

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RØDE MICROPHONES, LLC AND
FREEDMAN ELECTRONICS PTY LTD,
Petitioners

v.

ZAXCOM, INC.,
Patent Owner.

IPR2025-00230
IPR2025-00231
IPR2025-00232

Patent 7,711,443
Patent 7,929,902
Patent 10,276,207

DECLARATION OF DR. CHRIS KYRIAKAKIS IN SUPPORT OF
PETITIONS FOR *INTER PARTES* REVIEW

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I. INTRODUCTION

1. I have been retained by RØDE Microphones, LLC and Freedman Electronics Pty Ltd. (collectively, “Petitioner”) to provide my opinions concerning the validity of claims 1-4, 7-9, 15, 17, 19, 20, 22-27 (“the ’443 Challenged Claims”) of U.S. Patent No. 7,711,443 (“the ’443 Patent”), claims 17-19, 21-23, 33, 34, 59, 60 and 66 (“the ’207 Challenged Claims”) of U.S. Patent No. 10,276,207 (“the ’207 patent”), and claims 1-6 and 17-20 (“the ’902 Challenged Claims”) of U.S. Patent No. 7,929,902 (“the ’902 Patent”). The ’443, ’207, and ’902 Patents collectively are referred to herein as the “Challenged Patents.”

2. This Declaration summarizes the opinions I have formed to date. I reserve the right to modify my opinions, if necessary, based on further review and analysis of information that I receive subsequent to the filing of this report, including in response to positions taken by Zaxcom, Inc. (“Zaxcom”) or its experts that I have not yet seen, including any secondary consideration evidence that Zaxcom or its expert may consider and present.

3. It is my opinion that the ’443 Challenged Claims are invalid based on the following grounds:

Ground	Claims	Basis	Prior Art
1	1-3, 7, 8, 15, 17, 19, 20, 23-27	35 U.S.C. § 103	U.S. Patent No. 6,825,875 (“Strub”) (Ex. 1003), U.S. Patent No. 5,479,351 (“Woo”) (Ex. 1004), U.S. Patent Pub. No. 2002/0159179 (“Nagai”) (Ex.

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			1005), U.S. Patent Pub. No. 2004/0028241 (“Gleissner”) (Ex. 1006)
2	4, 9	35 U.S.C. § 103	Strub, Woo, Nagai, Gleissner, and U.S. Patent No. 7,483,485 (“Winningstad”) (Ex. 1008)
3	22	35 U.S.C. § 103	Strub, Woo, Nagai, Gleissner, and U.S. Patent No. 6,571,211 (“Dwyer”) (Ex. 2009)

4. It is my opinion that the ‘207 Challenged Claims are invalid based on the following grounds:

Ground	Claims	Basis	Prior Art
1	17-19, 21-23, 33, 34, 59, 60, 66	35 U.S.C. § 103	Strub, Woo, Nagai, and Gleissner

5. It is my opinion that the ‘902 Challenged Claims are invalid based on the following grounds:

Ground	Claims	Basis	Prior Art
1	1-3, 6, 13, 16	35 U.S.C. § 103	Strub, Woo, Nagai, and Gleissner
2	4, 5, 9, 10	35 U.S.C. § 103	Strub, Woo, Nagai, Gleissner, and U.S. Patent No. 7,493,437 (“Jones”) (Ex. 1010)
3	17-20	35 U.S.C. § 103	Strub and Woo

II. EXPERIENCE, QUALIFICATIONS, AND STATUS AS AN INDEPENDENT EXPERT WITNESS

6. My curriculum vitae, which a more detailed summary of my background, experience, publications that I have authored in the past ten years, and qualifications, is attached as the Appendix hereto.

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7. I earned my Bachelor of Science degree in Engineering and Applied Science from the California Institute of Technology (Caltech) in 1985. I received my Master of Science degree in Electrical Engineering in 1987 and my Ph.D. in Electrical Engineering in 1993, both from the University of Southern California (“USC”).

8. I am a tenured Associate Professor in the Department of Electrical and Computer Engineering at USC.

9. My research interests lie at the intersection of acoustics, psychoacoustics (the science that studies human perception of sound), and audio signal processing. I have worked in the area of audio signal processing for more than 20 years with particular emphasis on spatial and 3D audio. I have published nearly 100 technical papers, including several peer-reviewed papers. I have published a book on spatial audio entitled *Immersive Audio Signal Processing* and hold several patents in audio processing for headphone optimization, acoustic measurement of loudspeakers in rooms, loudspeaker crossover optimization, and loudspeaker response correction using signal processing. My publications examine various aspects of sound measurement, echo cancellation, microphone arrays, noise removal, filter banks, how sound interacts with the acoustical elements of the environment, novel methods for surround sound recording and reproduction, and the perception of sound by human listeners.

10. A major focus of my research has been on developing novel multichannel audio capture and rendering algorithms. In addition to the mathematical development of the algorithms, I have performed several multichannel recordings with multiple wired and wireless microphones over the past 20 years. For example, one of the first ones was in 2003 with a 64-track recording of a live performance of the group Duran Duran, 24-track recordings of the Boston Symphony and the Handel and Haydn Society, multi-track recordings of experimental music in the WGBH studios in Boston, 48-track recordings of the Dizzy Gillespie band at USC, live multi-track performances of Byzantine chanters in simulated ancient acoustic environments, as well 32-track Byzantine studio chant recordings of Cappella Romana. In all of these recordings, a combination of wired and wireless microphones were used in conjunction with digital multitrack recording gear and SMPTE timecode synchronization.

11. Another focus of my early research was on head-related transfer functions (HRTFs) and how they can be measured and modeled using various signal processing approaches. I developed several implementations of HRTF-based 3D audio for rendering spatial sounds over headphones. I have also researched microphone arrays for applications in enhanced far field voice recognition. This includes methods for Direction of Arrival finding and beam forming from linear and circular microphone arrays. I have also investigated methods for noise removal and

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reverberation reduction from microphone signals. In addition, over the past few years year I have worked on methods for echo cancellation for applications in wearable devices. Previous other work includes loudspeakers and how they interact with their acoustical environment. In particular, I have researched the role of sound reflections, absorption, and diffusion in the performance of loudspeakers. I have also published several technical papers on acoustical measurement methods in rooms and device enclosures and developed novel signal processing algorithms for optimizing sound system performance. Other topics I have researched include multichannel audio acquisition and rendering, virtual microphones and virtual speakers, hybrid headphone-loudspeaker rendering methods, and advanced signal processing techniques for optimizing sound quality from small portable devices.

12. I am the founding Director of the USC Immersive Audio Laboratory with facilities for experimental work in room acoustics, multichannel audio, and psychoacoustics. This laboratory also serves as a unique teaching facility for my undergraduate course in Introduction to Digital Audio and my graduate course in Immersive Audio Signal Processing. Both courses have a major acoustics component that examines the interaction of sound with the acoustical environment and the basic principles of microphones (including wireless microphones) and loudspeaker design. The graduate course was developed through a two-year grant I received from the National Science Foundation entitled “Collaborative Learning in

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13. From 2003-2018, I was the co-founder and Chief Technology Officer of Audyssey Laboratories, a USC spin-off company that develops and licenses audio technology to leading consumer electronics and automotive companies around the world. As part of my work at Audyssey, I developed a measurement methodology for headphones and earphones and created a database with 500+ measurements of products from nearly 100 manufacturers, created audio algorithms related to sound optimization that are used in millions of home theater systems, cars, and IMAX theaters world-wide.

14. I also developed audio algorithms and designed speakers. These speakers were novel acoustical designs that used a combination of unique enclosures, passive radiators (i.e., speaker diaphragms that are driven by changes in surrounding air pressure), and audio signal processing to optimize their performance and overcome limitations that arise from small drivers and enclosures. For example, we used signal processing technologies combined with novel acoustical design to extend the bass response of small woofers and passive radiators beyond what was

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previously possible in small speaker enclosures. The innovations in these designs
have received awards, including Popular Science's "Best of What's New."

15. In 2019, I joined Syng as the Chief Audio Scientist. Syng creates innovative products for next generation spatial audio and my role there includes research and development of audio algorithms for sound capture using microphone arrays to measure the acoustics of the room and loudspeaker beamforming for wirelessly rendering sound in various directions.

16. In April 2018 I was elected as Senior Member of the Institute of Electrical and Electronic Engineers (IEEE) in recognition of my contributions to the field of engineering. I am also a member of the Audio Engineering Society (AES), an association for professionals in the audio industry.

17. In 2006, I received a World Technology Network Award. This organization presents awards to innovators in several areas in which technology can foster a paradigm change. My award was for innovations in immersive audio that enable new capabilities in media and journalism. Other award recipients at that event included Vice President Al Gore, Google, and Space-X. In addition, my work has been featured in multiple news articles, including pieces by [The Atlantic](#), the [BBC World Service](#), the [New York Times](#), and [National Public Radio](#).

18. In the late 1990s and early 2000s, I was a faculty researcher and later Deputy Director of the National Science Foundation's engineering research center

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 established at USC. I studied the fundamental and technological limitations of immersive audio and the role of acoustics on the performance of microphones and loudspeakers. In 2003, together with one of my graduate students, I received the award for Best Paper at the Institute of Electrical and Electronics Engineers (“IEEE”) Conference on Signals, Systems and Computers.

19. I am being compensated at the rate of \$525 per hour for my work on this declaration. My fee is not contingent on the outcome of any matter or on any of the technical positions I explain in this declaration.

20. I have no financial interest in Petitioner. I have been informed that Zaxcom claims ownership in the ‘207 patent. I have no financial interest in Zaxcom.

III. UNDERSTANDING OF RELEVANT LEGAL PRINCIPLES

21. I am not a legal expert and I offer no opinions on the law. However, I have been advised by counsel about some of the legal principles relevant to an analysis of patentability of claims in a United States patent, as summarized below. I have conducted my analysis in accordance with these principles.

A. Prior Art

22. I understand that, for an invention claimed in a patent to be found patentable, or to be valid, it must be, among other things, new and not obvious in light of what came before it, which is referred to as “prior art.” I further understand that the frame of reference for determining whether a claim is obvious is from the

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23. I have been informed that a reference qualifies as prior art for determining obviousness when it (a) predates the invention or was patented or published more than one year before the effective priority date of the claim in question under the criteria set out in 35 U.S.C. § 102, and (b) is analogous to the claimed invention. I understand that the version of § 102 that applies to the Challenged Claims is the version in effect before the Leahy–Smith America Invents Act (“AIA”) went into effect (“pre-AIA § 102”). I further understand that prior art may be considered analogous if it is from the same field of endeavor, regardless of the problem addressed, as the claimed invention. I also understand that prior art may be considered analogous if it is “reasonably pertinent” to the particular problem with which the inventor is involved. I have been informed that a reference is “reasonably pertinent” if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering the inventor’s problem.

B. Standard of Proof

24. I understand that, in these proceedings, the burden is on the party asserting unpatentability to prove it by a preponderance of the evidence. I understand that “a preponderance of the evidence” is evidence sufficient to show that something is more likely than not.

C. Claim Construction

25. I understand that, unless otherwise construed by the U.S. Patent Trial and Appeal Board (“PTAB”) or a court, patent claims should be accorded their ordinary and customary meaning as understood by a POSA, in light of the intrinsic record. The intrinsic record includes the patent’s specification and claims, as well as its entire prosecution history. I also understand that a patentee is free to be his or her own lexicographer and thus may use a term in a manner contrary to or inconsistent with its ordinary meaning, provided that the patentee makes the special meaning clear in the specification or as part of the record during prosecution.

26. I further understand that in construing claims, a POSA is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification and the prosecution history. I understand that the construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will generally be, in the end, the correct construction.

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Although the claims themselves provide substantial guidance as to the meaning of
particular claim terms, the claims do not stand alone.

27. In addition, it has been explained to me that there is a form of claim
element called a “Markush group,” which lists specified alternatives in a patent
claim, typically in the form “[a member] selected from the group consisting of [A],
[B], [C], [etc.].” I further understand that, if a claim element is written in Markush
form, the entire element is disclosed by the prior art if one alternative in the Markush
group is in the prior art.

D. Anticipation

28. I have been informed that a patent claim is invalid as anticipated only
if each and every element and limitation of that claim is publicly disclosed, either
explicitly or inherently, in a single prior art reference, already in practice in the
industry in a single process or method, already in a single marketed product, or
otherwise previously invented. I also understand that anticipation requires the
presence in a single prior art disclosure of all elements of the claim arranged as in
the claim. For a step or limitation to be inherent in a reference, I understand that the
step or limitation must necessarily and inevitably occur or be present when one
follows the teachings of the reference. I am informed that for a reference to be
considered as anticipating, it must disclose the relevant technology in a manner such
that a person of ordinary skill in the art would be able to carry out or utilize the

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E. Obviousness

29. I have been informed that a patent claim is invalid as obvious only if it would have been obvious to a person of ordinary skill in the art at the time the patent was filed, in light of the prior art. A claim is invalid as obvious if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious to a POSA at the time the invention was made. The prior art may include one or more references that a POSA trying to solve the problem that the inventor addressed would likely have considered, as well as the body of knowledge that such a person would possess.

30. I have been informed that, in evaluating obviousness, one must consider: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; and (3) the level of ordinary skill in the art. In addition, I understand that objective indicia of non-obviousness, also known as “secondary considerations,” might be utilized to give light to the circumstances surrounding the origin of the claimed subject matter. I understand that secondary considerations can include, for example, evidence of commercial success of the alleged invention, evidence of a long-felt but unmet need that was solved by an invention, failure of others, evidence that others copied the alleged invention, or evidence that the alleged

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invention achieved a surprising result. I further understand that such evidence must
have a nexus to the elements of a claim in an order to be relevant.

31. I have been informed that, although a challenger may rely on a combination of separate prior art references to support an obviousness challenge, a person of ordinary skill in the art at the time of filing should have had some motivation or reason to combine the references in such a way as to arrive at the claimed invention. That motivation can come from the problem the invention purports to solve, from other references, from the teachings of those references showing the invention is obvious, from market incentives, or from the common-sense knowledge of a person of ordinary skill in the art. Any need or problem known in the field at the time of the invention and addressed by the patent can provide a reason for combining elements. However, obviousness findings grounded in common sense must contain explicit and clear reasoning providing some rational underpinning why common sense compels a finding of obviousness. A motivation to combine requires more than the mere fact that a POSA could have made the combination.

32. I have been informed that assessing which prior art references to combine and how they may be combined to match the asserted claim may not be based on hindsight reconstruction or ex-post reasoning. That is, one must view the prior art forward from the perspective of the person of ordinary skill in the art at the

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time of invention, not backwards from the current time through the lens of hindsight.

It is my understanding that it is improper to use a patent claim as a template or road map to the prior art, and to pick and choose prior art references to meet the elements of that claim to show obviousness.

33. I understand that a combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I further understand that there need not be a precise teaching in the prior art directed to the specific subject matter of a claim because one can take account of the inferences and creative steps that a person of skill in the art would employ.

34. I understand that, when there is a reason to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. I further understand that, if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense, which bears on whether the claim would have been obvious.

IV. SUMMARY OF MATERIALS REVIEWED AND CONSIDERED

35. All of the opinions contained in this Declaration are based on the documents I reviewed and my knowledge and professional judgment. In forming the opinions expressed in this Declaration, while drawing on my experience in the field of audio signal processing and sound localization (including my teaching,

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36. I may rely upon these materials and/or additional materials to rebut arguments raised by Zaxcom. Further, I may also consider additional documents and information in forming any necessary opinions including documents that may not yet have been provided to me.

37. My opinions are additionally guided by my appreciation of how a POSA would have understood the claims of the Challenged Patents at the time of the alleged invention, which I have been asked to assume is July 14, 2005.

V. BACKGROUND OF THE TECHNOLOGY

38. The Challenged Patents describe a system for recording audio in a wearable local device and wirelessly transmitting the same audio to a remote device. *See, e.g.*, '207 Patent, 1:45-2:10. The alleged inventions of the Challenged Patents are: (1) the local device stores (*i.e.*, records) local audio data; (2) the local device receives a master timecode from a master timecode generator, uses the master timecode to jam synchronize a local timecode generator, and stamps the stored (*i.e.*, recorded) audio data with the local timecode; and (3) the local device receives a master timecode from a master timecode generator and stamps the recorded audio

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data with a timecode to reference at least a portion of the local audio data to the master timecode and, in some claims, a remote control or interface may be used to add, delete, alter, or manipulate the local audio data, the claimed system includes a multi-memory unit. '443 Patent, 2:58-61, 3:28-41, 4:13-37, 8:57-9:12, 10:46-50, 12:56-64, 13:28-32, 14:39-42, 15:4-11, 21:51-22:12, Figs. 4A, 4B, 5, 6; '207 Patent 3:16-19, 4:1-12, 4:52-5:10, 10:44-11:4, 12:38-42, 14:52-67, 15:32-36, 16:44-47, 17:9-16, 45:1-12, 47:63-48:6, Figs. 4A, 4B, 5, 6; '902 Patent, 3:53-56, 4:14-23, 4:62-5:19, 10:5-41, 11:63-67, 14:9-24, 14:55-59, 15:63-16:1, 16:30-37, 23:55-57, 25:3-6, 26:27-28, 27:25-27, Figs. 4A, 4B, 5, 6. In its initial infringement contentions in the Delaware Litigation, Zaxcom has interpreted the term “jam synchroniz[ing]” to encompass either synchronizing one device to the clock of another device, or receiving a timecode and synchronizing a device to that timecode. *See Ex. 1012* at 5; *Ex. 1013* at 12-15.

39. Those purported innovations were not new, but existed in the prior art. For example, without limitation, Strub, Woo, and Winningstad all teach local devices which receive a master timecode from a master timecode generator, use the master timecode to jam synchronize a local timecode generator, and stamp recorded audio data with the local timecode, and also stamp the recorded audio data with a timecode to reference at least a portion of the local audio data to the master timecode. *See, e.g., Ex. 1003*, 13:52-54 (“clock...used to time-stamp the recording data

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 obtained by the recording unit.”), 62:26-63:50 (“A GPS receiver can also be used to receive a signal representing the current time that can be used as a clock to generate time-stamps for the recording data.”), 75:25-57 (“SMPTE time code input ... to enable synchronization”); Ex. 1004, Abstract (synchronization using timecodes), 1:60-2:9, 2:39-48, 3:3-24, 4:3-32, 5:5-67 (master timecodes used to “date and time tag[]” recordings), 7:26-50 (master clock), 8:60-9:4, 9:56-62, 10:15-64, Figs. 1, 3-6; Ex. 1008, 2:30-31 (“The DAR can also record the date and time of operator recordings ...”), 6:41-43 (“Date and time encoding operation 88 includes a clock that supplies the computer 94 with a date/time stamp that can be attached to the data received from the acquisition circuitry 13.”), 7:18-21, 8:9-12 (“[T]he time and date generated by the data and time encoder 88 may be recorded directly onto the video to verify the time of the recorded event.”), 8:17-22 (“[A] Global Positioning System (GPS) receiver 89 may be located in the DD device 26 that periodically updates the data and time encoder 88....The GPS date, time, and/or location information can then be inserted into the audio data for authentication of the captured images.”), 8:33-35 (“The date and time stamp generated by encoder 88 may be attached on to the media file 110....”), 8:38-43 (docking station “can also be used to verify any clock settings in the data and time encoder 88 in the DD device 26.”), 9:17-18 (adding time stamp to media files), 9:43-45, 10:58-65, Figs. 5 (depicting GPS receiver 89), 6.

**VI. LEVEL OF SKILL IN THE ART AND PERSPECTIVE APPLIED IN
THIS DECLARATION**

40. In determining the level of ordinary skill, I have been asked to consider, for example, the types of problems encountered in the field, prior solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. Taking those factors into consideration, a person of ordinary skill in the art at the time of the claimed priority date of the Challenged Patents would have had at least a Bachelor's degree in electrical engineering or a related or equivalent field, and two or more years of experience working with audio systems. However, additional years of education in the above-referenced fields may compensate for fewer years of experience.

41. I believe that I would have qualified as a person of at least ordinary skill in the art as of July 14, 2005. I further believe that I have a sufficient level of knowledge, experience, and education to provide an expert opinion in the field of the Challenged Patents.

42. My opinions in this Declaration are based on the perspective of a POSA as of July 14, 2005 or somewhat before. This is true even if the testimony is stated in the present tense. Each of the statements below reflects my opinion based on my review of the disclosures of the Challenged Patents, the file histories of the Challenged Patents, and the challenged claims.

VII. BACKGROUND

A. Overview of the Technology

43. In professional audio and video production, the precise synchronization and capture of multiple audio channels is crucial for post-production alignment and editing. This is especially true in environments such as live music events, film sets, and television studios, where multiple devices must be synchronized to capture high-quality, frame-accurate recordings. Wireless multitrack recording systems, combined with timecode synchronization technology, address this need by enabling multi-channel audio capture and consistent timing alignment across various recording devices, even in the absence of physical cabling. Such multi-channel audio capture and consistent timing alignment has been in use since about the 1980s, when it started being used in film production.

1. Wireless multitrack recording systems

44. Wireless multitrack recording systems, which have existed since approximately the late 1990s, are designed to transmit and record multiple channels of audio data wirelessly while maintaining high-quality sound and low latency. In these systems, a central transmitter communicates with several receiver units, each dedicated to a single channel or track, creating a synchronized and cohesive audio capture.

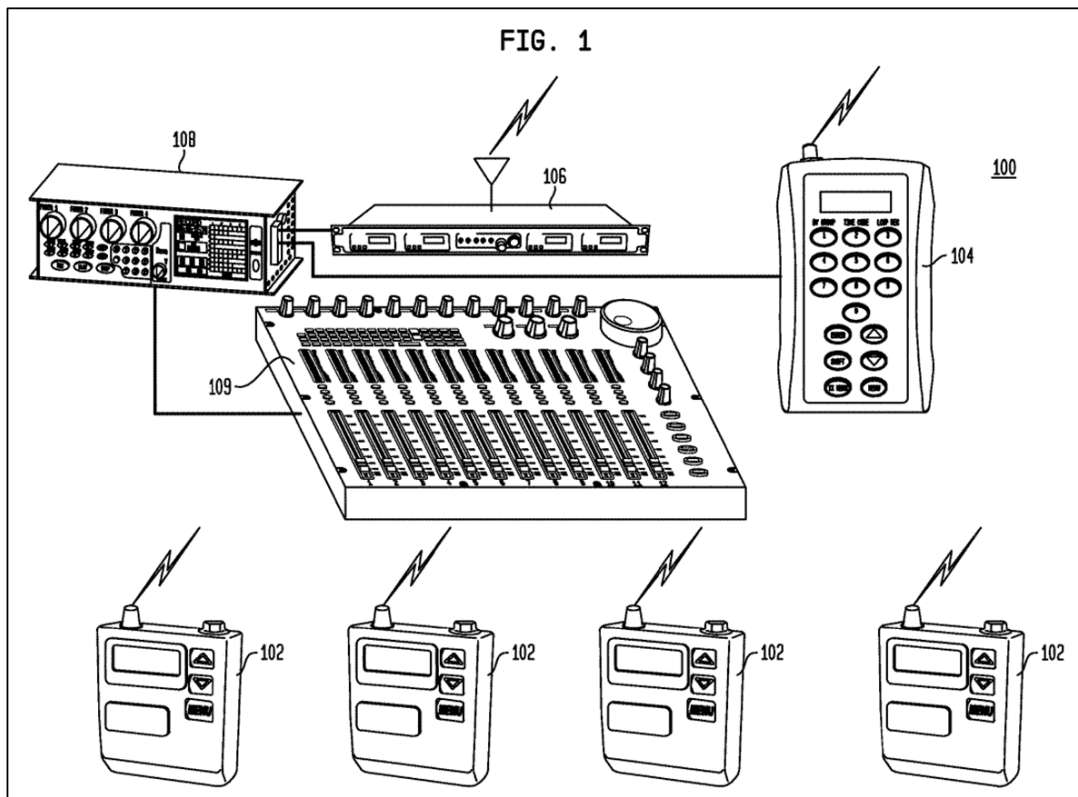
2. Timecode synchronization

45. Timecode synchronization is an essential component of professional audio-visual production. The use of timecode allows multiple devices to share a consistent timing reference, ensuring that audio and video recordings remain in sync from capture to post-production. SMPTE timecode, standardized by the Society of Motion Picture and Television Engineers in 1967, is the most widely adopted format for this purpose. SMPTE timecode enables precise timestamping of each frame or audio sample, supporting frame-accurate synchronization.

VIII. THE CHALLENGED PATENTS

A. Summary of the Specifications

46. The Challenged Patents describe well-known systems and methods for “recording and processing audio received from one or more wireless devices,” in particular a recording system 100 which wirelessly records audio performances by one or more performers. *See, e.g.*, ’207 Patent, 1:45-47, 4:1-3, Fig. 1. The system 100 includes one or more wearable local audio devices 102, a remote receiver 106, a remote recorder 108 connected to the receiver 106, and a remote control unit (“RCU”) capable of transmitting a time reference signal, digital commands, and/or audio to the other components., as depicted in Figure 1:

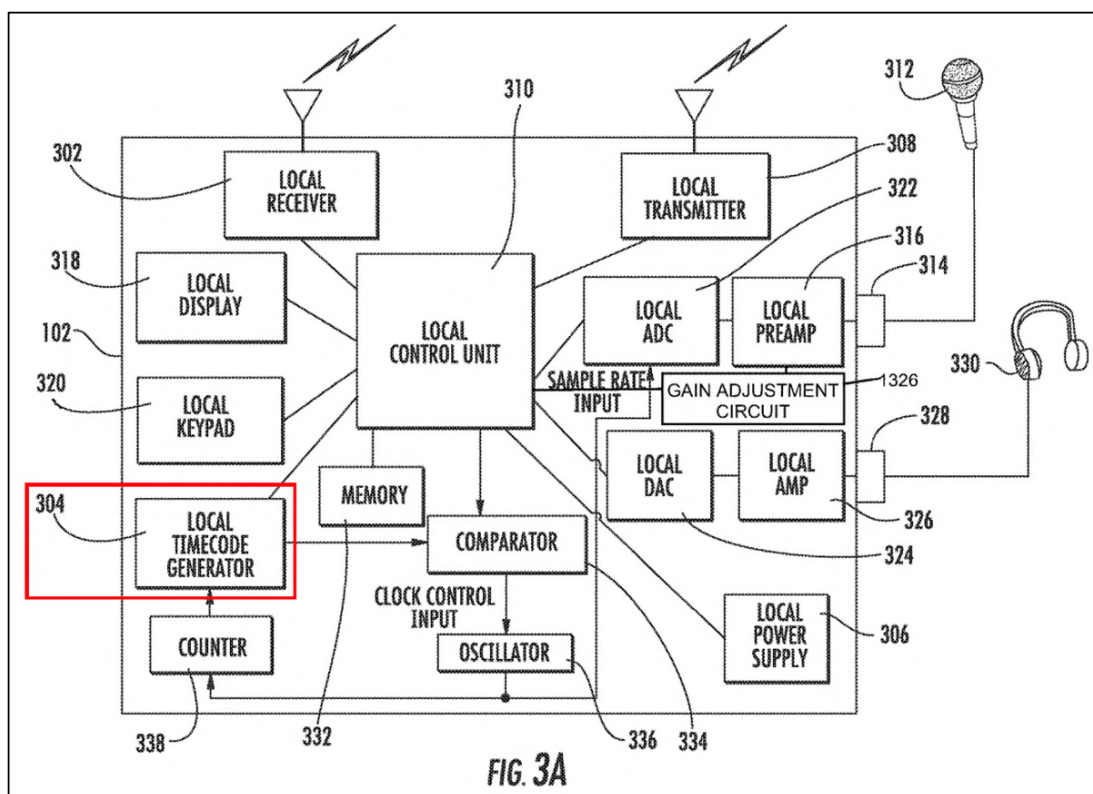


See *id.* 4:27-33, 43:24-26, 36:41, 38:25, 44:56-60, 47:52-57, Fig. 3B.

47. The local audio devices 102 record audio from the respective performers and transmit both live and replayed audio wirelessly to the remote receiver 106. *Id.* 4:40-46. The audio received by the receiver 106 is recorded by the recorder 108. *Id.* 4:46-49.

48. To support synchronization of the audio received by the receiver 106, the components of the system 100 are synchronized to allow each component to timestamp its recorded audio. *Id.* 4:3-12. The timestamps allow the system to combine individual audio tracks into multi-track audio files, correct for lost audio data, and/or synchronize tracks in post-processing. *Id.* 4:12-26; 4:52-5:10.

49. To synchronize its devices, the system can include a master timecode generator, which can be, *e.g.*, integral to the RCU 104 or the recorder 108. *Id.* 11:29-35. The master timecode generator generates master timecodes and sends them wirelessly to the local audio devices 102. *Id.* 17:9-11, Fig. 6 (step 604). Each local audio device 102 can also have its own local timecode generator 304, as illustrated in Figure 3A:



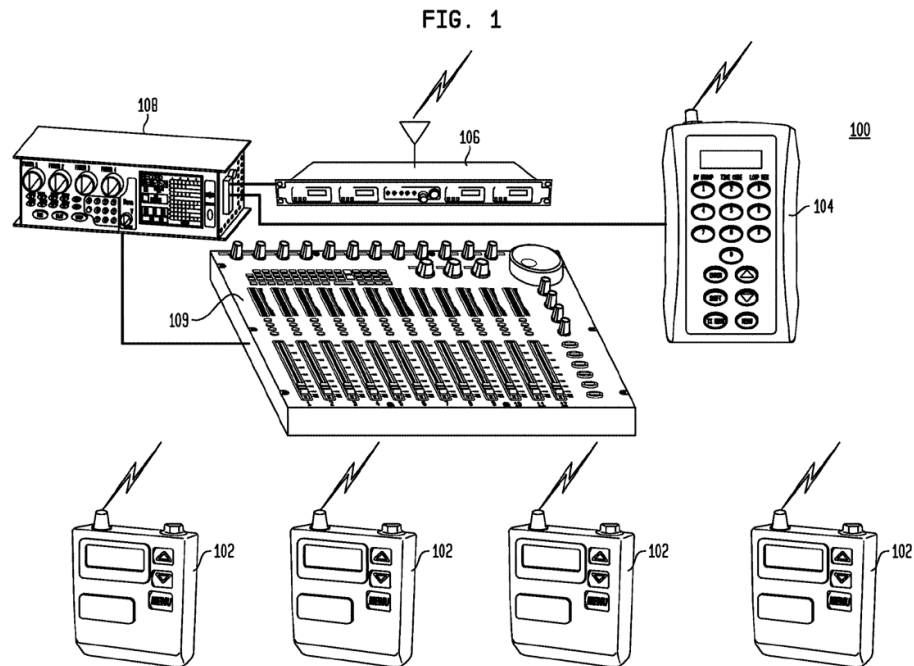
See *id.* 6:2-6.

50. The local audio devices 102 can use the master timecodes to jam synchronize their local timecode generators 304 and/or timestamp the locally recorded audio. *Id.* 3:16-19, 4:3-12, 4:52-5:10, 6:2-8 (“This master time reference

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signal provides a time reference for all local audio devices 102, which may use this
information for...jam synchronizing their respective local timecode generators
304..., adjusting the speed of the local timecode generators 304..., timestamping
locally recorded audio, etc.”), 10:56-11:4, 14:52-60, 15:32-36, 16:44-47, 17:9-22,
Figs. 3A, 4A, 4B, 5, 6.

51. In my opinion, these concepts were well-known in 2005, particularly in
view of the development of wireless recording technology and multitrack recording
systems discussed above. The components of the patent were conventional and
operate in a conventional manner.

52. The Challenged Patents disclose embodiments in which “each
performer is equipped with a local audio device capable of locally recording the
respective performer’s audio while also transmitting to a master recorder.” *Id.*,
Abstract, Fig. 1 (reproduced below).



53. In my opinion, there is nothing unconventional about the claimed components, their configuration, or how they operate. As the patent describes, multiple users can be equipped with portable recording devices that can record audio locally and also transmit audio to a central recording device. This concept was well known in the industry in 2005. For example, Tascam introduced the DA-88 digital multitrack recorder in 1993 and this was routinely used with wireless microphone systems from Sennheiser (e.g., the SK50 transmitter and EK3041 receiver released around the same time), as well as similar wireless systems from Shure. Multitrack digital recorders were also available at that time from Sony (PCM-800).

B. Claims

1. Claims of the '443 Patent

54. The '443 Patent has 28 claims, of which Claims 1-4, 7-9, 15, 17, 19, 20, and 22-27 are challenged. Claim 1 is independent. Each Challenged Claim of the '443 patent refers to a wearable, local audio device which receives master timecodes, receives locally generated audio, creates local audio data from the locally generated audio, stores the audio in a memory, and wirelessly transmits the audio in real time, wherein the local audio data includes stamped and unstamped local audio data, the stamped data includes at least one timestamp to reference at least a portion of the local audio data to at least one of the master timecodes, and the unstamped data does not include a reference to the master timecodes. '443 Patent, Claim 1. The '443 Patent acknowledges that all of those features were known in the prior art, since they are described in the patent's Background section. *Id.* 1:15-17 (“**recording and processing audio received from one or more *wireless devices*”**), 1:29-34 (“[T]he...audio is **timestamped with a time reference signal**...”), 1:38-45 (audio recorder and receiver “**receive audio wirelessly from one or more wireless transmitters**[, which are] **body packs that are worn by each performer**...”).

55. Several of the challenged dependent claims add features that are part of the admitted prior art in the Background section of the '443 Patent:

Claim(s)	Feature	Location in '443 Background
7	at least one of the group consisting of a recorder, a	1:15-17 (invention relates to “recording and processing audio

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	receiver, and combinations thereof, said at least one of the group consisting of said recorder, said receiver, and combinations thereof coupled wirelessly to said at least one local audio device;	received from one or more wireless devices”); 1:38-42 (“[A] multi-track audio recorder and an associated audio receiver...receive audio wirelessly from one or more wireless transmitters, [which] may take the form of body packs that are worn by each performer.”)
7	wherein said at least one local audio device transmits said local audio data to said at least one of the group consisting of said recorder, said receiver, and combinations thereof wirelessly via said at least one local audio device wireless transmitter.	<i>Id.</i>
15	said local audio data is combined electronically to create a single multi-track data file.	1:23-29 (“Some [prior-art] systems include a multi-track audio recorder wired to one or more microphones. Typically, [performances] are recorded by one or more microphones that are directly wired to the multi-track recorder[, which] combines the single track of audio received from each microphone to create one multi-track audio file.”)
19	said at least one local audio device is a body pack.	1:40-43 (“[Prior-art] wireless transmitters may take the form of body packs that are worn by each performer. Typically, the audio receiver receives each performer's audio from the performer's respective body pack....”)
24	said at least one local audio device transmits said local audio data in digital form.	1:42-45 (“[T]he audio receiver receives each performer's audio from the performer's respective

		body pack via an analog or <i>digital wireless transmission</i> and transmits it to the audio recorder.”)
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2. Claims of the '207 Patent

56. The '207 Patent has 106 claims, of which Claims 17-19, 21-23, 33, 34, 59, 60, 66 are being challenged. Claims 17 and 59 are independent. Each Challenged Claim refers to a wearable audio device which receives locally generated audio, wirelessly transmits the audio to a remote device, stores the audio in a memory, and stamps the audio with a timecode generated by a local timecode generator, wherein the local timecode generator is synchronized to a master timecode generator. See '207 Patent, Claims 17, 59. The '207 Patent acknowledges that all of those features were known in the prior art, since they are described in the patent's Background section. *Id.* 1:45-50 (invention relates to “***recording*** and processing audio received from one or more ***wireless devices***”), 1:50-51 (wireless devices can operate in an “asynchronous” mode—which a POSA would understand means that the audio is recorded locally and then transmitted), 1:59-65 (“[T]he received audio and/or the multitrack audio is ***timestamped with a time reference signal such as a Society of Motion Picture and Television Engineers ('SMPTE') timecode signal....***”), 2:1-10 (“[The] ***wireless transmitters*** may take the form of ***body packs that are worn by each performer***. Typically, the audio receiver receives

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 each performer's audio from the performer's respective body pack via an analog or digital wireless transmission and transmits it to the audio recorder.”).

57. A majority of the challenged dependent claims add features that appear as prior art in the Background section of the '207 Patent:

Claim(s)	Feature	Location in '207 Background
23, 60	timecode is “SMPTE compliant timecode”	1:61-63
18	control unit stores locally generated audio in the memory and transmits the locally generated audio to a remote device substantially simultaneously	1:47-51 (recording and processing audio using wireless devices operating in “synchronous mode.”). A POSA would understand that the reference to “synchronous mode” means simultaneous transmission.
19	receiver or recorder is not worn by a creator of locally generated audio and is located remotely from the local audio device.	2:1-27. A POSA would understand the Background section’s discussion of wireless transmission of the audio from the local device to the receiver/recorder, taken in context, to mean that the receiver/recorder is remote.
22	timecodes include time data, frame data, type, recorder transport status, name of scene, name of take, or track identifier	1:59-64 (“[T]he received audio and/or the multitrack audio is timestamped with a [SMPTE] timecode signal containing information regarding the hour, minute, second,...”)
34	A local timecode is stored with the audio data.	1:59-65 (audio data “timestamped” with SMPTE timecode)

3. Claims of the '902 Patent

58. The '902 Patent has 26 claims, of which Claims 1-6, 9-10, 13, and 16-20 are challenged in this Petition. Challenged Claims 1 and 17 are independent.

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Each Challenged Claim refers to a local audio device which receives locally generated audio, wirelessly transmits the audio to a remote device, stores the audio in a memory, and, other than claim 16, stamps the audio with a timecode generated by a master timecode generator. The '902 Patent acknowledges that all of those features were known in the prior art, since they are described in the patent's Background section. *Id.* 1:26-32 (invention relates to “**recording** and processing audio received from one or more **wireless devices**”), 1:31-32 (wireless devices can operate in an “asynchronous” mode—which a POSA would understand means that the audio is recorded locally and then transmitted), 1:40-48 (“[T]he received audio and/or the multitrack audio is **timestamped with a time reference signal such as a Society of Motion Picture and Television Engineers (‘SMPTE’) timecode signal....**”), 1:49-58 (“[The] **wireless transmitters** may take the form of **body packs that are worn by each performer.**”).

59. A number of the challenged dependent claims add features that also appear in the Background section of the '902 Patent and thus constitute admitted prior art. For example:

Claim(s)	Feature	Location in '902 Background
6, 13	timecodes include time data, frame data, type, recorder transport status, name of scene, name of take, or track identifier	1:40-45 (“[T]he received audio and/or the multitrack audio is timestamped with a [SMPTE] timecode signal containing information regarding the hour, minute, second,...”)

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2, 4, 9, 10, 16-20	Including, adding, deleting, or altering track identifiers, local audio device identifiers, or performer identifiers	1:41-46 (“[T]he received audio and/or the multi-track audio is timestamped with a time reference signal such as a Society of Motion Picture and Television Engineers (“SMPTE”) timecode signal containing ... user-definable information.”)
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D. Lectrosonics IPRs

1. PTAB’s Findings Regarding Claim Elements in Prior Art and Obviousness of Combinations

63. I understand that the ’902 Patent, U.S. Patent No. 8,385,814 (“the ’814 Patent”) and U.S. Patent No. 9,336,307 (“the ’307 Patent”) were previously involved in the following IPRs filed by third party Lectrosonics:

- ’902 Patent: *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129 (“the ’1129 IPR”);

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- '814 Patent: *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01130

("the '1130 IPR); and

- '307 Patent: *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-00972

("the '972 IPR)

(collectively, "the Lectrosonics IPRs").

64. I am aware that, in the Lectrosonics IPRs, the PTAB issued Final Written Decisions ("FWDs") in which the Board made certain findings regarding the presence of claim elements in Strub, Woo, Nagai, and Gleissner, and regarding the obviousness of combining those references. I have reviewed those FWDs.

65. For example, in the '972 IPR, the PTAB found Claims 12-14 of the '307 Patent anticipated by Strub. Ex. 1014 at 25-26. I understand that, since anticipation requires all elements of a claim to be present in the anticipatory reference, the Board's finding of anticipation means that it must have found all elements of Claims 12-14 of the '307 Patent present in Strub. Those elements include the following:

- locally receiving local audio generated by at least one performer during an audio event;
- locally recording the local audio as local audio data in at least one memory of at least one local audio device wearable by a creator of said local audio;

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- locally receiving or generating master time data including at least one of the group consisting of hour data, minute data, second data, and combinations thereof;
- at least one of a group consisting of...adding a 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;
- wirelessly transmitting the locally generated audio to a remote recorder; and
- remotely recording the locally generated audio by the remote recorder as remotely recorded audio data.

See Ex. 1015 Claims 12-14; Ex. 1016 at 48 (relying on Strub for “local audio device identifier” and “performer identifier” limitations); *see also* Ex. 1014 at 21 (finding that Strub discloses “a local audio device that records local audio and transmits the local audio to other remote devices” and “that the same local audio is stored at both the wearable local audio device as local audio data and the remote receiver/recorder as remotely recorded audio data”), 22 (“We...agree with Petitioner that Strub’s device is ‘wearable.’”).

66. Further in the ’972 IPR, the PTAB found Claim 1 of the ’307 Patent obvious over Strub combined with Nagai or Gleissner. Ex. 1014 at 19, 25. In making that determination, the PTAB necessarily found that Strub, Nagai and/or

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Gleissner teach “at least one audio input port for receiving said locally generated
audio from an audio input device,” and that it would have been obvious to combine
Strub with Nagai or Gleissner. *Id.* 16-19.

67. In the ’1129 and ’1130 IPRs, the Board made similar findings regarding
(1) the presence of the above-referenced limitations in Strub, Nagai, and Gleissner,
and (2) the obviousness of combining those three references. *See, e.g.*, Ex. 1017 at
25 (finding Strub’s device wearable), 35 (finding ’902 Claims 7, 8, and 11 obvious
over Strub in combination with Nagai or Gleissner, and Woo), 40 (finding that Strub
teaches a local audio device that records local audio and transmits the same local
audio to a remote device), 41 (finding ’902 Claims 12, 14, and 15 anticipated by
Strub); Ex. 1018 at 22 (finding Strub’s device wearable), 32 (finding numerous ’902
Claims obvious over Strub in combination with Nagai or Gleissner, and Woo). The
Board also found that Strub discloses “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,” that Woo discloses a “master timecode
generator for generating a plurality of timecodes” and “jam synchroniz[ing]” a local
clock with a master time clock “just as disclosed by the [related ’902 and ’814]
patent[s],” and that a POSA would have been motivated to use Woo’s

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 synchronization techniques in Strub's system. Ex. 1017 at 25-31; Ex. ['1130 FWD] at 22-28.

68. I have been informed that Zaxcom appealed the Board's decisions in all three of the Lectrosonics IPRs, and that each case, the Court of Appeals for the Federal Circuit affirmed the decision in its entirety.

69. However, although I am aware of the above findings by the PTAB regarding the presence of the above-referenced claim elements in Strub, Woo, Nagai, and Gleissner and regarding the obviousness of combining those references, I am not relying on any findings of the Board in formulating the opinions in this Declaration. To the contrary, I have conducted my own independent analysis and independently formulated my own opinions of what elements are present in Strub, Woo, Nagai, and Gleissner and whether a POSA would have been motivated to combine those references.

2. PTAB's Findings Regarding Zaxcom's Purported Objective Indicia of Nonobviousness

70. In the Lectrosonics IPRs, Zaxcom submitted evidence purporting to show objective indicia of nonobviousness, including: testimony alleging a long-felt need for repairing dropouts; testimony alleging failure of others to implement dropout repair; alleged industry praise in the form of witness testimony, an Emmy award, and a Technical Achievement Award from the Academy of Motion Picture Arts and Sciences (the "Academy"); and expert testimony attempting to connect the

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71. However, although I am aware of the above findings by the PTAB regarding the lack of nexus between Zaxcom’s objective indicia evidence and claims lacking the remote-data-replacement feature, I am not relying on those findings of the Board in formulating the opinions in this Declaration. Instead, I have independently reviewed and analyzed the evidence of objective indicia that Zaxcom submitted in the Lectrosonics IPRs and formulated my own opinion that there is no nexus between that evidence and the Challenged Claims.

72. [Reserved]

IX. CLAIM CONSTRUCTION

73. I have applied the plain meaning of the terms and phrases in the claims in my analysis, as a POSA would have understood those terms and phrases at the relevant time (around 2005). However, it is my opinion that the prior art relied on

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 in the grounds set forth below discloses the subject matter of the challenged claims under any reasonable construction, including their plain meaning.

X. THE PRIOR ART

74. In this section, I provide an overview of the seven prior art references relied upon in the obviousness combinations detailed herein.

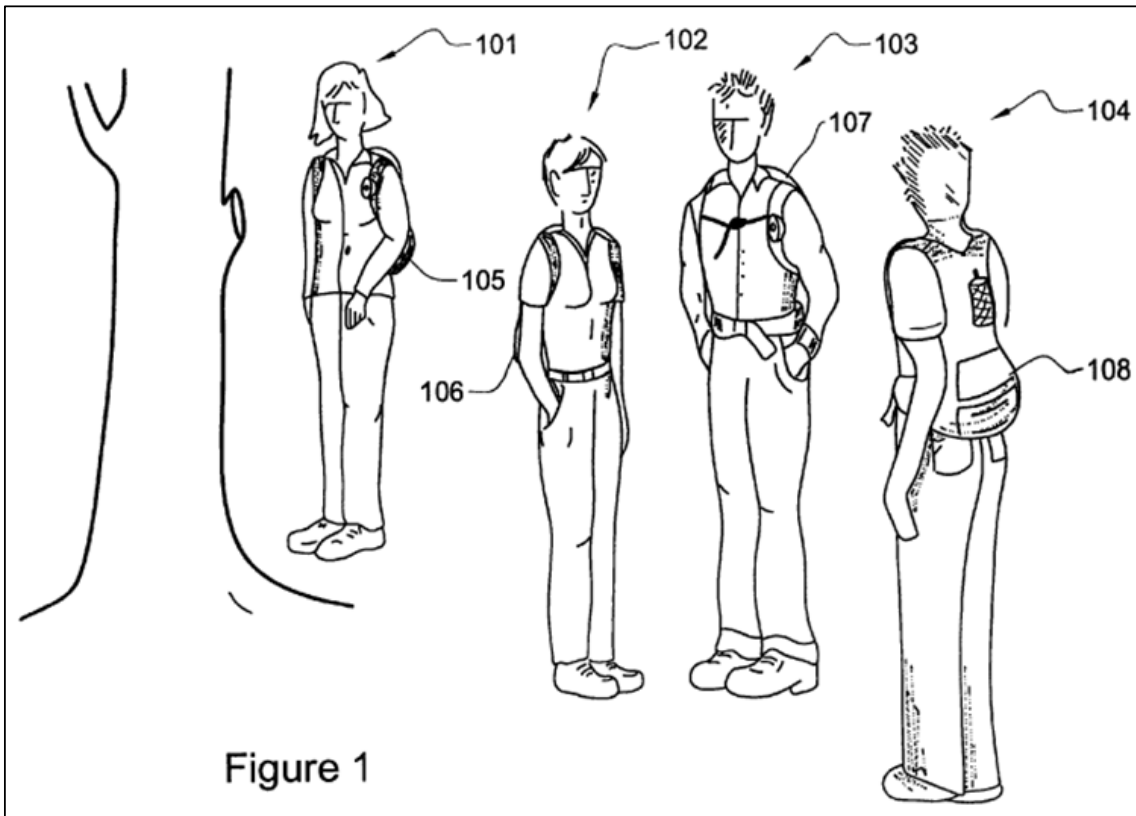
A. Strub

75. I understand that U.S Patent No. 6,825,875 to Strub et al (“Strub”), entitled “Hybrid Recording Unit Including Portable Video Recorder and Auxillary [sic] Device,” was filed on April 21, 2000 and issued on November 30, 2004 and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (e).

76. Strub discloses a system comprising a plurality of wearable, audio/video recording units, each storing locally generated audio and video and wirelessly transmitting that same audio and video to one or more of the other wearable devices. *See, e.g.*, Ex. 1003, 4:28-30 (“a small, lightweight, wearable recording unit”), 8:7-19, 8:50-53 (recording units “adapted to obtain audio data representing an aural record of the event....[S]uch visual and/or audio data is sometimes referred to as ‘recording data.’”), 12:13–21, 12:31–39 (“The transmitter 309 transmits signals (‘recording data signals’) representing recording data acquired by the recording unit 300, so that such recording data can be used by other recording units...”), 14:59-15:11 (wearable), 21:65-22:7 (audio data acquisition), 35:54–65,

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 37:11–40, Figs. 1, 4, 6, 8A-9B. Further, “each recording unit stores data representing the recording(s) obtained by another recording unit[.]....”). *Id.* 37:11–40. Thus, from the perspective of a person wearing one of Strub’s recording units, that unit is a local audio device and the recording units worn by other people are remote devices which receive audio data from the local device and create their own recordings of that audio data. Strub’s system also includes mechanisms for embedding timecode data into the audio recordings, facilitating precise synchronization with other media. It also discloses remote adjustments of the local recording parameters.

77. Examples of Strub’s audio/video recording units 105, 106, 107, 108 are depicted in Fig. 1:



See also *id.* 8:7-14, 67:30-53, Figs. 4, 6, 8A-9B.

78. Each of Strub's audio/video recording units includes a system controller having an internal clock which generates local timecodes used to time-stamp the audio data. See, *e.g.*, *id.* 13:50-58 (“[T]he system controller can include a clock that is used to time-stamp the recording data obtained by the recording unit.”), 63:50-60, 79:54-80:9. Strub also discloses a master timecode generator—*e.g.*, a GPS satellite or SMPTE timecode source. *Id.* 62:26-63:50 (receiving “current time that can be used as a clock to generate time-stamps” from a GPS or satellite services), 75:25-57 (“SMPTE time code input”); see also *id.* 63:50-60.

79. Strub was not considered in the prosecution of the '443 Patent or the '902 Patent. Strub is listed in the "References Cited" in the '207 Patent and appears in an IDS initialed by the examiner, Ex. 1022 at 1, but does not appear in any office action. There is no indication that the examiner substantively considered Strub. However, Strub was before the PTAB in the Lectrosonics IPRs, in which the Board found claims similar to the Challenged Claims unpatentable over Strub alone and over the combination of Strub with Woo, Nagai, and/or Gleissner. *Supra* § VIII.D.

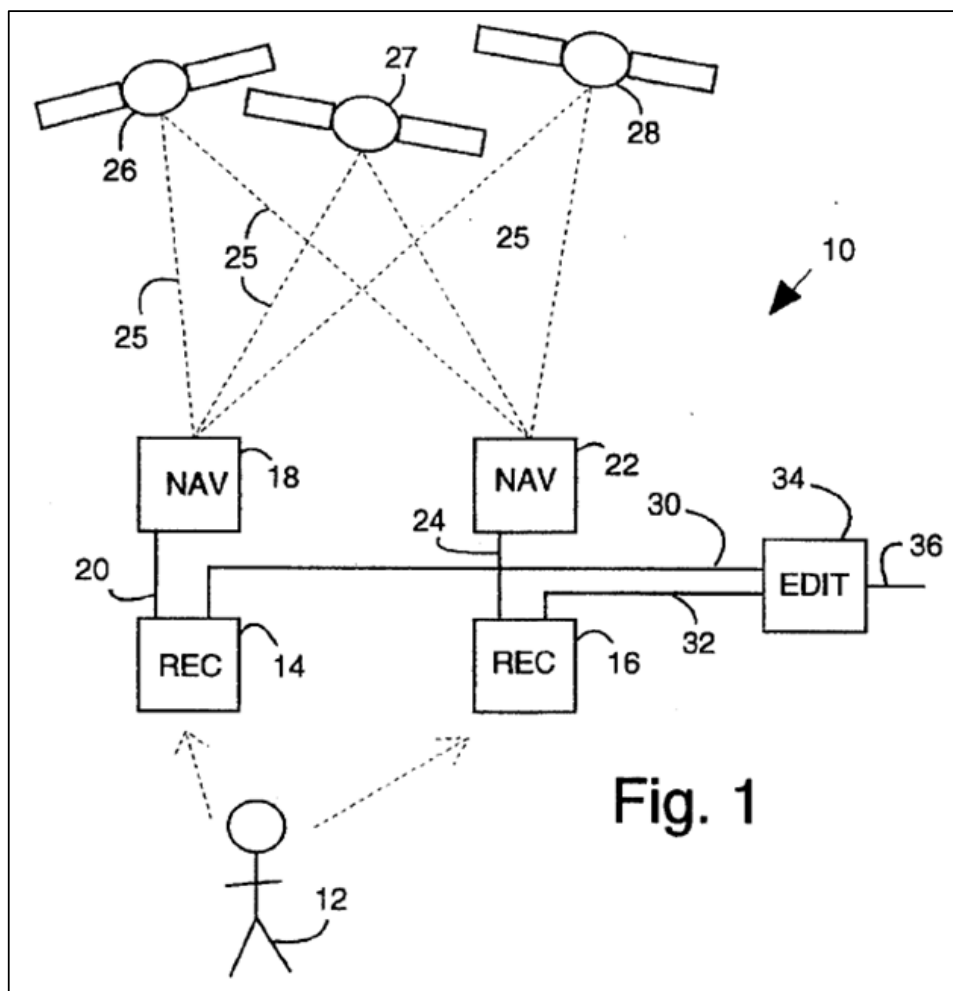
B. Woo

80. I understand that US Patent No. 5,479,351 to Woo et al ("Woo"), entitled "Time-Keeping System and Method for Synchronizing Independent Recordings of a Live Performance in Post-Recording Editing," was filed on December 23, 1994 and issued on December 26, 1995, and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

81. Woo discloses a system in which one or more local audio devices—recorders 14 and 16—record locally generated audio and transmit the same locally generated audio to a remote device—editing station 34—which creates its own recording of the audio. *See* Ex. 1004, 5:3-5 ("The system 10 is used to record the live performance of a performer 12, e.g., a singer or actor. A recorder 14 captures the performance from its vantage point while another recorder 16 independently captures the same performance from its own vantage point."), 5:37-49 ("The

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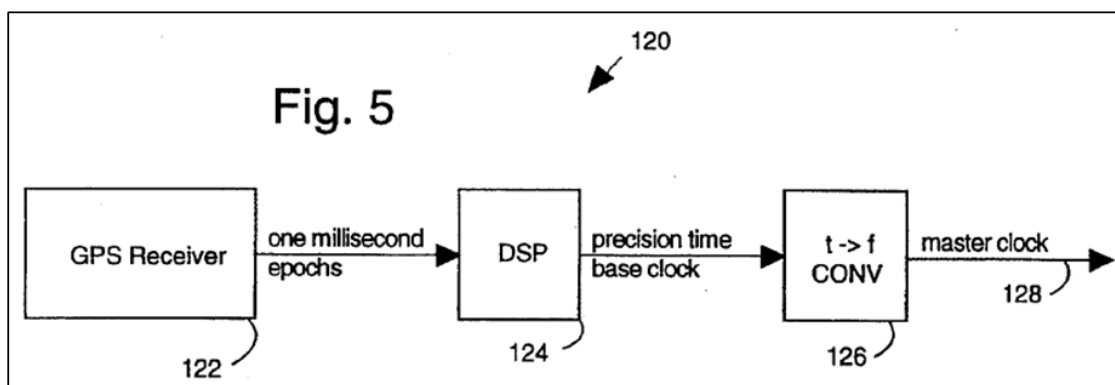
connections 30 and 32 represent the communication of the respective recordings by wire, radio link and/or tape or film delivery to the editing station 34, e.g., a telecine suite or an audio layback [sic:playback] suite.”), 8:32-44, 9:40-43, 9:56-62, Figs. 1, 4. Fig. 1 depicts Woo’s system on block-diagram form, including recorders 14 and 16 and editing station 34:



82. Woo provides examples in which the local storage of the audio and the transmission of the audio to the remote editing station 34 are done substantially

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 simultaneously. *Id.* 8:51-54 (“In step 114, the combining and generating may be done in real-time with the performance such that the third recording is delayed from the performance by an insubstantial amount of time.”), 10:7-10 (“the combining and generating are done in real-time with said common event such that said third recording is delayed from said common event by an insubstantial amount of time.”).

83. Each of Woo’s local audio devices includes a local timecode generator which is jam-synchronized to a master timecode generator using GPS-based master timecodes. *Id.* Abstract (“A GPS receiver comprises a data output port for communicating time code information....Such time code information is input to independent sound, film and video recorders....”), 3:37-67 (describing soft and hard jam-syncing of a local timecode generator to a master timecode generator), 7:26-50, (using GPS-based time code generator as a master clock), 8:60-9:4 (“synchronizing film and video equipment”), Figs. 1, 3, 5, 6. Fig. 5 provides an exemplary depiction of how Woo’s system uses GPS signals to provide master timecodes—master clock output 128—for synchronizing the local timecode generator in each local audio device:



84. The local timecode generator generates SMPTE timecodes which are used to time-stamp—*e.g.*, date and time tag—the local audio data. *Id.* Abstract (“[SMPTE-formatted] time code information is input to independent sound, film and video recorders...to create tracks on each recording for re-synchronizing the pictures and sounds in post-performance editing”), 1:60-2:9, 2:39-48, 3:3-24, 4:3-32 (“generating coordinated time codes at independent sites proximate to respective recorders.”), 4:62-64 (describing “a time-keeping system for synchronizing sound and picture recordings from a plurality of independent recording devices”), 5:37-45 (“The recorders 14 and 16 each transmit their respective recordings over a pair of connections 30 and 32 to an editing station 34. Each recording delivered to the editing station 34 has been date and time tagged, using date and time information received by the recorders 14 and 16 over connections 20 and 24.”).

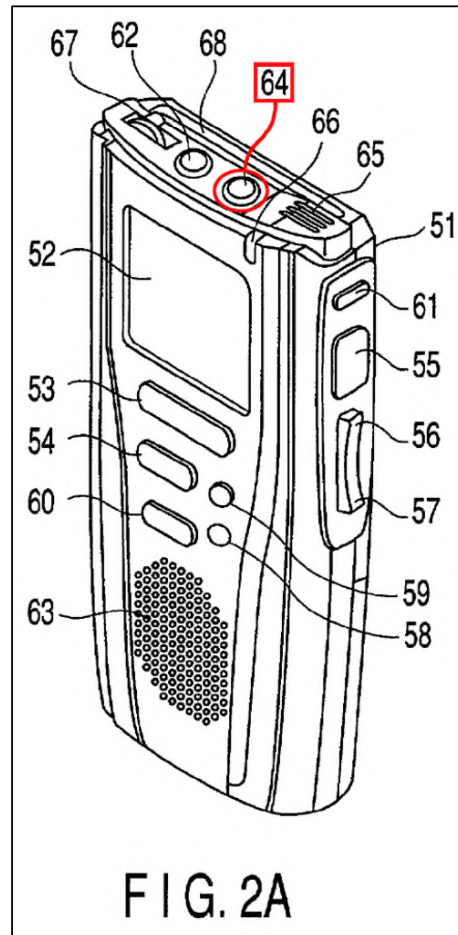
85. Woo was not considered in the prosecution of the ’443 Patent or the ’902 Patent. Woo is listed in the “References Cited” in the ’207 Patent and appears in an IDS initialed by the examiner, Ex. 1022 at 1, but does not appear in any office

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 action. There is no indication that the examiner substantively considered Woo. However, Woo was before the PTAB in the Lectrosonics IPRs, in which the Board found claims similar to the Challenged Claims unpatentable over the combination of Strub, Woo, Nagai, and/or Gleissner. *Supra* § VIII.D.

C. Nagai

86. I understand that US Patent Publication No. 2002/0159179 to Nagai et al (“Nagai”), entitled “Data Recording and Reproducing Apparatus and Data Reproducing Apparatus,” was filed on March 14, 2002 and published on October 31, 2002, and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

87. Nagai describes a voice recording and reproducing apparatus with a memory card 117 for storing voice data. Ex. 1005, Abstract, [0105]-[0106], [0115], Figs. 1, 4. Nagai’s voice recorder has an audio input port—“mike jack” (i.e., microphone jack) 2 or 64—configured to couple to an audio input device—*e.g.*, an external microphone—to receive locally generated voice signals. *Id.*, [0100], [0109]-[0110], [0139], Fig. 1, 2A. An example of Nagai’s audio input port—“mike” (i.e., microphone) jack 64—is illustrated in Fig. 2A (annotated below):



88. Nagai's voice recorder also has a gain adjustment circuit—volume-control wheel 67 and accompanying circuitry 25—which controls the "reproduction level" of sound coming from the headphone or speaker, and also sets the "attenuation value" for recording:

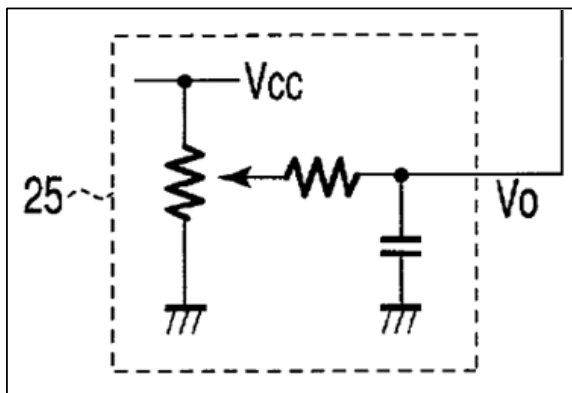


Fig. 1 (excerpted)

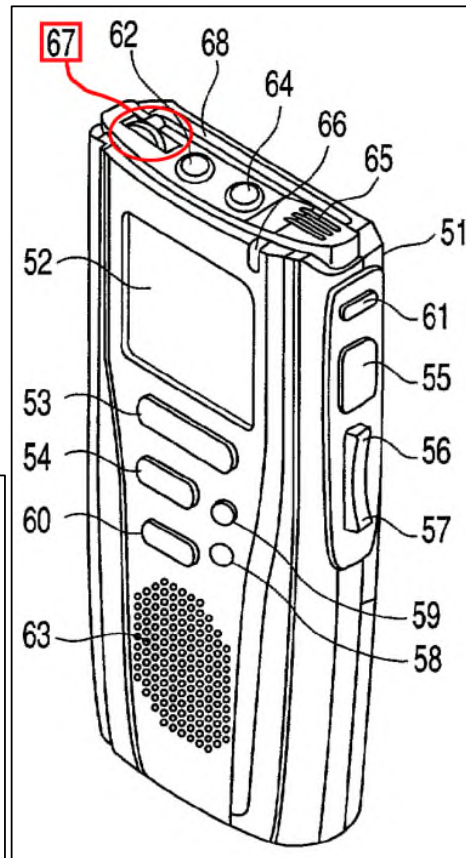


Fig. 2A (annotated)

See also *id.* [0033]-[0036] (“reproduction level control means”), [0141]-[0143], [0261]-[0274] (using wheel 67 and control circuit 25 to set “attenuation value”), [0278]-[0279], [0285], [0321] (reproduction level “used in both the recorder and player modes”), Claims 11-15, Figs. 3, 21.

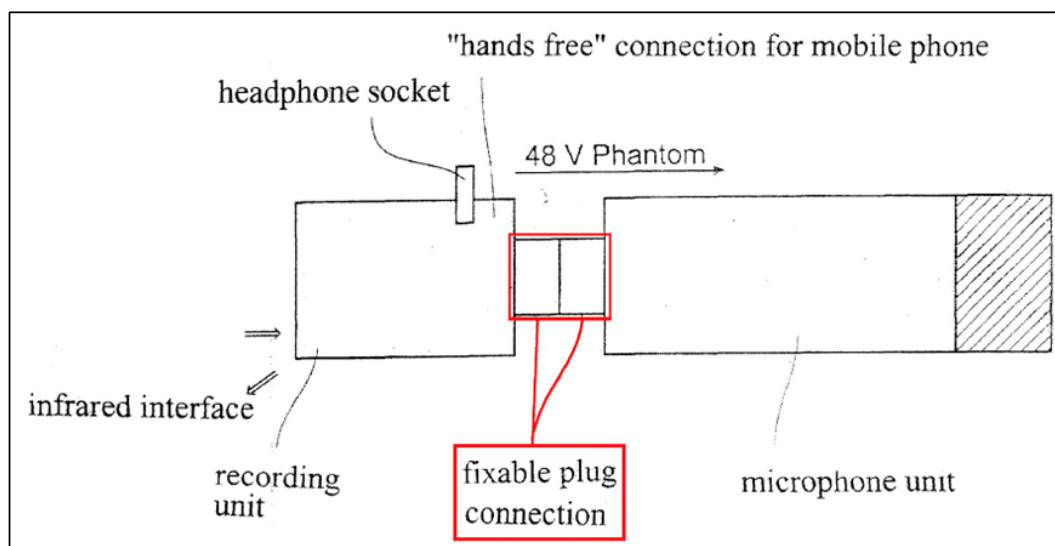
89. Nagai was not considered in the prosecution of the ’443 Patent or the ’902 Patent. Nagai is listed in the “References Cited” in the ’207 Patent and appears in an IDS initialed by the examiner, Ex. 1022 at 2, but does not appear in any office action. There is no indication that the examiner substantively considered Nagai.

90. However, Nagai was before the PTAB in the Lectrosonics IPRs, in which the Board found claims similar to the Challenged Claims unpatentable over the combination of Strub with Nagai or Gleissner and over the combination of Strub with Woo and Nagai or Gleissner. *Supra* § VIII.D.

D. Gleissner

91. I understand that US Patent Publication No. 2004/0028241 to Gleissner (“Gleissner”), entitled “Audio Data Recorder,” was filed on July 25, 2003 and published on February 12, 2004, and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

92. Gleissner discloses a portable audio data recorder which stores locally generated audio in a data memory. Ex. 1006, Abstract, [0025], [0031]. Gleissner’s audio data recorder has an audio input port—an XLR plug connector—configured to couple to an audio input device—a microphone—to receive locally generated audio. *Id.* [0013] (“A XLR plug connection is preferably formed between the recording unit and the microphone unit. This has the advantage that the recording unit can be coupled together with practically any desired microphones....”), [0024], [0032]. Gleissner’s audio input port—the XLR plug connector—is depicted in Fig. 1:



Id. Fig. 1 (annotated).

93. Gleissner was not considered in the prosecution of the '443 Patent or the '902 Patent. Gleissner is listed in the "References Cited" in the '207 Patent and appears in an IDS initialed by the examiner, Ex. 1022 at 2, but does not appear in any office action. There is no indication that the examiner substantively considered Gleissner.

94. However, Gleissner was before the PTAB in the Lectrosonics IPRs, in which the Board found claims similar to the Challenged Claims unpatentable over the combination of Strub with Nagai or Gleissner and over the combination of Strub with Woo and Nagai or Gleissner. *Supra* § VIII.D.

E. Winningstad

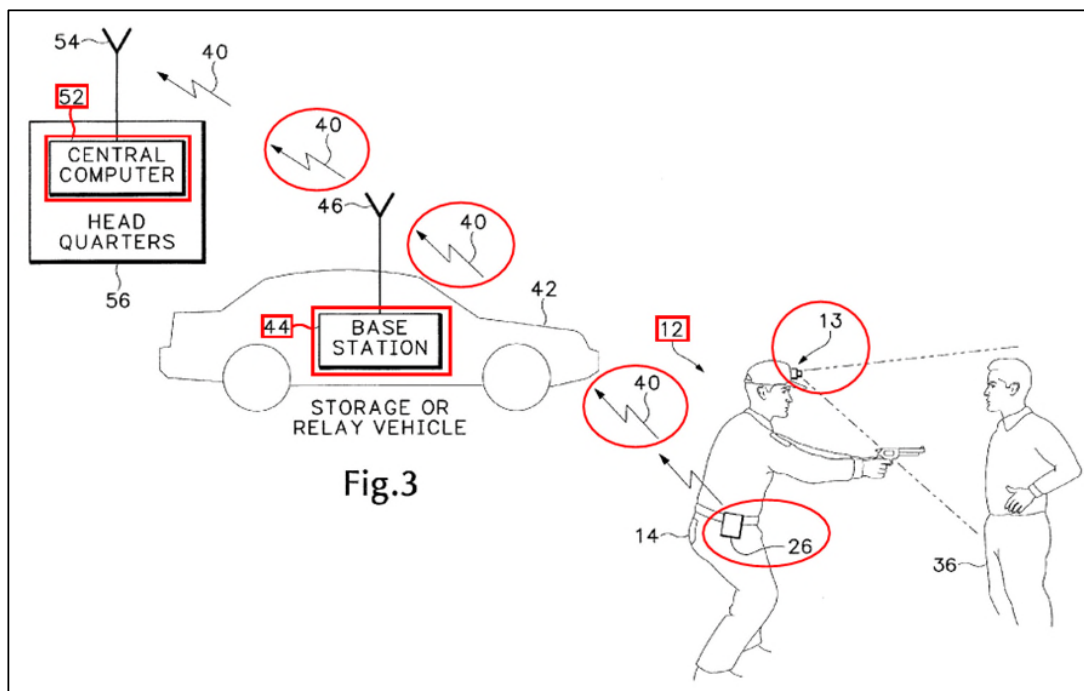
95. I understand that US Patent No. 7,483,485 to Winningstad et al. ("Winningstad"), entitled "Wireless Event Authentication System," was filed on

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April 20, 2005 and issued on January 27, 2009, and is prior art under at least pre-
AIA 35 U.S.C. § 102(e).

96. Winningstad discloses a wearable audio device for storing locally generated audio and video and transmitting the locally generated audio/video to a remote receiver/recorder. Ex. 1008, Abstract (“A wireless data acquisition and recording (DAR) system includes acquisition circuitry including a video camera and/or a microphone carried by an operator for capturing video and audio events viewed and/or heard by the operator. A wireless transmitter wirelessly transmits digital signals containing the video events captured by the video camera and the audio events detected by the microphone.”). The audio is received and recorded in a data acquisition and recording (“DAR”) system 12 comprising a hat-mounted device 13 and a data display and report submission (“DD”) device 26 which is worn on the user’s body—*e.g.*, in a pocket or on a belt. *Id.* 2:44-48, 3:4-6 (“Images and audio signals wirelessly received by DD device 26 are digitally stored into a memory device, such as a Flash memory.”), 4:25-28 (“The DD device 26 can be worn in a shirt pocket 28 or in a pant pocket of operator 14, but can also be worn in any other convenient place on the operator 14 such as in a vest or other carrying device.”), 5:65-67 (“Optionally, block 80 [of hat-mounted device 13] can include memory to record the video and audio, if it is desired to have redundant storage of the data.”),

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6:58-65 (“memory storage device 90” used to record audio/video events), Figs. 1-
5. The user can be, *e.g.*, a police officer or security guard. *Id.* 3:65-66.

97. Winningstad’s local device wirelessly transmits the audio to a remote device—*e.g.*, a base station 44 in the officer’s car, or a central computer 52 at headquarters—to be recorded remotely. *Id.* 4:63-5:4 (“[T]he video and/or audio data captured by the acquisition circuitry 13 and stored in the DD device 26 may be wirelessly relayed to a base station or relay station 44 that in this example is located in an operator vehicle 42.”), 5:21-25 (“The central computer 52 operating at headquarters location 56 is equipped with a receiver and transmitter that receive the relayed video and audio signals 40 from base station 44 or receive video and audio signals 40 directly from the DD device 26.”), Fig. 3-5 (emphasis added). The transmission of audio and video signals 40 from the local device—*e.g.*, DAR system 12, which comprises hat-mounted device 13 and/or DD device 26—to a remote device—base station 44 and/or headquarters central computer 52—in Winningstad’s system is illustrated in Fig. 3 (annotated below):



98. Base station 44 and central computer 52 both remotely record the local audio data. 5:9-14 (“[B]ase station 44...automatically save[s] all of the audio and video information obtained by DAR system 12.”), 5:36-38 (“The information 40 received by central computer 52 may then be stored and indexed according to this associated identifier.”), Fig. 3 (illustrating base station within “STORAGE OR RELAY VEHICLE”).

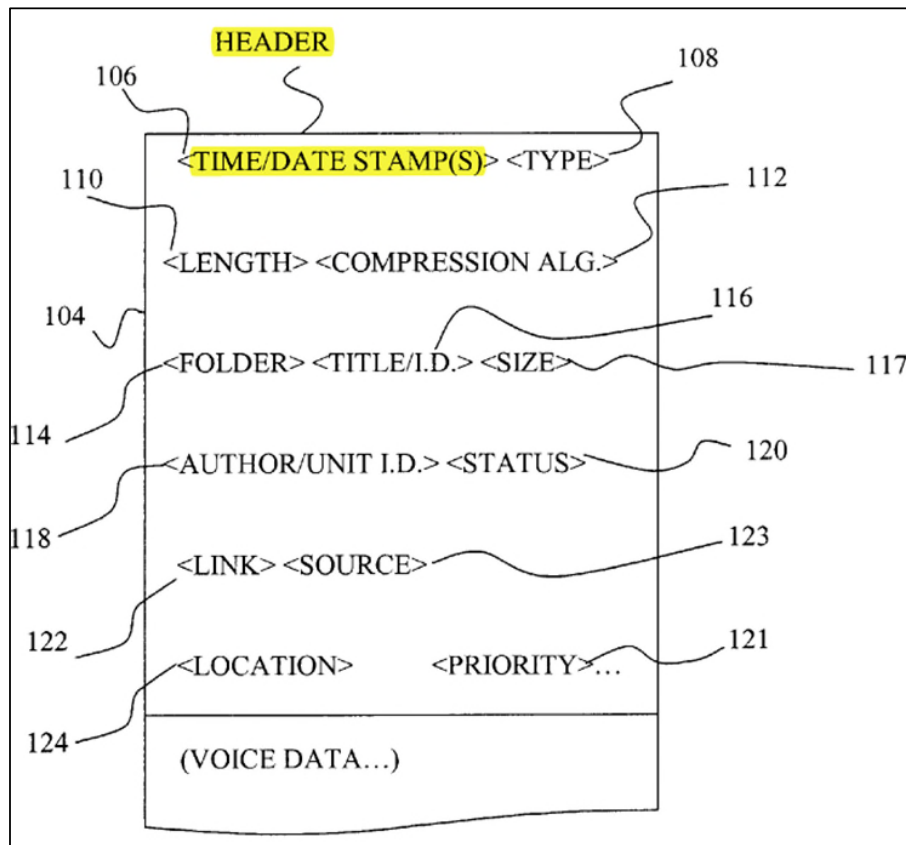
99. Winningstad’s local/wearable device has a GPS receiver 89 which receives timecodes wirelessly from a master timecode generator—a GPS satellite—and uses the timecodes to time-stamp the stored local audio data. *Id.* 6:41-43 (“Date and time encoding operation 88 includes a clock that supplies the computer 94 with a date/time stamp that can be attached to the data received from the acquisition

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 (circuitry 13.”), 8:9-12; 8:17-22 (A GPS receiver 89 in DD device 26 “periodically updates the data and time encoder 88....The GPS date, time, and/or location information can then be inserted into the audio data for authentication of the captured images.”), 8:31-35 (“The date and time stamp generated by encoder 88 may be attached on to the media file 110 by the DD device 26.”), Figs. 5, 6.

100. Winningstad was not considered in the prosecution of the ’443 Patent, the ’902 Patent, or the ’207 Patent, or in the Lectrosonics IPRs.

F. Dwyer

101. Dwyer is prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e). It discloses a portable digital audio recorder 12 having a memory 64 in which a digital audio (voice) file is stored. Ex. 1009, Title, Abstract, 1:11-13, 1:35-44, 4:51-55, Fig. 3. The audio file has a header 104 which includes, *e.g.*, “one or more time and date stamps 106 (corresponding to a time or times at which the voice file was originally recorded...).” *Id.* 6:33-38. The header 104 is depicted in Fig. 5:



Id. Fig. 5 (annotated); *see also id.* 1:45-57, 2:20-40.

102. Dwyer was not considered in the prosecution of the '443 Patent or the '902 Patent. Dwyer is listed in the "References Cited" in the '207 Patent and appears in an IDS initialed by the examiner, Ex. 1022 at 1, but does not appear in any office action. There is no indication that the examiner substantively considered Dwyer. However, Dwyer was before the PTAB in one of the Lectrosonics IPRs—specifically the '1130 IPR, in which the Board found Claim 45 of the '814 Patent unpatentable over the combination of Strub, Woo, Dwyer, and Nagai or Gleissner. Ex. 1018 at 33, 63. '814 Claim 45, like Challenged Claim 22, refers to storing

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 timestamped local audio data as an audio file in the memory of a local audio device, and including the timestamp information in the file's header information. Ex. 1028 Claims 1, 45.

G. Jones

103. Jones is prior art under at least pre-AIA 35 U.S.C. § 102(e). It teaches multiple examples of a multi-memory unit—*e.g.*, flash reader 42, flash reader within computer 20, and “FlashToaster” 80—each including at least one memory unit interface—*e.g.*, connectors 62, 64, 66, 68—for connection to at least a portion of a memory—*e.g.*, memory cards 16, 18, 24, and 28. Ex. 1010 9:56-10:3 (describing “multi-slot embodiment of the flash-card reader [42]”), 10:4-29 (“Each of the four connectors 62, 64, 66, 68 route their signals to the IDE converter chip 40. The IDE converter chip 40 detects when a flash memory card has been inserted into one of the connectors 62, 64, 66, 68 and configures itself to read files from the inserted card using the pin interface ... corresponding to the card type.”) (“Having separate connectors 62, 64, 66, 68 with separate slots in flash reader 42 allows for card-to-card transfers.”), 10:30-12:25 (describing embodiments of multi-memory units 42, 20, and 80 depicted in Figs 6B-9), Figs. 6A-9.

104. Jones was not considered in the prosecution of the '443 Patent, the '902 Patent, or the '207 Patent, or in the Lectrosonics IPRs.

XI. SPECIFIC GROUNDS FOR INVALIDITY

A. '207 Patent Ground 1, '902 Patent Ground 1, '443 Patent Ground 1: Claims 17-19, 21-23, 33, 34, 59, 60, and 66 of the '207 Patent; Claims 1-3, 6, 13, and 16 of the '902 Patent; and Claims 1-3, 7, 8, 15, 17, 19, 20, 23-27 of the '443 Patent are Rendered Obvious Under § 103 By the Combination of Strub, Woo, Nagai, and Gleissner

1. A POSA Would have Been Motivated to Combine Strub, Woo, Nagai, and Gleissner

105. In the Lectrosonics IPRs, the PTAB found that a POSA would have motivated to combine Strub, Woo, Nagai, and Gleissner, and that the combination(s) would have been obvious. *See Supra* VIII.D.

106. Moreover, the teachings of Strub, Woo, Nagai, and Gleissner provide substantial motivation to combine them. For example, the systems described in Strub and Woo are the same type of apparatus used for the same purpose. Each discloses a system for receiving and recording local audio in a local device, wirelessly transmitting the same audio to a remote device, and recording the audio in the remote device. *See, e.g.*, Ex. 1003, 8:50-53, 12:13–21, 12:31–39, 21:65-22:7, 35:54–65, 37:11–40, Figs. 1, 4, 6, 8A-9B; Ex. 1004, 5:3-5, 5:37-49, Fig. 1. In addition, each of the local audio devices of Strub and Woo wirelessly receives master timecodes from a master timecode generator and uses the timing information from the master timecodes to stamp the local audio. *See, e.g.*, Ex. 1003, 13:50-58, 63:50-

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60, 79:54-80:9; Ex. 1004, Abstract, 1:60-2:9, 2:39-48, 3:3-24, 3:37-67, 4:3-32, 4:62-
64, 5:37-45, 7:26-50, 8:32-44, 8:60-9:4, 9:40-43, 9:56-62, Figs. 3-6.

107. Indeed, Woo itself provides express motivations to use its synchronization methods in a wireless, multi-recorder system such as Strub's. For example, Woo's master clock (1) provides accurate synchronization across recorders recording a performance, (2) can generate coordinated timecodes at independent sites proximate to recorders, (3) is simple to connect to the recorders, and (4) provides timecode output in a format that is compatible with a standard (SMPTE) used by commercially available equipment. Ex. 1004, 4:3-44; *see also* Ex. ['1129 FWD] at 29. In addition, 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 involve nothing more than combining familiar elements according to known methods to improve Strub's system and yield predictable results.

108. Nagai and Gleissner teach audio recording systems, each having an audio input port—a “mike jack” or XLR plug connector—configured to couple to an audio input device for receiving locally generated audio. Ex. 1005, [0100], [0109]-[0110], [0139], Fig. 1, 2A; Ex. 1006, [0013], [0024], [0032], Fig. 1. Audio plugs and jacks such as those referenced in Nagai have existed for more than 130 years and have not changed substantially since the 19th century. *See, e.g.*, Ex. 1023

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 ; Ex. 1024. XLR connectors such as those referenced in Gleissner were so common as of the priority date of the Challenged Patents that they already had been standardized. Ex. 1025 at 1 (standard date March 2004), *passim* (copyright year 2004). A POSA would have considered it obvious to use those well-known standard connectors in Strub’s local audio device because of their popularity, especially since Strub teaches the use of specific brands of commercially available microphone—*e.g.*, a Sanken CSS-5—which were configured to be plugged into an input port. Ex. 1003, 25:35-49. The Sanken CSS-5, for example, plugged into a standard XLR jack as described in Gleissner. Ex. 1026 at 6, 14 (“IN/OUT” connection for CSS-5 is XLR-5), *passim* (showing numerous other XLR-connected microphones); Ex. 1027 at 7 (“IN/OUT” connection for CSS-5 is XLR-5), *passim* (numerous other XLR-connected microphones).

109. Strub and Nagai both disclose gain adjustment circuits, Nagai’s being controlled by a conventional thumbwheel. *See infra* Claim 33. A POSA would have been motivated to use Nagai’s gain adjustment circuit in Strub’s audio device, because (1) Strub’s teaching of gain control conveys the benefit of gain-control generally, and (2) volume-control circuits using thumbwheels such as disclosed in Nagai, and their benefits, including simplicity and reliability, were extremely well known long before the priority date of the ’207 Patent.

110. Moreover, I have been informed that any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed, and that motivation to combine is particularly strong where there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions. I understand that this is especially true where the cited references teach (1) all the limitations of the challenged claims, and (2) the same known problem addressed by the challenged patent.

111. The '207 Patent, '902 Patent, and '443 Patent sought to solve the problem of matching the timing between multiple recordings produced by one or more wireless devices. See '207 Patent, 1:45-2:11; '902 Patent, 1:26-58; '443 Patent, 1:15-47. Each challenged patent purports to have solved that problem by generating master timecodes with a master timecode generator, providing those timecodes to a local recording device, and using the timing information in those timecodes to time-stamp the locally recorded audio data. '207 Patent, 3:16-19, 4:3-26, 4:52-5:10, 6:2-8, 10:56-11:4, 11:29-35, 14:52-60, 15:32-36, 16:44-47, 17:9-22, Figs. 3A, 4A, 4B, 5, 6; '902 Patent, 3:53-56, 4:12-36, 4:62-5:19, 6:11-16, 10:17-32, 10:56-62, 14:9-17, 14:55-59, 15:65-16:1, 16:30-46, Figs. 3A, 4A, 4B, 5, 6; '443 Patent, 2:58-61, 3:28-41, 4:13-37, 8:57-9:12, 10:46-50, 12:56-64, 13:28-32, 14:39-42, 15:4-11, 21:51-22:12, Figs. 4A, 4B, 5, 6. Strub and Woo recognized and solved

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 that same problem in the same way. See Ex. 1003, 13:50-58 (local audio device includes “clock that is used to time-stamp the recording data obtained by the recording unit.”), 62:26-63:50 (receiving “current time that can be used as a clock to generate time-stamps” from a GPS or satellite service), 63:50-60, 75:25-57 (“SMPTE time code input...to enable synchronization with an external device”), 79:54-80:9; Ex. 1004, Abstract (“A GPS receiver comprises a data output port for communicating time code information....Such time code information is input to independent sound, film and video recorders....”), 1:60-2:9, 2:39-48, 3:3-24, 3:37-67 (synchronizing local timecode generator to a master timecode generator), 4:13-19 (“GPS navigation receiver with a data output port for communicating time codes in SMPTE format...to form a time-keeping base for the time code output.”), 5:5-10 (satellite receivers “provide[] highly-accurate date and time information to the recorder 14”), 5:21-29, 5:37-45 (recordings are “date and time tagged, using date and time information received by the recorders 14 and 16 over connections 20 and 24.”), 7:26-50, (using GPS-based time code generator as a master clock), 8:60-9:4 (“synchronizing film and video equipment”), 9:33-39, 9:45-55, 10:15-11:1, Figs. 1, 3-6.

112. In addition, every element of the above-referenced claims appears in Strub, Woo, Nagai, and Gleissner. See *infra* § XI.A.2. Those elements are standard method steps using well-known, off-the-shelf audio-recording and radio components

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 that would be familiar to any POSA. There is nothing unpredictable about the claimed use of those components in a wireless audio-recording system. Furthermore, the technology and operation of such components was well-understood in the relevant time period such that the combination of Strub, Woo, Nagai, and Gleissner would have had a high likelihood of success.

113. Thus, since Strub and Woo teach the same kind of device used for the same purpose, since Strub and Woo identified the same problem identified in the '207 Patent and solved it in the same way, since the microphone jacks and plugs of Nagai and Gleissner were old elements performing the same function they had always been known to perform, since audio input ports in general have been known for over a century, since the combination of elements in the Challenged Claims is nothing more than "the predictable use of prior art elements according to their established functions," and since the combination of Strub, Woo, Nagai, and Gleissner would have had a high likelihood of success, a POSA would have been motivated to combine Strub, Woo, Nagai, and Gleissner.

2. The Combination of Strub, Woo, Nagai, and Gleissner Meets All Elements of The Challenged Claims

114. As discussed below, the Preambles and every element of Claims 17-19, 21-23, 33, 34, 59, 60, and 66 of the '207 Patent, Claims 1-3, 6, 13, and 16 of the '902 Patent, and Claims 1-3, 7, 8, 15, 17, 19, 20, 23-27 of the '443 Patent are taught by Strub, Woo, Nagai, and/or Gleissner. To the extent Patent Owner alleges that

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any of Strub, Woo, Nagai, and Gleissner fails to teach any claim element, that element is provided by the other references. Further, to the extent the teachings of any of Strub, Woo, Nagai, and/or Gleissner are substantively different for any given claim element, it would have been at least obvious to try the other references' implementation of that element, given the overall similarity in their purpose, design and operation.

a. **'207 Patent, Claim 17 generally**

115. Challenged Claim 17 has essentially the same limitations as Claim 37 of the '814 Patent, which was found unpatentable in the Lectrosonics '1130 IPR and subsequently canceled, except that Claim 17 has the additional feature of wirelessly transmitting the local audio data to a remote receiver or recorder. See Ex. 1001, Claim 17; Ex. 1028 Claims 1, 37, IPR Certificate at 1:6-7. That feature is present in Claim 13 of the '307 Patent, which was found unpatentable in the Lectrosonics '972 IPR and subsequently canceled. Ex. 1015 Claims 12, 13, IPR Certificate at 1:5.

b. **'443 Patent, Claim 1 generally**

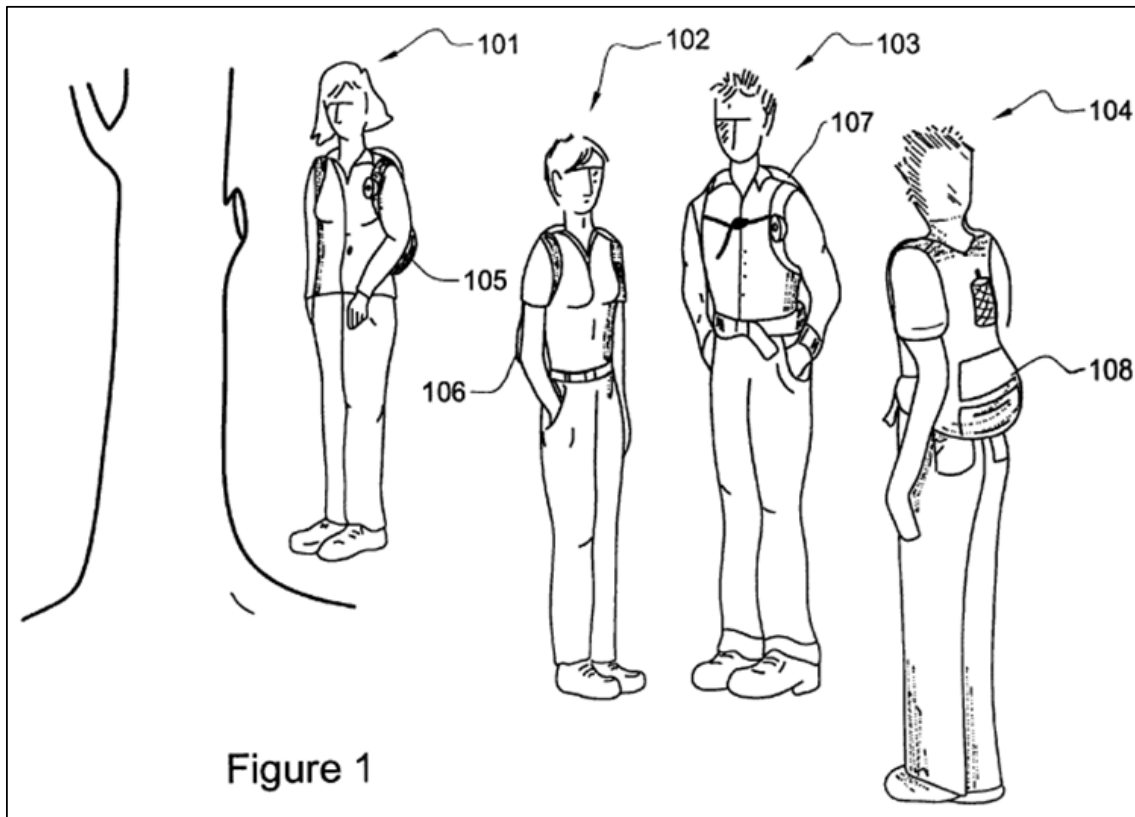
116. Challenged Claim 1 has mostly the same limitations as Claim 1 of the '814 Patent, which was found unpatentable in the Lectrosonics '1130 IPR and subsequently canceled, except that: Challenged Claim 1 also refers to (1) wirelessly transmitting the local audio data, (2) timestamps referencing local data to at least one of master timecodes (as opposed to local timecodes as recited in '814 Claim 1),

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 and (3) unstamped local audio data; and canceled Claim 1 of the '814 Patent has a local timecode generator. See Ex. 1001, Claim 1; Ex. 1028 Claim 1, IPR Certificate at 1:6-7. The feature of wirelessly transmitting the local audio data is present in Claim 13 of the '307 Patent, which was found unpatentable in the Lectrosonics '972 IPR and subsequently canceled. Ex. 1015 Claims 12, 13, IPR Certificate at 1:5.

- c. **'207 Patent Element 17[Pre]: "At least one audio device wearable by a user for storing locally generated audio and transmitting the locally generated audio to a remote device, the remote device including at least one of a receiver, a recorder, a mixer, and combination thereof" / '902 Patent Element 1[Pre]: "A system for recording locally generated audio comprising:" / '902 Patent Element 1[B]: "at least one local audio device wearable by a creator of said locally generated audio including:" / '902 Patent Element 12[B]: "wirelessly transmitting said local audio to at least one of the group consisting of a recorder, a receiver, and combinations thereof;" / '443 Patent Element 1[Pre]: "A system for recording locally generated audio comprising:" / '443 Patent Element 1[B]: "at least one local audio device wearable by a creator of said locally generated audio including:"**

117. Regardless of whether the preamble of Challenged Patent Elements are limiting, they is taught by Strub. In the Lectrosonics IPRs, the Board found that Strub teaches "a local audio device that records [(i.e., stores)] local audio and transmits the local audio to other remote devices" and "that the same local audio is stored at both the wearable local audio device as local audio data and the remote receiver/recorder as remotely recorded audio data." See *supra* § VIII.D.

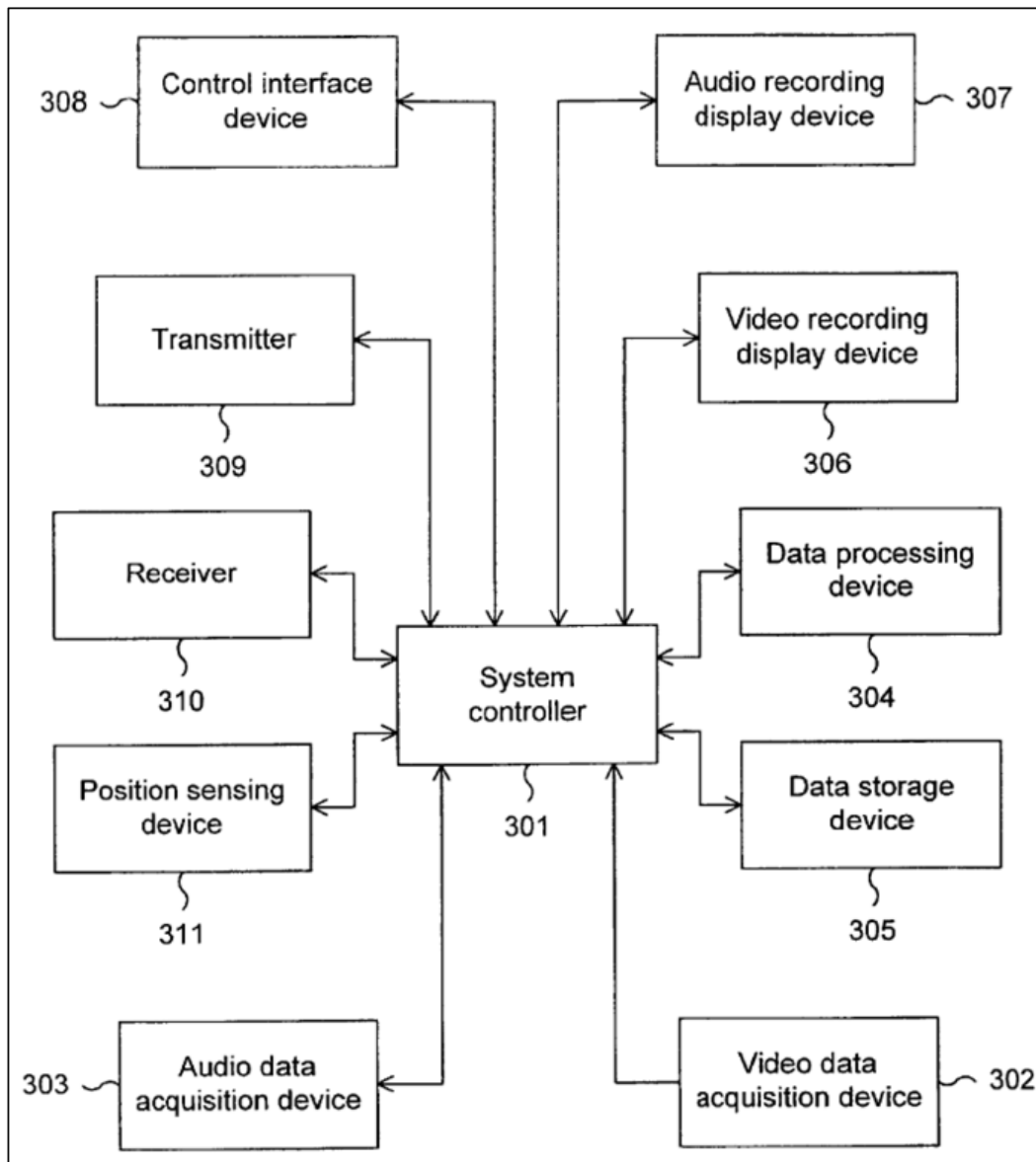
118. Specifically, Strub discloses at least one audio device—*e.g.*, one of recording units 105-108, 200, and 300, which are worn by a plurality of users as depicted in Fig. 1:



119. Each of Strub’s recording units is wearable by a user and is for storing locally generated audio and transmitting the locally generated audio to a remote device—*e.g.*, a different one of recording units 105-108, 200, and 300. *See* Ex. 1003, Abstract (“small, lightweight, wearable recording unit”), 8:10-29, 8:50-53, 11:32-50, 12:13-21, 12:31-39 (“[T]ransmitter 309 transmits signals...representing recording data acquired by the recording unit 300, so that such recording data can be used by other recording units.”), 25:35-49, 35:54-65, 37:18-40, 38:1-4, 45:43-

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45 (“the audio recording display device can also be a headset, such is commonly
used with a variety of portable audio devices.”), Figs. 1 (recording units 105-108), 2
(recording unit 200), 3 (recording unit 300 including 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); *see generally id.* 35:53-
38:39 (“Communication Between Recording Units”). A POSA would have
understood that a recording unit is an audio device.

120. The internal components of an exemplary local audio device are
depicted in Fig. 3 of Strub:



121. Each of Strub’s local audio devices is wearable by a user. *Id.* 4:21-31 (“a small, lightweight, wearable recording unit”), 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”).

122. The remote recording unit receives the transmitted audio data via a receiver (“receiver 310”) and records it. *Id.* 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 [the] recording unit to ... store, during the event, a recording being obtained”), 37:18-40 (“[R]ecording data from multiple recording units can be recorded simultaneously”), Fig. 3. A POSA would have readily understood that Strub teaches “storing locally generated audio” as is shown in Figure 3 blocks 303 (audio data acquisition) and 305 (data storage). Figure 3 also shows that Transmitter 309 is used for “transmitting the locally generated audio.” Strub also discloses an “audio data acquisition device” for acquiring narrative description. *Id.*, 10:3-6. Strub also discloses that a recording unit will include a transmitter and receiver. *Id.*, 36:4-9. He also discloses devices for “transmitting and receiving communication.” *Id.*, 40:41-43. Strub discloses an “audio mixer” *Id.*, 92:38-40.

123. These elements are also taught by Woo. Woo’s system includes at least one local audio device—*e.g.*, an arrangement comprising recorder 14, GPS receiver 18, and time code generator 43, or an arrangement comprising recorder 16, GPS receiver 22, and time code generator 43—which stores locally generated audio and transmits the locally generated audio to a remote receiver and recorder—editing station 34, as depicted in Figs. 1 and 3:

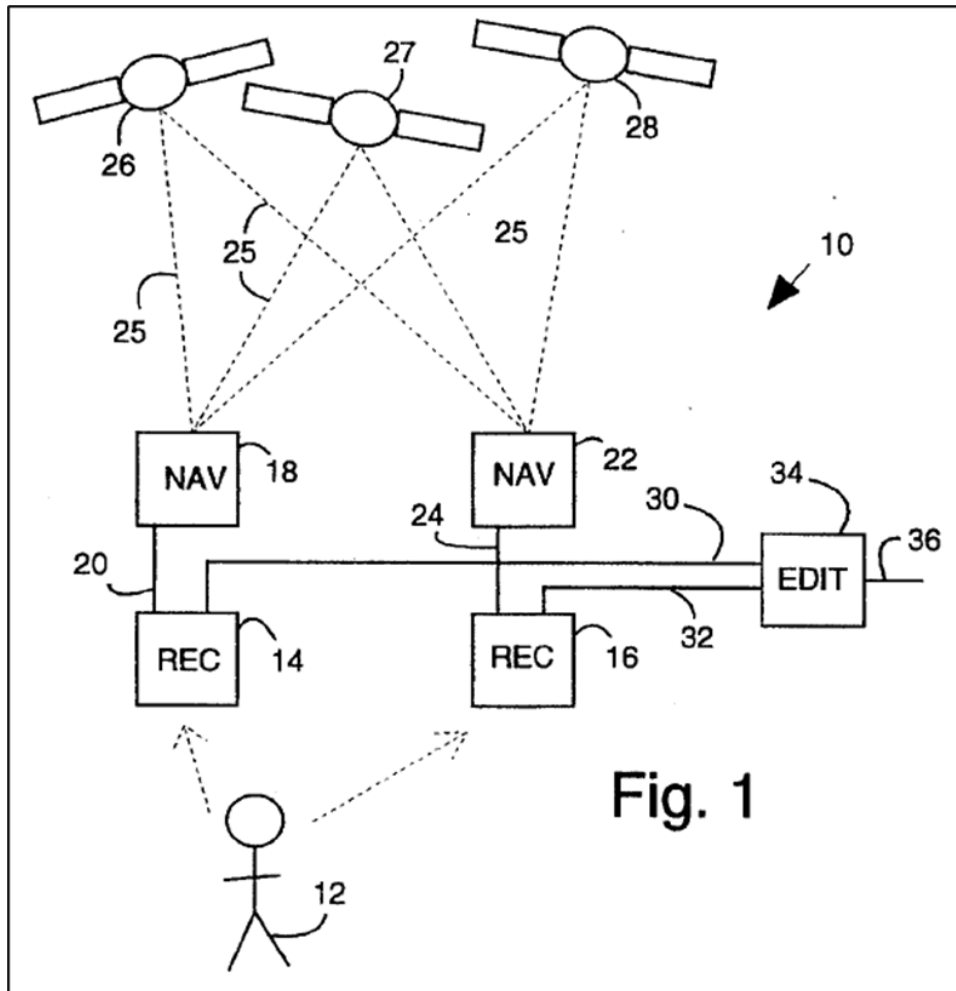
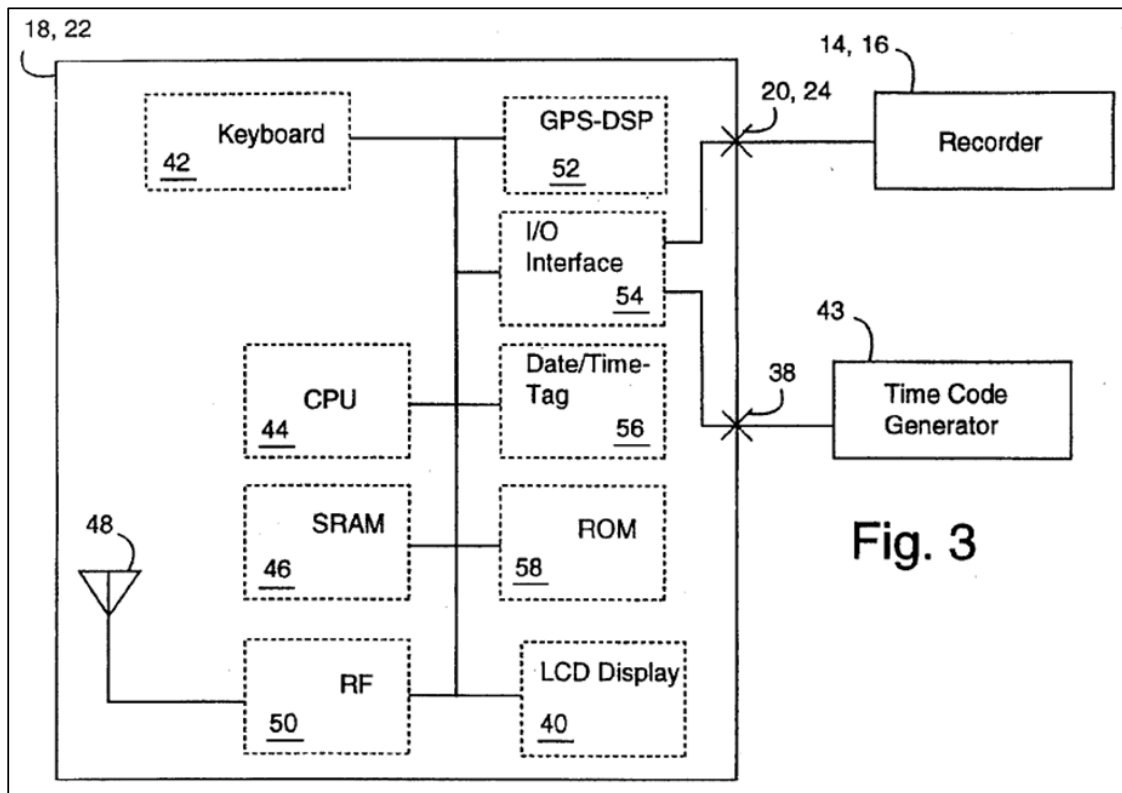


Fig. 1

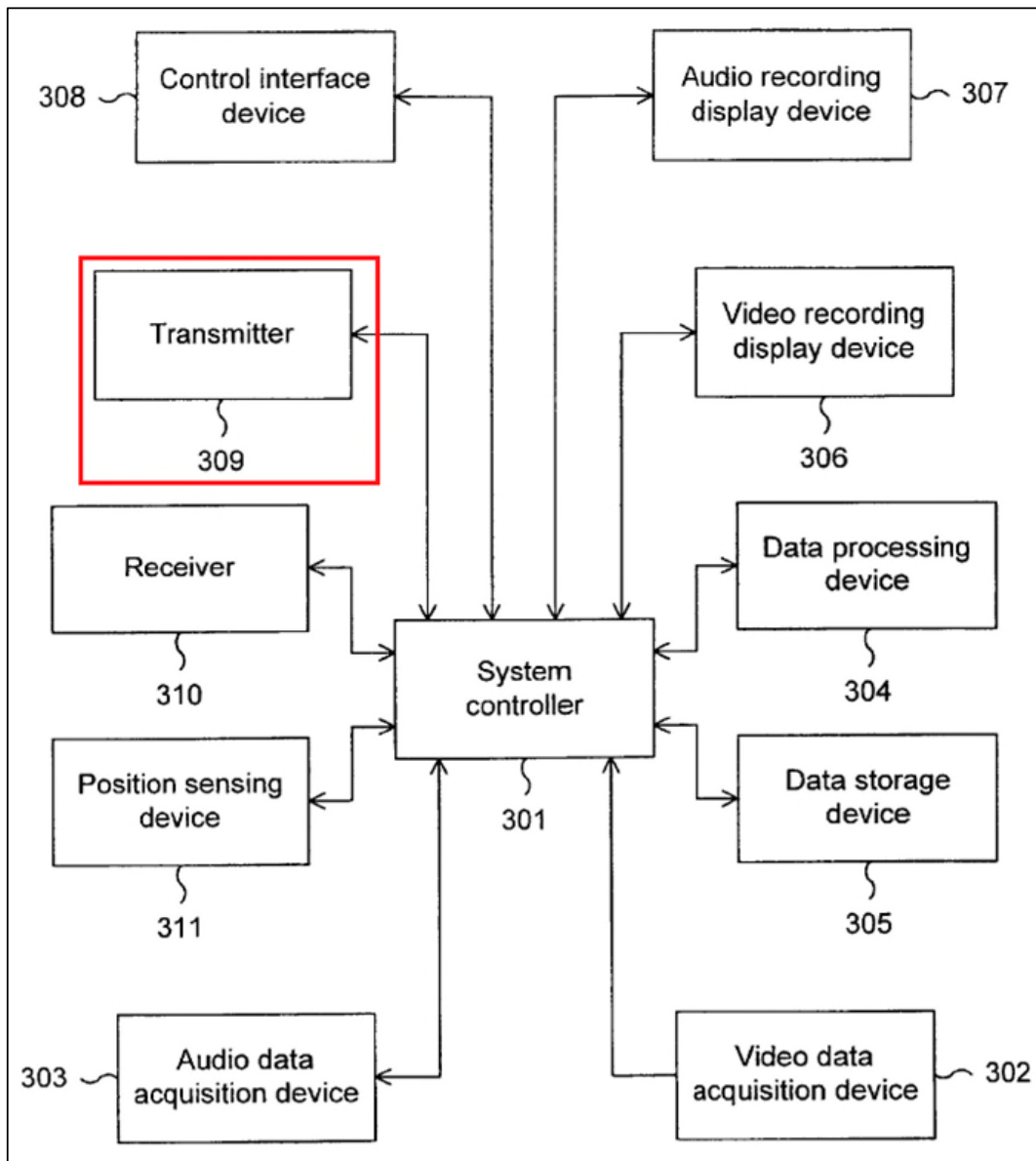


See also Ex. 1004, 5:3-5 (“A recorder 14 captures [a] performance from its vantage point while another recorder 16 independently captures the same performance from its own vantage point.”), 5:37-49 (“The connections 30 and 32 represent the communication of the respective recordings by wire, radio link and/or tape or film delivery to the editing station 34, e.g., a telecine suite or an audio layback [sic:playback] suite.”), 8:32-44, 9:40-43, 9:56-62, Figs. 1, 3, 4. A POSA would have understood that, in addition to comprising a recorder, editing station 34 necessarily would comprise a receiver in order to receive the audio signals from the local audio devices. Communication between the local audio devices and the remote receiver/recorder 34 are illustrated in Fig. 1. See *supra*.

d. **'207 Patent Element 17[A]: “the at least one audio device comprising: a wireless transmitter”**

124. In the Lectrosonics IPRs, the Board found that Strub teaches that the local audio device wirelessly transmits the locally generated audio to a remote recorder. *Supra* § VIII.D.

125. In particular, Strub’s recording unit includes a wireless transmitter 309 for transmitting audio to the other recording units:



Ex. 1003, Fig. 3 (annotated); *see also id.* 12:31-46, 35:51-36:29 (“transmitter that enables signals representing the recording data ... to be broadcast from the recording unit”).

126. Strub also discloses that “communication between physically separated components of a recording unit can be implemented using either wired or wireless

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 communication techniques and apparatus. The implementation of wired and wireless communication techniques and apparatus is known to those in the art.” *Id.*, 64:65-65:3.

127. Woo’s local audio device—*e.g.*, an arrangement comprising recorder 14, GPS receiver 18, and time code generator 43, or an arrangement comprising recorder 16, GPS receiver 22, and time code generator 43—transmits locally generated audio (in one example, wirelessly) to the remote recorder—editing station 34:

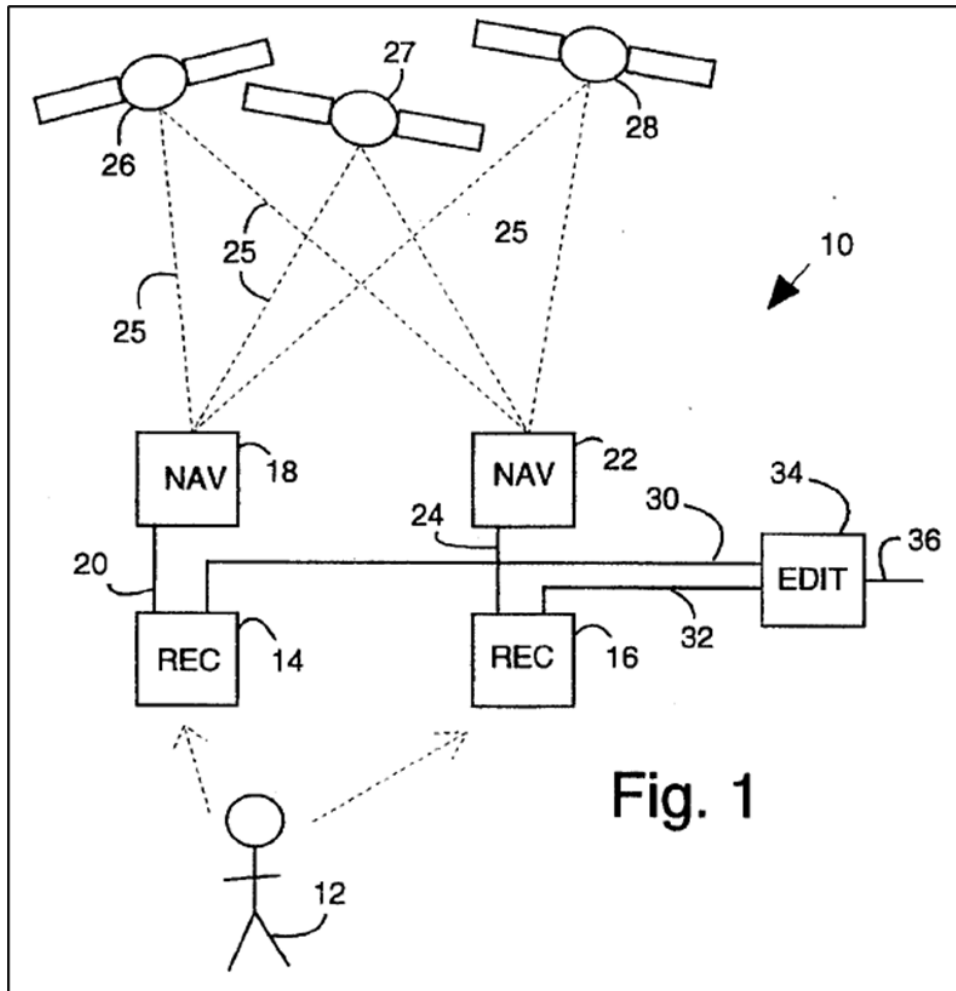
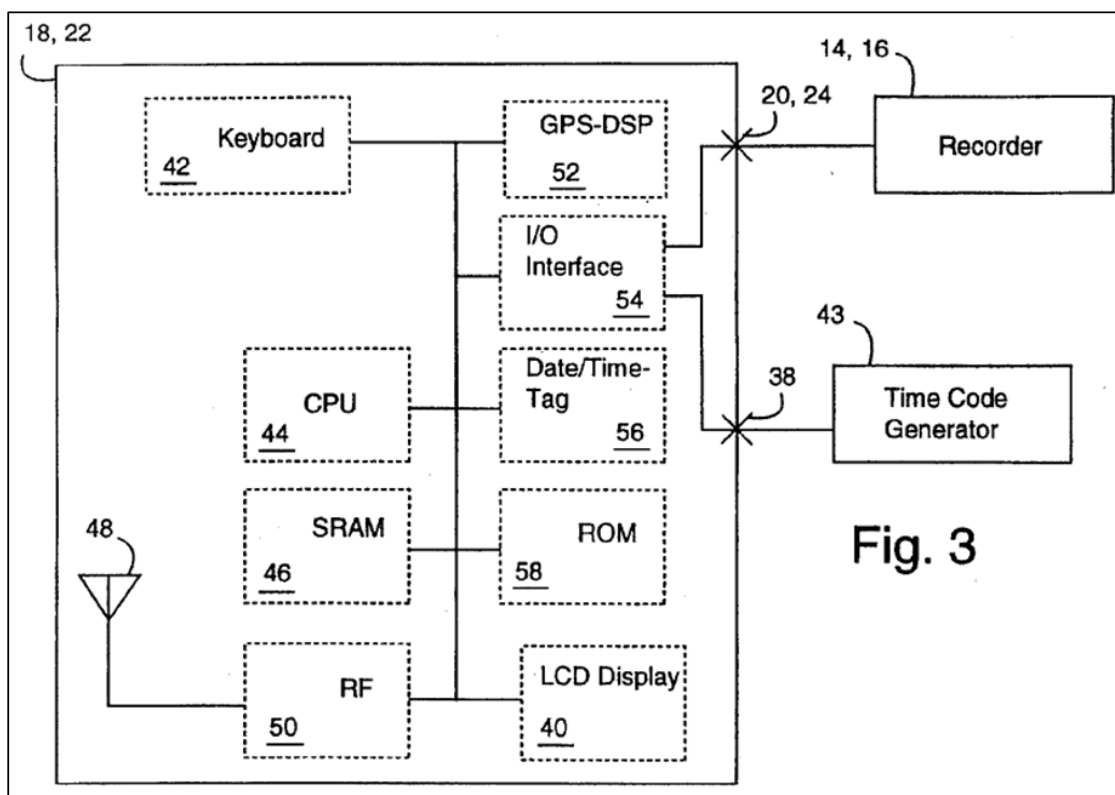


Fig. 1



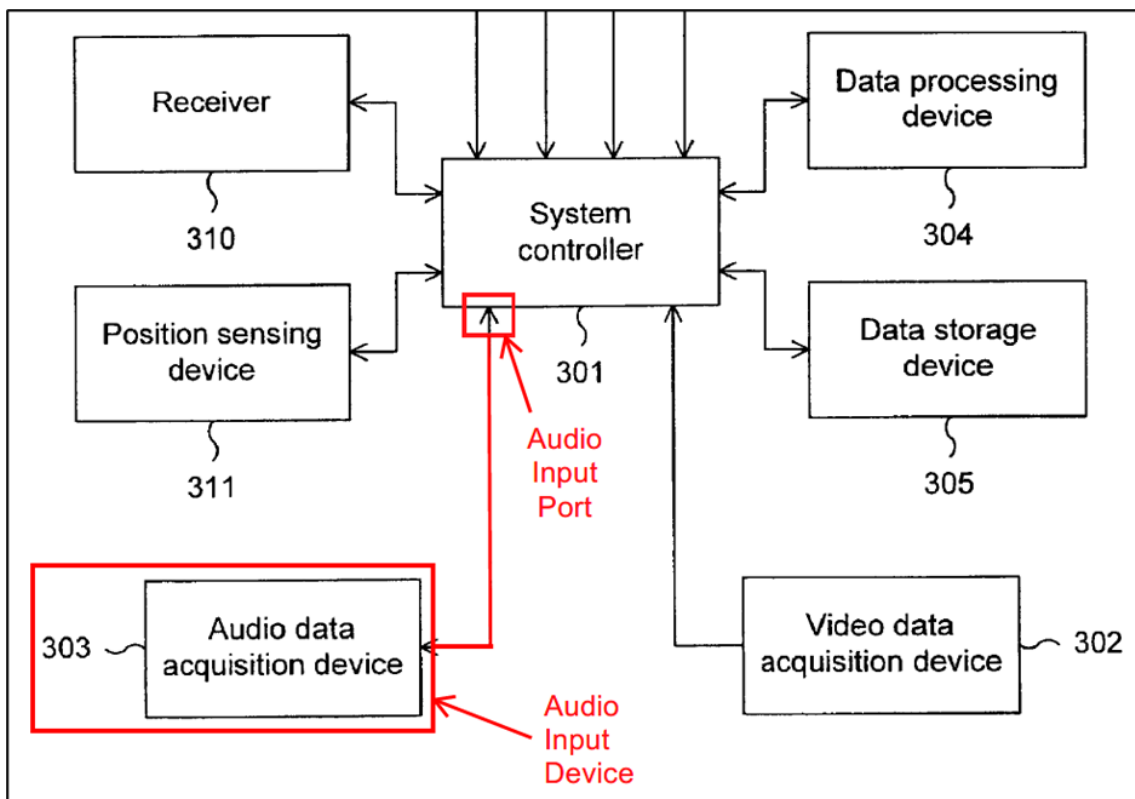
Ex. 1004, Figs. 1, 3; *id.* 5:37-49 (“The connections 30 and 32 represent the communication of the respective recordings by wire, **radio link** and/or tape or film delivery to the editing station 34, e.g., a telecine suite or an audio layback [sic:playback] suite.”), 8:32-44, 9:40-43, 9:56-62, Fig. 4 (emphasis added). A POSA would have understood that Woo’s “radio link” necessarily would have required a wireless transmitter in the recorder 14 or 16.

- e. **’207 Patent Element 17[B]: “an audio input port configured to couple to an audio input device to receive the locally generated audio” / ’902 Patent Element 1[D]: “at least one audio input port for receiving locally generated audio from an audio input device;”/ ’443 Patent Element 1[D]: “at least one audio input**

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

128. In the Lectrosonics IPRs, the Board found that each of Strub, Nagai, and Gleissner teaches an “audio input port for receiving said locally generated audio from an audio input device,” and that it would have been obvious to combine Strub with Nagai or Gleissner. *Supra* § VIII.D.

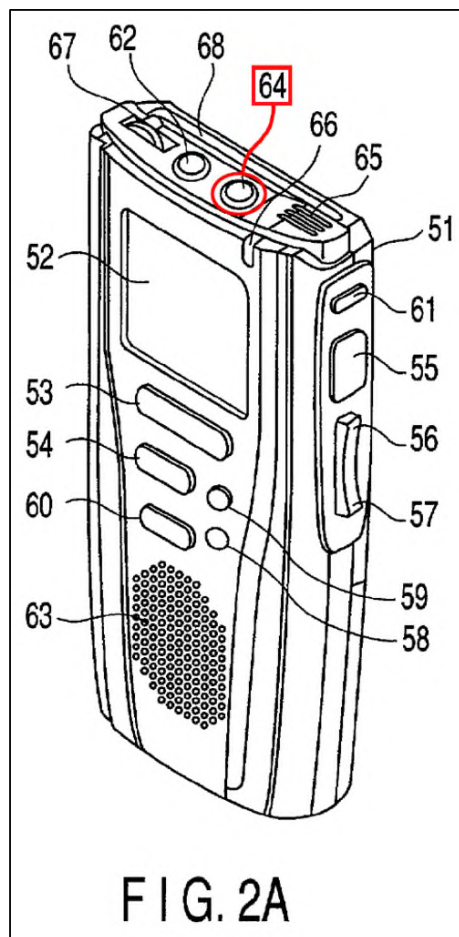
129. For example, Strub’s audio data acquisition device 303 is an audio input device, specifically a microphone. Ex. 1003, 21:65-22:2 (“[A]ny suitable audio data acquisition device (e.g., microphone) can be used in a recording unit according to the invention.”); 22:64-23:31 (examples of microphones that can be use as the audio data acquisition device), 25:25-49 (same), 60:3-5 (“The audio data acquisition device itself can be a conventional microphone.”). The system controller 301 in Strub’s local audio recording unit 300 has a local audio input port—the controller’s connection to audio acquisition/input device 303 (*e.g.*, a microphone)—for receiving locally generated audio from the audio acquisition/input device 303:



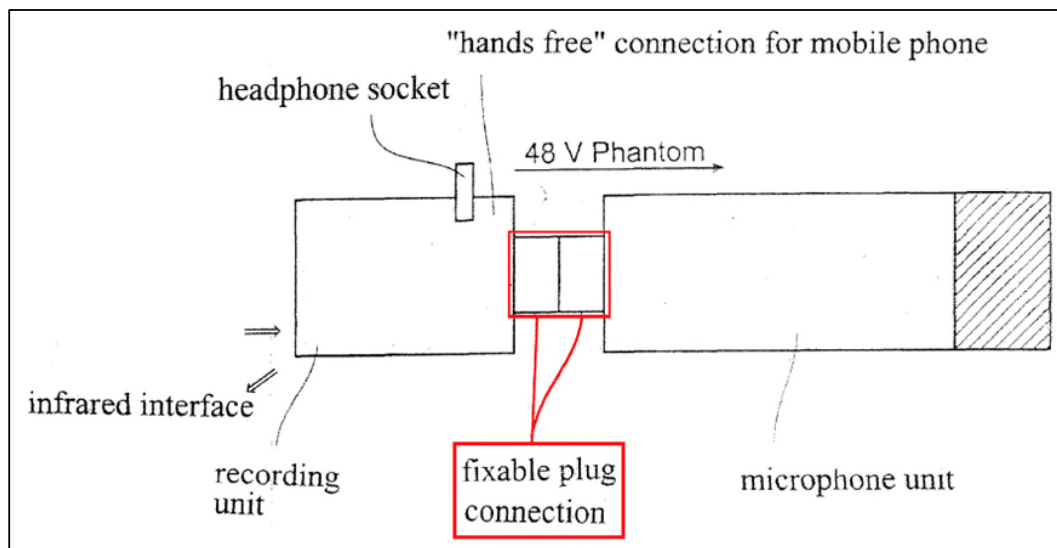
Ex. 1003, Fig. 3 (excerpted, annotated); *id.* 21:65-25:49, 68:63-69:67 (receiving audio from a microphone such as a “lavalier microphone”); *see also id.* 64:50-65:3 (connections between components using wired or wireless techniques known in the art, which would include a standard microphone jack). Furthermore, Strub states: “It can be advantageous to mount the audio...data acquisition device[s] so that the audio...acquisition device[s] [is] detachably attached.” *Id.* 69:23-26. A POSA would interpret Strub’s statement about detachability as meaning that the microphone is not soldered or hard-wired, but it connected to the local audio device through an audio input port such as a microphone jack and/or plug.

130. As another example, in Figure 7 of Strub, the input of the audio preamp in 703 is an audio input port that is coupled to an audio input device, namely the microphones in 701. *Id.* Fig. 7.

131. To the extent Zaxcom contends that Strub does not disclose Element 17[B], this element is taught by each of Nagai and Gleissner. For example, Nagai's audio recorder has an audio input port—"mike jack" 2 or 64—for coupling to an audio input device—specifically, an external microphone, or "mike [sic]"—to receive the locally generated audio:



132. Gleissner's audio recorder has a conventional audio input port—an XLR plug connector—to couple to an audio input device—a microphone—to receive the locally generated audio:



Ex. 1006, Fig. 1 (annotated); *id.* [0013] (“[T]he recording unit can be coupled together with [a] microphone[] [using] an XLR connector....”), [0024], [0032]. Gleissner provides explicit motivation for using a standard microphone connector: “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.* [0013].

133. Woo refers to using a recorder 14 to “record the live performance of a performer 12, e.g., a singer or actor.” Ex. 1004, 5:1-5. A POSA would have

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understood that recorder 14 necessarily would have had an audio input port to couple
to a microphone in order to receive the sound from the performer.

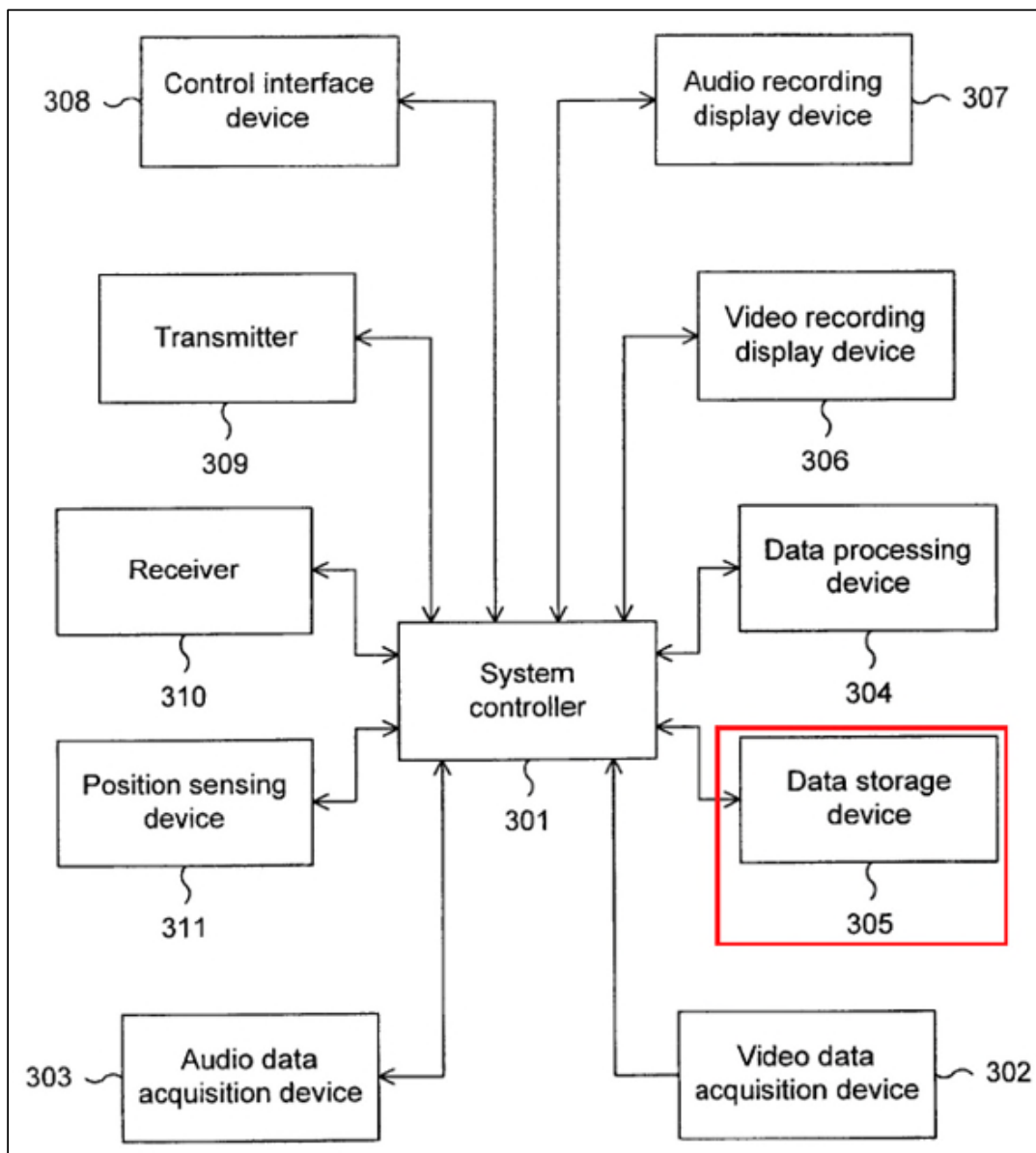
134. Furthermore, a POSA would have been motivated to include Nagai's microphone jack or Gleissner's microphone plug connection in Strub's and/or Woo's local audio device because there were many different types and brands of microphones that were commercially available at or before the priority date of the Challenged Patents and would be selected by the operator according to the requirements of the particular application, including the examples provided in Strub: analog or digital microphones, directional microphones, omni-directional microphones, lavalier microphones, microphones constructed to detect the spatial distribution of sound, lavalier stereo omni-directional microphones such as a Lectret 5200, stereo directional microphones such as a Sanken CSS-5, and arrays of multiple microphones to allow beam forming. Ex. 1003, 21:65-22:2, 22:65-23:31, 24:61-64, 25:35-49, 29:35-37, 31:37-45, 32:17-26, 68:63-69:18, 84:52-62. A POSA would have understood the advantages of using Nagai's or Gleissner's standard microphone jacks and plugs to allow different kinds of microphones to be easily swapped in and out of Strubs' and Woo's audio recording systems to match the systems to the particular application and environment, and thus would have considered the combination obvious.

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- f. **'207 Patent '207 Patent Element 17[C]: “a memory” /**
'902 Patent Element 1[E]: “at least one memory; and”/
'443 Patent Element 1[E]: “at least one memory;”

135. In the Lectrosonics IPRs, the Board found that Strub teaches that the local audio device has a memory. *Supra* § VIII.D.

136. Specifically, Strub’s local audio device has at least one memory—*e.g.*, data storage device 305:



Ex. 1003, Fig. 3 (annotated).

137. Memory 305 may include 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. *Id.*, 27:36-51, 33:20-35:50, 76:6-34, 94:15-20, Fig. 3; *see also id.*

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5:33-48 (hybrid recording unit “typically includes a non-volatile data storage device
for storing auxiliary data, such as an EEPROM or flash memory device.”)

138. Strub also discloses a “random access memory (RAM) may be used to
buffer data during recording.” *Id.*, 33:29-32. A POSA would know that flash
memory and RAM are types of memory that are commonly used in audio devices.

- g. **'902 Patent Element 1[C]: “at least one local audio
device receiver for receiving at least one of the group
consisting of digital commands, said master timecodes,
and non-local audio data;”**

139. In the Lectrosonics IPRs, the Board found that Strub discloses “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.” Ex.
1017 at 25-31; Ex. 1018 at 22-28. *Supra* § VIII.D.

140. Strub teaches that each local audio device comprises a “recording unit.”
Ex. 1003, Fig. 1, 8:6-20. Each recording unit includes a “receiver” 310. *Id.*, Fig. 3,
12:31-46. This receiver receives non-local audio data. *Id.* 12:31-46 (“receives
recording data signals representing recording data acquired by one or more **other**
recording units.”) (emphasis added), 35:51-65. Additionally, Strub discloses that
the recording unit also contains a “GPS receiver” that receives master time codes,
e.g., GPS time, from a master time code generator, i.e., a GPS satellite or SMPTE
timecode source. *Id.*, 5:32-66 (“GPS receiver” as part of auxiliary device of

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recording unit), 63:41-60 (recording unit includes “GPS receiver” to receive GPS
signals to use as “a clock to generate time-stamps”), 75:25-57 (receiver port for
“SMPTE time code input,” for master timecodes to sync devices). The internal
components of an exemplary local audio device (e.g., recording unit) are depicted in
FIG. 3 of Strub.

141. Woo discloses local audio devices (recorders 14 and 16). Ex. 1004,
Fig. 1, 5:1-5. These recorders include “satellite receiver(s)” 18 and 22 for receiving
GPS signals. *Id.* 5:5-16, 5:54-58. Satellite receivers 18 and 22 include time code
generators 43, for generating “master” time codes (including SMPTE time codes)
for the recorders. *Id.* Figs. 1 and 3, 4:3-37, 7:27-38, 7:49-53, 8:19-36.

142. [Reserved].

h. **'207 Patent Element 17[D]: “a local timecode generator operable to generate a local timecode”**

143. In the Lectrosonics IPRs, the Board found that Strub teaches a local timecode generator. *Supra* § VIII.D.

144. In particular, Strub’s local audio device (a recording unit) includes a local timecode generator—an internal clock—that generates a timecode—*e.g.*, a signal indicating the time—used to timestamp the recording data. Ex. 1003, 13:52-56 (“[T]he system controller can include a clock that is used to time-stamp the recording data obtained by the recording unit. (The time-stamps can be used, for example, to display the time at which a displayed recording was obtained....)”), 63:56-60 (“[A] recording unit according to the invention...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”), Fig. 3.

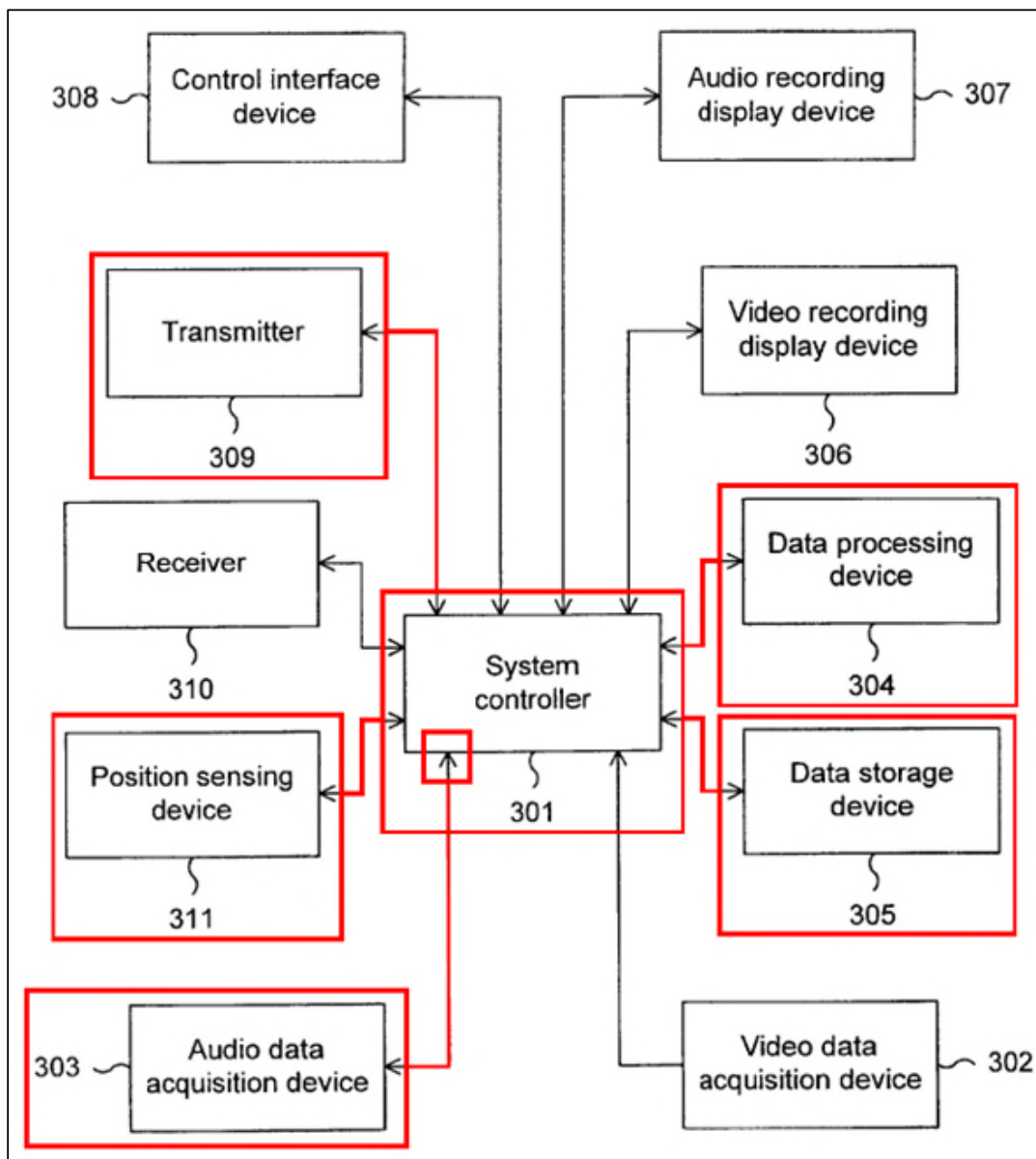
145. Woo’s local audio device includes a local time code generator 43. *Supra* ’207 Patent Element 17[A].; Ex. 1004, 7:28-29, Fig. 3. The local timecode generator 43 generates SMPTE timecodes. Ex. 1004, 7:28-37 (“A commercially-

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available time code generator 43...generates time code...and will jam
to...SMPTE/EBU time code.”), Fig. 3; *see also id.* 3:3-40 (local timecode generator
can “follow the timecode off...a tape machine.”). In addition, Woo’s local audio
device has a CPU 44 which executes one or more programs stored in ROM 58. *Id.*
8:8-9, Fig. 3. “The ROM 58...includes an application program for generating
SMPTE time codes...” *Id.* 8:21-22. The CPU 44 running the time-code-generation
program stored in ROM 58 also comprises a local timecode generator operable to
generate a local timecode.

- i. **’207 Patent Element 17[E]: “a control unit coupled to the wireless transmitter, the audio input port, the memory, and the local timecode generator” / ’902 Patent Element 1[F]: “at least one control unit electrically coupled to said local audio device receiver, said audio input device, and said memory for creating local audio data from said locally generated audio and storing said local audio data in said memory;”/ ’443 Patent Element 1[F]: “at least one control unit in communication with said local audio device receiver, said audio input device, and said memory for creating local audio data from said locally generated audio and storing said local audio data in said memory; and”**

146. In the Lectrosonics IPRs, the Board found that Strub teaches (1) “at least one control unit electrically coupled to said local audio device receiver, said audio input device, said memory, and said local timecode generator,” and (2) storing the locally generated audio as audio data in the memory of the local audio device
Supra § VIII.D.

147. Strub's local audio device includes a control unit—e.g., system controller 301 and/or data processing device 304—which is coupled to and in communication with the wireless transmitter 309, the audio input port (the connection to audio data acquisition device 303), the memory (data storage device 305), and the local timecode generator (the device's internal clock, GPS-based position sensing device 311 (the local audio device receiver), the audio input port (the connection to audio data acquisition device 303), the memory (data storage device 305), and/or SMPTE timecode input circuit:



Ex. 1003, Fig. 3 (annotated); *id.* 12:4-13, 13:36-14:13 (describing operation of “system controller”).

148. In addition, a POSA would have considered it obvious to couple Strub’s control unit 301 to an audio input port such as Nagai’s “mike jack” or Gleissner’s XLR plug connector, described *supra* ’207 Patent Element 17[B], ’902 Patent

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Element 1[D], '443 Patent Element 1[D]; *see also* Ex. 1006, [0013] (advantages of
using a standard microphone connector).

149. Strub's system controller 301 acquires locally generated audio via audio data acquisition device 303 and stores the audio as local audio data in memory—i.e., data storage device 305. Ex. 1003, 12:10-21 (“[A]udio data acquisition device 303 acquire[s]...audio recording data...representing the content of the event being recorded...[T]he acquired recording data can be stored...in the data storage device 305....”).

150. Woo's system also stores locally generated audio in a memory as local audio data. Ex. 1004, 4:62-64 (“sound and picture recordings” stored in “a plurality of independent recording devices”), 5:1-5 (recorders 14 and 16 “capture[] [a] performance”), 5:37-45.

- j. **'207 Patent Element 17[F]: “the control unit operable to: (i) receive a master timecode from a master timecode generator and jam synchronize the local timecode generator to the master timecode generator using the master timecode,” / '902 Patent Element 1[A]: “at least one master timecode generator for generating a plurality of master timecodes; and”/ '443 Patent Element 1[A]: “at least one master timecode generator for generating a plurality of master timecodes; and”/ '443 Patent Element 1[C]: “at least one local audio device receiver for wirelessly receiving said master timecodes;”**

151. In the Lectrosonics IPRs, the Board found that Strub teaches receiving master time data, that Woo discloses a “master timecode generator for generating a

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plurality of timecodes” and “jam synchroniz[ing]” a local clock with a master time clock “just as disclosed by the [related ’902 and ’814] patent[s],” and that a POSA would have been motivated to use Woo’s synchronization techniques in Strub’s system. *Supra* § VIII.D.

152. For example, Strub discloses wirelessly—*i.e.*, via satellite signal—receiving a master timecode—*e.g.*, GPS time information—from a master timecode generator—*e.g.*, a GPS satellite or SMPTE timecode source—and jam synchronizing the local timecode generator—the internal clock—to the master timecode generator using the master timecode. Ex. 1003, 62:53-54 (position sensing device 311 can be a GPS receiver), 63:50-60 (“[T]he recording unit need only be exposed to a GPS satellite for about a minute to enable the time signals to begin. Further, after that point, clock drift occurs slowly, even if the recording unit is blocked from the GPS satellites for a period of time. Additionally, a recording unit according to the invention typically also includes an internal clock, as described above, that, while not as accurate as the GPS time signals, can also be used to accurately time-stamp data.”); 79:63-80:7 (“[The] recording unit...includes a clock that is used to time-stamp recording data as the recording data is acquired.” However, adequate synchronization requires that each recording unit “include a GPS receiver” and not be “shielded from a GPS transmitter system for an extended period of time....”), 75:25-57 (“SMPTE time code input ... to enable synchronization with

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an external device”), Fig. 3 (position sensing device 311); *see also id.*, 62:26-63:50
 (“GPS receiver [which] receive[s] a signal representing the current time that can be
used as a clock to generate time-stamps”). A POSA would interpret Strub’s
discussion of (1) the need to expose the recording unit to a GPS satellite for at least
a limited time, and (2) a slowly drifting clock, as meaning that the recording unit has
an internal clock which is synchronized to the GPS signal and then can run freely if
the GPS signal is no longer present. In addition as the ’207 Patent explains, “jam”
synchronizing is the process of causing the output of a local time code generator
(e.g., a clock) to match the output of the master time code generator. See Ex. 1001,
14:52-60. Thus, a POSA would have understood that Strub’s use of a GPS signal or
SMPTE timecode input to synchronize the internal clock comprises facilitates jam
synchronizing the internal time clock to a master timecode generator.

153. To the extent Zaxcom contends that Strub does not disclose these
elements, they are taught by Woo. Specifically, Woo discloses wirelessly—*i.e.*, via
microwave radio transmissions 25—receiving master timecodes from a master
timecode generator—*e.g.*, one or more of GPS satellites 26-28—and jam
synchronizing the local timecode generator 43 to the satellite(s) using the master
timecode. Ex. 1004, Abstract, 3:37-45 (describing the “jam-sync process”), 4:13-19
 (“[A]n embodiment of the present invention comprises a GPS navigation receiver
with a data output port for communicating time codes in SMPTE format. The

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conventional date and time sentence output of the GPS navigation receiver is combined with a highly-accurate one pulse-per-second ($\pm$ one microsecond) to form a time-keeping base for the time code output.”), 4:45-48, 5:5-10 (“A navigation satellite receiver 18 provides highly-accurate date and time information to the recorder 14 over a connection 20. Similarly, another navigation satellite receiver 22 provides highly-accurate date and time information to the recorder 16 over a connection 24.”), 5:21-29 (“Both navigation satellite receivers 18 and 22 receive a plurality of microwave radio transmissions 25 from a constellation of orbiting satellites, which are represented by a set of three satellites 26-28....Each satellite 26-28 has an atomic clock synchronized system-wide to provide highly accurate time clock information, e.g., the time-of-day and the calendar date.”), 5:54-67, 7:18-25, 7:26-47 (“commercially-available time code generator 43...will jam to both the output connection 38 and normal SMPTE/EBU time code”), 7:48-8:59, 8:60-9:4 (“synchronizing film and video equipment”), 9:5-19, 9:33-39, 9:45-55, 10:15-64, Figs. 2-4, 5 (“GPS Receiver” 122), 6 (“GPS Receiver” 142).

- k. **’207 Patent Element 17[G]: “(ii) transmit the locally generated audio to the remote device via the wireless transmitter; and ”**

154. In the Lectrosonics IPRs, the Board found that Strub teaches that the local audio device wirelessly transmits the locally generated audio to the remote device. *Supra* § VIII.D.

155. In particular, Strub's local audio device includes a wireless transmitter—*e.g.*, transmitter 309—which “transmits signals (‘recording data signals’) representing recording data acquired by the recording unit 300, so that such recording data can be used by other recording units.” Ex. 1003, 12:31-34, 35:53-38:39 (“Communication Between Recording Units”). Fig. 3. From the perspective of the local audio device, the other recording units are remote devices.

156. Woo's local device transmits the locally generated audio to the remote device. *See supra* 17[Pre].

- l. **'207 Patent Element 17[H]: “(iii) store the locally generated audio in the memory as audio data; and” / '902 Patent Element 1[F]: “at least one control unit electrically coupled to said local audio device receiver, said audio input device, and said memory for creating local audio data from said locally generated audio and storing said local audio data in said memory;”**

157. In the Lectrosonics IPRs, the Board found that Strub teaches storing the locally generated audio as audio data in the memory of the local audio device. *Supra* § VIII.D.

158. Specifically, the system controller 301 in Strub's local audio device acquires locally generated audio via audio data acquisition device 303 and stores the audio in memory—*i.e.*, data storage device 305. Ex. 1003, 12:10-21 (“[A]udio data acquisition device 303 acquire[s]...audio recording data...representing the content of the event being recorded....[T]he acquired recording data can be stored directly

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159. Woo’s system also stores—*i.e.*, records—locally generated audio in a memory as audio data. Ex. 1004, 4:62-64 (referring to “sound and picture recordings” stored in “a plurality of independent recording devices”), 5:1-5 (“A recorder 14 captures [a live] performance from its vantage point while another recorder 16 independently captures the same performance from its own vantage point.”), 5:37-45 (referring to “recordings” stored within recorders 14 and 16).

- m. **’207 Patent Element 17[I]: “(iv) stamp at least a portion of the audio data with the local timecode.” / ’902 Patent Element 1[G]: “wherein said local audio data includes stamped local audio data and unstamped local audio data;” / ’902 Patent Element 1[I]: “wherein said unstamped local audio data does not include a reference to said master timecodes.” / ’443 Patent Element 1[H]: “wherein said local audio data includes stamped local audio data and unstamped local audio data;”**

160. In the Lectrosonics IPRs, the Board found that Strub teaches a “local timecode generator for creating stamped local audio data and storing said stamped local audio data in said memory.” *Supra* § VIII.D.

161. The system controller 301 in Strub’s local audio device “can include a clock that is used to time-stamp the recording data obtained by the recording unit.” Ex. 1003, 13:50-58, 63:56-60. The time stamps comprise timecodes. *Id.* 6:65-7:24 (storing a “*time code* on the videotape”); 29:42-62 (records audio and

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visual data and “other types of data (e.g.,...*time codes*)”); 77:24-28 (identifying exemplary portable video recorders that “*write a time code to the linear data storage medium.*”); 78:7-40; 84:20-25. *See also* 63:12-49 (GPS time signals to “generate time-stamps for the recording data”).

162. Woo’s local audio device includes “a date and time tag unit 56 and a read only memory (ROM) 58.” Ex. 1004, 7:59-60, Fig. 3. “The ROM 58...includes an application program for generating SMPTE time codes....” *Id.* 8:21-22. In addition, Woo’s local audio device can employ “commercially-available time code generator 43” to generate time codes. *Id.* 7:28-29, Fig. 3. Date and time tag unit 56 provides time stamps, which are used to stamp at least a portion of the local audio data. *Id.*, 8:11-21, 8:25-44, Figs. 3, 4; *see also id.* 1:60-2:1, 5:37-45.

163. In addition to stamped audio data, Strub’s local audio data includes unstamped audio data. For example, Strub provides an example in which a time-stamp indicates only “the time at which a displayed recording was obtained.” Ex. 1003, 13:54-56. A POSA would understand Strub’s reference to “the time at which a...recording was obtained” to refer to the time that the entire recording was completed—i.e., the time that either the first or final audio sample of the recording was captured. Thus, in that example, the time-stamp applies only to the first or final audio sample, whereas the other samples are unstamped. In addition, a POSA would have been motivated, and would have considered it obvious, to stamp only the first

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or last sample in an audio recording in order to conserve transmission bandwidth,
leaving the other samples unstamped. The sampling rate and the sampling period
(*i.e.*, the time between samples) in a digital recording are known. Thus, the timing
of any given sample easily can be reconstructed, for example, by (a) starting with
the time-stamp associated with the first sample, and adding the product of the
sampling period and the sample number of the sample in question, or (b) starting
with the time-stamp associated with the last sample, and subtracting the product of
the sampling period and the difference between (i) the sample number of the sample
in question, and (ii) the sample number of the final sample.

164. Additionally, Strub teaches that the system controller can store
information “that identifies ***particular*** stored recording data,” and gives the example
of applying a “time-stamp” to the recording data, indicating that only particular
audio data is stamped and other audio data is unstamped. Ex. 1003, 13:48-54
(emphasis added).

165. As discussed *supra* with respect to '902 Patent Element 1[G], Strub
discloses unstamped audio, *e.g.*, audio samples other than the first or final sample
for an obtained recording. Necessarily, these unstamped samples have no reference
to a master timecode. Additionally and alternatively, Strub teaches that the local
audio data may be stamped using locally generated timecodes, and therefore the
local audio data would be referenced to local, rather than master, timecodes. See Ex.

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1003, 13:52-58 (system controller 301 includes a local “clock that is used to time-
stamp the recording data”), 63:56-60 (recording unit has local “internal clock” to
time-stamp data).

- n. **'902 Patent Element 1[H]: “wherein said 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 timecodes; and”**

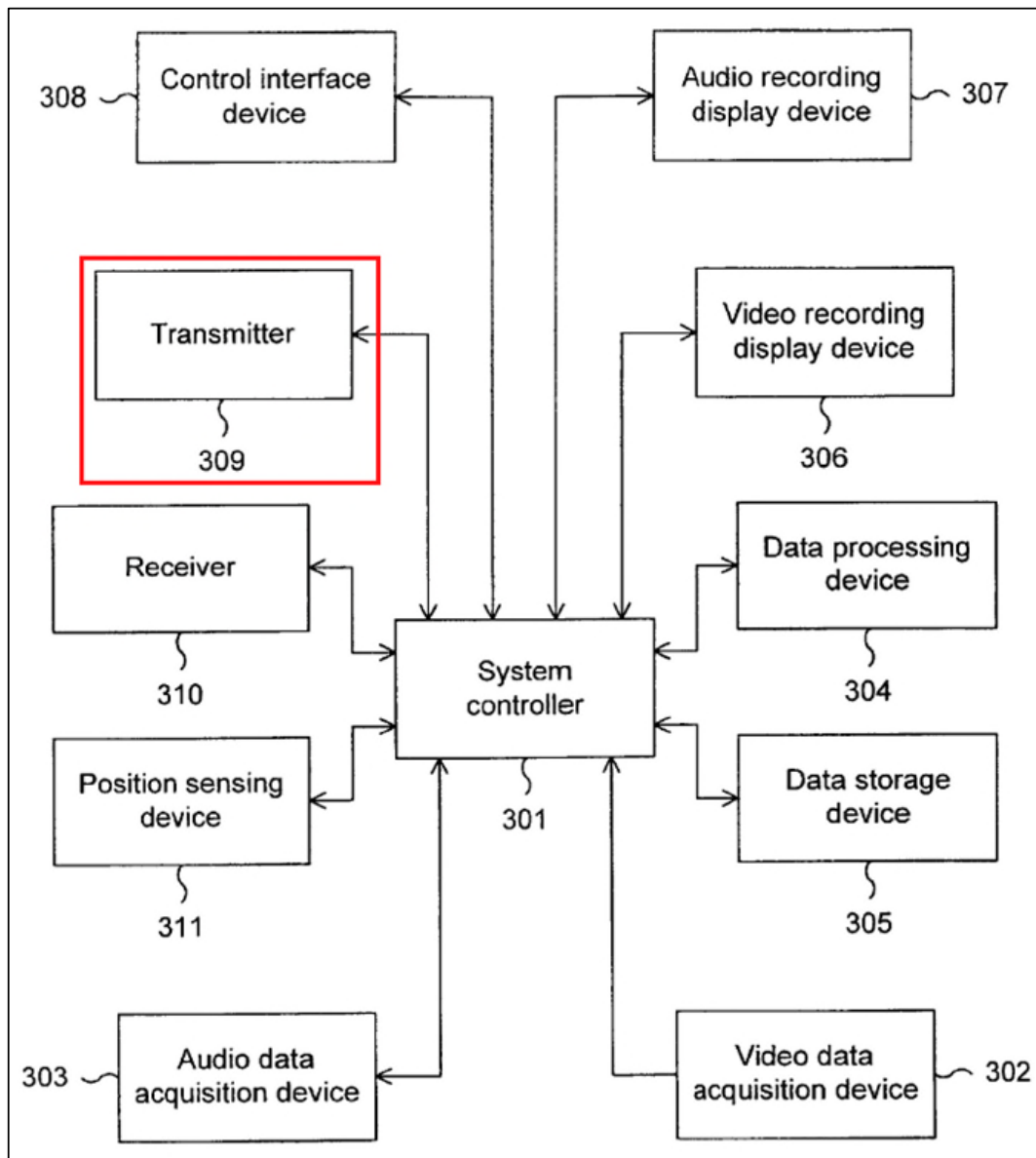
166. Strub discloses at least one timestamp to reference at least a portion of local audio data to at least one of the master timecodes, for instance applying GPS timestamps to the audio data. *See, e.g.*, Ex. 1003, 63:12-49 (recording unit using “GPS time signal” to “generate time-stamps for the recording data”).

167. Woo also discloses at least one first timestamp to reference at least a portion of local audio data to at least one of the master timecodes, including timecodes from GPS. *See* Ex. 1004, 8:25-36 (tagging first recording with date and time code information from satellite receiver). *See also id.*, 4:13-19, 4:45-48, 5:5-13, 7:26-35, 7:49-53, 9:33-39, 10:44-60, Figs. 2-4.

- o. **'443 Patent Element 1[G]: “at least one local audio device wireless transmitter for wirelessly transmitting said local audio data in real time, said at least one local audio device wireless transmitter in communication with said at least one control unit;”**

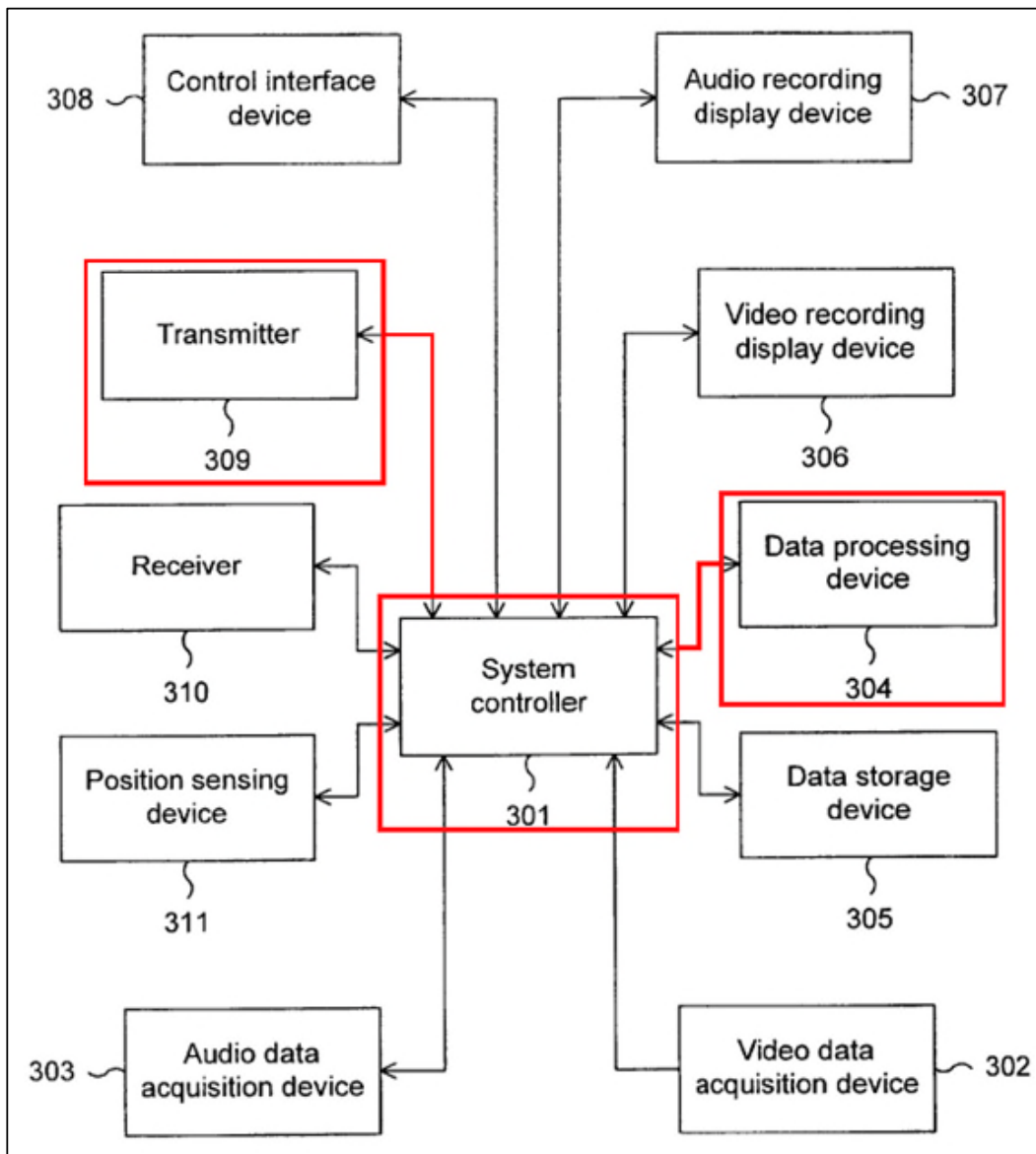
168. In the Lectrosonics IPRs, the Board found that Strub teaches that the local audio device wirelessly transmits the locally generated audio to a remote recorder. *Supra* § VIII.D.

169. In particular, Strub's recording unit includes a wireless transmitter 309 for wirelessly transmitting audio to the other recording units:



Ex. 1003, Fig. 3 (annotated); *see also id.* 12:31-46, 35:51-36:29 (“transmitter that enables signals representing the recording data ... to be broadcast from the recording unit”).

170. Strub's wireless transmitter 309 is in communication with the control unit—system controller 301 and/or data processing device 304:



Ex. 1003, Fig. 3 (annotated); *id.* 12:4-13, 13:36-14:13.

171. Strub's transmitter 309 transmits the local audio data in real time. Ex. 1003, 1:26-35 ("recording of the event by multiple participants..., often

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 *simultaneously.*”), 4:54-57 (“recordings...shared between or among recording units *during the event.*”); 10:25-49 (“recordings...shared between or among recording units *during the event* so that recorders can observe *recordings that...are being, obtained by other recording units.*”), 35:61-36:2, 38:8 (“Recording data can be *transmitted as acquired.*”), 38:20-24, 44:48-45:7; 79:54-80:9, 85:18-23.

172. To the extent Zaxcom contends that Strub does not disclose real-time transmission of the local audio data, that limitation is taught by Woo. Woo’s local audio device—*e.g.*, an arrangement comprising recorder 14, GPS receiver 18, and time code generator 43, or an arrangement comprising recorder 16, GPS receiver 22, and time code generator 43—can transmit locally generated audio by “radio link”—*i.e.*, wirelessly to editing station 34:

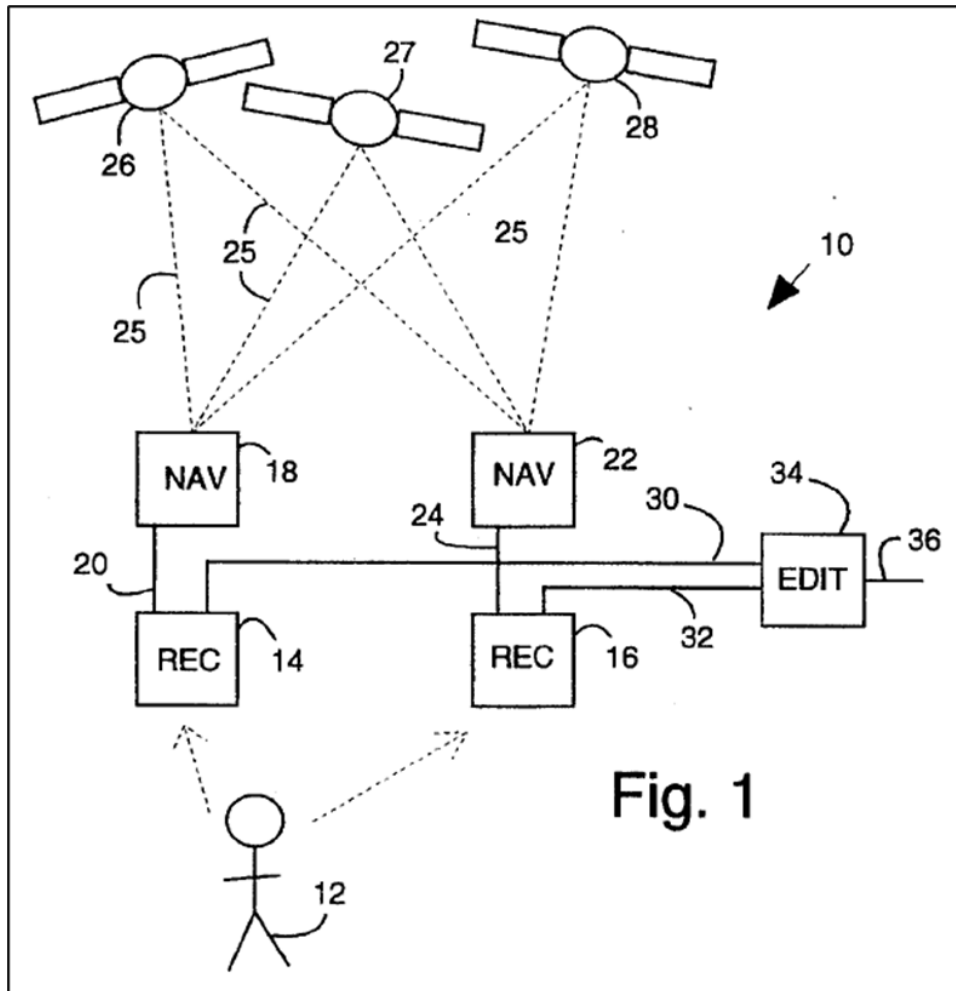
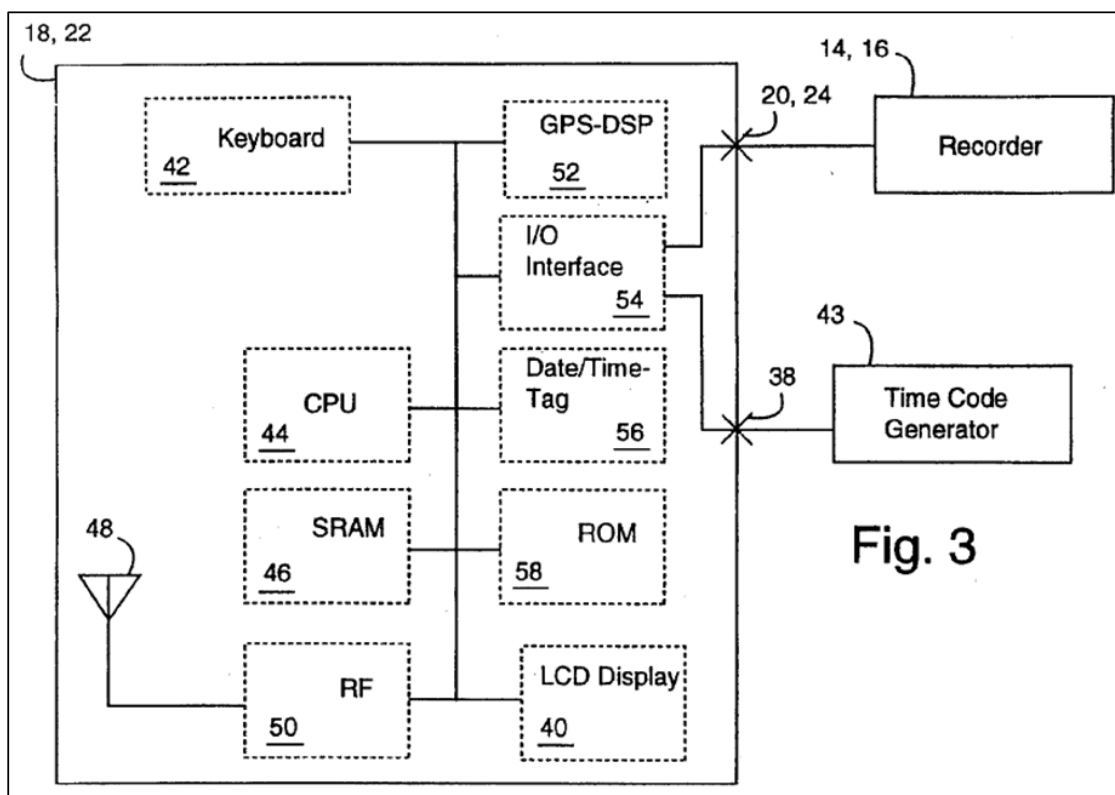


Fig. 1



Ex. 1004, Figs. 1, 3; *id.* 5:37-49 (“The connections 30 and 32 represent the communication of the respective recordings by[, e.g.,] **radio link**...to the editing station 34....”).¹

173. Woo teaches transmission of the local audio data “in real-time.” *Id.* 8:51-54 (“In step 114, **the combining and generating may be done in real-time** with the performance....”), 10:7-10 (“**the combining and generating are done in real-time**”).

p. **’443 Patent Element 1[I]: “wherein said stamped local audio data includes at least one timestamp to reference**

¹ Emphasis added throughout unless otherwise indicated.

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**at least a portion of said local audio data to at least one
of said master timecodes; and**

174. Strub discloses at least one timestamp to reference at least a portion of local audio data to at least one of the master timecodes, for instance applying GPS timestamps to the audio data. *See, e.g.*, Ex. 1003, 63:12-49 (recording unit using “GPS time signal” to “generate time-stamps for the recording data”).

175. Woo also discloses at least one first timestamp to reference at least a portion of local audio data to at least one of the master timecodes, including timecodes from GPS. *See* Ex. 1004, 8:25-36 (tagging first recording with date and time code information from satellite receiver); 4:13-19, 4:45-48, 5:5-13, 7:26-35, 7:49-53, 9:33-39, 10:44-60, Figs. 2-4.

176. Woo also teaches this limitation. For example, Woo discloses receiving a master timecode from a master timecode generator—*e.g.*, one or more of GPS satellites 26-28—and jam synchronizing the local timecode generator 43 to the satellite(s) using the master timecode. Ex. 1004, 3:37-45 (describing the “jam-sync process”), 4:13-19, 4:45-48, 5:5-10, 5:21-29, 5:54-67, 7:18-25, 7:26-47 (“commercially-available time code generator 43...will jam to both the output connection 38 and normal SMPTE/EBU time code”), 7:48-53 (GPS satellite-based “time code generator preferably also can be used as a master clock.”) 7:54-8:24, 9:5-19, 10:15-64, Figs. 2-4. Woo’s system derives date and time tags from the master timecodes and uses those tags to timestamp the local audio data. *Id.* 8:26-44 (steps

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104 and 110 derive/extract “date and time code information” using first and second
satellite receivers; steps 106 and 112 “tag” first and second recordings with “the date
and time code information”), 9:33-39, 9:45-55, Fig. 4. Thus, since Woo’s
timestamps are derived from the master timecodes, both the timestamps and the
stamped audio data are referenced to the master timecodes.

177. Furthermore, Woo’s local audio device includes “a date and time tag
unit 56 and a read only memory (ROM) 58.” Ex. 1004, 7:59-60, Fig. 3. “The ROM
58...includes an application program for generating SMPTE time codes....” *Id.*
8:21-22. In addition, Woo’s local audio device can employ “commercially-available
time code generator 43” to generate time codes. *Id.* 7:28-29, Fig. 3. Based on the
local timecodes, the date and time tag unit 56 provides time stamps—*e.g.*, “date
and/or time tag[s]”—for stamping at least a portion of the local audio data, and the
resulting stamped local audio data is stored as a recording in a memory in the
recorder 14 or 16. *Id.*, 8:11-21 (“The date/time-tag unit 56 associates a date and/or
time tag with each...position determination stored in SRAM 46. Time code
information is generated...by combining a one-pulse-per-second output from the
GPS-DSP 52 with the...date and time information available from...the navigation
satellite transmissions.”), 8:25-44, Figs. 3, 4; *see also id.* 1:60-2:1 (time codes stored
with recorded content), 5:37-45 (“Each recording delivered to the editing station 34
has been date and time tagged, using date and time information received by the

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 recorders 14 and 16 over connections 20 and 24.”). Since Woo’s local timecode generator is synchronized to the master timecodes, and since Woo teaches using the local timecodes to stamp the local audio data, the stamped audio data is referenced to the master timecodes.

- q. **’443 Patent Element 1[J]: “wherein said unstamped local audio data does not include a reference to said master timecodes.”**

178. As discussed *supra* ’443 Patent Element 1[H], Strub discloses unstamped audio, *e.g.*, audio samples other than the first or final sample for an obtained recording. Necessarily, these unstamped samples have no reference to a master timecode. Additionally and alternatively, Strub teaches that the local audio data may be stamped using locally generated timecodes, and therefore the local audio data would be referenced to local, rather than master, timecodes. *See* Ex. 1003, 13:52-58 (system controller 301 includes a local “clock that is used to time-stamp the recording data”), 63:56-60 (recording unit has local “internal clock” to time-stamp data).

- r. **’207 Patent Claim 18: “The at least one audio device of claim 17, wherein the control unit stores the locally generated audio in the memory and transmits the locally generated audio to a remote device substantially simultaneously.”**

179. The system controller 301 in Strub’s local audio device—*e.g.*, recording unit 300—stores the locally generated audio in memory—data storage

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device 305—and transmits the locally generated audio to a remote device—one or more of the other recording units, *e.g.*, 105-108. *See supra* 17[Pre]; Element 17[H]. The transmission is sent to the remote device at the same time that the recording is “being obtained” by the local device—*i.e.*, the storage and transmission occur substantially simultaneously, in real time. Ex. 1003, 1:26-35 (“The invention...relates to recording an event in which multiple persons participate..., ...more particularly, to recording of the event by multiple participants (*i.e.*, from multiple points of view), often simultaneously.”), 4:54-57 (“[A] recording unit according to the invention can be adapted to enable recordings to be shared between or among recording units **during the event.**”); 10:25-49 (“[A] recording unit according to the invention can be adapted to enable recordings to be shared between or among recording units **during the event** so that recorders can observe **recordings that** have been, or **are being, obtained by other recording units.**”), 35:61-36:2 (“[A] recording unit [can] display and/or store, **during the event**, a recording being obtained by another recording unit.”), 38:8 (“Recording data can be transmitted as acquired.”), 38:20-24 (“Compression...enable[s] enable more channels of recording data to be transmitted, *i.e.*, more recording units can simultaneously transmit data), 44:48-45:7 (“display device...capable of **simultaneously** displaying multiple visual recordings at one time...to enable[] a [user] to be cognizant of the content of the visual recordings **being obtained by more than one recording unit,**”); 79:54-80:9

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 (“recordings of the same event that were simultaneously obtained by different
 recording units”); 85:18-23; *see also id.* 1:26-35 (invention “...relates to recording
 an event in which multiple persons participate (a ‘group event’) and, even more
 particularly, to recording of the event by multiple participants (i.e., from multiple
 points of view), often simultaneously”), 38:8 (“Recording data can be transmitted as
 acquired.”)

180. Strub further discloses that “Compression of the recording data prior to
 transmission has the advantage of reducing the amount of reducing the amount of
 data transmitted (which may, for example, enable more channels of recording data
 to be transmitted, i.e., more recording units can simultaneously transmit data).” *Id.*,
 38:20-24.

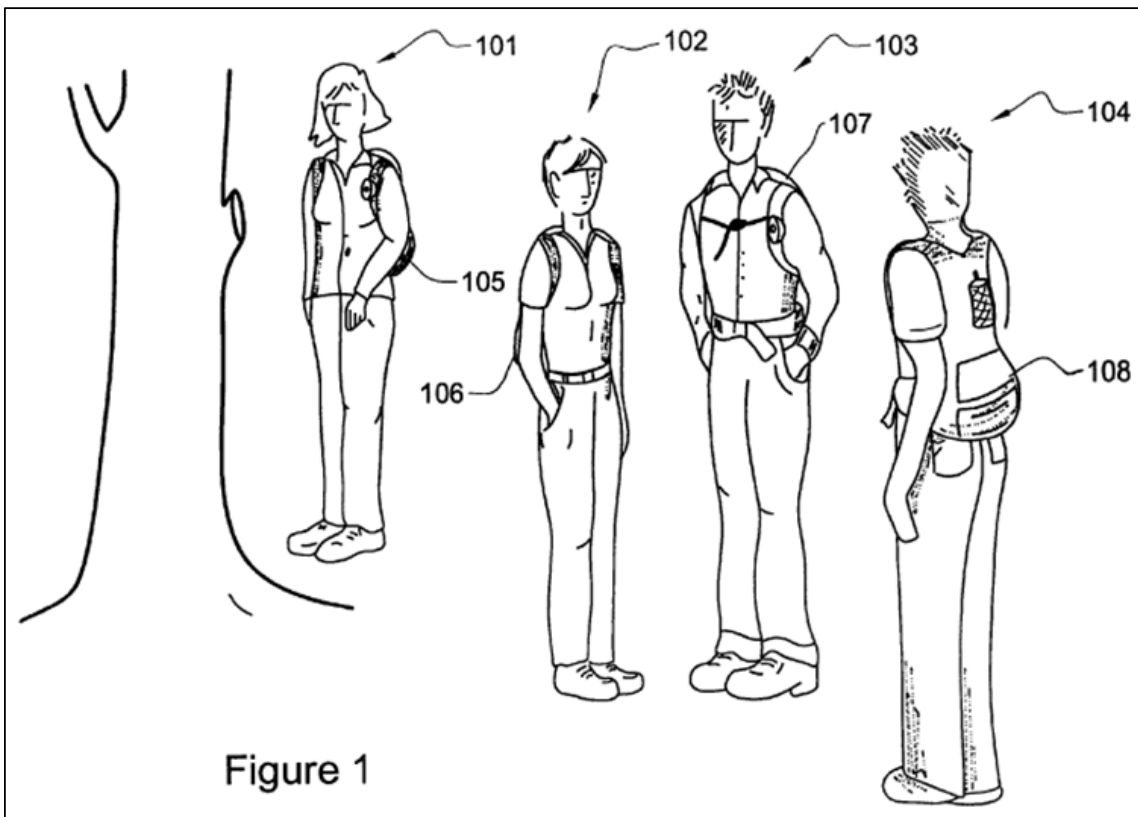
181. To the extent Zaxcom contends that Strub does not disclose the
 additional limitations of Claim 18, those limitations are taught by Woo. Woo’s local
 audio device—*e.g.*, an arrangement comprising recorder 14, GPS receiver 18, and
 time code generator 43, or an arrangement comprising recorder 16, GPS receiver 22,
 and time code generator 43—stores locally generated audio and transmits the locally
 generated audio to a remote recorder—editing station 34. *See supra* 17[Pre];
 Element 17[H]. Woo teaches that the transmission can be done in real time—*i.e.*, at
 the same time that the audio is being locally stored. *Id.* 8:51-54 (“In step 114, ***the
 combining and generating may be done in real-time*** with the performance such that

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the third recording is delayed from the performance by an insubstantial amount of
time.”), 10:7-10 (“***the combining and generating are done in real-time*** with said
common event such that said third recording is delayed from said common event by
an insubstantial amount of time.”).

- s. **’207 Patent Claim 19: “The method of claim 18, wherein the at least one of the group consisting of a receiver, a recorder, and combinations thereof is not worn by a creator of locally generated audio and is located remotely from the at least one local audio device.”**

182. In Strub, each of the “recording units” 105-108 and 300 serves as a remote receiver and recorder from the perspective of the other recording units, since it receives and records audio data from the other recording units. *See supra* 17[Pre]; Element 17[H]; *see also supra* § VIII.D (Board’s prior finding that Strub teaches a remote receiver/recorder). In other words, one person (recorder) is wearing a first recording unit (*e.g.*, one of units 105-108) for recording locally generated audio, and a different person is wearing a second recording unit (*e.g.*, a different one of units 105-108) that receives the locally generated audio from the first person and remotely records that audio on the second recording unit. *See, e.g.*, 12:16-19 (“Depending upon the particular implementation of the recording unit 300, the acquired recording data can be stored in the data storage device 305....”); 12:31-34 (“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....”); 35:53-65

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 (“The transmitters and receivers enable recording data to be communicated between recording units during recording of an event by the recording units, thus enabling a recording unit to display and/or store, during the event, a recording being obtained by another recording unit.”); 7:44-47, Fig 3 (depicting each recording unit as having a transmitter 309 and receiver 310):



Ex. 1003, Fig. 1.

183. Strub further discloses that the persons wearing the recording units in Figure 1 may be either be “participating” in the event, or merely “observing” the event. 8:7-20. A POSA would therefore understand, for example, that participant 103 possesses local recording unit 107 that is recording the locally generated audio.

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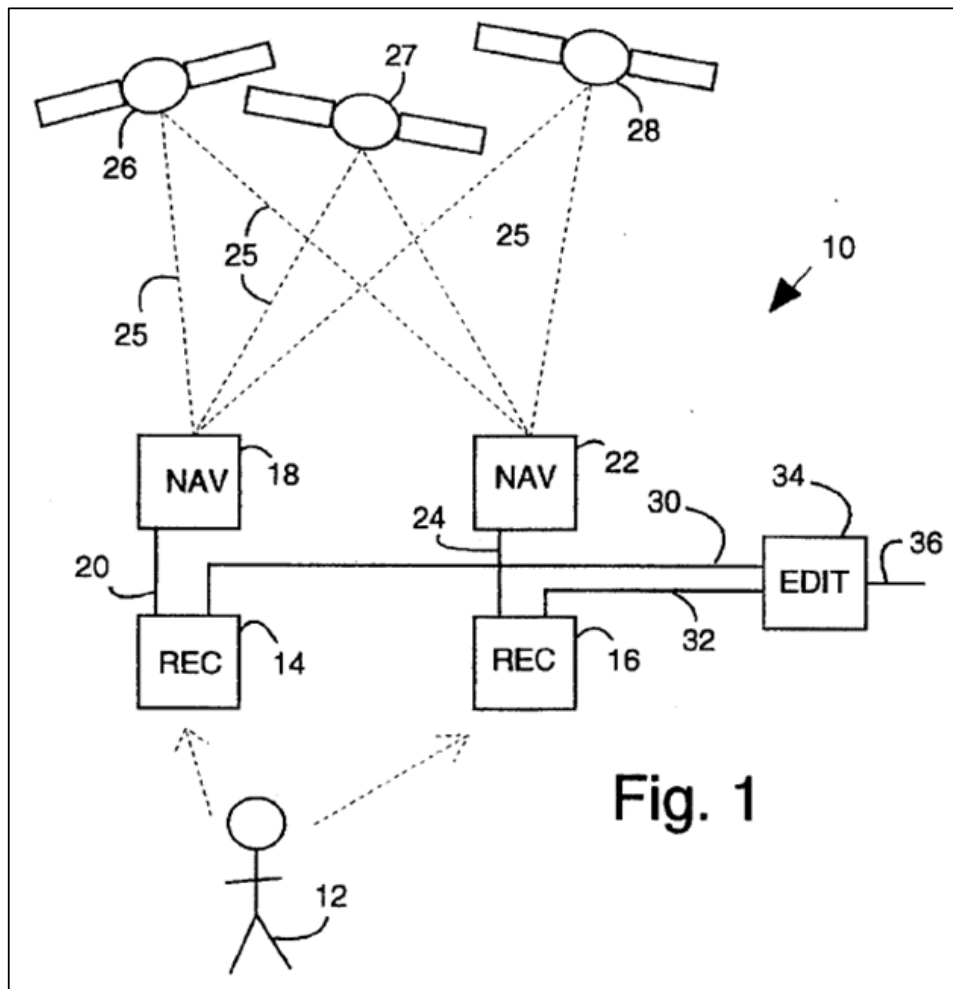
Transmitter 309 of recording unit 107 would transmit this audio data to remote observer 101, where receiver 310 of remote recording unit 105 would receive the locally generated audio and store it in data storage device 305.

184. In sum, Stub discloses this claim because recording unit 105 comprises a recorder and a receiver that is being worn by an observer 101 rather than by a “creator,” and observer 101 is remote from participant 103 who is wearing the local audio device 107. At a minimum, this would have been obvious from Stub’s disclosure.

185. Furthermore, Strub teaches that its recording unit—which can be a remote receiver/recorder—need not be worn by anyone, but instead is detachable so that it can be mounted on an inanimate object such as a bicycle or can be mounted/placed in any other suitable location. *Id.* 65:23-29 (“[T]he visual data acquisition device can be mounted on the recorder, while the rest of the recording unit is mounted on [a] bicycle (this may be desirable to reduce the weight carrier by the recorder, thus increasing the recorder’s comfort....”), 69:19-29 (“It can be particularly advantageous to detachably attach the visual data acquisition device so that the visual data acquisition device can be mounted at various locations....”). A POSA would therefore understand that the bicycle-mounted or location-mounted recording unit comprises a remote receiver (310) and recorder that is not worn by a creator of locally generated audio. At a minimum, this would have been obvious

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 from Stub's disclosure. For example, a POSA reading Strub's discussion of the detachability of its recording units would have considered it obvious to operate the remote recording units without anyone wearing it—for example, by placing it on a table and allowing it to continue receiving and recording audio from other units while being remote from the other units. Strub also discloses a “master recording unit.” *Id.*, 38:35-36. A POSA would know that such a unit would be located remotely from each recorder worn by a creator of locally generated audio.

186. In Woo, the editing station 34 comprises a remote receiver and recorder. *See supra* 17[Pre]; Element 17[H]. The editing station 34 is remote from the local audio device—which comprises recorder 14, GPS receiver 18, and time code generator 43, or recorder 16, GPS receiver 22, and time code generator 43:



Ex. 1004, Fig. 1; *id.* Fig. 3.

187. The editing station is not worn by anyone, including a creator 12 of the locally generated audio. *Id.* 5:1-5, Fig. 1. The editing station is further described as a “suite.” *Id.*, 5:39-42. In view of the foregoing, a POSA would understand Woo to teach this claim because editing station 34 comprises a remote receiver and recorder that is not worn by any creator of locally generated audio, and the editing station 34

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 is remote from local audio device 14/18/43. At a minimum, this would have been obvious from Woo's disclosure.

- t. **'207 Patent Claim 21: "The at least one audio device of claim 17, wherein the audio data includes at least one identifier selected from the group consisting of track identifiers, local audio device identifiers, performer identifiers, and combinations thereof." / '902 Patent Element 2: "A system according to claim 1, wherein said lo-cal audio data includes at least one identifier selected from the group consisting of track identifiers, local audio device identifiers, performer identifiers, and combinations thereof."**

188. In the Lectrosonics IPRs, the Board found that Strub teaches adding a local audio device identifier and a performer identifier to the local audio data. *Supra* § VIII.D.

189. Specifically, Strub's local audio data can include one or more "marks" identifying a track, device, or performer. Ex. 1003, 52:19-33 (marks indicating subject matter or conditions or recorded track), 52:62-53:44 (marks identifying recording device, person making the mark, or "person present in the content"). Strub also discloses: "Further, the recording data can be more specifically encoded so that the recording data is identified as coming from a particular recording unit or group of recording units." *Id.*, 36:37-40. A POSA would know this encoding would be an identifier of a local audio device.

- u. **'207 Patent Claim 22: "The at least one audio device of claim 17, wherein at least one of the group consisting of the local timecode, the master timecode, and**

combinations thereof includes at least one of the group consisting of time data, frame data, type, recorder transport status, name of scene, name of take, track identifier, and combinations thereof.” / ’902 Patent Element 6: “A system according to claim 1, 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.”

190. In the Lectrosonics IPRs, the Board found that Strub teaches master time data including hour, minute, and/or second data—*i.e.*, a master timecode which includes time data. *Supra* § VIII.D.

191. For example, the local timecodes generated by the internal clock in each of Strub’s local audio devices comprise time-stamps—*i.e.*, time data. *See, e.g.*, Ex. 1003, 13:48-67 (“clock...used to time-stamp the recording data”; time-stamps represent “the time at which a displayed recording was obtained”), 63:56-60 (“an internal clock ... used to accurately time-stamp data”), 77:24-28 (describing portable video recorders that “write a time code to the linear data storage medium...indicating ***the time at which corresponding recording data was obtained.***”); *see also id.* 7:11-24 (establishing “temporal correspondence” with stored “visual and aural” data by storing a “time code on the videotape”), 79:63-80:9, Fig. 3 (emphasis added); *see also supra* ’207 Patent Element 17[D]. Strub also discloses including a track identifier in the local timecode used to stamp the audio data. *See supra* ’207 Patent Claim 21. In addition, Strub discloses monitoring recorder transport status—*e.g.*,

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“whether the recording unit is transmitting or not.” Ex. 1003, 48:18-41. Strub also discloses that “In a hybrid recording unit including a mini-DV camcorder (which stores a time code on the videotape as each video frame is acquired, and associates the time code with that video frame).” *Id.*, 78:21-25. A POSA would know that a mini-DV camcorder records both audio and video data in each frame. Strub also discloses this well known fact: “Typically, a recording unit according to the invention is also adapted to obtain audio data representing an aural record of the event (Herein, such data visual and/or audio data is sometimes referred to as ‘recording data’).” *Id.*, 8:50-55.

192. Strub’s master timecodes—GPS time signals or signals from a SMPTE timecode source—comprise GPS time data and/or SMPTE timecodes. Ex. 1003, 63:41-49 (“GPS time signals” “representing the current time”); *See also supra* ’207 Patent Element 17[F]. SMPTE timecodes include time data—specifically, “Twenty-six [bits of a SMPTE timecode] are used to store time information.” Ex. 1004 (Woo), 3:20-22.

193. Woo’s local timecode generator 43 and CPU 44 running the timecode-generation program stored in ROM 58 both generate SMPTE local timecodes which include time data. *See supra* ’207 Patent Element 17[D]; Ex. 1004, 1:21-40 (time code clock provides data “in hours, minutes, seconds and frames”), 2:3-9, 2:42 (time codes include “time bits”), 3:20-22 (“Twenty-six [bits of a SMPTE timecode] are

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 used to store time information.”); *supra* ’207 Patent Element 17[I] (time-tagging local data).

194. The master timecodes that Woo uses to synchronize its local timecode generator 43 are received from one or more of GPS satellites 26-28. *See supra* ’207 Patent Element 17[F]. The GPS signals include time data. Ex. 1004, 4:13-19 (GPS signal provide “highly-accurate one pulse-per-second ($\pm$ one microsecond) to form a time-keeping base for the time code output.”), 5:5-10 (“A navigation satellite receiver 18 [or 22] provides highly-accurate date and time information...”), 5:21-29 (“Each satellite 26-28 has an atomic clock synchronized system-wide to provide highly accurate time clock information.”), 7:18-25, Figs. 2, 4; *see also supra* ’207 Patent Element 17[F].

v. **’207 Patent Claim 23: “The at least one audio device of claim 17, wherein at least one of the master timecode, the local timecode, and combinations thereof is SMPTE compliant timecode.”**

195. Strub’s master timecodes and Woo’s local timecodes are SMPTE-compliant. *See supra* ’207 Patent Claim 22. For example, Strub discloses that “...SMPTE time code input can be used with professional camcorders or portable dockable videotape recorders (VTRs), ..., to enable synchronization with an external device.” *Id.*, 75:47-51. A POSA would know that a camcorder or videotape recorder records both audio and video. Strub also discloses this well known fact: “Typically, a recording unit according to the invention is also adapted to obtain audio data

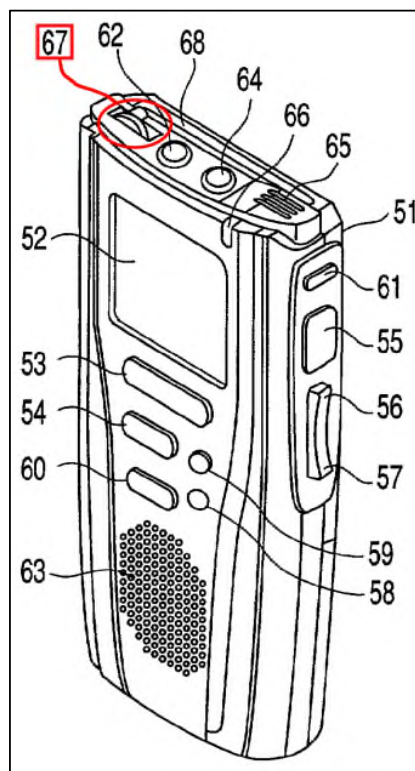
Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 representing an aural record of the event (Herein, such data visual and/or audio data is sometimes referred to as ‘recording data’).” *Id.*, 8:50-55.

w. **’207 Patent Claim 33: “The at least one audio device of claim 17 further comprising: a gain adjustment circuit, the gain adjustment circuit separate from or at least partially implemented by the control unit.”**

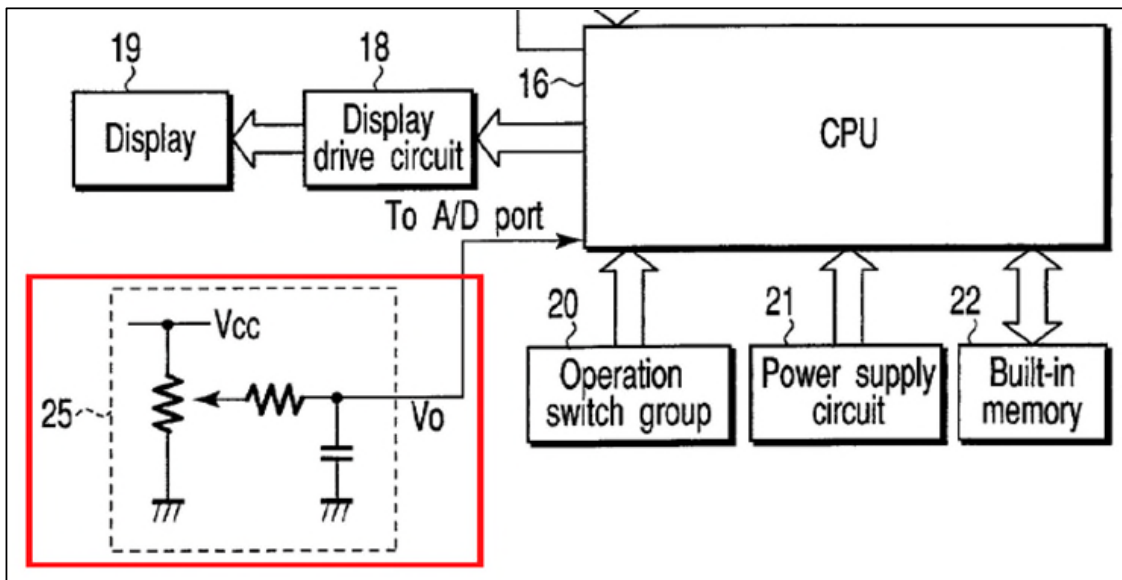
196. Strub’s audio device can be, e.g., a “video camera that includes...automatic gain control.” Ex. 1003, 19:58-63; *see also id.* 89:30-34 (audio/video acquisition device has “control settings,” including “gain”). The limitation “separate from or at least partially implemented by the control unit” has no meaning and thus does not affect the scope of the claim because, logically, if the gain adjustment circuit is not separate from the control unit, then it must be at least partially implemented by the control unit. Even if that limitation is given weight, a POSA would understand that automatic gain control necessarily, and thus inherently, would be either separate from or at least be partially implemented by the device’s control unit.

197. In addition, Strub discloses: “For example, when the above-described lavalier microphone is used as an audio data acquisition device together in a recording unit with the Recon-11 DDR described below, it is necessary to use a pre-amplifier to amplify the audio signal from microphone level to line level...” *Id.*, 29:35-40. A POSA would know that a pre-amplifier is a gain adjustment circuit.

198. To the extent Zaxcom contends that Strub does not disclose the additional limitations of Claim 33, those limitations are taught by Nagai. Nagai's audio device has a volume-control thumbwheel 67 to control a variable resistor in circuit 25, which adjusts the "reproduction level"—and thus the gain—of sound coming from the headphone or speaker, and also adjusts the "attenuation value"—and thus the gain—for recording:



Ex. 1005, Fig. 2A (annotated).



Id. Fig. 1 (excerpted, annotated); *see id.* [0033]-[0036], [0141]-[0143] (“When the volume control 67 is turned, the resistance of the variable resistor varies, as does the output voltage V_o of the volume controller 25.”), [0261]-[0274], [0278]-[0279], [0285], [0321] (reproduction level “used in both the recorder and player modes”), Claims 11-15, Figs. 1, 2A, 3, 21. Nagai’s gain adjustment circuit 25 is separate from its control unit—CPU 16. *Id.* Fig. 1. Yet, the gain adjustment is partially implemented by the CPU in response to the user’s adjustment of the variable resistor in gain adjustment circuit 25. *Id.* [0143] (“When the volume control 67 is turned, the resistance of the variable resistor varies, as does the output voltage V_o of the volume controller 25. Since the CPU 16 recognizes volume set values of the volume control 67 on a scale of 31 stages, the reproduction level can be adjusted....”), [0262]

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 (“[T]he CPU 16 analog-to-digital-converts an output of the volume controller 25.”),
Fig. 1.

- x. **'207 Patent Claim 34: “The at least one audio device of claim 17, wherein at least one of the local timecode is stored with said audio data.”**

199. The audio data in Strub and Woo is “time-stamped” (Strub) or “time tagged” (Woo) with timecodes that are stored with the audio data. *See supra* '207 Patent Element 17[I].

- y. **'207 Patent Element 59[Pre]: “An audio device wearable by a user for storing locally generated audio and communicating the locally generated audio to a wireless transmitter for transmission of the locally generated audio to a remote device, the remote device including at least one of a receiver and a recorder”**

200. Regardless of whether the preamble of Claim 59 is limiting, it is taught by Strub and Woo. *See supra* 17[Pre], 17[A].

- (1) **59[A]: “the audio device comprising: a memory”**

201. This element is taught by Strub. *See supra* 17[C].

- (2) **59[B]: “a local timecode generator operable to generate a local timecode”**

202. This element is taught by Strub and Woo. *See supra* 17[D].

- (3) **59[C]: “an audio input port configured to couple to an audio input device to receive the locally generated audio; and”**

203. This element is taught by Strub, Woo, Nagai, and/or Gleissner. *See supra* 17[B].

(4) **59[D]: “a control unit coupled to the memory, the local timecode generator and the audio input port”**

204. This element is taught by Strub, Nagai, and/or Gleissner. *See supra* 17[E].

(5) **59[E]: “the control unit being operable to: (i) receive a master timecode from a master timecode generator and jam synchronize the local timecode generator to the master timecode generator using the master timecode”**

205. This element is taught by Strub and Woo. *See supra* 17[F].

(6) **59[F]: “(ii) communicate the locally generated audio to the wireless transmitter for transmission of the locally generated audio to the remote device”**

206. This element is taught by Strub and Woo. *See supra* 17[G].

(7) **59[G]: “(iii) store the locally generated audio in the memory as audio data; and ”**

207. This element is taught by Strub and Woo. *See supra* 17[H].

(8) **59[H]: “(iv) stamp at least a portion of the audio data with the local timecode.”**

208. This element is taught by Strub and Woo. *See supra* 17[I].

z. **’207 Patent Claim 60: “The audio device of claim 59, wherein at least one of the master timecode and the local timecode is an SMPTE compliant timecode.”**

209. This element is taught by Strub and Woo. *See supra* ’207 Patent Claim 23.

aa. **’207 Patent Claim 66: “The audio device of claim 59, wherein the control unit is operable to receive commands remotely from a wireless remote control**

unit.” / ’902 Patent Elements 3[A] & 3 [B]: “A system according to claim 1, said system further comprising: at least one remote control unit having an RCU transmitter capable of wirelessly transmitting digital commands; 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”/ ’443 Patent Claim 2: “A system according to claim 1, said system further comprising: at least one remote control unit having an RCU transmitter capable of transmitting digital commands; wherein said remote control unit controls at least one function of said at least one local audio device via transmission of at least one of said digital commands.”/ ’443 Patent Claim 3: “A system according to claim 2, wherein said at least one function includes at least one of the group consisting of playing of said locally generated audio data from said memory, enabling and disabling recording by said at least one local audio device, adjusting a transmitter frequency of said at least one local audio device, adjusting a frequency of said at least one local audio device receiver, enabling and disabling said at least one local audio device wireless transmitter of said at least one local audio device, adjusting a gain of said at least one audio input port, adjusting a high pass filter of said at least one local audio device, selecting record mode of said at least one local audio device, entering at least one master timecode value, storing data in protected areas of said at least one memory, requesting status of said at least one local audio device, and combinations thereof.”

210. Strub discloses persons who wear recording units. *See* Ex. 1003, 8:7-20, Fig. 1 (persons 101, 102, 103 and 104 wearing recording units 105, 106, 107, and 108, respectively). The recording unit can be worn as a “backpack.” *Id.* 16:49-57. Each recording unit includes a “system controller” 301. *Id.* 12:4-13, Fig. 3; *see*

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also id. 7:44-47. Strub further discloses the use of a “control interface device” (i.e., remote control unit) to control the recording unit. *Id.* 45:51-56; Fig. 5. Strub teaches that the control interface device is remote and separate from the recording unit. *Id.* 47:25-32 (“However, it is not necessary – and may not be desirable – to mount the control interface device on the recorder.”). Therefore, the control interface device may be a handheld device placed in the pocket (*id.* 46:18-24), a brooch (*id.* 46:54-56), a watch (*id.*), or attached to a wristband (*id.* 47:2-9). Indeed, the control interface device can be mounted on an object other than the person/recorder, such as a bicycle. *Id.* 47:33-48. The control interface device transmits, and the system controller (i.e. control unit) is operable to receive, “instructions” (i.e., commands). *Id.* 45:52-65, 47:49-50. Such commands include: start/stop operation (*id.* 47:50-56), record (*id.* 47:61-63), a kill switch to shut down power (*id.* 48:5-17), control of the data storage device (*id.* 49:4-14), allow/prohibit transmission of recordings to other recording units (*id.* 49:23-31), specify the amount of data compression applied (*id.* 49:37-45), marking portions of a recording (*id.* 49:46-55), and begin/terminate display of a recording (*id.* 57:25-32). *See also id.* 60:12-23, 60:63-61:4, 61:51-62:13. The commands are received by the system controller 301 (control unit) of the recording unit. *Id.* 45:56-46:5. Further, Strub teaches that the control interface unit may communicate wirelessly with the recording unit. *Id.* 47:41-47 (“When the control interface device ... is adapted for mounting on another object, it can be

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 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.”); *see also id.* 68:11-19, 70:38-46, Fig. 7 (control interface unit 702 for recording unit 700 can utilize “wireless” communication).

- bb. **'902 Patent Element 3[C]: “wherein said function includes at least one of the group consisting of ... [adding/deleting/altering] said local audio device identifier ... [adding/deleting/altering] said performer identifier ... and combinations thereof.”**

211. Strub meets this element. Strub teaches that “[t]he control interface device can also be implemented so as to enable specification of multiple types of marks, each mark having a different meaning.” Ex. 1003 at 51:32-34. Strub teaches that such marks can be a local audio device identifier, a user identifier, or a performer identifier. *See id.* at 52:62-53:44.

- cc. **'902 Patent Element 12[Pre]: “A method of wirelessly recording local audio, said method comprising:”**

212. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[Pre]

- dd. **'902 Patent Element 12[A]: “locally receiving said local audio generated by at least one performer during an audio event;”**

213. This element is taught by Strub, Woo, Nagai, and Gleissner. *See supra* '902 Patent Elements 1[B] and 1[D].

ee. **'902 Patent Element 12[C]: “locally recording said local audio as local audio data in at least one memory of at least one local audio device; and”**

214. This element is taught by Strub, Woo, Nagai, and Gleissner. *See supra* '902 Patent Elements 1[E] and 1[F].

ff. **'902 Patent Element 12[D]: “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;”**

215. This element is taught by Strub and Woo. *See supra* '902 Patent Element 12[B]. More specifically, Strub's remote recording unit receives the transmitted audio data via a receiver (“receiver”) and records it. Ex. 1003, 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”), 37:18-40. In addition, Woo's system includes at least one local audio device which stores locally generated audio and transmits the locally generated audio to a remote recorder—editing station 34, as depicted in Ex. 1004, Figs. 1 and 3.

gg. **'902 Patent Element 12[E]: “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;”**

216. Strub discloses retrieving at least a portion of said local audio data during or subsequent to said audio event. *See* Ex. 1003 12:4-39, 66:7-25 (audio data

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retrieved by transmitting the data to other devices via transmitter or wired
connections).

217. Further, Strub discloses combining said remote audio data with said local audio data by replacing a portion of said remote audio data with said local audio data. *See id.* 37:18-40 (recorders “exchange recording data after the event is over, thus enabling each recorder to obtain, if desired, part or all of a recording obtained by another recording unit”), 85:28-41; 87:61-63. In addition, Strub discloses “[t]he time-stamps can be used, for example... to enable post-event synchronization of the display of recordings obtained by different recording units.” Ex. 1003, 13:50–67.

218. In addition, Woo teaches using software and timecode information to synchronize and “blend” two different recordings from different microphones to generate a third, composite recording which is a combination of the first two. Ex. 1004, 8:44-51 (“A step 114 combines the first and second recordings, according to a synchronization between the first and second date and time code information. A step 116 generates a third recording from the date and time synchronized portions.”), 9:65-5, 10:1-5, 11:12-16 (“editing means connected to the first and second recording means for combining said first and second recording mediums according to said recorded formatted digital time codes to create a time-synchronized composite recording.”), 12:11-14. Woo provides alternative examples in which the combining

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 is done either in post-processing or in real time. *See id.*, 8:51-54, 10:7-10, 10:12-14. Moreover, Woo teaches synchronizing clocks of recording units so that recordings can later be combined by aligning time stamps. *See id.*, 3:38-67.

- hh. **'902 Patent Element 12[F]: "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."**

219. This element is taught by Strub. *See supra* '902 Patent Element 2.

- ii. **'902 Patent Element 13[Pre]: "A method according to claim 12, said method further comprising the step of:"**

220. *See supra* '902 Patent Elements 12[Pre] – 12 [F].

- jj. **'902 Patent Element 13[A]: "locally receiving or generating a plurality of master timecodes;"**

221. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[A]

- kk. **'902 Patent Element 13[B]: "wherein said local audio data includes stamped local audio data and unstamped local audio data;"**

222. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[G].

- ll. **'902 Patent Element 13[C]: "wherein said 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 timecodes;"**

223. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[H].

mm. **'902 Patent Element 13[D]: “wherein said unstamped local audio data does not include a reference to said master timecodes;”**

224. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[I].

nn. **'902 Patent Element 13[E]: “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.”**

225. '902 Patent Element 13[E] recites a limitation identical to the limitation of '902 Patent Element 11. In the Lectrosonics IPRs, the Board found that “claim[...11 of the '902 patent [is] unpatentable under 35 U.S.C. § 103(a) as obvious [over] Strub in combination with Nagai or Gleissner, and Woo.” Ex. 1017 at 35; *see also supra* § VIII.D.

226. In addition, while this element requires only “at least one of the group,” Strub teaches master timecodes that include at least time data (Ex. 1003, 12:39-52, 63:12-15, 70:26-37, 75:25-51, Fig. 3), frame data (14:15-25), timecode type (4:7-13), recorder status (48:18-41), and track identifier (52:19-33).

227. Moreover, Woo teaches a master timecode including at least time data. *See* Ex. 1004, Abstract, 1:21-40, 1:60-2:9, 2:39-48, 3:3-24, 4:3-32; 7:26-50.

oo. **'902 Patent Element 15[Pre]: "A method according to claim 12, further comprising:"**

228. *See supra* '902 Patent Elements 12[Pre] – 12 [F].

pp. **' 902 Patent Element 15[A]: "manipulating said local audio data contained in at least a portion of said memory;"**

229. Strub discloses said memory. *See supra* '902 Patent Element 1[E].

Strub further discloses at least the following manipulation of audio data: transmitting digital commands (Ex. 1003, 47:49-63), adding a track identifier (52:19-33), adding marks identifying a particular recording unit (52:62-53:15), and adding marks identifying the performer and people present in a recording (53:16-44).

230. In addition, Woo teaches manipulating said local audio data contained in at least a portion of said memory, including at least "editing sessions" and that "[t]ime codes may also be used for film editing, film on tape editing, and many other tasks." Ex. 1004, 1:36-2:9. *See also, id.*, 5:36-52 (describing use of an editing station).

qq. **'902 Patent Element 15[B]: "wherein said manipulation includes at least one of the group consisting of [adding/deleting/altering] said track identifier... [adding/deleting/altering] said local audio device identifier...[adding/deleting/altering] said performer identifier...and combinations thereof."**

231. This element is taught by Strub and Woo. *See supra* '902 Patent Element 15[A].

rr. **'902 Patent Claim 16: "A method according to claim 15, wherein said manipulation is performed via commercially available software."**

232. This element is taught by Strub and Woo. *See supra* '902 Patent Elements 15[A] and 15[B].

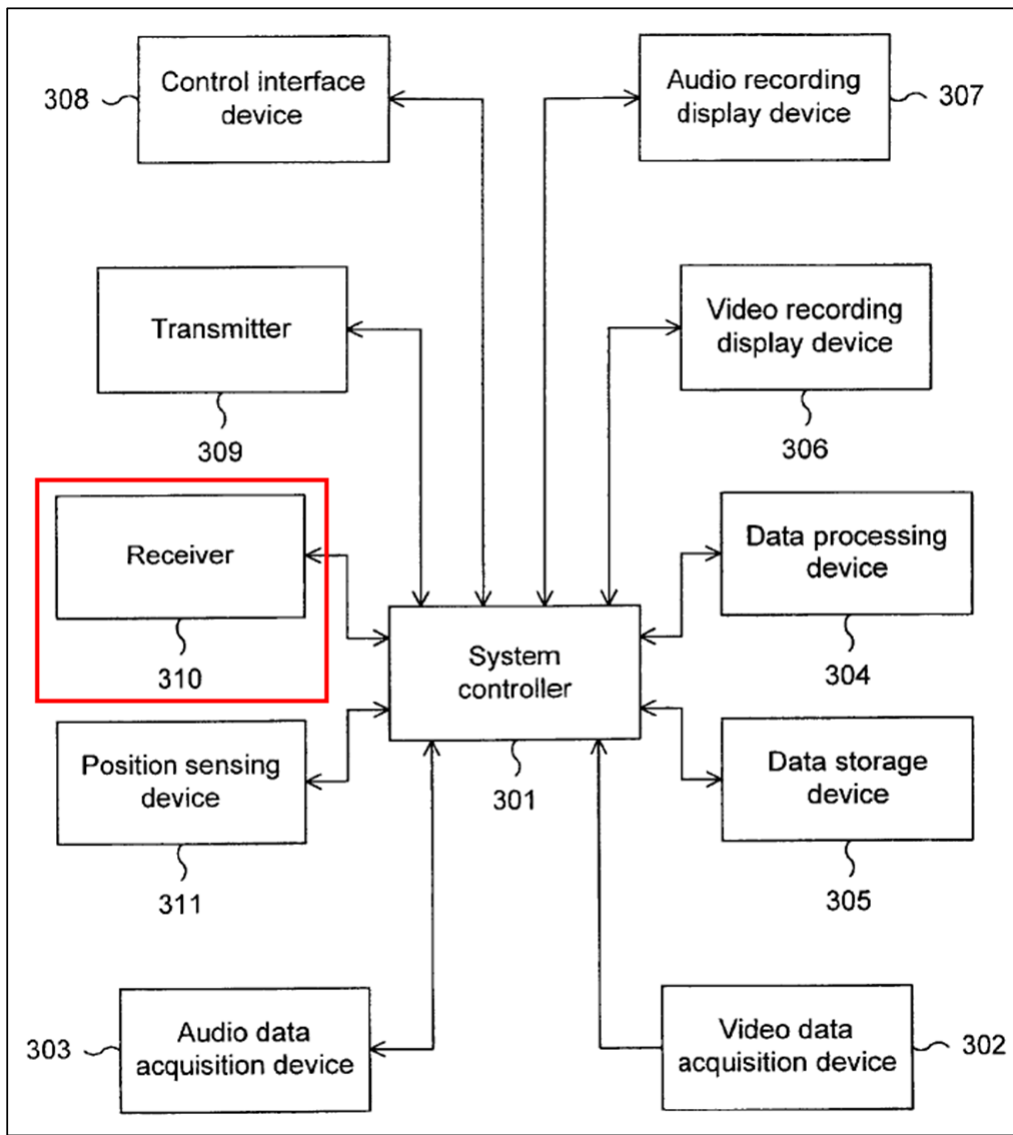
233. In addition, commercially available software for said manipulating was well known to a POSA. For example, the '902 Patent discloses that "electronic mixing may be performed via [third-party] commercially available software such as Pro Tools or the like and may be performed in addition to or in lieu of live wireless recording of the audio event." '902 Patent, 10:48-52.

234. Commercially available software such as Avid Media Composer discloses multiple ways of editing audio or video. *See* Ex. 1033. For example, Avid Media Composer describes "single-mark editing," which allows users to "establish a single mark," and discloses using SMPTE timestamps to mark audio and video data. *Id.*, 342, 146, 321 (disclosing the use of "SMPTE timecode[s]," and that a user can "[t]ype a master timecode to find a frame in the sequence"). In addition, commercially available Short/cut 2000 software similarly discloses multiple ways of editing audio or video. *See, e.g.*, 1034

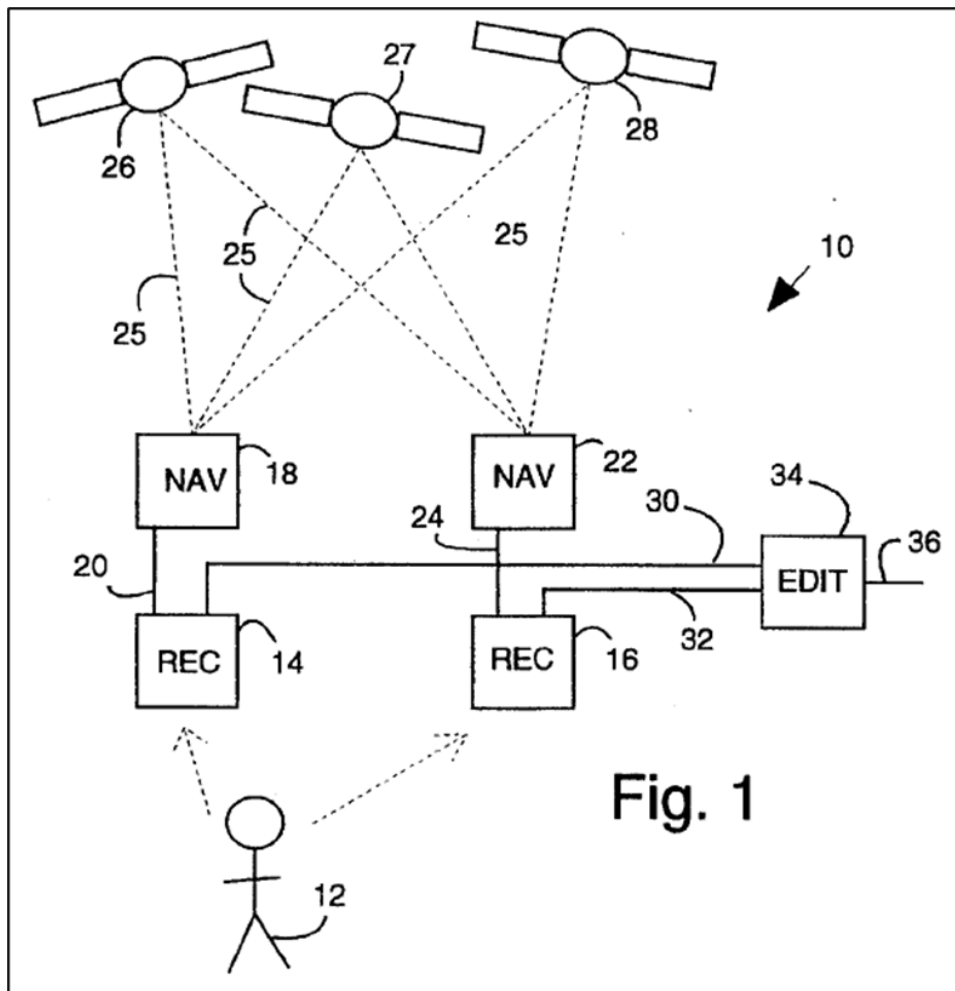
ss. **'443 Patent Element 7[A]: "A system according to claim 1, said system further comprising: at least one of the group consisting of a recorder, a receiver, and combinations thereof, said at least one of the group consisting of said recorder, said receiver, and**

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**combinations thereof coupled wirelessly to said at least
one local audio device;**

235. Strub teaches multiple local audio devices (i.e., “recording units”). Ex. 1003, Fig.1 (105-108), 8:6-20. A given local audio device wirelessly “transmits” audio data to “other” local audio devices via its transmitter 309. 12:31-39, Fig. 3. The “other” local audio devices include a receiver 310 to receive the transmitted audio data and record it in data storage device 305. 35:54-65 (“each recording unit can include a receiver that...recei[ves]...signals broadcast from other recording units that represent the recording data”; “enabling [the] recording unit to ... store...a recording”), 37:18-40 (“[R]ecording data from multiple recording units can be recorded simultaneously”), 12:39-46, 12:16-21. Thus, the receiving local audio device comprises a receiver and a recorder that are wirelessly coupled to the transmitting local audio device.



236. This element is also taught by Woo. Recorders 14 and 16 (i.e., “local audio devices”) wirelessly “transmit” their recordings to editing station 34 using a “radio link.” Ex. 1004. 5:37-45, Fig. 1:



237. Editing station 34 necessarily includes a receiver to receive the recordings transmitted over the radio link. 5:37-49 (“The connections 30 and 32 represent the communication of the respective recordings by wire, **radio link**”). Editing station 34 also comprises a recorder since it receives and stores the audio for subsequent “editing” and “layback” [sic playback]. *Id.* at 5:39-42, 1:21-28 (editing used to combine recorded sounds), 11:12-14, 12:11-13. Thus, a POSA

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- tt. **'443 Patent Element 7[B]: “wherein said at least one local audio device transmits said local audio data to said at least one of the group consisting of said recorder, said receiver, and combinations thereof wirelessly via said at least one local audio device wireless transmitter.”**

238. In each of Strub and Woo, the local audio device transmits the local audio data to the receiver/recorder wirelessly via a local audio device wireless transmitter. *See supra* '443 Patent Elements 1[G], 7[A].

- uu. **'443 Patent Claim 8: “A system according to claim 7, said system further comprising: at least one remote control unit having an RCU transmitter capable of transmitting digital commands; wherein said remote control unit controls at least one function of at least one of the group consisting of said at least one local audio device, said receiver, said recorder, and combinations thereof via transmission of at least one of said digital commands.”**

239. Strub meets the additional limitations of Claim 8. *See supra* '443 Patent Claim 2.

- vv. **'443 Patent Claim 15: “A system according to claim 1, wherein said local audio data is combined electronically to create a single multi-track data file.”**

240. Strub discloses or renders obvious combining the local audio data electronically to create a single multi-track data file. For example, each of Strub's

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recording units 105-108 and 300 receives and displays multiple tracks of incoming audio data—*e.g.*, local audio data received from the other recording units. Ex., 1003, 12:21-36 (“The visual recording display device 306 and the audio recording display device 307...display...the...audio recording...being obtained by a compatible recording unit (which can be...another recording unit)...The transmitter 309 transmits signals (“recording data 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 generate a display of the visual and/or audio recording being obtained by the recording unit 300”), 37:18-40 (recorders exchange tracks after the event, enabling each unit to obtain recordings made by the others), 44:48-45:7 (“simultaneously displaying multiple visual recordings at one time...to enable[] a [user] to be cognizant of the content of the visual recordings being obtained by more than one recording unit,”), 66:7-25 (transmitting audio data to the other devices), Fig. 1. Strub teaches that the audio tracks “can be blended in any appropriate way. For example, an audio mixer can be used to select audio recording data from multiple audio recordings..., and the selected audio recording data used to generate an audio display.” *Id.* 92:38-42; *see also id.* 92:24-37, 92:43-66. Strub explains that “[s]imultaneous display” of separate audio tracks from the different recorders “can give a more complete representation of the audio content...by better reproducing the content...and by better replicating the richness of the audio space [, including] the

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 spatial relationships of the recording units during recording....” *Id.* 92:66-93:11; *see also id.* 79:54-80:9 (“temporally synchronize multiple recordings of the same event...obtained by different recording units”), 85:28-56. In view of Strub’s teaching of the value of maintaining separate audio tracks of the event, a POSA would have understood Strub’s reference to an “audio mixer” displaying multiple tracks as meaning either a special-purpose mixing device or a computer running conventional audio post-processing software, either of which would necessarily include the conventional, standard functionality of saving the displayed multi-track audio as a single file. A POSA would have considered such standard functionality to be obvious, especially because post-processing software was in widespread use long before the priority date of the Challenged Patents. Nonlimiting examples of such software that existed before the priority date of the Challenged Patents include Pro Tools (which is referenced in the Challenged Patents, *see, e.g.*, ’207 Patent at 11:22-25), Avid Media Composer, and Short/cut 2000. *See* Ex. 1033 Ex. 1034.

241. To the extent Zaxcom contends that Strub does not disclose the additional limitations of Claim 15, those limitations are taught by Woo. Woo’s system uses software and timecode information to “blend”—i.e., combine—two different recorded tracks from different microphones to generate a “time-synchronized composite recording”—i.e., a single data file comprising a multi-track combination of the first two recordings. Ex. 1004, 8:44-51 (“A step 114 combines

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the first and second recordings, according to a synchronization between the first and second date and time code information. A step 116 generates a third recording from the date and time synchronized portions of the first and second recordings, wherein the third recording presents an apparently time-seamless blend of the performance from a plurality of viewpoints.”), 9:65-10:5 (combining first and second recordings to generate a third recording comprising a blend of the event from a “plurality of viewpoints”), 11:12-16 (“combining said first and second recording mediums...to create a time-synchronized composite recording.”), 12:11-14, Fig. 4 (Step 114 (“Combine First and Second Recordings”), Step 116 (“Generate a Composite Third Recording”)). Woo provides examples in which the combining is done either in post-processing or in real time. *Id.*, 8:51-54, 10:7-10, 10:12-14. A POSA would have understood Woo’s description of generating a “time-synchronized composite recording” from two recordings of local audio data to mean that the local audio data is combined electronically to create the time-synchronized composite recording, and that the composite recording is a single multi-track data file. In addition, A POSA would have considered it obvious to save Woo’s multi-track, composite recording as a single file, *e.g.*, using the post-processing software discussed above.

ww. **’443 Patent Claim 17: “A system according to claim 1, wherein said at least one control unit is a digital signal processor.”**

242. Strub teaches that the control unit in the local audio device can be a digital signal processor (“DSP”) used, *e.g.*, to process the incoming audio signals for “[b]eam forming [which] can... enable isolation of the location of the source of an audio signal from the difference in time of receipt of the audio signal at each microphone.” Ex. 1003, 31:51-62. The digital signal processing functionality needed for beam forming can be performed, *e.g.*, by the system controller 301—a control unit—“operating in accordance with a computer program stored in the data storage device [305].” *Id.* 31:54-57, Fig. 3. Thus, the system controller 301 itself is a DSP. As another example, the local audio device can have “a separate processing device or devices, *e.g.*, one or more digital signal processors, to perform beam forming.” *Id.* 31:57-59. A POSA would have considered the selection of either software-based digital signal processing or a separate DSP device to be a routine and obvious design choice.

243. Woo’s local audio device also includes a DSP 52. Ex. 1004, 7:54-58, Fig. 3; *see also id.* 8:60-63, 9:5-10, Claims 7-9, Figs. 5, 6 (DSPs 124, 144, 150). A POSA would have considered it a routine, obvious design choice to implement Woo’s DSP 52 in software as part of the functionality of Strub’s system controller 301 or as a separate DSP control unit in Strub’s local audio device.

xx. **’443 Patent Claim 19: “A system according to claim 1, wherein said at least one local audio device is a body pack.”**

244. Strub's local audio device can a body pack. For example, Strub illustrates and describes its recording unit as worn on the recorder's body in the form of a backpack or other user-wearable package. Ex. 1003, 11:11-17 ("highly desirable that the recording unit be adapted to be mounted on (e.g., attached on, or worn by)...the recorder"), 16:49-65 (local audio device worn as backpack), 70:52-67, 71:53-66 (device attached to user's body with waist strap), 73:24-50 (harness, backpack), Figs. 1, 4, 6, 8A-9B (depicting various embodiments of Strub's body pack).

yy. **'443 Patent Claim 20: "A system according to claim 1, wherein said at least one local audio device receives said master timecodes via at least one of the group consisting of said local audio device receiver, said audio input port, said audio input device, and combinations thereof."**

245. Each of Strub's and Woo's local audio devices receives the master timecodes via its local audio device receiver. *See supra* '443 Patent Element 1[C].

zz. **'443 Patent Claim 23: "A system according to claim 1, wherein said at least one local audio device receiver stores said master timecode in a buffer of said at least one local audio device receiver."**

246. Strub's local audio device has "one or more volatile data storage devices[,] [f]or example, a random access memory (RAM)...used to buffer data during recording." Ex. 1003, 33:29-32. Thus, Strub's non-volatile memory is a buffer. The data stored in the non-volatile memory—*i.e.*, the buffer—include

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“data...other than the recording data..., such as...data identifying the time at which the recording data was obtained...” *Id.* 33:39-42. A POSA would have understood Strub’s reference to “data identifying the time at which the recording data was obtained” to include the master timecodes and, furthermore, would have considered it obvious to include the master timecodes in the timing data stored in Strub’s buffer.

aaa. **’443 Patent Claim 24: “A system according to claim 1, wherein said at least one local audio device transmits said local audio data in digital form.”**

247. Strub’s local audio device transmits the local audio data in digital form. For example, Strub states that “either analog or digital transmitters/receivers can be used” in its recording units, but that “digital devices are more reliable[,] make[] it easier to broadcast other data...with the recording data [and] match the type of transmitters/receivers with the type of data acquisition devices being used, [and make it] not necessary to perform an A/D or D/A conversion prior to transmission of the data.” Ex. 1003, 37:53-67.

bbb. **’443 Patent Claim 25: “A system according to claim 1, wherein said at least one local audio device receiver wirelessly receives at least one of the group consisting of digital commands, said master timecodes, remotely generated audio, and combinations thereof.”**

248. Strub’s local audio device receiver wirelessly receives digital commands wirelessly from Strub’s control interface device. *See supra* ’443 Patent

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Claim 2. Strub's and Woo's local audio device receivers wirelessly receive the
master timecodes. *See supra* '443 Patent Element 1[C].

ccc. **'443 Patent Claim 26: "A system according to claim 25, said system further comprising: at least one remote control unit having an RCU transmitter capable of wirelessly transmitting said at least one of the group consisting of said master timecodes, said digital commands, said remotely generated audio, and combinations thereof."**

249. Strub's "control interface device" comprises a remote control unit having an RCU transmitter that wirelessly transmits digital commands. *See supra* '443 Patent Claim 2. In addition, the GPS satellites in Strub and Woo wirelessly transmit the master timecodes. *See supra* '443 Patent Elements 1[A], 1[C]. A POSA would have considered it obvious to incorporate wireless transmission of master timecodes, as disclosed in Strub and Woo, into Strub's control interface device.

ddd. **'443 Patent Claim 27: "A system according to claim 26, wherein said master timecode generator is integral to said remote control unit."**

250. The GPS satellites in Strub and Woo generate the master timecodes. *See supra* '443 Patent Element 1[A]. A POSA would have considered it obvious to incorporate generation of the master timecodes, as disclosed in Strub and Woo, into Strub's control interface device, particularly since generation of master timecodes was extremely well known and conventional before the filing date of the '443 Patent.

B. '902 Patent GROUND 2: Claims 4, 5, 9, and 10 of the '902 Patent are Rendered Obvious Under § 103 By the Combination of Strub, Woo, Nagai, Gleissner, and Jones

1. A POSA Would have Been Motivated to Combine Strub, Woo, Nagai, Gleissner, and Jones

251. As previously discussed, a POSA would have been motivated to combine Strub, Woo, Nagai, and Gleissner. *See supra* § XI.A.1. In addition, the teachings of Strub, Woo, Nagai, Gleissner, and Jones provide substantial motivation to combine them.

252. Furthermore, every element of Challenged Claims 4, 5, 9, and 10 appears in Strub, Woo, Nagai, Gleissner, and/or Jones. *See infra* § XI.B.2. Those elements are standard method steps using well-known, off-the-shelf audio-recording and radio components that would be familiar to any POSA. For example, devices like Jones' multi-flash-card reader were common and well known as of the priority date of the patents. A POSA would have been familiar with advantages of such devices such as allowing the flexibility of interfacing different types of memories with electronic devices such as audio recorders and computers. *See, for example, Ex. 1010, 1:20-23, 2:25-60, 3:8-55.* There is nothing unpredictable about the claimed use of those components in a wireless audio-recording system. Furthermore, the technology and operation of such components was well-understood in the relevant time period such that the combination of Strub, Woo, Nagai, Gleissner, and Jones would have had a high likelihood of success.

253. Thus, since Strub and Woo teach the same kind of device used for the same purpose, since each of them identified the same problem identified in the '902 Patent and solved it in the same way, since the microphone jacks and plugs of Nagai and Gleissner and the multi-slot memory unit of Jones were old elements performing the same function they had always been known to perform, since audio input ports in general have been known for over a century, since the combination of elements in the Challenged Claims is nothing more than “the predictable use of prior art elements according to their established functions,” and since the combination of Strub, Woo, Nagai, Gleissner, and Jones would have had a high likelihood of success, a POSA would have been motivated to combine Strub, Woo, Nagai, Gleissner, and Jones.

2. The Combination of Strub, Woo, Nagai, Gleissner, and Jones Meets All Elements of Challenged Claims 4, 5, 9 and 10

254. As discussed below, the Preambles and every element of Claims 4, 5, 9, and 10 are taught by Strub, Woo, Nagai, Gleissner, and/or Jones. To the extent Patent Owner alleges that any of those references fails to teach any claim element, that element is provided by the other references. Further, to the extent the teachings of any of Strub, Woo, Nagai, Gleissner, and/or Jones are substantively different for any given claim element, it would have been at least obvious to try the other

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a. **’902 Patent Element 4[A]: “A system according to claim 1, said system further comprising: a multi-memory unit including:”**

255. The elements of Claim 4[A] are taught by Strub, Woo, Nagai, and/or Gleissner. *See supra* ’902 Patent Elements 1[Pre] – 1[I].

256. In addition, Jones teaches multiple examples of a multi-memory unit—*e.g.*, flash reader 42, flash reader within computer 20, and “FlashToaster” 80—each including at least one memory unit interface—*e.g.*, connectors 62, 64, 66, 68—for connection to at least a portion of a memory—*e.g.*, memory cards 16, 18, 24, and 28. Ex. 1010 9:56-10:3 (describing “multi-slot embodiment of the flash-card reader [42].”), 10:4-29 (“Having separate connectors...with separate slots in flash reader 42 allows for card-to-card transfers....Each of the flash memory cards in connectors 62, 64, 66, 68 can be assigned a different drive letter by the operating system.”), 10:30-12:25, Figs. 6A-9.

b. **’902 Patent Element 4[B]: “at least one memory unit interface for connection to at least a portion of said memory; and”**

257. Jones teaches at least one memory unit interface for connection to at least a portion of said memory. *See, e.g.*, Ex. 1010, Abstract (“The flash card reader

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 includes an Integrated Device Electronics (IDE) interface for transferring data to a personal computer.”).

- c. **’902 Patent Element 4[C]: “a user interface for manipulating said local audio data contained in said at least a portion of said memory;”**

258. Strub teaches manipulating said local audio data contained in at least a portion of said memory. *See supra* ’902 Patent, Element 15[A]. Strub further teaches a user interface for said manipulating. *See, e.g.*, Ex. 1003, 46:10-33; 58:8-14 (“A control interface device in a recording unit...can also include a control interface display for enabling the recorder to input control instructions to the recording unit.”); 58:44-56 (“A control interface display can also include a display that makes use of graphical user interface...that allow the recorder to specify instructions 50 regarding any of the above-described control functions.”); 51:32-56 (“The control interface device can also be implemented so as to enable specification of multiple types of marks, each mark having a different meaning.”); *see also supra* ’902 Patent Element 15[A].

- d. **’902 Patent Element 4[D]: “wherein said manipulation includes at least one of the group consisting of adding said track identifier to at least a portion of said local audio data, deleting said track identifier from at least a portion of said local audio data, altering said track identifier associated with 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, deleting said local audio device identifier from at least a portion of said local audio data, altering said local audio device**

identifier associated with at least a portion of said local audio data, adding said performer identifier to at least a portion of said local audio data, deleting said performer identifier from at least a portion of said local audio data, altering said performer identifier associated with at least a portion of said local audio data, and combinations thereof.”

259. Strub teaches said manipulating. *See supra* ’902 Patent Elements 15[A] and 4[C]. *See also*, Ex. 1003, 51:32-56 (“The control interface device can also be implemented so as to enable specification of multiple types of marks.”). Strub further discloses at least the following manipulation of audio data: transmitting digital commands (*id*, 47:49-63), adding a track identifier (52:19-33), adding marks identifying a particular recording unit (52:62-53:15), and adding marks identifying the performer and people present in a recording (53:16-44).

- e. **’902 Patent Element 5: “A system according to claim 4, wherein said manipulation is performed via commercially available software”**

260. Strub teaches said manipulating. *See supra* ’902 Patent Elements 15[A] and 4[C]. *See also*, Ex. 1003, 51:32-56 (“The control interface device can also be implemented so as to enable specification of multiple types of marks.”). Strub further discloses at least the following manipulation of audio data: transmitting digital commands (*id*, 47:49-63), adding a track identifier (52:19-33), adding marks identifying a particular recording unit (52:62-53:15), and adding marks identifying the performer and people present in a recording (53:16-44).

- f. **'902 Patent Element 5: "A system according to claim 4, wherein said manipulation is performed via commercially available software."**

261. This element is taught by Strub and Woo, and by commercially-available software, such as Pro Tools. *See supra* '902 Patent Elements 15[A]-[B], 16.

- g. **'902 Patent Element 7[Pre]: "A system for recording locally generated audio comprising:"**

262. This element is taught by Strub and/or Woo. *See supra* '902 Patent Element 1[Pre].

- h. **'902 Patent Element 7[A]: "at least one master timecode generator for generating a plurality of master timecodes; and"**

263. This element is taught by Strub and/or Woo. *See supra* '902 Patent Element 1[A].

- i. **'902 Patent Element 7[B]: "at least one local audio device wearable by a creator of said locally generated audio including:"**

264. This element is taught by Strub and/or Woo. *See supra* '902 Patent Element 1[B].

- j. **'902 Patent Element 7[C]: "at least one local audio device receiver for receiving at least one of the group consisting of digital commands and said master timecodes;"**

265. This element is taught by Strub and/or Woo. *See supra* '902 Patent Element 1[C].

- k. **'902 Patent Element 7[D]: “at least one audio input port for receiving locally generated audio from an audio input device;”**

266. This element is taught by Strub, Nagai, Gleissner, and/or Woo. *See supra* '902 Patent Element 1[D].

- l. **'902 Patent Element 7[E]: “at least one memory;”**

267. This element is taught by Strub. *See supra* '902 Patent Element 1[E].

- m. **'902 Patent Element [7]F: “at least one local timecode generator for generating a plurality of local timecodes; and”**

268. In the Lectrosonics IPRs, the Board found that Strub teaches a local timecode generator. *Supra* § VIII.D.

269. In particular, Strub's local audio device (a recording unit) has an internal clock and a GPS receiver, each of which comprises a local timecode generator operable to generate a plurality of local timecodes. For example, Strub discloses timestamping the recorded audio data and synchronizing recordings from multiple recording units in post-processing using those timestamps. Ex. 1003, 13:50-67, 79:54-80:9, 84:5-25. To perform the timestamping, Strub's recording unit includes an internal clock that provides a timecode—*e.g.*, a signal indicating the time—used to timestamp the recording data. 13:48-67, 63:41-49, 63:50-60, 79:54-

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80:9, Fig. 3. The GPS position sensing device 311 and SMPTE input circuit in
Strub’s local audio device also comprise local timecode generators. *Id.* 62:53-55,
63:41-49, 75:21-22, 75:47-51.

270. Woo’s local audio device includes a local time code generator 43. *See supra* ’902 Patent Element 1[A]; Ex. 1004, 7:28-37, Fig. 3, 3:3-40. In addition, Woo’s local audio device has a CPU 44 (local timecode generator) which executes “an application program for generating SMPTE time codes...” *Id.* 8:8-9, 8:21-22, Fig. 3. The local timecode generator 43 generates SMPTE timecodes based on timing information received from a GPS satellite through GPS receiver(s) 18 and/or 22. Ex. 1004, Abstract, 4:13-19, 3:3-40 (local timecode generator can “follow the timecode off...a tape machine,”).

- n. **’902 Patent Element 7[G]: “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;”**

271. In the Lectrosonics IPRs, the Board found that Strub teaches “at least one control unit electrically coupled to said local audio device receiver, said audio input device, said memory, and said local timecode generator.” *Supra* § VIII.D.

272. In addition, this element is taught by Strub, Gleissner, and/or Woo. *See supra* ’902 Patent Element 1[F].

- o. **'902 Patent Element 7[H]: "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"**

273. Strub discloses at least one first timestamp to reference at least a portion of stamped local audio data to at least one of the local timecodes. In particular, Strub's local audio device (a recording unit) has an internal clock and a GPS receiver, each of which comprises a local timecode generator operable to generate a plurality of local timecodes to be applied to the local audio data. *See, e.g.*, Ex. 1003, 62:26-63:50, 75:25-57.

274. Woo also discloses at least one first timestamp to reference at least a portion of stamped local audio data to at least one of the local timecodes. *See, e.g.*, Ex. 1004, 4:13-19, 4:45-48, 5:5-10, 5:21-29, 5:54-67, 7:18-25, 7:26-47, 7:48-8:59, 8:60-9:4, 9:5-19, 9:33-39, 9:45-55, 10:15-64, Figs. 2-4.

- p. **'902 Patent Element 7[I]: "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"**

275. In the Lectrosonics IPRs, the Board found that Strub teaches adding a local audio device identifier and a performer identifier to the local audio data. *Supra* § VIII.D.

276. Specifically, Strub's local audio data can include one or more "marks" identifying a track, device, or performer. Ex. 1003, 52:19-33 (marks indicating

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- q. **'902 Patent Element 9[Pre]: “A system according to claim 7, said system further comprising:”**

277. This element is taught by Strub, Nagai, Gleissner, and/or Woo. *See supra* '902 Patent Elements 7[Pre] – 7[I].

- r. **'902 Patent Element 9[A]: “a multi-memory unit including:”**

278. This element is taught by Jones. *See supra* '902 Patent Element 4[A].

- s. **'902 Patent Element 9[B]: “at least one memory unit interface for connection to at least a portion of said memory; and”**

279. This element is taught by Jones. *See supra* '902 Patent Element 4[B].

- t. **'902 Patent Element 9[C]: “a user interface for manipulating said local audio data contained in said at least a portion of said memory;”**

280. This element is taught by Strub. *See supra* '902 Patent Element 4[C].

- u. **'902 Patent Element 9[D]: “wherein said manipulation includes at least one of the group consisting of adding said track identifier to at least a portion of said local audio data, deleting said track identifier from at least a portion of said local audio data, altering said track identifier associated with 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, deleting said local audio device identifier from at least a portion of said local audio data, altering said local audio device identifier associated with at least a portion of said local audio data, adding said performer identifier to at least**

a portion of said local audio data, deleting said performer identifier from at least a portion of said local audio data, altering said performer identifier associated with at least a portion of said local audio data, and combinations thereof

281. This element is taught by Strub. *See supra* '902 Patent Element 4[D].

v. **'902 Patent Element 10: "A system according to claim 9, wherein said manipulation is performed via commercially available software"**

282. This element is taught by Strub and Woo, and by commercially-available software, such as Pro Tools. *See supra* '902 Patent Elements 15[A]-[B], 16.

C. '902 Patent GROUND 3: Claims 17-20 Are Rendered Obvious Under § 103 By the Combination of Strub and Woo

1. A POSA Would have Been Motivated to Combine Strub, Woo, Nagai, Gleissner, and Jones

283. In the Lectrosonics IPRs, the PTAB found that a POSA would have motivated to combine Strub and Woo and that the combination would have been obvious. *See Supra* VIII.D.

284. In addition, a POSA would have been motivated to combine Strub and Woo. *See supra* Section XI.A.1.

2. The Combination of Strub and Woo Meets All Elements of Challenged Claims 17-20 of the '902 Patent

285. As discussed below, the Preambles and every element of Claims 17-20 are taught by Strub and Woo. To the extent Patent Owner alleges that either of those

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a. **'902 Patent Element 17[Pre]: "A method of recording local audio, said method comprising the steps of:"**

286. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[Pre].

b. **'902 Patent Element 17[A]: "locally receiving said local audio generated by at least two performers during an audio event;"**

287. This element is taught by Strub and Woo. *See supra* '902 Patent Elements 1[B] and 1[D].

c. **'902 Patent Element 17[B]: "locally recording said local audio as local audio data in at least one memory of at least one local audio device; and"**

288. This element is taught by Strub and Woo. *See supra* '902 Patent Elements 1[B], 1[D], and 1[E].

d. **'902 Patent Element 17[C]: "locally receiving or generating a plurality of master timecodes;"**

289. This element is taught by Strub and Woo. *See supra* '902 Patent Elements 1[A], 1[C], 7[F].

- e. **'902 Patent Element 17[D]: "wherein said local audio data for each of said performers is retrieved from said local audio devices subsequent to said audio event and is combined to create a single multi-track audio file;"**

290. This element is taught by Strub and Woo. *See supra* '902 Patent Element 12[E]. In addition, Woo teaches using software and timecode information to synchronize and "blend" two different recordings from different microphones to generate a third, composite recording which is a combination of the first two. *See also supra* '902 Patent Element 12[E].

- f. **'902 Patent Element 17[E]: "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;"**

291. This element is taught by Strub. *See supra* '902 Patent Element 2.

- g. **'902 Patent Element 17[F]: "wherein said local audio data includes stamped local audio data and unstamped local audio data;"**

292. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[G].

- h. **'902 Patent Element 17[G]: "wherein said 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 timecodes;"**

293. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[H].

- i. **'902 Patent Element 17[H]: "wherein said unstamped local audio data does not include a reference to said master timecodes; and"**

294. This element is taught by Strub and Woo. *See supra* '902 Patent Element 1[I].

- j. **'902 Patent Element 17[I]: "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."**

295. This element is taught by Strub and Woo. *See supra* '902 Patent Element 13[E].

- k. **'902 Patent Element 18[A]: "A method according to claim 17, further comprising: remotely controlling at least one function of at least one of said local audio device via at least one remote control unit;"**

296. This element is taught by Strub. *See supra* '902 Patent Elements 3[A]-3[B].

- l. **'902 Patent Element 18[B]: "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, deleting said track identifier from at least a portion of said local audio data, altering said track identifier associated with 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, deleting said local audio device identifier from at least a portion of said local audio data, altering said local audio device identifier associated with at least a portion of said local audio data, adding said performer identifier to at least a portion of said local audio data, deleting said**

performer identifier from at least a portion of said local audio data, altering said performer identifier associated with at least a portion of said local audio data, and combinations thereof”

297. This element is taught by Strub. *See supra* ’902 Patent Element 3[C].

- m. **’902 Patent Element 19[A]: “A method according to claim 17, further comprising: manipulating said local audio data contained in at least a portion of said memory;”**

298. This element is taught by Strub. *See supra* ’902 Patent Element 15[A].

- n. **’902 Patent Element 19[B]: “wherein said manipulation includes at least one of the group consisting of adding said track identifier to at least a portion of said memory, deleting said track identifier from at least a portion of said memory, altering said track identifier associated with at least a portion of said memory, adding said local audio device identifier to at least a portion of said memory, deleting said local audio device identifier from at least a portion of said memory, altering said local audio device identifier associated with at least a portion of said memory, adding said performer identifier to at least a portion of said local audio data, deleting said performer identifier from at least a portion of said local audio data, altering said performer identifier associated with at least a portion of said local audio data, and combinations thereof”**

299. This element is taught by Strub. *See supra* ’902 Patent Element 15[B].

- o. **’902 Patent Element 20: “A method according to claim 19, wherein said manipulation is performed via commercially available software.”**

300. This element is taught by Strub and Woo, and by commercially-available software, such as Pro Tools. *See supra* '902 Patent Elements 15[A]-[B], 16.

D. '443 Patent Ground 2: Claims 4 and 9 are Rendered Obvious Under § 103 By the Combination of Strub, Woo, Nagai, Gleissner, and Winningstad

1. A POSA Would have Been Motivated to Combine Strub, Woo, Nagai, Gleissner, and Winningstad

301. A POSA would have been motivated to combine Strub, Woo, Nagai, and Gleissner. *See supra* § XI.A.1. In addition, A POSA would have been motivated to combine Winningstad with Strub, Woo, Nagai, and/or Gleissner. The teachings of Strub, Woo, Nagai, and Gleissner, and Winningstad provide substantial motivation to combine them. For example, the systems described in Strub, Woo, and Winningstad are the same type of apparatus used for the same purpose. Each discloses a system for receiving and recording local audio in a local device, wirelessly transmitting the same audio to a remote device, and recording the audio in the remote device. *See supra* § XI.A.1 (discussing Strub and Woo); Ex. 1008, Abstract, 2:36-39, 3:4-6, 4:63-5:4, 5:21-25, 5:65-67, 6:58-65, Figs. 3-5. In addition, each of the local audio devices of Strub, Woo, and Winningstad wirelessly receives master timecodes from a master timecode generator and uses the timing information from the master timecodes to stamp the local audio. *See supra* § XI.A.1 (discussing Strub and Woo); Ex. 1008, 8:17-22, 8:38-43, Fig. 5 (GPS receiver 89).

302. In addition, Woo itself provides motivations to use its synchronization methods in wireless recording systems, including (1) accurate synchronization, (2) generating coordinated timecodes at independent sites, (3) simplicity of connection, (4) widely compatible SMPTE timecode format, and (5) a combination involving only familiar elements used according to known methods to improve the systems and yield predictable results. *See supra* § XI.A.1. Those same motivations apply equally to combining Woo with Winningstad. Similarly, a POSA would have considered it obvious to use Nagai’s and Gleissner’s well-known standard connectors in Winningstad’s local audio device because of their popularity. *See supra* § XI.A.1.

303. Furthermore, Winningstad provides express motivation for using its external interface port—which connects to a docking station—in audio recording systems such as those disclosed in Strub and Woo. Benefits of such an interface port, as taught by Winningstad, include allowing battery recharging and data downloading when connected to an external computer through a docking station. Ex. 1008, 5:17-20 (connecting to computer through docking station allows “battery recharging and data downloading”), 8:38-41 (“[A] docking station...is used to recharge batteries in the DD device 26 and/or download the media files 110 from memory storage 90.”).

304. Moreover, the '443 Patent sought to solve the problem of matching the timing between multiple recordings produced by one or more wireless devices, and did so by generating master timecodes with a master timecode generator, providing those timecodes to a local recording device, and using the timing information in those timecodes to time-stamp the locally recorded audio data. *Supra* § XI.A.1. Strub, Woo, and Winningstad recognized and solved that same problem in the same way. *See supra* § XI.A.1 (discussing Strub and Woo); Ex. 1008, 8:17-22, 8:38-43, Fig. 5.

305. Furthermore, every element of Challenged Claims 4 and 9 appears in Strub, Woo, Nagai, Gleissner, and/or Winningstad. *See infra* § XI.D.2. Those elements are standard method steps using well-known, off-the-shelf audio-recording and radio components that would be familiar to any POSA. There is nothing unpredictable about the claimed use of those components in a wireless audio-recording system. Furthermore, the technology and operation of such components was well-understood in the relevant time period such that the combination of Strub, Woo, Nagai, Gleissner, and Winningstad would have had a high likelihood of success.

306. Thus, since Strub, Woo, and Winningstad teach the same kind of device used for the same purpose, since each of them identified the same problem identified in the '443 Patent and solved it in the same way, since the microphone jacks and

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plugs of Nagai and Gleissner and the external interface port of Winningstad were old elements performing the same function they had always been known to perform, since audio input ports in general have been known for over a century, since the combination of elements in the Challenged Claims is nothing more than “the predictable use of prior art elements according to their established functions,” and since the combination of Strub, Woo, Nagai, Gleissner, and Winningstad would have had a high likelihood of success, a POSA would have been motivated to combine Strub, Woo, Nagai, Gleissner, and Winningstad.

2. **The Combination of Strub, Woo, Nagai, Gleissner, and Winningstad Meets All Elements of Challenged Claims 4 and 9**

- a. **'443 Patent Claims 4 and 9: “A system according to claim [2/8], wherein said [at least one] remote control unit includes an external interface port for connection of said [at least one] remote control unit to an external interface selected from the group consisting of a personal computer, a dumb terminal, a recorder, a receiver, and combinations thereof.”**

307. Winningstad’s DD device 26 comprises a remote control unit having an RCU transmitter 96 capable of wirelessly transmitting commands to the receiver 82 of the acquisition circuitry 13, including commands to adjust the amount of MPEG data compression. Ex. 1008, 6:30-34 (“[T]he DD device 26 commands further compression, no compression, or first-time compression....”), Fig. 4. The DD device has an external interface port for connection of the DD device 26 to an

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external interface (e.g., a docking station) of a base station 44 or a central computer 52 at a headquarters 56. Winningstad 5:17-20 (“The base station 44 can also include a docketing [sic:docking] station that the DD device 26 seats into for battery recharging and data downloading when the operator 14 is driving vehicle 42.”), 8:38-41 (“[A] docking station may be provided at head quarters 56 or in the vehicle 42 that 40 is used to recharge batteries in the DD device 26 and/or download the media files 110 from memory storage 90.”), FIG. 5. A POSA would have understood that, for the DD device 26 to dock with the base station 44 or the central computer 52, the DD device 26 necessarily would have had an external interface port to connect to the docking station. Further, a POSA would have considered it obvious for the base station 44 or the central computer 52 to comprise a personal computer, a dumb terminal, a recorder, a receiver, or combination thereof. A POSA also would have considered it obvious to incorporate Winningstad’s external docking station interface port in audio recording systems such as those disclosed in Strub and Woo because of the benefits taught by Winningstad, including battery recharging and data downloading. *Id.*, 5:17-20, 8:38-41.

E. ’443 Patent Ground 3: Claim 22 is Rendered Obvious Under § 103 By the Combination of Strub, Woo, Nagai, Gleissner and Dwyer

1. A POSA Would have Been Motivated to Combine Strub, Woo, Nagai, Gleissner and Dwyer

308. A POSA would have been motivated to combine Strub, Woo, Nagai, and Gleissner. *See supra* § XI.A.1. In addition, A POSA would have been motivated to combine Dwyer with Strub, Woo, Nagai, and/or Gleissner. The teachings of Strub, Woo, Nagai, and Gleissner, and Dwyer provide substantial motivation to combine them. For example, Dwyer explains that its technique of storing a timestamp in a header of an audio file makes it more convenient for users to manage audio files stored in a digital audio recording device, including transferring the files to other devices and identifying them after transfer. Ex. 1009, 1:20-39. In doing so, Dwyer improved on the file management, transfer, and identification that earlier systems employed. *Id.* 1:20-31. A POSA would have recognized that Dwyer's improvement in audio data file management would equally benefit digital audio recording devices such as those of Strub, Woo, Nagai, and Gleissner, and thus would have been motivated to incorporate Dwyer's audio file header into the recording systems of Strub, Woo, Nagai, and/or Gleissner.

309. Moreover, the '443 Patent sought to solve the problem of matching the timing between multiple recordings produced by one or more wireless devices, and did so by generating master timecodes with a master timecode generator, providing those timecodes to a local recording device, and using the timing information in those timecodes to time-stamp the locally recorded audio data. *Supra* § XI.A.1. Strub and Woo recognized and solved that same problem in the same way. *See supra*

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§ XI.A.1 (discussing Strub and Woo). Similarly, Dwyer’s inclusion of a timestamp
in the audio file header serves the same purpose by allowing more convenient and
effective time-stamping of the audio data.

310. Furthermore, every element of Challenged Claim 22 appears in Strub,
Woo, Nagai, Gleissner, and/or Dwyer. *See infra* § XI.E.2. Those elements are
standard method steps using well-known, off-the-shelf audio-recording and radio
components that would be familiar to any POSA. There is nothing unpredictable
about the claimed use of those components in a wireless audio-recording system.
Furthermore, the technology and operation of such components was well-understood
in the relevant time period such that the combination of Strub, Woo, Nagai,
Gleissner, and Dwyer would have had a high likelihood of success.

311. Thus, since Strub, Woo, and Winningstad teach the same kind of device
used for the same purpose, since each of them identified the same problem identified
in the ’443 Patent and solved it in the same way, since the microphone jacks and
plugs of Nagai and Gleissner and the time-stamp in Dwyer’s file header were old
elements performing the same function they had always been known to perform,
since audio input ports in general have been known for over a century, since the
combination of elements in the Challenged Claims is nothing more than “the
predictable use of prior art elements according to their established functions,” and
since the combination of Strub, Woo, Nagai, Gleissner, and Winningstad would have

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 had a high likelihood of success, a POSA would have been motivated to combine Strub, Woo, Nagai, Gleissner, and Dwyer.

2. The Combination of Strub, Woo, Nagai, Gleissner, and Dwyer Meets All Elements of Challenged '443 Patent Claim 22

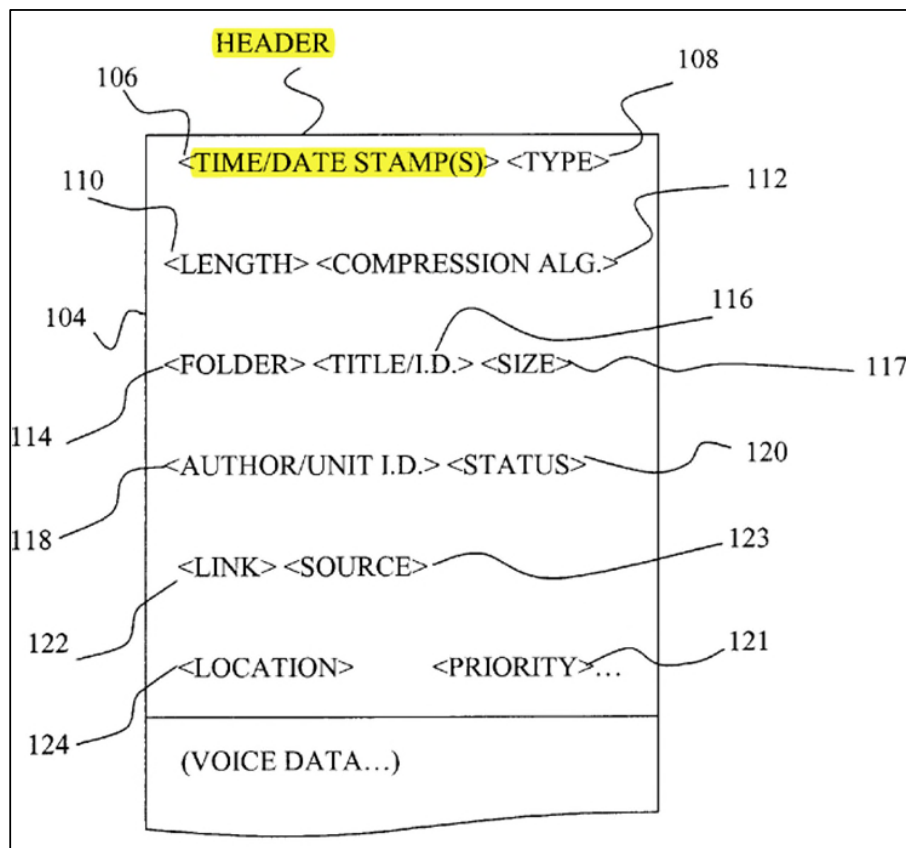
- a. **'443 Element 22[A]: “A system according to claim 1, wherein said local audio data is stored in said at least one memory as an audio file; and**

312. The local audio data in Strub and Woo is stored in the local memory as an audio file. *See supra* '443 Patent Element 1[F]. Similarly, Dwyer's audio device stores local audio data in a memory 64 as an audio file. Ex. 1009, Title, Abstract (“A portable audio recorder stores voice information files in the form of digital data. Header data is associated with each voice information file.”), 1:39-46 (“storing a voice data file in a memory device included in the portable digital recorder”), 4:52-54 (“The removable memory card 64 may be used primarily for storing voice files and associated header data...”), Fig. 3 (memory 64).

- b. **'443 Element 22[B]: “wherein said first timestamp is implemented via storage of data of said master timecode in a header of said audio file.”**

313. Dwyer teaches a first timestamp implemented via storage of data of a master timecode in a header of an audio file. For example, the audio file stored in Dwyer's memory 64 has a header 104 which includes “one or more time and date stamps 106 (corresponding to a time or times at which the voice file was originally

Declaration of Dr. Chris Kyriakakis in Support of Petitions for *Inter Partes* Review of U.S. Pat. Nos. 7,711,443, 7,929,902, and 10,276,207 recorded or additional voice information was added to the file)....” *Id.* 6:33-38; see also *id.* 1:45-57, 2:20-40, 4:52-54 (“storing voice files and associated header data....”), 6:23-32 ([T]he...voice data file and the corresponding header data are...stored in memory...64....”). The header 104 is depicted in Fig. 5:



Id. Fig. 5 (annotated).

314. A POSA would have been motivated to base Dwyer’s time stamp on the master timecode disclosed in Strub and/or Woo in order to gain Dwyer’s benefit of improved audio data file management. *Id.*; see also Ex. 1009, 1:36-39.

XII. SECONDARY CONSIDERATIONS

315. I am not aware of any secondary considerations of non-obviousness for the Challenged Claims of the '443, '902, and '207 patents. For example, for the reasons provided *supra* ¶ VIII.D., it is my opinion that the evidence of objective indicia that Zaxcom submitted in the Lectrosonics IPRs has no nexus to the Challenged Claims. However, if Patent Owner raises any new evidence of secondary considerations or objective indicia (or re-submits any of the same evidence that it submitted in the Lectrosonics IPRs) in its briefing or expert's declaration, I reserve the right to respond to those considerations.

XIII. CONCLUSION

316. For the foregoing reasons, it is my opinion that Claims 1-4, 7-9, 15, 17, 19, 20, and 22-27 of the '443 Patent, claims 17-19, 21-23, 33, 34, 59, 60, and 66 of the '207 Patent, and Claims 1-6 and 17-20 of the '902 Patent would have been obvious to a POSA at the time of the alleged invention.

Executed on December 4, 2024 in Los Angeles, California.



Dr. Chris Kyriakakis