 ¶ 77. Instead, the virtual disk is used as a mechanism to control the playback of digital music from the storage unit UM. *Id.* ¶ 79.

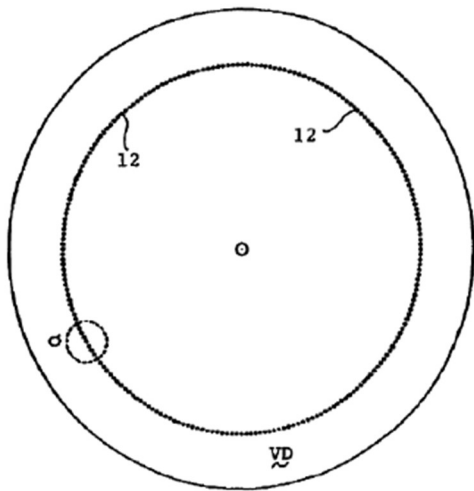


FIG. 3

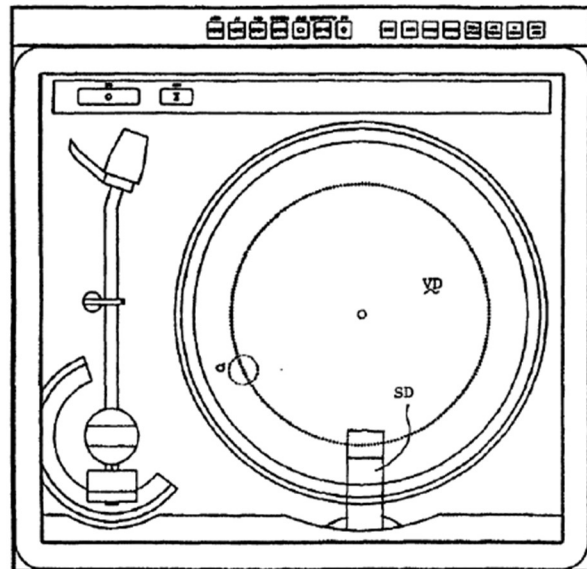


FIG. 4

2. Cortellesi Does Not Disclose or Render Obvious the Limitations of the Challenged Claims.

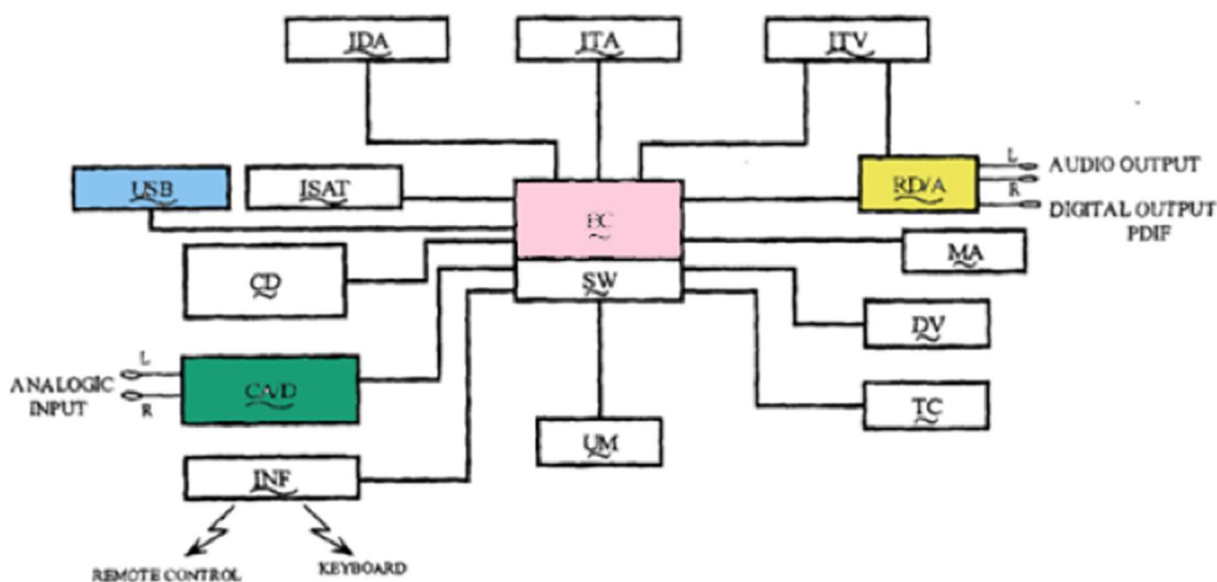
a. Cortellesi Does Not Disclose or Suggest an Analog to Digital Converter, a Controller, or USB Within the Turntable.

Claim 1 recites “an analog to digital converter for receiving an analog audio signal from the phono cartridge; and a controller responsive to said analog to digital converter . . . wherein said analog to digital converter and said controller are included within said turntable . . .” Ex. 1001 at 2:64-67, 3:4-5. This limitation was one of the bases for the allowance of the ’498 patent. This is reflected in the Notice of Allowance, which stated:

Although many prior art of record disclose converting analog audio signal reproduced from the record into a digital audio signal; however, none of [] them teach having an analog to digital converter and a controller responsive to the analog to digital converter [] built inside a turntable.

Ex. 1008 at 197; Ex. 2004 ¶ 36. Contrary to Sony's assertion, Cortellesi does not disclose or suggest the above limitation. *See* Ex. 2004 at § 7.1.2. In relevant portions, it is the same as the prior art referenced by the examiner during prosecution.

As discussed above, Cortellesi discloses an apparatus in which various devices may be connected to a central processing unit EC that comprises “a microprocessor CPU processing and delivering data from the several inside and/or outside units by digital connectors.” Ex. 1004 at 2:25-28; Ex. 2004 ¶ 68. Cortellesi also discloses a digital/analog converter CA/D, which may be used to convert data from analog audio sources to a digital signal so that it can be stored on the storage unit UM. *See* Ex. 1004 at 2:33-38 (reciting “a digital/analogue converter CA/D for storing directly from audio analogue sources (vinyl records, tapes, radio, live) [on] . . . a storage unit, UM [that] stores all data relative to the pieces of music”). The specification further explains that “[t]he pieces of music are entered into the storing unit through analogue-to-digital converter that can receive the analogue stereo audio signal directly from an outside source or digitally from a compact disk or other digital interfaces.” *Id.* at 5:7-22.



Thus, the specification makes clear that the analogic inputs, which may be vinyl records, tapes, radio, or live music, are outside sources and therefore outside units. Ex. 2004 ¶¶ 76, 134-35. Because such sources are outside units, they are outside of the apparatus shown in Figures 1 and 2 of Cortellesi. *Id.* And, if such sources – which would include a record player – are outside of the apparatus disclosed in Figures 1 and 2, then that means any record player disclosed by Cortellesi is located outside of the apparatus containing Cortellesi’s analog-to-digital converter and controller (*i.e.*, the EC under Sony’s mapping). *Id.* Thus, Cortellesi fails to disclose or suggest claim 1’s requirement that the “analog to digital converter and said controller are included within said turntable.” *Id.* ¶¶ 140-147. In this respect, it is no different from the prior art cited by the examiner during prosecution.

This structure of Cortellesi fits with the description of its main functionality: connecting to various sources of music or speech and saving such music or speech to a storage unit for subsequent playback so as to provide “a cheap, reliable, portable electronic apparatus using a dedicated hard-disk where it is possible to store digitally several pieces of music and to play them without the need of having the original musical supports or records.” Ex. 1004 at 1:19-23; Ex. 2004 ¶ 151.

Including 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.” Ex. 1004 at 1:19-23; Ex. 2004 ¶¶ 157-165. Sony’s argument, contrary to the express disclosure of Cortellesi, would interpret the apparatus as being less portable than necessary where original music supports and records are not used. Dr. Moon, Sony’s expert, appears to grudgingly acknowledge this fact at least where a DJ would not be utilizing a virtual disk:

Q: If he doesn’t want to use the virtual disc in that scenario, he doesn’t need to take the virtual disc, right?

A: And now - - yes.

Q: He won’t need to take the unit that plays the virtual disc or play the record at all, right? So keeping these units separate gives the D[J] the flexibility to take to the venue that which he’s going to need for the particular things he is trying to accomplish, right?

A: In that setting.

Ex. 2007 at 64:5-15. Dr. Moon also conceded at his deposition that there is no disclosure in Cortellesi of an all-in-one mega apparatus that combines the apparatus of either Figure 1 or 2 with a record player, radio, tape cassette player, and so on. *See id.* at 30:7-8 (“Cortellesi does not say all of [the items shown in Figure 1] fit inside that box.”). Accordingly, there is no disclosure in Cortellesi of an analog to digital converter or a controller within the turntable. Ex. 2004 ¶¶ 157-165.

The conclusion that the analog-to-digital converter would not be included within a turntable (and that Cortellesi does not disclose such an arrangement) is reinforced by the very New York Times article cited by Sony, which indicates that, at the relevant time period, analog/digital converters were purchased as a stand-alone component and used to connect record players to a computer for purposes of burning the record to a CD or DVD. *See e.g.*, Ex. 1007 at 001-002 (disclosing the use of separate pre-amplifiers, which may include an “audio-to-digital converter,”³ to connect the record player to the computer); Ex. 2004 ¶ 35. The apparatuses of Figures 1 and 2 are each such an external device, as discussed by the New York Times, that can be used to digitize music from a *common record player*.

³ While Ex. 1007 makes reference to an “audio-to-digital converter,” a POSITA would understand such term to refer to an analog-to-digital converter.

Notwithstanding this fact and despite its expert acknowledgment to the contrary (*see e.g.*, Ex. 2007 at 77:5-8 (acknowledging that Cortellesi does not show many of the components disclosed in Figure 1 as being within the turntable shown in Figure 4)), Sony attempts to argue that Figure 4 shows such an all-in-one arrangement. Paper 2 at 31-32. But Cortellesi makes clear that Figure 4 shows a virtual disk VD “placed on the turntable of a *common record player* and handled as a common long playing record (L.P.), however, without using any pick-up arm.” Ex. 1004 at 4:40-42 (emphasis added); Ex. 2004 ¶¶ 77, 143. In other words, the virtual disk is a device that may be placed on a common record player in place of a typical vinyl record, and the sensor SD – instead of the phone arm – will be used to track the virtual disk’s speed and position information for purposes of controlling playback of digital audio played from the storage unit UM. Ex. 2004 ¶¶ 77, 143. Like the virtual disk, the sensor of magnetic flux SD used with a *common record player* is also external to the apparatus of Figure 2. *Id.* ¶¶ 77, 145.

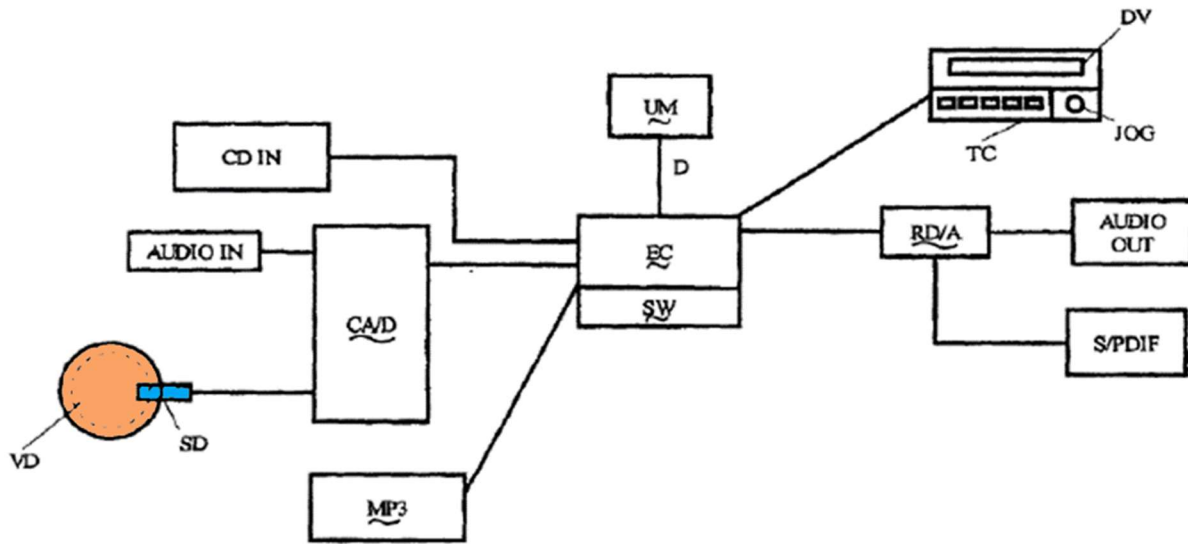


FIG. 2

The Board, in its institution decision, quoted Cortellesi as stating Figure 4 “is a top plan view of the portable apparatus provided with a record player carrying the virtual disk provided with a reading sensor.” Paper 10 at 24; Ex. 2004 ¶ 83. This, however, was a misquote and is not found in Cortellesi. Ex. 2004 ¶ 83. Cortellesi actually states “Fig. 4 is 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 at 2:8-10; Ex. 2004 ¶ 83. This ambiguous phrasing does not alter the disclosure of Figure 4. Ex. 2004 ¶ 83. Looking at Figure 4, one can see

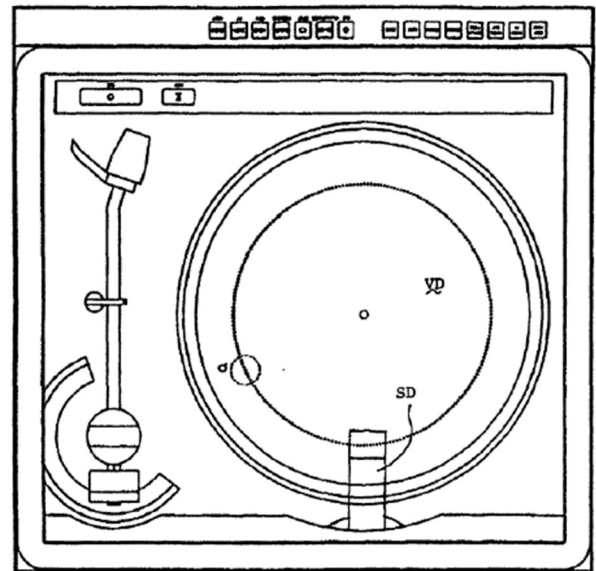


FIG. 4

that this record player is an external device—and not the apparatus described of Figure 2. *Id.* The common record player of Figure 4 does not have a display (“DV”) or knob (“MA” or “JOG”), as shown in Figure 2. *Id.* Nor does it have many of the other components described in Figures 1 and 2. *Id.*; *see* Ex. 2007 at 77:5-8 (acknowledging that Cortellesi does not show many of the components disclosed in Figure 1 as being within the turntable shown in Figure 4). The evidence indicates that Figure 4 is a separate record player (and a common record player), whose analog output is connected to the external apparatus disclosed in Figure 2. Ex. 2004 ¶ 74.

This conclusion is again supported by the contemporaneous extrinsic evidence of record. As evidenced by the New York Times articles (*see* Exs. 1007 and 2012) and other prior art of record, at the relevant time a common record player would not have included an analog to digital converter or a controller. Ex. 2004 ¶ 75. Thus, Figure 4 does not disclose a turntable having a controller or analog to digital converter within the turntable. *Id.* ¶¶ 83, 147. Indeed, Figure 4 – as Dr. Moon admits – does not have any disclosure as to the components or contents of the turntable that is shown. At his deposition, Dr. Moon conceded that “Cortellesi does not say all of [the items shown in Figure 1] fit inside that box.” Ex. 2007 at 30:7-8; *see also id.* at 77:5-8 (acknowledging that Cortellesi does not show many of the components disclosed in Figure 1 as being within the turntable

shown in Figure 4). He also agreed that perhaps Cortellesi was disclosing that the virtual disk and sensor plug into the apparatus “via the analogic input.” *Id.* at 35:25-36:5.

Moreover, not only does Dr. Moon’s argument requiring combining the features of Figures 2 and 4, it actually requires combining the features of Figures 1, 2 and 4 in one mega combination. As discussed above, Figure 2 does not disclose the use of “USB,” which is necessary for Sony’s claim mapping. In sum, Sony’s argument that Figure 4 discloses an apparatus having an analog to digital converter and a controller within the turntable is simply unsupported by the disclosure of Cortellesi, and Sony has failed to meet its burden. Ex. 2004 at § 7.1.2.

b. It Would Not Have Been Obvious to a POSITA to Combine Cortellesi’s Figures 1, 2 and 4.

As a back-up to its argument regarding Figure 4, Sony asserts that, even if there is no actual disclosure of a controller or an analog to digital converter within the turntable, it would have been obvious to modify Cortellesi to integrate such components within the turntable. Paper 2 at 31-32; Ex. 1002 at 31-33. That is, Sony argues it would have been obvious to combine Figures 2 and 4 (and Figure 1) of Cortellesi into one device with one housing. Sony is incorrect. Sony and Dr. Moon summarily allege it would have been obvious to make such a modification to Cortellesi “as integrating these components would have increased the portability and ease of use, as opposed to connecting or installing the components on-site at a

Patent 7,567,498

disco hall, dance club, or restaurant.” Paper 2 at 31. But in fact that would be no motivation to make such a modification. Ex. 2004 ¶ 157.

Both Dr. Moon and Mr. Zatkovich agree that portability is key to DJs. *Compare* Ex. 1002 at 31-32 (emphasizing portability as the motivation to make Dr. Moon’s proposed modification to Cortellesi) *with* Ex. 2004 ¶¶ 158-163 (discussing that flexibility and portability are key considerations for DJs). While Dr. Moon’s actual knowledge regarding DJs is lacking (*see e.g.*, Ex. 2007 at 40:24-41:12), Mr. Zatkovich provides a thorough explanation of how portability matters to DJs. *See* Ex. 2004 ¶¶ 160-163. In particular, Mr. Zatkovich explains that DJs may play at a variety of venues, each of which may have varying levels of equipment available for the DJ to use and different expectations for the DJ’s performance. *Id.* Accordingly, DJs want to be able to maximize portability and flexibility of their system so they do not need to take more equipment than needed to each venue (and so they can vary the equipment that is brought to each venue). *Id.* Dr. Moon agreed at deposition that this was likely true. *See* Ex. 2007 at 41:13-45:4.

Additionally, as Mr. Zatkovich opines, the scratching can be accomplished by both the knobs MA and the virtual disk VD of Cortellesi. Ex. 2004 ¶¶ 79-80. Accordingly, the primary purpose of the virtual disk VD is to serve as “window dressing” in order 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

Patent 7,567,498

than it actually is. Dr. Moon acknowledged this may be the case. *See* Ex. 2007 at 74:8-75:5.

The prior art confirms the importance of flexibility and portability to DJs. Cortellesi discloses that it is intended for use with multiple analog devices to facilitate the storage of data on the storage unit for later playback. Ex. 1004 at 2:25-49; Ex. 2004 ¶ 151. In particular, Cortellesi states:

[0001] The present invention relates to the professional playing of records and particularly is directed to the personnel of discos, dance-halls and restaurants, where there is the problem of having a lot of records available, as well as professionals so-called disk jockeys working in discos and private broadcasting companies with the need of being always ready to transmit pieces of music by request or jingles without solution of continuity. In order to meet such requirements the disk jockeys should resort to expensive, sophisticated, cumbersome apparatus including juke-box of large playing capacity that does not allow a personalized handling of the pieces of music in succession or the so-called scratching with the purpose of personalizing the played music.

[0002] The present invention aims at overcoming the problems mentioned above by providing a cheap, reliable, portable electronic apparatus using a dedicated hard-disk where it is possible to store digitally several pieces of music and to play them without the need of having the original musical supports or records.

Ex. 1004 at [0001]-[0002].

If, as proposed by Dr. Moon and Sony, the apparatus of Cortellesi was modified so as to be contained within a record player, such a modification would negatively impact the portability of the apparatus. *See* Ex. 2004 ¶¶ 164-65. For example, if the apparatus were integrated into the “common record player” shown

in Figure 4 as Sony proposes, then the DJ would have to bring that record player to each and every performance where the apparatus is employed, even if a turntable is already at the venue or if a turntable and/or virtual disk is unnecessary to that particular performance. *Id.* This would decrease the portability of the apparatus to a DJ – contrary to Dr. Moon’s assertion – and therefore a POSITA would not be motivated to make such a combination. *Id.*

Moreover, Figures 1 and 2 also show the apparatuses of Cortellesi as accepting input from a CD player, which was a much more popular format for music in the early 2000s compared to LP players. Ex. 2011. Under Sony’s interpretation, there would then be 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. This, however, is not disclosed anywhere in Cortellesi, nor shown in the figures. Alternatively, Sony’s combination would create 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). Indeed, Dr. Moon even mentioned at his deposition that the invention of Cortellesi (or his modification of such) would allow guests at a wedding to bring their own LPs for the DJ to play. Ex. 2007 at 68:16-70:9. This scenario seems quite farfetched and contrary to how DJ requests work (*i.e.*, the DJ plays his or own music and so may or may not be able to accommodate an individual request).

Because it is clear from Cortellesi itself that a POSITA would not make the proposed modification, Dr. Moon's alleged motivation to combine is supported only by his own *ipse dixit*. Dr. Moon even acknowledged at deposition that this is the case. *See* Ex. 2007 at 65:1-70:9. This is insufficient under established Federal Circuit law. *See TQ Delta, LLC v. CISCO Sys., Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019) (reversing finding of invalidity based on expert opinion that failed "to explain why a person of ordinary skill in the art would have combined elements from specific references *in the way the claimed invention does*) (emphasis in original).

Finally, even if a POSITA were to make the proposed modifications to Cortellesi, the resulting apparatus would still fail to render the '498 patent obvious. Dr. Moon and Sony miss that simply taking Figure 4, which discloses a conventional turntable, and integrating an analog-to-digital converter and controller into the turntable still does not meet the limitations of Claim 1. Figure 4 is a conventional turntable, and as such does not include USB. Ex. 2004 ¶ 168. Cortellesi only discloses USB in the context of the apparatus of Figure 1. *Id.* So simply adding an analog to digital converter and controller to the conventional turntable of Figure 4 (or even combining the turntable of Figure 4 with the apparatus of Figure 2) does not satisfy the claim language of Claim 1 that the controller generates "an output digital audio signal . . . wherein said output digital

Patent 7,567,498

audio signal is output from said turntable and uses standard computer protocol,” or of Claim 2 that “said output digital audio signal uses universal serial bus (USB) protocol.” *Id.* ¶¶ 166-68. Sony does not argue it would be obvious to also integrate USB (or Firewire or other standard) into Figure 4 (*see* Paper 2 at 46), and as such, Sony has failed to meet its burden of proof.

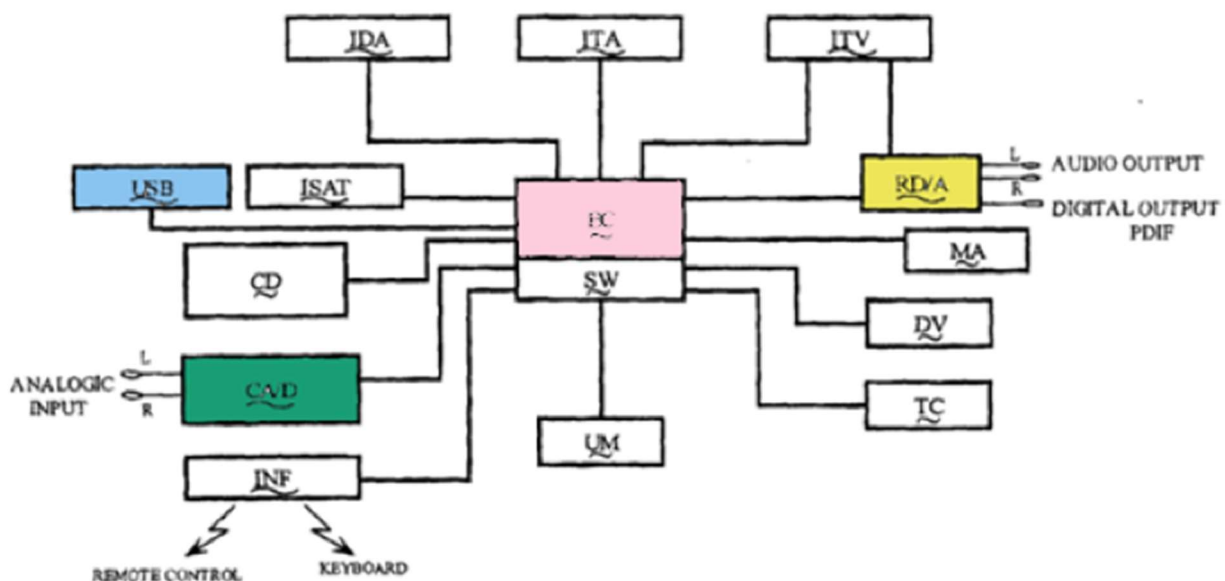
c. Cortellesi does not teach a controller that generates an output digital audio signal as required by the claims.

Claim 1 also recites “an analog to digital converter for receiving an analog audio signal from the phono cartridge” and “a controller responsive to said analog to digital converter for generating 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,” wherein “said output digital audio signal is output from said turntable and uses standard computer protocol.” Ex. 1001 at 2:64-3:7; Ex. 2004 ¶ 170. Cortellesi, however, does not disclose or render obvious these limitations. Ex. 2004 ¶ 171.

Sony argues that Cortellesi “teaches an **analog to digital converter** for receiving an analog audio signal from the phono cartridge.” Paper 2 at 40 (emphasis modified); Ex. 2004 ¶ 172. Specifically, Sony references the “digital/analog converter CA/D,” which is shown below highlighted in green in Figure 1. *See* Paper 2 at 40 (quoting Ex. 1004, 2:22-36, which describes Figure 1);

Patent 7,567,498

see also id. at 42. Sony argues it would have been obvious from Cortellesi that this CA/D would have received an analog audio signal from the phono cartridge of the turntable (shown in Figure 4) playing a standard LP. *See id.* at 40.



Sony then asserts that the “central processing unit EC” [highlighted in pink] is the recited **controller** of Claim 1. Paper 2 at 41. The central processing unit EC, however, is not a “controller” as used in the ’498 patent. Ex. 2004 ¶ 175. That is, 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.” *Id.*

Cortellesi also does not disclose the central processing unit EC “generating an output digital audio signal of music or speech representative of an audio recording from an output of said analog to digital converter,” as recited by claim 1,

nor is this obvious in view of Cortellesi. *Id.* ¶ 176. As cited by Sony in the Petition, Cortellesi only discloses the EC “processing and delivering data.” Paper 2 at 41. (quoting Ex. 1004, 2:25-33); Ex. 2004 ¶ 177. Processing and delivering data is not the same as “generating an output digital audio signal.” Ex. 2004 ¶ 178. To the extent that Sony is referring to the central processing unit’s role in storing and retrieving files in the storage UM, that does not meet the limitation. *Id.* That is, even if Cortellesi disclosed the EC taking a music file from storage and outputting it via the USB (which it does not), that does not meet the limitation of “generating an output digital audio signal . . .” recited in the claims, as no generation occurs in this scenario. *Id.* ¶ 179.

The only generation of an output digital audio signal discussed in Cortellesi is in conjunction with its “playing unit, RD/A” [highlighted in yellow]. *Id.* ¶ 180. In particular, Cortellesi’s “playing unit, RD/A” generates, from the raw data, an output digital audio signal that can be played in the form of S/PDIF audio signals. Ex. 1004 at 2:50-54; Ex. 2004 ¶ 180. The “playing unit” of Cortellesi, however, cannot be used to invalidate the challenged claims, and Sony does not assert otherwise in the Petition or its claim mappings. Ex. 2004 ¶ 181.

Claim 1 recites “wherein said output digital audio signal is output from said turntable and uses standard computer protocol,” with Claims 2 and 3 clarifying that the protocol is USB and firewire, respectively. Ex. 2004 ¶ 182. The “playing unit,

Patent 7,567,498

RD/A” generates and outputs “digital signals in S/PDIF standard,” but as described by the ’498 patent, this is not a “standard computer protocol.” *See* Ex. 1001 at 1:35-38 (“The SPDIF (Sony/Phillips Digital Interface) has been built into some turntables in order to provide a digital output. However, this is not a standard protocol such as USB (universal serial bus) or firewire (IEEE 1394).”); Ex. 2004 ¶ 183. Nor does S/PDIF satisfy the dependent claim’s requirements of USB or Firewire. Ex. 2004 ¶ 183.

In any event, Sony does not attempt to rely on S/PDIF—relying instead only on USB as the digital audio signal that is “output from said turntable” and that “uses standard computer protocol.” *See* Paper 2 at 46; Ex. 2004 ¶ 184. In addition, Cortellesi does not teach the “playing unit, RD/A,” which is also not relied upon by Sony, as outputting music via USB. Ex. 2004 ¶ 185. As clearly shown above in Figure 1, the playing unit, RD/A outputs only via stereo and via S/PDIF and not “USB” [blue]. *Id.* ¶ 186. Therefore, because the central processing unit EC is not a *controller* as recited in the claims, Sony has failed to establish that any of the claims are invalid over Cortellesi. *Id.*

d. The Dependent Claims are Also Not Rendered Obvious by Cortellesi

Because Sony has failed to show claim 1 is obvious over the prior art of record, Sony has therefore also failed to establish that claims dependent claims 2-6 are obvious.

Additionally, claim 2 is not obvious for the additional reason that Cortellesi does not disclose or suggest the limitation “wherein said output digital audio signal uses universal serial bus (USB) protocol.” Ex. 2004 ¶¶ 192-195. Sony states that “[a] USB interface uses universal serial bus (USB) protocol, and thus the digital audio signals being communicated by the interface also use that protocol. (Ex. 1002, ¶101).” Paper 2 at 48. But this is irrelevant because, as discussed above, Cortellesi’s “USB-interface” does not meet claim 1’s requirement that “said output digital audio signal is output from said turntable.” Ex. 2004 ¶ 194.

D. Sony Has Failed to Show that Spencer and Cohen Render Obvious Any of the Claims of the ’498 Patent.

In Ground 3, Sony argues that Claims 1-2 and 4-6 were obvious over Spencer in view of Cohen. Sony, however, misstates and mischaracterizes the teachings of these references. The combination of these references does not render obvious any claims of the ’498 patent. Sony, therefore, has failed to establish a reasonable likelihood of success.

1. Background of Spencer and Cohen

Spencer discloses a way of synchronizing a physical record (LP) with digital music. *See* Ex. 2004 at § 5.3. It “relates to a system and method for detecting a location on a surface selected by a user and manipulating a digital source based on information relative to the detected location.”

Ex. 1005 ¶ 2. Spencer discloses a turntable (or record player) in

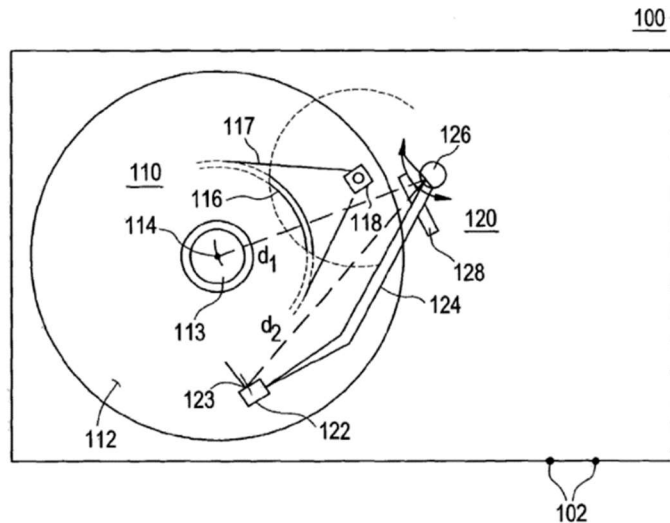


Figure 2, which is referred to throughout the reference as “controller unit 100.” *Id.*

¶ 28; Ex. 2004 ¶ 89. Spencer in some ways is similar to the virtual disk of Cortellesi in that its turntable is used as a controller to synchronize or control digital audio playing from a separate source, such as a computer. *See also* Ex. 1005 ¶¶ 7-13. Spencer additionally discloses outputting analog music (“analog audio waveform”) from the turntable to an external device for digitization (“sampling”), *i.e.*, in the fashion discussed in the New York Times article, for use in its synchronization process. *See* Ex. 1005 ¶¶ 14, 36, 67, 97; *see also* Ex. 2004 ¶¶ 84-96.

Cohen similarly discloses a “turntable assembly” that accepts a “record” with “MIDI timing signals encoded therein.” Ex. 1006 at Abstract; *see also* Ex.

2004 at § 5.4. Cohen converts the signal from the record into a digital format using an analog-to-digital converter, and extracts the MIDI “timing signal so as to generate an output MIDI timing code,” which is used for “controlling the playback of an external audio signal.” Ex. 1006 at Abstract; Ex. 2004 ¶ 99. Cohen is not primarily directed to playing music or audio signals from the LP (or record) itself, disclosing a special record with MIDI timing codes instead of music or other recorded audio. Ex. 1006 ¶ 14 (“the groove of record 12, rather than having a musical performance in analog format, has a MIDI audio time code encoded therein in analog format”); Ex. 2004 ¶ 101. In one paragraph, provided with no explanation, Cohen does describe an embodiment with the turntable playing a conventional record, but discloses that only MIDI instructions are output from the turntable. Ex. 1006 ¶ 18; Ex. 2004 ¶ 103.

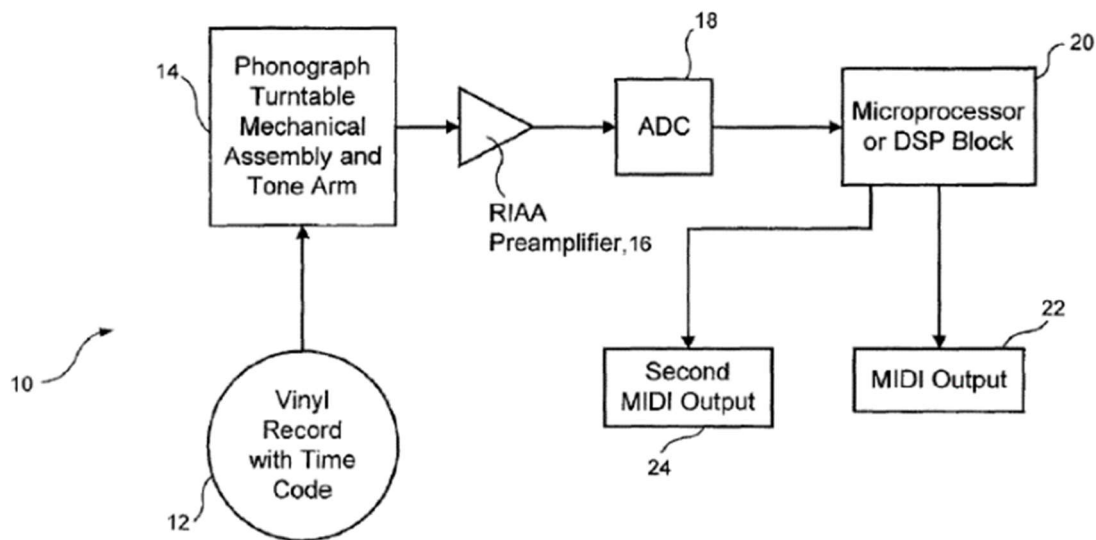


FIG. 1

2. Spencer and Cohen Do Not Disclose or Render Obvious the Limitations of the Challenged Claims.

As discussed above, claim 1 recites a “tonearm for receiving a phono cartridge” that “generat[es] an analog audio signal representative of an audio recording.” Ex. 1001 at 2:62-63. In claim 1, that analog audio signal is received by the “analog to digital converter.” *Id.* at 2:64-65; Ex. 2004 ¶ 226. Claim 1 further recites a “controller” that 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” and that “output digital audio signal is output from said turntable and uses standard computer protocol.” Ex. 1001 at 2:66-3:7. In claim 1, therefore, the “output digital audio signal” must be a digitized version of the analog audio signal representative of an audio recording (*e.g.*, from a record that the phono cartridge “reads”). In other words, as properly construed, claim 1 requires that the output digital audio signal be reproducibly indistinguishable to a listener, but in a different format from, the original analog audio signal from the record, and this must be output from the turntable.

a. Spencer’s only discloses its turntable outputting the music from a record in the traditional analog fashion.

Spencer does not disclose digitized audio representative of an audio recording being output over USB, as asserted and relied upon by Sony in its Petition. *See, e.g.*, Paper 2 at 54-55; Ex. 2004 ¶¶ 227-28. In fact, the only instance

Patent 7,567,498

in which Spencer discloses the music (or speech) on a LP3 record being output from its turntable (or controller unit 100) occurs with respect to its “analog audio waveform” embodiment (Ex. 1005 ¶ 14), and it is output as analog audio. Ex. 2004 ¶¶ 228-230.

In particular, Spencer discloses an “analog audio waveform,” which, as with all disclosures of Spencer, is used for synchronizing the position of a record on the turntable with digital music. *See, e.g., id.* ¶ 66; Ex. 2004 ¶¶ 228-230. Nowhere within Spencer is it described that the turntable digitizes this analog waveform or music from an LP record, and transfers it to the data processor unit 200 via USB. Ex. 2004 ¶¶ 228-230. In fact, Spencer teaches that its turntable, at least in this respect, operates like a common record player in that analog audio (through “analog electrical signals”) is communicated to the data processor unit 200. *See* Ex. 1005 ¶ 36 (“[T]he cartridge 122 communicates those analog electrical signals to the data processor unit 200 for sampling....”); Ex. 2004 ¶¶ 228-230. Spencer further discusses that “data processor unit 200 may sample the audio waveform generated by the interaction of the stylus 123 and groove sidewalls at a progressively increased rate such that the analog audio waveform is sampled at an overall constant rate.” Ex. 1005 ¶ 67; Ex. 2004 ¶¶ 228-230. That is, the digitization of the analog audio waveform occurs not on the turntable (controller unit) 100 but on the data processor unit 200, which the invention then uses to

Patent 7,567,498

“preserv[e] the correspondence between the needle location and the sampled analog audio waveform” for synchronization purposes. Ex. 1005 ¶ 97; Ex. 2004 ¶¶ 228-230.

In Spencer, “an output digital audio signal of music or speech representative of an audio recording” is not “output” from the turntable using “standard computer protocol.” Ex. 1001 at Claim 1. Instead, Spencer’s turntable outputs an analog audio signal. Ex. 2004 ¶ 232.

b. Spencer’s other disclosures do not disclose or render obvious the limitations of the claims.

Sony does not appear to rely on Spencer’s actual teachings of its turntable outputting the audio stored on an LP record in connection with the “analog audio waveform” disclosures. Instead, Sony ignores the full context of Spencer, and cites to selective portions of Spencer in arguing that Spencer teaches the output of digital music via USB. *See, e.g.*, Paper 2 at 54-55 (quoting Ex. 1005 ¶ 30). This argument, however, is incorrect and should be rejected.

The term “USB” appears only twice in Spencer. One of those references, in ¶ 57, speaks as to a USB port in “data processor unit 200.” *See* Ex. 1005 ¶ 57; Ex. 2004 ¶ 94. Data processor unit 200, however, is not a turntable/record player. Ex. 2004 ¶¶ 94-95. “Controller unit 100” is the record player and the only thing that Sony relies upon as being the turntable/record player in its Petition. *See* Paper 2 at 54; Ex. 2004 ¶¶ 94-95. The data processor 200 is a computer that can communicate

Patent 7,567,498

with the turntable. Spencer's Paragraph 57 states: "In one aspect of the present invention, the input and output ports include 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." Nothing in this paragraph discloses that audio signals are communicated over USB. Ex. 2004 ¶ 94. Paragraph 57, which Sony never cites to in its Petition, is therefore not relevant.

The only other reference to "USB" within Spencer is in Paragraph 30, which is the sole paragraph to which Sony cites in support of its USB argument. In this paragraph, Spencer states "output ports 102 on the controller unit 100, e.g., a turntable unit, may be coupled to corresponding SCSI, USB, or other suitable type port 202 on the data processor unit 200 to communicate digitized audio signals and information useful in determining an intratrack needle position from the controlling unit 100 to the data processor unit 200." Sony highlights that the paragraph states "digitized audio signals" are communicated via USB, and it ends its analysis there. *See* Paper 2 at 54-55. Sony, however, misreads ¶ 30 of Spencer and ignores the full context of Spencer.

Sony mischaracterizes what is communicated over USB. Paragraph 30 of Spencer explains that what is communicated are "digitized audio signals and information" that are "*useful in determining an intratrack needle position.*" Ex.

Patent 7,567,498

1005 ¶ 30 (emphasis added). Indeed, at one point, Sony uses ellipses to completely omit this portion of the sentence, *i.e.*, that the audio signals in Spencer are used for “determining an intratrack needle position.” *See* Paper 2 at 59 (quoting ¶ 30 as “output ports 102 on the controller unit 100, e.g., a turntable unit, may be coupled to corresponding SCSI, USB, or other suitable type port 202 on the data processor unit 200 to communicate digitized audio signals...to the data processor unit 200” (ellipses in original)).

Paragraph 30 does not disclose audio signals representative of an audio recording being transmitted over USB to the data processor unit 200. Ex. 2004 ¶ 94. Instead, in Spencer, the USB transmits audio signals and information that are used to determine the position of the turntable’s needle. *Id.* ¶¶ 87-90. This, of course, makes sense when considering that the entire point of Spencer is to “detect[] a location on a surface [of a LP record] selected by a user and manipulating a digital source based on information relative to the detected location.” Ex. 1005 ¶ 2. That is, Spencer is directed to synchronizing an LP record with digital music on a computer. Ex. 2004 ¶ 86. Claim 1 requires that “the output digital audio signal be “representative of an audio recording, from an output of said analog to digital converter, representative of said analog audio signal.” *See* Ex. 1001 at 2:67-3:3. Nowhere does Spencer disclose that the audio signals transferred over USB are representative of an audio recording on an LP, as required by the

Patent 7,567,498

claims. Ex. 2004 ¶¶ 89-92. Instead, they are only audio signals used to determine the turntable's needle position. *Id.* Such signals are not representative of the analog audio signal of the record because they are not reproducibly indistinguishable to a listener from the original analog audio. *Id.* ¶ 92.

Spencer is not directed to recording music from a turntable to a computer via USB, or playing music through the computer. In Spencer, the turntable plays music from an LP record in the traditional manner. *See* Ex. 1005 ¶ 30 (explaining that “external output device 430 such as a speaker” plays audio transmitted to it from “[a]nalog audio output port 104”). The computer or “data processor 200” plays digital audio, and the invention of Spencer is in synchronizing the two such that the turntable can be used to control the digital music. Ex. 2004 ¶ 86. This is confirmed throughout Spencer's specification, which describes the invention of Spencer in detail. Sony, however, latches onto a portion of one sentence in a single paragraph—which supports Sony's position only when clauses within that single sentence are ignored and the sentence is read in a grammatically incorrect manner.

That the signals transmitted from Spencer's controller unit 100 to the data processor unit 200 are representative of positioning information (and not audio recorded on the LP) is shown throughout the specification. Ex. 2004 ¶¶ 86-90. For example, ¶ 39 of Spencer describes that “[t]one arm assembly signals, i.e., signals indicating the position of the tone arm 124 relative to the tone arm encoder 128 for

Patent 7,567,498

indicating the position of the stylus 123 on an analog record and signals indicating when the tone arm 124 is at rest, may be communicated from the tone arm encoder

128 to the data processor

unit 200 via the output

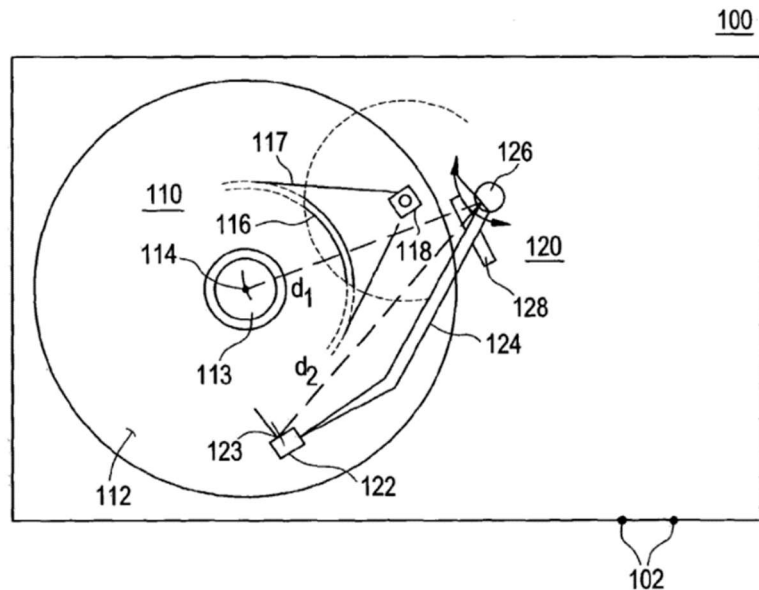
ports 102.” Ex. 1005. In

fact, the tone arm encoder

128 is disclosed in and is a

core portion of every

embodiment within



Spencer. Ex. 2004 ¶¶ 87-89. Spencer further describes that “[t]he tone arm

assembly signals may then be used by the data processor unit 200 to enable

tracking of a stylus’ progression through the groove of an existing record,” and “to

locate the point where the stylus initially contacts the record (i.e., drop point).” Ex.

1005 ¶ 39. In this way, “a portion of an analog audio signal may be associated

with a distance the stylus 123 has traveled from its rest position....” *Id.* Spencer

also describes in detail “scanner assemblies,” which scan and detect information on

the record itself (such as from a “bar code” or “magnetic strip”). *See id.* ¶¶ 40-55.

It is these positioning information signals that are communicated via port

102 to the USB port 202—signals used to indicate what portion of the LP record is

currently being played, so that digital audio can then be synchronized with the

Patent 7,567,498

record. Ex. 2004 ¶¶ 90-92. Perhaps these signals, particularly the “tone arm assembly signals” could take the form of digitized audio signals, although Spencer is entirely absent on that point, never mentioning the “digitized audio signals” again after Paragraph 30. *Id.* But what is clear is that there is no disclosure in Spencer of audio from an LP record being digitized by the turntable and then played back through a computer or other digital source. *Id.* There is no disclosure in Spencer of digital audio being transmitted from the controller unit 100 to the data processor unit 200—let alone via USB. *Id.* ¶ 94. As discussed above, Spencer teaches analog audio of the record being transmitted to data processor unit 200. Yet, Sony pulls one sentence out of context from one paragraph of Spencer, and attempts to assert otherwise.

Indeed, Dr. Moon at his deposition, while not entirely confirming inMusic’s reading, admitted that it was reasonable to interpret ¶ 30 as referring to “digitized audio signals” that are “useful in determining an intratrack needle position.” Ex. 2007 at 81:15-82:5. In doing so, he waffled, arguing that it was “interpretable” and that inMusic’s interpretation may be correct or perhaps “useful in determining” only does actually modify “information” and not “digitized audio signals.” *Id.* This latter interpretation, of course, fails because it would render ¶ 30 anomalous, describing a random feature discussed nowhere else in the specification, as

opposed to a reading that is consistent with the grammar of the sentence and with the rest of the 97-paragraph long publication of Spencer.

Additionally, the intratrack needle position information that is transmitted from the turntable is not music or speech. That which is extracted from a record via the apparatus of Spencer is not an analog audio signal that is used to create an output digital audio signal of music or speech representative of said analog audio signal, but instead intratrack position information that is used to control the playback of a separate music source. Ex. 2004 ¶¶ 90-92. Simply put, there is no disclosure in Spencer that any “digitized audio signals” of Paragraph 30 can be used to listen to music or speech, let alone such music or speech that is “[r]eproducibly indistinguishable to a listener” from the analog audio recording stored on the LP. *Id.* Accordingly, Spencer does not disclose “a controller responsive to said analog to digital converter for generating 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” as required by claim 1.

Based on Sony’s assertions in the Petition, it has failed to establish that Spencer discloses “a controller ... for generating an output digital audio signal of music or speech representative of an audio recording ... representative of [a] analog audio signal” that was “generat[ed]” by a “phono cartridge,” wherein the

Patent 7,567,498

“output digital audio signal is output from said turntable and uses standard computer protocol,” as recited in independent Claim 1. *See* Ex. 1001 at 2:60-3:7.

3. Sony’s Combination with Cohen Does Not Save or Make up for the Failings of Spencer.

Nor does Sony’s combination of Cohen with Spencer save Sony’s obviousness ground. Sony only uses Cohen for its disclosure of an analog to digital converter (“ADC”). *See, e.g.*, Paper 2 at 57. Sony does not use Cohen to fill in any gaps in Spencer regarding Spencer’s failure to disclose digital audio signals representative of an audio recording being transmitted via USB (as incorrectly asserted by Sony). *Id.* The arguments in the Petition regarding Cohen assume, albeit incorrectly, that Spencer already discloses transmittal of digital audio signals via USB. *See, e.g., id.* at 57 (“A POSITA looking to produce the digitized audio output taught by Spencer would have....”); *see also id.* at 59.

Regardless, Sony cannot use Cohen to fill in the defects in Spencer. Like Spencer, Cohen is also used for synchronization purposes (*i.e.*, to use a turntable to control the playback of digital music outside of the turntable). *See* Ex. 1006 at Abstract; Ex. 2004 ¶¶ 97-99. Indeed, in one embodiment of Cohen, the turntable does not even “read” or play an audio recording using its phono cartridge. Ex. 2004 ¶¶ 100-101 Instead, in Cohen, the “record includes MIDI timing signals encoded therein.” Ex. 1006 at Abstract; *see also id.* ¶ 14 (“record 12, rather than having a musical performance in analog format, has a MIDI audio time code

Patent 7,567,498

encoded therein”); Ex. 2004 ¶¶ 100-101. The phono cartridge of Cohen reads these timing codes, which are used “for controlling the playback of an external audio signal.” Ex. 1006 at Abstract; Ex. 2004 ¶¶ 100-101. Digital audio signals representative of an audio recording are not transmitted from a turntable to other device. Ex. 2004 ¶¶ 102-105.

In another embodiment, consisting of only one paragraph with no explanation or disclosure, Cohen discloses that additionally its system “can be configured to recognize when a conventional analog record, typically including a musical or other audio performance and not including any encoded MIDI information, is being played by turntable 14.” Ex. 1006 ¶ 18; Ex. 2004 at Ex. 2004 ¶ 103. But in that embodiment, Cohen then outputs “conventional MIDI output” from “second MIDI output 24.” Ex. 1006 ¶ 18 Dr. Moon acknowledges that MIDI, which would include the timing codes as well as traditional MIDI output, is not a digital audio signal of music or speech. *See* Ex. 2007 at 87:17-88:1; Ex. 2004 ¶ 104. Accordingly, Cohen also does not disclose or suggest the limitation “a controller responsive to said analog to digital converter for generating 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” as required by claim 1. Ex. 2004 at § 9.1.1.

4. Sony's Combination of Spencer and Cohen Does Not Satisfy the Claim's "Controller" Limitation.

Additionally, in Dr. Moon's claim mapping, he points to Cohen's "Microprocessor or DSP Block," and argues that it would have been obvious to modify it to include such "host controller" capability. Ex. 1002 ¶¶121, 140. This "host controller" argument finds no support in Spencer, Cohen or any other reference of record. Ex. 2004 ¶ 237. It is raised out of whole cloth in an *ipse dixit* fashion by Dr. Moon, and thus should be rejected. *Id.*

Nonetheless, Sony's and Dr. Moon's argument fails to even address the actual requirement for the controller of claim 1. *Id.* ¶ 238. Dr. Moon, without any explanation, states it would have been obvious to implement a "host controller," but he provides no analysis as to how that meets the claim limitations. Ex. 1002 ¶ 121; Ex. 2004 ¶ 238. His analysis seems to be as simple as stating the limitation is met because both use the same word "controller," which obviously has many uses (*e.g.*, Spencer's use of "controller" for a turntable). Ex. 2004 ¶ 238.

Unlike the "host controller" discussed by Petitioners, the controller of claim 1 does not control a "host." Ex. 2004 ¶ 239. Instead, the controller of the '498 patent, as claimed, receives a digital data stream, renders it into a specific data format, and manages the output of that formatted stream on a specific hardware interface. *Id.* Dr. Moon and Sony have not established a host controller or the microprocessor of Cohen meet this limitation. *Id.* Nor have they provided any

Patent 7,567,498

explanation as to how a host controller would “generate an output digital audio signal of music or speech representative of an audio recording,” as required by the claims. *Id.*

And, if neither Spencer nor Cohen disclose or suggest the above limitations, they cannot render the '498 patent obvious. As such, Sony has failed to establish with a reasonable likelihood of success that any of the claimed inventions would be obvious.

5. The Dependent Claims are Also Not Rendered Obvious by Spencer and Cohen

Because Sony has failed to show claim 1 is obvious over the prior art of record, Sony has therefore also failed to establish that claims dependent claims 2-6 are obvious.

IV. CONCLUSION

Thus, for all the above reasons, Sony has failed to demonstrate that any of the alleged grounds of invalidity render the claims obvious. Accordingly, the Board should confirm the patentability of the challenged claims.

Respectfully submitted,

THOMPSON COBURN LLP

By /Anthony F. Blum/
Alan H. Norman, Reg. No. 32,285
Anthony F. Blum, Reg. No. 64,703
David B. Jenkins, Reg. No. 46,805
One US Bank Plaza
St. Louis, Missouri 63101
314-552-6000
FAX 314-552-7000
anorman@thompsoncoburn.com

*Attorneys for Patent Owner in Music Brands,
Inc.*

CERTIFICATE OF SERVICE

Under 37 C.F.R. §§ 42.6(e), the undersigned certifies that, on November 9, 2023, a complete and entire copy of this Response was served via e-mail at:

Matthew A. Smith
Smith Baluch LLP
1100 Alma St., Ste. 109
Menlo Park, CA 94025
smith@smithbaluch.com

Andrew S. Baluch
Smith Baluch LLP
700 Pennsylvania Ave. SE, 2nd Floor
Washington, DC 20003
baluch@smithbaluch.com

/Anthony F. Blum/
Anthony F. Blum (Reg. No. 64,703)

CERTIFICATE OF COMPLIANCE
WITH TYPE-VOLUME LIMITATION

Pursuant to 37 C.F.R. §§ 42.24 *et seq.*, the undersigned certifies that this Response complies with the 14,000-word type-volume limitation. According to the word count in Microsoft Word for Microsoft 365, after excluding the parts of the Response exempted, the Response contains 12,059 words.

/Anthony F. Blum/
Anthony F. Blum (Reg. No. 64,703)