

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ZOHO CORPORATION and
ZOHO CORPORATION PVT., LTD.
Petitioner,

v.

MEETRIX IP, LLC,
Patent Owner.

Case IPR2023-00380
U.S. Patent No. 9,843,612
(Claims 10-18)

PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 9,843,612

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1004	<i>Curriculum Vitae</i> for Dr. Henry H. Houh
1005	File History of Application No. 14/984,709 (the ’709 application)
1006	U.S. Patent No. 7,180,997 (“Knappe”)
1007	U.S. Patent No. 6,690,654 (“Elliott”)
1008	U.S. Patent No. 7,089,285 (“Drell”)
1010	Guichard <i>et al.</i> , “MPLS and VPN Architectures, A practical guide to understanding, designing and deploying MPLS and MPLS-enabled VPNs,” Cisco Press, 2001 (“VPN Textbook”)
1011	Declaration of Ingrid Hsieh-Yee, Ph.D., under 37 C.F.R. § 1.68
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1017	T.120 Standard (1996)
1018	U.S. Patent No. 6,237,025
1019	U.S. Patent No. 6,782,413
1020	U.S. Patent No. 6,980,526

Ex.	Description
1021	Caputo, “Cisco Packetized Voice & Data Integration,” McGraw-Hill, 2000
1022	De Moraes <i>et al.</i> , “The Internet Multicast from ITS: How it was Done and Implications for the Future,” IEEE Communications Magazine, January 1995
1023	U.S. Patent Publication No. 2004/0261116 A1
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1025	U.S. Patent No. 6,553,515
1026	U.S. Patent No. 6,633,848
1027	Computer Desktop Encyclopedia
1033	H.323 Standard
1034	US Patent No. 7,266,091
1035	US Patent No. 5,606,550
1039	US 6,798,753 (“Doganata”)
1040	WO2001018665 (“Hendricks”)
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I. INTRODUCTION

Zoho Corporation and Zoho Corporation Pvt., Ltd. (“Petitioner”) respectfully requests *inter partes* review (“IPR”) under 35 U.S.C. §§ 311, 312, 314(a), and 37 C.F.R. § 42.100, for claims 10-18 (“Challenged Claims”) of U.S. Patent No. 9,843,612, titled “Voice Conference Call Using PSTN and Internet Networks” (“’612 patent,” Ex_1001). Meetrix IP, LLC (“Patent Owner”) is the patent owner of record. Ex_1002 (conveying the ’612 patent family to Meetrix).

The ’612 patent is directed to “computer system architectures and more particularly to audio and video telecommunications for collaboration over hybrid networks.” Ex_1001, 1:21-23. The hybrid network includes a Public Switched Telephone Network (PSTN) and the Internet. *Id.*, 5:10-21, FIG. 3. As described below and in the Declaration of Dr. Henry H. Houh (Ex_1003), these concepts were well-known by the claimed priority date for the ’612 patent. The primary reference (“Drell,” Ex_1008) describes a multi-point video conference system that receives audio and video signals from multiple participants, including a moderator and PSTN telephone clients. Ex_1008, Abstract. Other claimed concepts, such as using virtual private network (VPN) tunneling and voice over IP (VoIP) for conferencing communications, were also well known in the prior art. The combination of these prior art teachings would have been obvious to one of ordinary skill in the art, and thus the claims of the ’612 patent are invalid.

II. MANDATORY NOTICES UNDER 37 C.F.R § 42.8(A)(1) AND (B)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

The real parties-in-interest are Zoho Corporation and Zoho Corporation Pvt., Ltd.

B. Lead and Back-Up Counsel and Service Information Under 37 C.F.R. § 42.8(b)(3) and (b)(4)

Lead Counsel:

Hector J. Ribera (Reg. No. 54,397)
Marton Ribera Schumann & Chang LLP
548 Market St., Suite 36117
San Francisco, CA 94104
Email: hector@martonribera.com
Tel: (415) 360-2512

Back-up Counsel:

C.J. Alice Chuang (Reg. No. 65,914)
Marton Ribera Schumann & Chang LLP
548 Market St., Suite 36117
San Francisco, CA 94104
Email: cjalice@martonribera.com
Tel: (415) 360-2516

Petitioner consents to electronic service by delivering the documents to the email addresses of primary and backup counsel. A Power of Attorney is being filed concurrently under 37 C.F.R. § 41.10(b).

C. Related matters Per 37 C.F.R. § 42.8(b)(2)

To the best of Petitioner's knowledge, the '612 patent is involved in the following pending district court cases:

Case Name	Case Number	Court	Date Filed
<i>Meetrix IP, LLC v. Zoho Corporation</i>	6:21-cv-01288	W.D. Tex.	12/10/21
<i>Meetrix IP, LLC v. Verizon Comms., Inc.</i>	6:21-cv-01289	W.D. Tex.	12/10/21

III. PAYMENT OF FEES – 37 C.F.R. § 42.103

Petitioner pays the fee for this petition as required by 37 C.F.R. § 42.15(a) contemporaneously with the filing of this petition.

IV. GROUND FOR STANDING UNDER 37 C.F.R. § 42.104(A)

Petitioner certifies under 37 C.F.R. § 42.104(a) that the '612 patent is available for IPR and that Petitioner is not barred or estopped from requesting an IPR challenging the validity of the challenged claims on the identified grounds. Petitioner has not filed a civil action challenging the validity of any claim of the '612 patent.

V. CHALLENGE UNDER 37 C.F.R. § 42.104(B) AND RELIEF REQUESTED

Petitioner requests IPR and cancellation of claims 10-18 of the '612 patent under pre-AIA 35 U.S.C. § 103. Pursuant to 37 C.F.R. § 42.6(c), copies of the Exhibits are filed herewith.

Under 37 C.F.R. §§ 42.104(b)(1) and (2), these grounds are offered as reasons for cancelling claims 10-18 of the '612 patent:

Ground	Claims	Statutory Basis	Reference(s)
1	10-18	§ 103	Drell, Knappe, Elliott, Hendricks, and Doganata

U.S. Patent No. 7,089,285 to Drell (“Drell” – Ex_1008) was filed on October 5, 2000.

U.S. Patent No. 7,180,997 to Knappe (“Knappe” – Ex_1006) was filed on September 6, 2022.

U.S. Patent No. 6,690,654 to Elliott, *et al.* (“Elliott” – Ex_1007) was filed on October 1, 1998.

U.S. Patent No. 6,798,753 to Doganata, *et al.* (“Doganata – Ex_1039) was filed on October 14, 1999.

International Publication Number WO 2001/018665A1 to Hendricks, et al. (“Henricks” – Ex_1040) was filed on September 8, 2000 and published March 15, 2001.

Drell, Knappe, Elliott, and Doganata are prior art under 35 U.S.C. § 102(e). Hendricks is prior art under 35 U.S.C. § 102(b).

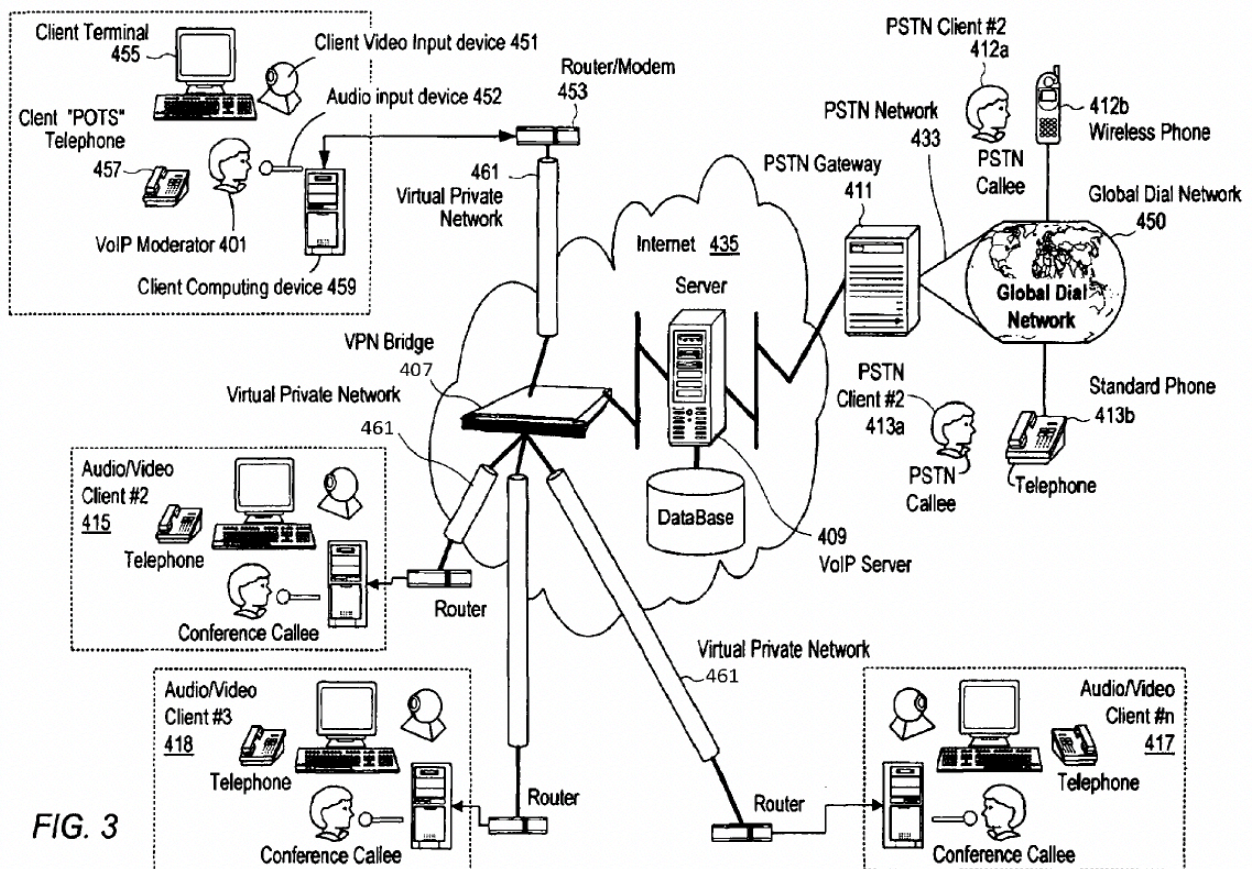
VI. OVERVIEW OF THE '612 PATENT

The '612 patent issued as a continuation of a string of applications, the first of which was a provisional application filed March 10, 2003. Ex_1001.

A. The Specification

The '612 patent relates “to computer system architectures and more particularly to audio and video telecommunications for collaboration over hybrid networks.” Ex_1001, 1:21-23.

The '612 patent describes a hybrid system that includes an Internet network 435 and a Public Switched Telephone Network (PSTN) network 433:



Id., FIG. 3.

Specifically, Figure 3 depicts Internet-based clients, including moderator 401, and audio video clients 415, 417, and 418 “connected through routers or

modems 453 preferably in a virtual private network configuration 461” with “the VPN bridge 407” located in the center of a “star topology,” with connections to the VPN bridge serving as a “VPN tunnel.” Ex_1001, 5:1-13, 5:22-25, 5:45-48, FIGS. 4-5; Ex_1003 ¶¶50-51. The PSTN network includes “telephony clients using standard wired 413 or wireless telephone 412 systems,” with these PSTN clients connected to the Internet-based clients via PSTN gateway 411. Ex_1001, 5:14-15, 5:42-51, 6:40-62; Ex_1003 ¶52.

The specification also discloses performing encoding and decoding of audio data using codecs of the prior art H.323 standard and the transmission of collaboration data per the prior art T.120 standard. Ex_1001, 2:63-3:1, 3:17-22, FIG. 2; Ex_1003 ¶53.

B. The Challenged Claims.

Claims 10-18 are the Challenged Claims. Claim 10 is the independent claim and is directed to a method for establishing a secure multi-participant conference call including full duplex audio, comprising:

- initiating a dial-in process to establish a connection with a local moderator client in response to input from a PSTN client;
- receiving first audio data at the local moderator client from the PSTN client through a PSTN gateway;
- receiving second audio data at the local moderator client from a remote client through a VPN tunnel;

- transmitting third audio data, first video data, and first collaboration data from the local moderator client to the remote client through the first VPN tunnel; and
- transmitting fourth audio data from the local moderator client to the PSTN client through the PSTN gateway.

Ex_1001, 10:2-17. Dependent claims 11-18 recite additional requirements such as use of a cellular telephone, compressing/decompressing audio data, and mixing audio data. *Id.*, 10:65-11:21; Ex_1003 ¶¶54-55.

C. Level of Ordinary Skill in the Art

The subject matter of the '612 patent generally relates to the technical field of audio/video conferencing systems. A Person of Ordinary Skill in the Art ("POSITA") in March 2003 would have had a working knowledge of the conferencing art. Ex_1003, ¶27. A POSITA would have had a bachelor's degree in computer science, computer engineering, or an equivalent, and three or more years of professional experience relating to conferencing systems in packet-based networks, or without said professional experience, further education relating to conferencing systems in packet-based networks. *Id.* ¶¶24-27.

D. Claim Construction

During IPR claims are construed according to the "*Phillips* standard," as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). See 83 Fed. Reg. 51341 (October 11, 2018). Petitioner believes that, for purposes of this proceeding, no claim term requires express construction for the Board to evaluate

the patentability of the claims.¹ *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.2d 795, 803 (Fed. Cir. 1999). Accordingly, this Petition analyzes the claims consistent with their ordinary and customary meaning as would be understood by a POSITA in light of the specification. *Phillips*, 415 F.3d at 1314-17; Ex_1003 ¶57.

E. The '612 Patent Priority Date

The '612 patent issued from U.S. Patent Application No. 14/984,709 (the '709 application), filed December 30, 2015. Ex_1001, 1. The '709 application is a continuation of a series of applications that claim the benefit of U.S. Provisional Patent Application No. 60/453,307, filed March 10, 2003. *Id.*, 1-2. For this Petition, Petitioner relies on March 10, 2003 as the priority date for the Challenged Claims.

VII. THE BOARD'S DISCRETION UNDER 35 U.S.C. § 314(A) SHOULD NOT PRECLUDE INSTITUTION

On June 21, 2022, the Director of the USPTO issued a memorandum setting forth interim procedures for determining institution of IPRs in view of the factors set forth in *Apple Inc. v. Fintiv, Inc.* See https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary

¹ Petitioner reserves its rights to: (1) respond to assertions by Patent Owner that any claim term requires construction for the purposes of this IPR proceeding; and (2) seek construction of any claim term in other forums as appropriate.

(“Memorandum”). The Memorandum clarified (1) that the PTAB will not rely on the *Fintiv* factors to discretionarily deny institution where a petition presents compelling evidence of patentability, and (2) consistent with *Sotera Wireless*, the PTAB will not discretionarily deny institution where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have been raised before the PTAB. In light of both these factors, the Board should not exercise its discretion to deny institution here.

First, this Petition presents compelling evidence of unpatentability. As set forth below in this Petition and in the accompany declaration of Dr. Houh (Ex_1003), the subject matter of the ’612 patent relates to well-known concepts of multi-party conferencing between participants in hybrid Internet and PSTN networks. By the ’612 patent’s claimed priority date, there were many available multi-party conferencing systems and a POSITA was well aware of how to use known communications technologies such as audio mixing, audio codecs, VPN tunneling, and IP packets to communicate conferencing data across the hybrid networks. *See e.g.* Ex_1003 ¶¶58-110. Thus, this is not a case in which Petitioner barely meets the IPR standards with obscure technical references. Here, there is compelling evidence that the claims of the ’612 patent merely recite well-established multi-party conferencing technology.

Second, upon the filing of this Petition, Petitioner intends to file in the district court litigation a request for pre-institution stay of proceedings with a stipulation that, if the IPR is instituted, Petition will not rely on any grounds that is raised or could have been in this Petition.

Finally, the remaining *Fintiv* factors weigh against denial:

Fintiv factor 1, likelihood of a stay. As noted, Petition is seeking a pre-institution stay and if needed, will renew the request for a stay upon institution. Even if Patent Owner suggests that district court litigation may not be stayed, the Board “will not attempt to predict how the district court in the related district court litigation will proceed because the court may determine whether or not to stay any individual case, including the related one, based on a variety of circumstances and facts beyond [its] control and to which the Board is not privy.” *Sand Revolution II, LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24, 7 (June 16, 2020) (Informative); *see Intel Corp. v. VLSI Tech. LLC*, IPR2020-00158, Paper 16, *7 (May 20, 2020).

Fintiv factor 2, trial date proximity to Final Written Decision. No trial date has been set in the district court litigation. The district court litigation is still in the early stages, having been transferred between divisions in the W.D. Texas and stayed for several months pending re-assignment. Given the parties have yet to initiate discovery or conduct claim construction, it is likely a Final

Written Decision would issue far in advance of any potential trial date in the district court litigation, particularly as Petitioner will be seeking a stay.

Fintiv factors 3 and 4, investment in the parallel proceedings and overlap in issues. As of the filing this Petition, the district court remains in the early stages. Although the case was originally filed in December 2021, early procedural motions and an intra-district transfer and stay of the case means that there has been no fact discovery, no substantive motions, and no claim construction proceedings. In short, no substantive action has been taken in the district court and very little court and party investment has been made in that proceeding. *Sand Revolution*, IPR2019-01393, Paper 24 at 10-11 (two-page *Markman* Order did not demonstrate high level of investment of time and resources).

Critically, the invalidity grounds, arguments, and evidence presented in this Petition will be different than those presented in the district court. As noted above, Petitioner will stipulate in the Litigation that if the Board institutes IPR, it will not pursue invalidity on the same grounds at issue in this Petition or any grounds that could have been raised in this Petition. This mitigates concerns of duplicated efforts and conflicting decisions. *See Sotera Wireless, Inc. v. Masimo Corp.* , IPR2020-01019, Paper 12 (PTAB Dec 1, 2020); *see also VMware, Inc. v. Intellectual Ventures I LLC*, IPR2020-00470, Paper 13 at 20 (PTAB Aug. 18, 2020) (finding

similar stipulation “mitigates any concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions”). As such, these factors weigh against discretionary denial.

VIII. IDENTIFICATION OF WHERE EACH ELEMENT OF EACH CLAIM IS FOUND IN THE PRIOR ART

Petitioner respectfully requests cancellation of claims 10-18 of the '612 patent.

A. Ground 1: Claims 10-18 Are Obvious Over Drell in Combination With Knappe, Elliott, Hendricks, and Doganata

1. The Prior Art

a) Summary of Drell

Drell describes multi-point (MP) conferencing, specifically video conferencing among a plurality of endpoints, as shown in Figure 1:

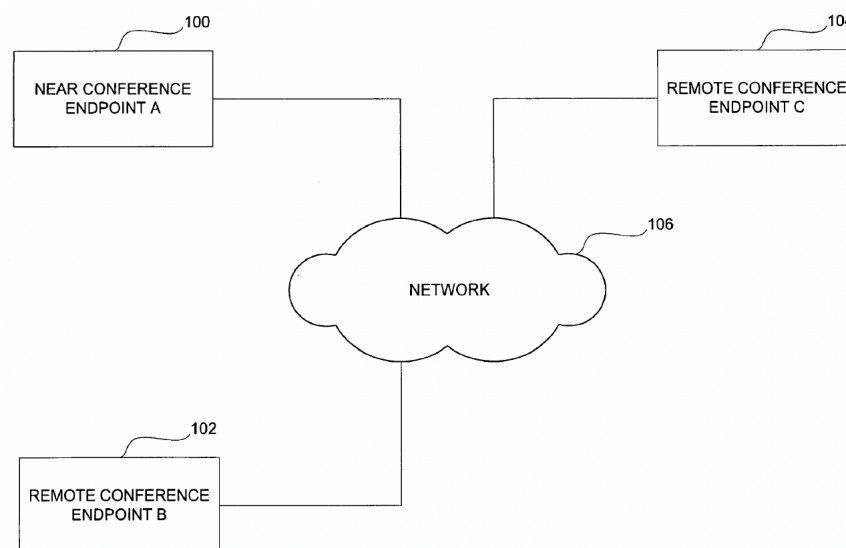


FIG. 1

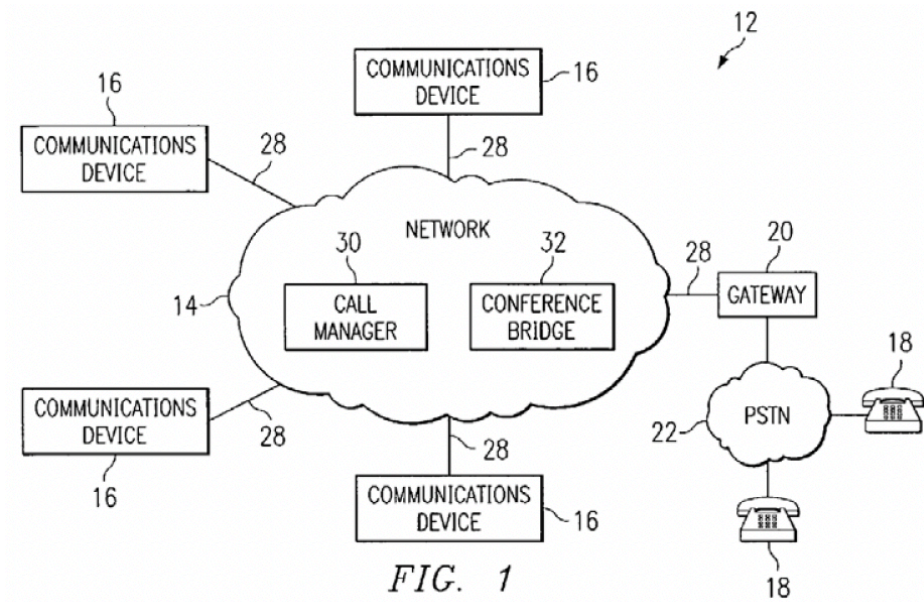
Ex_1008, FIG. 1; Ex_1003 ¶116.

Specifically, Drell explains that “network 106” facilitates the transmission of “audio and video data between and among near conference endpoint 100 and remote conference endpoints 102 and 104.” Ex_1008, 3:20-23. Drell “contemplates the use of two or more networks (for example, the PSTN and the Internet) to connect conference endpoints utilizing different communication protocols.” *Id.*, 3:33-38; Ex_1003 ¶117; *see also id.* ¶¶118-120.

b) Summary of Knappe

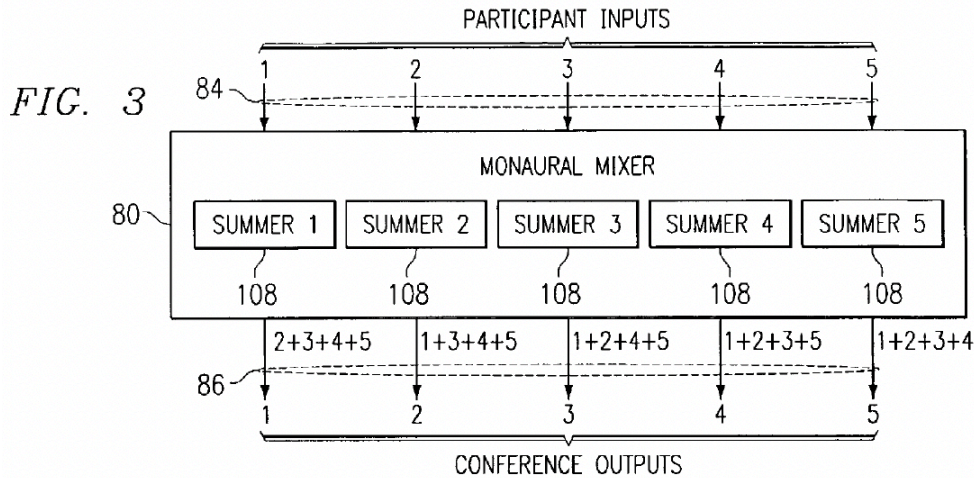
Like Drell, Knappe discloses a multiparty conferencing system over a hybrid network “connecting a plurality of communication devices 16 to each other and to standard analog telephones 18 through a gateway 20 and the public switched telephone network.” Ex_1006, 3:41-45; Ex_1003 ¶122.

Figure 1 of Knappe illustrates the conferencing system, showing multiple conference endpoints, including communication devices 16 and standard analog PSTN telephones 18:



Ex_1006, FIG. 1; Ex_1003 ¶123; *see also id.* ¶¶123-126.

Knappe’s “participants are connected and stream media through the conference bridge 32,” which provides conference call and other suitable audio, video, and/or real-time multi-party communication sessions[.]” Ex_1006, 5:32-33, 4:58-60; Ex_1003 ¶127. Knappe’s conference bridge 32 “combines the streams in summers 82 to generate conference output streams 86 for each participant to a conference call”:



Ex_1006, FIG. 3; 6:59-62; Ex_1003 ¶¶128-131.

c) Summary of Elliott

Elliott teaches conferencing features such as “collaborative Web browsing, audio conferencing, video conferencing, and application sharing.” Ex_1007, 1:40-44. Elliott employs a “virtual private network (VPN)” and “IP-tunneling” for the conference transmissions. *Id.*, 2:66-3:1, 4:29-34, 6:53-54; Ex. 1003, ¶¶132-133.

d) Summary of Hendricks

Hendricks discloses “multi-party call...utilizing only one or a combination of several types of media (e.g., voice only or voice plus video and/or other media such as data, programs, etc.)” that communicate using “full duplex.” Ex_1040, 3:4-10. Like Drell, Hendricks discloses conferencing systems that support users “participating in a conference call,” including the “transmissions of video, audio and possibly other media.” *Id.*, 27:12-18. Like Drell, Hendricks also discloses that

the network can be a “[h]ybrid... [of] the PSTN, and other networks, such as the Internet.” *Id.*, 23:13-14, Fig. 7; Ex_1003 ¶¶134-135.

e) Summary of Doganata

Doganata describes two ways of “establishing a conference over a network, such as the Internet.” Ex_1039, Abstract, 4:38-39. In dial-in conference, a conference connections are established by participants dialing into the conference. *Id.*, 4:39-42; Ex_1003 ¶136. In a dial-out conference, “participants are contacted, or ‘dialed-out’ automatically at the time of the conference.” *Id.*, 4:42-45; Ex_1003 ¶136.

2. Reasons to Combine Prior Art

a) Reasons to Combine Drell and Knappe

A POSITA when considering Drell would have also considered Knappe as they are analogous, both pertaining to the field of multiparty conferencing, including mixing data from Internet and PSTN conference endpoints. *E.g.* Ex_1008, Abstract, 3:33-37; Ex_1006, 3:41-51, 6:59-62; Ex_1003 ¶137.

(1) moderator

A POSITA of conferencing systems would have recognized that it would be desirable to have a leader or moderator to initiate and organize the conference. Ex_1003 ¶139. Consistent with this knowledge, Knappe teaches that at least “one participant may be given the priority of moderator” who could “control the flow and/or organization of the conference.” Ex_1006, 8:52-56 & 1:53-55; Ex_1003

¶¶140-141. Since Knappe teaches that at least one of the participants is a moderator, it would have been obvious to a POSITA for either the user of the remote conference endpoint 104 or near conference endpoint 100 of Drell to be a moderator because doing so would beneficially allow the user (acting as the moderator) to initiate, organize, control, and influence the conference. Ex_1003

¶¶140-141. Furthermore, as there are a finite number of participants in a conference, it would have been obvious to try designating one of Drell's endpoint users as a moderator. *Id.* ¶141. The combination of Drell and Knappe is merely the ordinary use of a common technique (designating a conference endpoint as a moderator per Knappe) in the similar system of Drell to yield predictable results of initiating, organizing, controlling, and influencing the conference. *Id.* ¶¶141-142.

(2) *mixing*

A POSITA also would have been motivated to combine these references because Drell teaches that its system “combine[s] and distribute[s] audio and video signals received from a plurality of remote conference endpoints,” while Knappe supplements and explains how to mix audio data from multiple conference endpoints. Ex_1006, Abstract; Ex_1003 ¶¶143-144. Implementing Knappe's mixers into Drell would result produce beneficial results. Ex_1003 ¶¶144-148. Specifically, Knappe teaches using a mixer 80 with a plurality of summers (*e.g.*, summers 1 to 5, one for each participant), where each mixes audio data from the

other participants. Ex_1006, 6:59-7:15, FIGS. 1-3; Ex_1003 ¶144. Thus, it would have been obvious to a POSITA, when implementing a mixer in Drell, to use a plurality of summers (one for each participant) as Knappe teaches, because this would allow for generating separate audio instances for each conference endpoint. Ex_1003 ¶145. Such an implementation would complement Drell's teaching of generating separate instances for each endpoint. *See* Ex_1008, 2:19-21, 6:66-7:4 (describing MP conferencing application generating separate instances of a processing train); Ex_1003 ¶145.

Furthermore, a POSITA would have understood that it is undesirable for a conference participant to receive his or her own audio as part of the mixed audio. Ex_1003 ¶147. A POSITA would recognize that in a conference call, sending audio over a network to a mixer that includes the sender's audio in the audio sent back to the sender may potentially generate an undesirable echo signal. *Id.* Accordingly, a POSITA would have recognized that Knappe's teachings of using a separate summer for each participant, would be beneficial to Drell since each participant's mixed audio includes the other participants' audio and excludes its own audio. Ex_1006, 7:1-11; Ex_1003 ¶147. Thus, a POSITA would have been motivated to implement Drell's mixer, per Knappe's teachings, to include a separate summer for each participant because doing so would allow for the

exclusion of audio of the participant receiving the mixed audio, thereby avoiding undesirable audio effects. Ex_1003 ¶¶147.

In summary, a POSITA would have been motivated to apply Knappe's multiple-summer teachings when implementing a mixer in Drell because doing so would beneficially (1) further Drell's goal of generating separate instances for each conference endpoint, (2) increase intelligibility of the moderator (3) enhance the moderator's control over the conference, and (4) exclude audio of the participant receiving the mixed audio thereby avoiding undesirable audio effects, such as feedback or echo. *Id.* ¶148. Each of these reasons separately and together would have motivated a POSITA. *Id.*

The results would have been predictable and there would have been a reasonable expectation of success in the combination given that both Drell and Knappe describe similar conferencing systems. Ex_1008, Abstract; Ex_1006, Abstract, 3:47-51; Ex_1003 ¶149. Any modification needed to the teachings of Drell, including implementing software programming or hardware, to accommodate the teachings of Knappe, would have been within the level of ordinary skill in the art. Ex_1006, 5:49-62, 6:55-58; Ex_1003 ¶149. Indeed, Knappe itself recognizes that its teachings can be applied by POSITAs to other network devices. Ex_1006, 4:29-33 ("The call manager 30 and the conference

bridge 32 may be located in a central facility or have their functionality distributed across and/or at the periphery of the network 14.”); Ex_1003 ¶149.

(3) *Gateway*

Drell contemplates “use of two or more networks (for example, the PSTN and the Internet) to connect conference endpoints utilizing different communication protocols.” Ex_1008, 3:20-37. A POSITA would have recognized that since Drell’s Internet and PSTN use different protocols, it would be beneficial to use a device that can convert data between the two networks. Ex_1003 ¶154. To that end, Knappe teaches using a “gateway... [that] provides conversion between analog and/or digital formats.” Ex_1006, 4:18-20, *see also id.* 4:20-25; Ex_1003 ¶154. It would have been obvious to a POSITA to use in Drell’s system a gateway that receives standard audio data from PSTN conference endpoints and converts the audio data into a format (*e.g.*, VoIP packets encapsulated in RTP) suitable for conference endpoints on the Internet. Ex_1003 ¶155. Doing so would allow conference data to be transmitted between Drell’s PSTN conference endpoints and near conference endpoint 100 over networks (PSTN and Internet) that utilize different protocols, thereby furthering Drell’s objective. *See* Ex_1008, 3:20-37; Ex_1003 ¶155. The result would have been predictable and there would have been a reasonable expectation of success in applying Knappe’s gateway teachings to Drell, since both relate to similar conferencing systems and using

gateways was conventional and known to be applied in the conferencing context.

Ex_1003 ¶156.

Furthermore, any modification needed to the teachings of Drell, including implementing software programming or hardware, to accommodate the teachings of Knappe, would have been within the level of ordinary skill in the art. *Id.* ¶156. Petitioner's proposed combination permits, but does not require, physical incorporation of elements from Drell and Knappe. Ex_1003 ¶157; *see In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012); *In re Etter* 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc) (noting that criterion for obviousness is not whether references can be combined physically, but whether claimed invention is rendered obvious by the teachings of the prior art as a whole).

b) Reasons to Combine Drell and Elliott

A POSITA would have been motivated to combine the teachings of Drell and Elliott for multiple reasons, including to produce the obvious, beneficial, and predictable results of utilizing different types of collaboration data and VPN tunneling within Drell's system. Ex_1003 ¶158.

A POSITA, when considering the teachings of Drell would have also considered the teachings of Elliott because they are analogous art pertaining to multiparty conferencing between computer and PSTN participants. Ex_1008, Abstract, 3:33-38; Ex. 1007, Abstract, 5:35-39, 6:1-1, 8:19-39, FIG. 1; Ex_1003

¶¶159-160. Drell teaches a communications system capable of “transmission of audio and video data between and among near conference endpoint[s]...and remote conference endpoints,” including “still images.” Ex_1008, 3:20-38, 6:53-56. A POSITA would have recognized that Drell’s disclosure of transmitting “still images” is an example of collaboration data. Ex_1003 ¶161. A POSITA would have recognized that sharing collaboration data in Drell is desirable since it beneficially provides additional ways (in addition to audio and video) to convey information among participants in a multiparty conference. *Id.*

Elliott evidences this understanding and teaches that during a conference, the transmitted stream includes “collaborative Web browsing, audio conferencing, video conferencing, and application sharing” and that “[o]ther types of collaboration...data can be performed,” including transmitting data per the “T.120 standard.” Ex_1007, 1:40-44, 5:49-56, 6:53-54; Ex_1003 ¶162. It would have been obvious to a POSITA in view of Elliott’s teaching, to utilize collaboration data in Drell’s system, including “Web browsing...and application sharing” (Elliott at 1:40-44) and “T.120 standard” collaboration data (Elliott at 5:49-56), because this type of collaboration data would allow for conveying a greater variety of information among the participants thereby improving the conferencing experience and enhancing the effectiveness of collaboration in a variety of contexts. Ex_1003 ¶163.

A POSITA would have recognized that collaboration data would be beneficial to Drell's participants. Ex_1003 ¶164. For example, when the user of one of Drell's conference endpoints connects to the conference via a computer, the user may share web browsing data when doing so helps the other participants better understand the context for the discussion, such as when discussing a web page at a particular URL. Ex_1008, 3:54-64; Ex_1007, 5:58-61 ("During the course of a collaborative session, one party can push a URL to another party. In other words, one party can cause the browser of a remote party to connect to a certain web site."); Ex_1003 ¶164. As another example, when the user of one of Drell's conference endpoints is the presenter, the user may share an application, such as sharing a presentation slide, so that other participants can follow along with the discussion (similar to presenting slides at an in-person meeting). Ex_1003 ¶164. In short, Elliott's collaboration data beneficially provides Drell's participants distinct ways to share information during a conference, thereby enhancing the effectiveness of the collaboration among the participants. *Id.*

Such a combination would have simply been combining prior art elements (sharing collaboration data taught by Elliott in the conferencing system of Drell) according to known methods (disclosed by Elliott) to yield predictable results (allow for participants in Drell's system to share various types of data during a conference for collaboration purposes). Additionally, the combination of Drell and

Elliott is merely the ordinary use of common techniques (transmitting collaboration web browsing data, application sharing data, and collaboration data per the T.120 standard as Elliott teaches) to improve the similar conferencing system of Drell in the same way by allowing for enhanced collaboration among participants. *Id.* ¶165.

Drell also teaches its conferencing data is transmitted across “network 106 [which] may comprise a packet switched network, such as the Internet.” Ex_1008, 3:20-38, 6:53-56. It was known, however, that data transmitted over public IP networks is vulnerable to eavesdropping and other problems since the transmission is not secure. Ex_1003 ¶166. It was also known that communications over a public network could be secured using a VPN. *Id.* Thus, it would have been obvious to a POSITA that VPNs would beneficially provide security to the system of Drell, which describes conferencing communications for business over the Internet. Ex_1008, 1:20-25; Ex_1003 ¶¶166-167.

Consistent with well-known approaches, Elliott teaches utilizing a “virtual private network (VPN)...which uses IP or IP-tunneling” to transmit “voice, fax, data, video” and “[o]ther types of collaboration...data.” Ex_1007, 2:66-3:1, 4:29-34, 6:53-54. In view of Elliott’s VPN teachings, it would have been obvious to a POSITA to utilize VPN tunneling when communicating audio, video, and other data across Drell’s Internet network 106 because VPN tunneling would make the

transmitted data secure from outside access and interference. Ex_1003 ¶168.

Other prior art artisans were using similar combinations prior to the priority date of the '612 patent. *See id.* Additionally, a POSITA would have understood that VPNs are beneficial because they reduce the need to lease private data lines, which reduces or avoids the costs for implementing a private network by communicating securely over the Internet. *Id.* Indeed, the combination of Drell and Elliott is merely the ordinary use of a common technique (using VPN tunneling for conferencing data) in the similar conferencing system of Drell to yield predictable results of (1) securing the transmitted data, and (2) reducing or avoiding costs associated with leasing private data lines. *Id.* ¶169.

The results of combining Elliott's VPN tunneling with Drell's system would have been predictable and there would have been a reasonable expectation of success in the combination given that both references are directed to conferencing systems. Ex_1003 ¶171. This is especially so since VPN tunneling was conventional. *Id.* Any modification needed to the teachings of Drell, to accommodate the teachings of Elliott, would have been within the level of ordinary skill in the art. *Id.* Petitioner's proposed combinations permit but do not require physical incorporation of elements from Elliott into Drell. *See In re Mouttet*, 686 F.3d 1322; Ex. 1003 ¶170.

c) Reasons to Combine Drell and Hendricks

A POSITA would have been motivated to combine the teachings of Drell and Hendricks for multiple reasons, including to produce the obvious, beneficial, and predictable results of providing full duplex audio to the conference participants. Ex_1003 ¶173.

A POSITA considering the teachings of Drell would have also considered the teachings of Hendricks as they are analogous art pertaining to multiparty conference calling. Ex_1008, 1:16-18, Ex_1040, 3:4-10; Ex_1003 ¶174. As noted above, Drell contemplates audio data communication over “two or more networks (for example, the PSTN and the Internet).” Ex_1008, 3:35-37; Ex_1003 ¶175. A POSITA would have known that audio data could be transmitted in two modes; namely, full duplex and half duplex. Ex_1041, 1:20- 21 (“Speakerphones may be designed to operate in either half-duplex or full-duplex.”); Ex_1042, 7:17-20 (“[T]he mode can be specified to be full duplex (full participation, speaking and listening) or half duplex (listen only).”); Ex_1003 ¶175. A POSITA would have recognized that for conferencing applications full duplex is preferred. Ex_1003 ¶176; *see also* Ex_1041, 1:28-33 (describing full duplex as eliminating “clipping or choppiness” resulting in “more natural and spontaneous flowing conversation”). The prior art recognize that “[f]ull-duplex is even more important when more than one person is in a room using the speakerphone for a conference call.” Ex_1041,

1:33-35; Ex_1003 ¶176. Thus, it would have been obvious to a POSITA that full duplex audio would be beneficial to the communication system in Drell that conducts multiple party conferencing. Ex_1003 ¶176.

Hendricks discloses “multi-party call...utilizing only one or a combination of several types of media (e.g., voice only or voice plus video and/or other media such as data, programs, etc.)” that communicate over PSTN and Internet networks using “full duplex.” Ex_1040, 3:4-10, 23:13-14, Fig. 7, 17:19-22 (“The network [] provides full duplex interconnectivity”). It would have been obvious for a POSITA to utilize full duplex audio (as Hendricks teaches) in Drell’s conferencing system because doing so would beneficially (1) reduce clipping or choppiness and (2) facilitate natural and spontaneous flowing conversation among the conference participants. Ex_1003 ¶177. A POSITA also would have utilized full duplex in Drell’s system because doing so would improve audio when more than one person is in a room using the speakerphone for a conference call. *Id.*

Accordingly, a POSITA would have been motivated to apply the full duplex voice communication teachings of Hendricks to Drell’s communication system to obtain the stated beneficial results. Ex_1003 ¶178. It would have been obvious to try full duplex in Drell’s conferencing system since there are a finite number of identified predictable solutions (full duplex and half duplex) and there would have been a reasonable expectation of success. *Id.* That the result would have been

predictable and that there would have been a reasonable expectation of success is evidenced by that fact that at the time “many speakerphones [were already] designed to operate in full-duplex mode.” Ex_1003 ¶179. Further, other artisans had implemented full duplex systems. *E.g.* Ex_1042, 7:14-20, 7:51-55; Ex_1003 ¶179. Moreover, any modification needed to the teachings of Drell to accommodate the full duplex teachings of Hendricks, such as utilizing software programing and hardware, would have been within the level of ordinary skill in the art. Ex_1003 ¶179; Ex_1043, 12:20-32 (describing “software and hardware configurations modified to provide for full duplex communications between all the parties).

Petitioner’s proposed combination permits but does not require physical incorporation of elements from Hendricks into Drell’s system. *See In re Mouttet*, 686 F.3d at 1322; Ex_1003 ¶180.

d) Reasons to Combine Drell with Doganata

A POSITA would have been motivated to combine the teachings of Drell and Doganata for multiple reasons, including to produce the obvious, beneficial, and predictable results of establishing a connection between conference participants. Ex_1003 ¶181.

A POSITA when considering the teachings of Drell would have also considered the teachings of Doganata as they are analogous with both pertaining to

multiparty conferencing. Ex_1008, 1:17-18; Ex_1039, Abstract; Ex_1003 ¶182.

Further, a POSITA would have combined the teachings of Doganata with Drell to obtain numerous predictable and beneficial results. Ex_1003 ¶183.

As noted, Drell teaches a conferencing system for transmitting data between various conferencing endpoints over one or more networks, such as the PSTN and the Internet. Ex_1008, 3:35-36. To setup the conference, Drell utilizes a call manager application 232 that “controls the establishment and termination of connections between near conference endpoint 100 and remote conference endpoints 102 and 104.” *Id.*, 4:15-18. Doganata supplements Drell and teaches a dial-in technique where “a user requests assignment of a dial-in number and a passcode so that the participants may dial in to the conference when the time comes.” Ex_1039, 4:39-42. Doganata further explains that dial-in process may be used by participants with telephones connected to the PSTN. *Id.*, 3:62-63.

It would have been obvious to a POSITA, when establishing a connection in Drell between the near conference endpoint 100 and the conference endpoints connected to the PSTN, to use a dial-in technique as Doganata teaches. Ex_1003 ¶¶184-186. Doing so would enable the participants to individually establish a conference call connection and join the conference when they chose to do so. *See*, Ex_1039, 3:10-12; Ex_1003 ¶186.

The combination of Drell and Doganata is merely a use of an ordinary technique (dialing in), in Drell's similar conference system to yield the predictable result of establishing conference call connections. Ex_1003 ¶187. It would have been obvious to dial-in to establish connections in Drell's conferencing system since there are a finite number of identified predictable solutions (dial-out and dial-in) and there would have been a reasonable expectation of success in establishing the connection. *Id.*

The result would have been predictable and there would have been a reasonable expectation of success in applying Doganata's teachings in Drell, since the utilization of dial-in techniques was conventional and known to be applied in establishing conference connections. Ex_1003 ¶188; Ex_1044, 11:26-31 ("joining caller 16 to a scheduled conference, using...a 'dial-in' procedure"), 12:14-19. Further, the results would have been predictable and there would have been a reasonable expectation of success given that both references describe similar conferencing systems. Ex_1003 ¶188. Furthermore, any modification needed to the teachings of Drell, including implementing software programming or hardware, to accommodate the teachings of Doganata, would have been within the level of ordinary skill in the art. *Id.*

Petitioner’s proposed combinations permit but do not require physical incorporation of elements from Doganata into Drell. *See In re Mouttet*, 686 F.3d at 1322; Ex_1003 ¶189.

3. Claim 10

[10.P] A method for establishing a secure multi-participant conference call including full duplex audio, the method comprising:

Drell discloses “[a] method for conducting a conference” that uses “conferencing systems, and more particularly to a videoconferencing apparatus for use with multi-point conferences.” Ex_1008, 1:16-18. Drell’s system that performs the method is illustrated below at Figure 1:

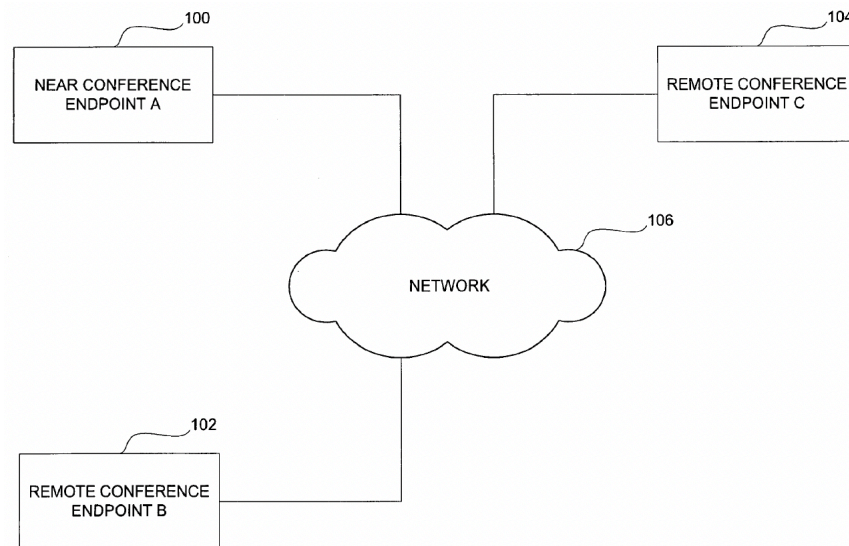


FIG. 1

Id., FIG. 1; Ex_1003 ¶191.

In operation, “near conference endpoint 100, embodying [a multi-point] MP conferencing application, is coupled to remote conference endpoints 102 and 104”

for communicating both “audio and video data” between the endpoints. Ex_1008, 3:4-33. The communication occurs over “network 106 [which] may comprise a packet switched network, such as the Internet.” *Id.*, 3:33-34. Drell also contemplates “the use of two or more networks (for example, the PSTN and the Internet) to connect conference endpoints utilizing different communication protocols.” *Id.*, 3:34-37; Ex_1003 ¶192.

Thus, a POSITA would have understood that Drell’s system utilizes network 106, which can comprise the Internet and PSTN, to facilitate video/audio communications during a conference call between near and remote conference endpoints, including IP conference endpoints and PSTN conference endpoints. Ex_1003 ¶¶192-193. Thus, Drell discloses a system for supporting a multi-participant audio/video conference call, which teaches “*a method for establishing a...multi-participant conference call including...audio.*” *Id.* ¶193.

Elliott supplements Drell by showing that it was known, when using an “Internet Protocol-based (IP-based) network 18 for multi-media collaboration,” to secure the communications using a “virtual private network (VPN)... which uses IP or IP-tunneling.” Ex_1007, 4:6-34; *see also id.*, 2:66-3:1 (“Multi-media collaboration” includes “voice, fax, data, video, etc.”); Ex_1003 ¶194. It would have been obvious for a POSITA to utilize VPN tunneling in Drell’s system for communicating audio and video data over Drell’s Internet network 106 because it

would secure communications in Drell’s system. Ex_1003 ¶¶158-172, 194-195. Accordingly, Elliott’s VPN tunneling teachings renders obvious establishing a “*secure*” multi-participant conference, as recited in the preamble. *Id.* ¶195.

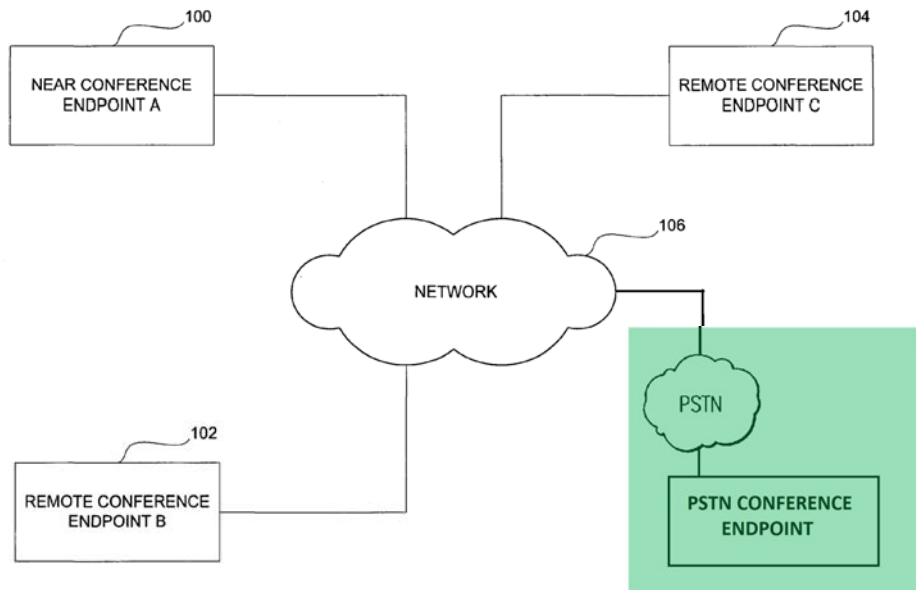
In addition, Drell teaches that its “communication process...may for example comprise an...**H.323** (packet-based) process.” Ex_1008, 2:26-33. It would have been obvious to a POSITA that Drell includes utilizing “*full duplex audio*,” because H.323 was a well-known standard that supported both full-duplex or half- duplex transmission. *See e.g.* Ex_1025, 4:61-67 (“H.323 requires that Internet telephones also adhere to H.245...During call initiation, the devices use H.245 to determine proper compression protocols and also whether the phones support full-duplex or half-duplex transmission.”); Ex_1003 ¶196.

Hendricks further supplements Drell’s disclosure of “*full duplex*,” teaching “full duplex calls” and “full duplex interconnectivity” for conference calls across PSTN and Internet networks. Ex_1040, 3:4-10, 17:19-22, 23:13-14, FIG. 7; Ex_1003 ¶197. It would have been obvious for a POSITA to utilize full duplex audio in Drell’s system (as Hendricks teaches) because doing so would provide the participants of Drell’s near conference end point 100, remote conference end points 102 and 104, and PSTN conference endpoints a more natural way to communicate with each other during the conference. Ex_1003 ¶198; *see also id.* ¶¶173-180.

Thus, the prior art teaches a method for supporting multiple participants in a secure (VPN tunneling) conference call including full duplex audio, which renders obvious the preamble. Ex. 1003, ¶¶190-199.

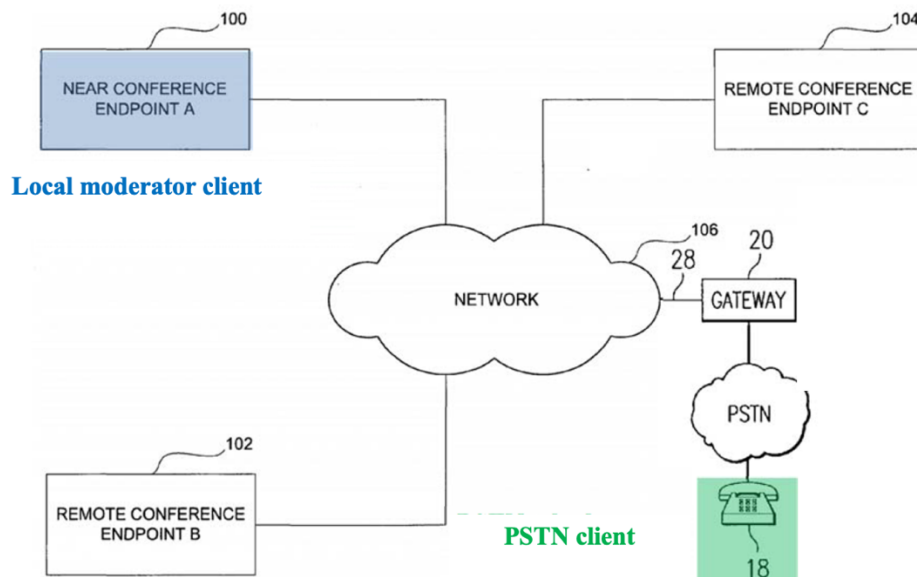
[10.1.1] initiating a dial-in process to establish a connection with a local moderator

Drell teaches that “network 106” connecting near conference endpoint 100 and remote conference endpoint “contemplates the use of two or more networks (for example, the PSTN and the Internet) to connect conference endpoints utilizing different communication protocols.” Ex_1008, 3:20-37. Drell further explains that “while only two remote conference endpoints are depicted in FIG. 1 for the purpose of clarity, a greater number of remote conference endpoints may be accommodated by near conference endpoint 100.” *Id.*, 3:15-19. Thus, a POSITA would have understood that Drell contemplates that a PSTN conference endpoint participates in the conference:



Id., FIG. 1 (annotated); Ex_1003 ¶¶201-202.

Knappe teaches discloses a conferencing system where “at least one participant may be given the priority of moderator for a particular conference call.” Ex_1006, 8:52-56. Thus, it would have been obvious to a POSITA to designate the user of Drell’s near conference endpoint 100 as the moderator (as taught by Knappe and shown in annotated Figure 1 below), when the near conference endpoint 100 is facilitating the conference call:



Ex_1008, FIG. 1 (annotated with Ex_1006, FIG. 1); Ex_1003 ¶¶204-205. Doing so would allow for the user of the near endpoint (acting as the moderator) to control the flow and organization of the conference. Ex_1006, 1:53-55 (“...a designated moderator(s) to control the flow and/or organization the conference.”); Ex_1003 ¶¶137-157, 204. Accordingly, Drell and Knappe teach that the user of the near conference endpoint 100 is a “*local moderator client*” as claimed. Ex_1003 ¶205.

Drell teaches that the moderator near conference endpoint 100 includes a call manager application 232 that “controls the establishment and termination of connections” with remote conference endpoints. Ex_1008, 4:15-20. Doganata supplements Drell and teaches a “dial-in” process to establish a conference between participants, including between Internet and PSTN participants. Ex_1039,

4:38-45 (describing “two types of conferences,” including “a dial-in conference”), 5:25-33 (describing application that “contacts participants...informing them of the time, date, dial-in number”), 3:60-65 (noting that service “awaits dial-in calls” from “participants phones via the Public Switch Telephony Network 16”); Ex_1003 ¶208.

It would have been obvious to a POSITA to initiate a dial-in process to establish a connection with Drell’s call manager application 232 of the moderator near conference endpoint 100. Ex_1003 ¶209. Doing so would beneficially allow Drell’s conference participants and the moderator to individually establish a conference call connection using the conference endpoints and join in a conference as each participant desires. *Id.* ¶209; *see also id.* ¶¶181-189. Thus, the prior art teaches initiating a dial-in process by a PSTN conference endpoint to establish a connection with a moderator near conference endpoint 100, which renders obvious “*initiating a dial-in process to establish a connection with a local moderator client.*” *Id.* ¶¶200-210.

[10.1.2] in response to an input from a Public Switched Telephone Network (PSTN) client

As discussed at [10.1.1], Drell in combination with Knappe and Doganata teaches initiating a dial-in process by a PSTN conference endpoint to establish a connection with a moderator near conference endpoint 100. Ex_1003 ¶212.

Doganata teaches that for “a dial-in conference, a user requests assignment of a dial-in number and a passcode so that the participants may dial in to the conference when the time comes.” Ex_1039, 4:38-46. Specifically, Doganata teaches “an audio bridge for the conference” that “awaits dial-in calls for connecting to the audio bridge” from “participants phones via the Public Switch Telephony Network 16.” *Id.*, 3:60-65. Thus, it would have been obvious to a POSITA that in the combination, Drell’s PSTN conference endpoint would use a dial-in number and passcode as input to establish a connection with the moderator near conference endpoint 100. Ex_1003 ¶¶213-214. A POSITA would have been motivated to make the combination since Doganata’s teaching would allow the PSTN conference endpoint participant to connect to the conference and exchange audio data with the other participants. *Id.* ¶214. Moreover, a POSITA would have recognized that inputting a passcode/password is desirable since it provides security to the conference and identifies which of multiple conferences which to join. *Id.* ¶214; *see also id.* ¶¶181-189.

Thus, the prior art teaches that initiating the dial-out process (discussed at [10.1.1]) is in response to an input (e.g., dial-in number and/or passcode) from the PSTN conference endpoint, which renders obvious “*in response to an input from a Public Switched Telephone Network (PSTN) client.*” Ex_1003 ¶215.

[10.2] receiving first audio data at the local moderator client from the PSTN client through a PSTN gateway;

As discussed at [10.1.1]-[10.1.2], the prior art teaches initiating a dial-in process to establish a connection with local moderator near conference endpoint in response to input from the PSTN conference endpoint. Ex_1003 ¶217.

Furthermore, as discussed in [10.1.1], a POSITA would have understood that Drell contemplates that a PSTN conference endpoint participates in the conference. *Id.*

¶¶201-202, 218-221. Specifically, Drell explains that near conference endpoint 100 processes “audio and video data streams received from remote conference endpoints,” including a PSTN conference endpoint. Ex_1008, 4:21-26; Ex_1003 ¶¶218-220. Thus, Drell’s moderator near conference endpoint 100 that receives audio data from the PSTN conference endpoint over a PSTN renders obvious “*receiving first audio data at the local moderator client from the PSTN client.*” Ex_1003 ¶¶218-221.

Knappe further teaches that when a PSTN conference endpoint participates in a conference, over a PSTN network and an IP network, a “gateway 20 provides conversion between analog and/or digital formats. The standard analog telephones 18 communicate standard telephony signals through PSTN 22 to the gateway 20. At the gateway 20, the signals are converted to IP packets in the VoIP format.” Ex_1006, 4:18-22. Knappe explains that “the telephone 18 and gateway 20 combination [is] capable of communicating real-time audio, video and/or other information over the network 14.” *Id.* 3:65-4:1. Thus, as shown

below, it would have been obvious to a POSITA to utilize in Drell's system a gateway that receives standard audio data from PSTN conference endpoints and converts the audio data into a format suitable for conference endpoints on an Internet network:

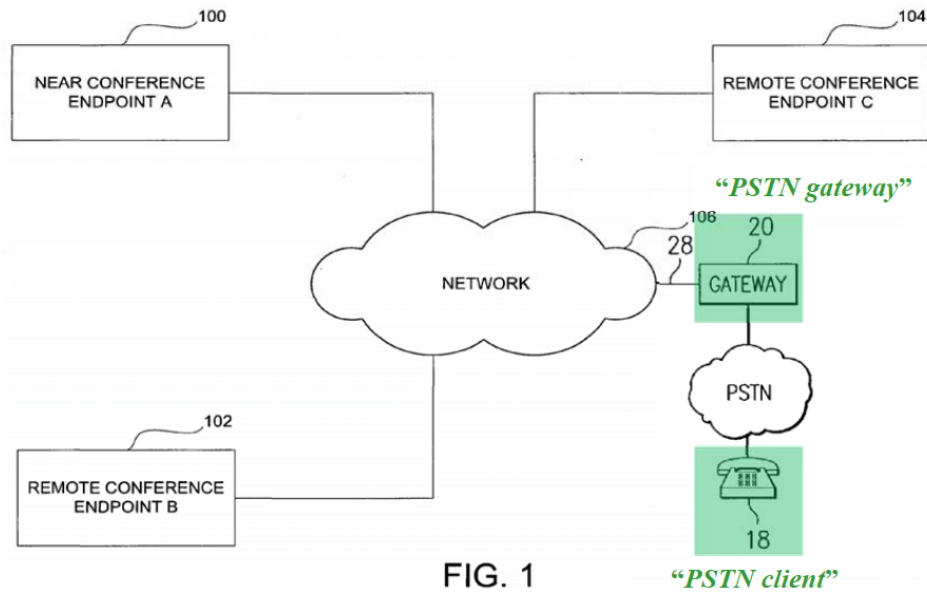


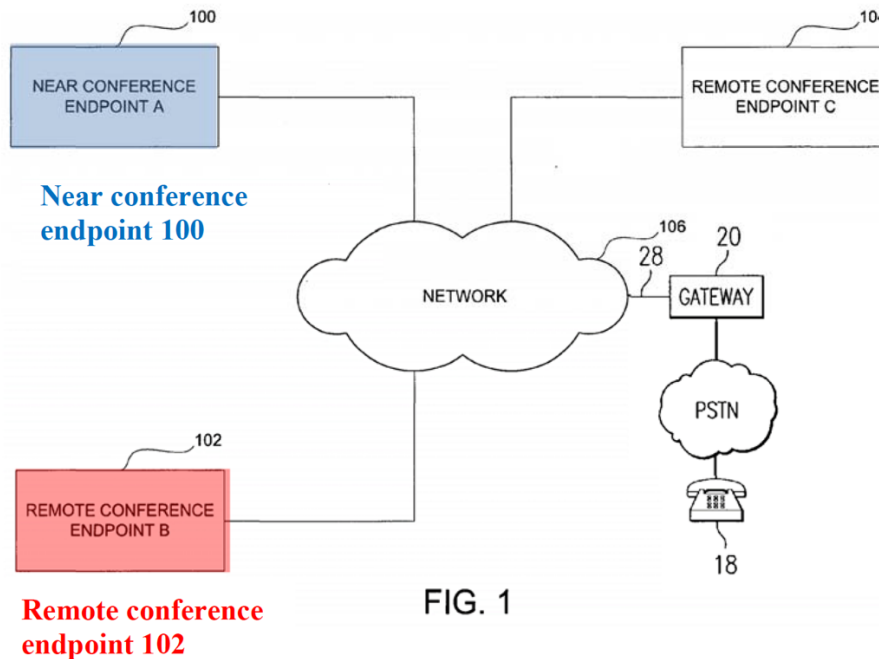
FIG. 1

Ex_1008, FIG. (annotated with Ex_1006, FIG. 1); Ex_1003 ¶¶222-224. Doing so would beneficially allow Drell's PSTN conference endpoints to communicate, during the conference, audio data to the near conference endpoint 100, over a PSTN network and an Internet network 106. *Id.* ¶223; *see also id.* ¶¶137-157.

Thus, the prior art teaches that near conference endpoint 100 receives audio data from a PSTN conference endpoint through a gateway, which renders obvious this limitation. *Id.*, ¶¶ 216-225.

[10.3.1] receiving second audio data at the local moderator client from a remote client

As discussed at [10.1.1]-[10.1.2], the prior art teaches a moderator near conference endpoint 100. *Id.* ¶227. Drell further explains that “remote conference endpoint[] 102...transmit[s]...audio (speech) data.” Ex_1008, 3:4-23. Thus, Drell’s remote conference endpoint 102 corresponds to “*a remote client*”:



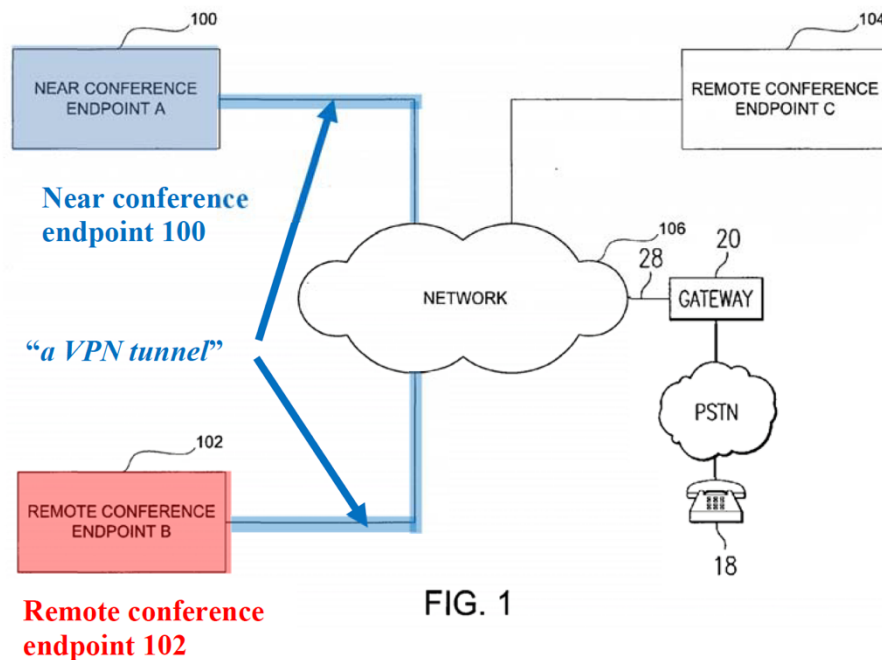
Id., FIG. 1 (annotated); Ex_1003 ¶¶228-229.

Drell further explains that the moderator near conference endpoint 100 of Drell includes MP conferencing application 234 “that is configured to instantiate a processing train for each remote conference endpoint 102 and 104 to which near conference endpoint 100 is connected. The processing trains process audio and video data streams received from remote conferencing endpoints 102 and 104.” *Id.*, 4:21-16; Ex_1003 ¶¶228-229. Thus, the prior art teaches that the moderator near conference endpoint 100 receives audio data from the remote conference

endpoint 102, which renders obvious “*receiving second audio data at the local moderator client from a remote client,*” as claimed. Ex_1003 ¶¶226-230.

[10.3.2] through a Virtual Private Network (VPN) tunnel;

As discussed at [10.3.1], the prior art teaches that the moderator near conference endpoint 100 receives audio data from the remote conference endpoint 102. *Id.* ¶232. Drell also makes clear its “network 106 may comprise a packet switched network, such as the Internet.” Ex_1008, 3:33-38. Elliott further teaches communicating conferencing “media stream (e.g. voice, fax, data, video, etc.)” over “the public Internet” using “virtual private network (VPN)...IP-tunneling.” Ex_1007, 2:66-1, 4:6-34, 6:43-54. In view of Elliott, it would have been obvious to a POSITA to utilize VPN tunneling in Drell’s system, as shown below, when communicating audio, video, and collaboration data to and from the moderator near conference endpoint 100:



Ex_1008, FIG. 1 (annotated); Ex_1003 ¶¶233-237. A POSITA would know to use a VPN (as taught in Elliott) in the Drell system because it would provide Drell with secure communications as the communications traverse Internet network 106.

Ex_1003 ¶236; *see also id.* ¶¶158-172. Thus, the prior art teaches that the moderator near conference endpoint 100 receives audio data from the remote conference endpoint 102 through a VPN tunnel, which renders obvious receiving audio data “*through a Virtual Private Network (VPN) tunnel,*” as claimed. *Id.* ¶238.

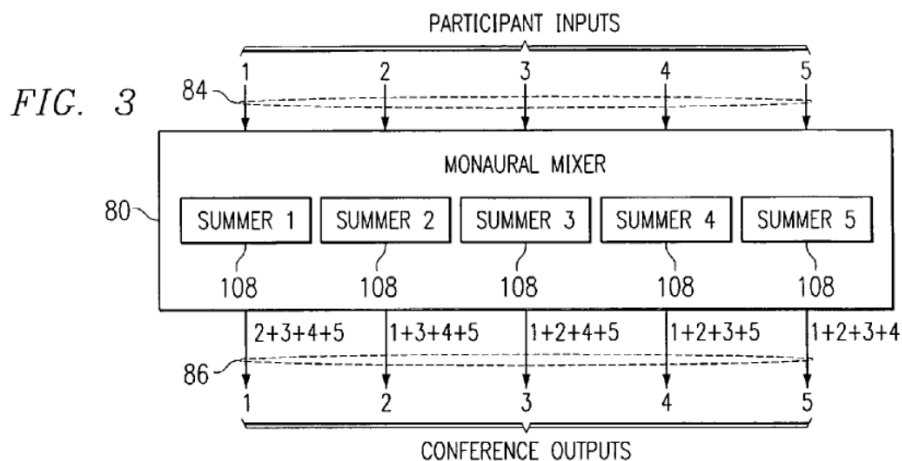
[10.4.1] transmitting third audio data, first video data, and first collaboration data from the local moderator computer to the remote client

As discussed at [10.1.1]-[10.1.2], Drell in combination with Knappe and Doganata teaches a moderator near conference endpoint 100. *Id.* ¶240. Further, as

discussed at [10.3.1], Drell teaches a “*remote client*” remote conference endpoint 102. *Id.*

Drell teaches that moderator near conference endpoint 100’s MP conferencing application 234 includes an “[a]udio mixing module 308 [] configured to combine audio data received from remote conference endpoints 102 and 104 with locally generated audio data” and generate an “output audio data stream.” Ex_1008, 5:8-23; *see also id.*, Abstract, 2:34-52, 4:25-31. Locally generated audio is input to the near conference endpoint 100 using a “microphone” that generates “audio signals representative of the... speech of the near conference participant.” *Id.*, 3:45-48. A POSITA would understand that the audio data received from the PSTN conference endpoint would also be combined in the audio mixing module 308. Ex_1003 ¶¶241-242.

Knappe further supplements and explains how to mix audio data from multiple conference endpoints, including PSTN conference endpoints. *See* Ex_1006, FIGs. 1-3, 5:49-62, 6:59-7:15. Specifically, in connection with Figure 3, Knappe teaches using a mixer 80 with a plurality of summers (e.g., summers 1 to 5), where each summer mixes audio data from the other participants (e.g., participants 1 to 5) while providing higher prominence to the moderator audio:

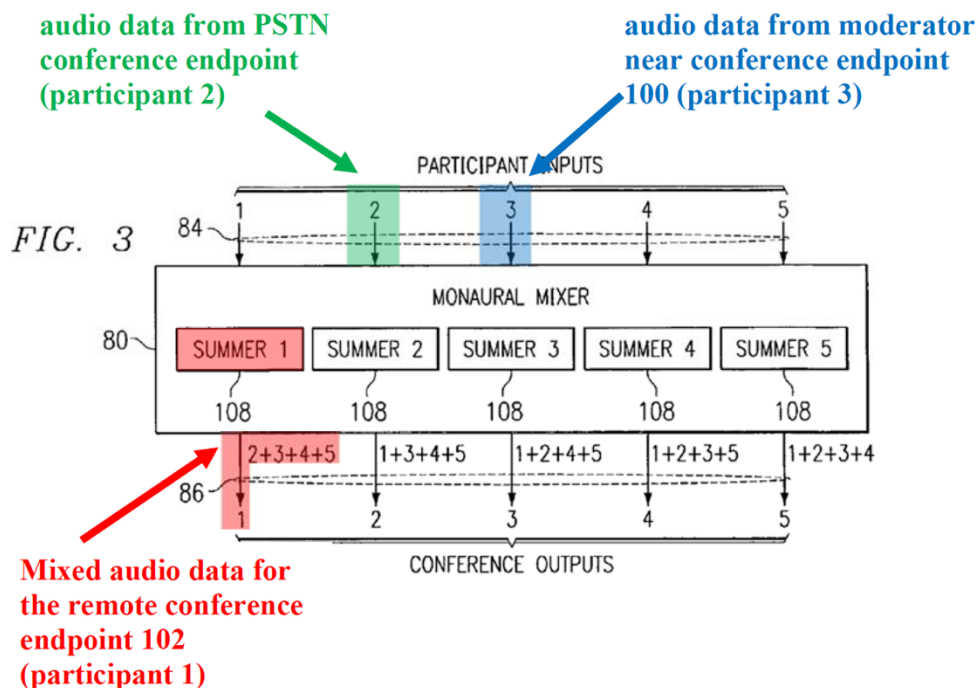


Id., FIG. 3; *see also id.*, 6:59-63 (“mixer 80 receives participant input streams 84 and combines the streams in summers 82 to generate conference output streams 86 for each participant”), 6:63-7:15 (conference moderator may be amplified... to focus on or provide higher prominence); Ex_1003 ¶243.

It would have been obvious to a POSITA to use a plurality of summers (as Knappe teaches) in audio mixing module 308 of Drell’s MP conferencing. Ex_1003 ¶244. Using a plurality of summers (one for each participant) would provide for separately mixing audio data from the PSTN conference endpoint with audio data from the moderator near conference endpoint 100, while providing higher prominence and control to the moderator. *Id.*; *see also id.* ¶¶137-157. In the combination, Drell’s audio mixing module 308 would utilize a plurality of summers (one summer per participant) to obtain the functionality of generating a separate mix for each participant, which is consistent with Drell’s desire to

generate a separate instance for each remote endpoint. *See* Ex_1008 6:66-7:4; Ex_1003 ¶245.

For explanation purposes, and without limiting Knappe's disclosure, below is an annotated example of Figure 3 identifying which of Drell's endpoints corresponds to which of participants 1-5:



Ex_1006, FIG. 3 (annotated); Ex_1003 ¶246.

In the combination of Drell and Knappe, the mixed audio data output by the audio mixing module 308, for the remote conference endpoint 102, corresponds to a “third audio data,” since it is a mix of locally generated audio from the moderator and the audio from the PSTN conference endpoint and does not include the remote conference endpoint 102 audio. *Id.* ¶247.

Drell also teaches that moderator near conference endpoint 100's MP conferencing application 234 includes a video switching/continuous presence module 306 "output[s] the video data stream corresponding to the conference endpoint of the currently speaking participants." Ex_1008, 5:36-37; *see also id.*, 4:32-38, 5:27-47. A POSITA would have understood that when the moderator is speaking, the moderator's video data would be selected and output by the video switching continuous presence module 306. Ex_1003 ¶248. The selected video output by the video switching continuous presence module 306, e.g., video of moderator, corresponds to a "*first video data.*" *Id.* ¶249.

Drell goes on to explain that "[i]n the transmission mode, processing train 302 is configured to...form a mixed encoded audio/video data stream, and the encoded audio/video data stream is transmitted." Ex_1008, 5:48-54. Specifically, "[r]emote conference endpoint[] 102...receive[s] both video (image) and audio (speech) data." *Id.*, 4:8-12. Thus, Drell in combination with Knappe teaches that the near conference endpoint 100 transmits mixed audio data and selected video data to remote conference endpoint 102, which renders obvious "*transmitting third audio data, first video data... from the local moderator client to the remote client.*" Ex_1003 ¶250.

Drell also teaches that the processing train 302 of the MP conferencing application 234 of near conference endpoint 100 "data codec for coding and

encoding still images received from or transmitted to remote conference endpoints 102 and 014.” Ex_1008, 6:53-56. The “still images” received from remote conference endpoint 104 which near conference endpoint 100 then transmits to the remote conference endpoint 102, correspond to “*first collaboration data*,” as claimed. Ex_1003 ¶252. And as previously noted, Drell also teaches that its “communication process...may for example comprise an...H.323 (packet-based) process.” Ex_1008, 2:26-33. A POSITA would understand that an H.323 process also discloses “*first collaboration data*,” because H.323 was a well-known standard that recommended T.120 collaboration data. Ex_1003 ¶253. Indeed, the ’612 patent itself relies on the prior art H.323/T.120 standards for transmitting collaboration data as part of the packetizing process. Ex_1001, 3:19-21 (“[T]he H.323 recommendation defines a data collaboration capability as known and outlined in the T.120 data collaboration unit.”), FIG. 2 (Prior Art).

Furthermore, Elliott teaches teaches collaboration data, such as “application sharing” data, “web browsing” data, and collaboration data per the “T.120 standard.” Ex_1007, 1:40-44, 5:49-61, 6:46-54, 11:6-13. Any one of Elliott’s types of collaboration data (such as application sharing, web browsing, and other collaboration data per the T.120 standard) corresponds with “*first collaboration data*,” as claimed. Ex_1003 ¶¶254-255. It would have been obvious to a POSITA for the moderator near conferencing endpoint 100 to transmit collaboration data

(e.g., application data, web browsing data, and other collaboration data per the T.120 standard) as Elliott teaches, to the remote conference endpoint 102, because including collaboration data in transmissions to other conference endpoints would allow different ways for the participants to collaborate thereby enhancing the effectiveness of the collaboration among the participants. *Id.* ¶256; *see also id.* ¶¶158-172.

Thus, the prior art teaches transmitting mixed audio data (mixed specifically for remote conference endpoint 102), selected video data, and collaboration data (e.g., still image data, application data, web browsing data, and other collaboration data per the T.120 standard) from the moderator near conference endpoint 100 to the remote conference endpoint 102, which renders obvious this limitation. *Id.* ¶¶239-257.

[10.4.2] through the first VPN tunnel

The phrase “*the first VPN tunnel*” is not previously recited in the claim, which only discusses “*a VPN tunnel*” (see element [10.3.2]). For analysis purposes only, this Petition assumes that the claimed “*first VPN tunnel*” in [10.4.2] corresponds to the “*VPN tunnel*” discussed at [10.3.2]. Ex_1003 ¶259.

As discussed at [10.4.1], the prior art teaches that the moderator near conference endpoint 100 transmits mixed audio data, selected video data, and collaboration data to the remote conference endpoint 102. *Id.* ¶260. And as

discussed at [10.3.2], the prior art teaches that the moderator near conference endpoint 100 communicates with the remote conference endpoint 102 through the VPN tunnel. *Id.* ¶261.

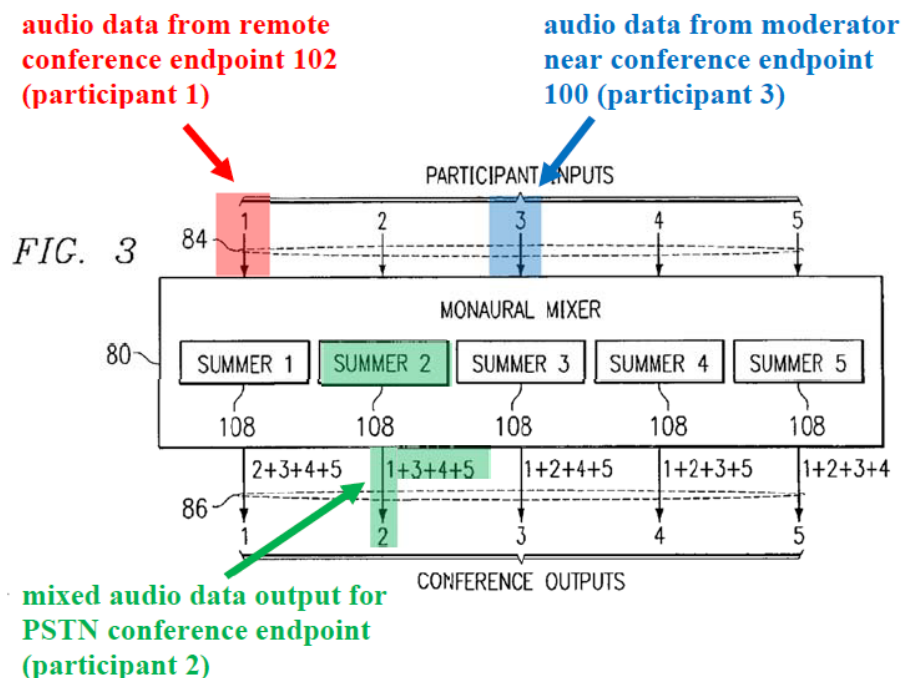
When the moderator near conference endpoint 100 transmits data to or receives data from the remote conference endpoint 102, the data would be received and sent through the same VPN tunnel, which corresponds to the claimed “*VPN tunnel*.” *Id.* ¶262. It would have been obvious to a POSITA to utilize the VPN tunnel for communications between the moderator near conference endpoint 100 and the remote conference endpoint 102, because it would provide Drell secure communications. *Id.*; *see also id.* ¶¶158-172. Thus, the prior art teaches that the moderator near conference endpoint 100 transmits the mixed audio data, selected video data, and collaboration data to the remote conference endpoint 102 through the VPN tunnel, which renders obvious this limitation. *Id.* ¶263.

[10.5] transmitting fourth audio data from the local moderator client to the PSTN client through the PSTN gateway

As discussed at [10.1.1]-[10.2], the prior art teaches that the moderator near conference endpoint 100 communicates with the PSTN conference endpoint through the PSTN gateway. Ex_1003 ¶265; *see also id.* ¶¶271-274. As discussed at [10.4.1], Drell teaches that the near conference endpoint 100’s “[a]udio mixing module 308 is configured to combine audio data received from remote conference endpoints 102 . . . with locally generated audio data” to generate an

“output audio data stream. Ex_1008, 5:8-16; Ex_1003 ¶¶241, 266. And as further noted at [10.4.1], Knappe supplements Drell and explains how to mix audio data from multiple conference endpoints using a mixer with a summer for each participant. Ex_1003 ¶¶243-246, 267. As discussed at [10.4.1], it would have been obvious to a POSTIA to use a plurality of summers in Drell’s mixing module 308 (one summer for each participant). *Id.* ¶¶244-245, 268.

For explanation purposes, and without limiting Knappe’s disclosure, below is an annotated example of Figure 3 showing mixing of audio data from remote conference endpoint 102 with audio data from the moderator near conference endpoint 100 into mixed audio data for the PSTN conference endpoint:



Ex_1006, FIG. 3 (annotated); Ex_1003 ¶269. In the combination of Drell and Knappe, the mixed audio data output by the audio mixing module 308, for the PSTN conference endpoint, corresponds to a “*fourth audio data*,” since it is a mix of locally generated audio from the moderator and the audio from the remote conference endpoint 102. *Id.* ¶270.

Thus, the prior art teaches that the moderator near conference endpoint 100 transmits mixed audio data (mixed specifically for the PSTN conference endpoint) to the PSTN conference endpoint through a gateway, which renders obvious “*transmitting fourth audio data from the local moderator client to the PSTN client through the PSTN gateway*,” as claimed. *Id.* ¶¶264-275.

4. Claim 11

[11.P] The method of claim 10, further comprising:

See [10.P]-10.5]

[11.1] receiving second video data at the local moderator client from the remote client

As discussed at [10.1.1]-[10.1.2], the prior art teaches a moderator near conference endpoint 100. Ex_1003 ¶278. Further, as discussed at [10.3.1], the prior art teaches that the moderator near conference endpoint 100 receives audio data from the remote conference endpoint 102. *Id.*

Drell also teaches that the moderator near conference endpoint 100 receives video data from the remote conference endpoint 102, explaining “[r]emote

conference endpoint[] 103 may...transmit...both video (image) data and audio (speech data).” Ex_1008, 3:8-12, 4:25-26 (“audio and video data streams received from remote conference endpoints 102 and 104”). The video data from the remote conference endpoint 102 corresponds with the claimed “*second video data*.” Ex_1003 ¶279.

Specifically, Drell teaches that the MP conferencing application 234 (of the moderator near conference endpoint 100) includes processing train 302 that receives video data from the remote conference endpoint 102. Ex_1008, 4:61-64 (“processing train 302 is operative to extract and decode...video data from signals received from remote conference endpoint 102”). The video switching/continuous presence module 306 the receives the decoded video data from remote conference endpoint 102. *Id.*, 4:64-67; Ex_1003 ¶280. Thus, a POSITA would understand that in the combination during conferencing the moderator near conference endpoint 100, including the processing train 302 and the video switching/continuous presence module 306, receives “*second video data*” from the remote conference endpoint 102. Ex_1003 ¶¶281-282.

5. Claim 12

[12.P]The method of claim 10, further comprising:

See [10.P]-[10.5].

***[12.1]receiving second collaboration data at the local moderator client
from the remote client***

As discussed at [10.1.1]-[10.1.2], the prior art teaches a moderator near conference endpoint 100. Ex_1003 ¶285. Further, as discussed at [10.3.1], the prior art teaches that the moderator near conference endpoint 100 receives audio data from the remote conference endpoint 102. *Id.*

As discussed at [10.4.1], Drell teaches an “data codec for coding and encoding still images...received from...remote conference endpoint[] 102[.]” Ex_1008, 6:53-56; Ex_1003 ¶¶251-252, 286. The “still images” received from remote conference endpoint 102 correspond to “*second collaboration data*,” as claimed. Ex_1003 ¶287. And again, because Drell teaches use of an H.323 process, a POSITA would understand Drell to disclose “*second collaboration data*,” because H.323 was a well-known standard that recommended T.120 collaboration data. *Id.* ¶288.

Also as discussed at [10.4.1], Elliott teaches sharing of collaboration data, such as application sharing” data, “web browsing” data, and collaboration data per the “T.120 standard,” and thus discloses “*second collaboration data*.” Ex_1003 ¶¶254-256, 289. It would have been obvious to a POSITA for the moderator near conferencing endpoint 100 to receive collaboration data (e.g., application data, web browsing data, and other collaboration data per the T.120 standard) as Elliott teaches, from the remote conference endpoint 102, because including collaboration data in transmissions to and from remote conference endpoints would allow

different ways for the participants to collaborate thereby enhancing the effectiveness of the collaboration among the participants. *Id.* ¶290; *see also id.* ¶¶158-172. Thus, the teaches receiving collaboration data from the remote conference endpoint 102, which renders obvious this limitation. *Id.* ¶¶284-291.

6. Claim 13

[13.P]The method of claim 10, further comprising:

See [10.P]-[10.5].

[13.1] wherein the PSTN client is a cellular telephone.

As discussed at [10.1.1], the prior art discloses a PSTN conference endpoint. Ex_1003 ¶294. Knappe teaches that the PSTN conference endpoint may be a “standard analog telephone[] 18” that communicates using “radio frequency” or other “wireless links.” Ex_1006, 3:41-49. Knappe also explains that the communication devices 16 that make up the conference participants “comprise...cell other mobile telephones or handset or any other device or sets of devices such as the telephone 18 and gateway 20 combination[.]” Ex_1006, 3:62-4:1. Knappe’s disclosure that telephone 18 communicates over the PSTN network 22 using “any...suitable type of...wireless link,” and its example of a cellular telephone, which a POSITA would have understood uses a cellular wireless link, renders obvious that the PSTN conference endpoint is a “*cellular telephone.*” Ex_1003 ¶¶295-297. Thus, the prior art teaches that the PSTN conference

endpoint is a cellular telephone, which renders obvious this limitation. *Id.* ¶¶295-299.

7. Claim 14

[14.P] The method of claim 10, further comprising:

See [10.P]-[10.5].

[14.1] compressing the third audio data prior to the transmitting the third audio data

As discussed at [10.4.1]-[10.4.2], the prior art teaches that the near conference endpoint 100 transmits mixed audio data (“*third audio data*”) to the remote conference endpoint 102 through a VPN tunnel. Ex_1003 ¶302.

Drell teaches that the “audio codec 408” of moderator near conference endpoint 100 “encodes the audio data stream output by audio mixing module 308...using a standard or proprietary audio compression algorithm[.]” Ex_1008, 6:33-44. The “audio codec 408” then “delivers the encoded audio data to communication process 404” for transmission. *Id.*, 6:44-45. In addition, as Drell discloses using an H.323 process, a POSITA would have understood Drell to use the compression protocols and codecs described in the H.323 standard. Ex_1003 ¶304. Thus, the prior art teaches using a compression algorithm and/or compression protocols for compressing the mixed audio data before the mixed audio data is transmitted to the remote conference endpoint 102, which renders obvious this limitation. *Id.* ¶¶301-305.

8. Claim 15

[15.P] The method of claim 10, further comprising:

See [10.P]-[10.5].

[15.1] wherein the second audio data received from the remote client is compressed digital audio data.

As discussed at [10.3.1], the prior art teaches a moderator near conference endpoint 100 receives “*second audio data*” from the remote conference endpoint 102. Ex_1003 ¶308.

Drell teaches that near conference endpoint 100’s processing train 302 “process[es] audio and video data streams received from remote conference endpoint[] 102[.]” Ex_1008, 4:25-26; Ex_1003 ¶¶228, 309. Specifically, processing train 302 includes “audio codec 408” that “receives audio data stream...and applies redundancy reduction decoding in accordance with a standard...or proprietary audio compression algorithm.” Ex_1008, 6:18-23. A POSITA would have understood that audio codec 408 (of the processing train 302) decoding audio using an audio compression algorithm is performing decompression of the audio data from the remote conference endpoint 102. Ex_1003 ¶309. Thus, it would have been obvious to a POSITA that the audio received from the remote conference endpoint 102 (discussed at [1.3.1]) is “*compressed...audio data*,” since it is decompressed by audio codec 408 using a standard or proprietary algorithm. *Id.* ¶310.

Additionally, because Drell teaches use of an H.323 process, a POSITA would understand that Drell uses the compression protocols and codecs described in the standard. *Id.* ¶311. Knappe also teaches that data communicated over the Internet (as done in Drell) is digitally encoded. Ex_1006, 4:11-14 (“The **digital** encoded data is encapsulated into IP [Internet Protocol] or other suitable packets for transmission over the network 14. IP packets received from the network 14 are converted back into analog signals and played to the user.”). It would have been obvious to a POSITA that Drell’s system transmits data over Internet network 106 in digital form because communications over the Internet utilize digital data encapsulated in packets. Ex_1003 ¶313. Thus, it would have been obvious to a POSITA that when the moderator near conference endpoint 100 receives audio data from the remote conference endpoint 102 over the Internet network 106 (see discussion at [1.3.1]), the audio data is “*digital*,” as claimed. *Id.* Notably, the ’612 patent’s only reference to “digital” data is “digital IP... routed via Internet.” Ex. 1001, 6:18-20; Ex_1003 ¶313.

Thus, the prior art teaches that the audio data received from the remote conference endpoint 102 is compressed digital audio data, which renders obvious this limitation. Ex_1003 ¶¶307-314.

9. Claim 16

[16.P] The method of claim 15, further comprising:

See [15.]-[15.1].

[16.1] decompressing the second audio data received from the remote client.

As discussed at [15.1], the prior art teaches that the moderator near conference endpoint 100 receives compressed digital audio data from the remote conference endpoint 102. Ex_1003 ¶317. Further, as discussed at [15.1], Drell teaches that the received compressed digital audio data is decompressed with a compression algorithm by the processing train 302, including audio codec 408. *Id.*; Ex_1008, 6:18-23, FIGs. 3, 4. As an additional example discussed at [15.1], Drell teaches that its communication process includes a H.323 (packet-based) process which renders obvious decompressing the received compressed digital audio data from the remote conference endpoint 102. *See, e.g.*, Ex_1008, 2:17-33; Ex_1025, 4:35-56; Ex_1024, 3:56-67; Ex_1003 ¶317. It would have been obvious to a POSITA to decompress the received audio data because decompression is required before the audio can be played back to a user. Ex_1003 ¶317.

Thus, the prior art teaches that the moderator near conference endpoint 100 uses a compression algorithm and/or protocol to decompress the compressed digital audio data received from the remote conference endpoint 102, which renders this limitation obvious. *Id.* ¶¶316-318.

10. Claim 17

[17.P] The method of claim 16, further comprising:

See [16.P]-[16.1].

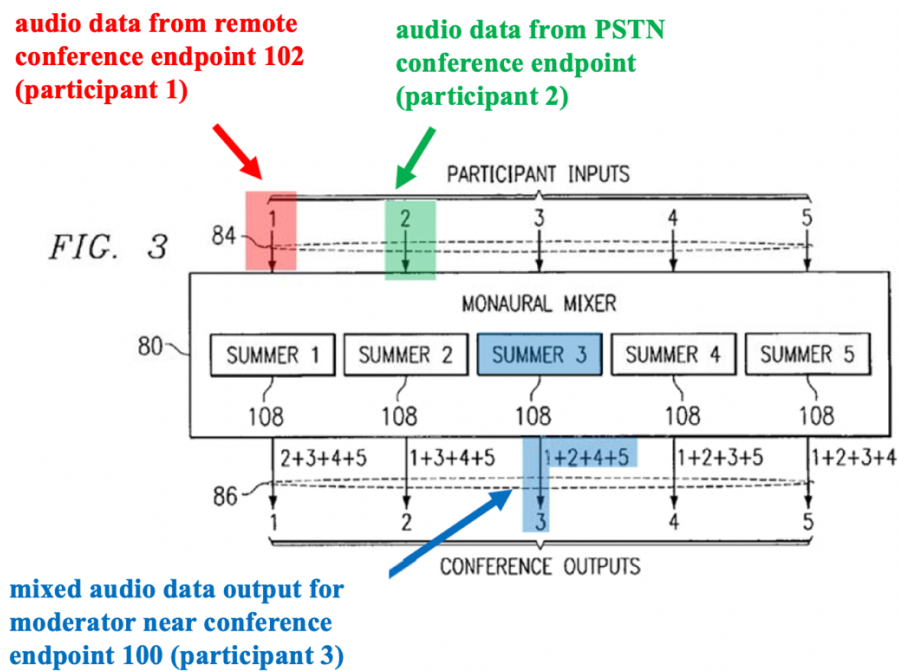
[17.1] mixing the second audio data received from the remote client with the first audio data received from the PSTN client.

As discussed at [10.2]-[10.3.1], the prior art teaches that the moderator near conference endpoint 100 receives audio data from the PSTN conference endpoint and also receives audio data from the remote conference endpoint 102. Ex_1003 ¶321. Further, as discussed at [16.1], the audio data from the remote conference endpoint 102 is decompressed by the processing train 302 of the moderator near conference endpoint 100. *Id.*

Drell teaches that audio mixing module 308 of near conference endpoint 100 “may simply mix the received audio input streams” received from remote conference endpoints. Ex_1008, 5:13-21. As discussed at [10.4.1], it would have been obvious to a POSITA that the audio data received from the PSTN conference endpoint would also be combined in the audio mixing module 308. Ex_1003 ¶322.

Further, as discussed at [10.4.1] and [10.5], Knappe supplements and explains how to mix audio data from multiple conference endpoints, including remote conference endpoints and PSTN conference endpoints. Ex_1006, FIGs. 1-3, 5:49-62, 6:59-7:15. It would have been obvious to a POSITA to utilize multiple summers in Drell’s mixing module 308 (one summer for each participant) to obtain benefits such as reducing undesirable audio effects. Ex_1003 ¶¶323-324; *see also id.* ¶¶137-157.

In the combination, near conference endpoint 100 would produce a separate audio mix for each conference endpoint, which is consistent with Drell's desire to generate a separate processing instance for each remote endpoint. Ex_1008, 6:66-7:4; Ex_1003 ¶325. For explanation purposes, and without limiting Knappe's disclosure, below is an annotated example of Figure 3 identifying which of Drell's endpoints corresponds to which of participants 1-5



Ex_1006, FIG. 3 (annotated); Ex_1003 ¶326. As shown, the prior art teaches that the moderator near conference endpoint 100 includes a mixing module 308 (with separate summers including summer 3) configured to mix audio data from the remote conference endpoint 102 with audio data from the PSTN conference endpoint, which renders obvious this limitation. Ex_1003 ¶¶320-327.

11. Claim 18

[18.P] The method of claim 16, further comprising:

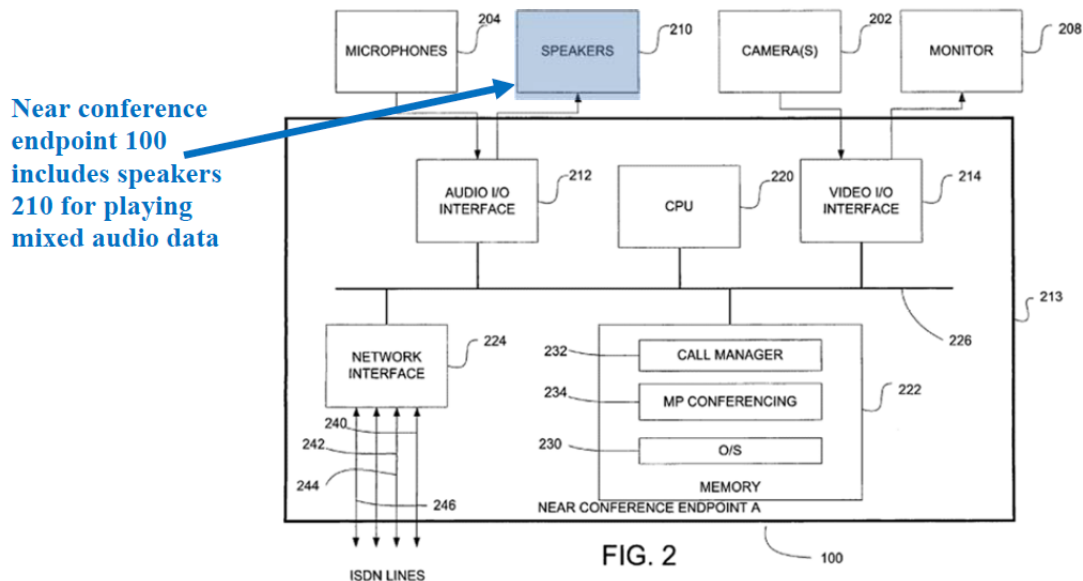
See [17.P]-[17.1].

[18.1] playing the mixed audio data from speakers connected to the local moderator client.

As discussed at [10.1.2], the prior art teaches a moderator near conference endpoint 100. Ex_1003 ¶330. Further, as discussed at [17.1], Drell in combination with Knappe teaches that the moderator near conference endpoint 100 generates mixed audio data. *Id.*

Drell teaches that speakers 210 present the mixed audio data (speech) to the moderator. Ex_1008, 3:45-45 (“A video monitor 208 and loudspeaker 210 present images and speech of the remote conference participants”). It would have been obvious to a POSITA that presenting audio from the speakers 210 includes “*playing*” the audio as claimed. Ex_1003 ¶331.

The summed speech of the remote conference participants corresponds to the “*mixed audio data*,” which as analyzed in [8.1] includes audio from the PSTN conference endpoint and the remote conference endpoint 102. *Id.* ¶332. As shown below at Drell’s Figure 2, the near conference endpoint 100 includes speakers 210 connected to the near conference endpoint 100 that play the mixed audio data to the moderator:



Ex_1008, FIG. 2 (annotated); Ex_1003 ¶332. Thus, the prior art teaches playing the mixed audio data from speakers 210 connected to the moderator near conference endpoint 100, which renders this limitation obvious. Ex_1003 ¶¶329-333.

IX. CONCLUSION

For the reasons given above, Petitioner has demonstrated a reasonable likelihood of success in establishing the unpatentability of claims 10-18 of the '612 patent and respectfully requests institution of IPR for each of the grounds presented herein and cancellation of the challenged claims.

Respectfully submitted,

Date: December 16, 2022

By: /Hector Ribera/

Hector J. Ribera (Reg. No. 54,397)
548 Market St., Suite 36117, San
Francisco, CA 94104
Email: hector@martonribera.com
Tel: (415) 360-2511

Attorneys for Petitioner

CERTIFICATE OF WORD COUNT PURSUANT TO 37 C.F.R. § 42.24(D)

The undersigned hereby certifies that the word count for the above Petition for *inter partes* review is 13,979, which is less than the 14,000 allowed under 37 CFR § 42.24(a)(1)(i).

Date: December 16, 2022

By: /Hector Ribera/

Hector J. Ribera (Reg. No. 54,397)
Marton Ribera Schumann & Chang LLP
548 Market St., Suite 36117, San
Francisco, CA 94104 Email:
hector@martonribera.com
Tel: (415) 360-2511

Attorneys for Petitioner

CERTIFICATE OF SERVICE PURSUANT TO
37 C.F.R. § 42.6 AND 37 C.F.R. § 42.105

Pursuant to 37 C.F.R. § 42.6(e)(4) and 42.105(b), the undersigned certifies that on December 16, 2022, a complete and entire copy of this Petition for *inter partes* review and all supporting exhibits were provided via FedEx First, to the Patent Owner by serving the correspondence address of record as follows:

ATTN: THOMAS MARTIN
AMEDEO FERRARO
WESLEY MEINERDING
MARTIN & FERRARO, LLP
1557 LAKE O'PINES STREET, NE
HARTVILLE, OH 44632

Date: December 16, 2022

By: /Hector Ribera/
Hector J. Ribera (Reg. No. 54,397)
Marton Ribera Schumann & Chang LLP
548 Market St., Suite 36117, San
Francisco, CA 94104 Email:
hector@martonribera.com
Tel: (415) 360-2512

Attorneys for Petitioner