

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT TRIAL AND APPEAL BOARD

MOTOROLA SOLUTIONS, INC.
Petitioner

v.

STA GROUP LLC
Patent Owner

CASE: IPR2024-00207
U.S. PATENT NO. 8,145,249 B2

PATENT OWNER'S PRELIMINARY RESPONSE

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LIST OF EXHIBITS

Exhibit No.	Description
2001	US 7,386,000 B2 to Löppönen et al.

I. INTRODUCTION

Patent Owner, STA Group LLC (“Patent Owner”), submits this Patent Owner’s Preliminary Response pursuant to 37 C.F.R. § 42.107(a) in response to the *Inter Partes* Review (“IPR”) petition (“Petition”) filed by Petitioner Motorola Solutions, Inc. (“Motorola” or “Petitioner”) for claims 1-25 and 38-39 (“Challenged Claims”) of U.S. Patent 8,145,249 (“’249 Patent”, Ex.1001). A summary of the challenges from the Petition is below.

Ground	Basis for Challenge
1	Claims 1-7, 9, 13-19, 21, 25, 38, and 39 are obvious over Botha
2	Claims 1, 7-9, 12-13, 19-21, 24, 25, 38, 39 are obvious over the combination of Radenkovic and McDonald
3	Claims 2-6, 10-11, 14-18, and 22-23 are obvious over Radenkovic, McDonald, and Koren

The Board should deny Petitioner’s institution request for several reasons.

First, the Challenged Claims recite, in part, “receiving a plurality of monitored push-to-talk communication streams over a high bandwidth connection, each monitored push-to-talk communication stream comprising audio communications from a plurality of users” and “mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream such that

the audio communications communicated in each of the monitored push-to-talk communication streams can be heard on the mixed stream” None of the references relied upon by Petitioner includes a *plurality* of communications streams *each comprising* communications from a *plurality* of users or *mixing* a plurality of *monitored* push-to-talk communication streams such that audio in *each stream* can be heard *on the mixed stream*. For this reason, and the additional reasons discussed herein, institution should be denied.

Second, insufficient motivation has been described for a person of ordinary skill in the art (“POSITA”) to combine the embodiments and groups of references relied upon by the Petitioner. For this reason, and the additional reasons discussed herein, institution should be denied.

Third, at least some of the references in the proposed grounds are cumulative to references already cited against the patent in the original prosecution. The cumulative nature of the references provides another reason for the Board to deny institution under 35 U.S.C. § 325(d).

In short, the Petition does not present “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a).

II. THE '249 PATENT

A. The Invention of the '249 Patent

The '249 Patent issued on March 27, 2012, from an application filed November 4, 2005. Ex. 1001, Cover. The '249 Patent issued with thirty-nine claims. The Petition challenges claims 1-25 and 38-39. Claims 1, 13, 25, and 38 are independent claims.

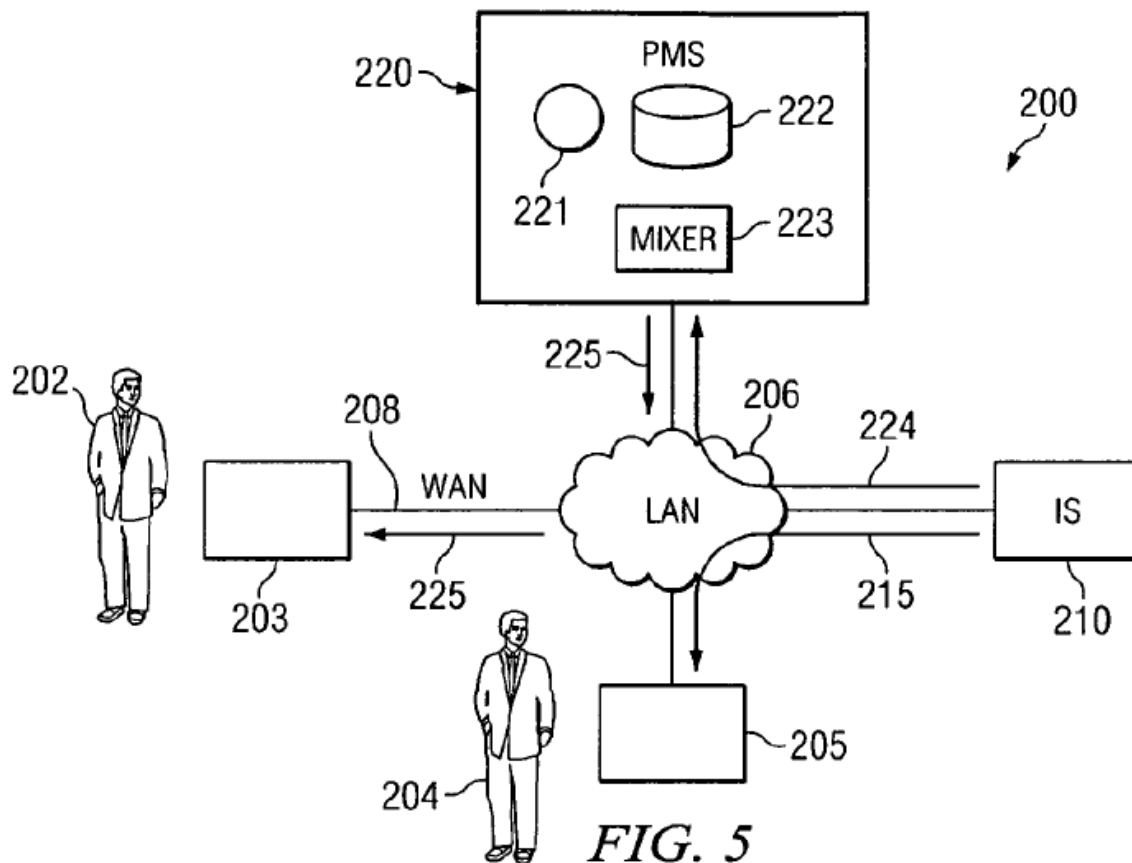
The invention of the '249 Patent is directed to methods and systems for providing a push-to-talk proxy media service. Ex. 1001, Abstract. Independent claims 1, 13, 25, and 38 recite monitored push-to-talk communication streams comprising audio communications from a plurality of users. Ex. 1001, Claims 1, 13, 25, 38.

As disclosed in the Background of the '249 Patent, talk groups include audio communications from a plurality of users. During a session, users communicate only with other users that are part of the talk group. At the time of the filing of the '249 Patent, collaboration between different talk groups was ad hoc and inefficient such that different talk groups usually did not communicate with each other without substantial manual intervention.

The independent claims are directed to how a plurality of talk groups are mixed together into a single stream. Specifically, the independent claims recite receiving a plurality of monitored push-to-talk communication streams over a high

bandwidth connection, where each monitored push-to-talk communication stream comprises audio communications from a plurality of users. The independent claims also recite mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream such that the audio communications communicated in each of the monitored push-to-talk communication streams can be heard on the mixed stream.

As shown in Figure 5 below, a centralized proxy media service (220) receives a plurality of monitored push-to-talk communication streams (224). Each monitored push-to-talk communication stream is a talk group that includes audio communications from a plurality of users. Without the centralized proxy media service (220), users on different communications streams cannot communicate with each other. To enable cross-stream communication between the plurality of users on each stream, the centralized proxy media service (220) mixes the plurality of monitored push-to-talk communication streams into a mixed communication stream (225). This mixing enables the audio communications transmitted in each of the monitored push-to-talk communication streams to be heard on the mixed stream. For instance, endpoint (203) receives the mixed communication stream (225) and can communicate with users on the different talk group communication streams.



Ex. 1001, Fig. 5.

B. Claim Construction

The Petition was filed after November 13, 2018, and as such, the proper claim construction standard to be applied is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*), in accordance with its regulation, 37 C.F.R. § 42.100(b); *see also Apple Inc. v. Firstface Co.*, No. 2021-1001, 2021 WL 4156323 at *1 (Fed. Cir. 2021).

The claims, therefore, should be “given their ordinary and customary meaning [and] that the ordinary and customary meaning of a claim term is the meaning that the term would have to a [POSITA] in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312-13 (internal citations omitted). Arguments herein apply for the purposes of this IPR only and without conceding alternative arguments in counterpart litigations. *See NEC Display Solutions of America, Inc. v. Ultravision Tech.*, IPR2019-01123, Paper 7 at 12-14 (PTAB Dec. 2, 2019).

Petitioner proposes constructions of “means for receiving,” “means for mixing,” and “means for transmitting.” Petition, 10-11. Patent Owner maintains that the proposed constructions for these three claim terms are overly limiting since the specification provides support for a broader range of structures, at the least, and does not concede to the constructions provided by Petitioner. Regardless, institution should be denied regardless of the construction applied.

C. Level of Ordinary Skill in the Art

At this stage of the proceeding, Patent Owner does not dispute the proposal provided by Petitioner as to who would qualify as a POSITA: an individual “would have had at least a B.S. degree in electrical engineering, computer science, or a similar field, plus approximately three years of industry in networking or communication systems, in particular address [sic] interoperability between

different types of networks and satellite communications.” Petition, 7-8.

III. THE PETITION FAILS TO ESTABLISH A REASONABLE LIKELIHOOD OF SUCCESS ON ANY CHALLENGED CLAIMS

A. Summary of the Alleged Prior Art

1. U.S. Patent No. 8,121,057 (“Botha”)

Botha was filed on October 29, 2004, and issued on February 21, 2012. Ex. 1004, Cover. Botha was not published until its issuance on February 21, 2012. *Id.* Botha describes a system and method “for establishing a homogenized communications infrastructure that enables a variety of disparate communication devices to communicate transparently with each other over a computer data network.” *Id.*, Abstract. Users are insulated from the type and implementation of all other participants’ devices. *Id.*

Botha discloses the bridging of various audio files from endpoints to channels. *Id.*, 13:24-27. In some instances, an “N minus x” operation is carried out on the data from the endpoint to the channel to efficiently aggregate the data flowing to that channel. *Id.* Bridging can also occur without a channel by means of a gateway. Any one endpoint can tune into a channel, allowing disparate endpoints to communicate. *Id.*, 11:55-61.

**2. U.S. Patent Application Publication No. 2003/0182001
("Radenkovic")**

Radenkovic was filed as a PCT application on August 9, 2001, and published on September 25, 2003. Ex. 1005, Cover. Radenkovic "provides a method, software program and system for processing audio data streams (206) transmitted in a communications network." *Id.*, Abstract. Radenkovic discloses dynamic mixing of packets from sources to sinks such that some of the audio streams sent to a sink are mixed together and indistinguishable. *Id.*, ¶¶ [0017], [0049], [0053]. The sinks receive some data as mixed data and some data in its native state as the data was sent from a source. *Id.*

Mixing in Radenkovic is based on a priority that is designated to a corresponding audio data stream. *Id.*, ¶¶ [0029], [0063]. In Radenkovic, the data streams designated as low priority are mixed into a single stream while data streams designated as high priority are left in their native states. *Id.* Radenkovic indicates that there is no need to know who is speaking on the low priority streams because that audio is less important than the audio on the streams designated as high priority. *See, e.g., Id.*, [0051] ("The audio mixer component is arranged to average selected audio data streams to create a single combined data stream comprising the same number of bits as each unmixed data stream.").

**3. U.S. Patent Application Publication No. 2002/0097746
("McDonald")**

McDonald was filed December 1, 2000, and was published on July 25, 2002. Ex. 1007, Cover. McDonald later issued on July 19, 2005. *Id.* McDonald describes a method of "call control in a packet-based communication system having consoles, distributed among one or more console sites, that are adapted to monitor talkgroup calls." *Id.*, Abstract.

McDonald describes the ability of console sites to hear audio (McDonald calls this "payload") and, if necessary, repackage the audio to be sent back to endpoints. *Id.*, ¶ [0016]. However, not all audio makes it to the console sites when there is too much traffic, due to bandwidth constraints. *Id.*, ¶¶ [0020], [0032]. Priority assignments are used to determine which streams make it to the console sites when traffic is too high for all streams to be transmitted.

4. U.S. Patent No. 7,580,706 ("Koren")

Koren was filed on September 2, 2004, and was issued on August 25, 2009. Ex. 1006, Cover. Koren describes "methods in an interoperability system for: notifying a user in a first communication system that a trunked radio system is ready to receive data" *Id.*, Abstract.

Koren describes a method for allowing a trunked radio system to communicate with a user on a full radio system by sending a series of signals

between the trunked radio system and the full radio system denoting when the trunked radio system is ready to receive audio messages. *Id.*, 6:1-6.

5. U.S. Patent Application Publication No. 2005/0239486 (“D’Avello”)

D’Avello was filed on April 5, 2004, and was published on October 27, 2005. Ex. 1011, Cover. D’Avello describes systems for “controlling the audio broadcast to users participating in a group conversation.” *Id.*, Abstract. D’Avello describes a system where a user diminishes a volume of certain other users based on their perceived importance. *Id.*, [0055]. D’Avello is primarily concerned with communications in motor vehicles. *Id.*, [0031].

B. The Legal Framework for Assessing Unpatentability

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech. Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim.”)). The burden of persuasion in an IPR “never shifts to the patentee.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Moreover, a petitioner should not “place the burden on [the Board] to sift through information presented by the Petitioners, determine where each element [of the challenged claims] is found in

[the cited references], and identify any differences between the claimed subject matter and the teachings of [the cited references.]" *Google Inc. v. EveryMD.com LLC*, Case No. IPR2014-00347, Paper 9 at 25 (PTAB May 22, 2014).

A claim is unpatentable under 35 U.S.C. § 103 only if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). "To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

Finally, a petition seeking to establish obviousness based on more than one reference, as is the case in at least one of the Grounds here, "must articulate sufficient reasoning with rational underpinnings to combine the teachings." *Wilson Elec., LLC*

v. Cellphone-Mate, Inc., Case No. IPR2018-01778, Paper 10 at 15 (PTAB Apr. 23, 2019) (citing *KSR Int’l*, 550 U.S. at 418). Specifically, “obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.” *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (emphasis in original). “It does not suffice to simply be known. A reason for combining must exist.” *Virtek Vision International ULC v. Assembly Guidance Systems, Inc.*, Nos. 2022-1998, -2022, slip op. at 8 (Fed. Cir. Mar. 27, 2024).

C. Ground 1: The Petition Does Not Establish That Claims 1-7, 9, 13-19, 21, 25, 38, and 39 are Obvious Over Botha

The Petition fails to show that Botha teaches or discloses all the elements of independent claims 1, 13, 25, and 38. As such, the Petition fails to demonstrate that the Challenged Claims are unpatentable based on obviousness and institution should therefore be denied under 35 U.S.C. § 314(a).

1. Botha fails to disclose “mixing the plurality of monitored push-to-talk communication streams”, as recited in at least Claims 1, 13, 25, and 38

Independent claims 1, 13, 25, and 38 recite, in relevant part, “mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream.” Claims 1, 13, 25, and 38 recite that *each* monitored push-to-talk communication *stream comprises* audio communications from a *plurality of*

users. '249 Patent, Claim 1.¹ The Petition correctly points out that this claim element was one of the amendments that was key to the finding of allowability in the prosecution history of the '249 Patent. Petition, 6-7.

Botha discloses a precursor system that provides a bridge between different communication streams. Specifically, Botha discloses a bridge proxy (997):

bridging can allow different “talk groups” on two-way radio systems to communicate between each other—for example a UHF two-way radio system on one channel and a VHF two-way radio system on the other.

Ex. 1004, 15:43-46.

Bridging is not the same as mixing. Botha's proxy (997) transmits communications from a UHF two-way radio system to a VHF two-way radio system. Similarly, Botha's proxy (997) transmits communications from the VHF two-way radio system to the UHF two-way radio system. Botha's proxy bridges the inoperability between VHF and UHF radio systems.

Botha is silent about mixing communications from the VHF two-way radio system with communications from the UHF two-way radio system. To mix, as recited in claims 1, 13, 25, and 38, the proxy (997) would have to individually receive communications from the VHF two-way radio system and communications from the UHF two-way radio system. Botha's proxy (997) would then have to mix

¹ All emphasis herein added unless otherwise stated.

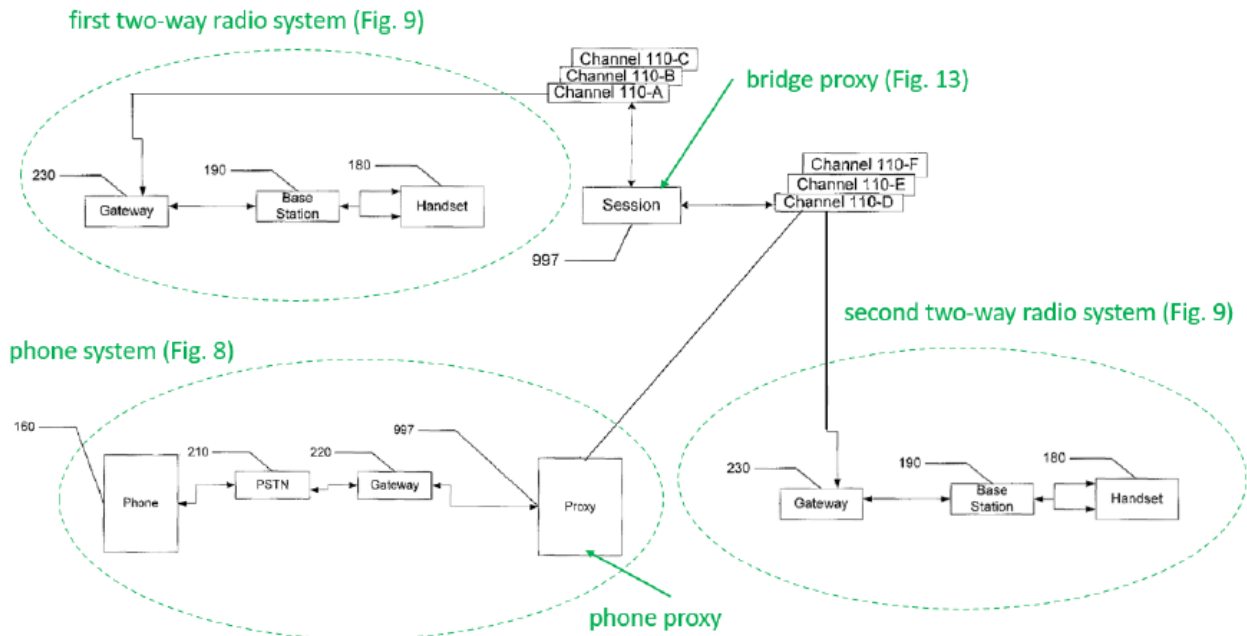
the communications and then transmit the mixed communications back to each of the VHF two-way radio system and the UHF two-way radio system. Botha instead transmits the communications from the VHF two-way radio system to the UHF two-way radio system without any disclosure of those communications being mixed with the communications of the UHF two-way radio system. Further, Botha transmits the communications from the UHF two-way radio system to the VHF two-way radio system without any disclosure of those communications being mixed with the communications of the VHF two-way radio system. Accordingly, Botha's proxy (997) is a bridge rather than a mixer.

The Petition accordingly fails to establish that Botha discloses the mixing of a plurality of push-to-talk communication streams, where each push-to-talk communication stream comprises audio communications from a plurality of users. For this further reason, Ground 1 fails and the Board should deny institution.

2. The Petition fails to disclose a motivation to combine the multiple embodiments of Botha

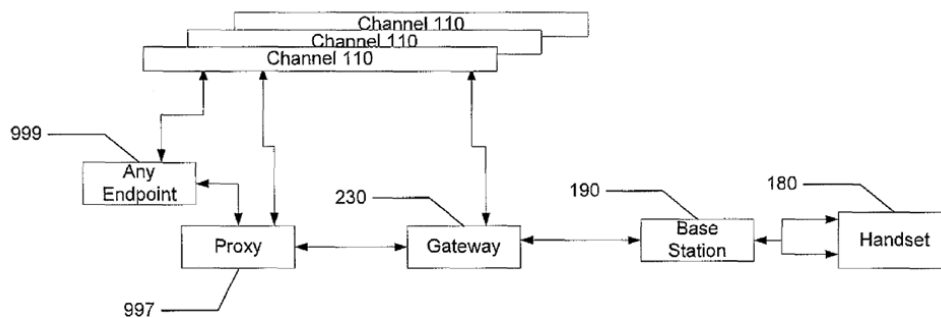
As discussed above, Botha's disclosure of bridging audio between different two-way radio systems is not the same as mixing audio together from those systems. To remedy this deficiency, the Petition creates a fictional system, referred to as the "Botha System". This fictional system is an amalgam of Figures 8, 9, and 13 from Botha, with multiple instances of Figure 9 included. Petition, 33-34. Botha fails to

disclose a motivation to combine the separate embodiments to allow Petitioner to create the purported Botha System, which is reproduced below:



Petition, 34.

As an initial matter, the fictional Botha System fails to include all the elements from Figure 9. For convenience, the complete version of Figure 9 from Botha is reproduced below:



Ex. 1004, Fig. 9.

Figure 9 describes an embodiment for “Two-Way Radio Systems”. Botha discloses that this embodiment is used exclusively for two-way radio systems:

This stream, when transmitted by the gateway device 230 onto the medium, is treated by an *embodiment of the invention* as one of its own streams of data (i.e., a channel) and is therefore processed as if it came from one of its own, native, endpoints. In those circumstances where the gateway device 230 does not have suitable support for the channels, an embodiment of the invention may be installed on the gateway device 230 so as to add the logic so as to enable the gateway device 230 to communicate directly on the channels.

Ex. 1004, 14:2-11.

The Botha System from the Petition omits the endpoints (999) and proxies (997) of Figure 9 for the first and second two-way radio systems. Botha discloses that the handset (180) (two-way radio) requires the use of the proxy (997) to enable communication with any endpoint (999). *Id.* Removing the proxy (997) from Figure 9 in the fictional Botha System removes the essential component that allows the handset (180) to communicate with the endpoint (999) for that particular embodiment. According to Botha, the proxy (997) is required to be connected to the handset (180), via a gateway device (230), to allow the handset (180) to have “full support for channels”. Ex. 1004, 13:2-3. Removing the proxy (997) from the purported Botha System prevents some handsets (180) from communicating via

channels (110), and directly contradicts the use of Botha's proxy (997) for this embodiment.

In addition to Figure 9, Botha fails to disclose adding the embodiment of Figure 13 to create the Petition's Botha System. Botha describes Figure 13 as a separate embodiment regarding another use of the proxy (997) as a network bridge. Ex. 1004, 15:39-43. Botha does not disclose how the proxy (997) of Figure 13 could be combined with the proxy (997) disclosed in the embodiments of Figures 8 and 9, let alone disclose whether the embodiments of Figures 8 and 9 are combinable with the embodiment of Figure 13.

The Petition asserts that Botha "explicitly" teaches combinations of the embodiments in Figures 8, 9, and 13. Petition, 32. To make this assertion, the Petition cites portions of Botha and the expert declaration (Ex. 1002). None of these citations from Botha, however, teach combining the separate embodiments. Instead, Botha discloses the ability of the embodiments to be carried out repetitively (Botha terms this as "recursively"). Botha states, in relevant part:

The *flow* may be of numerous, and potentially recursive, combinations of the *channels'* participation *in the operation being carried out on the device 997* including, but not limited to direct channel-to-channel streaming, aggregation of data from one or more channels to one or more channels, conversion of data from one or more channels to one or

more channels, translation of data from one or more channels to one or more channels, or any inclusive or exclusive combination thereof.

Ex. 1004, 15:59-67.

None of the listed operations from the Botha citation above are relevant for combining the different embodiments of Botha such that a handset and a phone are shared on a channel. The recursion is directed only to the operation of the proxy (997), which is not specific to the type of endpoint it services. Rather, what the cited portion of Botha suggests is that multiple iterations of information can be communicated to the channels by the proxy (997).

The other portion of Botha cited for support of this combination fails for similar reasons. The Petition cites to the line, “[i]t is noted that an embodiment of the invention is itself recursive in nature, in that the output of an instance of the invention may be input to another instance of the invention.” *Id.* at 33. The Petition also cites to 11:55-12:3 of Botha, which is a description of Figures 1 and 2, not relied upon in the Botha System displayed above, and only teaches the use of a single channel. Paragraph 94 of the expert declaration (Ex. 1002) does no more to show a motivation to combine, but rather reiterates the portions of Botha cited above to conclusively state that Botha teaches combinations of its embodiments. The Petition relies on mere conclusory statements, rather than articulating specific reasoning to support a finding that it would have been obvious to combine the embodiments. *In*

re Magnum Oil Tools, 829 F.3d at 1380. Additionally, the Petition fails to show anything more than that the elements are “simply [] known. A reason for combining must exist.” *Virtek Vision*, slip op. at 8.

Botha in fact teaches away from centralized audio mixing recited in the '249 Patent. Botha discloses that the endpoints themselves provide audio mixing from different sources. When an endpoint does not have the appropriate mixing capability, Botha discloses the use of a proxy instead to perform the mixing for that endpoint:

Assuming each of the endpoints have mixing capabilities of their own, a multicast environment therefore has no need for a centralized mixer and therefore no bandwidth duplication. In an embodiment of the invention, endpoints have this capability either directly available to them or proxied through a device or application that can perform the mixing on their behalf.

Ex. 1004, 6:24-30.

The audio mixing is performed at the endpoint itself by the end device itself or a proxy acting on its behalf.

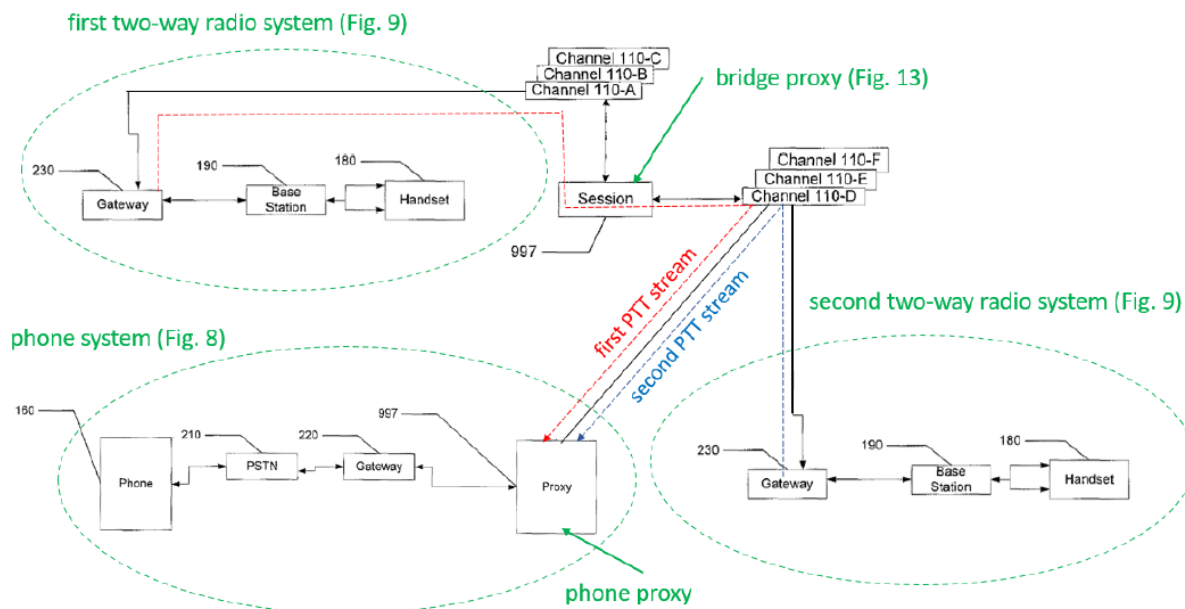
Ex. 1004, 7:10-13.

For at least the reasons above, there is no motivation to combine Figures 8, 9, and 13 to arrive at the fictional Botha System. Botha discloses that proxies are provisioned for end devices themselves when those devices do not have mixing

capability. Ex. 1004, 7:10-13. For at least this additional reason, Ground 1 fails and the Board should deny institution.

3. Botha fails to disclose “the plurality of monitored push-to-talk communication streams,” as recited in at least Claims 1, 13, 25, and 38

Independent claims 1, 13, 25, and 38 recite that each monitored push-to-talk communication stream comprises audio communications from a plurality of users. The Petition's Botha System, however, is made up of communication streams from *singular* users:



Petition, 37.

As shown above, Botha discloses combining audio from *individual* participants, not audio of a plurality of media streams that each contain a plurality of participants. Ex. 1004, 10:29-37. Specifically, Botha discloses “the combination

of a variety of audio streams—each from a different participant—in such a way that each participant will hear all other participants’ voices except their own.” Botha creates a mixed single audio stream that has audio from individual participants.

Botha discloses creating a single talk group by combining audio from the individual participants. To arrive at the elements of the independent claims, the Petition relies on the expert declaration to assert Botha discloses receiving and mixing at least two multicast streams. Petition, 36; Ex. 1002, ¶ 99. The Petition does not cite to any evidence from Botha that push-to-talk communication streams, comprising audio from a plurality of users, are mixed. Botha instead discloses that all audio streams are mixed from individual participants on a given channel, “[r]ather, a ‘virtual’ channel of one example embodiment is present by virtue of participants’ packets that contain session identification (ID) or other ID information that identifies the particular multicast and/or unicast session or group that is associated with the participant.” Ex. 1004, 7:13-18. In other words, Botha focuses on creating a single talk group from individual participants and does not disclose combining audio from different talk groups.

The Petition accordingly fails to establish that Botha discloses the mixing of a plurality of push-to-talk communication streams, where each push-to-talk communication stream comprises audio communications from a plurality of users. For this additional reason, Ground 1 fails and the Board should deny institution.

D. Ground 2: The Petition Does Not Establish That Claims 1, 7-9, 12-13, 19-21, 24, 25, 38, and 39 are Obvious Over the Combination of Radenkovic and McDonald

The Petition fails to show that the combination of Radenkovic and McDonald discloses all the elements of independent claims 1, 13, 25, and 38. As such, the Petition fails to demonstrate that the Challenged Claims are unpatentable based on obviousness and institution should be denied under 35 U.S.C. § 314(a).

- 1. The combination of Radenkovic and McDonald fails to disclose “receiving a plurality of [] push-to-talk communication streams . . . comprising audio communications from a plurality of users” and “mixing the plurality of [] push-to-talk communication streams” as is recited in Claim 1 of the ’249 Patent and the subject matter of which is also present in Claims 13, 25, and 38 of the ’249 Patent**

Similar to Botha, the combination of Radenkovic and McDonald fails to disclose “mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream,” where *each* monitored push-to-talk communication *stream comprises* audio communications from a *plurality of users*. Instead, the combination of Radenkovic and McDonald discloses that routers are employed to send singular user communications to a core router. The combination of Radenkovic and McDonald discloses endpoints, each assigned to a talkgroup (A or B), which send audio to repeaters to be transmitted to the other endpoints in that talkgroup. It appears that the communications of each endpoint (148-156) are

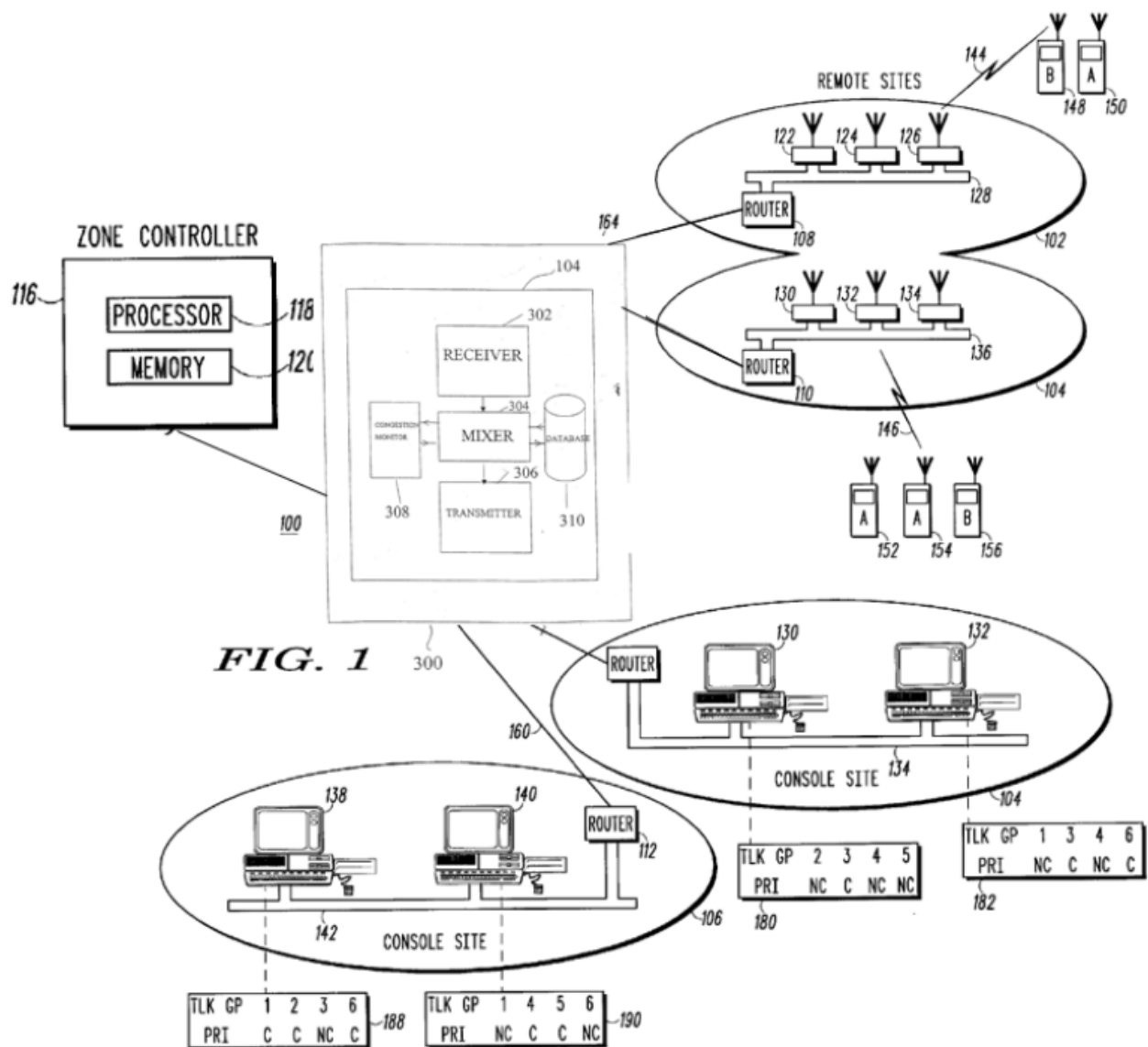
discrete in the Radenkovic and McDonald combination when sent to the core router (114), or mixer of Radenkovic, rather than any stream comprising communications from a plurality of users, since the routers (108, 110) are associated with the repeaters (122-126, 130-134), which receive singular, one-sided communications from singular user endpoints (148-156).

Radenkovic and McDonald do not receive a plurality of *communications streams* comprising communications from a *plurality of users*. The data is individual, and all sent alongside each other to the mixer, rather than comprising communications streams that include communications from a plurality of users, while at the same time the talkgroups are sending discrete audio communications back and forth over the repeaters. The Petition has thus failed to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim.” *Dynamic Drinkware*, 800 F.3d at 1378. For at least this reason, institution should be denied.

2. The Petition fails to disclose a motivation to combine the teachings of Radenkovic and McDonald, and the combination of Radenkovic and McDonald has unintended results that would discourage the combination

As discussed above, Radenkovic and McDonald fail to disclose “mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream,” where *each* monitored push-to-talk communication *stream*

comprises audio communications from a *plurality of users*. To cure the deficiencies of Radenkovic and McDonald, the Petition creates a fictional system, referred to as the “Mixed McDonald System”. Petition, 52 to 56. The Mixed McDonald System is reproduced below:



Petition, 57.

The proposed combination of Radenkovic and McDonald creates an unworkable, inconsistent communication system where a mixed stream of non-critical talk groups would be incoherent to a dispatcher monitoring the stream. Despite the incompatibility of Radenkovic and McDonald, the Petition conclusively states that it would have been obvious to a POSITA to incorporate the mixing technique of Radenkovic into the McDonald disclosure, which suffered from not transmitting all audio streams to a dispatcher console (132-140). Petition, 54. No motivation is given for this combination besides listing that both of these elements are separately present in the cited references. Petition, 54; Ex. 1002, ¶¶ 138-39. The Petition thus fails to show anything more than that the elements are “simply [] known. A reason for combining must exist.” *Virtek Vision*, slip op. at 8.

The Petition relies on Radenkovic’s mixers for mixing audio streams, “e.g. the mixer 304 of [Figure] 3 in Radenkovic.” Petition, 62. In addition, the Petition relies on McDonald for monitoring communication streams. Petition, 60-61.

McDonald discloses that certain streams are assigned a *high priority* such that those streams are transmitted over lower priority streams. Ex. 1007, ¶ [0026]. In the combined fictional Mixed McDonald System, the Petition argues that McDonald would use Radenkovic’s mixers to allow all communication streams to be transmitted, rather than only transmitting high priority streams when bandwidth is limited. Petition, 62. The Petition further states:

In situations where there was not sufficient bandwidth to transmit audio streams for all talkgroups selected by a dispatcher, a POSITA would have found it obvious to dynamically mix two or more selected non-critical talkgroup audio streams into a single audio stream as taught by Radenkovic so that the mixed audio stream including all audio from both selected streams could be transmitted to a console 132-140 for passive monitoring by the dispatcher.

Petition, 54.

Mixing audio streams would not have been useful in the Petition's fictional Mixed McDonald System. For instance, mixing audio from different push-to-talk groups would have confused users as to which group the audio was coming from. For passive monitoring, mixed audio might confuse McDonald's dispatcher since the dispatcher would not know to which group the mixed audio is associated. McDonald instead needs to keep the audio separate for active and passive users to know what is going on with each separate group. Ex. 1007, ¶ [0026]. Specifically, McDonald states:

For example, at site 104, talkgroups 1, 2, 4 and 5 are non-critical because neither of consoles 130, 132 have designated them as critical.

Id.

According to the Petition, McDonald would mix talkgroups 1, 2, 4, and 5 in the fictional Mixed McDonald System. Petition, 62. This would be problematic since the talkgroups would be intermixed, creating confusion between the users. For

instance, when a non-priority speaker on a mixed stream of the fictional Mixed McDonald System becomes important, the dispatcher will not immediately be able to designate that speaker as critical (no longer mixed) because the dispatcher will first need to distinguish who is the speaker without any mechanism for identifying the speaker.

Radenkovic's system is envisioned for videoconferencing where there are simultaneous speakers. Ex. 1005, ¶ [0002]. Everyone in Radenkovic's system knows they are in the same meeting such that mixing audio from multiple speakers makes sense. In contrast, mixing audio in this manner would make McDonald's call control system inoperable since McDonald's system needs to know the identities of users. Ex. 1007, ¶ [0011].

The Petition has thus failed to “articulate sufficient reasoning with rational underpinnings to combine the teachings.” *Wilson Elec., LLC v. Cellphone-Mate, Inc.*, Case No. IPR2018-01778, Paper 10 at 15 (PTAB Apr. 23, 2019) (citing *KSR Int'l*, 550 U.S. at 418). For this additional reason, institution should be denied.

3. The Petition entirely fails to give reasoning as to why the “Mixed McDonald System” renders Claims 38-39 obvious

The Petition states that Claims 38 and 39 of the '249 Patent are allegedly obvious based on Ground 2. Petition, 52. However, Ground 2 *never addresses* Claim 38 or 39. Petition, 52-67. The Petition has thus failed to identify “with

particularity . . . the evidence that supports the grounds for the challenge to each claim.” *Dynamic Drinkware*, 800 F.3d at 1378.

E. Ground 3: The Petition Does Not Establish That Claims 2-6, 10-11, 14-18, and 22-23 are Obvious Over Radenkovic, McDonald, and Koren

As discussed above, independent Claims 1, 13, 25, and 38 are not rendered obvious over the combination of Radenkovic and McDonald. For this ground, Koren is not relied upon to dispute the patentability of the independent claims. Claims 2-6, 10-11, 14-18, and 22-23 each, therefore, depend from a patentable base claim and as such are patentable for that reason and for further patentably distinct features therein.

IV. THE PETITION SHOULD BE DISCRETIONARILY DENIED UNDER 35 U.S.C. § 325(d) BECAUSE ALL REFERENCES IN THE PROPOSED GROUNDS ARE CUMULATIVE

During prosecution of the Challenged Claims, the Examiner rejected the then-pending claims “under 35 U.S.C. 103(a) as being unpatentable over Denman et al. (Denman, US 7170863) in view of Lillie et al. (Lillie, US 6798755 B2) and further in view of US 7386000 B2 (Löppönen et al., hereinafter Löppönen).” Ex. 1003, 50-55. The prior art and arguments relied upon in the Petition are substantially the same prior art and arguments that were previously presented in prosecution. Therefore, the Petition should be denied under 35 U.S.C. § 325(d).

During the prosecution of the '249 Patent, Denman was the primary reference cited by the Examiner, and was used to reject “providing a push-to-talk proxy media service, comprising: receiving a plurality of monitored push-to-talk communication streams over a high bandwidth connection; mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream; and transmitting the mixed communication stream to a user endpoint over a low bandwidth connection.” Ex. 1003, at 50-51 (internal citations omitted).

Lillie was used to disclose “the changes in bandwidth for the different requirements according to protocols, e.g., high/low bandwidth.” *Id.*

Löppönen was used to disclose “where each monitored push-to-talk communication stream compris[es] audio communications from a plurality of users, and mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream such that the audio communications communicated in each of the monitored push-to-talk communication [streams] can be heard on the mixed stream.” *Id.* at 52.

A. Petitioner’s “plurality of users” arguments relying on Botha are substantially the same as those made during examination with respect to Denman, Lillie, and Löppönen

Botha is “substantially the same art previously presented to the Office.” *Advanced Bionics, LLC v. Med-El Electromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 7 (PTAB Feb.13, 2020) (precedential). Botha and the Petition’s

arguments citing to Botha correspond directly to the Office Action's reliance on Löppönen, which was overcome during prosecution of the '249 Patent.

During prosecution of the '249 Patent, Löppönen was used to reject the recitations of "each monitored push-to-talk communication [stream] comprising audio communications from a plurality of users, and mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream such that the audio communications communicated in each of the monitored push-to-talk communication streams can be heard on the mixed stream." Ex. 1003, 51-52 and 88. After extensive discussion regarding Löppönen with the Examiner, who in turn had extensive discussions with her Supervisor, Löppönen and associated arguments were overcome. Ex. 1003, 24. The relevant part of Löppönen cited by the Examiner reads:

Group Communication

Groups (also called talkgroups) provide the users with an easy and immediate multipoint way for voice communication. Each user can be allowed access to one or more groups. A typical case is that a mobile user is allowed access to all groups in his Virtual Private Network (VPN). The user is actively attached to a subset of the available groups.

In the basic mode, *the mobile user selects one group* for communication. He will then *hear all traffic in that group* (unless he

is engaged in an individual call) and can also himself talk in the group.
The user can easily switch to another group.

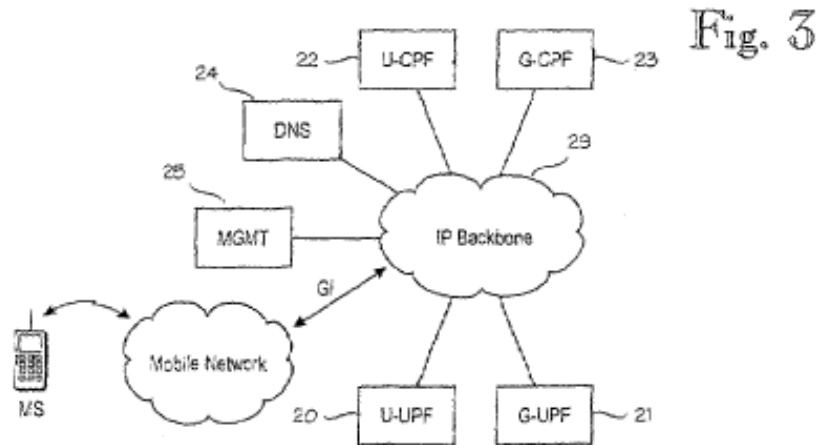
The user can also operate in multiple groups virtually at the same time, by using a method called scanning. The user selects multiple groups and assigns these with priorities. He then hears traffic from one group at the time, but traffic from a more important group will interrupt other traffic. One of the groups remains the selected group, and any speech transmission by the user is made to the selected group. The user can switch scanning on and off.

Ex. 2001, 12:34-53.

The Botha reference is cumulative when viewed in the light of the '249 Patent's prosecution history.

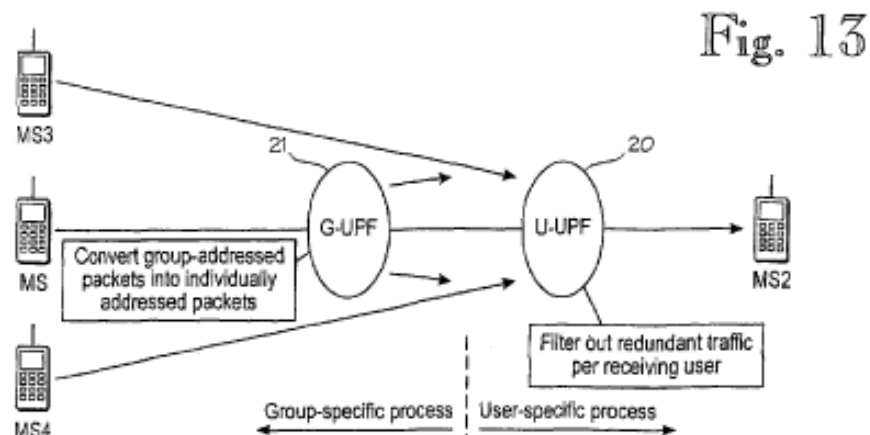
The Petition mirrors the Examiner's rejection, with the arguments related to Botha being substantially the same as those made by the Examiner with respect to Löppönen. In particular, according to Petitioner, Botha, like Löppönen, discloses hearing all traffic from a group. The "group" of Botha resides on Channel 110-D, is delivered from Channel 110-D to the "phone proxy," and is heard by the Phone 160. Ex. 1004, 13:18-31, 49-51; Petition, 37. Botha fails in the same manner as Löppönen was found to fail. There is no disclosure of a *plurality* of *streams*, which themselves comprise a *plurality of users* to be transmitted to an endpoint. There is only a plurality of streams of *singular* users.

This is further demonstrated in the similarity of Botha's invention to Löppönen's invention, as seen in the figures of the references. Löppönen states that the architecture of the invention is demonstrated by Figure 3 (shown below):



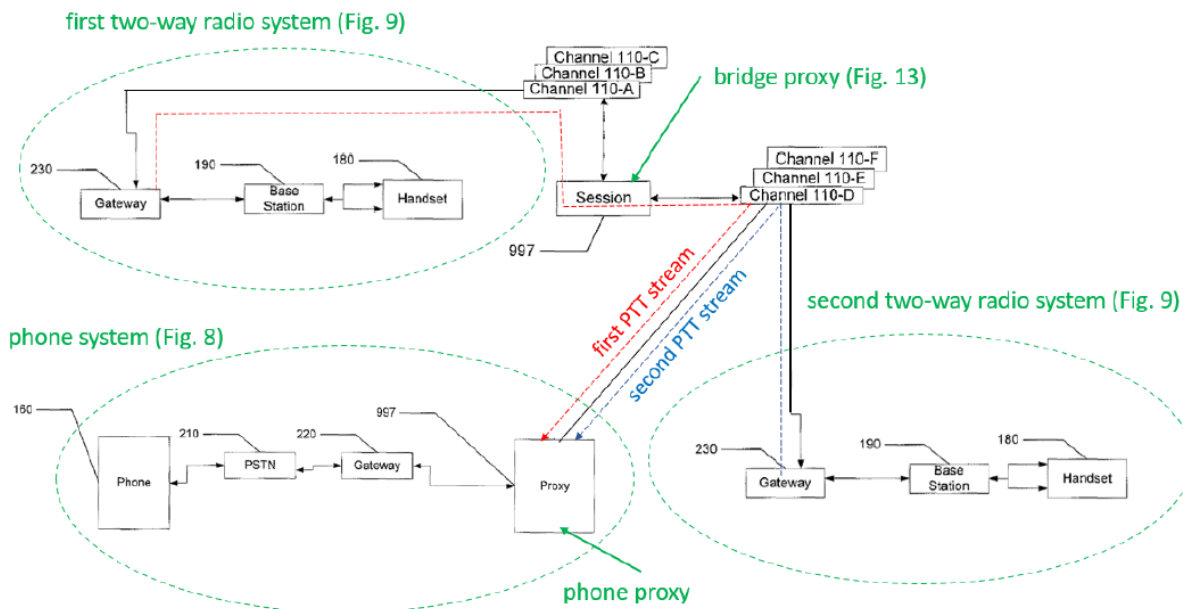
Ex. 2001, 6: 41-42.

Figure 13 of Löppönen (shown below) further illustrates the “scanning filtering” process disclosed by Löppönen:



Id. at 6:61-62, Fig. 13.

Löppönen explains that a Group-User Plane Function (G-UPF) (21) is “where the input filtering and multiplication processes are performed.” *Id.* at 9:14-21. As illustrated in Figures 3 and 13, a mobile endpoint connects to an IP Backbone (akin to channel (110) of Botha) and receives group addressed packets (akin to the streams of Botha) from a plurality of users, performing a filtering function on them (akin to the bridging of Botha) before transmitting the final stream to the user endpoint. The disclosure of these embodiments of Löppönen is substantially the same as that of Botha (reproduced below for convenience):



Petition, 37.

Botha and the arguments made in the Petition are substantially the same as Löppönen and the “plurality of users” arguments made by the Examiner during prosecution of the ’249 Patent. The fictional Botha System from the Petition has a

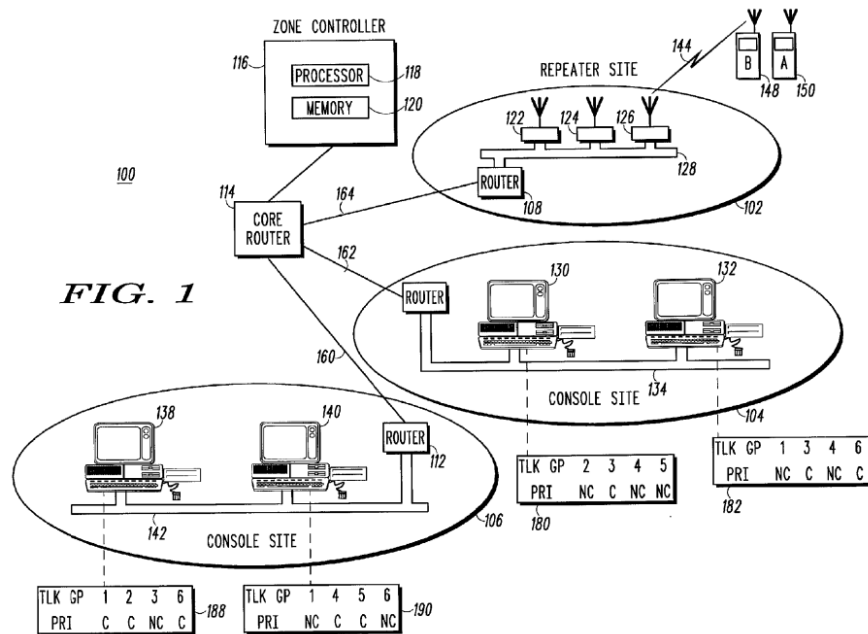
first and second PTT stream as shown above, and Löppönen in Figure 13 also has a first and a second PTT stream. These streams come together over an IP backbone of Löppönen (shown in Figure 3), which in the Botha System is Channel 110-D, to form a talkgroup. As discussed *supra* at Section III.C.1, Botha performs a filtering or bridging function, which Löppönen discloses at least in Figure 3 (packetization and filtering out of redundant traffic). Yet the arguments in the Petition using Botha and the arguments made by the Examiner in prosecution using Löppönen both fail for the same reason: there is no disclosure of a *plurality of streams* which themselves comprise a *plurality of users* to be transmitted to an endpoint. Instead, the endpoints are tied to only one group at a time. At most, multiple streams of singular users are transmitted to an endpoint in both Botha and Löppönen. Therefore, the art and arguments made in the Petition with regard to Botha are substantially the same as Löppönen and the associated arguments made by the Examiner during prosecution, which were already overcome.

Accordingly, the Board should deny institution under 35 U.S.C. § 325(d) because “the same or substantially the same prior art or arguments previously were presented to the Office,” and the prior art and related arguments were overcome.

B. Petitioner’s “plurality of users” arguments relying on Radenkovic and McDonald are substantially the same as those made during examination with respect to Denman, Lillie, and Löppönen

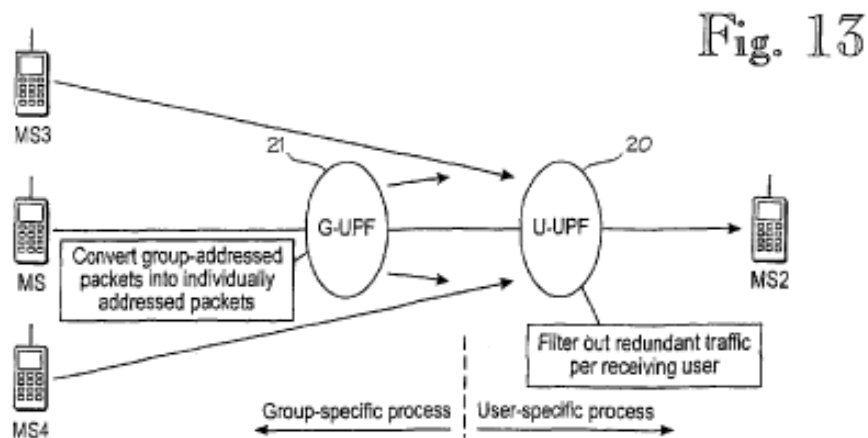
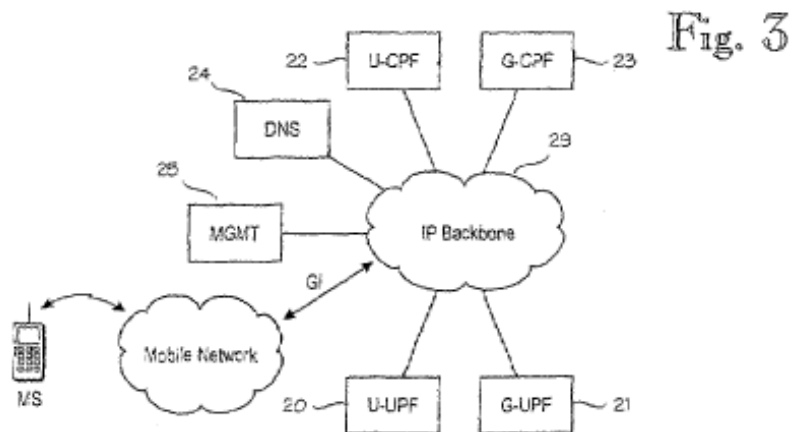
As discussed above, and not repeated for the sake of conciseness, Löppönen was used by the Examiner during the prosecution of the ’249 Patent to reject the recitations of “each monitored push-to-talk communication [stream] comprising audio communications from a plurality of users, and mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream such that the audio communications communicated in each of the monitored push-to-talk communication streams can be heard on the mixed stream.” Ex. 1003, 51-52 and 88.

The Petition mirrors the Examiner’s rejection, with the arguments related to Radenkovic and McDonald being substantially the same as those made by the Examiner with respect to Löppönen. In particular McDonald, like Löppönen, discloses hearing all traffic from a singular group. The preferred embodiment of McDonald is provided below for convenience:



Ex. 1007, Fig. 1.

As discussed *supra* at Section III.D.1, the fictional Mixed McDonald System from the Petition has endpoints that can be in talkgroups, and which send audio to repeaters to be transmitted to the other endpoints in that talkgroup. The communications of each endpoint (148-156) remain discrete in the Mixed McDonald System when sent to the core router (114), rather than any stream comprising communications from a plurality of users, since the routers (108, 110) are associated with the repeaters (122-126, 130-134) that are receiving singular, one-sided communications from singular user endpoints (148-156). This amounts substantially to the same system as that disclosed in Figures 3 and 13 of Löppönen (provided below):



Ex. 2001, Figs. 3, 13.

Just as in the McDonald disclosure relating to data packets of talkgroups A or B being directed to endpoints, Löppönen is directed towards group-addressed packets being transmitted to an endpoint MS, MS2. McDonald does not offer anything new in view of Löppönen. Instead, McDonald discloses a singular stream from one talkgroup comprising 148 and 150 of McDonald Figure 1. McDonald fails to disclose receiving a *plurality* of communications *streams* comprising

communications from a *plurality of users*. McDonald thus fails for the same reasons Löppönen failed during prosecution of the '249 Patent and is cumulative of the Löppönen reference.

As discussed *supra*, at Section III.D.2, a POSITA would not have been motivated to combine the Radenkovic and McDonald references because of the inconsistencies between the two references and the problems that would result. More than this, the Petition only relies on Radenkovic for supplying the mixing function, not for disclosing a plurality of communications streams or that those communications streams comprise communications from a plurality of users. Petition, 52-53, 62. Even if McDonald and Radenkovic could be rationally combined, as discussed in Section III.D.1, *supra*, the communications streams comprise only audio from singular users, not a plurality of users. Radenkovic does not, then, remedy the cumulative nature of McDonald. Further, the arguments made in Ground 2 of the Petition as to a “plurality of users” citing to the fictional Mixed McDonald System are cumulative when viewed in the light of Löppönen and the prosecution history of the '249 Patent.

Accordingly, the Board should deny institution under 35 U.S.C. § 325(d) because “the same or substantially the same prior art or arguments previously were presented to the Office,” and the prior art and related arguments were overcome.

V. CONCLUSION

Petitioner has failed to demonstrate that there is a reasonable likelihood that it would prevail with respect to at least one of the claims challenged in the Petition, and the Board should deny institution.

Respectfully submitted by

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CLAIM APPENDIX OF THE CHALLENGED CLAIMS

- [1pre] A method for providing a push-to-talk proxy media service, comprising:
 - [1a] receiving a plurality of monitored push-to-talk communication streams over a high bandwidth connection, each monitored push-to-talk communication stream comprising audio communications from a plurality of users;
 - [1b] mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream such that the audio communications communicated in each of the monitored push-to-talk communication streams can be heard on the mixed stream; and
 - [1c] transmitting the mixed communication stream to a user endpoint over a low bandwidth connection.
- [2] The method of claim 1, wherein each of the push-to-talk communication streams comprises communications from a respective virtual talk group comprising a plurality of endpoints of different communication networks.
- [3pre] The method of claim 2:
 - [3a] wherein the mixed communication stream comprises a first communication of a first virtual talk group; and
 - [3b] further comprising transmitting an identification of the first virtual talk group when transmitting the mixed communication stream comprising the first communication.
- [4] The method of claim 2, wherein the plurality of monitored push-to-talk communication streams are received over the high bandwidth connection from an interoperability system operable to configure each virtual talk group to facilitate communications among its member endpoints.

- [5] The method of claim 2, wherein at least one of the virtual talk groups comprises a plurality of endpoints of different communication networks whose communications are mapped to a multicast IP address or SIP dialed nailed connection.
- [6] The method of claim 2, wherein at least one of the virtual talk groups comprises a plurality of endpoints of different communication networks whose communications are bridged.
- [7] The method of claim 1, wherein receiving a plurality of monitored push-to-talk communication streams comprises receiving eight monitored push-to-talk communication streams.
- [8pre] The method of claim 1, further comprising:
 - [8a] receiving from the user endpoint volume instructions associated with at least one of the push-to-talk communication streams; and
 - [8b] adjusting the volume of the at least one of the push-to-talk communication streams according to the instructions when mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream.
- [9pre] The method of claim 1:
 - [9a] further comprising receiving from the user endpoint a selection of a group of the push-to-talk communication streams for mixing; and
 - [9b] wherein mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream comprises mixing the selected group of the push-to-talk communication streams into a mixed communication stream.
- [10pre] The method of claim 2, further comprising receiving from the user over the low bandwidth connection:
 - [10a] a user communication; and
 - [10b] a selection of a plurality of virtual talk groups of the respective virtual talk groups; and

- [10c] transmitting the received user communication to the selected plurality of virtual talk groups over the high bandwidth connection.
- [11] The method of claim 10, further comprising transmitting to the user endpoint an identification of the selected plurality of virtual talk groups when transmitting the received user communication to the selected plurality of virtual talk groups.
- [12] The method of claim 1, further comprising presenting functionality indicators for a user at the user endpoint in the same manner as if the plurality of monitored push-to-talk communication streams had been individually transmitted over a high bandwidth connection to the user endpoint and mixed at the user endpoint for the user.
- [13pre] A system for providing a push-to-talk proxy media service, comprising:
 - [13a] an interface operable to receive a plurality of monitored push-to-talk communication streams over a high bandwidth connection, each monitored push-to-talk communication stream comprising audio communications from a plurality of users;
 - [13b] a mixer coupled to the interface and operable to mix the plurality of monitored push-to-talk communication streams into a mixed communication stream such that the audio communications communicated in each of the monitored push-to-talk communication streams can be heard on the mixed stream; and
 - [13c] a processor operable to transmit the mixed communication stream to a user endpoint over a low bandwidth connection.
- [14] The system of claim 13, wherein each of the push-to-talk communication streams comprises communications from a respective virtual talk group comprising a plurality of endpoints of different communication networks.
- [15pre] The system of claim 14:

- [15a] wherein the mixed communication stream comprises a first communication of a first virtual talk group; and
- [15b] wherein the processor is further operable to transmit an identification of the first virtual talk group when transmitting the mixed communication stream comprising the first communication.
- [16] The system of claim 14, wherein the plurality of monitored push-to-talk communication streams are received over the high bandwidth connection from an interoperability system operable to configure each virtual talk group to facilitate communications among its member endpoints.
- [17] The system of claim 14, wherein at least one of the virtual talk groups comprises a plurality of endpoints of different communication networks whose communications are mapped to a multicast IP address or SIP dialed nailed connection.
- [18] The system of claim 14, wherein at least one of the virtual talk groups comprises a plurality of endpoints of different communication networks whose communications are bridged.
- [19] The system of claim 13, wherein an interface operable to receive a plurality of monitored push-to-talk communication streams comprises an interface operable to receive eight monitored push-to-talk communication streams.
- [20pre] The system of claim 13, wherein:
 - [20a] the interface is further operable to receive from the user endpoint volume instructions associated with at least one of the push-to-talk communication streams; and
 - [20b] the mixer is further operable to adjust the volume of the at least one of the push-to-talk communication streams according to the instructions when mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream.
- [21pre] The system of claim 13, wherein:

- [21a] the interface is further operable to receive from the user endpoint a selection of a group of the push-to-talk communication streams for mixing; and
- [21b] a processor operable to mix the plurality of monitored push-to-talk communication streams into a mixed communication stream comprises a processor operable to mix the selected group of the push-to-talk communication streams into a mixed communication stream.
- [22pre] The system of claim 14, wherein:
 - [22a] the interface is operable to receive from the user over the low bandwidth connection:
 - [22b] a user communication; and
 - [22c] a selection of a plurality of virtual talk groups of the respective virtual talk groups; and
 - [22d] the processor is operable to transmit the received user communication to the selected plurality of virtual talk groups over the high bandwidth connection.
- [23] The system of claim 22, wherein the processor is further operable to transmit to the user endpoint an identification of the selected plurality of virtual talk groups when transmitting the received user communication to the selected plurality of virtual talk groups.
- [24] The system of claim 13, wherein the processor is further operable to present functionality indicators for a user at the user endpoint in the same manner as if the plurality of monitored push-to-talk communication streams had been individually transmitted over a high bandwidth connection to the user endpoint and mixed at the user endpoint for the user.
- [25pre] A system for providing a push-to-talk proxy media service, comprising:

- [25a] means for receiving a plurality of monitored push-to-talk communication streams over a high bandwidth connection, each monitored push-to-talk communication stream comprising audio communications from a plurality of users;
- [25b] means for mixing the plurality of monitored push-to-talk communication streams into a mixed communication stream such that the audio communications communicated in each of the monitored push-to-talk communication streams can be heard on the mixed stream; and
- [25c] means for transmitting the mixed communication stream to a user endpoint over a low bandwidth connection.
- [38pre] A method for providing a push-to-talk proxy media service, comprising:
 - [38a] receiving from a user endpoint over a low bandwidth connection:
 - [38b] a user communication; and
 - [38c] a selection of a plurality of virtual talk groups, each virtual talk group comprising a push-to-talk communication stream comprising communications from a plurality of endpoints of different communication networks, each push-to-talk communication stream comprising audio communications from a plurality of users; and
 - [38d] transmitting the received user communication to each of the selected plurality of virtual talk groups over a high bandwidth connection.
- [39] The method of claim 38, further comprising transmitting to the user endpoint an identification of the selected plurality of virtual talk groups when transmitting the received user communication to the selected plurality of virtual talk groups.

CERTIFICATE OF SERVICE

I hereby certify that on May 16, 2024, a true and correct copy of the foregoing was caused to be served electronically on the following counsel of record for Petitioner at the following email addresses:

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Certification of Word Count Under 37 C.F.R. §42.24(d)

The undersigned hereby certifies that the foregoing contains 9,632 words, according to the word count feature of the word-processing software used to prepare the foregoing.

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