

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Lectrosonics, Inc.
Petitioner

v.

Zaxcom, Inc.
Patent Owner

IPR2018-01129
U.S. Patent 7,929,902

PETITION FOR *INTER PARTES* REVIEW

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LIST OF EXHIBITS

Exhibit	Description
EX1001	U.S. Patent 7,929,902 (“the ’902 patent”)
EX1002	File History of U.S. Patent Appl. 11/404,735
EX1003	U.S. Patent 6,825,875 (“Strub”)
EX1004	U.S. Patent Appl. Pub. 2002/0159179 (“Nagai”)
EX1005	U.S. Patent Appl. Pub. 2004/0028241 (“Gleissner”)
EX1006	U.S. Patent 5,471,658 (“Iacono”)
EX1007	<i>Dropout Replacement with Backup Recording at Tape’s Margin</i> , IEEE, 1993
EX1008	International Pub. WO 2004/091219 (“Wood”)
EX1009	Reserved
EX1010	Reserved
EX1011	Declaration of John Tinsman
EX1012	Curriculum Vitae of John Tinsman
EX1013	Reserved
EX1014	First Amended Complaint, <i>Zaxcom, Inc. v. Lectrosonics, Inc.</i> , No. 1:17-cv-03408 (E.D.N.Y.) (Nov. 16, 2017) (without Exhibits).
EX1015	Exhibit J to First Amended Complaint, <i>Zaxcom, Inc. v. Lectrosonics, Inc.</i> , No. 1:17-cv-03408 (E.D.N.Y.) (Nov. 16, 2017).
EX1016	Reserved
EX1017	Reserved
EX1018	Reserved
EX1019	LS-40MM - GPS Receiver Module
EX1020	U.S. Patent 5,479,351 (“Woo”)
EX1021	Reserved
EX1022	RECON, Digital Video Recorder, <i>available at</i> https://web.archive.org/web/20030202025011/http://www.ffv.com:80/assets/products/Recon%20%20Side.PDF (last visited June 5, 2018)
EX1023	Press Release, Fast Forward Video’s Compact Recon™ DVR Board Helps Playback Technologies’ Raptor DDRs Take Off, <i>available at</i> https://web.archive.org/web/20031217204947/http://www.ffv.com:80/assets/News/pressreleases/AUG2003/4-7-03%20Raptor%20Review.PDF (last visited June 5, 2018)
EX1024	Press Release, Fast Forward Video to Launch New Store & View Recon™ Miniature DVR at NAB, <i>available at</i> https://web.archive.org/web/20031009075552/

	http://ffv.com:80/assets/News/pressreleases/AUG2003/1-31-03%20Store%20and%20View%20Release.PDF (last visited June 5, 2018)
EX1025	Press Release, iShot Imaging's Body-Wearable Recorder Dresses Up with the Recon from Fast Forward Video, <i>available at</i> https://web.archive.org/web/20031217211521/http://www.ffv.com:80/assets/News/pressreleases/AUG2003/4-7-03%20Intertest%20Release.PDF (last visited June 5, 2018)
EX1026	NAB's Hottest Products, <i>available at</i> https://www.tvtechnology.com/miscellaneous/nabs-hottest-products (last visited June 5, 2018)
EX1027	Zaxcom webpage, Digital Wireless, <i>available at</i> https://web.archive.org/web/20040605201811/http://zaxcom.com:80/audio/wireless.shtml (last visited June 5, 2018)
EX1028	NIST, Time and Frequency Transfer using One-Way GPS, <i>available at</i> https://tf.nist.gov/time/oneway.htm (last visited June 5, 2018)
EX1029	Sony LANC Protocol, <i>available at</i> http://www.boehmel.de/lanc.htm (last visited June 5, 2018)
EX1030	Reserved
EX1031	Document number 2004005, AV/C Tape Recorder/Player Subunit Specification 2.4, 1394 Trade Association, September 1, 2004

I. INTRODUCTION

Lectrosonics, Inc. (“Petitioner”) requests institution of an *inter partes* review (“IPR”) on claims 7, 8, 11, 12, 14, and 15 of U.S. Patent 7,929,902 (“the ’902 patent”), purportedly owned by Zaxcom, Inc. In the ’902 patent’s own words, the components of the challenged claims were “commercially available” for recording devices, and the claims require nothing more than using the “commercially available” components to provide their ordinary function. Accordingly, the claims are the definition of obvious.

II. STATEMENT OF PRECISE RELIEF REQUESTED

A. Claims for Which Review Is Requested

Petitioner requests IPR and cancellation of claims 7, 8, 11, 12, 14, and 15 of the ’902 patent under 35 U.S.C. § 311.

B. Statutory Grounds of Challenge

This Petition presents the following grounds:

Ground	Basis	Claims
1	U.S. Patent 6,825,875 (“Strub,” EX1003) renders obvious	7, 8, 11, 12, 14, 15
2	Strub in combination with U.S. Patent Appl. Pub. 2002/0159179 (“Nagai,” EX1004) renders obvious	7, 8, 11
3	Strub in combination with U.S. Patent Appl. Pub. 2004/0028241 (“Gleissner,” EX1005) renders obvious	7, 8, 11
4	Strub in combination with U.S. Patent 5,479,351 (“Woo,” EX1020) renders obvious	7, 8, 11
5	Strub in combination with Nagai and Woo renders obvious	7, 8, 11

6	Strub in combination with Gleissner and Woo renders obvious	7, 8, 11
7	Strub anticipates	12, 14, 15
8	Strub in combination with International Pub. WO 2004/091219 (“Wood,” EX1008) renders obvious	12, 14, 15

III. THE '902 PATENT

On its face, the '902 patent issued from U.S. Patent Appl. 11/404,735, filed April 14, 2006, which is a continuation-in-part of U.S. Patent Appl. 11/181,062, filed July 14, 2005.

A. Overview of the '902 Patent Disclosure

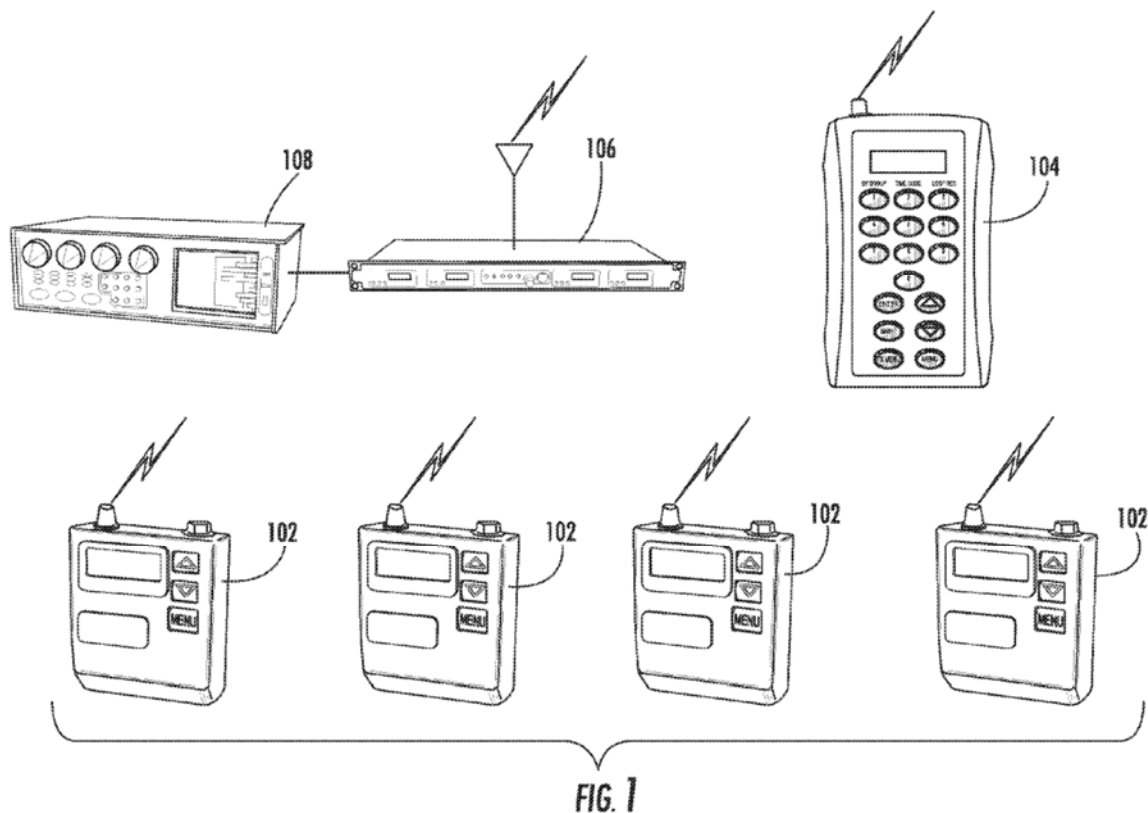
The '902 patent relates to the recording and processing of audio received from one or more wireless devices. EX1001, 1:26-32. Before the '902 patent, wired multitrack recorders and wireless audio receivers were known. *Id.*, 1:32-59.

The prior multitrack recorders could receive audio from multiple sources, each recorded as a different track. *Id.* The recorded audio could include non-audio information, such as a time reference (e.g., a Society of Motion Picture and Television Engineers (“SMPTE”) timecode signal). *Id.* That non-audio information could then be used for synchronization. *Id.* Each track could be implemented using a wireless receiver that receives audio wirelessly from body packs worn by a performer, with the outputs synchronized to create the multitrack recording. *Id.*

One known problem with using wireless audio transmission was transmission errors that cause the audio to “dropout[.]” *Id.*, 1:59-61. One known

solution was using multiple receiver circuits to reduce dropouts, but some would still occur. *Id.*, 1:59-2:6. The '902 patent proposes to solve dropouts by making a local recording of the transmitted audio that includes timestamps. *Id.*, 4:10-36. Those timestamps can be used later to synchronize the local audio with the wirelessly transmitted version of the local audio to replace any dropouts. *Id.*

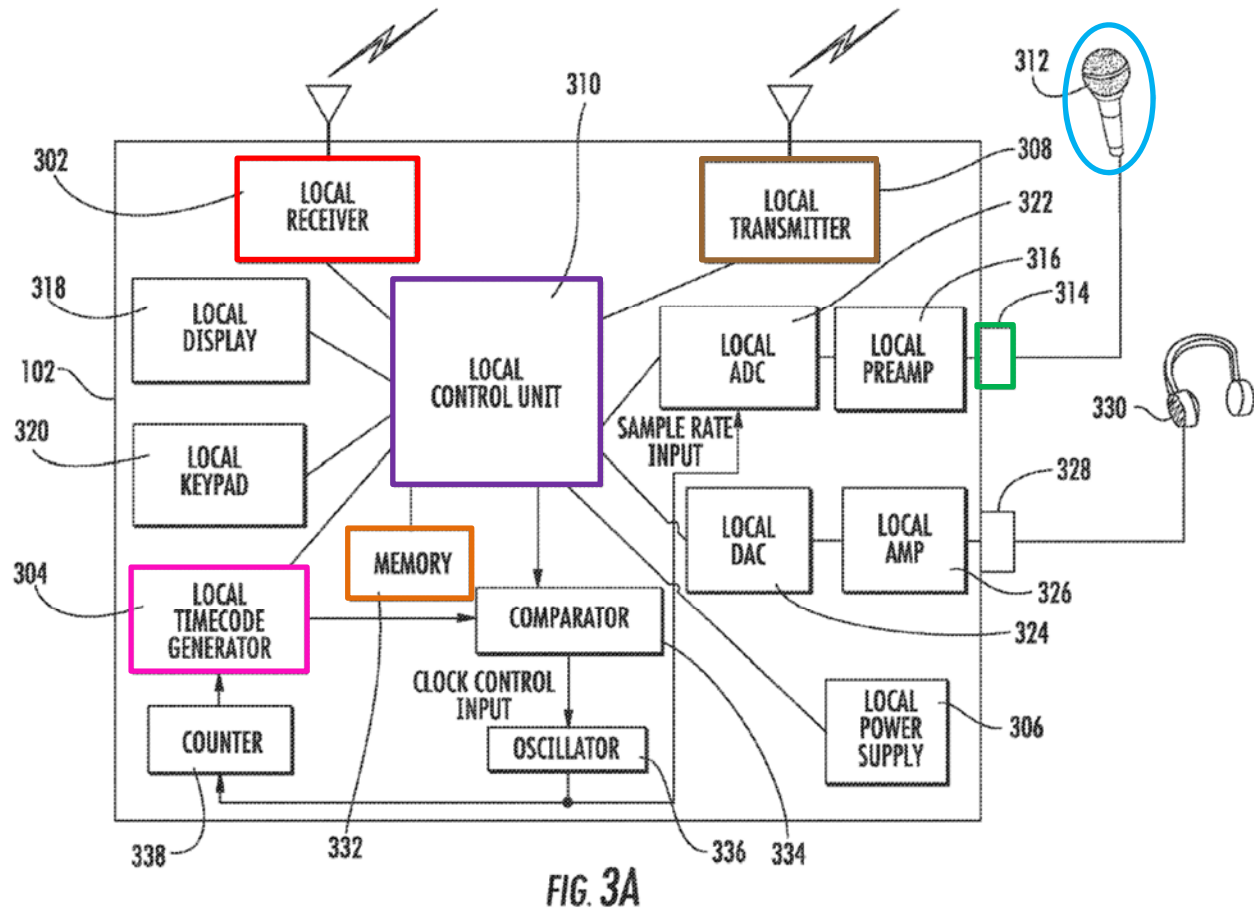
Figure 1 of the '902 patent shows the components of a recording system 100 according to the purported invention, including local audio devices 102, remote control unit ("RCU") 104, receiver 106, and recorder 108. *Id.*, 3:36-39, 4:37-49.



Id., Fig. 1; EX1011, ¶ 18. Local audio devices 102 may include a **local timecode generator**, which generates local timecodes to stamp on (i.e., timestamp) audio

information. EX1001, 2:39-40, 8:67-9:2. To allow for synchronization of timestamps across devices, the system may use a master timecode or reference signal provided by a master timecode generator, which may be located anywhere in the system. *Id.*, 10:17-32, 14:55-59 (including the master timecode generator in the RCU or master recorder), 16:30-37 (including the master timecode generator in a master unit, such as RCU 104, receiver 106, or recorder 108). For example, the master time reference signal may be “a SMPTE timecode signal.” *Id.*, 5:66-6:26.

Figure 3A depicts the components of local audio device 102, including local timecode generator 304, local receiver 302, local transmitter 308, audio input device 312, audio input port 314, memory 332, and control unit 310. *Id.*, 3:45-47; 8:61-11:67.



Id., Fig. 3A (annotated); EX1011, ¶ 19. Local audio is received via **audio input device 312**—i.e., “any type of commercially available audio input device such as a microphone”—and **audio input port 314**—i.e., “any commercially available audio input device port that is compatible with local audio input device 312.” EX1001, 9:11-40.

The received local audio may be processed by **control unit 310**— i.e., “a digital signal processor,” such as the commercially available “TMS320C5509A” or “[a]ny combination of hardware and software”—and transmitted via **transmitter 308** to other components of recording system 100. *Id.*, 9:11-47. The received audio

may also be stored in **memory 332**—i.e., “virtually any type of commercially available removable or non-removable memory.” *Id.*, 10:5-52. **Local receiver 302**—i.e., “virtually any receiver compatible with the other components of local audio device 102”—allows the local audio device to receive “information (e.g., time reference signals, digital commands, audio, etc.) from other components of recording system 100.” *Id.*, 9:48-10:4, 10:53-56.

Representative claim 7 recites:

7. A system for recording locally generated audio comprising:

at least one master timecode generator for generating a plurality of master timecodes; and

at least one local audio device wearable by a creator of said locally generated audio including:

at least one **local audio device receiver** for receiving at least one of the group consisting of digital commands and said master timecodes;

at least one **audio input port** for receiving locally generated audio from an **audio input device**;

at least one **memory**;

at least one **local timecode generator** for generating a plurality of local timecodes; and

at least one **control unit** electrically coupled to said **local audio device receiver**, said **audio input device**, said **memory**, and said **local timecode generator** for creating stamped local audio data and storing said stamped local audio data in said memory;

wherein said stamped local audio data includes at least one local timestamp to reference at least a portion of said stamped local audio data to at least one of said local timecodes; and

wherein said stamped local audio data includes at least one identifier selected from the group consisting of track identifiers, local audio device identifiers, performer identifiers, and combinations thereof.

Claims 8 and 11 depend on claim 7. Claim 12 generally recites a method directed to (1) locally receiving and storing the local audio in memory, (2) wirelessly transmitting and remotely recording the local audio via a receiver and/or recorder, (3) wherein the locally stored audio is retrieved and combined with the remotely recorded audio, and (4) wherein the local audio data includes a track, local audio device, and/or performer identifier. Claims 14 and 15 depend on claim 12.

B. Examiner's Reasons for Allowance

During prosecution, the examiner provided express reasons for allowance. EX1002, p. 18. The reasons, however, are inapplicable to the challenged claims

because the allowable subject matter identified by the examiner (below) is recited in independent claim 1 but not in independent claims 7 and 12. *Id.*

The following is an examiner's statement of reasons for allowance: the prior art does not teach the local audio data includes stamped local audio data and unstamped local audio data; the stamped local audio data includes at least one first timestamp to reference at least a portion of said local audio data to at least one of said master time-codes; and the unstamped local audio data does not include a reference to said master time-codes. These limitation [sic], in conjunction with all other limitations, has not been disclosed, suggested or made obvious over the prior art.

Id. The applicants did not comment on the reasons for allowance. *See generally*, EX1002.

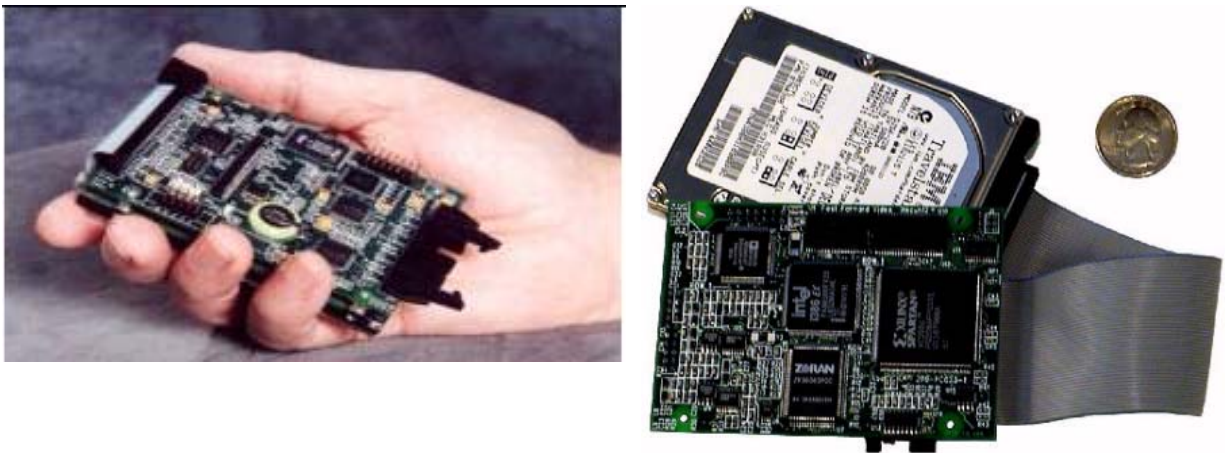
C. State of the Art

The '902 patent admits that audio recorders and wearable audio devices were known, and that it discloses a system that employs off-the-self components. EX1001, 1:26-58.

Master timecode generators were ubiquitous and commercially available before the '902 patent. EX1011, ¶ 23. A master timecode generator is a device that provides a timecode to other devices as a reference. *Id.* Master timecode generators had been used for more than a decade to synchronize the local clocks of recording

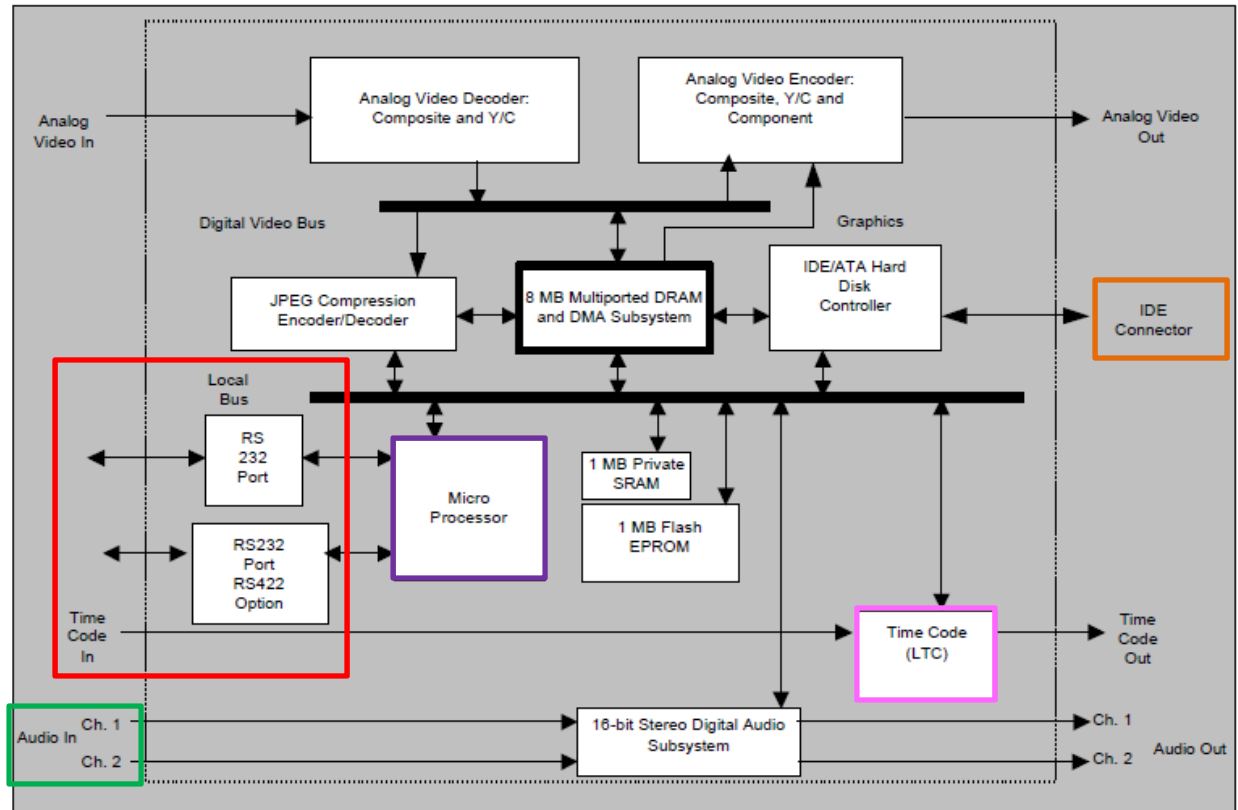
units so that recordings can later be combined by aligning stamps that the recorders added to the audio data. *See, e.g.*, EX1020, 3:38-67; EX1011, ¶ 23. One common way to implement this feature was to connect a timecode output port of a master timecode generator to the timecode input port of a recording device to synchronize the master timecode generator and a local timecode generator in the recording device. *Id.*

Wearable local audio recording devices were also ubiquitous and commercially available prior to the '902 patent. EX1011, ¶ 24. For example, one such device included the prior-art Recon DDR:



Id.; *see* EX1022; EX1023; EX1024; EX1025; EX1026. These devices included common, conventional features, such as a **timecode generator** (e.g., an internal clock), a **timecode input port** to synchronize the internal clock, a **receiver for remote control**, an **audio input port**, **memory** to store the recording, and a **control unit**. *Id.*

HARDWARE BLOCK DIAGRAM OF RECON



EX1022 at 2 (annotated).

Audio transmitters capable of wirelessly transmitting local audio to other devices, such as receivers or recorders, were also well known. EX1011, ¶ 25. For example, Zaxcom's prior-art transmitter is shown below:



EX1027; EX1011, ¶ 25. These devices included common, conventional features, such as an **audio input port**, a **transmitter** to transmit received audio, and a **receiver** for remote control. *Id.*

Indeed, as explained below, Strub alone and in combination with Nagai, Gleissner, Woo, and/or Wood disclose combining these conventional features of both a wearable audio recorder and a wearable audio transmitter into a single wearable device, satisfying each limitation of the challenged claims.

D. The Level of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) for the ’902 patent would have a bachelor’s degree in electrical engineering or a related subject and two to five years’ experience working with audio and wireless communications systems. EX1011, ¶ 27. Less work experience may be compensated by a higher level of education, and vice versa. *Id.*

IV. CLAIM CONSTRUCTION

The broadest reasonable construction should be applied to all claim terms, but the claims are unpatentable under either claim construction standard. This is because the prior art teaches the plain meaning of the claim terms. For the purposes of this Petition, no explicit construction is needed. As explained below, however, at least on claim element is not limiting.

V. PROPOSED GROUNDS

Claims 7, 8, 11, 12, 14, and 15 of the '902 patent are unpatentable based on Strub, Nagai, Gleissner, Woo, and/or Wood. None of these references were cited in prosecution. EX1001 at 1.

Reference	Pub. Date	102(e) Filing Date	Statutory Basis
Strub, EX1003	Nov. 30, 2004	Apr. 21, 2000	102(a), (e)
Nagai, EX1004	Oct. 31, 2002	Mar. 14, 2002	102(a), (b), (e)
Gleissner, EX1005	Feb. 12, 2004	July 25, 2003	102(a), (b), (e)
Woo, EX1020	Dec. 26, 1995	Dec. 23, 1994	102(a), (b), (e)
Wood, EX1008	Oct. 21, 2004		102(a)

A. Summary of Prior Art

1. Strub

Like the '902 patent, Strub discloses a recording system that includes a wearable, local audio device that locally receives audio from an attached microphone, stores the audio in memory, and transmits the audio to other recording units that record the data. EX1003, 12:13-21, 12:31-39, 25:35-49, 35:54-65, 37:18-40, 38:1-4; EX1011, ¶¶ 4043. The stored audio can be timestamped based on a clock synchronized to a GPS time signal (EX1003, 63:41-56) or to a conventional SMPTE timecode input (*id.*, 75:47-57). Strub further discloses that the local audio data may be combined with remotely recorded data. *Id.*, 37:18-40. Figure 1 shows

recording units 105, 106, 107, and 108 (i.e., local audio devices), which are worn by participants (or “recorders”) 101, 102, 103, and 104 to record live, local audio. *Id.*, 4:21-31 (“wearable recording unit[s]”), 7:39-40, 8:7-9:33 (“recording unit ... adapted to obtain audio data”), 93:26-27, 94:21-27.

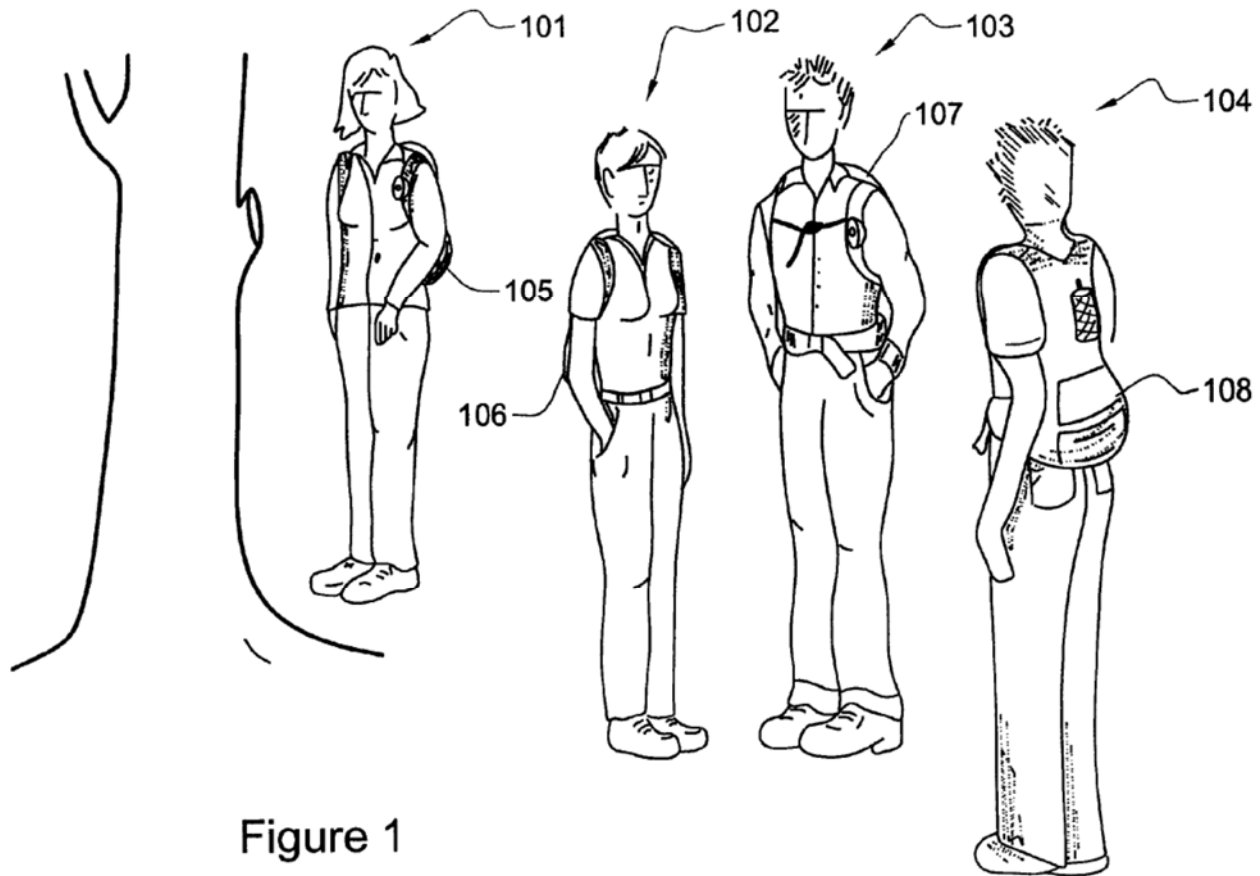
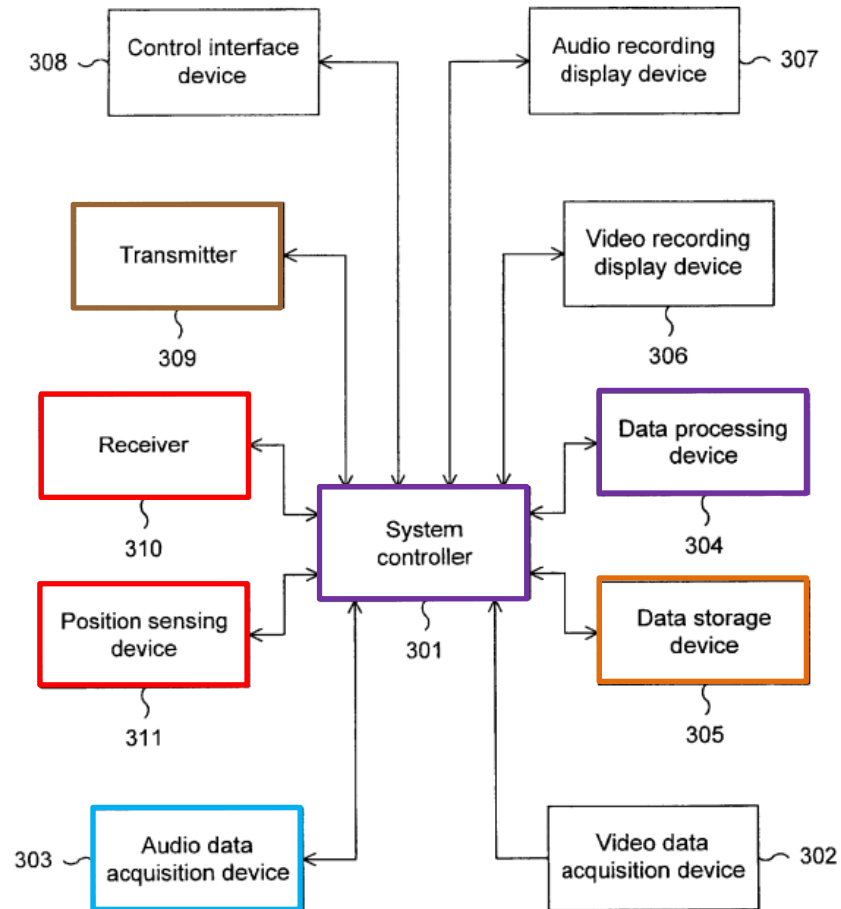


Figure 1

Id., Fig. 1. The recording unit can be integrated into a backpack (*id.*, 16:49-57, Figs. 1 and 6), attached to a waist strap (*id.*, 70:52-73:17, Figs. 8A-8C), or a shoulder strap (*id.*, 73:18-74:18, Figs. 9A, 9B). And it may be used to record athletic activities (*id.*, 67:59-61), voices or musical instruments (*id.*, 25:38-46), and may be from the first-person point of view (*id.*, 8:20-29).

Figure 3 of Strub illustrates the components of a recording unit:



Id., Fig. 3 (annotated). The components include receiver 310, position sensing device 311, audio data acquisition device 303, data storage device 305, system controller 301, and data processing device 304. *Id.*, 11:57-12:57, 13:36-14:13 (“System Controller”), 21:65-25:49 (“Audio Data Acquisition”), 25:50-27:35 (“Other Data Acquisition”), 27:36-35:50 (“Data Processing and Storage”), 35:51-41:52 (“Communication with Other Recording Units and Recorders”), 62:26-64:49 (“Position Sensing Device”), 79:42-85:15 (“Post-Event Use of Event Recording”;

“synchronize the recording data”), 92:5-93:11 (“Audio Recording Display”;
“integrate audio recordings”).

Local audio is received via **audio data acquisition device 303**, which can be a microphone, such as a lavalier. *Id.*, 12:13-16, 25:35-49. The received audio is processed by **system controller 301** and **data processing device 304** (*id.*, 12:10-21, 13:36-14:13, 27:36-33:19), and transmitted via transmitter 309 to other components of the recording system (*id.*, 12:31-46, 35:51-36:29). The received audio may also be stored in **data storage device 305**, such as a hard disk or removable flash memory. *Id.*, 12:16-21; 27:36-51, 33:20-35:50. **System controller 301** can include a **clock** (i.e., **local timecode generator**) that is used to timestamp the recording data. *Id.*, 13:48-67. Like the '902 patent, Strub discloses synchronizing multiple recordings using these timestamps. *Id.*, 79:54-80:9, 84:5-25.

The recording units include multiple local receivers, e.g., **receiver 310** and **position sensing device 311**, in the form of a GPS receiver. *Id.*, 12:39-52, 63:12-15, Fig. 3. **Receiver 310** receives recording data (*id.*, 12:39-52), GPS position data, and/or biometric data (*id.*, 36:52-57). The **GPS receiver** can receive not only position information, but also a signal representing the current time that can be used to generate timestamps. *Id.*, 63:12-15, 63:41-43.

2. Nagai

Like Strub, Nagai discloses a portable audio recording device. EX1004, ¶ 70; EX1011, ¶ 44. Nagai's device includes a conventional **mike jack (2 or 64)** for audio input. EX1004, ¶¶ 109, 110, 129, 139, 140, Figs. 1, 2A, 2B.

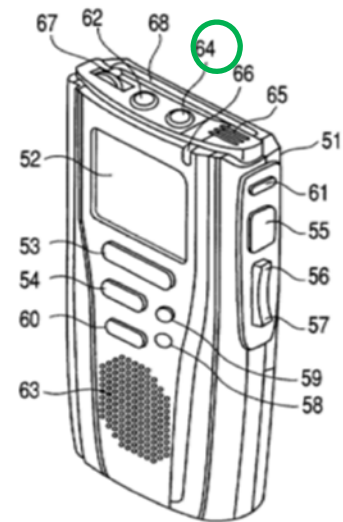
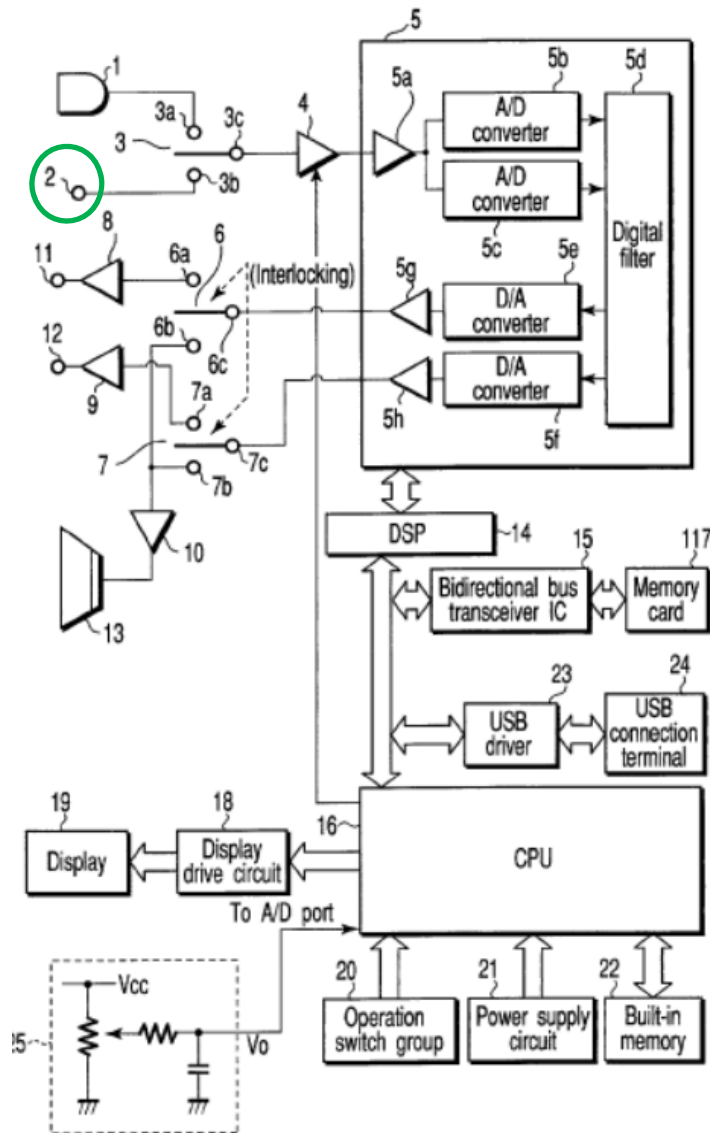


FIG. 2A

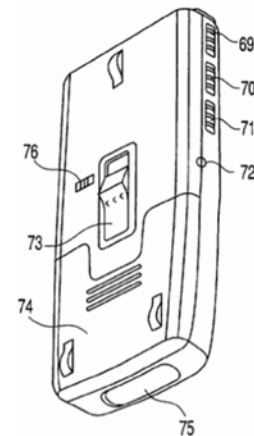


FIG. 2B

Id., Figs. 1 (annotated), 2A (annotated), 2B.

3. Gleissner

Like Strub, Gleissner discloses a portable audio data recorder. EX1005, Abstract; EX1011, ¶ 45. Gleissner teaches another conventional **audio input port** used to connect a **microphone** to the portable recorder—an **XLR plug connector**. EX1005, ¶¶ 24, 32. “This has the advantage that the recording unit can be coupled together with practically any desired microphones, because an XLR connector is generally formed as the preferred embodiment in the case of microphones.” *Id.*, ¶ 13. Figure 1 shows Gleissner’s device:

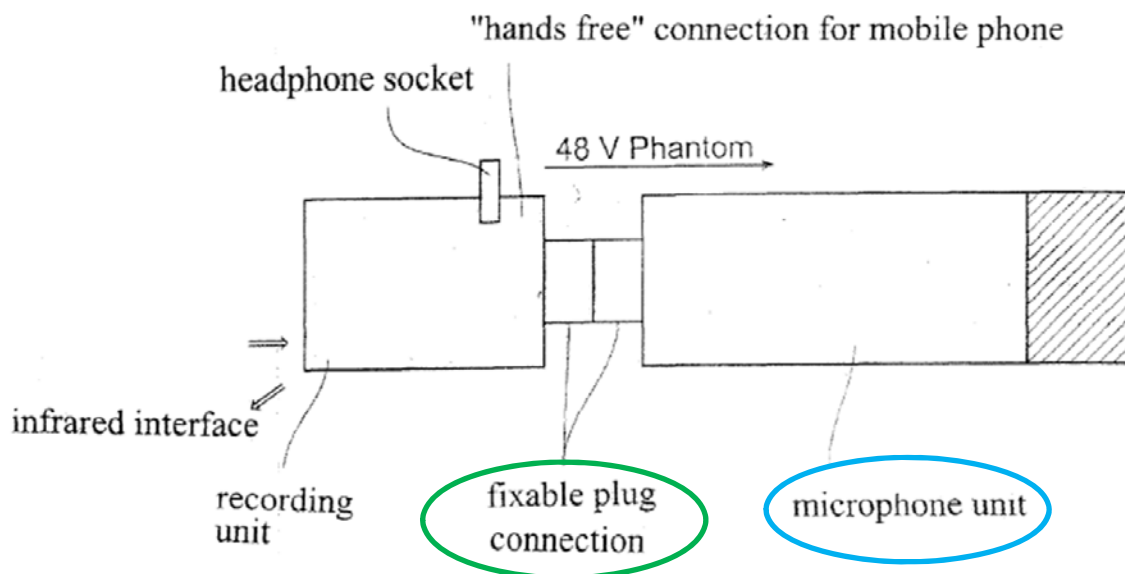


Fig. 1

Id., Fig. 1 (annotated).

4. Woo

Like Strub, Woo discloses using a GPS signal to timestamp recorded audio of a live, shared performance. EX1020, 1:16-19, 4:41-5:5, Fig. 1; EX1011, ¶ 46.

Figure 1 shows time-keeping system 10—including navigation satellite (e.g., GPS) receivers 18, 22, recorders 14, 16, and performer 12—for synchronizing sound and picture recordings from a plurality of recording devices (14, 16) at a performance.

EX1020, 4:62-7:18.

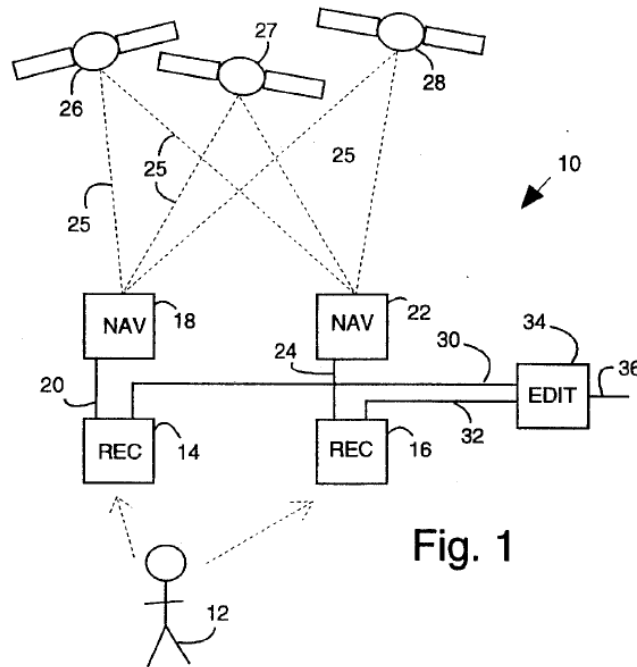


Fig. 1

Id., Fig. 1; EX1011, ¶ 46. Figure 5 illustrates an embodiment of a master clock that converts a GPS time signal into an SMPTE-formatted master clock.

EX1020, 8:60-9:4, Fig. 5.

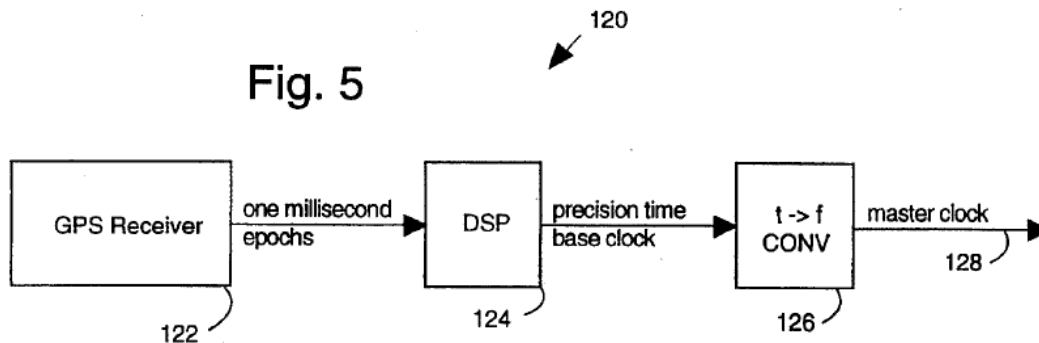


Fig. 5

Id., Fig. 5; EX1011, ¶ 46.

The master timecode generator includes an output port for communicating timecodes in SMPTE format. EX1020, 4:13-15, 5:16-19, 9:1-4. This provides the clock data in a conventional format compatible with commercially available equipment with timecode input ports. *Id.*

5. Wood

Like Strub, Wood discloses broadcasting media content that is recorded by a recording unit. EX1008, 2:31-3:1. Wood recognizes the problem of dropouts, where a broadcast transmission is disrupted, e.g., by rain or birds. *Id.*, 1:19-26; EX1011, ¶ 48. Wood discloses dropout correction sending a request when a dropout is detected so that, like in the '902 patent, the content can be re-sent and combined with the previously received audio to repair the dropout. EX1008, 1:31-2:13. According to Wood, this improves signal quality (*id.*, 1:28-30) and produces a “program free of dropouts” (*id.*, 3:4-6).

B. Grounds 1-6: Claims 7, 8, and 11 Are Rendered Obvious over Strub in View of Nagai, Gleissner, Woo, and/or Wood

Strub alone (Ground 1) discloses and renders obvious claims 7, 8, and 11. Strub may be combined with Nagai (Grounds 2 and 5), which discloses the “*audio input port*” in claim 7. Strub may alternatively be combined with Gleissner (Grounds 3 and 6), which discloses a different type of “*audio input port*” than Nagai. Strub alone or in combination with Nagai or Gleissner may also be

combined with Woo (Grounds 4-6), which discloses the SMPTE master timecode generator embodiment of the '902 patent that can be connected, for example, to a conventional timecode input port provided on recorders.

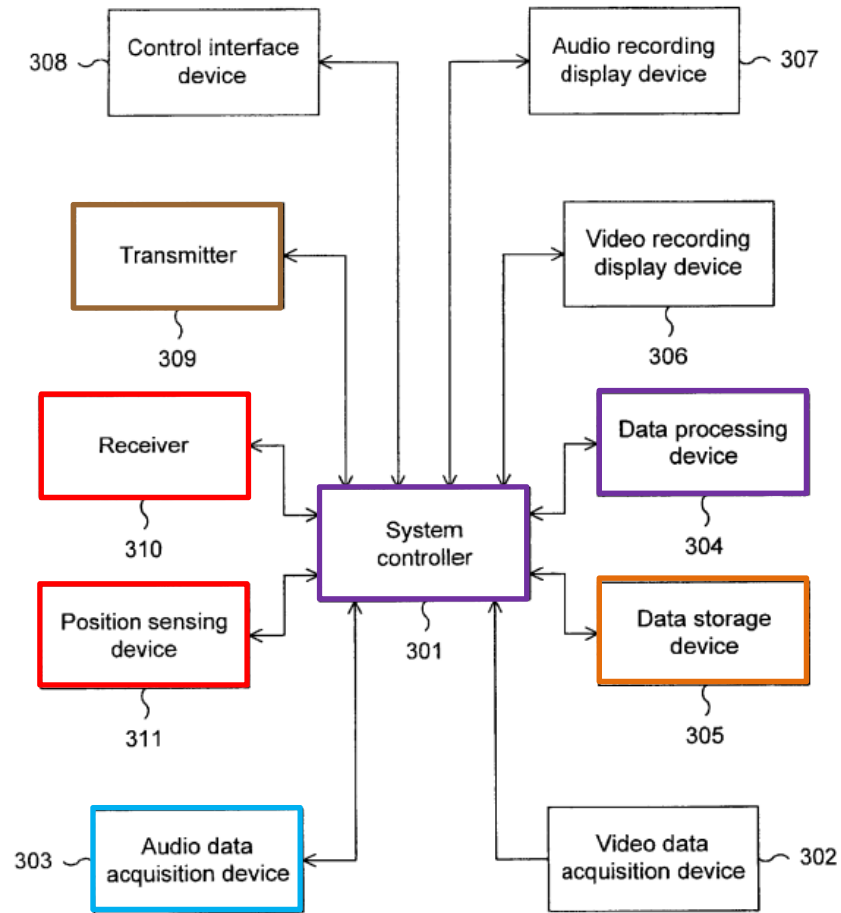
1. Claim 7

a. [7.0] “A system for recording locally generated audio comprising:”

To the extent the preamble is limiting, Strub discloses it. EX1011, ¶ 49.

Strub discloses a recording unit for use in a system. EX1003, 11:32-36. The recording unit acquires local audio from an attached microphone (“*locally generated audio*”) and stores it in a data storage device (“*recording*”). *Id.*, 12:13-21, 12:31-39, 25:35-49, 35:54-65, 37:18-40, 38:1-4.

Figure 3 shows a recording unit, which includes **audio data acquisition device 303**, **transmitter 309**, **receiver 310**, **position sensing device 311**, **data storage device 305**, **system controller 301**, and **data processing device 304**. *Id.*, 11:57-12:57, 13:36-14:13, 21:65-25:49, 25:50-27:35, 27:36-35:50, 35:51-41:52, 62:26-64:49, 79:42-85:15, 92:5-93:11.



Id., Fig. 3 (annotated); EX1011, ¶ 50. The recording unit acquires locally generated audio via audio data acquisition device 303 (e.g., a microphone) and records the locally generated audio in data storage device 305. EX1003, 12:13-21, 25:35-49. Transmitter 309 wirelessly transmits the locally generated audio to a remote recording unit. *Id.*, 6:1-8, 7:25-35, 12:31-39, 35:54-65, 37:18-40, 47:41-48, 53:16-33, 64:57-65:22, 70:38-51, 75:58-76:34, Fig. 1; EX1011, ¶ 50.

In litigation, Zaxcom argued that element [7.0] is satisfied by a personal data recorder (“PDR”), like the recording unit in Strub. EX1015 at 2.

b. [7.1] “*at least one master timecode generator for generating a plurality of master timecodes; and*”

Grounds 1-3: Strub discloses element [7.1] as either (1) a GPS satellite that provides time signals, or (2) an external device that provides SMPTE timecodes.

EX1011, ¶ 52. Strub teaches that these master timecodes (e.g., GPS time signals or SMPTE timecodes) may be used to set a clock in the recording unit so that different recording units can be synchronized (i.e., use timestamps that are synchronized across the recording units). EX1003, 79:54-80:7; EX1011, ¶ 52.

(1) Strub discloses that position sensing device 311 in Strub’s recording unit may be a GPS receiver for receiving a time signal from a GPS satellite (“*master timecode generator*”) representing the current time that can be used to generate timestamps for the recording data. EX1003, 62:53-55, 63:12-60 (“GPS receiver can also be used to receive a signal representing the current time”; “GPS time signals are extremely accurate”), 29:58-62, 33:33-52, 75:47-51. A person of ordinary skill would have understood that GPS satellites broadcast timecodes that are referenced to a clock in the satellite. EX1011, ¶ 53 (explaining that such time signals are generally provided in Universal Coordinated Time (“UTC”) format by typical GPS modules, e.g., the RF Solutions LS-40MM GPS Receiver module); EX1019 at 4; EX1028. Strub teaches using the broadcasted GPS timecode reference to update its internal clock “about once a second” (EX1003, 63:41-49); thus, the GPS satellite generates “*a plurality of master timecodes.*” EX1011, ¶ 53.

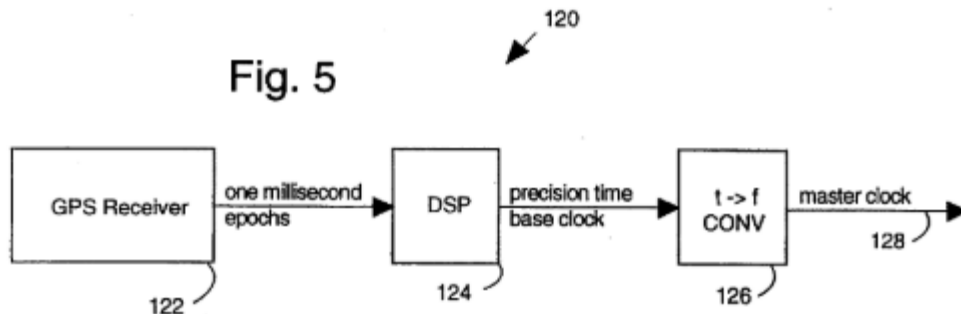
(2) Strub alternatively discloses an external communication port on the recording unit to enable communication with an external device that generates an SMPTE timecode (“*master timecode generator*”) to enable synchronization, like the ’902 patent. EX1003, 75:25-57 (“SMPTE time code input . . . to enable synchronization with an external device”); EX1001, 5:66-6:26 (“time reference signal is a[n] SMPTE timecode signal”; “master time reference signal provides a time reference for all local audio devices”); EX1011, ¶ 54. Similar to the GPS satellite, the SMPTE timecode represents the current time, and thus the external device generates “*a plurality of master timecodes.*” EX1001, 1:40-48; EX1011, ¶ 54.

Zaxcom argued for element [7.1] that “[t]he PDR does not include a master timecode generator, but includes a time code sync port (3) specifically designed to connect with a master timecode generator” (EX1015 at 2), like Strub discloses.

Grounds 4-6: If Zaxcom argues that Strub does not disclose a “*master timecode generator,*” it would have been obvious to modify Strub’s recording unit to include a conventional master timecode input port to receive SMPTE timecodes (“*a plurality of master timecodes*”) from the master clock (“*master timecode generator*”) in Woo. EX1011, ¶ 56.

Woo teaches using a master clock to synchronize audio recorders (like Strub’s recording units) at a performance event by timestamping the audio data

with conventional timecodes, including SMPTE timecodes (like in Strub and the '902 patent). EX1020, Abstract, 1:21-28, 1:60-2:9, 2:39-48, 3:3-24, 4:3-32 (“audio recorders”), Figs. 1-5; *see also* EX1020, 7:26-50, Fig. 3, element 43 (disclosing using a commercially available time code generator as a master clock); EX1011, ¶ 57. Woo’s master clock, illustrated in Figure 5, receives a GPS time signal and converts it to a conventional timecode output. EX1020, 4:54-55 ;8:60-9:4.



Id., Fig. 5; EX1011, ¶ 57. Woo explains:

The master clock 120 comprises a GPS navigation satellite receiver 122 and a digital signal processor 124 for accumulating and averaging code epochs which occur each millisecond in time and having a precision time-base output. A time-period-to-frequency converter 126 is connected to the precision time-base output and has a precision clock output 128 for synchronizing film and video equipment. The clock output 128 is conventionally formatted and distributed, and is preferably compatible with present-day commercially-available equipment that have master clock input ports.

EX1020, 8:60-9:4. Woo discloses the SMPTE timecode format as the preferred embodiment of the clock output. *Id.*, Abstract, 2:2-9 (“The Society of Motion Picture and Television Engineers (SMPTE) developed a magnetic media type time code which was the first established version and remains the most widely used.”), 3:3-37, 4:3-37 (“GPS navigation receiver with a data output port for communicating time codes in SMPTE format”), 8:7-25 (“generating SMPTE time codes for output ... from the signals deciphered by the GPS-DSP”), 9:1-4.

It would have been obvious to a POSITA to use Woo’s master timecode generator in the system of Strub to provide an SMPTE-formatted master timecode to Strub’s recording units, as Strub itself teaches. EX1003, 75:25-57; EX1011, ¶ 58. Indeed, audio recorders with timecode input ports were known for more than a decade (EX1020, 5:16-19) and were a conventional way to synchronize two devices recording the same event (*id.*, 2:2-48, 3:37-57, 4:3-5). EX1011, ¶ 58. Woo also provides express motivations to do so: (1) the master clock provides accurate synchronization across recorders recording a performance; (2) it can generate coordinated timecodes at independent sites proximate to recorders; (3) it is simple to connect to the recorders; and (4) it provides timecode output in a format that is compatible with a standard (SMPTE) used by commercially available equipment. EX1020, 4:3-44; EX1011, ¶ 58. In addition to these express teachings, modifying Strub’s recording unit to include a conventional SMPTE timecode input port for

receiving conventional SMPTE-formatted master timecodes from Woo's master clock would have been simply combining prior-art elements according to known methods to improve the system and yield predictable results. EX1011, ¶ 58.

c. **[7.2] “at least one local audio device wearable by a creator of said locally generated audio including:”**

Strub discloses element [7.2] as a recording unit, which may be “a small, lightweight, *wearable* recording unit.” EX1003, 4:29-31 (emphasis added); *id.*, Abstract, 14:59-15:11 (“for the recorder to wear”), 16:66-17:24 (“wearable apparatus”), 38:65-39:11, 66:33-51 (“make the recording unit more comfortable to wear”), 67:54-68:10 (“emphasis on the wearability”), 72:9-19 (“recorder 850 is wearing the recording unit 800”), Figs. 1, 8A-8C, 9A, 9B; EX1011, ¶ 59. The local audio device may be worn by “*a creator of said locally generated audio*” to make live recordings, including, for example, voice or musical instruments. EX1003, 4:21-31, 25:38-46, 93:26-27, 94:21-27; EX1011, ¶ 59.

Zaxcom argued that this limitation is satisfied by a PDR that “is unobtrusive and easily hidden in garments and costumes,” like Strub's recording unit. EX1015 at 2.

d. **[7.3] “at least one local audio device receiver for receiving at least one of the group consisting of digital commands and said master timecodes;”**

Strub discloses element [7.3] in multiple ways because the recording unit (“*local audio device*”) includes multiple receivers (“*at least one local audio device*

receiver”)—e.g., receiver 310, position sensing device 311 in the form of a GPS receiver, an SMPTE timecode input port, or other types of external communication input ports (e.g., LANC port). EX1003, 12:39-52, 63:12-15, 70:26-37, 75:25-51, Fig. 3; EX1011, ¶ 61. Although the claim requires only “*at least one of the group,*” Strub discloses receiving “*digital commands*” and “*master timecodes.*”

Grounds 1-3. First, receiver 301 (“*local audio device receiver*”) in Strub’s recording unit may wirelessly receive digital data from the control interface device (EX1003, 45:51-62:25, Fig. 5) that includes commands (“*digital commands*”) for the recording unit (“*local audio device*”). *Id.*, 45:51-67 (“control interface device includes all of the mechanisms for enabling the recorder to effect control of the operation of the recording unit”), 47:33-48 (“particularly desirable for the recording unit to be implemented to enable wireless communication ... between the controller interface device ... and the remainder of the recording unit”), 64:50-65:15 (describing wireless communication between components); EX1011, ¶ 62. Receiver 301 can be a digital receiver, making all received commands “*digital commands.*” EX1003, 37:53-62 (“digital transmitters/receivers can be used”; “digital devices are more reliable”).

These commands may include “control settings of the data acquisition device (e.g., setting of the lens focusing mechanism, white balance, pedestal, aperture and/or gain of the visual data acquisition device, or setting of the audio

pickup pattern of the audio data acquisition device).” *Id.*, 89:21-39; EX1011, ¶ 63.

The control interface device enables the recorder to control operation of the recording unit, for example, starting or stopping the recording unit. EX1003, 47:49-53.

Second, the other types of external communication input ports (e.g., LANC port) also include interfaces for receiving digital commands. For example, Strub discloses that a Sony RM-95 Remote Commander remote control unit can be connected to a LANC (Control-L) port to provide a control interface to control operation of the recording unit. *Id.*, 11:53-56, 70:26-51, 75:25-34. LANC is a digital control protocol. EX1011, ¶ 64; EX1029. Strub also discloses the use of the IEEE 1394 protocol for communications. EX1003, 6:1:5, 75:43-47. IEEE 1394 also provides a control function which can be used to control video and audio recorders, including setting parameters such as audio sample and timecode parameters. EX 1031 at 18 (“AUDIO MODE Command”); at 51 (“SMPTE/EBU RECORDING TIME Command”). The ’902 patent similarly discloses adjusting audio parameters and transmission settings. EX1001, 8:47-60, 12:33-35 (“settings such as transmitter bandwidth, audio sampling parameters, and the like”); EX1011, ¶ 64.

Third, as explained, the GPS receiver (“*local audio device receiver*”) in Strub’s recording unit can “receive a signal representing the current time that can

be used as a clock to generate time-stamps for the recording data” (“*master timecodes*”). EX1003, 63:41-60; *supra* Section V.B.1.b; EX1011, ¶ 65.

Fourth, as explained, Strub discloses a recording unit that includes an SMPTE timecode input port (“*local audio device receiver*”) that can receive SMPTE-formatted master timecodes (“*master timecodes*”) from an external device. *Supra* Section V.B.1.b; EX1011, ¶ 66.

Grounds 4-6. To the extent Zaxcom argues that Strub does not disclose element [7.3], it would have been obvious based on the combination of Strub and Woo, as explained above. *Supra* Section V.B.1.b; EX1011, ¶ 67. Specifically, it would have been obvious to modify Strub’s recording unit to include a conventional master timecode input port (“*local audio device receiver*”) for receiving SMPTE-formatted timecodes (“*master timecodes*”) from the master clock in Woo. *Id.*

Zaxcom argued that element [7.3] is satisfied by a “time code sync port,” like each of Strub and Woo discloses. EX1015 at 3.

e. [7.4] “***at least one audio input port for receiving locally generated audio from an audio input device;***”

Strub discloses element [7.4]. EX1011, ¶ 69. Strub discloses “*receiving locally generated audio from an audio input device*” because the recording unit can receive audio (“*locally generated audio*”) from a microphone such as a lavalier

(“*audio input device*”) worn on the recorder.¹ EX1003, Fig. 3, 21:65-25:49, 68:63-69:67; *supra* Section V.B.1.c. Strub discloses a connection between the microphone (audio data acquisition device 303) and the recording unit using wired or wireless techniques known to those skilled in the art (EX1003, 64:50-65:3), which would include an “*audio input port*,” such as a standard microphone jack. EX1011, ¶ 69.

Zaxcom argued that an industry standard microphone jack that accepts audio from a conventional microphone, like in Strub, satisfies this element. EX1015 at 3.

If Zaxcom argues that Strub does not disclose an “*audio input port*,” it would have been obvious to modify Strub’s recording unit to include an audio input port based on Strub alone (Grounds 1 and 4) and also in view of Nagai (Grounds 2 and 5) or Gleissner (Grounds 3 and 6). EX1011, ¶ 71.

A POSITA would have understood that Strub suggests the use of an audio input port because such ports were the conventional technique for wired microphone communication; they provide the benefit of interchangeability by allowing the user to select the appropriate microphone for the recording scenario,

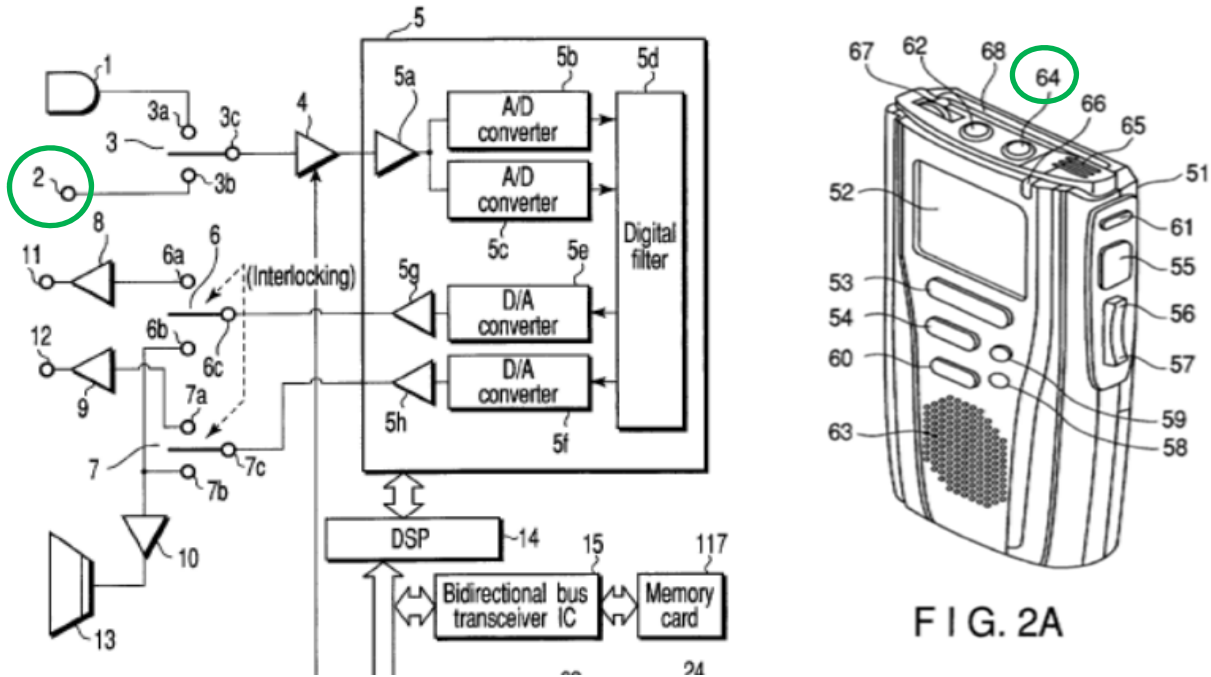
¹ Strub uses the term “recorder” to refer to the person wearing and controlling the recording unit. EX1003, Abstract (“a recorder (i.e., a person in control of a recording unit according to the invention)”), 4:20-25.

as Strub explains (EX1003, 25:8-49); and they allow the microphone to be detachable. EX1011, ¶ 72. The '902 patent recognizes that using a port to connect a microphone was not new—describing audio input port 314 as “any commercially available audio input device port” and as being connected to “any type of commercially available audio input device such as a microphone.” EX1001, 9:9-19.

Nagai and Gleissner disclose two different conventional audio input ports for connecting a microphone. EX1011, ¶ 73.² It would have been obvious to a POSITA to use either of these known and predictable techniques to connect a microphone to Strub’s recording unit to provide the beneficial customization and detachability. *Id.*

Grounds 2 and 5. Nagai discloses using a “mike jack” for connecting a microphone to an analogous portable voice recording device to provide the customization that Strub desired. EX1011, ¶ 74. Figure 1 shows “mike jack 2,” and Figure 2A shows “mike jack 64” on top of the bodypack:

² It was also known to make bodypack connectors, like an audio input port, water tight. EX1006, 1:13-19, 5:6-8, Figs. 1, 2; EX1003, 67:26-29; EX1011, ¶ 73.



EX1004, Figs. 1 (annotated), 2A (annotated); EX1011, ¶ 74. Nagai discloses that the mike jack “receives a voice signal from an external device such as an external mike.” EX1004, ¶¶ 109, 139. A POSITA would understand “mike jack” to include, for example, a conventional tip-ring-sleeve (“TRS”) microphone connector, which was ubiquitous for connecting microphones to recording devices (particularly in the consumer sector). EX1011, ¶ 74. It would have been obvious to a POSITA to use this known and predictable technique to connect the microphone wires to the recording unit of Strub to provide the beneficial customization and detachability. EX1011, ¶ 74.

Grounds 3 and 6. Gleissner teaches another conventional audio input port—an XLR plug connector—used to connect an external microphone to an analogous portable audio recorder to provide the desired customization and detachability.

EX1005, ¶¶ 13 (“A[n] XLR plug connection is preferably formed between the recording unit and the microphone unit.”), 23, 24, 32; EX1011, ¶ 75. In addition to the reasons above, it would have been further obvious to use an XLR connector based on the express motivation in Gleissner: “This has the advantage that the recording unit can be coupled together with practically any desired microphones, because an XLR connector is generally formed as the preferred embodiment in the case of microphones.” EX1005, ¶ 13. The XLR connector was a particularly common design choice in the professional audio sector. EX1011, ¶ 75.

f. [7.5] “*at least one memory;*”

Strub discloses element [7.5] because its recording unit includes “*at least one memory,*” e.g., data storage device 305, which may include, for example, a hard disk; a removable data storage medium, such as a recordable-once DVD (DVD-R) disk or a recordable/writable DVD (R-W DVD) disk; or a non-volatile data storage device, such as solid state or flash memory. EX1003, 27:36-51, 33:20-35:50, 76:6-34, 94:15-20, Fig. 3; EX1011, ¶ 76.

g. [7.6] “*at least one local timecode generator for generating a plurality of local timecodes; and*”

Strub discloses element [7.6] as an internal clock (“*local timecode generator*”) (EX1011, ¶ 77). Like the ’902 patent, Strub discloses timestamping the recorded audio data and synchronizing recordings from multiple recording units using those timestamps in post-processing. EX1003, 13:50-67, 79:54-80:9

(“temporally synchronize multiple recordings of the same event that were simultaneously obtained by different recording units”), 84:5-25. To perform the timestamping, Strub’s recording unit includes an internal clock that provides a time code (e.g., the time) (“*generating a plurality of local timecodes*”) used to timestamp the recording data. *Supra* Sections V.A.1, V.B.1.b; EX1003, 13:48-67 (“system controller can include a clock that is used to time-stamp the recording data”; “time-stamps can be used, for example, to display the time at which a displayed recording was obtained”), 63:50-60 (“recording unit according to the invention typically also includes an internal clock ... that ... can be used to accurately time-stamp data”), 79:54-80:9 (“recording unit ... typically includes a clock that is used to time-stamp recording data as the recording data is acquired”); EX1011, ¶ 77. As explained, a master timecode from a master timecode generator can be used to set the internal clock, which was the conventional way of synchronizing multiple recorders at an event and the known purpose of a conventional timecode input port. *Supra* Section V.B.1.b; EX1020, 4:38-57. The ’902 patent also refers to its local timecode generator as a “clock.” *Compare* EX1001, 16:30-37 *with* Fig. 6, el. 606; EX1011, ¶ 77.

Zaxcom argued that element [7.6] is satisfied by “a clock,” like in Strub. EX1015 at 4.

- h. [7.7] “at least one control unit electrically coupled to said local audio device receiver, said audio input device, said memory, and said local timecode generator for creating stamped local audio data and storing said stamped local audio data in said memory;”**

Strub discloses element [7.7] because it discloses system controller 301 and data processing device 304 (“*at least one control unit*”), which are electrically coupled to receiver 310, position sensing device 311, and/or SMPTE timecode input port (“*local audio device receiver*”); audio data acquisition device 303 (“*audio input device*”); data storage device 305 (“*memory*”); and the internal clock (“*local timecode generator*”). EX1003, 12:4-13, 13:36-14:13 (“System Controller”), Fig. 3; EX1011, ¶ 79. System controller 301 controls the operation of the components of recording unit 300, “*for creating stamped local audio data and storing said stamped local audio data in said memory.*” EX1003, 11:32-56, 12:4-13, 13:36-14:13, 66:7-25, 70:1-5, Fig. 3. The system controller may be provided by one or more separate processing device or devices to provide the functions of the system controller. *Id.*, 31:51-59. In the claim, the term “*local audio data*” includes the audio and may include other associated data, e.g., an identifier of the local audio device or performer as recited in claim 2 of the ’902 patent. EX1001, 23:60-64; EX1011, ¶ 79.

System controller 301 acquires local audio via audio data acquisition device 303 and stores the acquired audio data in data storage device 305. EX1003,

12:10-21. Data processing device 304 can also process (e.g., compress) the acquired audio data before it is stored. EX1003, 12:16-21. As explained, system controller 301 may also store information associated with the audio recording, e.g., a timestamp or information identifying the recording unit and/or recorder, which become part of the “*stamped local audio data*.” *Id.*, 13:48-67; *supra* Section V.B.1.g; EX1011, ¶ 80. Moreover, a person of skill would understand that a time code input port (“*local audio device receiver*”) on the recording unit would be electrically coupled to the system controller of Strub to allow the controller to synchronize the internal clock (the local timecodes) to a master timecode. *Supra* Section V.B.1.b, .d, .g; EX1011, ¶ 80.

Zaxcom argued that the “*control unit*” may be “a processing unit.” EX1015 at 4.

- i. **[7.8] “*wherein said stamped local audio data includes at least one local timestamp to reference at least a portion of said stamped local audio data to at least one of said local timecodes; and*”**

Strub discloses element [7.8]. As explained, Strub’s recording unit stores stamped local audio data in memory, and that data includes a timestamp (“*at least one local timestamp*”), which references at least a portion of the stamped local audio data to the local timecode (e.g., time) of the recording provided by the internal clock (“*at least one of said local timecodes*”). *Supra* Section V.B.1.h;

EX1011, ¶ 82. As each of Strub and Woo discloses, these timestamps are used as a reference to allow recordings to be time synchronized for playback. *Id.*

Zaxcom argued that element [7.8] is necessarily satisfied where “[d]ata and time are preserved in the file attributes, timecode is written inside the file.”

EX1015 at 5.

- j. [7.9] ***“wherein said stamped local audio data includes at least one identifier selected from the group consisting of track identifiers, local audio device identifiers, performer identifiers, and combinations thereof.”***

Strub discloses element [7.9] because, as explained, the “*stamped local audio data*” includes an identifier (“*at least one identifier*”) that identifies the recording unit (“*local audio device identifiers*”) and/or the recorder (“*performer identifiers*”). *Supra* Section V.B.1.h; EX1003, 8:67-9:3 (obtaining biometric data, which identifies the recorder), 36:52-57 (identifying recording units), 53:34-44 (marks identifying people present in recorded content), 55:59-64 (marks identifying the speaker); EX1011, ¶ 84.

Zaxcom argues that element [7.9] is satisfied by “file attributes, metadata, and filename,” which according to Zaxcom constitutes a “*track identifier[]*.”

EX1015 at 5. Under such an interpretation, Strub further satisfies this element because any of the marking metadata for identifying specifics of individual recordings (tracks) stored in Strub would be the claimed “*track identifier[]*.”

EX1003, 8:59-9:3 (“record physiological data” and “biometric data”), 9:51-10:25

(recording events of interest, content identification, identity of speaker, narrative description); EX1011, ¶ 85.

2. Claim 8

Dependent claim 8 recites a system according to claim 7, said system further comprising elements [8.1]-[8.3], which Strub discloses. EX1011, ¶ 86.

a. **[8.1] “*at least one remote control unit having an RCU transmitter capable of wirelessly transmitting digital commands;*”**

Strub discloses element [8.1] because it discloses a control interface device (“*remote control unit*”) that is similar to remote control devices used in other consumer electronics applications and that communicates wirelessly with the remainder of the recording unit to control the operation of the recording unit (“*having an RCU transmitter capable of wirelessly transmitting digital commands*”). EX1003, 45:51-47:64 (“control interface device ... can be implemented in a manner similar to remote control devices used in other consumer electronic equipment”; “control interface device is connected to the system controller, the input received by the control interface device being translated into electrical signals that are transmitted to the system controller which then transmits electrical signals to appropriate component(s) of the recording unit to effect operation of those components”; “particularly desirable for the recording unit to be implemented to enable wireless communication ... between the control interface

device ... and the remainder of the recording unit”), 64:50-65:58 (explaining that communication among the components of the recording unit may use conventional wireless communication techniques and apparatus known to those skilled in the art); EX1011, ¶ 87. As explained, the control interface device transmits “*digital commands*” because it “enables the recorder to control operation of the recording unit,” e.g., “enabling the record to start and stop operation of the recording unit” (EX1003, 47:49-63), and Strub discloses using digital transmitters and receivers (*id.*, 37:53-38:15; *supra* Section V.B.1.d; EX1011, ¶ 87), in a digital system. EX1003, 6:1-8, 14:1-13, 45:66-46:5, 70:26-46; EX1011, ¶ 87.

In addition, Strub recommends using digital communications because “digital devices are more reliable.” EX1003, 37:56-62. Thus, communicating commands digitally would have at least been an obvious design choice between the two known, conventional options: analog or digital. EX1011, ¶ 88.

b. [8.2] “*wherein said remote control unit controls at least one function of said local audio devices via transmission of at least one of said digital commands; and*”

Strub discloses element [8.2] because it discloses that the commands issued by the control interface device (“*remote control unit*”) control at least one function of the recording unit (“*local audio device[]*”). *Supra* Section V.B.2.a; EX1011, ¶ 89. For example, Strub discloses the control interface device controlling the functions identified below for element [8.3].

- c. **[8.3] “wherein said function includes at least one of the group consisting of adding said track identifier to at least a portion of said stamped local audio data, ... adding said local audio device identifier to at least a portion of said stamped local audio data, ... [and] adding said performer identifier to at least a portion of said stamped local audio data, ...”**

Strub discloses element [8.3] because Strub discloses adding marking data to the stamped local audio data that satisfies the claimed “*track identifier*,” “*local audio device identifier*,” and “*performer identifier*.” *Supra* Section V.B.1.j; EX1003, 49:46-55:29; EX1011, ¶ 90. In particular, Strub discloses adding metadata that identifies a particular recording (“*track identifier*”) (EX1003, 52:19-33), marks identifying a particular recording unit (“*local audio device identifier*”) (*id.*, 52:62-53:15), and marks identifying the recorder and people present in a recording (“*performer identifier*”) (*id.*, 53:16-44). *Supra* Section V.B.1.j.

3. **Claim 11 “A system according to claim 7, wherein said master timecode includes at least one of the group consisting of time data, frame data, timecode type, recorder transport status, name of scene, name of take, track identifier, and combinations thereof.”**

Strub discloses claim 11. When either a GPS transmitter or an external device providing an SMPTE timecode is the master timecode generator, the master timecode includes “*time data*.” *Supra* Section V.B.1.b; EX1011, ¶ 91. Moreover, the ’902 patent acknowledges that known, prior-art SMPTE timecodes contain “information regarding the hour [(‘*time data*’)], minute [(‘*time data*’)], second

[('time data')], frame [('frame data')], type of timecode (i.e., nondrop or drop frame) [('timecode type')], and user-definable information.” EX1001, 1:40-48.

Grounds 4-6. Woo likewise discloses that the SMPTE-formatted timecode provided by its master clock includes twenty-six bits of time information (“time data”), frame data (“frame data”), and “[i]nformation such as scene [(‘name of scene’)], take [(‘name of take’)], camera roll number [(‘track identifier’)], time of day [(‘time data’)], etc.,” in the user-definable area. EX1020, 1:36-2:9, 3:20-24; EX1011, ¶ 92.

C. Grounds 1, 7, and 8: Claims 12, 14, and 15 Are Anticipated by Strub and Rendered Obvious by the Combination of Strub and Wood

Strub discloses and renders obvious each element of claims 12, 14, and 15. Strub may also be combined with Wood (Ground 8), which discloses a different embodiment than Strub for the element “*wherein at least a portion of said local audio data is retrieved during or subsequent to said audio event and is combined with said remote audio data*” in claim 12. Wood’s embodiment is the embodiment of the ’902 patent.

1. Claim 12

a. [12.0] “A method of wirelessly recording local audio, said method comprising:”

To the extent the preamble is limiting, Strub discloses it for the same reasons as for the preamble of claim 7 and as further explained below for the remaining

elements of claim 12. *Supra* Section V.B.1.a; EX1011, ¶ 94. The recording unit acquires locally generated audio via audio data acquisition device 303 (e.g., a microphone) and records the locally generated audio in data storage device 305. EX1003, 12:13-21, 25:35-49. Transmitter 309 wirelessly transmits the locally generated audio to a remote recording unit. *Id.*, 6:1-8, 7:25-35, 12:31-39, 35:54-65, 37:18-40, 47:41-48, 53:16-33, 64:57-65:22, 70:38-51, 75:58-76:34, Fig. 1; EX1011, ¶ 94. In litigation, Zaxcom asserts that element [12.0] is similarly disclose by locally recording and then wirelessly transmitting the recorded audio. EX1015, 6-7.

b. [12.1] “*locally receiving said local audio generated by at least one performer during an audio event;*”

Strub discloses element [12.1] for the same reasons as elements [7.2] and [7.3]. *Supra* Section V.B.1.c, .d; EX1011, ¶ 95. Strub’s recording unit locally receives local audio generated by a performer wearing the recording unit to make live recordings during an event, including voice or musical instruments. *Id.*

c. [12.2] “*wirelessly transmitting said local audio to at least one of the group consisting of a recorder, a receiver, and combinations thereof;*”

Strub discloses element [12.2] because Strub’s recording unit acquires audio from an attached microphone (“*local audio*”) and both stores it in a data storage device and wirelessly transmits (“*wirelessly transmitting*”) it to the receiver (“*receiver*”) of another recording unit (“*recorder*”) that records the audio data.

EX1003, 12:13-21, 12:31-39, 25:35-49, 35:54-65, 37:18-40, 38:1-4, Fig. 3;
EX1011, ¶ 96.

In Strub, audio data acquisition device 303 (e.g., a microphone) acquires local audio, and the recording unit stores the audio data in data storage device 305.

EX1003, 12:13-21, 25:35-49. Transmitter 309 wirelessly transmits the locally generated audio to a remote recording unit:

The transmitter 309 transmits signals ... representing recording data acquired by the recording unit 300, so that such recording data can be used by other recording units (e.g., ... to enable processing of recording data obtained by the recording unit 300 for use in affecting the manner in which another recording unit records, processes or stores recording data).

Id., 12:31-39; *see also id.*, 35:54-65. A POSITA would understand this to be wireless transmission because (1) Strub gives the example of a 2.4 gigahertz analog television transmission path; and (2) the figures show no wires between the local and remote recording units:

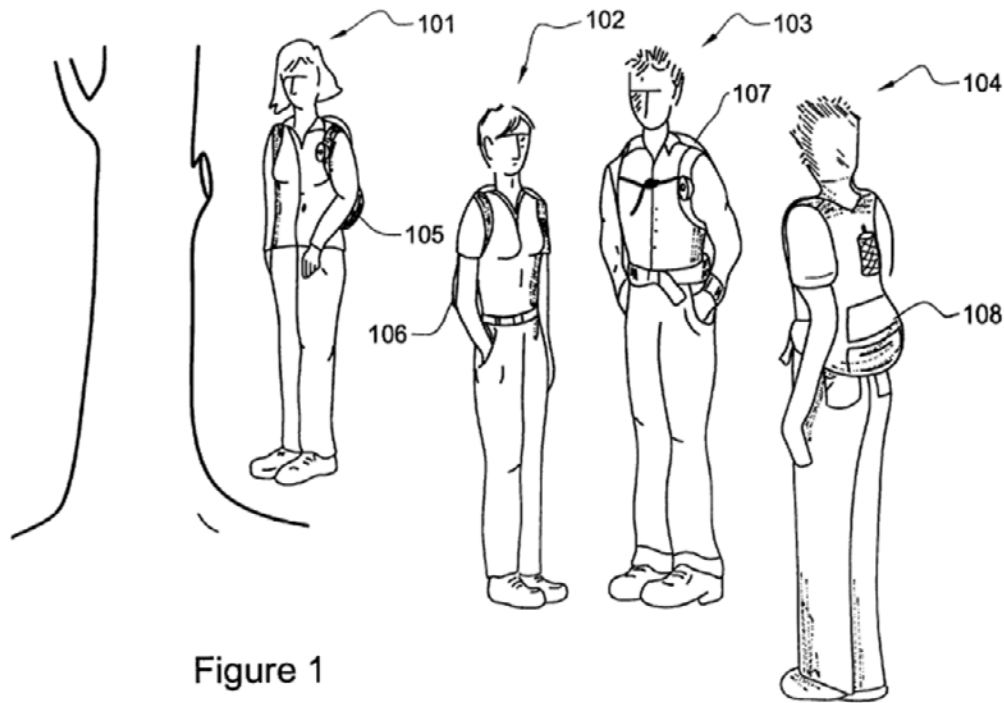


Figure 1

Id., Fig. 1, 6:1-8 (“communication between the portable video recorder and auxiliary device can be implemented using wireless and/or wired methods and apparatus”), 7:25-35 (“wireless methods and apparatus”), 38:1-4, 47:41-48, 53:16-33, 64:57-65:22 (“The implementation of wired and wireless communication techniques and apparatus is known to those skilled in the art.”), 70:38-51, 75:58-76:34; EX1011, ¶ 97. Strub discloses that the remote recording unit receives the transmitted audio data and records it. EX1003, 35:54-65 (“each recording unit can include a receiver that enables receipt of signals broadcast from other recording units that represent the recording data”; “enabling a recording unit to ... store, during the event, a recording being obtained”), 37:18-40 (“implemented so that recording data from multiple recording units can be recorded simultaneously”).

d. [12.3] “*locally recording said local audio as local audio data in at least one memory of at least one local audio device; and*”

Strub discloses element [12.3] because, as explained, Strub’s recording unit (“*at least one local audio device*”) acquires audio from an attached microphone (“*local audio*”) and both stores it (“*locally recording*”) as audio data (“*local audio data*”) in a data storage device (“*at least one memory*”) and wirelessly transmits it to another recording unit. *Id.*, 12:13-21, 12:31-39, 25:35-49, 35:54-65, 37:18-40, 38:1-4, Fig. 3; *supra* section V.C.1.a-.c; EX1011, ¶ 98. Audio data acquisition device 303 (e.g., a microphone) acquires local audio, and the recording unit stores the audio data in data storage device 305. EX1003, 12:13-21, 25:35-49. As explained, data storage device 305 may include, for example, a hard disk; a removable data storage medium, such as a recordable-once DVD (DVD-R) disk or a recordable/writable DVD (R-W DVD) disk; or a non-volatile data storage device, such as solid state or flash memory. *Supra* Section V.B.1.f; EX1011, ¶ 98.

e. [12.4] “*remotely recording said transmitted local audio via at least one of the group consisting of a recorder, a receiver, and combinations thereof as remote audio data;*”

Strub discloses element [12.4] because a remote recording unit (“*recorder*”) receives the transmitted audio data (“*transmitted local audio*”) via a receiver (“*receiver*”) and records it (“*remotely recording*”). *Supra* Section V.C.1.c; EX1003, 35:54-65 (“each recording unit can include a receiver that enables receipt

of signals broadcast from other recording units that represent the recording data”; “enabling a recording unit to ... store, during the event, a recording being obtained”), 37:18-40 (“implemented so that recording data from multiple recording units can be recorded simultaneously”); EX1011, ¶ 99.

f. [12.5] ***“wherein at least a portion of said local audio data is retrieved during or subsequent to said audio event and is combined with said remote audio data;”***

While element [12.5] does not appear to limit the claimed apparatus because element [12.5] appears to recite only an intended use of the local audio data, Strub alone discloses it (Grounds 1 and 7), and Strub in combination with Wood renders it obvious (Ground 8). EX1011, ¶ 100. Although not required by the claim, the ’902 patent discloses that the ability to perform this function is provided by timestamping the audio data. See EX1001, 4:10-25, 4:62-5:19. The ’902 patent uses timestamps to combine the local audio data with two types of remotely recorded data: (1) a remote recording captured by other devices (*id.*, 4:10-25 (“allows multiple individually recorded audio tracks to be combined”)); and (2) a remote recording of the local audio data being repaired (*id.*, 4:26-36 (“mixed post-recording to automatically correct for any audio data lost”)). Strub discloses the first embodiment, using timestamps for post-event synchronization of audio recordings. EX1003, 13:48-58, 63:41-49, 79:54-80:9, 84:5-25. Wood discloses the

second embodiment, combining local audio data with previously received audio to repair a dropout. EX1008, 1:31-2:13.

Grounds 1 and 7 (without Wood). Strub discloses element [12.5]. EX1011, ¶ 101. Like the '902 patent, Strub discloses the recording units timestamping the recorded audio and synchronizing recordings from multiple recording units using those timestamps in post-processing (*“said local audio data is retrieved ... and is combined with said remote audio data”*). EX1003, 13:50-67 (using clock in system controller to timestamp), 63:41-60 (using time from GPS receiver to timestamp), 79:54-80:9 (*“temporally synchronize multiple recordings of the same event that were simultaneously obtained by different recording units”*; *“recording unit ... typically includes a clock that is used to time-stamp recording data as the recording data is acquired”*), 84:5-25; *supra* section V.B.1.i. Strub allows the local audio data to be retrieved by transmitting the data to other devices via transmitter 309 or wired connections, such as USB. *Id.*, 12:4-39, 66:7-25, Fig. 3.

Zaxcom argued that element [12.5] is satisfied by a recording unit with the ability to output the local audio data so that it may be retrieved (*“e.g., played back”*) and synchronized with remotely recorded audio (EX1015 at 17), like Strub's recording unit.

Ground 8 (with Wood). If Zaxcom argues that Strub does not disclose element [12.5], it would have been obvious in combination with Wood because

Wood discloses this element. EX1011, ¶ 103. Strub recognized that there would be instances where recordings were deficient. EX1003, 48:18-30, 85:28-41 (“during an event, the recording obtained by a particular recording unit will be deficient in some way”). And a POSITA would have known the one such possible deficiency for wirelessly transmitted data would have been dropouts. EX1011, ¶ 103. The ’902 patent admits that dropouts were a known problem. EX1001, 1:59-2:6 (discussing prior-art solutions to address “transmission errors such as dropouts”). The ’902 patent addresses this problem by using a request when a dropout occurs so that the content can be re-sent to repair the dropout. *Id.*, 16:59-17:5. But that solution was already known and disclosed by Wood. EX1011, ¶ 103.

Wood discloses sending a request when a dropout is detected so that the content can be re-sent and combined with the previously received audio to repair the dropout. EX1008, 1:31-2:13, Figs. 1, 2; EX1011, ¶ 104. In Wood, video and audio are transmitted over a wireless broadcast channel to a recorder—receiver 10, which includes storage device 26 for storing the broadcast signal. *Id.*, 4:21-27. A processor detects an interval when the audio (or video) is lost (*id.*, 3:22-29); the recorder can respond via transceiver 20 and retrieve the lost content (“*local audio data*”) by requesting that the content be re-sent (*id.*, 3:30-4:10); and multiplexor 24 can combine the replacement portions (“*local audio data*”) with the previously received broadcast signal (“*remote audio data*”) (*id.*, 4:11-27).

The technique of replacing a dropout with backup data was well known in the art for more than a decade, with papers on this concept having been published as far back as 1993. EX1011, ¶ 105. For example, *Dropout Replacement with Backup Recording at Tape's Margin*, published by the IEEE, describes this concept for VCR recording. EX1007. Thus, in the event of a transmission failure from the local recording unit in Strub, it would have been obvious to a POSITA to fix the defect or gap in the remote recording, a problem Strub recognizes, with the local copy of that recording in post-processing, as Wood teaches. EX1011, ¶ 105.

A POSITA would have looked to the known technique in Wood because it applies to television broadcast signals—like the ones Strub uses to transmit its recording data from a local recording unit to a remote recording unit (EX1003, 35:54-57, 37:53-38:4 (“conventional television signal transmitters and receivers”))—to improve signal quality (EX1008, 1:28-30) and produce a “program free of dropouts” (*id.*, 3:4-6). EX1011, ¶ 106. Accordingly, it would have been obvious to a POSITA to use one of the multiple transmission channels in Strub (EX1003, 36:10-29) or the wired connection in Strub (*id.*, 66:7-15) as the communication channel in Wood for receiving requests for a replacement from the remote recording unit to the local recording unit and for the local recording unit to provide the requested replacement, using the timestamps of Strub for synchronization. EX1011, ¶ 106.

- g. [12.6] “*wherein said local audio data includes at least one identifier selected from the group consisting of track identifiers, local audio device identifiers, performer identifiers, and combinations thereof.*”

Strub discloses element [12.6] for the same reasons as element [7.9]. *Supra* Section V.B.1.j; EX1011, ¶ 107. The “*local audio data*” recorded in Strub’s recording unit includes “*at least one identifier*” that identifies track (“*track identifiers*”), the recording unit (“*local audio device identifiers*”), and/or the recorder (“*performer identifiers*”). *Id.* The recording unit stores this data and transmitter 309 wirelessly transmits it to a remote recording unit. *Id.*, 6:1-8, 7:25-35, 12:31-39, 35:54-65, 37:18-40, 47:41-48, 53:16-33, 64:57-65:22, 70:38-51, 75:58-76:34, Fig. 1; EX1011, ¶ 107.

2. Claim 14

Claim 14 recites a method according to claim 12, further comprising element [14.1] “*remotely controlling at least one function of at least one of said local audio device via at least one remote control unit,*” and element [14.2] “*wherein said function includes at least one of the group consisting of adding said track identifier to at least a portion of said local audio data, ... adding said local audio device identifier to at least a portion of said local audio data, ... [and] adding said performer identifier to at least a portion of said local audio data, ...*”

Strub discloses elements [14.1] and [14.2] for the same reasons as elements [8.2] and [8.3], respectively. *Supra* Section V.B.2.b, .c; EX1011, ¶ 108. Strub discloses

a control interface device (“*remote control unit*”) controlling at least one function of the recording unit (“*local audio device*”), including the addition of identifiers to the local audio data, such as adding metadata that identifies a particular recording (“*track identifier*”), marks identifying a particular recording unit (“*local audio device identifier*”), and marks identifying the recorder and people present in a recording (“*performer identifier*”). *Id.*

3. Claim 15

Claim 15 recites a method according to claim 12, further comprising element [15.1] “*manipulating said local audio data contained in at least a portion of said memory,*” and element [15.2] “*wherein said manipulation includes at least one of the group consisting of adding said track identifier to at least a portion of said memory, ... adding said local audio device identifier to at least a portion of said memory, ... [and] adding said performer identifier to at least a portion of said local audio data,...*” Strub discloses elements [15.1] and [15.2] because Strub discloses adding marking data to the stamped local audio data that satisfies the claimed “*track identifier,*” “*local audio device identifier,*” and “*performer identifier.*” *Supra* Section V.B.1.j; EX1003, 49:46-55:29; EX1011, ¶ 109. In particular, Strub discloses adding metadata (“*track identifier*”) (EX1003, 52:19-33), marks identifying a particular recording unit (“*local audio device identifier*”) (*id.*, 52:62-53:15), marks identifying the recorder and people present in a recording

(“*performer identifier*”) (*id.*, 53:16-44). *Supra* Section V.B.1.j. Strub discloses that these marks can be associated with the recording data and stored in the data storage device (“*said local audio data contained in at least a portion of said memory*”). EX1003, 33:20-54.

VI. MANDATORY NOTICES

A. Real Party-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Lectrosonics, Inc. certifies that Lectrosonics, Inc. is the real party-in-interest.

B. Related Matters

Petitioner is aware of the following cases involving the ’902 patent:

Name	Number	District	Filed
Zaxcom, Inc. v. Lectrosonics, Inc.	1:17-cv-03408	EDNY	June 6, 2017
Zaxcom, Inc. v. Lectrosonics, Inc.	2:17-cv-02840	DNJ	April 25, 2017

C. Lead and Back-Up Counsel and Service Information

Petitioner appoints C. Brandon Rash (Reg. No. 59,121), available at Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, 901 New York Avenue, NW, Washington, DC 20001-4413 (phone: 202-408-4475), as lead counsel, and Cory C. Bell (Reg. No. 75,096), available at Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Two Seaport Lane, Boston, MA 02210-2001 (phone: 617-

646-1641), as back-up counsel. Petitioner also appoints Deborah Peacock (Reg. No. 31,649), available at Peacock Law P.C., 201 Third St NW, Ste 1340, Albuquerque, NM 87102 (phone: 505-998-1501), and Justin Muehlmeier (Reg. No. 70,782), available at Peacock Law P.C., 201 Third St NW, Ste 1340, Albuquerque, NM 87102 (phone: 505-998-6117), as additional back-up counsel.

Petitioner consents to e-mail service at Lectrosonics-IPR@finnegan.com, brandon.rash@finnegan.com, cory.bell@finnegan.com, DPeacock@peacocklaw.com, and JMuehlmeier@peacocklaw.com.

VII. CERTIFICATION OF GROUNDS

Petitioner certifies pursuant to 37 C.F.R. § 42.104(a) that the '902 patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR review of the challenged claims on the Grounds herein.

VIII. CONCLUSION

Challenged claims 7, 8, 11, 12, 14, and 15 are unpatentable, and Petitioner respectfully requests that the Board grant this Petition and institute trial.

Date: June 12, 2018

Respectfully Submitted,

/C. Brandon Rash/

C. Brandon Rash

Reg. No. 59,121

CERTIFICATION UNDER 37 C.F.R. § 42.24(d)

This Petition complies with the requirements of 37 C.F.R. § 42.24. As calculated by the word count feature of Microsoft Word and manually counted in the figures, it contains 9,577 words, excluding the words contained in the following: Table of Contents, Table of Authorities, List of Exhibits, Mandatory Notices, this Certification Under § 42.24(d), and Certificate of Service.

/C. Brandon Rash/

C. Brandon Rash

Attorney for Petitioner

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing Petition for *Inter Partes* Review, the associated Power of Attorney, and Exhibits 1001 through 1008, 1011, 1012, 1014, 1015, 1019, 1020, 1022 through 1029, and 1031 are being served on June 12, 2018, by Express Mail at the following address of record for the subject patent.

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A courtesy copy of the same documents are also being served on June 12, 2018, by Express Mail at the following address of record for litigation counsel:

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/Ashley F. Cheung/
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