

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

**PETITION FOR INTER PARTES REVIEW
UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42.200 ET. SEQ**

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Patent No. 7,567,498

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TABLE OF EXHIBITS

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.

Petitioners respectfully request *inter partes* review under 35 U.S.C. §311 of claims 1-6 of U.S. Pat. No. 7,567,498 (“the ’498 patent”).

NOTICE OF LEAD AND BACKUP COUNSEL

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NOTICE OF THE REAL-PARTIES-IN-INTEREST

The real-parties-in-interest for this petition are Sony Group Corporation, Sony Corporation, Sony Corporation of America and Sony Electronics, Inc.

NOTICE OF RELATED MATTERS

The ’498 patent has been asserted in the following litigations:

- *inMusic Brands, Inc. v. Sony Corporation of America*, Case No. 1-22-cv-06609 (SDNY), filed August 3, 2022 (**active**);
- *inMusic Brands, Inc. v. Innovative Technology Electronics, LLC*, Case No. 2-22-cv-02670 (EDNY), filed May. 09, 2022 (**active**);
- *inMusic Brands, Inc. v. Music Hall, LLC*, Case No. 2-22-cv-02575 (EDNY), filed May 05, 2022 (**dismissed**);
- *inMusic Brands, Inc. v. Pyle Pro Audio Corp.*, Case No. 1-22-cv-02305

(EDNY), filed Apr. 22, 2022 (**active**);

- *inMusic Brands, Inc. v. Spectra Merchandising International, Inc.*, Case No. 1-21-cv-05882 (NDIL), filed Nov. 03, 2021 (**dismissed**);
- *inMusic Brands, Inc. v. Curtis International Ltd.*, Case No. 1-21-cv-00287 (DRI), filed Jul. 12, 2021 (**dismissed**).

NOTICE OF SERVICE INFORMATION

Please address all correspondence to the lead counsel at the addresses shown above. Petitioners consent to electronic service by email at: smith@smithbaluch.com, baluch@smithbaluch.com.

GROUND FOR STANDING

Petitioners hereby certify that the patent for which review is sought is available for *inter partes* review, and that the Petitioners are not barred or estopped from requesting a *inter partes* review on the grounds identified in the petition.

STATEMENT OF PRECISE RELIEF REQUESTED

Petitioners respectfully request that claims 1-6 of the '498 patent be canceled based on the following grounds:

Ground 1: Claims 1-2 and 4-6 were obvious over Cortellesi.

Ground 2: Claim 3 was obvious over Cortellesi in view of Georges.

Ground 3: Claims 1-2 and 4-6 were obvious over Spencer in view of Cohen.

Ground 4: Claim 3 was obvious over Spencer in view of Cohen and

Georges.

THRESHOLD REQUIREMENT FOR INTER PARTES REVIEW

As shown in the Grounds set forth below, the information presented in the instant petition, if unrebutted, demonstrates that “it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” 35 U.S.C. § 314(a).

I. INTRODUCTION

A. Technical Background

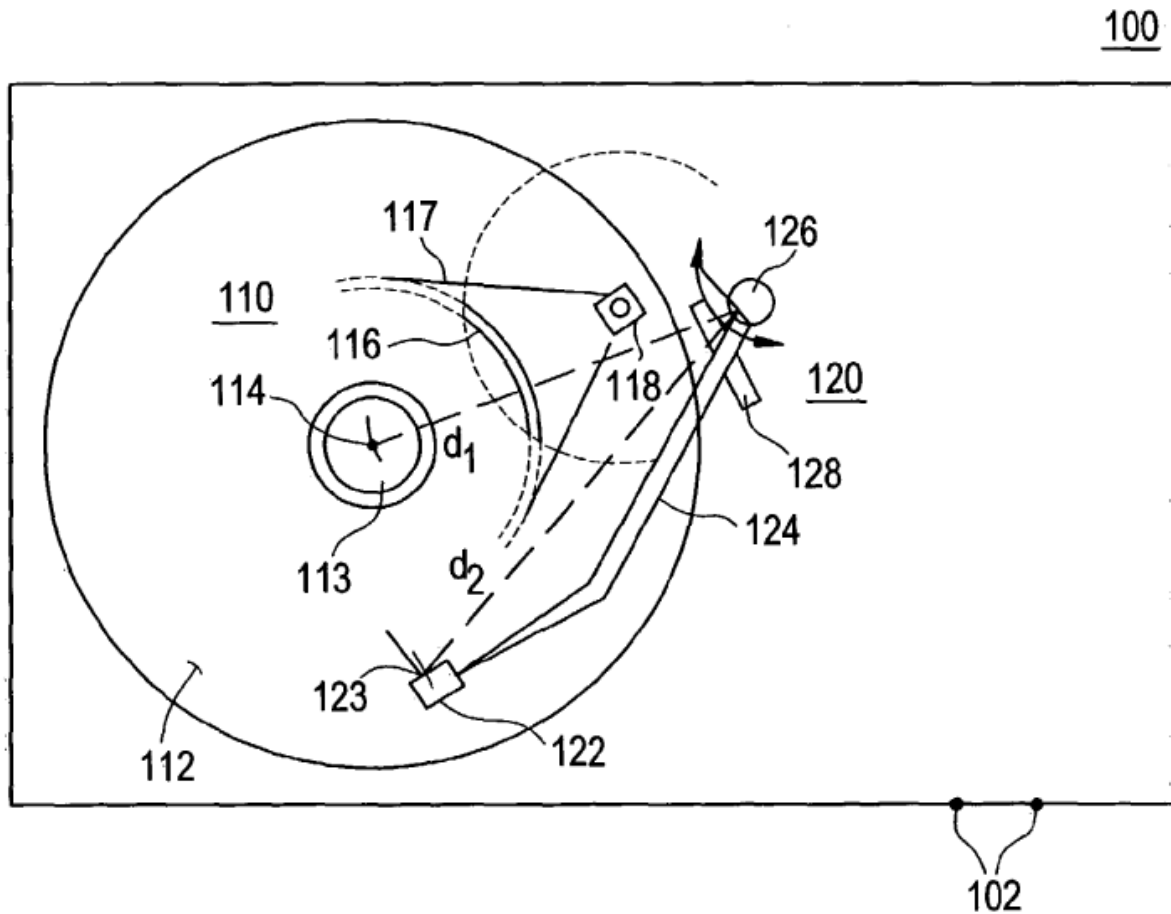
The '498 patent relates to turntables for replaying audio signals recorded on vinyl records, and in particular, producing digital signals from such turntables.

Prior to the widespread use of magnetic tapes and compact disks, vinyl records were the primary way to record and re-play music. (Ex. 1002, ¶28). A vinyl record is a flat disk of (usually) black plastic. (Ex. 1002, ¶28). On the surface of this disk is a long, narrow, groove. (Ex. 1002, ¶28). The groove runs in a spiral from the outside toward the center, and is used to store an audio recording as undulations in the sidewall of the groove. (Ex. 1002, ¶28). To convert these undulations into sound, a needle (or “stylus”) is placed in the groove, and runs along the groove as the disk turns on a turntable. (Ex. 1002, ¶28). As the stylus moves along the groove, the undulations on the sidewalls of the groove cause the stylus to vibrate. (Ex. 1002, ¶28). If done at the correct speed, the vibrations of the stylus correspond to the vibrations in the air that humans perceive as sound. (Ex. 1002, ¶28).

To move the stylus at the correct speed to reproduce sound, the stylus is

typically held mostly stationary as the record rotates (there is some inward motion of the stylus as it follows the spiral grooves in the record). (Ex. 1002, ¶29). The rotation of the record is accomplished using a device called a turntable. (Ex. 1002, ¶29). A turntable has a platter that supports the record, and a drive motor which rotates the platter. (Ex. 1002, ¶29). The rotating platter, in turn, moves the record such that the stylus progresses along the spiral groove. (Ex. 1002, ¶29). A diagram of a typical turntable is shown below, which is Fig. 2 from the “Spencer” prior art (the subject of grounds 3 and 4):

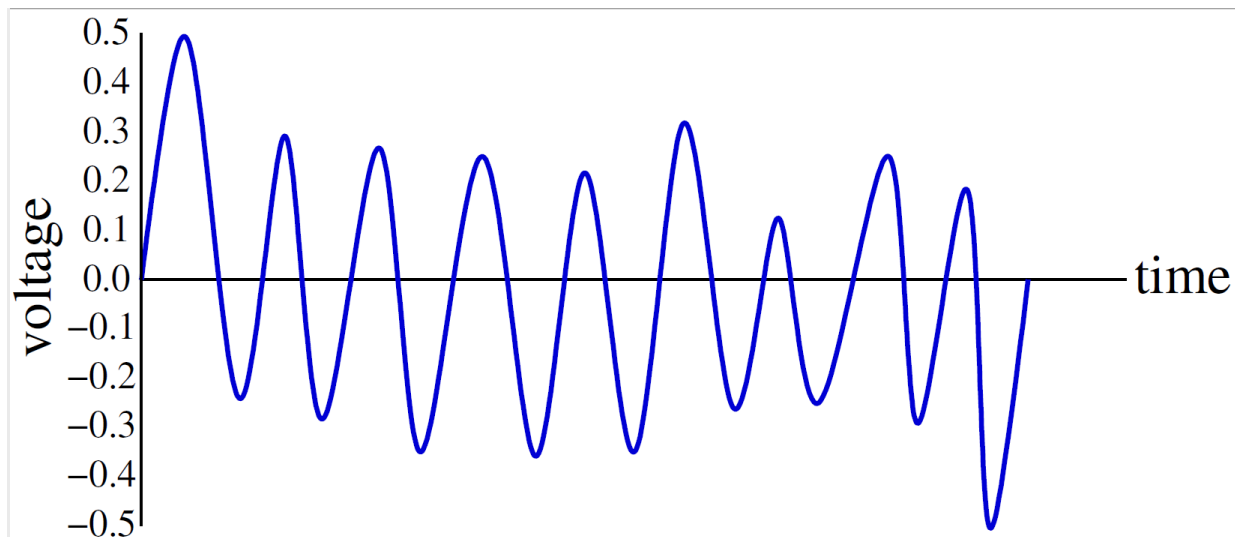
FIG. 2



(Ex. 1005, Fig. 2). As shown in Fig. 2 of Spencer, the turntable 100 has a rotatable platter 112 on which a record may lie. (Ex. 1005, ¶¶0034-0035)(Ex. 1002, ¶29). The record is read by a stylus, which is found within a “phono cartridge” 122. (Ex. 1005, ¶0036)(Ex. 1002, ¶29). The phono cartridge 122 is attached to a tone arm 124. (Ex. 1005, ¶0036)(Ex. 1002, ¶29). The tone arm 124 is mounted on a pivot at 126. (Ex. 1005, ¶0036)(Ex. 1002, ¶29). The pivot allows the tone arm to rotate, which allows the stylus to follow the spiral groove on the surface of the record, as the record

turns. (Ex. 1002, ¶29).

In early record players, called phonographs, the tiny vibrations of the stylus would be mechanically amplified. (Ex. 1002, ¶30). In later record players, the vibrations of the stylus were applied to an electrical transducer. (Ex. 1002, ¶30). The transducer translated the mechanical vibrations of the stylus into an analog (continuously varying) electrical signal. (Ex. 1002, ¶30). An example of such a signal (graphed as a changing voltage versus time), is shown here:

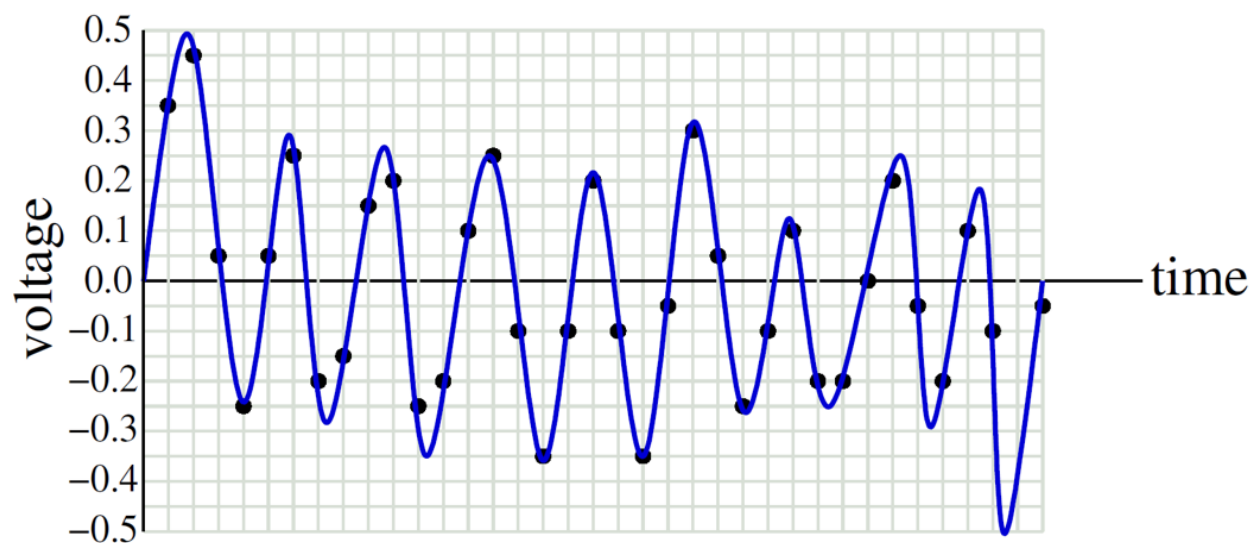


(Ex. 1002, ¶30).

The analog electrical signal is useful because it can be electrically amplified and transmitted. (Ex. 1002, ¶31). To reproduce sound, the analog electrical signal could be output to speakers, which transduce the analog electrical signal into sound. (Ex. 1002, ¶31).

Analog sound systems, however, are subject to noise. (Ex. 1002, ¶32). Noise could arise, for example, from degradation of the storage medium (*e.g.* the vinyl

record), from thermal noise in the electronics of the sound system, or from outside interference. (Ex. 1002, ¶32). More modern sound systems rely increasingly on digital audio techniques, which can alleviate much of the noise. (Ex. 1002, ¶32). In a digital audio system, the electrical signal that represents the vibrations of sound (the analog signal) is translated into a series of numbers, using a device called an “analog-to-digital converter” (alternately “AD converter” or “A/D converter”). (Ex. 1002, ¶32). An “analog-to-digital converter”, in the relevant timeframe, was a small integrated circuit that converted an analog waveform into digital data by “sampling” the waveform at regular intervals in time, then converting the sampled values into a numerical representation. (Ex. 1002, ¶32). “Sampling” means measuring the value of the waveform at various points in time, as illustrated here (where the black circles are points of measurement):



(Ex. 1002, ¶32).

Once the values of a waveform are sampled, the numbers representing the sampled values can be stored and transmitted as binary numbers, represented only by ones and zeroes. (Ex. 1002, ¶33). This is advantageous, because it allows the system to correct for noise. (Ex. 1002, ¶33). For example, in a digital system, if a transmitter sends the value 1.0, but—because of noise—the receiver actually receives a value of 0.93, the receiver will still be able to guess that the value should have been 1.0, and not the only other possible value, zero. (Ex. 1002, ¶33). In this way, many errors in a digital system can be corrected, allowing digital systems to eliminate much of the noise that plagued analog systems. (Ex. 1002, ¶33).

Even older vinyl records that initially produced an analog signal when played using a stylus could still benefit from digital technology. (Ex. 1002, ¶34). To obtain those benefits, the output of transducer in a phono cartridge could be sent to an analog-to-digital converter. (Ex. 1002, ¶34). This would convert the analog signal to a digital signal. (Ex. 1002, ¶34). The conversion to a digital signal was advantageous, because the digital signal was less subject to noise and could be processed by digital computers. (Ex. 1002, ¶34).

Accordingly, in the late 1990s and early 2000s, it became relatively common to digitize the output of analog turntables. (Ex. 1002, ¶35). The Background of the '498 patent states that:

“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. 1001, 1:35-38)(Ex. 1002, ¶35).

In January 2004 (six months prior to the filing date of the application leading to the '498 patent), the *New York Times* printed an article suggesting to readers that they turn their vinyl records into digital recordings by connecting the output of a turntable to an analog-to-digital converter and a computer. (Ex. 1007, p. 002)(Ex. 1002, ¶36). The *Times* suggested that doing so would allow users to reduce noise and to take advantage of digital audio processing software. (Ex. 1007, p. 002)(Ex. 1002, ¶36).

B. Claims of the '498 patent.

The '498 is directed to a turntable with a digital output. The patent contains only two paragraphs describing the embodiments. (Ex. 1001, 2:7-52). Each paragraph has a corresponding Figure. Figure 1 is reproduced here:

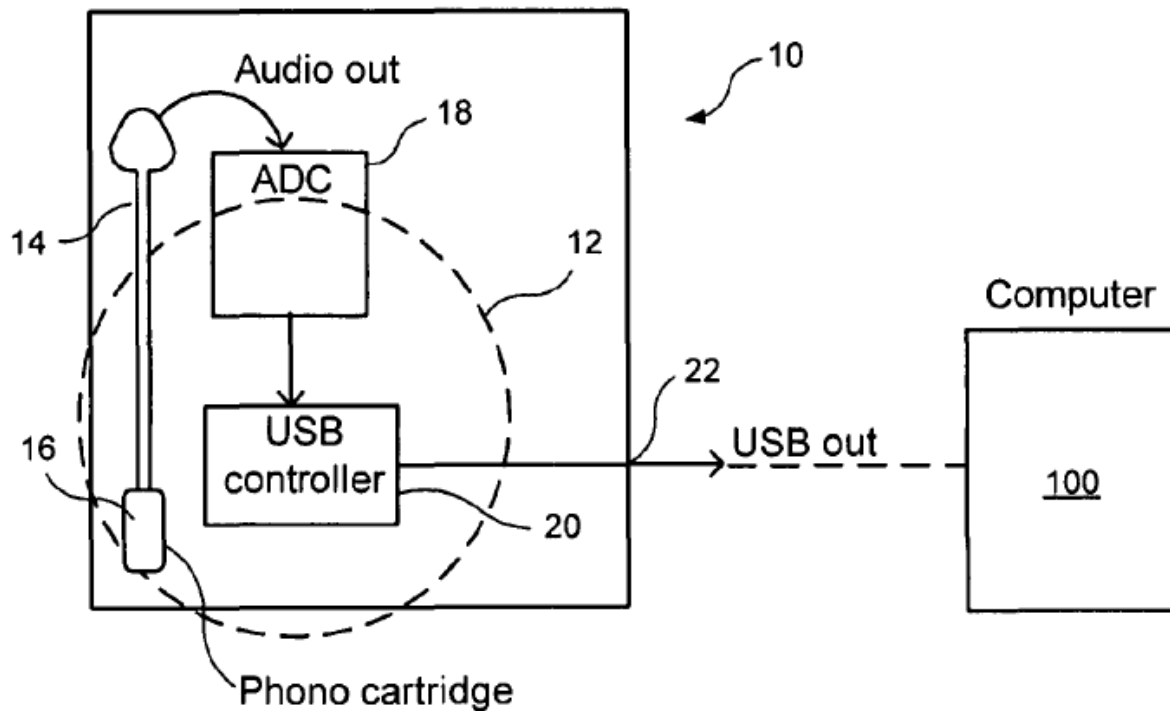


FIG. 1

(Ex. 1001, Fig. 1)(Ex. 1002, ¶38). Figure 1 shows a turntable with standard analog components, such as the platter 12, the tone arm 14, and a phono cartridge 16. (Ex. 1001, 2:10-14)(Ex. 1002, ¶38). When the phono cartridge picks up vibrations, its analog output is sent to ADC (“Analog to Digital Converter”) 18, and then processed by a USB (universal serial bus) controller 20. (Ex. 1001, 2:14-21)(Ex. 1002, ¶38). The controller provides a USB output that can be used to communicate with a computer. (Ex. 1001, 2:23-28)(Ex. 1002, ¶38). Essentially the same device is described with respect to the embodiment of Fig. 2, but with an IEEE-1394 (“Firewire”) connection. (Ex. 1001, 2:29-52, Fig. 2)(Ex. 1002, ¶38).

Claim 1 of the ’498 patent is reproduced here with added element numbering:

“**1[a]**. A turntable including:

[1b] a rotatable platter;

[1c] a tonearm for receiving a phono cartridge for generating an analog audio signal representative of an audio recording;

[1d] an analog to digital converter for receiving an analog audio signal from the phono cartridge; and

[1e] 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;

[1f] wherein said analog to digital converter and said controller are included within said turntable; and

[1g] wherein said output digital audio signal is output from said turntable and uses standard computer protocol.”

(Ex. 1002, ¶39).

Elements 1[a] – [1c] merely claim standard components of turntables known for decades. (Ex. 1002, ¶39). The claim adds an analog-to-digital converter, a controller, and a standard computer protocol.

C. Examination History of the '498 Patent.

The application leading to the '498 patent was filed on June 8, 2004. (Ex. 1008). During the prosecution of this application, the assigned Examiner issued seven office actions rejecting the claims. (Ex. 1008). Of most relevance, however, is the final set of rejections set forth in the Office Action of November 6, 2008. (Ex.

1008, pp. 220-227). In that Action, the Examiner rejected the then-pending claims 1 and 5-7 as obvious over U.S. Pat. No. 5,740,146 (“Webster”) (Ex. 1009). According to the Examiner, Webster taught all elements of the claims, except that the analog-to-digital converter was not “included within said turntable”. The Examiner, however, found the claim obvious, reasoning as follows:

“Webster also discloses an analog to digital converter for receiving an analog audio signal from the phono cartridge (see Fig. 1, the sound card 116 includes an analog to digital converter). The analog to digital converter taught by Webster is outside of the turntable, i.e., playback unit 110; however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to rearrange the location of the analog to digital converter such that it is located within the turntable, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.”

(Ex. 1008, p. 223).

In response, the Applicant argued that Webster taught using a specialized analog-to-digital converter. (Ex. 1008, pp. 210-212). This specialized converter allegedly sampled analog waveforms at twice the usual rate. (Ex. 1008, pp. 210-212). The usual rate according to the Applicant—the so-called “Nyquist” rate—was twice the highest audible frequency in the recording. (Ex. 1008, pp. 210-212). Because the analog-to-digital converter of Webster allegedly doubled this rate,

Webster's converter would not have been appropriate to put in the turntable, according to the Applicant. (Ex. 1008, pp. 210-212). The Applicant also argued that the output of the turntable itself was a digital audio signal according to a standard computer protocol, whereas "the output of the 'playback unit 110' of Webster is analog and therefore not digital and not "standard computer protocol". (Ex. 1008, p. 212).

In an ensuing Notice of Allowance, the Examiner stated that:

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

(Ex. 1008, p. 197).

Thus, the '498 patent claims appear to have been allowed on the basis of "an analog to digital converter and a controller responsive to the analog to digital converter are built inside a turntable".

II. 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).

A. Claim 1 — “Turntable”

The preamble of claim 1 recites “A turntable including”. The word “turntable” should be construed, because it had two different meanings in the relevant timeframe. (Ex. 1002, ¶41). One meaning of turntable was a rotatable platter to support a vinyl record together with a drive mechanism for rotating the platter. (*e.g.* Ex. 1012). Another meaning was an appliance for playing records that included a rotatable platter and drive. (*e.g.* Ex. 1007, pp. 001-002)(Ex. 1002, ¶41).

In the ’498 patent, a “turntable” means an appliance for playing records that includes a rotatable platter, but is not *merely* the platter and associated drive mechanism. (Ex. 1002, ¶42). The claims of the ’498 patent support this construction. The claims require that “said analog to digital converter and said controller are included within said turntable”. (Ex. 1001, 3:4-5)(Ex. 1002, ¶42). This makes far more sense if the turntable is the entire appliance, because it would be unreasonable to include an analog to digital converter and controller (which are typically integrated circuits) into the moving parts of a turntable platter and drive. (Ex. 1002, ¶42). Furthermore, the specification of the ’498 patent describes “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, 2:23-25)(Emphasis added)(Ex. 1002, ¶42).

The fact that the turntable includes a “cabinet” indicates that the ’498 patent refers to the entire device, rather than just the platter and drive mechanism. (Ex. 1002, ¶42). Thus, the Board should construe the term “turntable” as an appliance for playing records that included a rotatable platter. (Ex. 1002, ¶42).

III. DETAILED EXPLANATION OF THE REASONS FOR UNPATENTABILITY

Ground 1. Claims 1-2 and 4-6 were obvious over Cortellesi

Claims 1-2 and 4-6 are obvious under pre-AIA 35 U.S.C. § 103(a) over European Pat. Publication EP 0999553 A1 (“**Cortellesi**”)(Ex. 1004).

Cortellesi was not of record during the prosecution of the application leading to the ’498 patent.

A. Effective Prior Art Date of Cortellesi

Cortellesi is a European patent application publication that was published on May 10, 2000, and is thus prior art under pre-AIA 35 U.S.C. §102(b).

B. Overview of Cortellesi

Cortellesi is directed to a device that can be used by professional disk jockeys (DJs). (Ex. 1004, 1:3-8)(Ex. 1002, ¶45). Cortellesi specifically teaches that its apparatus is for the playing of records:

“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....”

(Ex. 1004, 1:3-8)(Emphasis added)(Ex. 1002, ¶45).

Cortellesi shows a turntable apparatus, as shown in its Fig. 4, reproduced here:

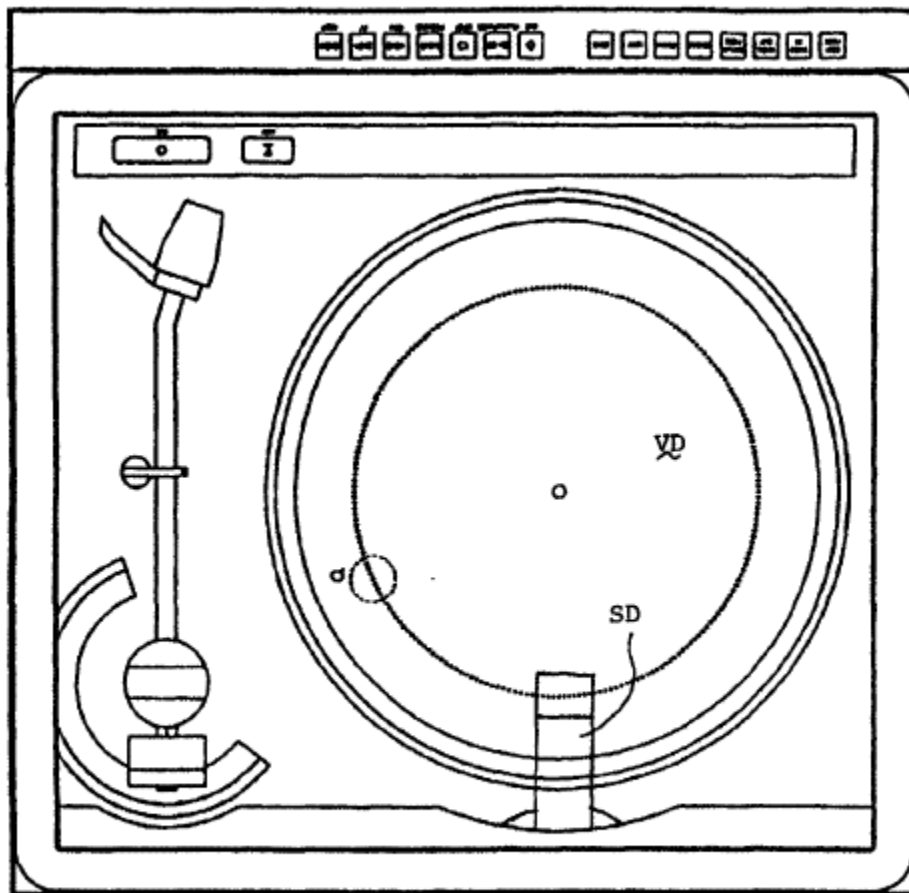


FIG. 4

(Ex. 1004, Fig. 4)(Ex. 1002, ¶46). Cortellesi states that Fig. 4 has a “common record player”. (Ex. 1004, 4:40-46)(Ex. 1002, ¶46). Visible in Fig. 4 are the platter, tone arm and phono cartridge of the record player. (Ex. 1002, ¶46).

Cortellesi also teaches a computer system within its apparatus, as shown in

Fig. 1, reproduced here, with blue- and red-dashed boxes added:

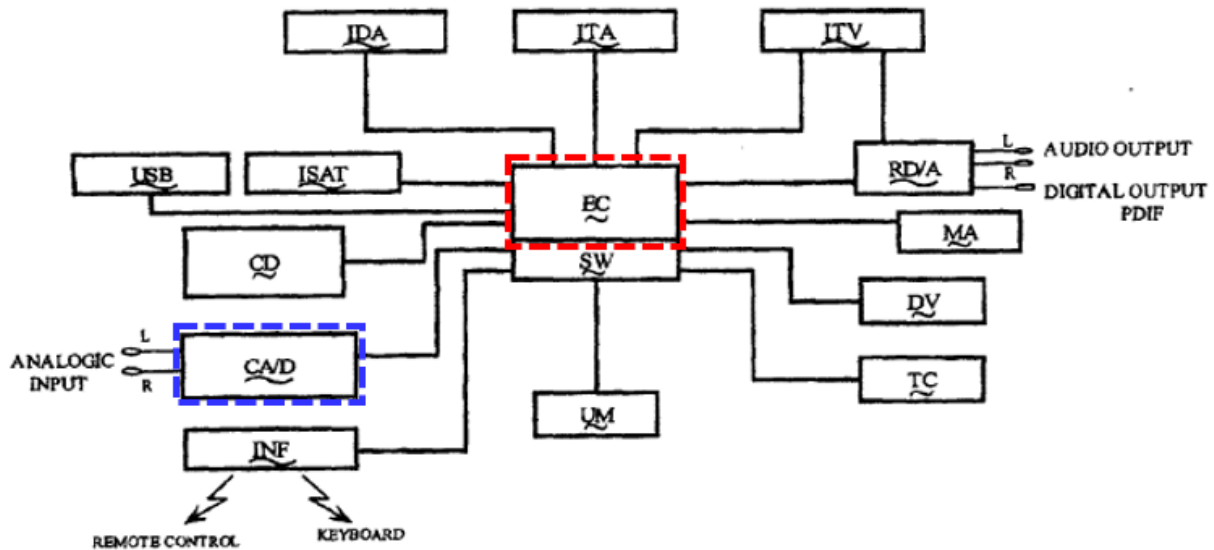


FIG. 1

(Ex. 1004, Fig. 1)(Ex. 1002, ¶47). As highlighted in the Figure, Cortellesi teaches an analog-to-digital converter (shown in a blue-dashed box, labeled “CA/D”) that outputs to a controller in the form of a microprocessor “EC” (shown in a red-dashed box). (Ex. 1004, 2:25-37)(Ex. 1002, ¶47). The controller outputs a variety of interfaces, including a USB interface. (Ex. 1004, 4:8-12)(Ex. 1002, ¶47).

Cortellesi teaches that its apparatus is

“for disk jockeys to store, handle and play pieces of music in succession includes means for receiving and 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, Abstract)(Ex. 1002, ¶48).

Cortellesi teaches that disk jockeys (“DJs”) can use the apparatus to play music from a variety of sources and to record the music digitally on a hard disk.

Cortellesi states:

“the apparatus makes it possible to record pieces of music both live through microphone or preamplified line connection and directly from standard playing units, such as compact disk players, tape recorders, and **record players**. The hard disk holding the pieces of music is located within the apparatus or in additional outside modules. The pieces of music stored in the hard disk are identified by their peculiar data which can be entered manually or, if possible, received automatically by a data source.”

(Ex. 1004, 1:30-39)(Emphasis added)(Ex. 1002, ¶49). This has at least two advantages: (1) a DJ can store a lot of music on the hard drive, and (2) the microprocessor can be used to play multiple pieces of music at once and perform rhythmic synchronization. (Ex. 1004, 5:7-35)(Ex. 1002, ¶49).

Cortellesi also teaches using a “virtual disk”. The “virtual disk” can be placed on Cortellesi’s turntable (as shown, *e.g.*, in Fig. 4). (Ex. 1004, 4:40-42)(Ex. 1002, ¶50). As the virtual disk moves, small metal balls embedded in the disk will trigger a magnetic sensor that can be positioned over the disc (sensor “SD” in Fig. 4), which allows the turntable to output electrical signals indicating the movement of the virtual disk. (Ex. 1004, 4:33-50)(Ex. 1002, ¶50). The movement of the disk can be

correlated by the microprocessor to a stored piece of music. (*Id.*). This allows a DJ to perform “scratching” and synchronization operations. (Ex. 1004, 1:40-46)(Ex. 1002, ¶50).

C. Rationale (Motivation) Supporting Obviousness

This ground is presented as one of obviousness because, while a POSITA would understand that Cortellesi has all components of the '498 patent claims, Cortellesi does not always expressly describe or name those components. There are three principal instances where obviousness is employed:

First, while Cortellesi teaches that its inventive apparatus has a “common record player”, as shown in Fig. 4, Cortellesi does not specifically name each of the features of common record players (a platter, tone arm and phono cartridge) that are recited in claim 1 of the '498 patent. (Ex. 1002, ¶52).

However, it would have been obvious to provide those features. (Ex. 1002, ¶53). Cortellesi teaches that its apparatus (*e.g.* as embodied in Fig. 4) is a “common record player”. (Ex. 1004, 4:40-46)(Ex. 1002, ¶53). A common record player in the relevant timeframe had a rotatable platter, a tone arm and a phono cartridge with a stylus for engaging the surface of a vinyl record and producing an analog electric signal. (Ex. 1002, ¶53)(*citing* Ex. 1010, Abstract, 15:24-28; Ex. 1011, Fig. 11, 13:55-14:15, Fig. 3B, 12:48-56, 20:27-38; Ex. 1006, ¶¶0008, 0015).

Moreover, while Cortellesi does not use the terms “platter”, “tone arm”, and

“phono cartridge”, Figure 4 of Cortellesi does, in fact, show these elements. (Ex. 1002, ¶54). The elements are indicated with annotations in the reproduction of Fig. 4, below:

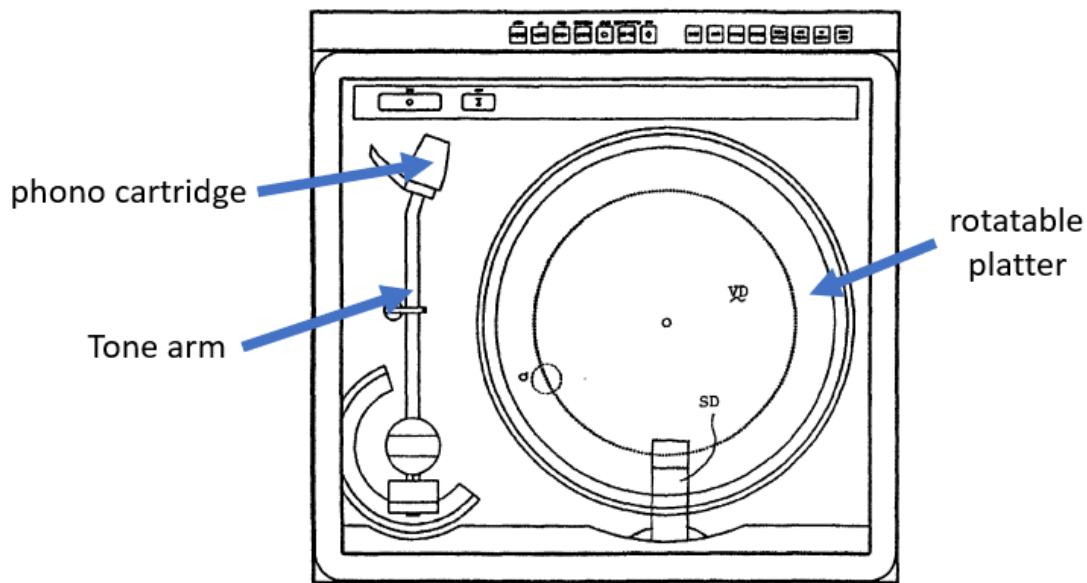


FIG. 4

(Ex. 1002, ¶54).

Because Cortellesi teaches using a “common record player”, because a common record player in the relevant timeframe had certain standard features, and because Cortellesi actually shows these features in Fig. 4, it would have been obvious to provide the standard features of a record player in Cortellesi’s turntable. (Ex. 1002, ¶55).

Second, Cortellesi refers to “a first embodiment of the apparatus provided with a record player” as shown in Fig. 4. (Ex. 1002, ¶56). Cortellesi’s detailed

description with respect to this embodiment focuses on a “virtual disk”. (Ex. 1004, 4:33-50)(Ex. 1002, ¶56). It would, however, have been obvious to use the record player of Fig. 4 to playback standard vinyl records containing audio recordings, and connect the analog output to the analog-to-digital converter and controller specified by Cortellesi. (Ex. 1002, ¶56).

It is clear that Cortellesi contemplates digitizing the analog audio output of record players in general. (Ex. 1004, 1:3-11)(Ex. 1002, ¶57). Specifically, Cortellesi is attempting to address, among other things, a problem that plagued disk jockeys: having to transport a large collection of records to sites where the disk jockey is performing. (Ex. 1004, 1:3-11)(Ex. 1002, ¶57). Cortellesi states:

“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.”

(Ex. 1004, 1:3-11)(Ex. 1002, ¶57).

To avoid this problem, Cortellesi’s system allows a disk jockey to digitize a collection of records, by converting the audio on the record to digital form and storing the recording on a hard disk. (Ex. 1004, 1:18-23)(Ex. 1002, ¶58). In

Cortellesi's words:

“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, 1:18-23)(Emphasis added)(Ex. 1002, ¶58).

Cortellesi specifically teaches recording the output of *record players*:

“The recording function provided by the apparatus makes it possible to **record pieces of music** both live through microphone or preamplified line connection and directly from standard playing units, such as compact disk players, tape recorders, and **record players**.”

(Ex. 1004, 1:30-34, *see also* 3:25-29, 5:7-11)(Emphasis added)(Ex. 1002, ¶59).

To record music from record players, Cortellesi teaches using the analog-to-digital converter (“CA/D”):

“According to a preferred embodiment the apparatus of the invention includes: ... a **digital/analogue converter CA/D for storing directly from audio analogue sources (vinyl records, tapes, radio, live)** and for receiving signals from a virtual disk, if any....”

(Ex. 1004, 2:22-37)(Emphasis added)(Ex. 1002, ¶60).

It would have been obvious to use the record player device of Fig. 4 to play

vinyl records containing audio recordings of music, to digitize the output using the analog-to-digital converter, and process the digital output using the microprocessor. (Ex. 1002, ¶61).

There are four reasons for this. First, the record player of Fig. 4 is described as a “common record player”, and the platter, tone arm, and phono cartridge are visible in Fig. 4. (Ex. 1004, Fig. 4)(Ex. 1002, ¶62). This alone would already suggest the use of the record player of Fig. 4 for its common purpose: playing records. Second, it would have been obvious to play records using the record player of Fig. 4 to record the output digitally, as described above, so that a disk jockey could avoid carrying a large collection of records to a venue. (Ex. 1002, ¶62). Third, it would have been obvious to play records in order to take advantage of the ability to mix and otherwise digitally manipulate recordings using the microprocessor. (Ex. 1002, ¶62). Fourth, it would have been obvious to play records not owned by a disk jockey, but first available at a venue, *e.g.*, handed to a disk jockey by a venue manager or patron as a request. (Ex. 1002, ¶62).

Petitioners note that Cortellesi teaches (although not in the context of Fig. 4) that there can be multiple analog inputs, and that certain analog inputs could come from external units. (Ex. 1004, 1:30-34)(Ex. 1002, ¶63). This raises the possibility that an external record player (which would not “include” the analog-to-digital converter or controller shown in Fig. 2 of Cortellesi per claim element [1f]) could

be used in conjunction with Cortellesi's invention. (Ex. 1002, ¶63). The possibility of such an external record player, however, would not also exclude the possibility of playing records and digitizing the output from the record player of Fig. 4. (Ex. 1002, ¶63). Cortellesi provides for generic analog inputs that could come from a variety of sources including, but not limited to, record players. (Ex. 1004, 1:30-34, 5:7-11)(Ex. 1002, ¶63). This allows a disk jockey to connect to outside analog sources if desired. (*Id.*). External record players might be desirable, for example, in the context of embodiments other than the specific embodiment of Fig. 4, or even with the embodiment of Fig. 4, if the disk jockey has access to a professional-quality external record player, a record player with an alternate speed, or wants to mix the outputs of two record players. (Ex. 1002, ¶63).

Petitioners further note that Fig. 4 shows a sensor ("SD") for use with a virtual disk. (Ex. 1004, Fig. 4, 4:40-55)(Ex. 1002, ¶64). However, it is obvious that Fig. 4 is not provided *exclusively* for use with the virtual disk. (Ex. 1002, ¶64). This is obvious for several reasons. First, the virtual disk does not require the use of the standard tone arm (called a "pick-up arm" in Cortellesi)(Ex. 1004, 4:40-42)(Ex. 1002, ¶64), but the tone arm is nonetheless visible in Fig. 4. (Ex. 1004, Fig. 4)(Ex. 1002, ¶64). This indicates that the record player has the dual purpose of playing standard records or measuring the position of a virtual disk. (Ex. 1002, ¶64). Second, Cortellesi indicates that when a virtual disk is placed on the platter the place

of the tone arm is taken by a magnetic sensor (“SD”), indicating that the sensor is movable. (Ex. 1004, 4:40-55)(Ex. 1002, ¶64). Even so, the sensor SD operates magnetically, and thus does not interfere with the surface of the record. (Ex. 1002, ¶64).

Third, Cortellesi teaches directly an embodiment of its invention that is encompassed by a turntable product as shown in Fig. 4. Alternatively, it also would have been obvious to “include” the analog-to-digital converter and controller within the turntable of Fig. 4. Specifically, Cortellesi explains that the invention is a “[p]ortable apparatus for storing, handling and listening to pieces of music”. Because the analog-to-digital converter (CA/D) and the controller (EC) are both necessary for these functions, it would have been obvious to “include” them within the turntable. (Ex. 1004, 2:23-3:37, 2:50-58, 3:25-36, 4:23-55)(Ex. 1002, ¶65). The inclusion of the analog-to-digital converter (CA/D) and the controller (EC) is noted directly by Cortellesi’s teaching that Fig. 4 represents an embodiment of its apparatus (which contains the analog-to-digital converter (CA/D) and the controller (EC)). Moreover such embodiment stands to reason as integrating these components would have increased the portability and ease of use, as opposed to connecting or installing the components once on-site at a disco hall, dance club or restaurant.

A POSITA further would have found it obvious to integrate an analog-to-digital converter and controller *within* the turntable of Cortellesi. As Dr. Moon

explains, in the relevant timeframe, analog-to-digital converters and controllers were small integrated circuits that had been integrated into the housings of numerous consumer products. (Ex. 1002, ¶66)(*citing* Ex. 1014, 7:53-67; Ex. 1015, 5:19-25; Ex. 1016, Abstract; Ex. 1017, 7:35-39; Ex. 1018, Figs. 5-7, rn. 3, 4, and 41, 5:12-33; Ex. 1019, 4:26-39). It would have been obvious to manufacture the device with integrated circuits within the housing in order to protect these components from dirt, moisture, and electrical discharge, to make the product more attractive and less cumbersome to users, to avoid potential electric shock to users, and avoid additional external wiring. (Ex. 1002, ¶66). This could have been done with no unpredictable results. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416-21 (2007).

The inclusion of the analog-to-digital converter (CA/D) and the controller (EC) in the turntable was thus suggested by Cortellesi, would have provided well-known advantages, was a concept that had been broadly used in the past with a variety of electronic devices, and would have had no unpredictable results.

More specific detail regarding rationale supporting obviousness will be provided in the claim mapping section below, under each element where relevant.

D. *Graham* Factors

The **level of ordinary skill** encompassed 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. (Ex. 1002, ¶69).

The **scope and content of the prior art** are discussed throughout the Ground.

The **differences between the prior art and the claims** are discussed in the section entitled “Rationale (Motivation) Supporting Obviousness”, above, and in the claim mapping, below.

Petitioners are not aware of any **secondary considerations** that would make an inference of non-obviousness more likely.

E. Reasonable Expectation of Success

A person of ordinary skill in the art (“POSITA”) in the relevant timeframe would have had a reasonable expectation of success in using the prior art in the manner discussed in this petition. (Ex. 1002, ¶73). As Dr. Moon explains, the art was relatively predictable in the relevant timeframe (August 2001). (Ex. 1002, ¶73). A POSITA would have been able to make any necessary modifications to implement the Ground, and in particular would have been able to connect the analog output of a turntable, such as the one shown in Fig. 4 of Cortellesi, to the analog-to-digital converter and microprocessor train of Cortellesi. (Ex. 1002, ¶73).

F. Analogous Art

Cortellesi is analogous art because it is in the same field as the ’498 patent (audio signals technology). (Ex. 1001, Abstract)(Ex. 1004, Abstract)(Ex. 1002, ¶74). Furthermore, the methods of Cortellesi would have been reasonably pertinent

to the problems facing the named inventors, for example, the problem of using analog audio signals in a digital context. (Ex. 1001, 1:13-18, 1:31-38)(Ex. 1004, Abstract, 2:22-37). *See Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010)(“The Supreme Court’s decision in *KSR* [cite omitted], directs us to construe the scope of analogous art broadly....”).

G. Claim Mapping

This section maps the challenged claims to the relevant disclosures of Cortellesi, where the claim text appears in bold-italics, and the relevant mapping follows the claim text. The Petitioners have added numbering and lettering in brackets (*e.g.* 1[a], [1b]) to certain claim elements, to facilitate the discussion.

CLAIM 1

“1[a]. A turntable including:”

Cortellesi teaches a **turntable**. Cortellesi discloses the use of a record player, which was a well-known device using a turntable. Cortellesi states:

“The recording function provided by the apparatus makes it possible to record pieces of music both live through microphone or preamplified line connection and directly from standard playing units, such as compact disk players, tape recorders, and **record players.**”

(Ex. 1004, ¶0002)(Emphasis added)(Ex. 1002, ¶76). A record player is shown, for example, built into Cortellesi’s device in Fig. 4 of Cortellesi, reproduced here:

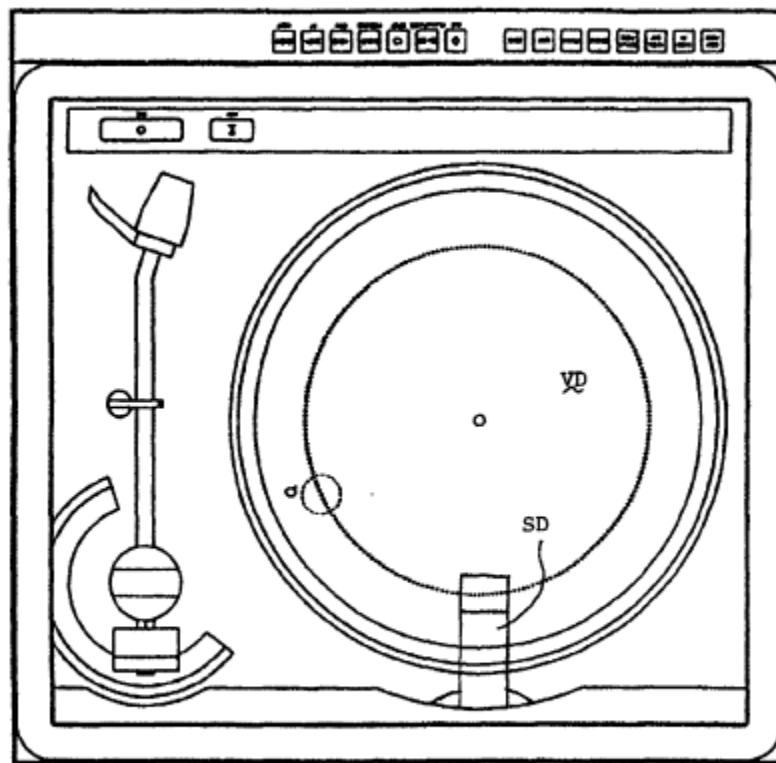


FIG. 4

(Ex. 1004, 4:27-32, Fig. 4)(Ex. 1002, ¶76).

It is clear that the record player both is a turntable (as described in the claim construction section) and has a turntable mechanism:

“The disk 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. The place of the latter is taken by a directional sensor of magnetic flux SD which is integral with the record player and positioned over the disk so as to stand above the ball ring 12 at about 2 mm therefrom, as shown in Fig. 4.”

(Ex. 1004, 4:40-46)(Emphasis added)(Ex. 1002, ¶77).

“[1b] a rotatable platter;”

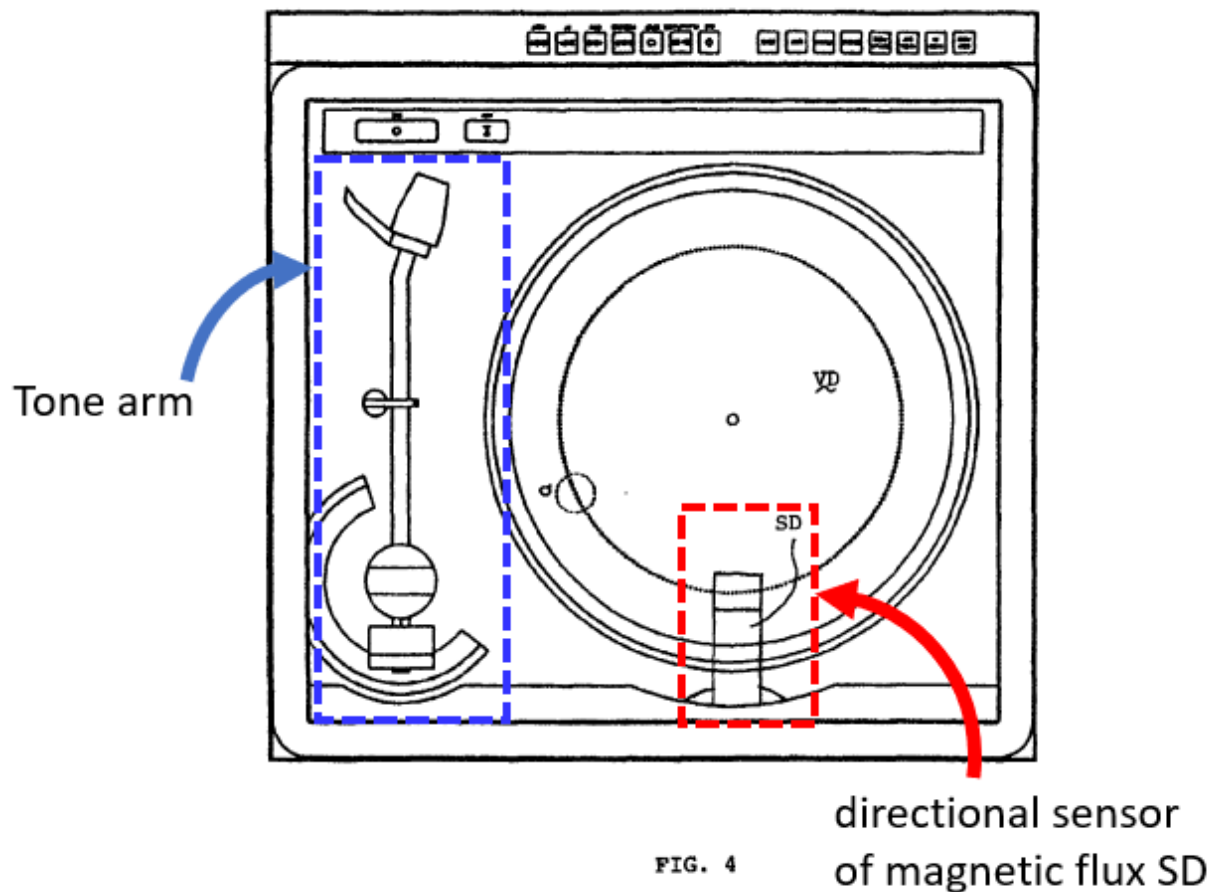
A POSITA would have understood that Cortellesi’s turntable (Ex. 1004, 4:40-46), has a rotatable platter, because a rotatable platter was typically part of a common record player. (Ex. 1002, ¶78)(Ex. 1011, Fig. 11, 13:55-14:15)(Ex. 1006, ¶0015)(“Turntable 14 includes **typical** turntable components such as a **platter** 15 (see FIG. 2) upon which record 12 is placed, a motor to drive the platter at $33\frac{1}{3}$, **rpm**....”)(Emphasis added). Here, “rpm” stands for revolutions per minute, indicating that the record is rotating on the turntable platter. (Ex. 1002, ¶78).

A rotatable platter furthermore would have been obvious from Cortellesi’s disclosure of the turntable (Ex. 1004, 4:40-46) and the disclosure of the rotation of the turntable (Ex. 1004, 4:47-50, 8:17-24), because a rotatable platter was a standard component of a turntable in the relevant timeframe. (Ex. 1002, ¶79)(Ex. 1011, Fig. 11, 13:55-14:15)(Ex. 1006, ¶0015).

“[1c] a tonearm for receiving a phono cartridge for generating an analog audio signal representative of an audio recording;”

Cortellesi teaches a **tone arm**, which is visible in Fig. 4. (Ex. 1004, 4:40-46). A POSITA would have recognized the tone arm. (Ex. 1002, ¶80). Cortellesi’s disclosure refers to a “pick up arm”, which a POSITA would have recognized as the main arm portion of a “tone arm”. (Ex. 1002, ¶80)(Ex. 1010, 7:41-48). The *entire* tone arm, including the pick-up arm, is visible in Fig. 4. (Ex. 1002, ¶80).

Petitioners note that Cortellesi discusses using a “virtual disk” in connection with the turntable shown in Fig. 4. (Ex. 1004, 4:27-46)(Ex. 1002, ¶81). The virtual disk of Cortellesi is said to be employed “without using any pick-up arm”. (Ex. 1004, 4:27-46)(Ex. 1002, ¶81). Instead, “[t]he place of the [pick up arm] is taken by a directional sensor of magnetic flux SD”. (*Id.*). Fig. 4 shows the arrangement, where the tone arm (left side) remains in its resting position, and instead, a sensor SD (bottom middle) is engaged. (Ex. 1002, ¶81). In the version of Fig. 4, shown immediately below, the Petitioners have identified the tone-arm (left side) using a blue-dashed box and label, while the directional sensor of magnetic flux SD is shown using a red-dashed box and label:



(Ex. 1004, Fig. 4, 4:40-46)(Ex. 1002, ¶81). It would have been obvious to a POSITA that Cortellesi's reference to using the sensor SD, in "place" of the pick-up arm, referred specifically to the case where a virtual disk was used, and did not mean that the tone arm had been physically replaced with the sensor SD during manufacturing. (Ex. 1002, ¶81). This would have been obvious from the fact that the tone arm is actually shown in Fig. 4, and from the fact that Cortellesi expressly states that Fig. 4 represents a "common record player". (Ex. 1004, 4:40-47, 4:22-26, 8:42-52)(Ex. 1002, ¶81). As was well-understood in the art, a common record player included a tone arm. (Ex. 1002, ¶81)(Ex. 1010, Abstract)(Ex. 1011, Fig. 3B, 12:48-56)(Ex.

1006, ¶¶0008, 0015).

It further would have been obvious that Cortellesi's tone arm was for receiving a phono cartridge for generating an analog audio signal representative of an audio recording. The phono cartridge is visible at the end of the tone arm in Fig. 4 of Cortellesi, shown here with a green-dashed box and labeling added:

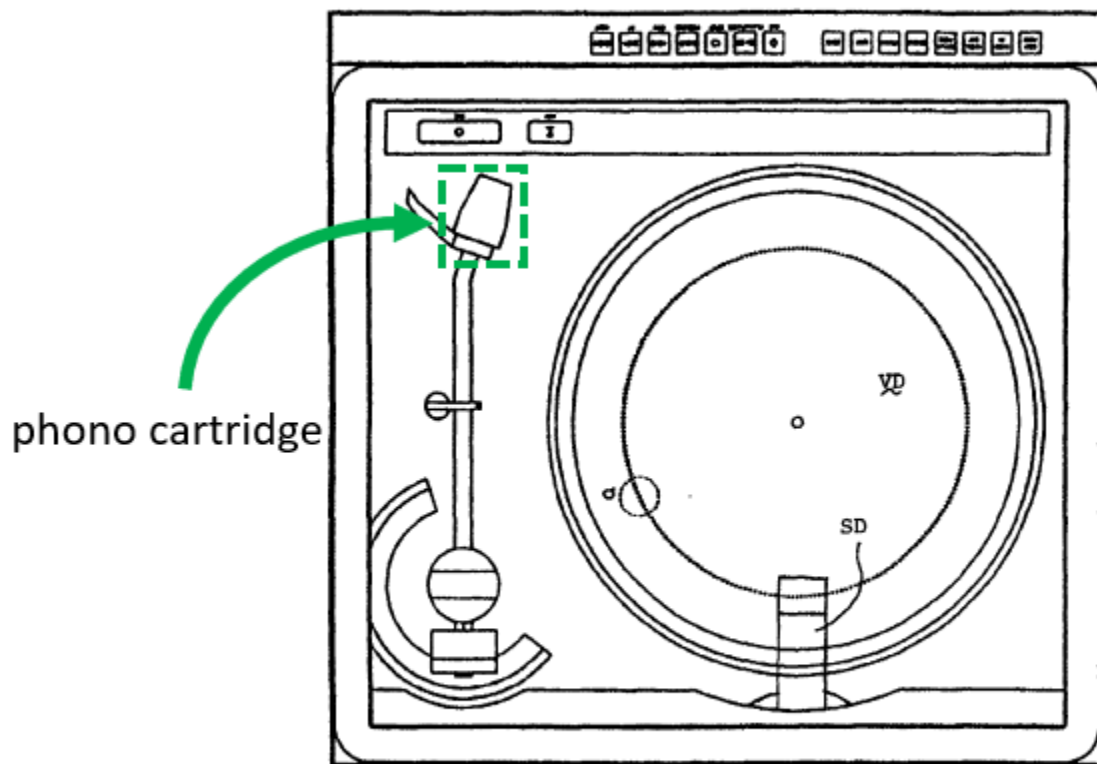


FIG. 4

(Ex. 1004, Fig. 4)(Ex. 1002, ¶82). In the relevant timeframe, it was well-known and obvious for turntable tone arms to be fitted with phono cartridges. (Ex. 1002, ¶82)(Ex. 1010, 15:24-28). The phono cartridge contained the stylus that came into

contact with the surface of the record, following undulations of the record surface **to generate an analogue audio signal**. (Ex. 1002, ¶82)(Ex. 1010, 1:18-36)(Ex. 1011, 20:27-39)(Ex. 1006, ¶0008).

Overall, it would have been obvious for Cortellesi's common record player to include a **tonearm for receiving a phono cartridge for generating an analog audio signal representative of an audio recording**, because this was how common record players worked in the relevant timeframe. (Ex. 1002, ¶83)(Ex. 1010, 1:18-36)(Ex. 1011, 20:27-39)(Ex. 1006, ¶0008).

“[1d] an analog to digital converter for receiving an analog audio signal from the phono cartridge; and”

Cortellesi teaches **an analog to digital converter for receiving an analog audio signal from the phono cartridge**. Specifically, Cortellesi states:

“According to a preferred embodiment **the apparatus of the invention includes**: ... a digital/analogue converter CA/D for storing directly from **audio analogue sources (vinyl records, tapes, radio, live)** and for receiving signals from a virtual disk, if any;....”

(Ex. 1004, 2:22-36)(Emphasis added)(Ex. 1002, ¶84). It would have been obvious for the reasons described in the section entitled “Rationale (Motivation) Supporting Obviousness” from this disclosure that Cortellesi taught receiving input, in the form of an analog audio signal, from a turntable via a standard phono cartridge (as shown in Fig. 4). (Ex. 1002, ¶84). Petitioners note that the A/D converter (“CA/D”)

receives signals from both audio analogue sources, such as “vinyl records”, and from “a virtual disk, if any”. (Ex. 1004, 2:22-36)(Ex. 1002, ¶84).

“[1e] 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;”

Cortellesi renders this limitation obvious. (Ex. 1002, ¶85).

First, Cortellesi teaches a **controller responsive to said analog to digital converter**. Specifically, Cortellesi teaches that its system includes:

“a **central processing unit EC** comprising a **microprocessor CPU** processing and delivering data from the several inside and/or outside units by digital connections. The microprocessor 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 interfaces....”

(Ex. 1004, 2:25-33)(Emphasis added)(Ex. 1002, ¶86). The central processing unit EC is a **controller**. (Ex. 1002, ¶86).

The CPU “EC” is **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 shown in Fig. 1 of Cortellesi, the CPU EC receives input from the analog-to-digital converter (“CA/D”). Fig. 1 is

reproduced below, with an added, blue-dashed box around the analog-to-digital converter and a red-dashed box around the CPU EC:

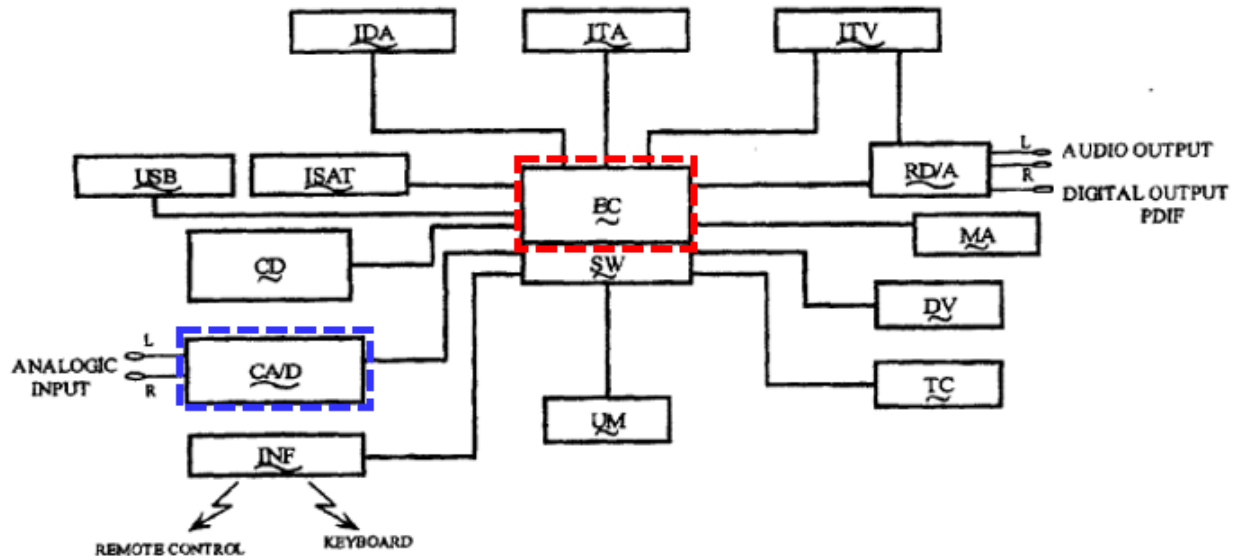


FIG. 1

(Ex. 1004, Fig. 1, 2:12-3:30)(Ex. 1002, ¶87). As can be seen from the figure, the A/D converter is connected to the CPU EC. (Ex. 1004, Fig. 1, 2:25-33)(Ex. 1002, ¶87).

Cortellesi further teaches that the CPU EC receives audio input from both analog and digital sources, and processes these signals. Specifically, Cortellesi teaches that the CPU EC is responsible for “processing and delivering data from the several inside and/or outside units by digital connections” and that it “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

interfaces....” (Ex. 1004, 2:25-33)(Ex. 1002, ¶88).

As discussed above in the section entitled “Rationale (Motivation) Supporting Obviousness”, it would have been obvious to use Cortellesi’s turntable as a “common record player”. (Ex. 1004, 4:22-26)(Ex. 1002, ¶89). When used as a common record player, the analog audio output of a record on the record player will pass through the analog-to-digital converter CA/D, and be further processed by the CPU EC. (Ex. 1004, 2:25-33)(Ex. 1002, ¶89). Thus, it was obvious that the CPU EC received **an audio recording from an output of said analog to digital converter, representative of said analog audio signal.** (Ex. 1002, ¶89).

It was further obvious that Cortellesi’s processor took this digital input representing an audio signal, processed it in digital form, and generated **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.** This is true for several reasons.

First, Cortellesi teaches that its system includes:

“a playing unit, RD/A; such unit **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** to right and left channels and digital signals in S/PDIF standard. A plurality of playing units RD/A to play several pieces of **music** or several passages of the same piece at the same time can be included in the apparatus.”

(Ex. 1004, 2:50-58)(Emphasis added)(Ex. 1002, ¶90). Here, the “data” that the playing unit receives from the CPU EC is the **output digital audio signal of music or speech representative of an audio recording**. (Ex. 1002, ¶90). It is a digital signal when it leaves the CPU EC because it needs to be “decode[d]...from digital to analogue form....” (Ex. 1004, 2:50-58)(Ex. 1002, ¶90).

Second, the 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 interfaces....”, which means that it processes the input audio files in a manner selected by the disk jockey or other user. (Ex. 1004, 2:25-33)(Ex. 1002, ¶91). Such processing would be useless without preparing a corresponding output, and thus, it would have been obvious to have an output of the processed audio inputs. (Ex. 1002, ¶91). These outputs are in **digital** form, as noted in the quote above. (Ex. 1002, ¶91).

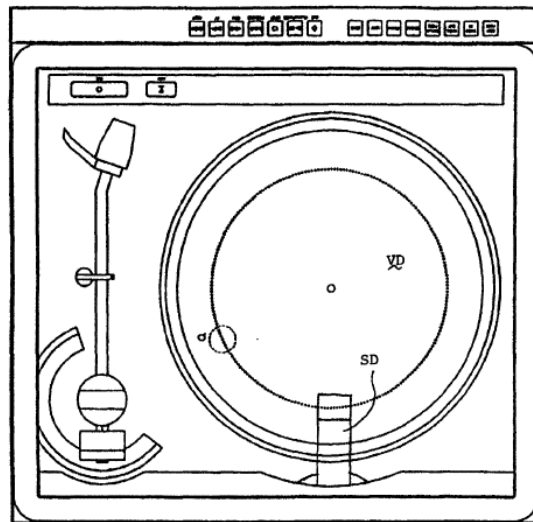
Third, Cortellesi teaches that its system can have a “dedicated hard-disk where it is possible to store **digitally** several pieces of music”. (Ex. 1004, 1:20-22)(Emphasis added)(Ex. 1002, ¶92). The storage is accomplished by the CPU EC. (Ex. 1004, 5:16-19)(Ex. 1002, ¶92). It would have been obvious that, in order to store music on a hard drive, the CPU EC would need to have **an output digital audio signal of music or speech**. (Ex. 1002, ¶92).

Thus, overall, it was obvious that the common record player (shown in Fig. 4)

would be used to play records, thus producing an analog audio signal. (Ex. 1002, ¶93). This analog audio signal would pass through the analog-to-digital converter (CA/D), and be received by the CPU EC (the controller). (Ex. 1002, ¶93). The controller would process the digital audio signal and render a digital output, either for playback or storage. This meets the claim limitation. (Ex. 1002, ¶93).

“[1f] wherein said analog to digital converter and said controller are included within said turntable; and”

Cortellesi teaches both the analog-to-digital converter and the controller within the turntable shown in Fig. 4, which is reproduced here:



(Ex. 1004, Fig. 4)(Ex. 1002, ¶94).

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). 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. (Ex. 1004, 2:12-36 (Fig. 1), 4:27-33 (Fig. 2), 2:8-10 (Fig. 4))(Ex. 1002, ¶95).

Alternatively, it would have been obvious to have both the analog-to-digital converter (CA/D) and the controller (EC) included in the form of the turntable shown in Fig. 4, for the reasons discussed above in the section entitled “Overview of the Ground and Rationale Supporting Obviousness”. (Ex. 1002, ¶96).

“[1g] wherein said output digital audio signal is output from said turntable and uses standard computer protocol.”

Cortellesi teaches that its apparatus contains:

“several interfaces to the outside such as....[a] **USB**-interface that allows the apparatus to be directly connected to a personal computer for digital data processing/transmitting by **software programs that improve the quality of the recorded pieces of music** (removal of ground noise/interferences, digital mixing)....”

(Ex. 1004, 3:44-4:14)(Ex. 1002, ¶97). The USB interface is an interface that uses a “standard computer protocol”, stated to be such in the ’498 patent itself. (Ex. 1001, 1:37-38, claim 2)(Ex. 1002, ¶97).

Cortellesi also teaches a “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)(Ex. 1002, ¶98). These additional interfaces are interfaces over which it would have been obvious to communicate using a standard protocol implemented by computers. (Ex. 1002, ¶98).

The USB and other interfaces are connected directly to the CPU EC (controller), as shown in Fig. 1, reproduced below with an added, red-dashed box to indicate the USB interface.

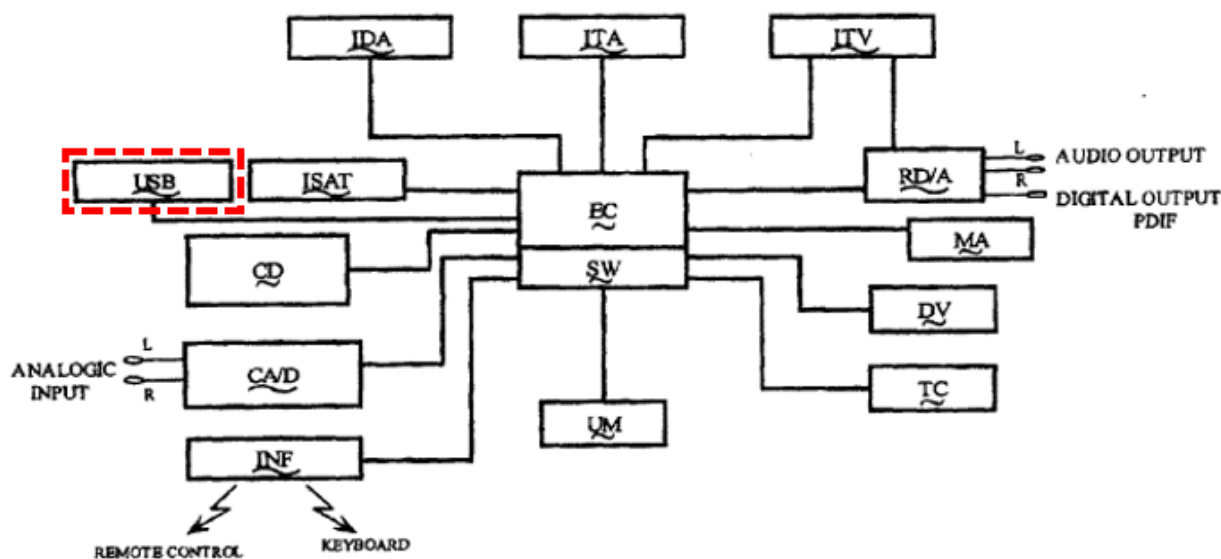


FIG. 1

(Ex. 1004, Fig. 1)(Ex. 1002, ¶99).

A POSITA would have understood and found obvious that Cortellesi teaches a system wherein a variety of potential inputs provide analog or digital signals representing an audio recording, wherein the analog inputs are converted to digital, wherein the CPU EC receives the digital inputs and either stores the music in digital

form, outputs the music to analog speakers, or outputs the music in digital form (e.g. over the USB interface) to an external system such as a computer. (Ex. 1002, ¶100). More specifically, it was obvious from Cortellesi that the CPU EC outputs the digital audio signal to an external computer via a USB interface, so that a user could apply “software programs that improve the quality of the recorded pieces of music (removal of ground noise/interferences, digital mixing)....” (Ex. 1004, 4:8-13)(Ex. 1002, ¶100).

CLAIM 2

“2. The turntable of claim 1 wherein said output digital audio signal uses universal serial bus (USB) protocol.”

See above, claim 1, element [1g]. (Ex. 1004, 4:8-13)(Ex. 1002, ¶101). 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).

CLAIM 4

“4. The turntable of claim 1 wherein said turntable further includes a jack for outputting said output digital audio signal.”

See above, claim limitation [1g]. Cortellesi teaches that its apparatus includes various interfaces, such as a USB interface. (Ex. 1004, 3:44-4:20)(Ex. 1002, ¶102). These interfaces allowed external connections. For example, Cortellesi states that the USB interface

“allows the apparatus to be directly connected to a personal computer

for digital data processing/transmitting by software programs that improve the quality of the recorded pieces of music (removal of ground noise/interferences, digital mixing)....”

(Ex. 1004, 4:7-13)(Ex. 1002, ¶102). A POSITA would have understood and found obvious that, in the relevant timeframe, certain of the interfaces involved wired or direct physical connections (*e.g.* USB, Audio/video TV interface, and the Digital interface for pocket cartridges ITA) that required a “jack” for outputting. (*Id.*).

CLAIM 5

“5. The turntable of claim 1 wherein said rotatable platter is configured and arranged to receive a record with an audio recording thereon.”

Cortellesi renders this claim obvious for the reasons discussed under the section entitled “Rationale (Motivation) Supporting Obviousness”, above. A rotatable platter **configured and arranged to receive a record with an audio recording thereon** was a standard component of a common record player in the relevant timeframe. (Ex. 1002, ¶103)(*citing* Ex. 1004, 1:3-17; Ex. 1010, 1:23-36; Ex. 1011, 13:61-63; Ex. 1005, ¶0026; Ex. 1007, p. 001).

CLAIM 6

“6. The turntable of claim 5 wherein said 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.”

Cortellesi renders this claim obvious based on its disclosure of a “common

record player”, as shown in Fig. 4. A tonearm **configured and arranged to engage a phono cartridge against a record with an audio recording thereon, the record being supported by said rotatable platter** was a standard component of a common record player in the relevant timeframe. (Ex. 1002, ¶104)(*citing* Ex. 1004, 1:3-17; Ex. 1010, 1:23-36; Ex. 1011, 13:61-63; Ex. 1005, ¶0026; Ex. 1007, p. 001).

Ground 2. Claim 3 was obvious over Cortellesi in view of Georges

Claim 3 was obvious over **Cortellesi** (as discussed above in Ground 1), in further view of U.S. Pat. App. Pub. 2003/0131715 A1 (“**Georges**”)(Ex. 1013).

Georges was not of record during the prosecution of any application leading to the ’498 patent.

A. Effective Prior Art Date of Georges

Georges is a U.S. Patent Application Publication that was published on July 17, 2003, from an application filed November 12, 2002. It is thus prior art under pre-AIA 35 U.S.C. §§102(a) and 102(e).

B. Georges is analogous art

Georges is analogous art because it is in the same field as the ’498 patent (audio signals technology). (Ex. 1001, Abstract)(Ex. 1013, Abstract)(Ex. 1002, ¶107). Furthermore, the methods of Georges would have been reasonably pertinent to the problems facing the named inventors, for example, the problem of outputting

digital audio data using standard computer communications protocols. (Ex. 1001, 1:35-39)(Ex. 1013, Abstract, ¶0311). *See Wyers*, 616 F.3d at 1238.

C. Reasons for Obviousness of Claim 3

Claim 3 recites: “The turntable of claim 1 wherein said output digital audio signal uses firewire (IEEE-1394) protocol.”

As discussed above under Ground 1, Cortellesi already teaches a system that renders claim 1 obvious, including providing an output digital audio signal using a standard computer protocol (*e.g.*, USB). In the relevant timeframe, firewire (IEEE-1394) protocol was a known alternative to USB protocol for digital communication between computing devices. (Ex. 1002, ¶109).

Georges teaches “[s]ystems and methods for creating, modifying, interacting with and playing music....” (Ex. 1013, Abstract)(Ex. 1002, ¶110). Georges teaches that a DSP module can be connected to its invention by “a high speed bus (*e.g.*, IEEE 1394, or USB, etc.)”. (Ex. 1013, ¶0311)(Ex. 1002, ¶110). This allows audio signals to be processed by an external computer system. (Ex. 1013, ¶¶0311, 0258, 0319)(Ex. 1002, ¶110). Because Cortellesi already teaches outputting audio data using a USB interface, and Georges teaches that USB or IEEE-1394 can be used for the same purpose, it would have been obvious to use firewire (IEEE-1394) protocol in connection with Cortellesi. (Ex. 1002, ¶110). This would have had no unpredictable results, would have been within ordinary skill to implement, and

would have afforded the POSITA with a reasonable expectation of success. (Ex. 1002, ¶110). *See KSR*, 550 U.S. at 416-21 (2007).

Ground 3. Claims 1-2 and 4-6 were Obvious over Spencer in view of Cohen

Claims 1-2 and 4-6 were obvious under pre-AIA 35 U.S.C. § 103(a) over U.S. Pat. Pub. No. 2004/0089795 A1 (“**Spencer**”)(Ex. 1005) in view of U.S. Pat. App. Pub. US 2003/0206506 A1 (“**Cohen**”)(Ex. 1006).

Spencer was not of record during the prosecution of the application that issued as the ’498 patent.

Cohen *was* of record during the prosecution of the application that issued as the ’498 patent, but was not substantively examined together with Spencer. Instead, the Examiner’s June 12, 2007 office action rejected then-pending claims 1, 2 and 5 as anticipated by Cohen, and claims 3-4 as obvious over Cohen in view of another publication that taught USB and firewire protocols. (Ex. 1008, pp. 317-319). In response to this office action, the Applicant did not dispute that Cohen taught connecting the analog output of a record player to an analog-to-digital converter and a controller. (Ex. 1008, p. 310). Instead, the Applicant argued that Cohen’s vinyl record did not contain an *audio* recording, but rather time codes. (Ex. 1008, p. 310). In connection with this argument, the Applicant amended claim 1 to require that an “audio signal” be output from the turntable, and that this audio signal be digitized

and processed. (Ex. 1008, p. 308). In the subsequent final rejection of October 30, 2007, the Examiner dropped the rejections over Cohen without comment. (Ex. 1008, pp. 294-300). Thus, it appears that the claims were allowed over Cohen based on the *information content* of the vinyl record being played on Cohen's turntable.

A. Effective Prior Art Date of Spencer and Cohen

Spencer is a U.S. patent application publication that was filed on November 12, 2002, and published on May 13, 2004. It is thus prior art under pre-AIA 35 U.S.C. §§102(e) and 102(a).

Cohen is a U.S. patent application publication that was filed on May 6, 2002, and published issued on November 6, 2003. It is thus prior art under pre-AIA 35 U.S.C. §§102(e) and 102(a).

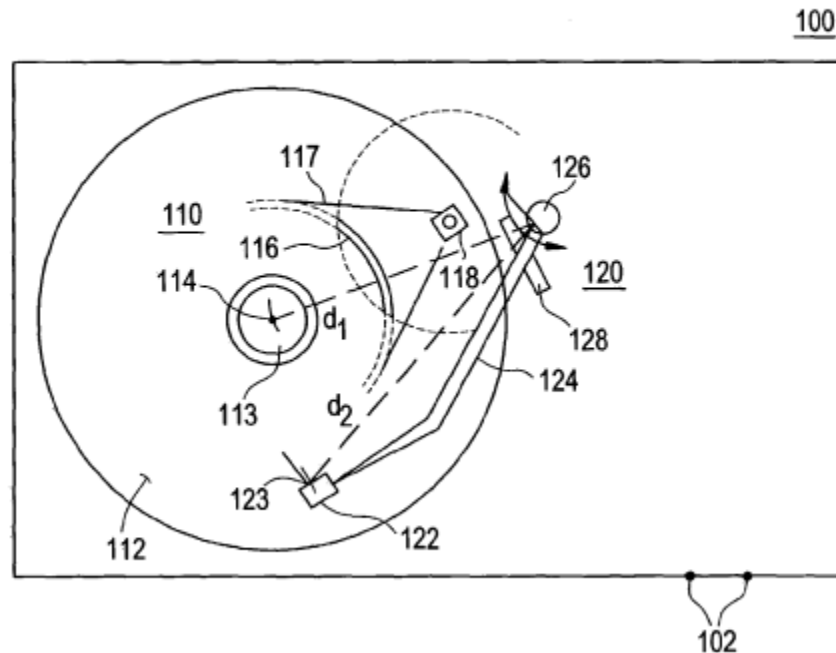
B. Overview of the Ground

Spencer teaches a standard turntable that can output its audio signals over a digital, USB interface. (Ex. 1005, ¶0030)(Ex. 1002, ¶114). Spencer does not, however, expressly state that the digitized USB audio signals are created using an analog-to-digital converter and a controller. (Ex. 1002, ¶114). However, it would have been obvious to a POSITA in the relevant timeframe to provide an analog-to-digital converter to receive the audio output of a phono cartridge, as well as a controller, within the turntable of Spencer. (Ex. 1002, ¶114).

1. Overview of Spencer

Spencer teaches a turntable, as shown in Fig. 2 of Spencer, reproduced here:

FIG. 2



(Ex. 1005, Fig. 2). The turntable is also called a “controller” 100. (Ex. 1005, ¶¶0032-0033)(Ex. 1002, ¶115). The turntable / controller has all the standard components of a turntable, including a platter 110, tone arm 124 and phono cartridge 122. (Ex. 1005, ¶0033)(Ex. 1002, ¶115). The turntable / controller also has output ports 102, shown at the bottom right of Fig. 2. (Ex. 1005, ¶0030)(Ex. 1002, ¶115).

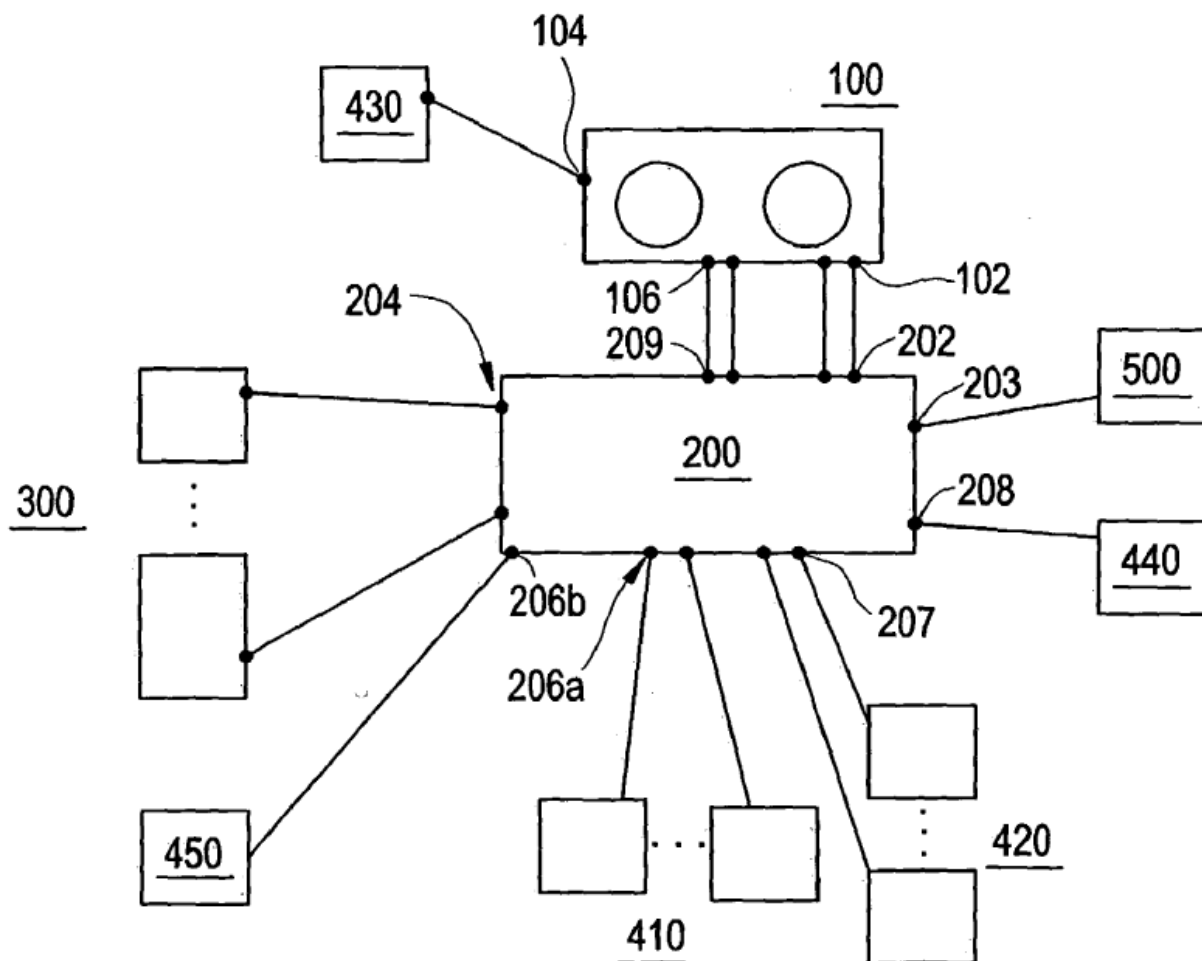
Spencer teaches that its turntable can output, through the ports 102, digitized audio signals over a USB interface. (Ex. 1005, ¶0030)(Ex. 1002, ¶116). Spencer states:

“In another aspect of the present invention, **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.”

(Ex. 1005, ¶0030)(Emphasis added)(Ex. 1002, ¶116). As shown in Fig. 2, above, the ports 102 are shown built into the turntable itself. (Ex. 1002, ¶116).

Fig. 1 of Spencer shows the overall system, including the communication between the controller 100 and a data processing unit 200 (*e.g.*, a computer), via ports 102 and 202:



2. Overview of Cohen

Cohen teaches a way to turn the analog output of a turntable into a digital data stream. (Ex. 1006, Fig. 1, ¶¶0015-0016)(Ex. 1002, ¶118). Specifically, Cohen teaches a turntable whose analog output is connected to an analog-to-digital converter, which is in turn connected to a microprocessor (controller), and then to a digital (MIDI) output. (Ex. 1006, Fig. 1, ¶¶0015-0016)(Ex. 1002, ¶118). This arrangement is shown in Fig. 1 of Cohen, reproduced here:

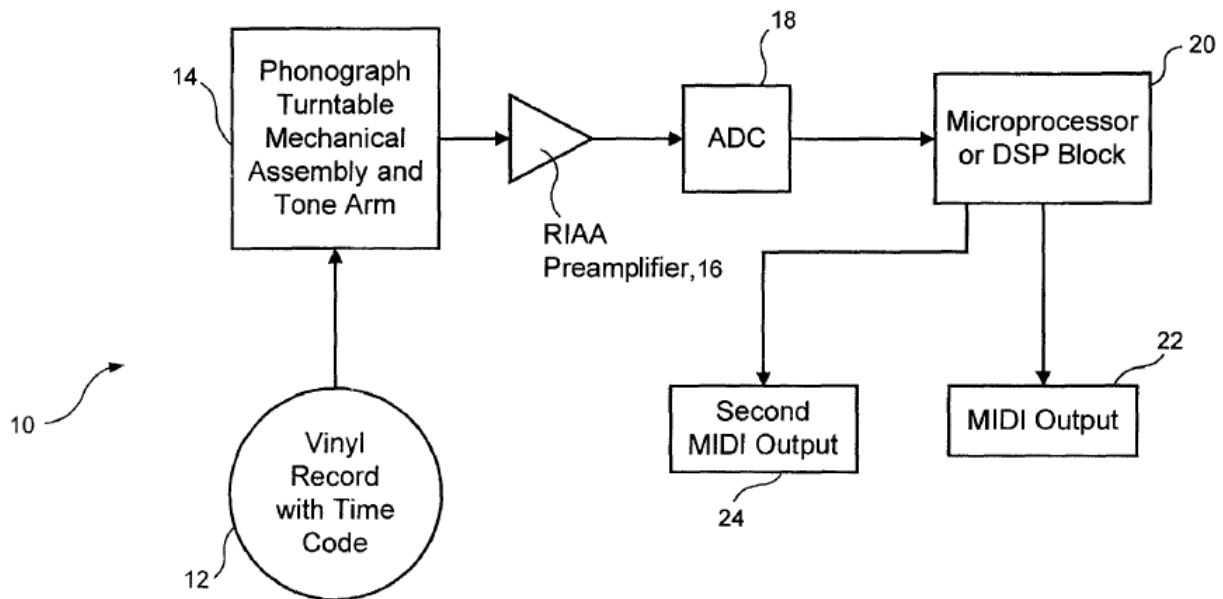


FIG. 1

(Ex. 1006, Fig. 1, ¶¶0015-0016)(Ex. 1002, ¶118). Cohen states:

“The analog output from turntable 14 is received by RIAA (Recording Industry Association of America) preamplifier 16 in

order to amplify the analog signal....The analog output of RIAA preamplifier is received by analog-to-digital converter 18 for conversion into a digital data stream.”

(Ex. 1006, ¶¶0015-0016)(Ex. 1002, ¶118). The output of Cohen’s analog-to-digital converter is sent to the Microprocessor or DSP Block 20, and then to a digital output 22, 24. (Ex. 1005, ¶¶0016-0018)(Ex. 1002, ¶118).

C. Rationale (Motivation) Supporting Obviousness

It would have been obvious to use an analog-to-digital converter and microprocessor (“controller”), as taught, for example, 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, for several reasons.

Spencer teaches a turntable with a phono cartridge that produces an analog audio output. (Ex. 1005, ¶0036)(Ex. 1002, ¶120). This audio output is “digitized” and communicated via USB protocol port 102. (Ex. 1005, ¶0030)(Ex. 1002, ¶120). Because the output of the phono cartridge is analog, but the audio output of the turntable at ports 102 is digital, this already suggests analog-to-digital conversion between the phono cartridge and turntable output. (Ex. 1002, ¶120).

Cohen, in turn, teaches a broadly-applicable way to produce digital output from a turntable. (Ex. 1006, Fig. 1, ¶¶0015-0016)(Ex. 1002, ¶121). A POSITA looking to produce the digitized audio output taught by Spencer would have found it obvious to use known solutions such as Cohen’s. (Ex. 1002, ¶121). In the relevant

timeframe, the use of analog-to-digital converters and microprocessors (controllers) was well-known in connection with turntables. (Ex. 1002, ¶121). Furthermore, 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. (Ex. 1002, ¶121)(*citing* Ex. 1020, 1:55-61). It would have been obvious to implement a host controller in the microprocessor of Cohen, or as a separate host controller. (Ex. 1002, ¶121).

As discussed above, during the prosecution of the application leading to the '498 patent, the Examiner cited Cohen as anticipating several application claims. In response, the Applicant argued that the information on Cohen's vinyl record was not an audio recording, but instead a series of time codes. (Ex. 1008, p. 310). Such an argument would not overcome obviousness here, however. First, Spencer was not of record during the prosecution, and Spencer's records can be standard records with audio signals. (Ex. 1005, ¶¶0008, 0065-0068, 0056-0058, 0083)(Ex. 1002, ¶122). Second, there is no technical difference between Cohen's system and the system of claim 1 of the '498 patent—the only difference is found in the *meaning of the information* recorded on Cohen's vinyl record. (Ex. 1002, ¶122). A POSITA would have found it obvious that Cohen's system could have been used to play a record with an audio recording, and would have produced a digital audio output. (Ex. 1002, ¶122). Third, it was well-known in the relevant timeframe to connect the analog

audio output from a vinyl record to an analog-to-digital converter. (Ex. 1002, ¶122). The Background of the '498 patent admits that such products were already known, and the Cortellesi and Webster prior art provide examples. (Ex. 1002, ¶122)(*citing* Ex. 1001, 1:35-39; Ex. 1004, 2:33-36, Ex. 1009, 6:7-17)(Ex. 1002, ¶122). The concept was even found in a mainstream newspaper article prior to the filing date of the application leading to the '498 patent. (Ex. 1007, p. 002)(Ex. 1002, ¶122). Thus, a POSITA already understood the concept of connecting the analog output of a phono cartridge to an analog-to-digital converter. (Ex. 1002, ¶122).

Because Spencer teaches that “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”, it would have been obvious that the “digitized audio signals” needed to be digitized prior to reaching and leaving the output ports 102. (Ex. 1005, ¶0030)(Ex. 1002, ¶123). The output ports 102, in turn, are output ports on the side of the turntable / controller 100. (Ex. 1005, Figs. 1 and 2)(Ex. 1002, ¶123). Thus, it would have been obvious to provide an analog-to-digital converter and a controller, such as the ones taught by Cohen *within* the turntable / controller 100 of Spencer. (Ex. 1002, ¶123).

A POSITA further would have found it *obvious* to integrate an analog-to-digital converter and controller within the turntable of Spencer. As Dr. Moon

explains, in the relevant timeframe, analog-to-digital converters and controllers were small integrated circuits that had been integrated into the housings of numerous consumer products. (Ex. 1002, ¶124)(*citing* Ex. 1014, 7:53-67; Ex. 1015, 5:19-25; Ex. 1016, Abstract; Ex. 1017, 7:35-39; Ex. 1018, Figs. 5-7, rn. 3, 4, and 41, 5:12-33; Ex. 1019, 4:26-39). It would have been obvious to manufacture the device with integrated circuits within the housing in order to protect these components from dirt, moisture, and electrical discharge, to make the product more attractive and less cumbersome to users, to avoid potential electric shock to users, and avoid additional external wiring.¹ (Ex. 1002, ¶124). This could have been done with no unpredictable results. *See KSR*, 550 U.S. 398, 416-421 (2007).

D. *Graham* Factors

The *Graham* factors are discussed under Ground 1, and apply similarly here.

E. Reasonable Expectation of Success

A person of ordinary skill in the art (“POSITA”) in the relevant timeframe would have had a reasonable expectation of success in using the prior art in the

¹ If the A/D converter and controller are outside the housing, the output of the phono cartridge would need to be wired to the outside of the housing, and the output of the controller would need to be wired back into the housing to the port 102. (Ex. 1002, ¶124).

manner discussed in this petition. (Ex. 1002, ¶126). As Dr. Moon explains, the art was relatively predictable in the relevant timeframe (August 2001). (Ex. 1002, ¶126). A POSITA would have been able to make any necessary modifications to implement the Ground, and in particular would have been able to provide for an analog-to-digital converter and controller in the output data path and within the housing of Spencer's turntable device. (Ex. 1002, ¶126).

F. Analogous Art

Spencer and Cohen are analogous art because they are in the same field as the '498 patent (audio signals technology). (Ex. 1001, Abstract)(Ex. 1005, Abstract)(Ex. 1006, Abstract)(Ex. 1002, ¶127). Furthermore, the methods of Spencer and Cohen would have been reasonably pertinent to the problems facing the named inventors, for example, the problem of using analog audio-related signals in a digital context. (Ex. 1001, 1:13-18, 1:31-38)(Ex. 1005, Abstract, ¶¶0030-0036)(Ex. 1006, Fig. 1, ¶0002). *See Wyers*, 616 F.3d at 1238.

G. Claim Mapping

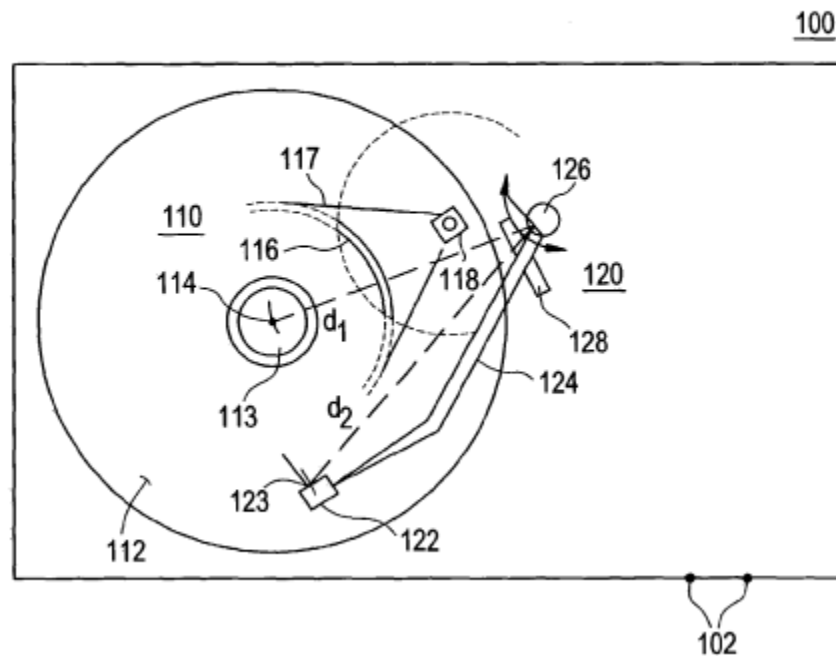
This section maps the challenged claims to the relevant disclosures of Spencer and Cohen, where the claim text appears in bold-italics, and the relevant mapping follows the claim text. The Petitioners have added numbering and lettering in brackets (*e.g.* 1[a], [1b]) to certain claim elements, to facilitate the discussion.

CLAIM 1

“1[a]. A turntable including:”

Spencer teaches a **turntable**, as shown in Fig. 2 of Spencer, reproduced here:

FIG. 2



(Ex. 1005, Fig. 2). Spencer states:

“Referring to FIG. 2, to synchronize output signals of digital external data sources with audio from an analog record, a needle location within the analog record must be determined. Accordingly, the controller unit 100 may include a **turntable** assembly 110, a tone arm assembly 120, and a scanner assembly, the various types of which are described in greater detail below.”

(Ex. 1005, ¶0033)(Emphasis added).

Spencer refers to the entire device 100 alternately as a “controller unit” (as shown in the quote immediately above, a “control unit”, or a “turntable unit”. (Ex. 1005, ¶0030)(describing a “controller unit 100, e.g., a **turntable** unit”)(Emphasis added)(Ex. 1002, ¶130).

“[1b] a rotatable platter;”

Spencer’s turntable includes a **rotatable platter**. Spencer states:

“In one embodiment of the present invention, turntable assembly 110 may include a turntable **platter** 112 having a supporting surface **rotatable** about a spindle 114.”

(Ex. 1005, ¶0034)(Emphasis added).

“[1c] a tonearm for receiving a phono cartridge for generating an analog audio signal representative of an audio recording;”

Spencer’s turntable has a **tonearm for receiving a phono cartridge for generating an analog audio signal representative of an audio recording**. Spencer states:

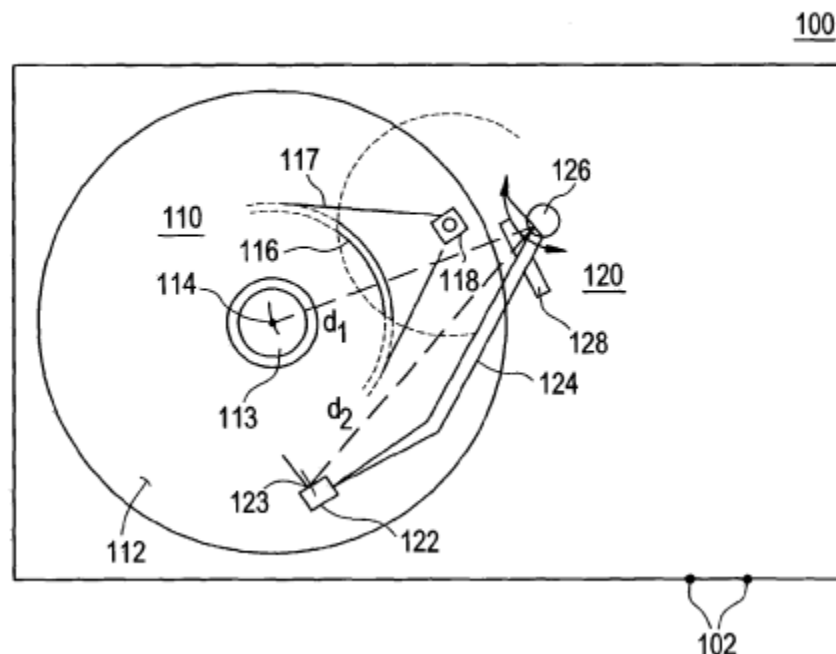
“In one embodiment of the present invention, **tone arm** assembly 120 may include a **cartridge 122** pivotally coupled to the controller unit 100 via a tone arm 124 and tone arm pin 126. Tone arm pin 126 may, for example, include a stylus 123 arranged at a first predetermined distance, d1, from the spindle 114. The stylus 123, capable of running within a groove on an existing analog record

supported by the turntable platter 112 and sensing the groove topography may be arranged within the cartridge 122, may be positioned at a second predetermined distance, d_2 , from the tone arm pin 126. **The cartridge 122 generally includes at least one transducer for converting mechanical vibrations sensed by the stylus 123 into analog electrical signals.** Further, the cartridge 122 communicates those analog electrical signals to the data processor unit 200 for sampling, as will be discussed in greater detail below.”

(Ex. 1005, ¶0036)(Emphasis added)(Ex. 1002, ¶132).

The cartridge 122 is the **phono cartridge**. (Ex. 1002, ¶133). It is received on the tone arm in the standard fashion for record players, as shown in Fig. 2, reproduced again here:

FIG. 2



Spencer further teaches that the turntable is for playing audio recordings on vinyl records, such that the signals produced by the phono cartridge are **representative of an audio recording**. (Ex. 1005, ¶0008)(Ex. 1002, ¶134).

Spencer states:

“An advantage of the present invention provides a user e.g., a DJ, with control over audio and video digital media via an analog **control unit capable of playing existing vinyl records.**”

(Ex. 1005, ¶0008)(Emphasis added)(Ex. 1002, ¶134).

Spencer further teaches that the turntable can be used to produce an analog audio signal, **representative of the audio recording** on a vinyl record, in order to perform waveform and synching analysis. (Ex. 1005, ¶¶0065-0068, 0056-0058, 0083). In either case (playback or analysis), the signal generated by the phono cartridge when the turntable has a vinyl record is **an analog audio signal representative of an audio recording**. (Ex. 1002, ¶135).

“[1d] an analog to digital converter for receiving an analog audio signal from the phono cartridge; and”

Spencer does not use the words “analog to digital converter”, but does state that audio signals produced by the controller can be “digitized” and sent to a data processor using a USB connection (which is a digital interface). Spencer states:

“In another aspect of the present invention, 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.”

(Ex. 1005, ¶0030)(Emphasis added)(Ex. 1002, ¶136). In other words, Spencer teaches that the turntable has output ports 102 that can be connected to “corresponding” output ports on a data processor unit 200 using the SCSI, USB or other communication protocols, to communicate “digitized” audio signals. (Ex. 1002, ¶136). This already clearly suggests an analog-to-digital converter to “digitize” the analog audio signals produced by the turntable. (Ex. 1002, ¶136).

As discussed above in the sections entitled “Overview of the Ground” and “Rationale (Motivation) Supporting Obviousness”, it would have been obvious to use **an analog to digital converter for receiving an analog audio signal from the phono cartridge**, as taught by Cohen, within Spencer’s device. (Ex. 1002, ¶137). Specifically, Cohen teaches using **an analog to digital converter** that receives the analog signal from the turntable, as shown in Fig. 1 of Cohen, reproduced here, with an added, red-dashed box and red arrow indicating the **analog to digital converter** (“ADC”):

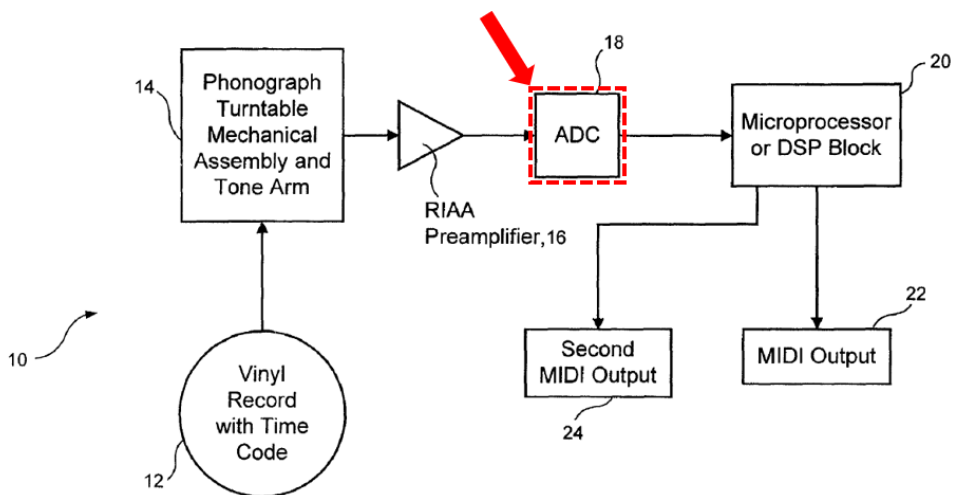


FIG. 1

(Ex. 1006, Fig. 1, ¶¶0015-0016)(Ex. 1002, ¶137). As can be seen from Fig. 1, the analog-to-digital converter receives the output of the preamplifier, which is in turn connected to the output of the Phonograph Turntable Mechanical Assembly. (*Id.*).

Cohen states:

“The analog output from turntable 14 is received by RIAA (Recording Industry Association of America) preamplifier 16 in order to amplify the analog signal....The analog output of RIAA preamplifier is received by analog-to-digital converter 18 for conversion into a digital data stream.”

(Ex. 1006, ¶¶0015-0016)(Ex. 1002, ¶137).

As explained above under the section entitled “Rationale (Motivation) Supporting Obviousness”, it would have been obvious to connect the analog-to-digital converter to **receive an analog audio signal from the phono cartridge**. (Ex. 1002, ¶138).

“[1e] 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;”

Cohen further teaches **a controller responsive to said analog to digital converter**, in the form of Microprocessor or DSP Block 20. (Ex. 1006, ¶0016)(Ex. 1002, ¶139). The relevant controller is shown in Fig. 1 of Cohen, reproduced again below with an added, red-dashed box and arrow showing the controller:

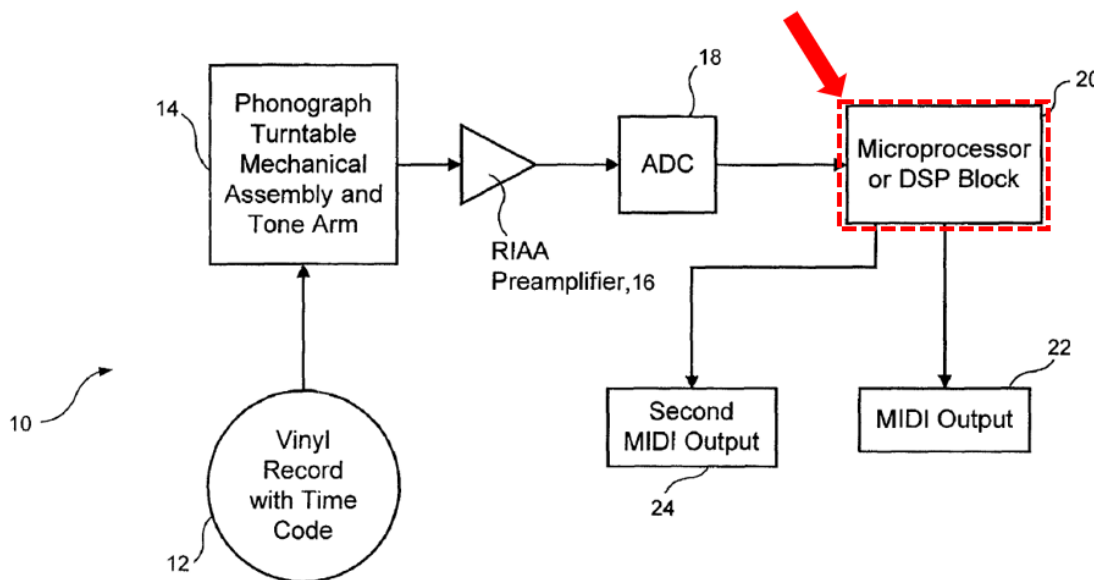


FIG. 1

(Ex. 1006, Fig. 1, ¶¶0015-0016)(Ex. 1002, ¶139).

As explained above under the section entitled “Rationale (Motivation) Supporting Obviousness”, it would have been obvious to arrange a controller, such as the one taught by Cohen, in Spencer’s turntable, 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. (Ex. 1002, ¶140).

“[1f] wherein said analog to digital converter and said controller are included within said turntable; and”

As explained above in the section entitled “Rationale (Motivation) for the Combination”, it would have been obvious to **include within said turntable** (Spencer’s turntable) an **analog to digital converter and the controller** (such as in the system of Cohen). (Ex. 1002, ¶141).

“[1g] wherein said output digital audio signal is output from said turntable and uses standard computer protocol.”

Spencer teaches that its turntable outputs “digitized audio signals” to SCSI, USB or suitable types of ports on a computer. (Ex. 1005, ¶0030)(Ex. 1002, ¶142).

In Spencer’s words:

“[O]utput 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.”

(Ex. 1005, ¶0030)(Ex. 1002, ¶142).

As explained above under the section entitled “Rationale (Motivation)

Supporting Obviousness”, it would have been obvious to have the controller output digital audio signals from the turntable through ports 102 that use standard computer protocols, including specifically USB protocol. (Ex. 1002, ¶143).

CLAIM 2

“2. The turntable of claim 1 wherein said output digital audio signal uses universal serial bus (USB) protocol.”

See above, claim 1, element [1g]. 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, ¶144).

CLAIM 4

“4. The turntable of claim 1 wherein said turntable further includes a jack for outputting said output digital audio signal.”

Spencer teaches **a jack for outputting said output digital audio signal** in the form of “output ports 102 on the controller unit 100”, which can be, for example, a SCSI, USB or other suitable type of port. (Ex. 1005, ¶0030)(Ex. 1002, ¶145). The controller unit 100 is the turntable. (Ex. 1005, ¶0030)(describing a “controller unit 100, e.g., a **turntable** unit”).

As explained above under claim 1, element [1g], it would have been obvious to output the digital audio signal via the ports 102 included in the turntable, thus providing **a jack for outputting said output digital audio signal**. (Ex. 1002, ¶146).

CLAIM 5

“5. The turntable of claim 1 wherein said rotatable platter is configured and arranged to receive a record with an audio recording thereon.”

Spencer teaches that the **rotatable platter is configured and arranged to receive a record with an audio recording thereon**. Spencer states:

“In one embodiment of the present invention, turntable assembly 110 may include a **turntable platter 112** having a supporting surface **rotatable** about a spindle 114. **An existing record (not shown) may be arranged on the supporting surface of, and rotated by, the turntable platter 112.**”

(Ex. 1005, ¶0034)(Emphasis added)(Ex. 1002, ¶147).

The record has **an audio recording thereon**. (Ex. 1005, ¶¶0026, 0029-0030, 0036, Abstract)(Ex. 1002, ¶148).

CLAIM 6

“6. The turntable of claim 5 wherein said 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.”

See above, claim 1, element [1c] (discussing the tone arm for receiving a phono cartridge) and claim 5 (discussing the rotatable platter and record with the audio recording thereon). The **phono cartridge** contains a stylus (needle) that **engages the record**. (Ex. 1005, ¶0036)(Ex. 1002, ¶149). The record is furthermore

supported by said rotatable plater. (Ex. 1005, ¶0034)(“An existing record (not shown) may be arranged on the supporting surface of, and rotated by, the turntable platter 112.”)(Ex. 1002, ¶149).

Ground 4. Claim 3 was obvious over Spencer and Cohen and Georges

Claim 3 was obvious over **Spencer** and Cohen (as discussed above in Ground 3), in further view of **Georges**, as discussed above in Ground 2.

A. Reasons for Obviousness of Claim 3

Claim 3 recites: “The turntable of claim 1 wherein said output digital audio signal uses firewire (IEEE-1394) protocol.”

The present Ground 4 is based on reasons similar to those presented under Ground 2, above. Because Spencer already teaches providing a digitized output that communicates over USB protocol, and Georges teaches that USB or IEEE-1394 can be used for the same purpose, it would have been obvious to use firewire (IEEE-1394) protocol in connection with Spencer and Cohen. (Ex. 1002, ¶152). This would have had no unpredictable results, would have been within ordinary skill to implement, and would have afforded the POSITA with a reasonable expectation of success. (Ex. 1002, ¶152). *See KSR*, 550 U.S. at 416-21 (2007).

IV. DISCRETIONARY INSTITUTION

A. The Board should not deny the petition under 35 U.S.C. §325(d)

The Board should not exercise its discretion to deny the petition under 35 U.S.C. §325(d). *See Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte G.m.b.H.*, IPR2019-01469, Paper 6, *8-9 (PTAB Feb. 13, 2020) (precedential).

First, the principal references in Grounds 1-4, namely Cortellesi and Spencer, as well as the secondary Georges reference in Grounds 2 and 4, were not of record during prosecution of the application leading to the '498 patent. *See Advanced Bionics* at *8-9. While the Cohen reference (cited in Ground 3) was of record, it was not substantively examined in connection with Spencer. Thus, there is a relatively low degree of overlap between the prior art cited during prosecution and the prior art applied herein, per factors (a) and (b) of *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph). *See Advanced Bionics* at *9, (citing *Becton, Dickinson* factors).

Furthermore, the Cortellesi and Spencer references provide stronger teachings concerning claim limitation [1f] (“[1f] wherein said analog to digital converter and said controller are included within said turntable”) than the principal prior art ultimately used to reject the claims. *See above*, Ground 1, claim 1, element [1f] and

Ground 3, claim 1, element [1f]). The Examiner stated that this limitation was the primary basis for allowance of the claims. (Ex. 1008, p. 197).

Finally, the breadth and relative simplicity of the claims, combined with the strength of the prior art and the additional evidence presented in the petition would “warrant reconsideration of the prior art or arguments”. *Becton, Dickinson*, at 17-18.

B. The Board should not deny the petition under 35 U.S.C. §314(a)

Nor should the Board deny the petition under 35 U.S.C. §314(a). *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential)(“*Fintiv*”).

Petitioners filed this petition shortly after a complaint for infringement was filed against Sony Corporation of America (“SCA”). The *Fintiv* factors weigh in favor of institution, as follows:

Fintiv Factor 1 (“*whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted*”): SCA intends to move for a stay pending *inter partes* review, should the review be instituted.

Fintiv Factor 2 (“*proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision*”): The district court case against SCA is in its infancy. No trial date has been set. The Southern District of New York as a whole, for all civil trials, currently has a median 39.4 months to trial. (Ex. 1021,

p. 011). The assigned judge has previously conducted one patent jury trial, 46.4 months after filing of the complaint. (Ex. 1022, p. 004). It is thus likely that the Board will reach a decision prior to a trial on the merits in district court. *See Interim Procedure for Discretionary Denials in AIA Postgrant Proceedings with Parallel District Court Litigation*, USPTO, June 21, 2022, p. 8 (“Parties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides.”).²

Fintiv Factor 3 (“*investment in the parallel proceeding by the court and the parties*”): Because the district court case against SCA is in its infancy, the parties and the court have invested very little in the proceeding.

Fintiv Factor 4 (“*overlap between issues raised in the petition and in the parallel proceeding*”): Because the district court case against SCA is in its infancy and no issues of invalidity have yet been raised in the litigation, there is presently no overlap between the issues raised in the petition and in the district court litigation.

Fintiv Factor 5 (“*whether the petitioner and the defendant in the parallel proceeding are the same party*”): SCA is a party only to the proceeding filed in the Southern District of New York on August 3, 2022.

² https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf

Fintiv Factor 6 (“*other circumstances that impact the Board’s exercise of discretion, including the merits.*”): The merits of the petition are compelling, and the Board should institute on this basis alone. *See Interim Procedure for Discretionary Denials in AIA Postgrant Proceedings with Parallel District Court Litigation*, USPTO, June 21, 2022, p. 8 (“the PTAB will not deny institution of an IPR or PGR under Fintiv (i) when a petition presents compelling evidence of unpatentability....”).

V. CONCLUSION

Petitioners thus respectfully request that claims 1-6 of the ’498 patent be canceled.

Date: <u>December 1, 2022</u>	<u>/Matthew A. Smith/ (RN 49,003)</u> Matthew A. Smith SMITH BALUCH LLP 700 Pennsylvania Ave. SE, 2nd Floor Washington, DC 20003 (202) 669-6207 smith@smithbaluch.com <i>Counsel for Petitioners</i>
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing petition for *inter partes* review, together with all exhibits and other documents filed therewith, was served by USPS Priority Mail - Express on December 1, 2022, on the Patent Owner's counsel of record at the United States Patent & Trademark Office having the following address:

Bates & Bates, LLC
1890 Marietta Boulevard., NW
ATLANTA, GA 30318

Date: December 1, 2022

/Matthew A. Smith/ (RN 49,003)

CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the foregoing petition for *inter partes* review contains 12,794 words according to the word processing program used to prepare it.

Date: December 1, 2022

/Matthew A. Smith/ (RN 49,003)