

Petition for *Inter Partes* Review of U.S. Patent No. 8,831,664

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOTOROLA SOLUTIONS, INC.,

Petitioner,

v.

STA GROUP LLC,

Patent Owner.

IPR2023-01294

U.S. Patent No.: 8,831,664 B2

**PETITION FOR *INTER PARTES* REVIEW OF CLAIMS 1-20 OF U.S.
PATENT NO. 8,831,664 B2**

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Submitted Electronically

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PETITIONER’S EXHIBIT LIST

Ex[No.]¹	Description of Documents
1001	U.S. Patent No. 8,831,664 (“’664 Patent”)
1002	Declaration of David H. Williams dated Aug. 21, 2023
1003	File History of the ’664 Patent
1004	U.S. Patent No. 5,754,960 to Stephen R. Downs et al., entitled “Display Console and User Interface for Multisite RF Trunked System” (filed Feb. 14, 1992, and issued May 19, 1998) (“ Downs ”)
1005	<i>A System and Standards Definition for a Digital Land Mobile Radio System, TSB69</i> , TIA/EIA Telecommunications Systems Bulletin (Nov. 1998) (“ EDACS ”)
1006	U.S. Patent Publication No. 2006/0147028 A1 to Jerry T. Hancock, entitled “Multi-Mode, Multi-Channel Psychoacoustic Processing for Emergency Communications” (filed Jan. 5, 2005, and published July 6, 2006) (“ Hancock ”)
1007	U.S. Patent Publication No. 2007/0197248 A1 to Jason A. Reich and Douglas M. Crockett, entitled “System and Method for Multiple Simultaneous Communication Groups in a Wireless System” (filed Feb. 17, 2006, and published Aug. 23, 2007) (“ Reich ”)

¹ Citations to issued patents (Exhibits 1001, 1004, 1010, 1017, and 1031) are made by column and line number. Citations to U.S., European, and Japanese patent application publications (Exhibits 1006, 1007, 1009, 1019-1021, and 1027-1028) and Exhibits 1002 and 1014 are made by paragraph number. Citations to International patent application publications (Exhibit 1008) are made by page and line number. Citations to Exhibits 1005, 1012-1013, 1015-1016, 1018, 1022-1026, 1029-1030, and 1033 are to the original page numbering in the exhibits. Citations to Exhibits 1003 and 1011 are to the page number added by the exhibit label.

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Ex[No.] ¹	Description of Documents
1008	International Patent Publication No. WO 2004/034350 A1 to Chang-Eui Kim, entitled “Television Set and Method for Notifying a Disaster Situation” (filed Oct. 9, 2003, with priority to Oct. 9, 2002, and published Apr. 22, 2004) (“ Kim ”)
1009	Japanese Patent Publication No. 2006-340164 A to Yoshihiro Ishibashi, entitled “Emergency-Alert Broadcast Receiver and Method for Receiving Emergency-Alert Broadcasts” (filed June 3, 2005, and published Dec. 14, 2006) (Original Japanese Application, Translation, and Translator’s Affidavit) (“ Ishibashi ”)
1010	U.S. Patent No. 7,330,693 to Stephen Clifford Goss, entitled “Broadcast Channels for Wireless Telephony” (filed Sep. 17, 1999, and issued Feb. 12, 2008) (“ Goss ”)
1011	Letter from James Shimota, Partner, K&L Gates to Natalie Gonzales, Partner, Baker Botts L.L.P., RE: Plaintiff’s Infringement Contentions (Mar. 30, 2023).
1012	Opposition to Motion to Dismiss in <i>STA Group LLC v. Motorola Solutions, Inc.</i> , No. 2:22-cv-00381 (E.D. Tex. filed Jan. 17, 2023)
1013	Reply to Motion to Dismiss in <i>STA Group LLC v. Motorola Solutions, Inc.</i> , No. 2:22-cv-00381 (E.D. Tex. filed Feb. 7, 2023)
1014	Declaration of Sylvia D. Hall-Ellis, Ph.D., dated Aug. 20, 2023
1015	Ericsson, <i>Maintenance Manual, EDACS® C3 Maestro™ Console System with Enhanced Audio Enclosure</i> (March 1995) (“ C3 Maestro ”)
1016	Department of Defense, <i>Department of Defense Design Criteria Standard: Human Engineering</i> , MIL-STD-1472F (Aug. 23, 1999) (“ DoD ”)
1017	U.S. Patent No. 5,081,669 to Laura L. Slaninka et al., entitled “Assignable Speakers for Channels at a Trunked Console Operator Position” (filed Aug. 27, 1990, and issued Jan. 14, 1992) (“ Slaninka ”)

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Ex[No.] ¹	Description of Documents
1018	Motorola Inc., <i>CENTRACOM Gold Series Classic CRT User's Guide</i> (1998) (“ CENTRACOM ”)
1019	U.S. Patent Publication No. US 2006/0184962 A1 to Scott Allan Kendall et al., entitled “Methods for Controlling Apparatuses Having an Emergency Alert Function” (filed Mar. 30, 2004, and published Aug. 17, 2006) (“ Kendall ”)
1020	U.S. Patent Publication No. US 2007/0107009 A1 to Jin Pil Kim, entitled “Emergency Alert Signaling Method and Digital Television Receiver” (filed Nov. 9, 2006, with priority to Nov. 9, 2005, and published May 10, 2007) (“ Kim ”)
1021	U.S. Patent Publication No. US 2006/0005219 A1 to Garry Owens, entitled “Standby Television Warning System” (filed July 2, 2004, and published Jan. 5, 2006) (“ Owens ”)
1022	Telex-Vega, Signaling Product Company <i>Model C-Soft User Configurable Version USB and Parallel Key Versions Radio Control Console Includes P25 Control Options Version 2.8x, Technical Manual</i> (May 2005) (“ C-Soft ”)
1023	TIA Standard, <i>Project 25 Trunking Control Channel Messages – New Technology Standards Project – Digital Radio Technical Standards</i> , ANSI/TIA-102.AABC-B-2005 (Jan. 12, 2005) (“ P25 Standard ”)
1024	P25 Digital Wireless, <i>Project 25 Statement of Requirements</i> (Mar. 9, 2006) (“ P25 SoR ”)
1025	Telex Communications, Inc. and Vega Signaling Products, <i>Price List</i> (effective Apr. 1, 2003), https://web.archive.org/web/20030401105942/http://vega-signaling.com/) (“ C-Soft Price List ”)
1026	<i>Motorola Annual Report 1975</i> (1975) (“ 1975 Report ”)
1027	U.S. Patent Publication No. US 2004/0070515 A1 to Raymond Burkley et al., entitled “First Responder Communications System” (filed July 2, 2003, and published Apr. 15, 2004) (“ Burkley ”)

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Ex[No.] ¹	Description of Documents
1028	European Patent Application No. EP 1,613,105 A1 to Ryan Crawford, entitled “Transmission of Content in a Push-to-Talk System” (filed June 29, 2004, and published Jan. 4, 2006) (“ Crawford ”)
1029	Docket Control Order, <i>STA Group LLC v. Motorola Solutions, Inc.</i> , No. 2:22-CV-0381-JRG-RSP, ECF No.35 (E.D. Tex. Feb. 3, 2023)
1030	Katherine K. Vidal, <i>Memorandum: Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation</i> (June 21, 2022)
1031	U.S. Patent No. 4,905,302 to Jeffrey S. Childress et al., entitled “Trunked Radio Repeater System” (filed June 3, 1987, and issued Feb. 27, 1990) (“ Childress ”)
1032	Parties’ Local P.R. 4-2 Disclosure of Preliminary Proposed Constructions of Claim Terms and Preliminary Identification of Extrinsic Evidence
1033	Plaintiff’s First Amended Disclosure of Asserted Claims and Infringement Contentions and Document Production Accompanying Disclosure Pursuant to P.R. 3-1 & 3-2, No. 2:22-CV-0381-JRG-RSP (E.D. Tex. June 15, 2023).

MANDATORY NOTICES UNDER 37 C.F.R. 42.8(a)(1)

A. Real Party-in-Interest under 37 C.F.R. 42.8(b)(1)

The real party-in-interest is Motorola Solutions, Inc. No other parties exercised or could have exercised control over this Petition; no other parties funded or directed this Petition.

B. Related Matters under 37 C.F.R. 42.8(b)(2)

As of the filing date of this Petition, and to the best knowledge of Petitioner, the '664 Patent is involved in *STA Grp. LLC v. Motorola Solutions, Inc.*, Case No. 2:22-cv-00381 (E.D. Tex. filed Sept. 30, 2022) ("EDTX Litigation"). Petitioner moved to dismiss the complaint on December 12, 2022. That motion was denied in a report and recommendation by the Magistrate Judge on July 7, 2023, and that the Court adopted the report and recommendation and denied Motorola Solutions, Inc.'s motion on August 11, 2023.

The '664 Patent was also asserted against Petitioner in an identical Complaint in *STA Grp. LLC v. Motorola Solutions, Inc.*, Case No. 4-22-cv-00840 (E.D. Tex. filed Sept. 30, 2022), which was filed in error on September 30, 2022 and administratively closed October 6, 2022 without any proceedings.

C. Lead and Back-Up Counsel under 37 C.F.R. 42.8(b)(3)

Petitioner provides the following designation of counsel:

LEAD COUNSEL	BACK-UP COUNSEL
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Petition for *Inter Partes* Review of U.S. Patent No. 8,831,664

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D. Service Information under 37 C.F.R. 42.8(b)(4)

A copy of this entire Petition, including all Exhibits and a power of attorney, is being served by FEDERAL EXPRESS, costs prepaid, to the correspondence address of record for the '664 Patent at the USPTO: Cisco Systems, Inc. – Patent Team (PatCapGroup Customer Number), SJC 10/5, 170 W. Tasman Drive, San Jose, CA 95134-1706; and by email to the attorney or agent of record for Patent Owner in

the EDTX Litigation: James A. Shimota, K&L Gates, Jim.Shimota@klgates.com.

Please address all correspondence to lead and back-up counsel. Petitioner consents to service at lead counsel's address provided above. Petitioner consents to electronic service, provided it is made to the following e-mail address:

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A Power of Attorney is filed concurrently herewith under 37 C.F.R. §42.10(b).

CLAIM LISTING

A. Claim 1

1[Pre]	A method, comprising:
1[a]	monitoring media streams associated with channels in a communication environment;
1[b]	receiving an alert in one of the media streams; and
1[c]	elevating a priority associated with the media stream receiving the alert, such that an adjustment is made to how the media stream is provisioned to an endpoint in the communication environment.

B. Claim 2

2	The method of claim 1, wherein elevating the priority comprises increasing the volume of the media stream receiving the alert.
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C. Claim 3

3	The method of claim 1, wherein elevating the priority comprises changing a spatial direction for rendering the media stream receiving the alert.
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D. Claim 4

4	The method of claim 1, wherein elevating the priority comprises increasing the volume of the media stream receiving the alert and changing a spatial direction for rendering the media stream receiving the
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	alert.
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E. Claim 5

5	The method of claim 1, wherein elevating the priority comprises rendering the media stream receiving the alert to a priority spatial direction.
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F. Claim 6

6	The method of claim 1, wherein elevating the priority includes identifying a primary channel and rendering the alert message to the primary channel.
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G. Claim 7

7	The method of claim 1, wherein elevating the priority includes turning a volume down on media streams not receiving the alert.
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H. Claim 8

8	The method of claim 1, wherein the alert is received in a header of a packet of the media stream.
----------	---

I. Claim 9

9	The method of claim 1, wherein the alert is duplicated and rendered at a higher volume.
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J. Claim 10

10	The method of claim 1, wherein the alert is received in a control packet of the media stream.
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K. Claim 11

11[Pre]	Non-transitory readable media that includes code for execution and when executed by a processor operable to perform operations
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	comprising:
11[a]	monitoring media streams associated with channels in a communication environment;
11[b]	receiving an alert in one of the media streams; and
11[c]	elevating a priority associated with the media stream receiving the alert.

L. Claim 12

12	The non-transitory readable media of claim 11, wherein elevating the priority comprises increasing the volume of the media stream receiving the alert.
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M. Claim 13

13	The non-transitory readable media of claim 11, wherein elevating the priority comprises changing a spatial direction for rendering the media stream receiving the alert.
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N. Claim 14

14	The non-transitory readable media of claim 11, wherein elevating the priority comprises increasing the volume of the media stream receiving the alert and changing a spatial direction for rendering the media stream receiving the alert.
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O. Claim 15

15	The non-transitory readable media of claim 11, wherein elevating the priority includes identifying a primary channel and rendering the alert message to the primary channel.
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P. Claim 16

16[Pre]	An apparatus, comprising:
16[a]	a memory element;
16[b]	a processor; and
16[c]	a management element stored in the memory element and configured to interface with the processor such that the apparatus is configured for:
16[d]	monitoring media streams associated with channels in a communication environment;

16[e]	receiving an alert in one of the media streams; and
16[f]	elevating a priority associated with the media stream receiving the alert.

Q. Claim 17

17	The apparatus of claim 16, wherein elevating the priority comprises increasing the volume of the media stream receiving the alert.
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R. Claim 18

18	The apparatus of claim 16, wherein elevating the priority comprises changing a spatial direction for rendering the media stream receiving the alert.
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S. Claim 19

19	The apparatus of claim 16, wherein elevating the priority comprises increasing the volume of the media stream receiving the alert and changing a spatial direction for rendering the media stream receiving the alert.
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T. Claim 20

20	The apparatus of claim 16, wherein elevating the priority includes identifying a primary channel and rendering the alert message to the primary channel.
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I. INTRODUCTION

Motorola Solutions, Inc. (“Petitioner” or “Motorola”) petitions for *inter partes* review of Claims 1-20 (the “Challenged Claims”) of U.S. Patent No. 8,831,664 (the “’664 Patent”).

The ’664 Patent concerns a process well-known to dispatchers for years: when an important message arrives with an alert (*e.g.*, “officer down”), elevate the message’s priority by adjusting how it is provided (*e.g.*, turn up the volume, or play the message in a particular ear). Ex[1002], ¶¶45-49. The specification admits that this process, performed manually, was a feature of conventional systems. Ex[1001], 1:33-36 (“Typically, a management center supports a plurality of channels, where less important channels are rendered to one ear, and channels that are more important are rendered to the other ear.”). The specification also admits that the infrastructure and components used in connection with the claimed method are entirely conventional and have existed in the prior art for years. Ex[1001], 1:33-36. Even to the extent the claims are construed to require automating these functionalities, as Patent Owner proposes, they were known and disclosed in the prior art well before the priority date of the ’664 Patent, as shown herein.

II. REQUIREMENTS UNDER 37 C.F.R. 42.104

A. Grounds for Standing

Petitioner certifies that the ’664 Patent is available for IPR, and that Petitioner is not barred or otherwise estopped.

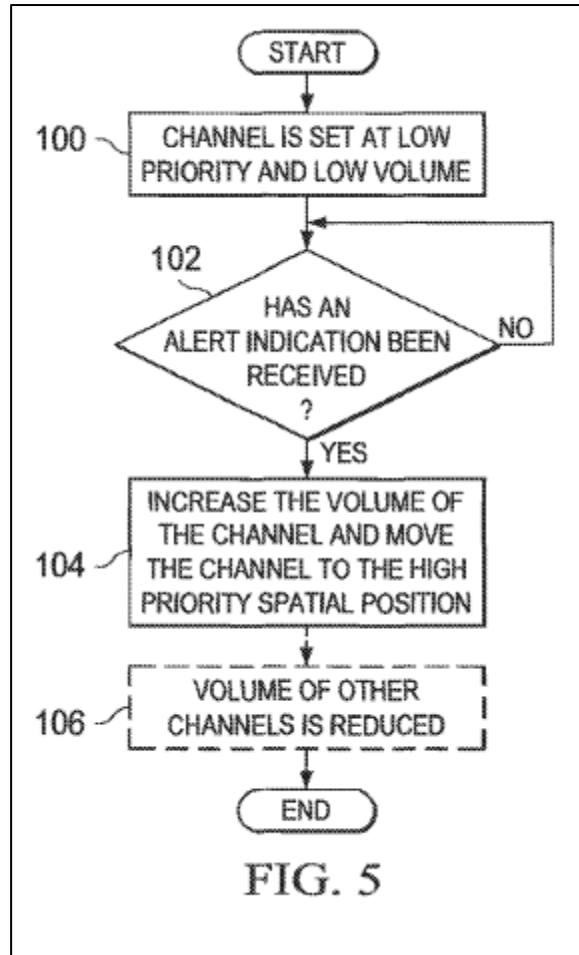
B. Identification of Challenge

Petitioner challenges Claims 1-20 of the '664 Patent as follows:

Ground	'664 Patent Claims	Basis for Challenge
1	1-6, 8-9, 11-20	Obvious over Downs in view of EDACS
2	1-6, 8-9, 11-20	Obvious over Ground 1 in further view of Childress
3	3-5, 13-14, 18, 19	Obvious over Ground 1 in further view of Hancock
4	3-5, 13-14, 18, 19	Obvious over Ground 2 in further view of Hancock
5	7, 10	Obvious over Ground 1 in further view of Reich
6	7, 10	Obvious over Ground 2 in further view of Reich
7	1-2, 6-9, 11-12, 15-17 20	Obvious over Kim
8	3-5, 13-14, 18-19	Obvious over Ground 7 in view of Ishibashi
9	10	Obvious over Ground 7 in view of Goss

III. THE '664 PATENT

The specification explains that the purported invention covers a human dispatcher monitoring media streams (*e.g.*, calls) on radio channels and receiving an alert. Fig. 5 shows an example of the purported invention.

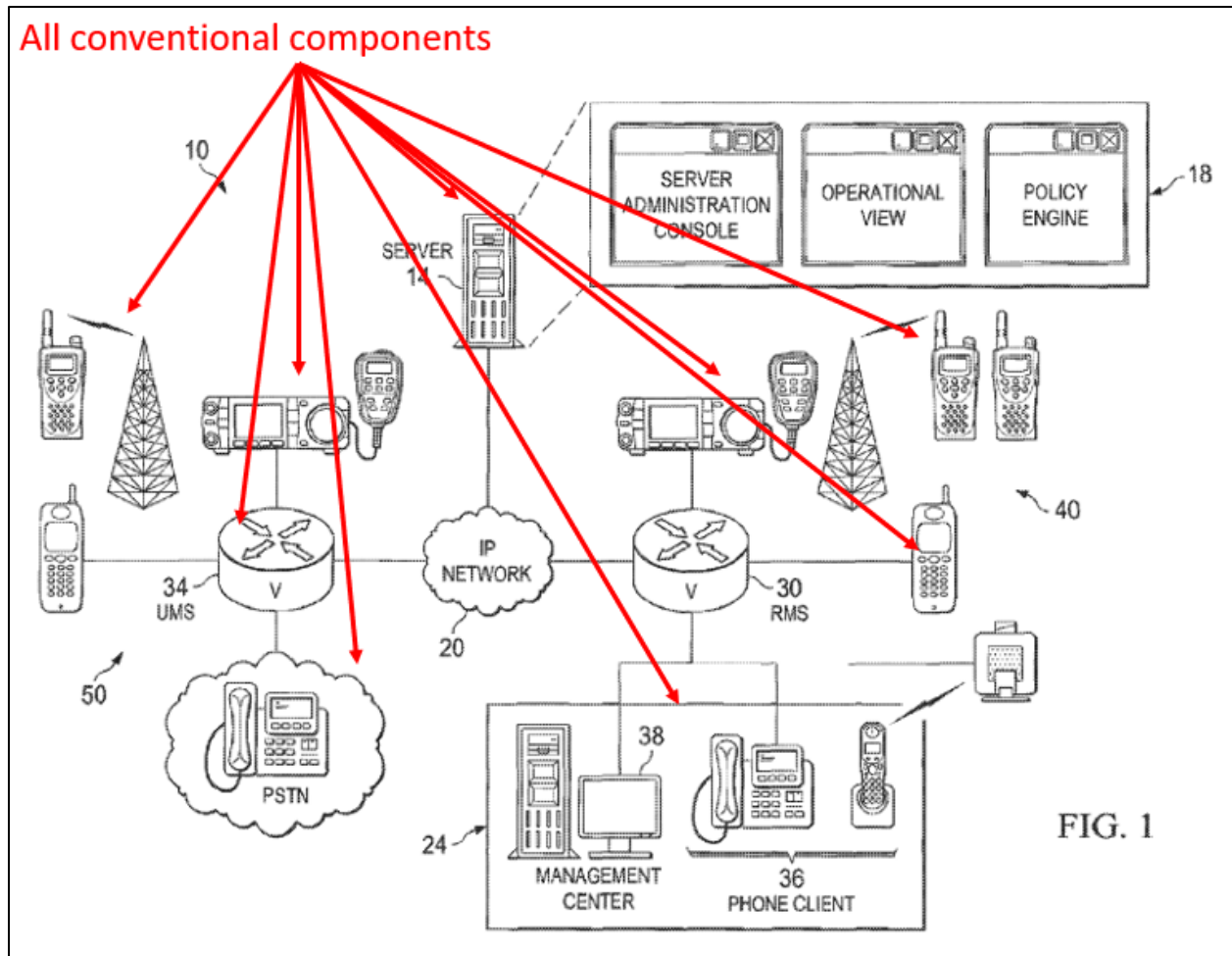


Ex[1001], Fig. 5.

If an alert is received, the volume of the channel receiving the alert is increased. *Id.*, 3:56-64, 6:16-19. Alert messages are “meant to connote any type of message or signal that was intended for one or more end users.” *Id.*, 7:41-43; Ex[1002], ¶48. These “alert messages” could even include “simple conversational exchanges and/or simple correspondence.” *Id.*, 7:43-48.

In the specification, the applicants do not purport to have invented any change to the infrastructure or the physical components of the system that performs the claimed functionality. Ex[1001], 2:33-3:29, Fig. 1 (annotated below); Ex[1002],

¶46.



Ex[1001], Fig. 1(annotated).

A. Prosecution History

The '664 Patent was filed on August 16, 2011, as a continuation of an application filed on December 19, 2008, now U.S. Patent No. 8,041,378 ("378 Patent"). Following double-patenting and 35 U.S.C. §101 rejections, the applicant filed a terminal disclaimer and amended claim 25 (issued claim 1) as shown below.

25. (Currently Amended) A method, comprising:
monitoring media streams associated with channels in a communication environment;
receiving an alert in one of the media streams; and
elevating a priority associated with the media stream receiving the alert, such that an adjustment is made to how the media stream is provisioned to an endpoint in the communication environment.

Ex[1003], p.42. Claims 35-39 were amended to recite “non-transitory readable media.” *Id.*, p.44. On May 12, 2014, the Examiner allowed the pending claims. *Id.*, pp.18-21.

IV. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSITA”) as of December 19, 2008, would have had a bachelor’s degree in computer science, electrical engineering, or a similar field, and would have had approximately two years industry experience in networking or communication systems. Ex[1002], ¶¶53-56. A person with less or different education but more relevant practical experience, or vice versa, may also meet this standard. *Id.*

V. CLAIM CONSTRUCTION

In district court, Patent Owner and Petitioner have proposed constructions for several terms. *See* Ex[1032]; Ex[1002], ¶¶57-59. For example, Patent Owner argues that the Challenged Claims require “*automatically* elevat[ing] the priority to adjust the manner in which an alert in a media stream is delivered to a user’s device.” Ex[1012], p.14; Ex[1032]. Petitioner respectfully disagrees. Ex[1013], p.2;

Ex[1032]. The other proposals are set forth in Ex[1032].

However, regardless of how any term is interpreted, the claims are invalid, including under either party's interpretations. *See infra* §§VII.A.4, VII.C.2. Accordingly, the Board need not construe any term to find the Challenged Claims invalid. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

VI. SUMMARY OF PRIOR ART

Petitioner assumes without conceding that the Challenged Claims are entitled to a December 19, 2008, priority date.

A. Knowledge of a POSITA

As evidenced by the '664 Patent itself and the prior art relied upon herein, what is claimed in the '664 Patent was known in the prior art years before the alleged invention. Ex[1002], ¶¶60-89; *see also* Ex[1017], 1:11-17, 3:17-23.

The Background of the Invention section of the '664 Patent admits “Push-to-talk (PTT) devices are commonly used in safety and security environments” and “can support a single channel or a plurality of channels.” Ex[1001], 1:29-38. Further, it was “[t]ypical” for “a management center” to “support[] a plurality of channels, where less important channels are rendered to one ear, and channels that are more important are rendered to the other ear” and “where the volume of each channel can be manually adjusted by an end user.” *Id.*

Indeed, prior art systems already provided users with the ability to position

media streams at a variety of spatial arrival directions, such as speakers “mounted at least 10° apart in the horizontal plane,” by enabling the dispatcher “to dynamically modify speaker assignment” of the channels. Ex[1016], p.49; Ex[1017], 3:17-23; Ex[1002], ¶¶83-88. These techniques would have been within the knowledge of a POSITA before the priority date, and a POSITA would have understood conventional systems already included all of the hardware necessary to adjust how media streams are provisioned (*e.g.*, by increasing the volume). Ex[1002], ¶¶77-88.

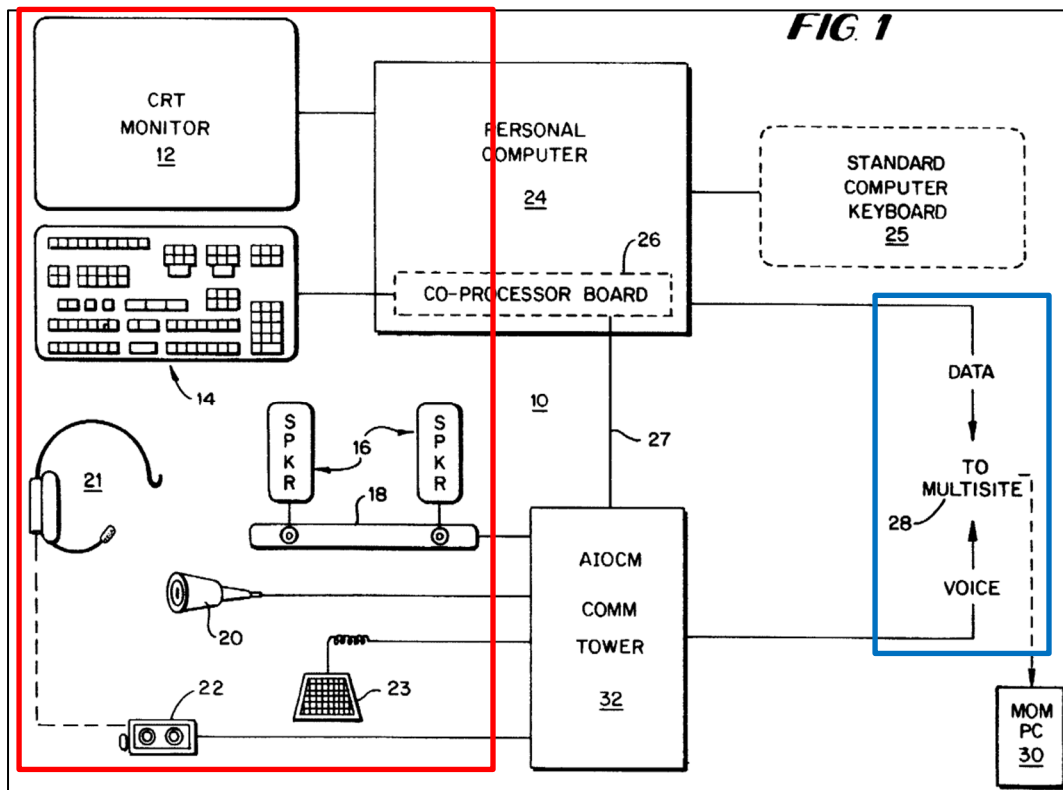
B. Downs (Ex[1004])

U.S. Patent No. 5,754,960 (“Downs”) is entitled “Display Console and User Interface for Multisite RF Trunked System.” Downs was filed February 14, 1992, and issued May 19, 1998, and thus is prior art at least under 35 U.S.C. §§102(a), (b) and (e). Ex[1004], Cover.

Years prior to the ’664 Patent, Downs recognized that “dispatchers must be free to concentrate on the substance of the calls, any one of which may be an emergency call,” and “added features of a complex RF [radio frequency] could become a hindrance,” unless the dispatcher can “quickly and easily operate the dispatch console.” Ex[1004], 2:40-55; *cf.* Ex[1001], 1:42-46.

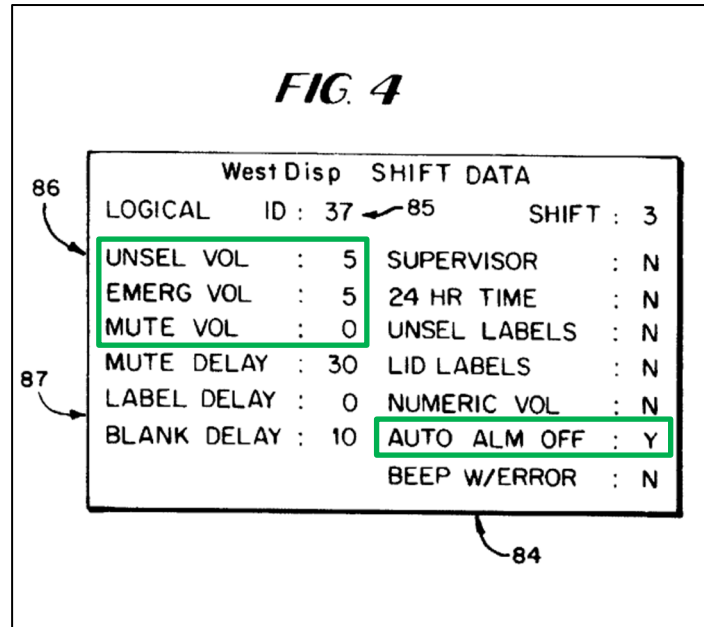
To ensure dispatchers can concentrate on the substance of specific calls, Downs teaches that data signals can be organized into communication modules “represent[ing] a particular group, unit, console, channel, line, etc., that is available

to the console.” *Id.*, 6:22-25. These communication modules then provide “information on a specific call or group such as the caller, volume, and emergency” to the dispatcher. *Id.*, 3:24-25; Fig. 1 (annotated below with user input/output components in red, audio/data signal connection to RF system in blue); Ex[1002], ¶¶92-94.



Ex[1004], Fig. 1.

Downs discloses that “emergency calls are broadcast louder from the dispatcher speakers than other calls” based on the predetermined emergency volume level set by the dispatcher, shown in Figure 4 below. Ex[1004], 6:47-52, Fig. 3; Ex[1002], ¶¶95-97.



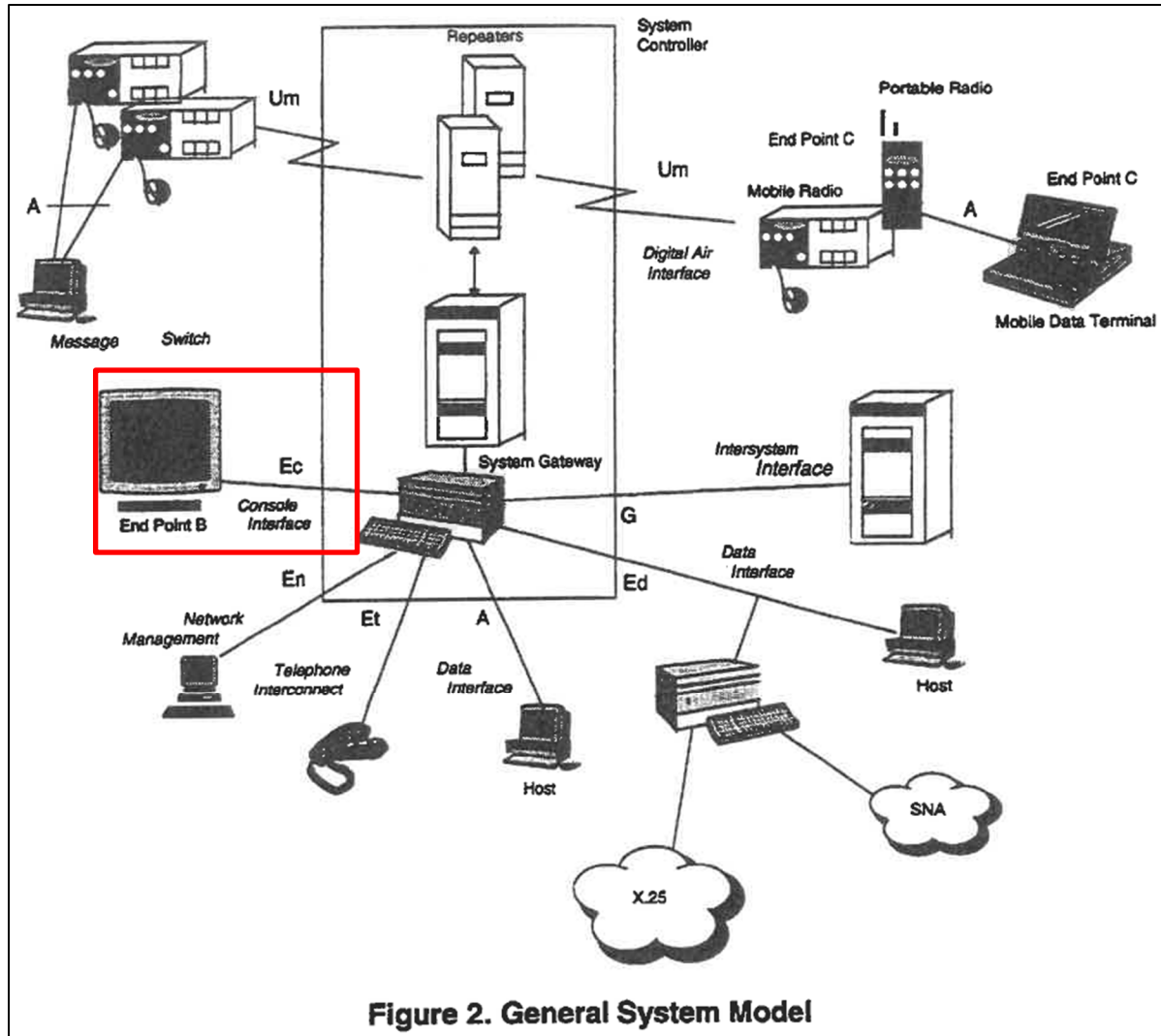
Ex[1004], Fig. 4.

C. EDACS (Ex[1005])

A System and Standards Definition for a Digital Land Mobile Radio System, TSB69 (“EDACS”) was published by the Telecommunications Industry Association (TIA) in November 1998 and was made publicly available at least by November 30, 1998. Ex[1014], ¶26. A POSITA would have reasonably considered TIA “as a convener of industry thought leaders” and as a hub for communication technology information. *Id.*, ¶21; Ex[1002], ¶¶98-99. EDACS was, at least, accessible via “a search engine on the TIA website,” which “was accessible to the public prior to December 19, 2008,” and accessed “by entering the document number and clicking the link.” Ex[1014], ¶¶23-24. Therefore, EDACS is prior art under 35 U.S.C. §§102(a) and (b). *SRI Int’l, Inc. v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1194 (Fed. Cir. 2008).

EDACS “describes the functional elements of the EDACS System, as well as defining the basic system architecture.” Ex[1005], Foreword. Like Downs, EDACS discloses that the EDACS System supports emergency calls. *Id.*, pp.15-17. Further “[t]he system automatically assigns the highest priority to the talk group[’s]” signals receiving the emergency message. *Id.*, p.43. This ensures that “[e]ven on heavily loaded systems, emergency calls are handled quickly and efficiently.” *Id.*, p.17.

EDACS is intended to be used with a variety of different devices such as a console interface, mobile and portable radios, telephones, and other devices as shown in Figure 2 below. Ex[1005], p.5. A POSITA would have understood that Downs describes a console interface that would be compatible with EDACS. Ex[1002], ¶¶99-103; Ex[1004], 2:62-3:3; Ex[1015], Title.



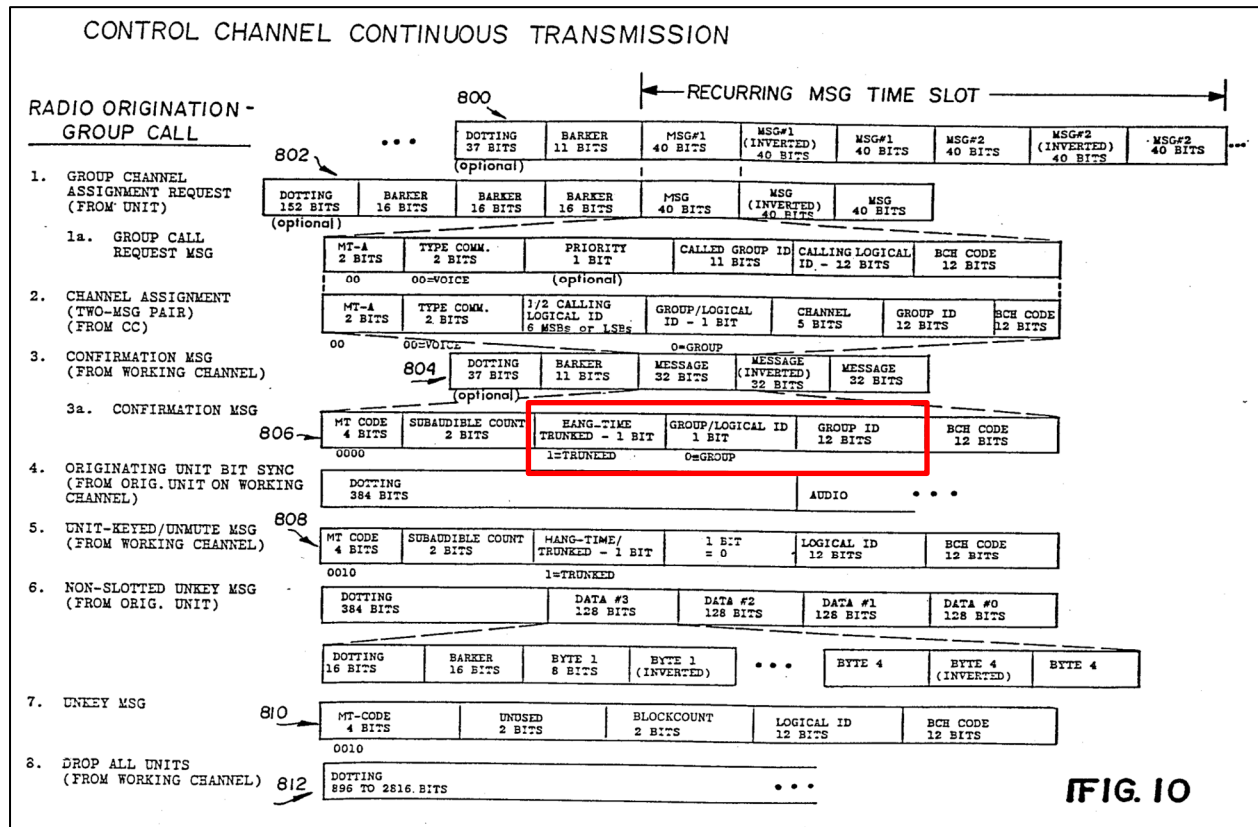
Id., p.6.

D. Childress (Ex[1031])

U.S. Patent No. 4,905,302 (“Childress”) is entitled “Trunked Radio Repeater System.” Childress was filed June 3, 1987 and issued February 27, 1990. Ex[1031], Cover. Childress is prior art to the ’664 Patent at least under 35 U.S.C. §§102(a), (b) and (e).

Childress discloses a “trunked radio” system using “digital control signals transmitted over a dedicated control channel” and “plural working channels.”

Ex[1031], 1:6-11; Ex[1002], ¶105. Childress discloses a messaging sequence and structure used to request and use a trunked channel including “all mobiles of the called group” receiving an “emergency group call confirmation message,” which contains a “Message/Transmission Trunking” bit and a 12-bit “Group ID.” Ex[1031], 28:42-58. These indicators are used in systems like EDACS to determine call-handling requirements and priorities. Ex[1005], pp.17, 54; Ex[1002], ¶106. This sequence and structure are shown below in Figure 10.



Ex[1031], Fig. 10.

E. Hancock (Ex[1006])

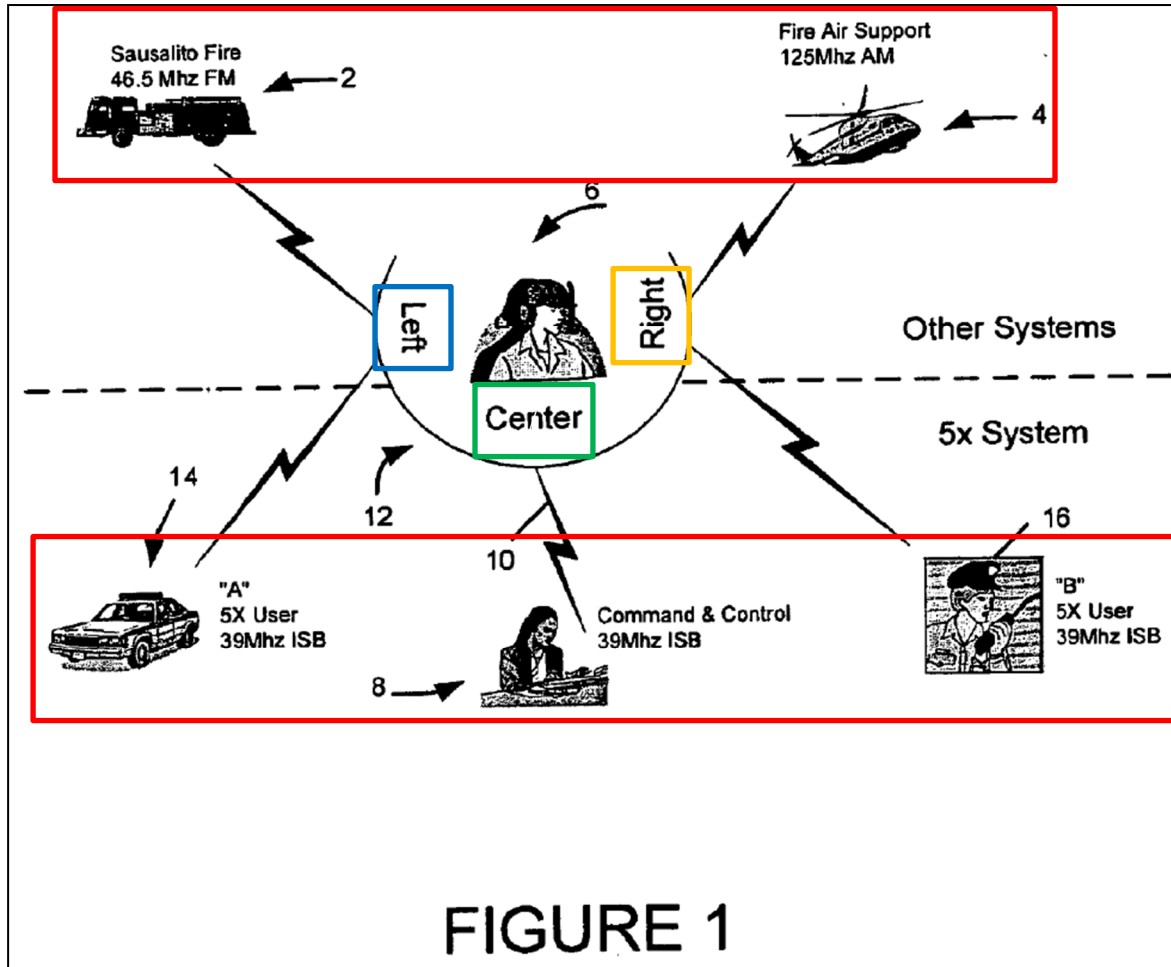
U.S. Patent Publication No. 2006/0147028A1 (“Hancock”) is entitled “Multi-Mode, Multi-Channel Psychoacoustic Processing for Emergency Communications.”

Hancock was filed January 5, 2005, and published July 6, 2006. Ex[1006], Cover.

Hancock is prior art to the '664 Patent at least under 35 U.S.C. §§102(a), (b) and (e).

Hancock discloses “[a]n emergency radio communication system” in which “[e]ach radio receives multiple channel/frequency communications and spatially locates the received communications at predetermined ‘ear’ locations comprising left earphone, right earphone, and both earphones (right and left).” Ex[1006], Abstract. This system enables “differentiating received signals whether on one or multiple channels” from multiple entities (such as two separate fire departments) and “control and command communications or air support communications” received at the same time. *Id.*, [0008].

Hancock teaches changing the spatial direction for rendering the received signals, shown in Figure 1 below, whereby certain channels are “routed to the center acoustic spatial position 12,” while others are “routed to the left position,” or “to the right” by default. *Id.*, [0045]; Ex[1002], ¶¶108-109 (channels shown in red, possible acoustic spatial positions shown in blue, green, and orange).



Ex[1006], Fig. 1.

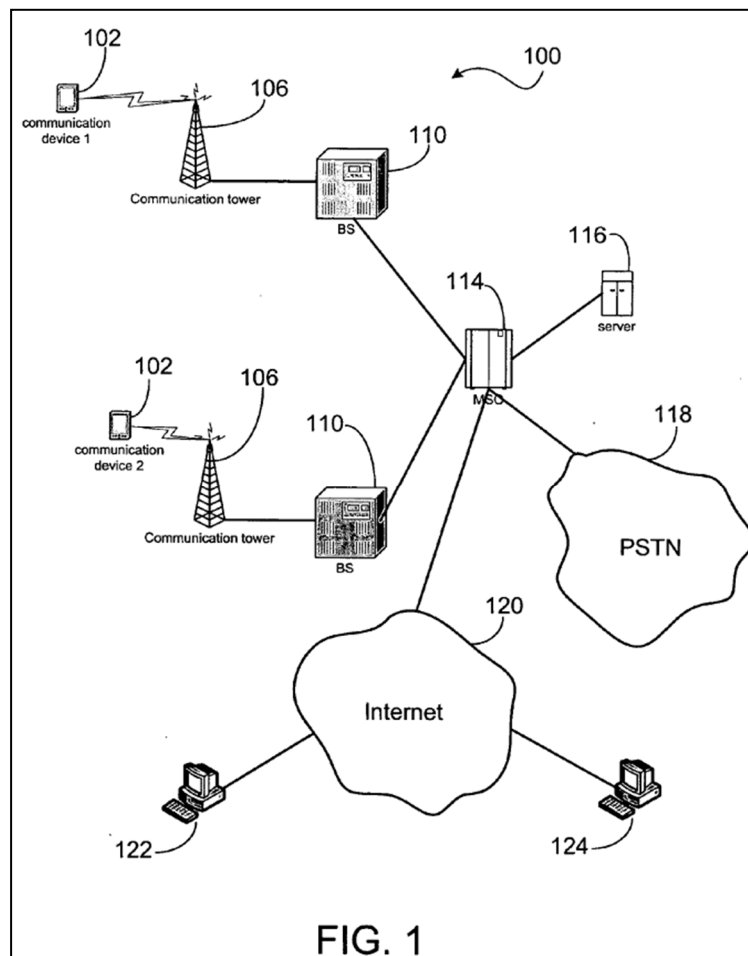
Hancock also teaches the ability to “send/receive low speed test messages *including emergency alerts*.”² Ex[1006], [0022], [0032]. When an emergency alert is received, the spatial location is changed such that “emergency transmissions would be routed to both ears,” helping to ensure the dispatcher can comprehend these priority emergency transmissions. *Id.*, [0045]; Ex[1002], ¶¶110-111.

² All emphasis added in bold italics unless otherwise noted.

F. Reich (Ex[1007])

U.S. Patent Publication No. 2007/0197248A1 (“Reich”) is entitled “System and Method for Multiple Simultaneous Communication Groups in a Wireless System.” Reich was filed February 17, 2006, and published August 23, 2007. Ex[1007], Cover. Reich is prior art to the ’664 Patent at least under 35 U.S.C. §§102(a), (b) and (e).

Reich enables “a wireless device to simultaneously monitor multiple PTT communication groups and to interrupt an incoming PTT communication with a higher priority PTT communication.” Ex[1007], [0008], [0025], Fig. 1 (below).



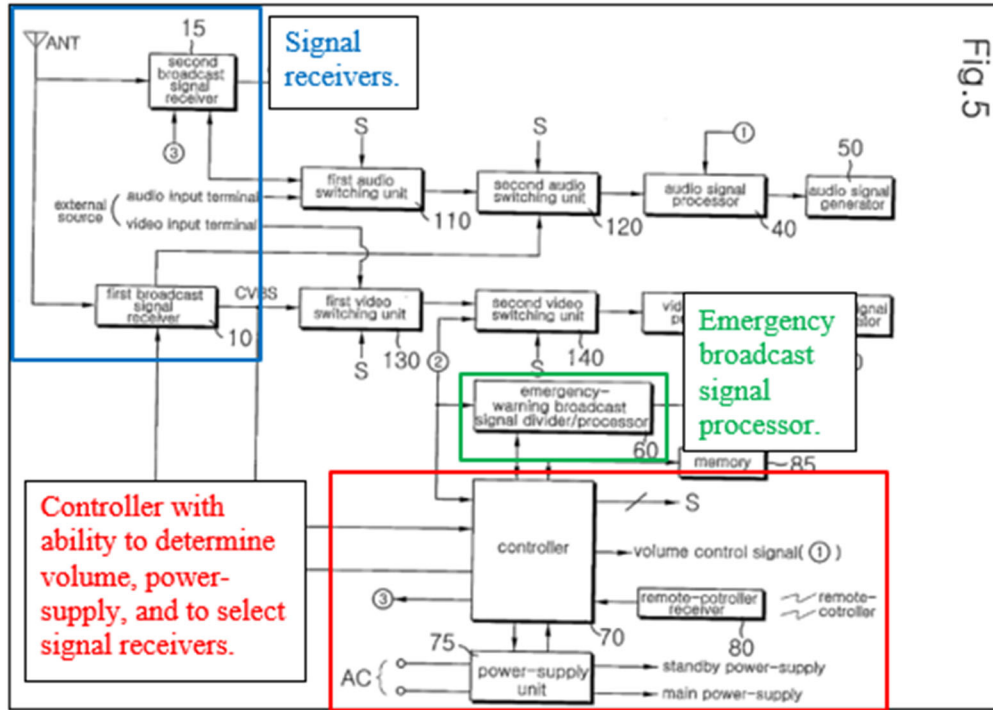
Ex[1007], Fig. 1.

Reich further discloses that when receiving overlapping communications of different priorities, “wireless handset 102...may also request communications from a particular PTT communications group be muted, or volume significantly lessened such that the non-primary communication can still be heard faintly in the background of the primary communication.” *Id.*, [0027], [0029], [0041]; Ex[1002], ¶¶113-116.

G. Kim (Ex[1008])

PCT Pub. No. WO2004/034350A1 (“Kim”) is entitled “Television Set and Method for Notifying a Disaster Situation,” was filed Oct. 9, 2003 and published Apr. 22, 2004. Ex[1008], Cover. Kim is prior art to the ’664 Patent at least under 35 U.S.C. §§102(a), (b) and (e).

To improve upon existing telephone warning systems, Kim discloses techniques for notification of emergencies via a television set, whereby a controller determines volume and selects appropriate signal receivers. Ex[1008], Title, 1:11-21, 3:19-4:11, 23:2-8, Fig. 5 (below); Ex[1002], ¶118.



Ex[1008], Fig. 5(annotated).

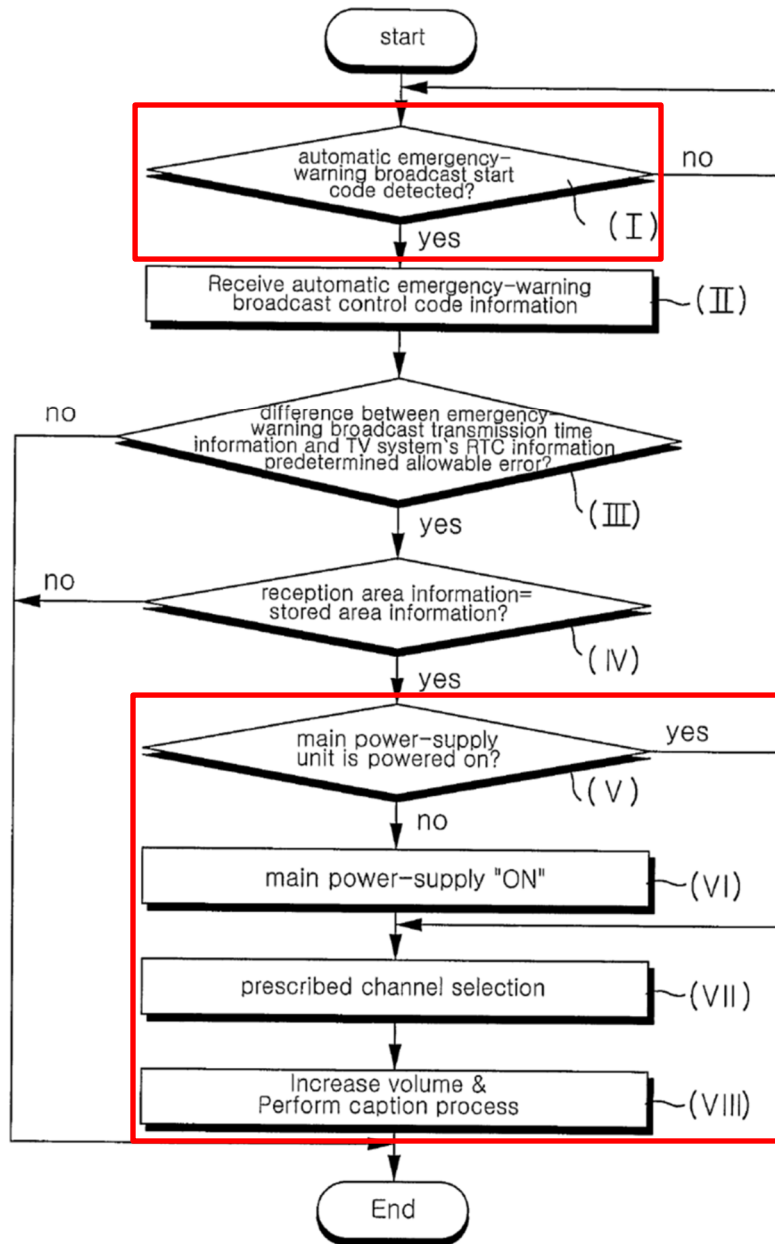
Kim discloses using two signal receivers simultaneously (blue box), whereby one signal receiver monitors a dedicated emergency-warning broadcast station. Ex[1008], 23:2-11. When an emergency-warning broadcast signal (*see* Fig. 1, below) is received, it is processed by the “emergency-warning broadcast signal divider/processor,” and “[t]he TV system’s controller 70” “selects a channel transferring the emergency-warning broadcast signal” and controls the volume of the TV via a volume control signal among other functions, as shown in Figure 3 below. *Id.*, 3:19-4:1, 14:7-12, 29:20-21; Ex[1002], ¶¶119-121.

Fig. 1

control code	TV automatic emergency-warning broadcast start		test code		TV automatic emergency-warning broadcast transmission time		TV automatic emergency-warning broadcast duration		The number of TV automatic emergency-warning broadcast reception areas		TV automatic emergency-warning broadcast reception area 1	
Hex	ID37	ID37			year/month/day/hour/minute	year/month/day/hour/minute	xx	xx	xx	xx	xx/xx/xx/xx	xx/xx/xx/xx
The number of bytes	2	2	1	1	5	5	1	1	1	1	4	4

	TV automatic emergency-warning broadcast reception area 2			TV automatic emergency-warning broadcast reception area Nt		TV automatic emergency-warning broadcast reception group		TV automatic emergency-warning broadcast caption start		TV automatic emergency-warning broadcast caption data	TV automatic emergency-warning broadcast caption termination		TV automatic emergency-warning broadcast termination	
	xx/xx/xx/xx	xx/xx/xx/xx		xx/xx/xx/xx	xx/xx/xx/xx	xx	xx	ID39	ID39	text	ID3A	ID3A	ID38	ID38
	4	4		4	4	1	1	2	2		2	2	2	2

Ex[1008], Fig. 1.



Ex[1008], Fig. 3.

H. Ishibashi (Ex[1009])

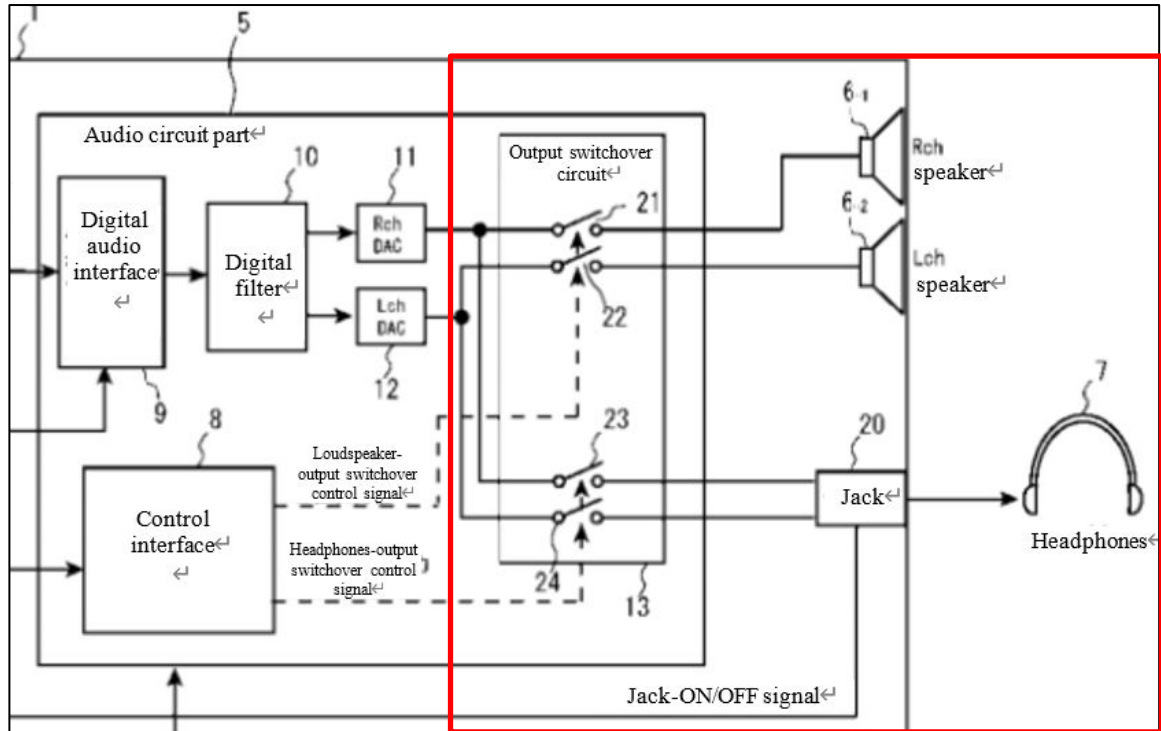
Ishibashi, Japanese Pat. Pub. No. 2006-340164A is entitled “Emergency-Alert Broadcast Receiver and Method for Receiving Emergency-Alert Broadcasts” and

was filed June 3, 2005, and published December 14, 2006. Ex[1009], Cover, p.14.³

Ishibashi is prior art to the '664 Patent at least under 35 U.S.C. §§102(a) and (b).

Ishibashi discloses “an emergency-alert broadcast receiver that automatically switches the audio output to the loudspeaker upon receipt of an emergency-alert broadcast,” even when a user has forgotten to unplug their headphones. Ex[1009], [0001], [0005]. One purpose of Ishibashi’s invention is to ensure that a viewer is informed of an emergency warning broadcast, “even if headphones or earphones are left plugged into a jack.” *Id.*, [0007]. When an emergency-alert-broadcast activation flag is received, Ishibashi teaches “adjust[ing] the audio output to the maximum volume,” and routing the audio data “to be output through both the [] loudspeaker and the [] jack,” which “switches the audio signal to loudspeaker 6 or headphones 7” during an emergency-alert broadcast. *Id.*, [0002], [0006], [0015], [0017], Fig. 1 (below); Ex[1002], ¶¶123-126.

³ Ex[1009] includes a certified English translation of Ishibashi. Ex[1009], pp.14-42.

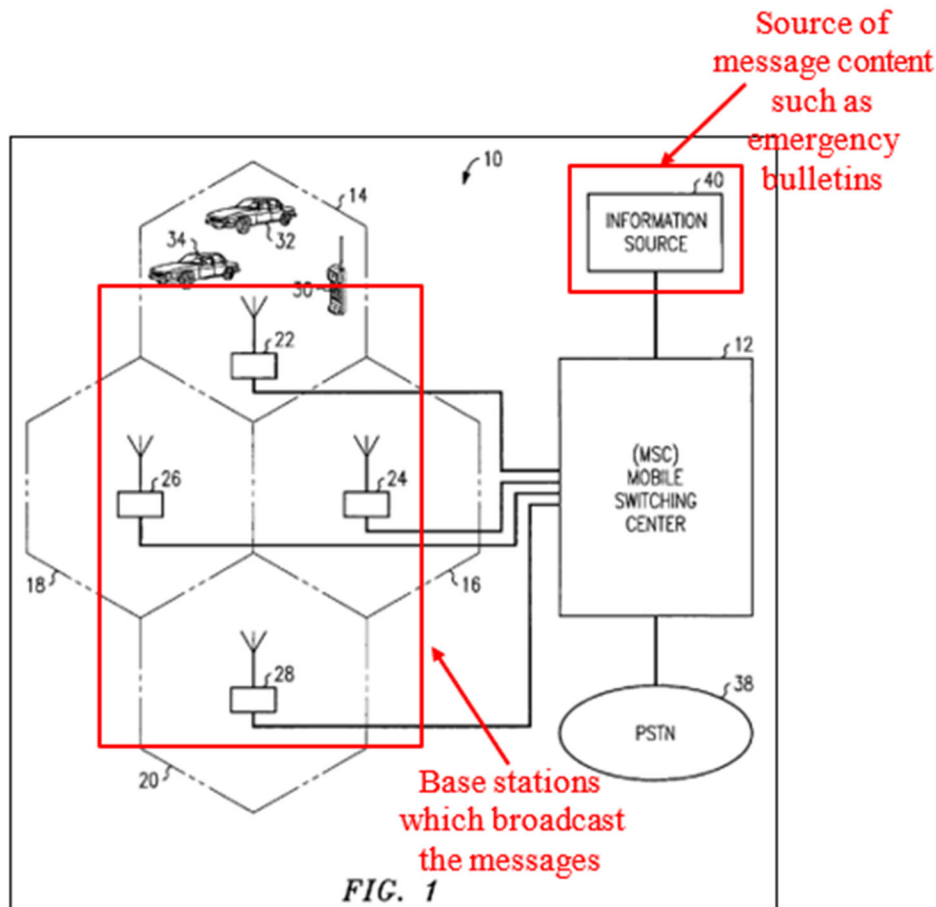


Ex[1009], Fig. 1.

I. Goss (Ex[1010])

U.S. Patent No. 7,330,693 (“Goss”), is entitled “Broadcast Channels for Wireless Telephony.” Goss was filed September 17, 1999 and issued February 12, 2008. Ex[1010], Cover. Goss is prior art to the ’664 Patent at least under 35 U.S.C. §§102(a) and (e).

Goss discloses “broadcast capabilities and messaging services that enable a live or recorded message to be broadcast to a plurality of users,” which can include whether broadcasts or emergency bulletins. *Id.*, 1:7-9, 1:34-37, 2:56-57, 3:1-5, Fig.1 (below).



Ex[1010], Fig. 1(annotated).

Goss provides that “[b]roadcast announcement messages may be retransmitted from time to time to alert users who did not receive the message when first transmitted” which “may be useful for alerting users to an urgent situation.” *Id.*, 6:4-7, 7:55-57; Ex[1002], ¶¶128-130.

VII. THE ASSERTED GROUNDS OF INVALIDITY

A. Ground 1: Claims 1-6, 8-9, and 11-20 are obvious over Downs in view of EDACS.

1. A POSITA Would Have Combined Downs with EDACS.

Downs discloses a dispatch console that “routes audio (voice) and data signals

throughout [an] RF system” comprised of “trunked and conventional radio systems...telephone lines...[and] other dispatch consoles.” Ex[1004], 4:18-25. Downs, however, does not explicitly describe what information is carried by these signals and how such signals are routed in channels. Ex[1002], ¶136. EDACS provides those details. Ex[1002], ¶¶137-141.

In particular, EDACS explains how Downs’ system can communicate with a digitally trunked multisite system with multiple channels and multiple types of messages, including high-priority emergency messages. Ex[1004], 2:30; Ex[1002], ¶136. For example, EDACS discloses that call requests include call type and communication mode information followed by the IDs of the sender and intended destination. Ex[1005], p.54. The EDACS System “supports three communication modes and four call types” including “Group”, “Group Emergency”, “Individual”, and “System All Call,” with “Group Emergency” calls given particular importance. Ex[1005], pp.15-16. For example, EDACS discloses that when an emergency call is “initiated, the radio immediately transmits the emergency call request on the inbound control channel” (*id.*, p.17) and the system “assigns the highest priority to the talk group[’s]” signals (*id.*, p.43) and “assigns the emergency call to a free channel.” *Id.*, p.17.

Additionally, EDACS discloses that “emergency group calls are message trunked” rather than “transmission trunked” like typical group calls. Ex[1005], p.17. “Transmission trunking means that a working channel is assigned for the

duration of a caller's transmission," whereas message trunking "means a channel is assigned for the duration of the conversation, or emergency." *Id.* EDACS explains message trunking is "very useful to the supervisor who requires a dedicated channel while transmitting critical instructions or for emergency calls" because it "assures a dedicated channel" for these priority communications. *Id.*, p.29. Additionally, these additional types of trunking methods provide additional flexibility to emergency call handling systems as well as potentially improving their reliability and integrity. Ex[1002], ¶¶138-140.

A POSITA would have been motivated to combine Downs with these disclosures in EDACS for several reasons. For example, Downs describes its intent to improve commercially available dispatch console systems, including "the C3™ Series Consoles sold by assignee Ericsson GE Mobile Communications Inc." Ex[1004], 2:60-3:16; Ex[1002], ¶136. Ericsson's C3™ Series Consoles, in particular, were designed to operate with EDACS,⁴ which sets forth standardized requirements for an "FDMA, digital, trunked, Land Mobile Radio communication system" containing multiple interfaces such as a console interface, radios, and telephones. Ex[1015], Title; Ex[1005], pp.2, 6; Ex[1002], ¶137. A POSITA would have understood that, because the Downs system was invented to improve

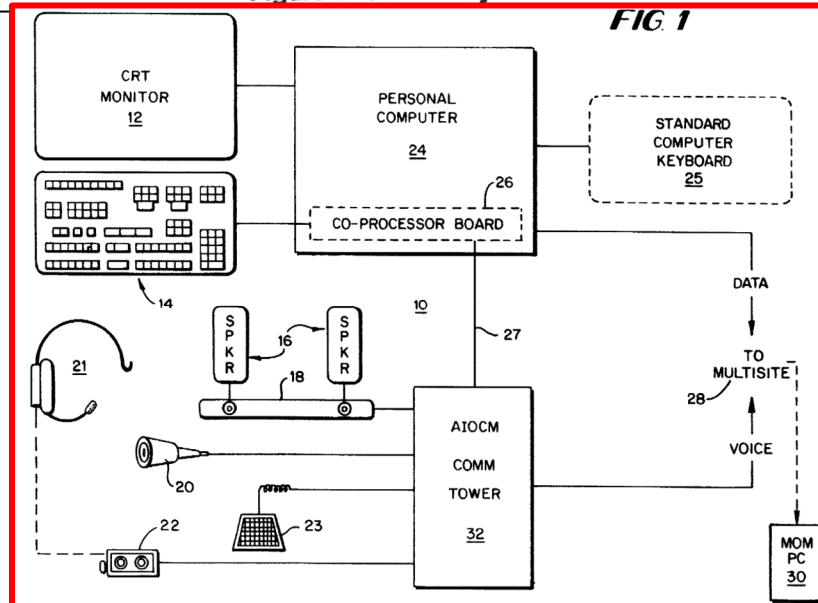
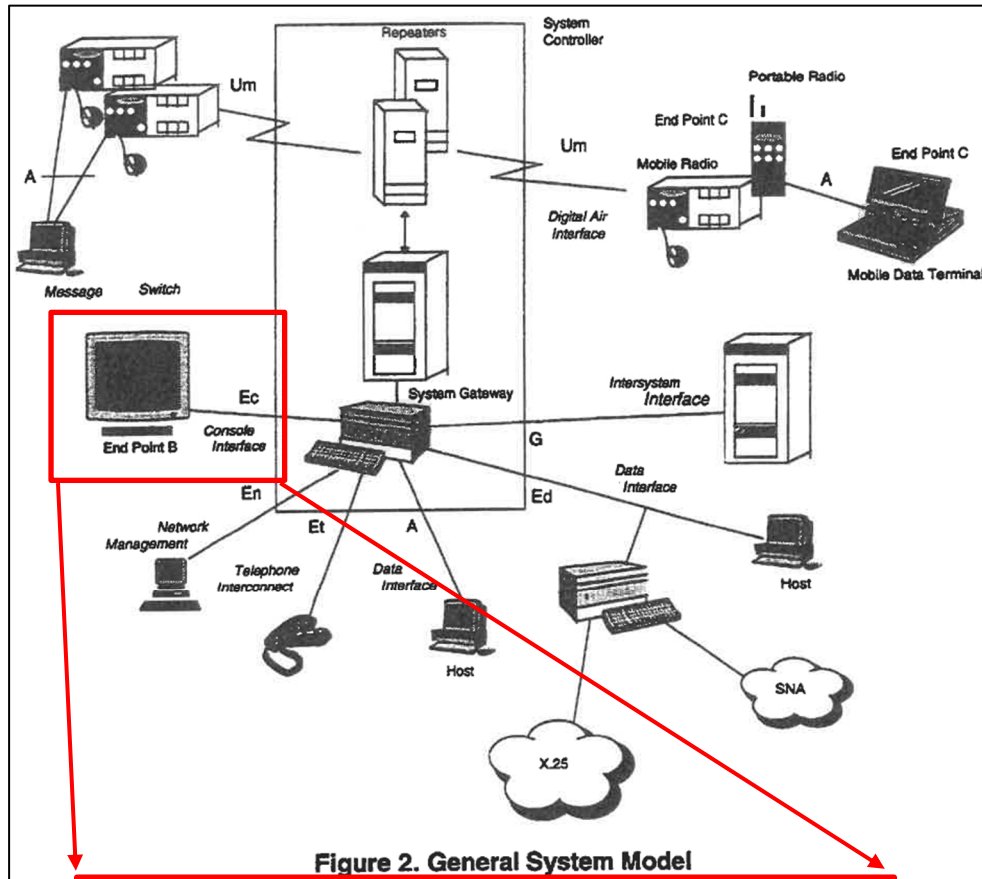
⁴"EDACS® is a registered trademark of Ericsson[.]" the assignee listed on the face of Downs. Ex[1005], p.2; Ex[1004], Cover.

upon the C3™ Series Consoles, it would also be operable with the EDACS communication standard. Ex[1002], ¶137. A POSITA would have understood that the Downs dispatch console would have been a compatible endpoint in an EDACS-based communication system. Ex[1002], ¶141. Thus, a POSITA would have looked to EDACS for further information regarding how to “route[] audio (voice) and data signals throughout the RF system” as described in Downs. Ex[1004], 4:18-25.

Moreover, a POSITA would have understood that making a system compatible with EDACS would have allowed for an improved interface with existing and expected future systems, expanding the market for the system. Ex[1005], Forward; Ex[1002], ¶137. The combination is the use of “a known technique [communication standards] to address a known problem [interoperable communication devices] using ‘prior art elements [the existing EDACS standard] according to their established functions,’” which the Federal Circuit has made clear establishes a motivation to combine. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380 (Fed. Cir. 2023) (quoting *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 799-800 (Fed. Cir. 2021)).

A POSITA would have also understood implementing requirements of EDACS in the Downs dispatch console would have been a predictable combination reasonably expected to succeed. Ex[1002], ¶¶142-143. The annotated figure below shows a combination of Figure 2 of EDACS, which includes a “Console

interface” as “End Point B,” Ex[1005], Fig. 2, with Fig. 1 of Downs Ex[1004], which provides a dispatch console that a POSITA would recognize could be used in this EDACS communication system.



EDACS was already implemented in the C3™ Series Consoles in a similar manner. Ex[1015], Title. Additionally, EDACS is intended to “allow both compatibility and interoperability between various systems and elements,” including being “backward compatible and interoperable with existing” EDACS equipment. Ex[1005], Foreword. Therefore, a POSITA would be both motivated, and able, to combine Downs and EDACS with an expectation of success.

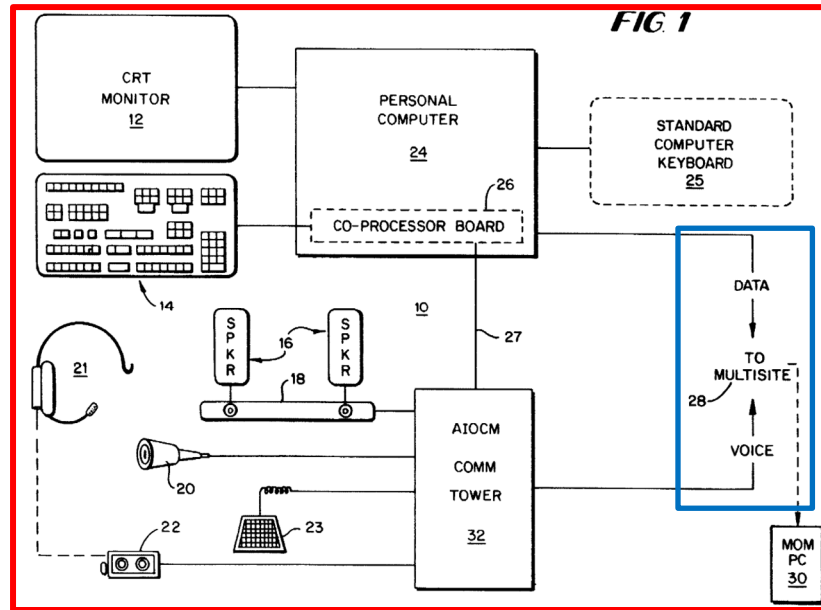
2. Claim 1

a. 1[Pre]

If the preamble is limiting, Downs discloses a “*method*” that enables “radio dispatchers” to “communicate with hundreds, if not thousands, of system users” without becoming “overwhelmed by the operational aspects of the RF system” so that they can “concentrate on the substance of the calls, any one of which may be an emergency call.” Ex[1004], 9:51-53, 1:59-60, 2:43-46; Ex[1002], ¶¶145-146.

b. 1[a]

Downs+EDACS discloses “*monitoring [e.g., by dispatch console 10] media streams [e.g., continuous voice and associated data signals from talk groups sent to multisite switch 28] associated with channels [e.g., control channel and working channels] in a communication environment [e.g., the individual transmitters and channels that are being used].*”



Ex[1004], Fig. 1.

Downs acknowledged prior to the '664 Patent that, due to the “increasingly complex” nature of radio dispatch work caused by “[t]he number of radio frequency (RF) channels” having “increased substantially,” “[t]he dispatcher console must now be informed of the individual transmitters and channels that are being used, and of the status of other transmitters and receivers in the system” (*monitoring media streams associated with channels in a communication environment*). Ex[1004], 1:48-51, 2:20-23; *cf.* Ex[1001], 1:25-33. For example, Downs+EDACS discloses a trunked radio system (RF system), which includes control channels and working channels. Ex[1002], ¶¶149-150. In particular, call requests are received on an “inbound control channel” and the system “assigns the [] call to a free [working] channel” to handle the communication. Ex[1005], p.17; Ex[1002], ¶150. The working channels can have different priorities. Ex[1005], p.29 (describing assigning

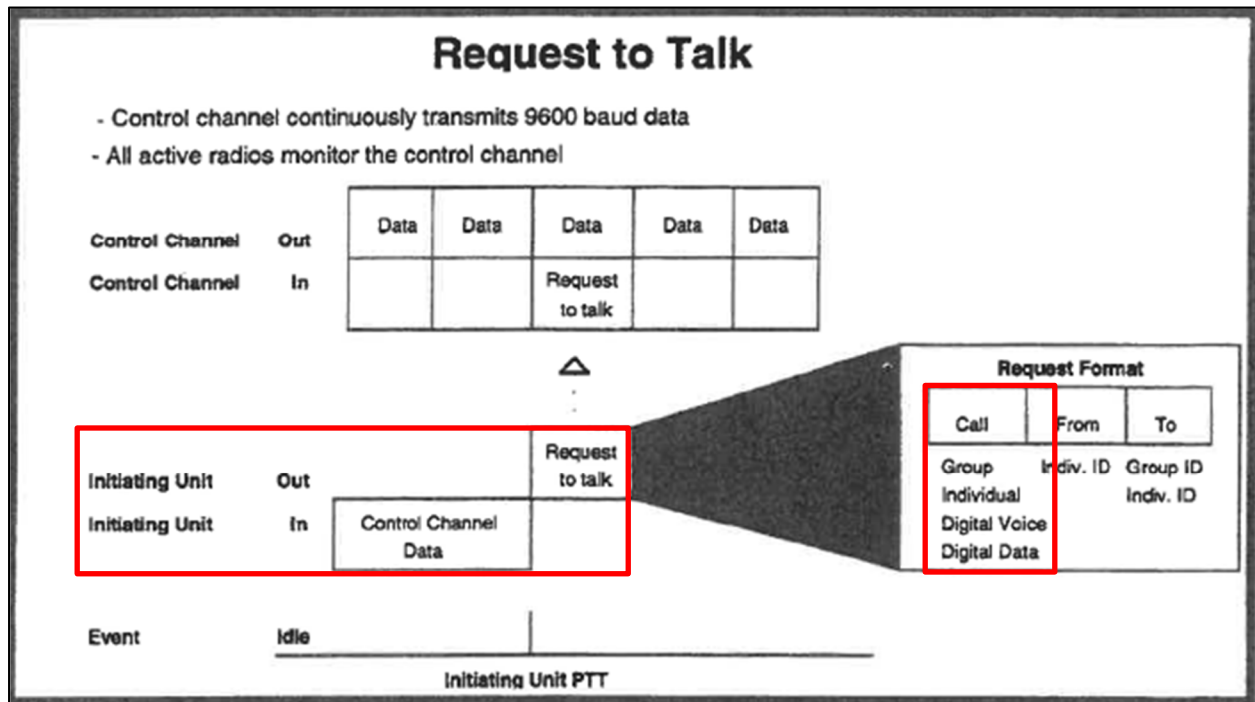
a “dedicated channel” for an emergency call); Ex[1002], ¶150.

A POSITA would have understood from Downs that “dispatcher console 10” is informed of the status of transmitters and channels (control and working) by “communicat[ing] with the RF system” “through a console interface module (CIM) (not shown) in a multisite switch 28,” which “routes audio (voice) and data signals throughout the RF system.” *Id.*, 4:18-21, 4:23-25; Ex[1002], ¶¶147-149. Downs’ system takes this information on “the individual transmitters and channels that are being used, and of the status of other transmitters and receivers in the system,” and “presents information on ongoing communications throughout the RF system and historical information on recently terminated calls...in an array of communication module windows.” Ex[1004], 2:20-23, 3:17-23. Each of these communication modules “provide call access to...entities” such as “an individual trunked radio unit...a radio *talk group*, or a conventional radio” communicating audio calls and associated data signals(*media streams*) and are “programmed by the dispatcher to represent a particular group, unit, console, channel, line, etc., that is available to the console.” *Id.*, 4:52-54, 6:21-26.

A POSITA would have understood that Downs+EDACS discloses that the dispatch console *monitors media streams* (audio talk group signals) *associated with channels* (control channel and working channels) *in the communication environment*. *Id.*, 3:4-26, 6:24-26; *see also id.*, 4:18-29, 6:19-29, 11:55-12-7, 12:15-39, 12:46-64, 13:4-14:8; Ex[1002], ¶¶151-153.

c. 1[b]

Downs+EDACS discloses “receiving an alert [e.g., Group Emergency Call Type] in one of the media streams [e.g., voice and associated data signals for a talk group sent via the control channel and working channels].”⁵



Ex[1005], Fig. 9.

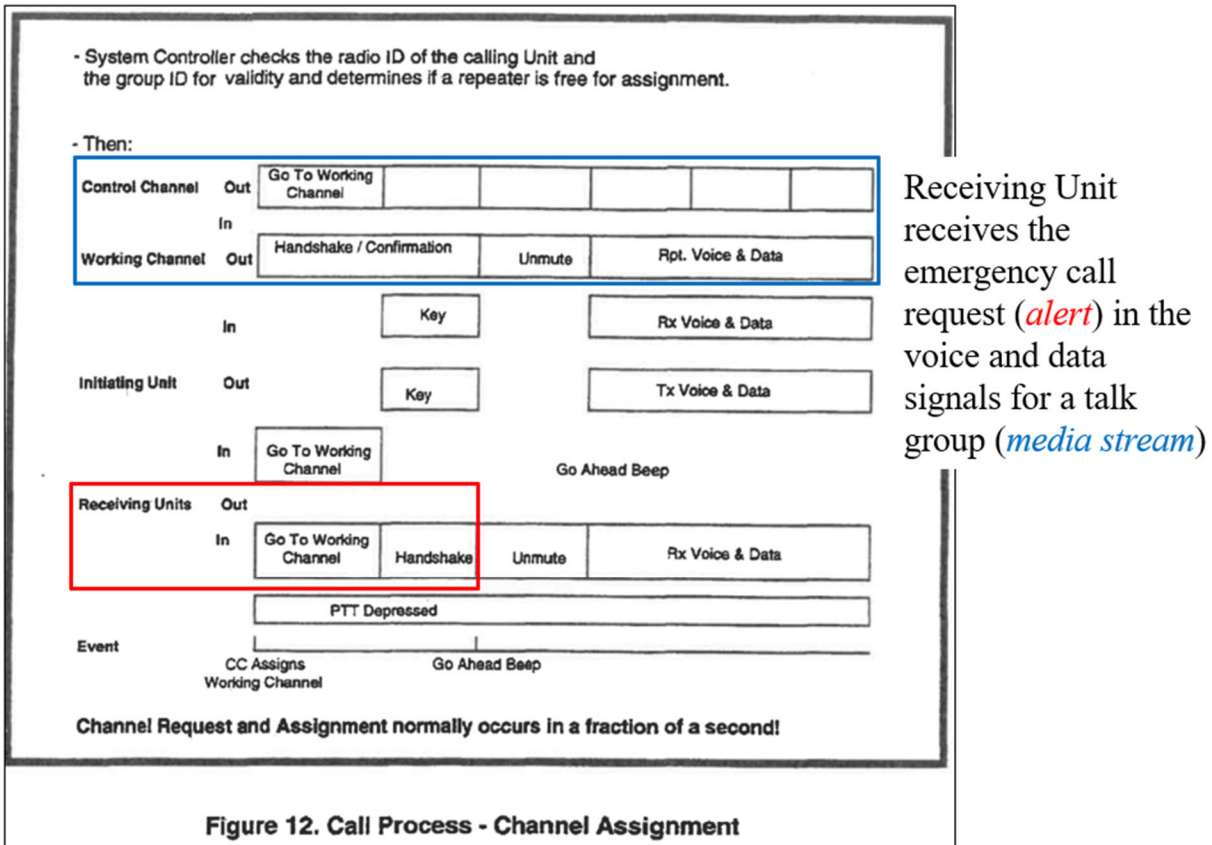
One purpose of Downs is to ensure that dispatchers are “free to concentrate on the substance of the [received] calls, any one of which may be an emergency call.”

Ex[1004], 2:44-46. Downs, however, does not explicitly disclose how its system

⁵ To the extent “receiving an alert in one of the media streams” is construed to require the alert and media stream be received on the same channel, it is rendered obvious by Ground 2. *See infra* §VII.B.2.

determines a call is an emergency call. Ex[1002], ¶¶154-156. Downs+EDACS discloses this information. *Id.*, 2:62-3:32; Ex[1015], Title; Ex[1002], ¶¶154-156.

EDACS discloses that the EDACS System “supports three communication modes and four call types,” including a “Group Emergency” call type. Ex[1005], pp.15-16. Such an emergency call “is initiated by pressing the emergency button on the radio. Once initiated, the radio immediately transmits the emergency call request on the inbound control channel” (*id.*, p.17), and the system “assigns the highest priority to the talk group[’s]” signals receiving the emergency call, (*id.*, p.43) and “assigns the emergency call to a free channel” or places it “at the ‘top of the queue’.” *Id.*, p.17. Thus, an emergency call request, corresponding to the claimed *alert*, is *received* in the data and voice signals for a talk group (*media stream*) on the inbound channels *monitored* by the dispatch console and assigned the highest priority. *Id.*, pp.43, 59, Fig. 9. “All members of the talk group are notified of the emergency condition” and begin communicating on the working channel as shown in Figure 12. *Id.*, p.43; Ex[1002], ¶157.



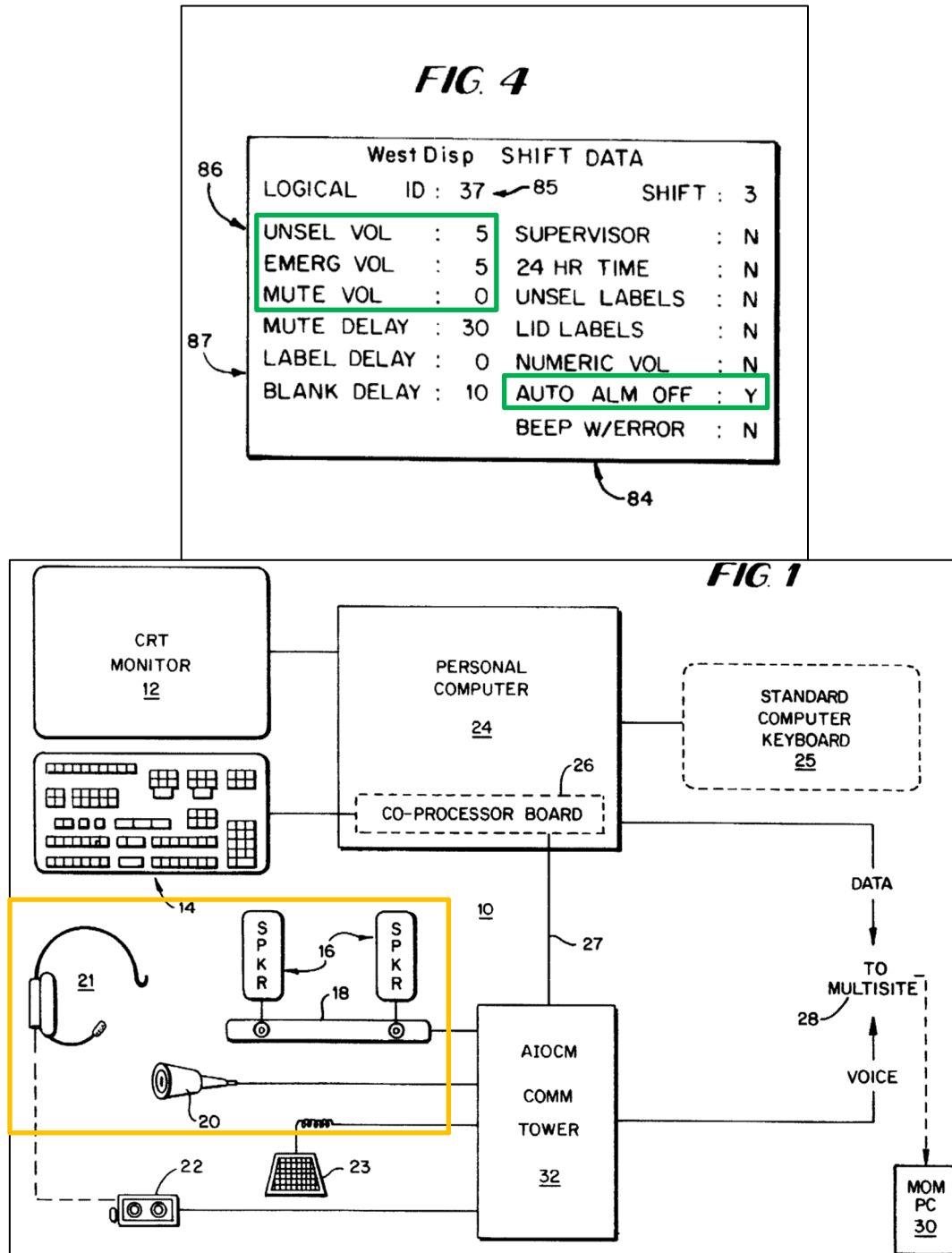
Ex[1005], Fig. 12 (annotated).

Thus, the Downs+EDACS combination discloses or at least renders obvious *receiving an alert in one of the media streams*. Ex[1002], ¶¶158-159. As discussed, a POSITA would have been motivated to combine Downs with EDACS to facilitate routing audio (voice) and data signals throughout the RF system as Downs describes. Ex[1004], 4:18-25; Ex[1002], ¶¶158-159; *supra* §VII.A.1.

d. 1[c]

Downs+EDACS discloses “*elevating a priority associated with the media stream receiving the alert, such that an adjustment is made to how the media stream is provisioned* [e.g., in response to the emergency call request in the Downs+EDACS

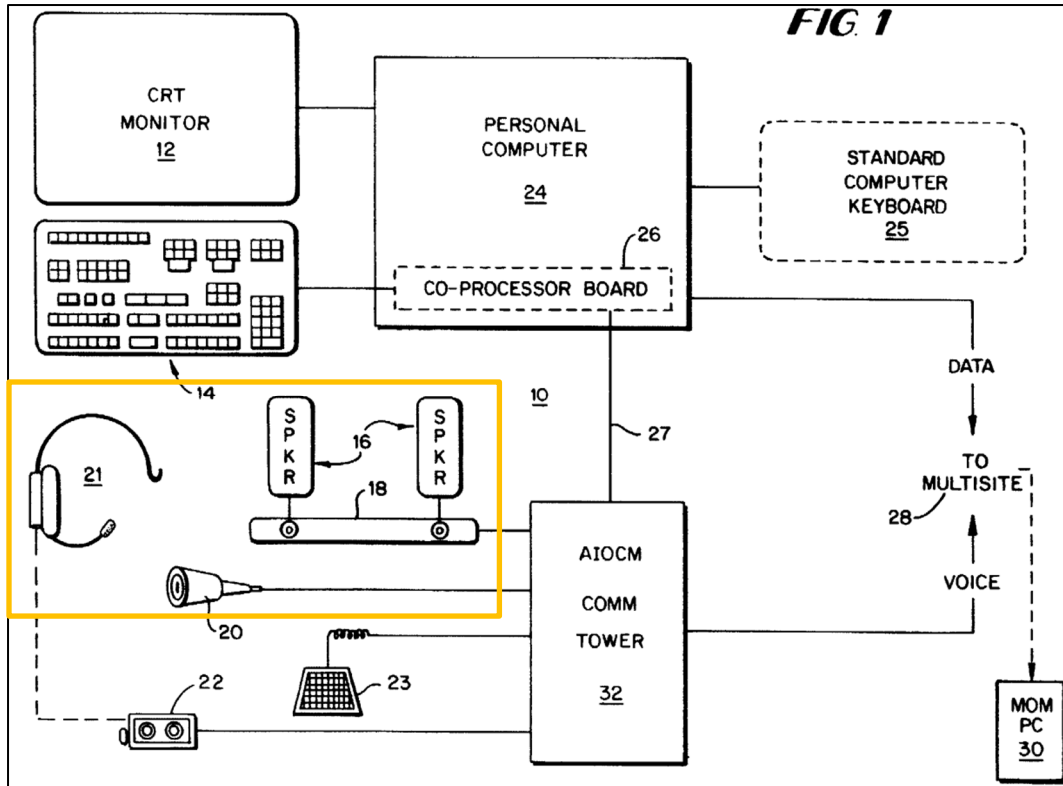
system, broadcasting at a louder volume, or changing speaker location, for the voice call] *to an endpoint in the communication environment [e.g., the dispatcher's console with speakers 16, headset 21, and microphone 20].*" Figures 1 and 4 below illustrate these aspects of Downs, as discussed below.



Ex[1004], Figs. 1, 4.

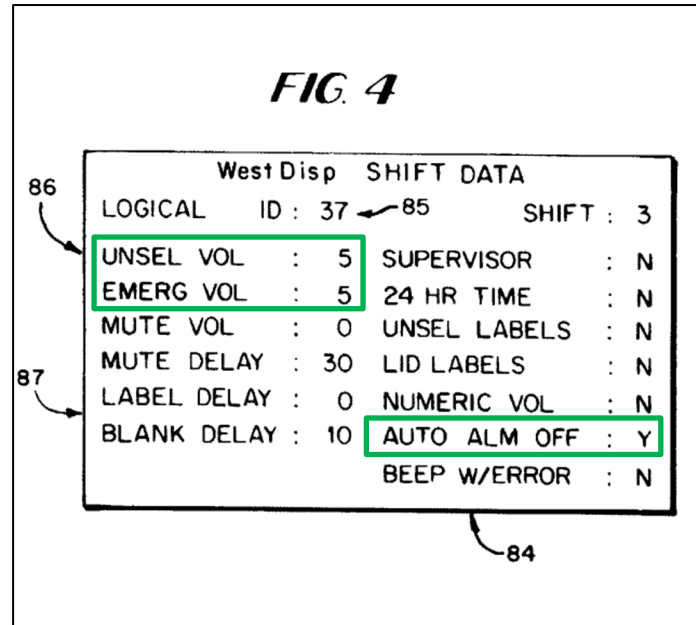
Upon receiving an emergency call request (*alert*), EDACS discloses that “[t]he system ***automatically assigns the highest priority*** to the talk group[’s]” signals (*media stream receiving the alert*). *Id.*, p.43. Thus, Downs+EDACS discloses *elevating a priority associated with the media stream receiving the alert*. Ex[1002], ¶¶160-161.

A POSITA would have understood that, in the combined system, Downs’ dispatcher console would use this priority indication to initiate a variety of both automatic and manual means to *adjust how the media stream is provisioned to an endpoint in the communication environment* to ensure that the dispatcher is aware of the alert, consistent with Downs’ teachings. Ex[1002], ¶162. For example, *adjustments* are made to the volume at which the audio from communication modules receiving emergency call requests in a talk group’s signals (*alerts in a media stream*) is *provisioned*, such that “emergency calls are broadcast louder from the dispatcher speakers than other calls” based on a pre-set emergency volume level. Ex[1004], 6:39-52; Ex[1002], ¶163. This auditory adjustment further *elevates the priority of the communication module assigned to the talk group’s signals (media stream) receiving the alert, such that* it can be clearly heard over other, lower-priority media streams through speakers 16 or headset 21, shown in Figure 1 below, used at the dispatcher console (*endpoint in the communication environment*). See Ex[1004], 3:17-25, 6:30-53, Figs. 1, 4.



Ex[1004], Fig. 1.

The “volume settings 86,” which are “set such that emergency calls are broadcast louder from the dispatcher speakers than other calls,” are one example of settings predetermined by the dispatcher and saved in a “dispatcher profile,” shown in Figure 4 below. Ex[1004], 6:47-53; *id.*, 3:17-25, 6:30-53; Ex[1002], ¶164.

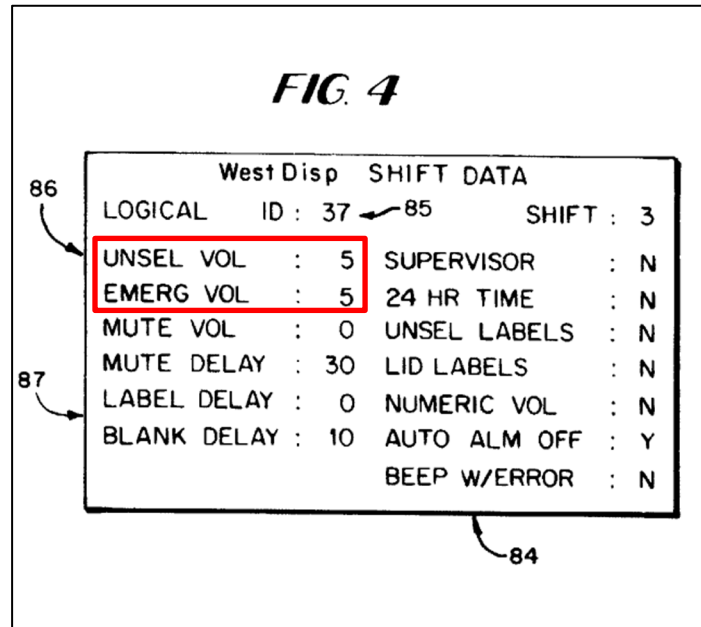


Ex[1004], Fig. 4.

In addition to pre-setting emergency volume levels, Downs also provides the dispatcher the option to manually *adjust* how a communication module assigned to the talk group's signals (*media stream*) is *provisioned* by "choos[ing] a particular communications module," such as one that has received an emergency call request (*alert*) and sending the audio from a communication module to "the select speaker," which "may be [a] headset." *Id.*, 8:40-48. This provides dispatchers with another auditory adjustment that *elevates the priority of the* communication module assigned to the talk group's signals (*media stream*) *receiving the alert*, by *adjusting* where the audio from the communication module assigned to the talk group receiving the emergency call request (*alert*) is heard by the dispatcher's console (*endpoint in the communication environment*). *Id.*, 8:40-48; Ex[1002], ¶¶165-166.

3. Claim 2

Downs discloses “*increasing the volume of the media stream receiving the alert.*”



Ex[1004], Fig. 4.

The '664 Patent discloses that “where a channel of an end-user device is set at a low priority and at a low volume” when an alert is received, “the volume of the channel is increased and/or, the system moves the channel to the high priority spatial position.” Ex[1001], 7:62-8:5. This functionality is identical to Downs’s method for handling emergency calls.

As discussed above, Downs discloses “dispatcher profile[s]” include “volume settings 86,” among “other features of the profile.” Ex[1004], 6:47-50. “The volume levels can be set such that emergency calls are broadcast louder from the dispatcher speakers than other calls.” *Id.*, 6:50-52. Therefore, just as in the '664

Patent, when an emergency call request (*alert*) is received, if the *volume* of the communication module assigned to the talk group's signals (*media stream*) receiving the *alert* is set at a low volume, the *volume* of the channel is automatically *increased* to the pre-set emergency volume level of the dispatcher's profile. Ex[1002], ¶¶167-169. Figure 4, shown above, illustrates a potential dispatcher profile, including the independent emergency volume setting option.

Therefore, Downs discloses that, upon receiving an emergency call request (*alert*), the system in Downs performs the step of automatically *elevating the priority* of that emergency call by *increasing the volume* of the communication module assigned to the talk group receiving the call in the same manner as the '664 Patent. *See also id.*, 3:17-25, 6:47-53, and Fig. 4; Ex[1002], ¶¶170-171.

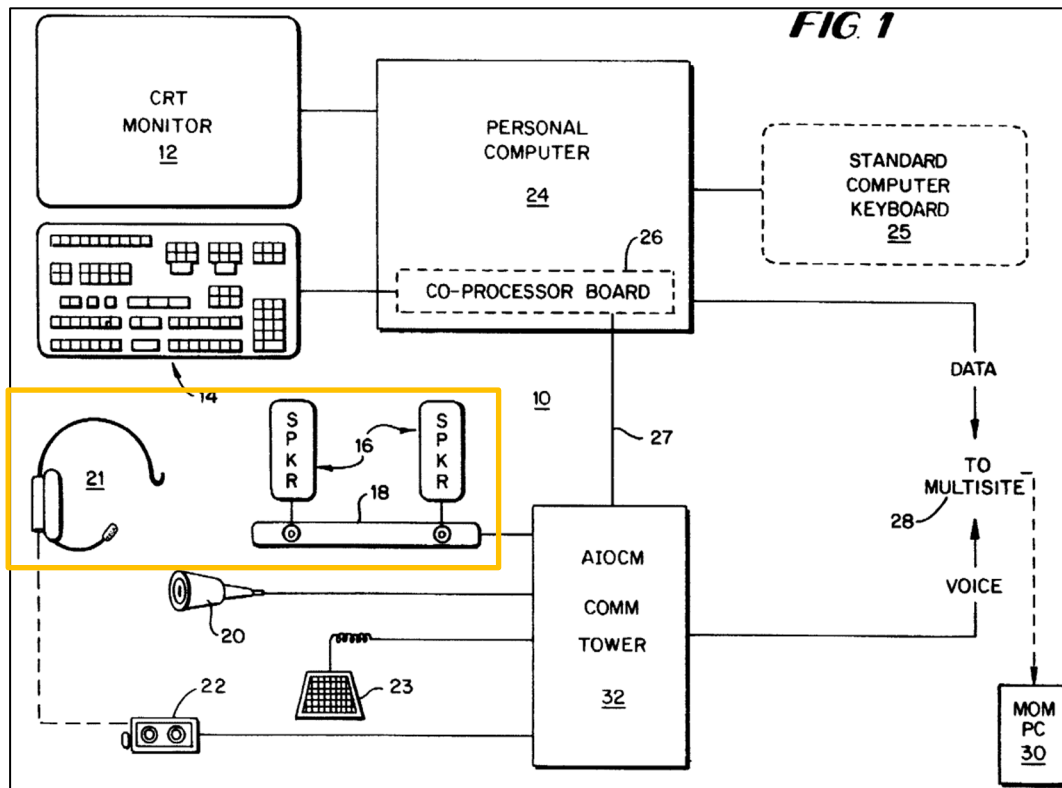
4. Claims 3 and 5

As discussed (*supra* §V), Patent Owner interprets claim 1 to require automation, whereas Petitioner interprets the plain language of the claim to encompass manual operations. Downs discloses or at least renders obvious claims 3 and 5⁶ under Petitioner's interpretation of the claims. Ex[1002], ¶¶172-176,

⁶ Patent Owner appears to construe claims 3 and 5 in nearly identical ways. Ex[1011], pp.30-31. Claim 5 recites that "changing spatial direction" of claim 3 is to a "priority spatial direction" in claim 5. "Priority spatial direction" is not described in the specification; the example of changing the "spatial direction" given in the specification is "a drop-down menu from which the user may select stereo,

179-183. To the extent claims 3 and 5 are construed to require “automatically” changing the spatial direction, it is rendered obvious by Grounds 3-4. *See infra* §VII.C.2.

Downs discloses “*changing a spatial direction [e.g., changing to one of speakers 16, 18, and headset 21] for rendering the media stream receiving the alert.*”



Ex[1004], Fig. 1.

Downs provides the dispatcher the option to “choose a particular communications module,” such as one that has received an emergency call and

left, right, or another configuration for channels,” Ex[1001], 6:57-59, which is disclosed by Downs, as explained herein. Downs, therefore, discloses the limitations of claims 3 and 5.

change the speaker to which the audio output from that module is sent. Ex[1004], 8:40-48. For example, the audio may be routed to “the select speaker” which “may be [a] headset.” *Id.*, 8:40-48. One embodiment illustrating outputs for communications module audio is shown above in Figure 1. Ex[1002], ¶¶173-174.

A POSITA would have understood that rerouting the audio from an unselect speaker to “the select speaker” or a “headset” in response to an emergency call request (*alert*) results in a *change in spatial direction for rendering the communication module assigned to the talk group’s signals (media stream) receiving the alert* because the select speaker and/or the headset would have different spatial locations relative to the dispatcher compared to the original speaker to which the audio from the communication module was routed. Ex[1004], 8:40-48; Ex[1002], ¶¶173-174. A POSITA would have understood that it would not only have been possible, but preferable, and well-known in the art, to place the speakers and headset at separate spatial locations. Ex[1002], ¶174. As evidenced by the “general human engineering criteria for design and development” published by the Department of Defense in 1999, “[i]f several channels are to be monitored simultaneously by means of loudspeakers, the speakers shall be mounted at least 10° apart in the horizontal plane.” Ex[1016], pp.ii, 49; Ex[1002], ¶174. A POSITA would also have understood that such a change would be made by the dispatcher to prioritize the communication module assigned to the talk group receiving the emergency call by routing the audio to the dispatcher’s preferred *priority spatial*

direction, as recited in claim 5. Ex[1002], ¶¶180-182.

In other words, Downs discloses that upon receiving an emergency call request, the dispatcher can select the communication module assigned to the talk group's signals receiving the alert and *change the spatial direction* of the audio output from the unselect speaker to "the select speaker" which would be the dispatcher's preferred priority spatial direction. Ex[1004], 8:40-48.

5. Claim 4

Claim 4 recites a combination of the limitations of 2 and 3, and is rendered obvious for the same reasons. *Supra* §§VII.A.3-VII.A.4. That is, Downs discloses elevating the priority by both increasing the volume of the media stream receiving the alert (*supra* §VII.A.3) and changing a spatial direction for rendering the media stream receiving the alert (*supra* §VII.A.4). Ex[1002], ¶¶177-178.

6. Claim 6

Downs+EDACS discloses "*identifying a primary channel and rendering the alert message to the primary channel.*"

As explained above, a POSITA would have been motivated to combine EDACS with Downs to further Downs' goal of providing "call information in an easy-to-comprehend manner, that can be simply configured to suit individual dispatchers." Ex[1004], 3:4-6. Since Downs does not explicitly disclose how its system receives that call information, a POSITA would have looked to EDACS. *Supra* §VII.A.1; Ex[1004], 2:62-3:32; Ex[1015], Title; Ex[1002], ¶185.

EDACS discloses that when an emergency call is “initiated, the radio immediately transmits the emergency call request on the inbound control channel” (Ex[1005], p.17), and the system “assigns the highest priority to the talk group[’s]” signals (*id.*, p.43) and “assigns the emergency call to a free channel.” *Id.*, p.17. A POSITA would have understood that the “free channel” in EDACS discloses or at least renders obvious the *primary channel* of claim 6, because, like the ’664 Patent, the “free channel” in EDACS is identified “[d]ue to the urgency of this event alert” and “the system responds by moving the alert message to the primary channel.” Ex[1001], 4:1-3; Ex[1005], pp.17, 43; Ex[1002], ¶186.

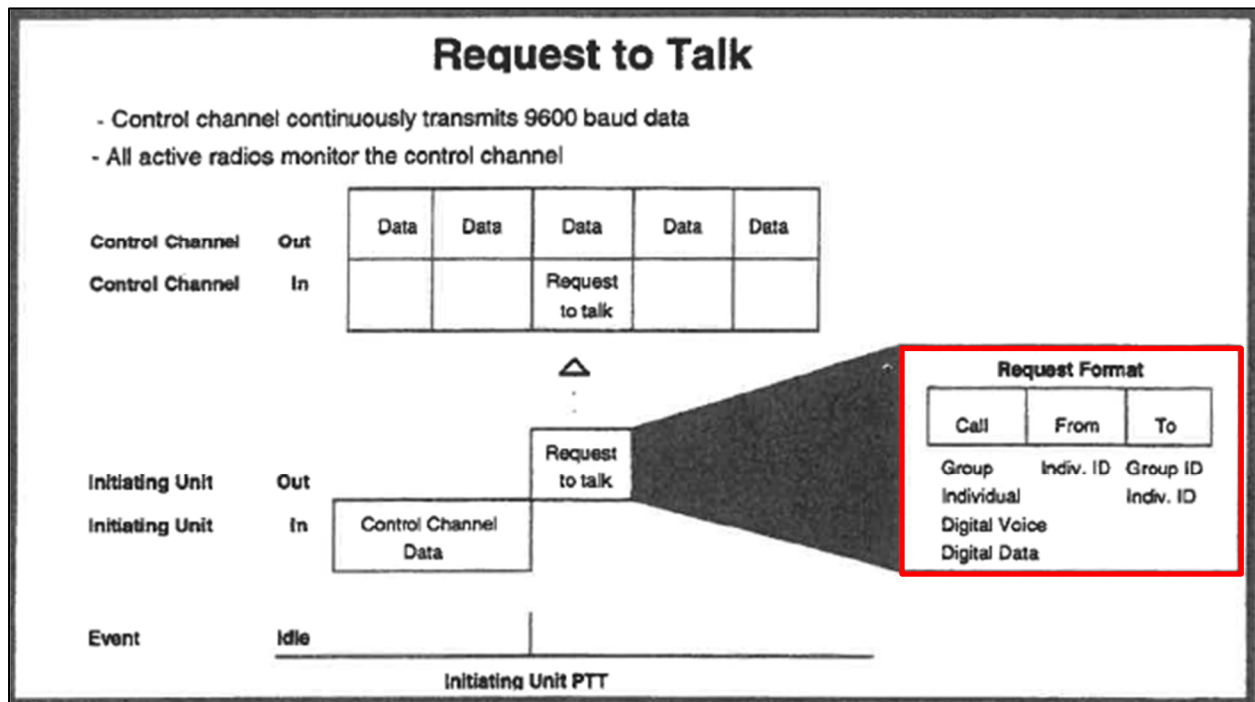
Additionally, EDACS discloses that “emergency group calls are message trunked” rather than “transmission trunked” like typical group calls. Ex[1005], p.17. “Transmission trunking means that a working channel is assigned for the duration of a caller’s transmission,” whereas message trunking “means a channel is assigned for the duration of the conversation, or emergency.” *Id.* Message trunking is “very useful to the supervisor who requires a dedicated channel while transmitting critical instructions or for emergency calls” because it “assures a dedicated channel” for these priority communications. *Id.*, p.29.

Therefore, the identified “free channel,” which is used for emergency group calls, discloses, or at least renders obvious the claimed *primary channel rendering the alert* because the message trunking “assures a dedicated channel” for these priority communications, rendering obvious this limitation. *Id.*, p.29; Ex[1002],

¶¶187-188.

7. Claim 8

Downs+EDACS discloses “the alert is received in a header of a packet of the media stream [e.g., request to talk header information shown in Fig. 9 of EDACS, below].”



Ex[1005], Fig. 9.

Downs describes routing signals but does not disclose the content of its signaling messages; a POSITA would be motivated to use the format disclosed by EDACS for those details. *Supra* §VII.A.1; Ex[1004], 2:62-3:32; Ex[1015], Title; Ex[1002], ¶190.

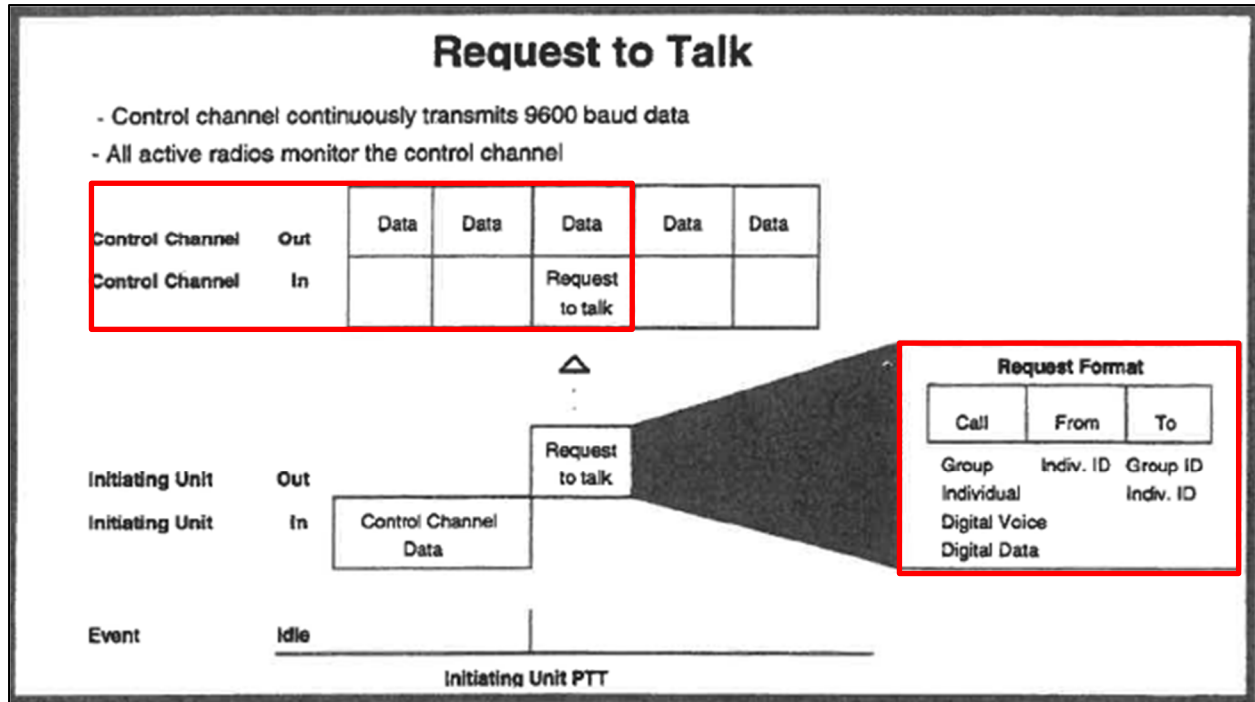
EDACS discloses that call requests are sent in the format shown above in Figure 9 and contain call type and communication mode information, followed by

the IDs of the sender, and intended destination. *Id.*, p.54. The EDACS System “supports three communication modes and four call types” including “Group”, “Group Emergency”, “Individual”, and “System All Call.” Ex[1005], pp.15-16. It would have been obvious to a POSITA to transmit the request to talk information in a packet sent on the control channel because it is a concise set of data. *Id.*, p.54; Ex[1002], ¶191. Further, a POSITA would have understood these call types are included in a *header* because they are the first piece of information sent in the “request to talk.” *Id.*, p.54; Ex[1002], ¶191.

Thus, in the Downs+EDACS combination, it would have been obvious for the dispatch console to receive a “Group Emergency” call type request (*alert*) included in the *header packet* of the call request sent on the control channel associated with the talk group’s signals (*media stream*). Ex[1002], ¶¶192-193.

8. Claim 9

Downs+EDACS discloses “*the alert is received in a control packet of the media stream [e.g., packet sent on control channel including request to talk information shown in Fig. 9 of EDACS, below].*”



Ex[1005], Fig. 9.

EDACS discloses that call requests are sent in the format shown above in Figure 9 and contain call type, including “Group Emergency,” and communication mode information, followed by the IDs of the sender and intended destination. Ex[1005], pp.15-16, 54. EDACS explains that emergency call requests are included “*on the inbound control channel.*” *Id.*, p.17. It would have been obvious to a POSITA to transmit the request to talk information in a packet on the control channel because it is a concise set of data. *Id.*, p.54; Ex[1002], ¶¶195-196. A POSITA would further have understood that this is a “*control packet*” because it is transmitted on the control channel. Ex[1002], ¶196.

Thus, it would have been obvious for a “Group Emergency” call type (*alert*) to be included in a *packet* of the call request signal sent on the control channel

associated with the talk group signals (*media stream*), which a POSITA would have understood to be a *control packet* based on the use of the inbound control channel to send the information and the impact it has on the functioning of the system. Ex[1002], ¶¶197-198.

9. Claim 11

Claim 11 is a computer-readable media claim that otherwise recites similar limitations as claim 1,⁷ and thus is obvious over the Downs+EDACS combination for the same reasons. *Supra* §VII.A.2; *Bancorp Servs., LLC, v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1277 (Fed. Cir. 2012).

To the extent the preamble is limiting, Downs discloses a “[n]on-transitory readable media that includes code for execution and when executed by a processor operable to perform operations comprising” the limitations of claim 11 (which are the same as the method of claim 1). Ex[1001], Cl.11. Downs discloses a “logic board” that “allows a standard personal computer to be converted into a dispatcher console.” Ex[1004], 4:12-13. A POSITA would have understood that a standard personal computer includes non-transitory computer readable media that includes code for execution by a processor (e.g., “logic board”) to perform operations.

⁷ The steps of claim 11 are identical to those of claim 1, except that claim 11 does not recite “such that an adjustment is made to how the media stream is provisioned to an endpoint in the communication environment.” *Compare* Ex[1001], Cl.1 with Ex[1001], Cl.11.

Ex[1002], ¶199. For example, Downs discloses that, “[i]n the preferred embodiment, the personal computer is an AT-class PC computer equipped with VGA graphics, 2 megabytes of RAM, a hard disk and a floppy disk for loading software.” Ex[1004], 3:66-4:2. As described for limitation 1[c], Downs discloses automatically increasing the volume of a communication module receiving an emergency call request to ensure that the dispatcher is alerted to the priority information in the call. §VII.A.2.d; Ex[1002], ¶199. Thus, for all of the same reasons described for claim 1, incorporated here, Downs+EDACS renders claim 11 obvious. Ex[1002], ¶200.

10. Claim 16

Claim 16 is nearly identical to claim 1. Claim 16 recites “*an apparatus, comprising: a memory element; a processor; and a management element stored in the memory element and configured to interface with the processor such that the apparatus is configured for*” performing substantially the same steps as the “*method*” in claim 1.⁸ Ex[1001], cls.1, 16; *Bancorp*, 687 F.3d at 1277. Downs discloses a “logic board” which “allows a standard personal computer to be converted into a dispatcher console.” Ex[1004], 4:12-13. A POSITA would have understood that a standard personal computer includes a memory element, a

⁸ Claim 16 does not recite “such that an adjustment is made to how the media stream is provisioned to an endpoint in the communication environment.” *Compare* Ex[1001], Cl.1 *with* Ex[1001], Cl.16.

processor, and a management element (*e.g.*, software) stored in the memory element and configured to interface with the processor. Ex[1002], ¶203. For example, Downs discloses that, “[i]n the preferred embodiment, the personal computer is an AT-class PC computer equipped with VGA graphics, 2 megabytes of RAM, a hard disk and a floppy disk for loading software.” *Id.*, 3:66-4:2. As described for limitation 1[c], Downs discloses automatically increasing the volume of a communication module receiving an emergency call to ensure that the dispatcher is alerted to the priority information in the call. §VII.A.2.d; Ex[1002], ¶203. Thus, for all of the same reasons described for claim 1, incorporated here, Downs+EDACS also renders obvious claim 16. Ex[1002], ¶204.

11. Claims 12-15 and 17-20

Claims 12-15, and 17-20 are nearly identical to claims 2-4, and 6. The only difference is that claims 12-15 depend from claim 11 and claims 17-20 depend from claim 16. Ex[1001], cls.2- 4, 6, 12-15, 17-20. Thus, for all of the same reasons described for claims 2-4, 6, 11, and 16 incorporated here, Downs and EDACS also invalidate claims 12-15 and 17-20. *Supra* §§VII.A.3-VII.A.6, VII.A.9-VII.A.10; Ex[1002], ¶¶201-202, 205-206.

B. Ground 2: Claims 1-6, 8-9, and 11-20 are obvious over Ground 1 in further view of Childress.

To the extent it is found that Ground 1 does not render obvious “*receiving an alert in one of the media streams*” as recited in claims 1, 11 and 16—*e.g.*, if

construed to require the alert and voice data be transmitted on the same channel—this limitation is rendered obvious in further view of Childress.

1. A POSITA Would Have Further Combined Ground 1 with Childress.

Childress discloses “digital control signals transmitted over a dedicated control channel” and “plural working channels” in a “trunked radio repeater system[]”, like EDACS. Ex[1031], 1:6-11; Ex[1002], ¶¶208-209.

Childress further discloses “all mobiles of the called group” receive an “emergency group call confirmation message” containing a “Message/Transmission Trunking” bit and a 12-bit “Group ID.” Ex[1031], 28:42-58.

A POSITA would have been motivated to implement this approach in the Down+EDACS combination to ensure that the combination “meets and, in many areas, surpasses all of the existing APCO-16 requirements” promulgated by the Association of Public-Safety Communications Offices, Inc., which would have provided numerous efficiency and interoperability benefits. Ex[1031], 2:29-38, 4:59-61; Ex[1002], ¶210.

A POSITA would have a reasonable expectation of success in doing so because Downs, EDACS, and Childress are all compatible with trunked radio systems. Ex[1002], ¶¶208-209.

Accordingly, a POSITA would have been motivated and able to use Childress’s “Message/Transmission Trunking” bit and 12-bit “Group ID” with the

Downs+EDACS combination. Ex[1002], ¶211.

2. “receiving an alert in one of the media streams”

Downs+EDACS in further view of Childress discloses “*receiving an alert* [e.g., Group Emergency Call Type] *in one of the media streams* [e.g., working channel data signals],” even if construed to require the alert and voice data to be transmitted on the same channel. Ex[1002], ¶¶212-215.

EDACS discloses the “Group Emergency” call type, which corresponds to the claimed *alert* and are “message trunked” rather than “transmission trunked.” *Supra* §§VII.A.2.c, VII.A.6; Ex[1002], ¶214. Childress further discloses that “all mobiles of the called group” receive an “emergency group call confirmation message” containing a “Message/Transmission Trunking” bit and a 12-bit “Group ID” on a working channel. Ex[1031], 28:42-58. Therefore, it would have been obvious to a POSITA that a single working channel with a ‘Message Trunking’ bit, or a ‘Group Emergency’ ID would indicate an *alert* to the receiving unit along with voice data for the emergency call. Ex[1002], ¶214. Indeed, the ’664 Patent explains that alert messages are “meant to connote any type of message or signal that was intended for one or more end users.” *Id.*, 7:41-43; Ex[1002], ¶214.

For all the reasons discussed above, Downs+EDACS disclose or at least render obvious each and every other limitation of claims 1-6, 8-9, and 11-12. *Supra* §VII.A.

C. Ground 3: Claims 3-5, 13, 14, 18 and 19 are obvious over Ground 1 in further view of Hancock.

1. A POSITA Would Have Combined Ground 1 or 2 with Hancock.

As described (*supra* §VII.A), the Downs+EDACS combination discloses a dispatch console that monitors multiple media streams, which are channels organized into communication modules; receives an alert (*e.g.*, emergency call request) in those communication modules; and elevates the priority of the communication module receiving the alert by (1) automatically turning up the volume and (2) allowing the dispatcher to manually determine if the audio should be sent to the select speaker or headset (*i.e.*, manually changing the “spatial direction” as recited in claims 3 and 5). Ex[1002], ¶¶216-217. Each of these adjustments is intended to ensure that the emergency call is prioritized over other incoming communications and is comprehensible over the noise of those lower priority channels. Ex[1002], ¶¶218-219. Downs, however, does not expressly disclose *automatically* changing whether the select speaker or headset renders the media stream receiving the alert. To the extent that claims 3-5, 13-14, and 18-19 are construed to require *automatically* changing the “spatial direction,” they are rendered obvious by Ground 1 in further view of Hancock.

Hancock, like Downs, discloses “radios and systems utilized by fire, police, air, military and other agencies for coordinated communications in the field.” Ex[1006], [1001]. Hancock has the same goal as Downs: ensuring “the user is able

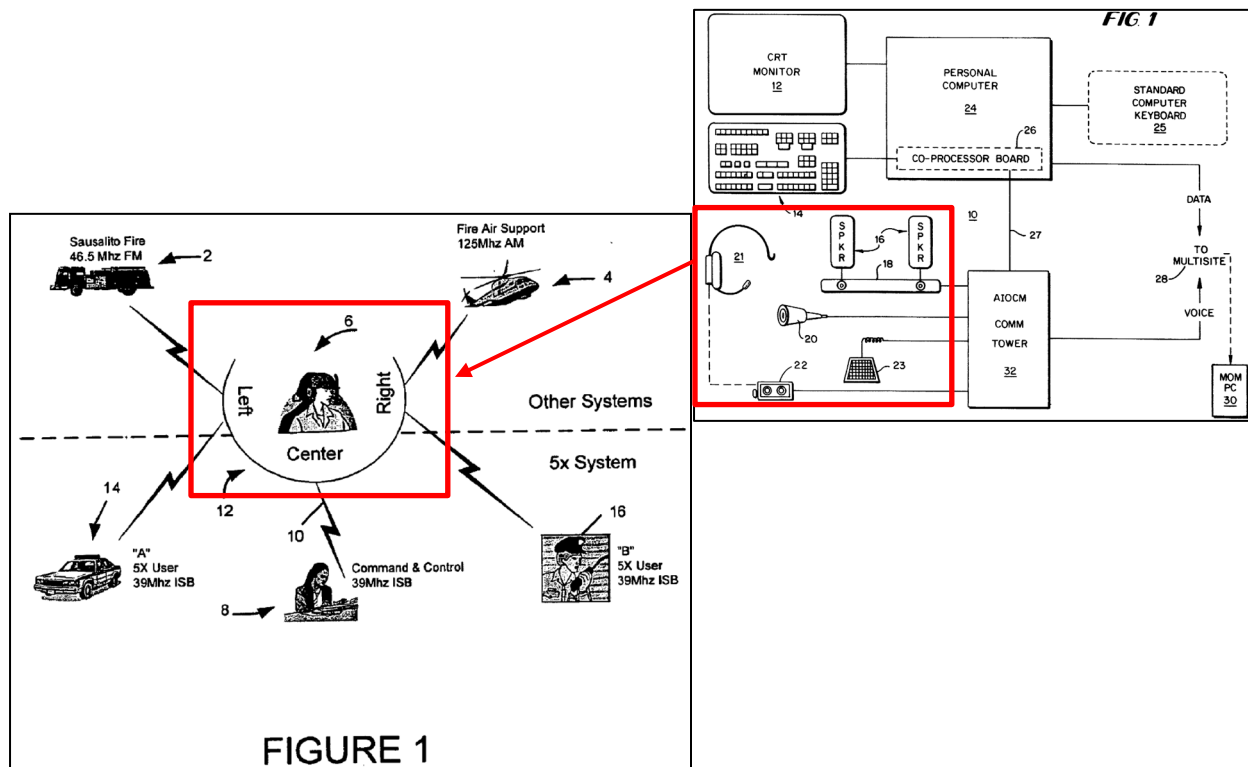
to identify the source of the received communications by the relative position of the received audio in this two dimension stereo soundfield” rather than “hearing jumbled communication from multiple agencies talking over one another.” Ex[1006], [0009]; Ex[1002], ¶20.

Hancock accomplishes this by spatially locating each received signal by “phas[ing] and/or vary[ing] the dB amplitude of the received signals to move a signal from direct left (or right) across a two-dimensional soundfield to position a received channel/frequency at locations in addition to the direct left, right or center.” *Id.*, [0009]. Hancock describes this functionality as “Psychoacoustic Spatial Presentation” which changes the spatial location “dynamically using a data broadcast on the same or additional channel.” *Id.*, [0012]. Hancock further discloses that “[a]ccording to an exemplary embodiment of the present invention, an emergency communication system is provided, which utilizes radios with headsets, headphones, earphones and/or custom audio interfaces for a minimum of two audio channels.” *Id.*, [0008]; Ex[1002], ¶221.

A POSITA would have been motivated to implement Hancock’s psychoacoustic spatial presentation in the Downs dispatch console to improve Downs’ ability to ensure the prioritization and comprehensibility of incoming emergency calls, and to increase call handling capacity and flexibility. Ex[1002], ¶222.

Downs and Hancock are in the same field of art, *e.g.*, emergency radio

communications systems. Ex[1004], 1:39-60; Ex[1006], Abstract, [0001]. Both Downs and Hancock disclose receiving and processing communications from multiple channels and distinguishing emergency alerts from other communications to ensure that a dispatcher can properly prioritize those emergency transmissions. Ex[1004], 1:59-60, 2:40-50; Ex[1006], Abstract, [0008]. Downs accomplishes this through volume changes and manual speaker reassignments, while Hancock provides implementation details for a robust spatial location system that may be operated automatically in response to an emergency transmission. Ex[1004], 6:30-52, 8:41-48; Ex[1006], [0045], [0076]-[0080].



Ex[1006], Fig. 1; Ex[1004], Fig. 1.

Accordingly, as illustrated above, it would have been within the abilities of a

POSITA to use Hancock's psychoacoustic spatial presentation with the Downs dispatch console. Ex[1002], ¶¶223-224.

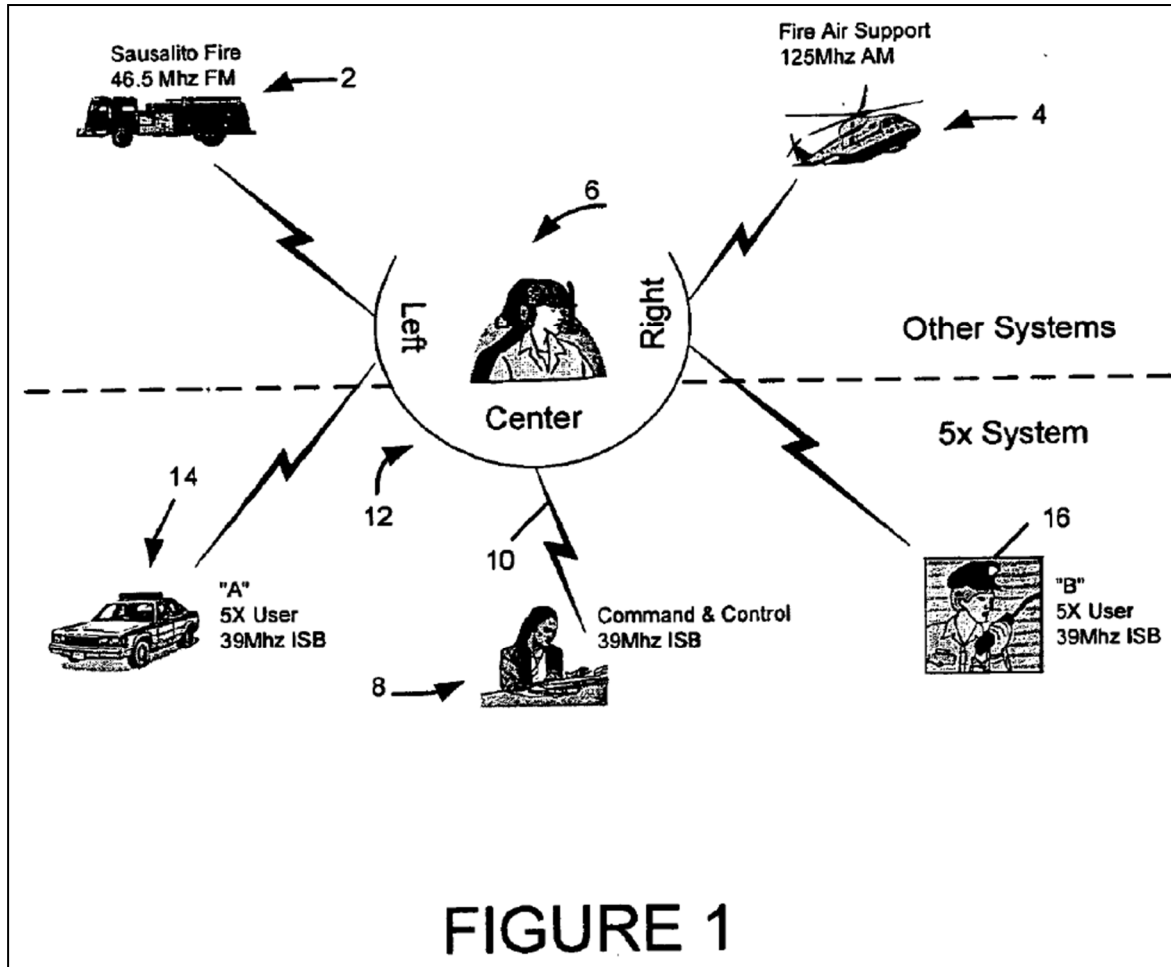
One reason a POSITA would have been motivated to combine Downs (as modified by EDACS) and Hancock is that Hancock's automated spatial location advantageously changes in response to emergency transmissions. Ex[1002], ¶225. "Using the flexibility of the psychoacoustic processing" would have improved Downs' system by addressing the problems and confusion caused by monitoring multiple simultaneous communication streams and helping the dispatcher to distinguish and prioritize emergency transmissions from the rest of the communications discussed by Downs. Ex[1006], [0024]; Ex[1002], ¶225. For example, Hancock's approach provides that "one half of a team could be located in left audio channel and the other half in the right," and "Command and Control (dispatch) could be located in the center channel (both left and right)." Ex[1006], [0024]; Ex[1004], 1:48-60, 2:40-50; Ex[1002], ¶225. Therefore the combination would provide the combined Downs+EDACS system with the same benefit of spatially "differentiating received signals whether on one or multiple channels" as disclosed in Hancock. Ex[1006], [0008]-[0013], [0045], [0076]-[0080]; Ex[1002], ¶225. In short, the combination is the use of "a known technique to address a known problem using 'prior art elements according to their established functions,'" which establishes a motivation to combine. *Intel*, 61 F.4th at 1380.

Additionally, a POSITA would have understood that implementing

Hancock’s psychoacoustic spatial presentation in the Downs dispatch console would have been a predictable combination reasonably expected to succeed. Ex[1002], ¶226. For example, Hancock discloses that “the communication system consists of one or more dispatch or command and control consoles 8 communicating with many mobile or portable communication systems.” Ex[1006], [0044]. Thus, a POSITA would have understood that Hancock’s psychoacoustic spatial presentation would be suitable for use with the dispatch console of Downs. Ex[1002], ¶¶226-227.

2. Claims 3 and 5

Hancock describes spatially locating received channel/frequency communications “at predetermined ‘ear’ locations comprising left earphone, right earphone, and both earphones (right and left) according to the source of the received communications.” *Id.*, Abstract. Hancock discloses “[a]s illustrated in FIG. 1 [shown below], command and control signals 10 are routed to the center acoustic spatial position 12, mobile communications among team members are routed to the left position, and a second police unit 16 is routed to the right” while “emergency transmissions would be routed to both ears.” *Id.*, [0045]; *see also id.*, Abstract, [0004], [0009], [0011]-[0013], [0035], [0045], [0051], [0071]-[0072], and [0076]-[0080].



Ex[1006], Fig. 1.

Changing the provisioning of a media stream from a left to a right ear (or vice versa) is what the '664 Patent describes as “changing a spatial direction” as recited in claims 3 and 5. Ex[1001], 3:59-62; 5:34-40; 5:57-62; 6:19-23; 6:57-59; Fig. 3 (No. 92); Ex[1002], ¶¶228-231. Further, A POSITA would have understood that since “emergency transmissions would be routed to both ears,” this is a “priority spatial direction” as recited in claim 5. Ex[1006], [0045]; Ex[1002], ¶¶236-240.

A POSITA would have been motivated to modify the dispatch controller of Ground 1 to, in addition to automatically increasing volume, automatically change

the output ear locations as taught by Hancock to ensure that emergency communications are heard by the dispatcher and to improve call prioritization, flexibility, quality, and capacity such as by doubling the amount of information flows a dispatcher could handle simultaneously. Ex[1002], ¶232. Thus, the combination of Downs (as modified by EDACS) and Hancock discloses or at least renders obvious *changing* the “‘ear’ locations comprising left earphone, right earphone, and both earphones (right and left)” (*spatial directions*) based on the source, or content of an incoming transmission (*media stream*). Ex[1006], Abstract. For example, when receiving “emergency transmissions” (*alerts*), the talk group’s signals receiving those transmissions (*media streams*) would be *changed* from their original spatial direction and “routed to both ears” to ensure the dispatcher can clearly comprehend these priority transmissions. *Id.*, [0045].

3. Claim 4

Claim 4 recites a combination of the limitations of 2 and 3, and thus is rendered obvious for the same reasons described above. *Supra* §§VII.A.3, VII.C.2. That is, it would have been obvious to a POSITA to combine Hancock’s technique of automatically “mov[ing] a signal from direct left (or right) (*changing a spatial direction*) across a two-dimensional soundfield” (Ex[1006], [0009]) with Downs’s automatic increase in volume levels for emergency calls as both are intended to ensure that emergency communications are heard clearly, and both techniques would work together to improve communication awareness. *Id.*, 6:50-52; Ex[1002],

¶¶234-235.

4. Claims 13-14 and 18-19

Claims 13-14 and 18-19 recite nearly identical to claims 3-4, except that they depend from claims 11 and 16, respectively. Thus, for the same reasons described for claims 3-4, 11, and 16, Ground 1 in further view of Hancock also invalidate claims 13-14 and 18-19. *Supra* §§VII.C.2-VII.C.3, VII.A.9-VII.A.10; Ex[1002],

¶¶241-243.

D. Ground 4: Claims 3-5, 13, 14, 18 and 19 are obvious over Ground 2 in further view of Hancock.

To the extent it is found that Ground 1 does not render obvious claims 1, 11 and 16 and Ground 2 is considered, claims 3-5, 13, 14, 18 and 19 are obvious over Ground 2 in further view of Hancock for the same reasons discussed above. *Supra* §VII.B, VII.C; Ex[1002], ¶¶216-243.

E. Ground 5: Claims 7 and 10 are obvious over Ground 1 in further view of Reich.

1. A POSITA Would Have Combined Ground 1 or Ground 2 with Reich.

Downs+Reich discloses turning a volume down on media streams not receiving the alert, as recited by claim 7, and duplicating the alert and rendering it at a higher volume, as recited by claim 10. Ex[1002], ¶244.

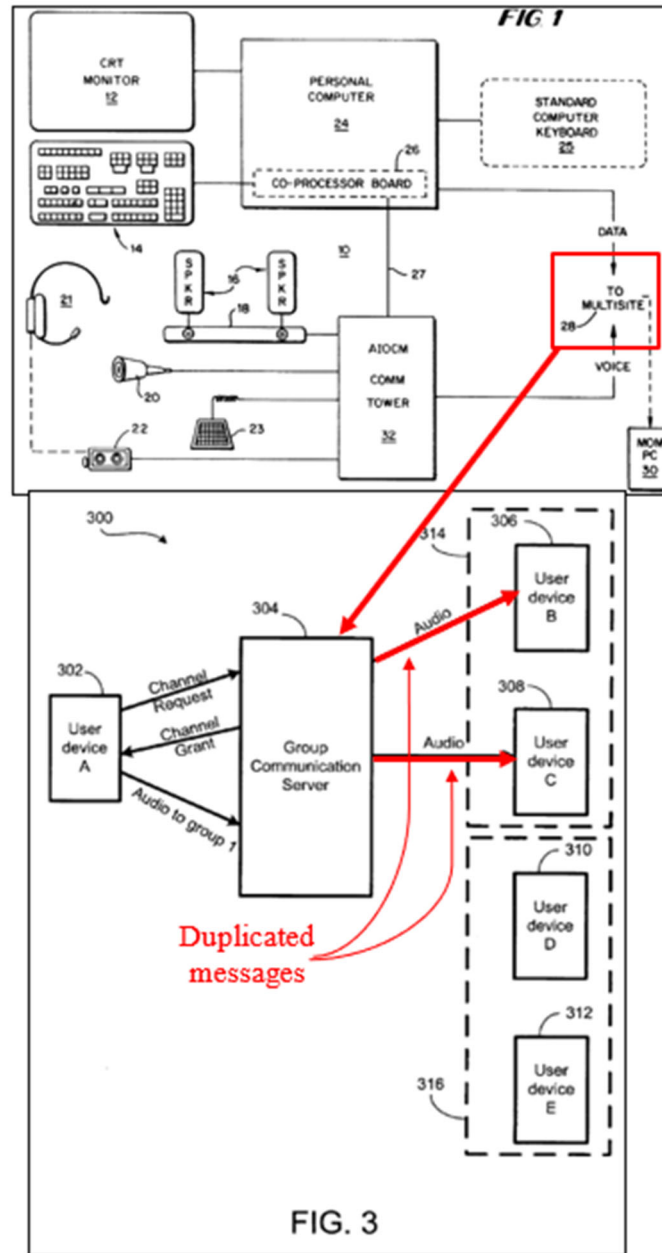
Reich, similar to Downs, discloses a “device to simultaneously monitor multiple PTT communication groups and to interrupt an incoming PTT communication with a higher priority PTT communication.” *Id.*, [0008].

Additionally, just as Downs distinguishes “emergency calls” as requiring elevated priority, Reich discloses that “[c]ommunications from a primary PTT communication group may trump communications from non-primary PTT communication groups within the devices of the group.” *Id.*, [0026]. Both Downs and Reich then modify the audio outputs of the monitored media streams to ensure that the primary emergency communication is distinguishable from the non-priority communications. Ex[1004], 6:47-52; Ex[1007], [0027]. For example, Reich “request[s] communications from a particular PTT communications group be muted, or volume significantly lessened such that the non-primary communication can still be heard faintly in the background” when a simultaneous priority communication is received. Ex[1007], [0027]; *see also id.*, [0036], [0041].

Thus, Reich provides a known technique to further address the problem of monitoring multiple simultaneous communications through volume adjustments, which furthers the stated goals of Downs. Ex[1007], [0027], [0036], [0041]; Ex[1002], ¶¶245-246. A POSITA would have understood that, in situations where speaker volumes may already be set fairly high, Reich’s disclosure of decreasing the volumes of non-priority channels would be particularly useful in the Downs system and further Downs’ goal of ensuring that the primary emergency communication is distinguishable from the non-priority communications. Ex[1007], [0027]; Ex[1002], ¶247.

Additionally, Reich teaches that a “user’s message is received by the server

and the server duplicates the message for each and every receiving party.” Ex[1007], [0005]. A POSITA would have understood that applying this technique in Downs’ multisite switch 28 would have ensured that each message handled by the multisite switch is received by every receiving party, such as additional dispatch consoles. Ex[1002], ¶248. One possible example of this integration is shown in the combined figure below.



Ex[1004], Fig. 1; Ex[1007], Fig. 3(annotated).

Therefore, a POSITA would have been motivated to modify Downs (as modified by EDACS and, optionally, Childress) to implement Reich's ability to automatically decrease the volume of non-priority messages (and place them in the background), and to duplicate messages in Downs dispatch console, to further ensure

the receipt, and appropriate prioritization and comprehensibility, of incoming emergency calls, as well as increasing flexibility and quality. Ex[1002], ¶¶248-249.

A POSITA would have understood that implementing Reich’s lowered non-priority communication volumes and message duplication functionality in the Downs dispatch console would have been a predictable combination reasonably expected to succeed. Ex[1002], ¶250. Downs and Reich are in the same field of art, *e.g.*, multi-channel radio communications systems and both disclose receiving and processing communications from multiple channels and distinguish priority messages from other communications to ensure that a user can properly prioritize those emergency transmissions. Ex[1004], 1:39-60, 2:40-50; Ex[1007], [0013], [0041]. Thus, a POSITA would have understood that Reich’s technique could be readily applied to the dispatch console of Downs (as modified by EDACS). Ex[1002], ¶249-250. It would have been well within the abilities of a POSITA to implement Reich’s volume decrease and message duplication functionality into the Downs dispatch console. Ex[1002], ¶¶250-251.

2. Claim 7

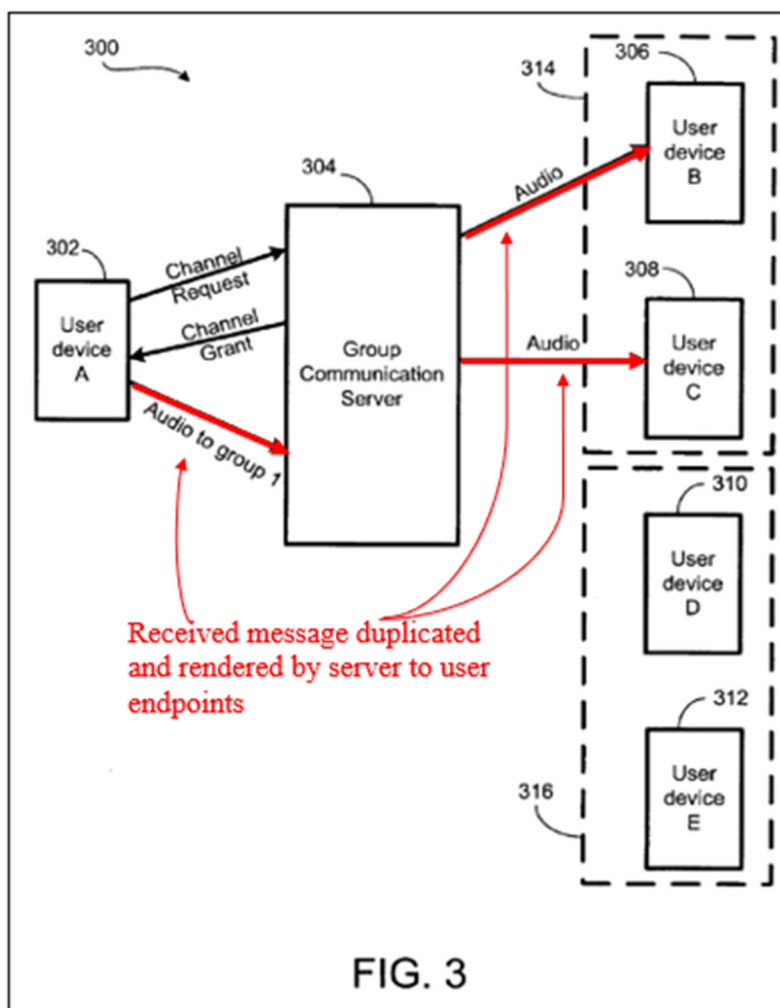
Downs+EDACS in further view of Reich disclose “*turning a volume down on media streams not receiving the alert.*”

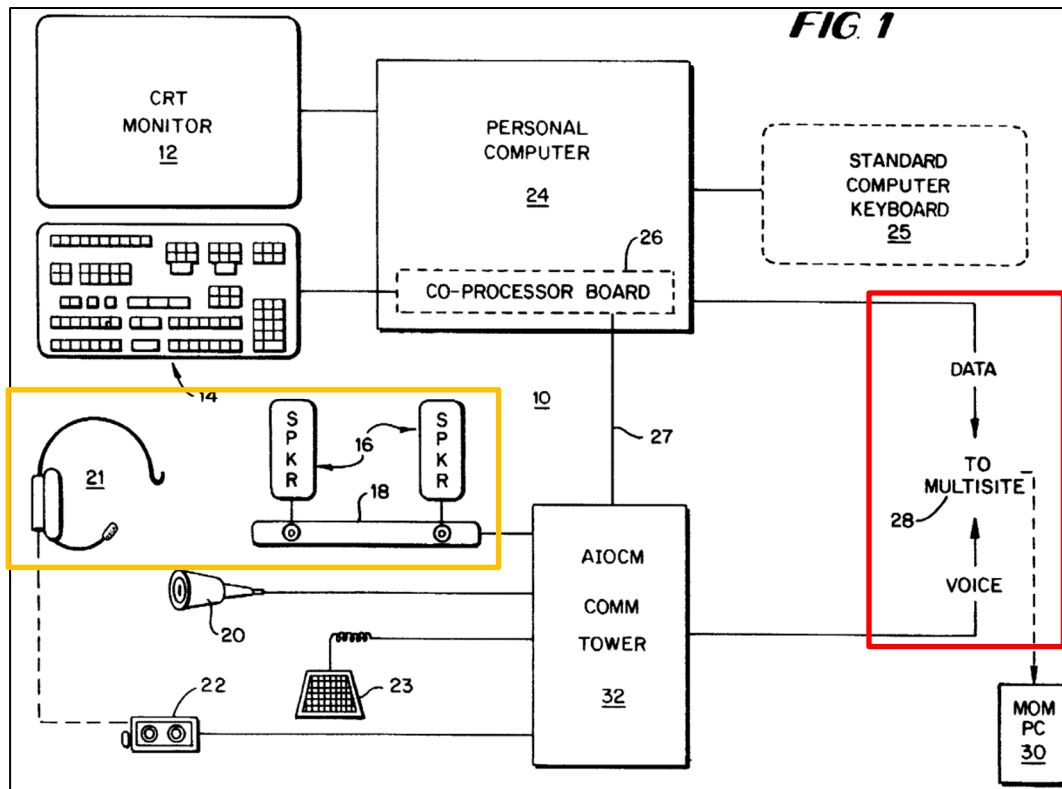
Reich teaches that “wireless handset 102 is capable of monitoring multiple PTT communication groups.” Ex[1007], [0027]. When one of the monitored communication groups receives a priority message (*alert*) the handset may “request

communications from a particular PTT communications group be muted, or ***volume significantly lessened*** such that the non-primary communication can still be heard faintly in the background.” *Id.*, [0027]. “For example, if the user is listening to conversation from a friend in his PTT friend group and a message from his boss is received, the conversation from his friend will be dropped, ***muted***, or placed ***in the background*** in favor of the message from his boss.” *Id.*, [0036]. “Alternatively, if the server is transmitting a non-primary PTT communication to a user and a primary PTT communication directed to the same user is received, the server may ***lower the volume of the non-primary PTT communication*** that is being broadcasted to the targeted user and then transmitting the incoming primary PTT communication on the top of the non-primary PTT communication. The user will then hear the primary PTT communication over a ***fainted*** non-primary PTT communication.” *Id.*, [0041]. It would have been obvious to incorporate Reich’s technique of turning a volume down on media streams not receiving the alert in the system of Downs (as modified by EDACS) to increase the likelihood that communications modules having an elevated priority are heard. Ex[1002], ¶¶252-254.

3. Claim 10

Downs+EDACS in further view of Reich disclose or at least render obvious “*the alert is duplicated* [e.g., by Group Communication Server 304 in Reich] *and rendered at a higher volume* [e.g., to speakers 16, 18, or headset 21 in Downs].”





Ex[1007], Fig. 3(annotated); Ex[1004], Fig. 1.

Reich teaches that a “user’s message is received by the server and the server *duplicates* the message for each and every receiving party.” Ex[1007], [0005]. This duplication is shown in Figure 3 above. Ex[1002], ¶¶255-257. A POSITA would have understood that applying this technique in Downs’ multisite switch 28 would advantageously ensure that each message handled by the multisite switch is received by every receiving party, such as multiple dispatch consoles. Ex[1002], ¶¶255-257.

As discussed, Downs discloses *increasing the volume of the alert*. *Supra* §VII.A.3. Therefore, Downs+EDACS in further view of Reich renders *duplicating the alert and rendering it at a higher volume* obvious.

F. Ground 6: Claims 7 and 10 are obvious over Ground 2 in further view of Reich.

To the extent it is found that Ground 1 does not render obvious claims 1, 11, and 16 and Ground 2 is considered, claims 7 and 10 are obvious over Ground 2 in further view of Reich for the same reasons discussed above. *Supra* §VII.B, VII.E; Ex[1002], ¶¶244-257.

G. Ground 7: Claims 1-2, 6-9, 11-12, 15-17, and 20 are obvious over Kim.

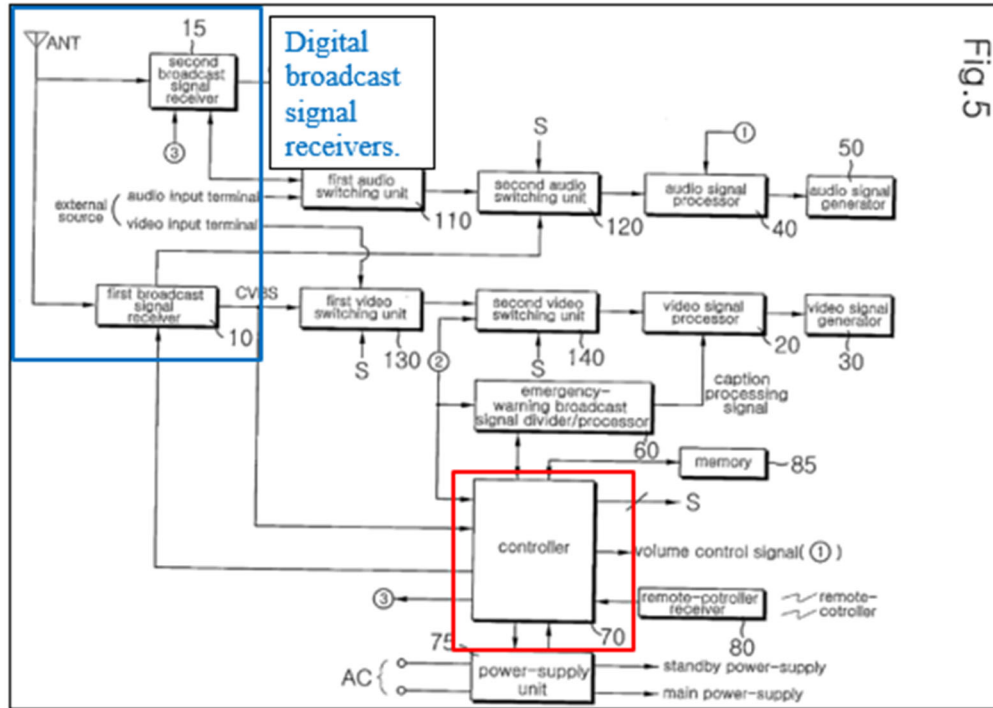
1. Claim 1

a. 1[Pre]

If the preamble is limiting, Kim discloses a “**METHOD** FOR NOTIFYING A DISASTER SITUATION” via a television set. Ex[1008], Title; Ex[1002], ¶¶259-260; *see also* Ex[1008], Abstract, 2:23-3:12, 14:7-12, 33:2-38:21.

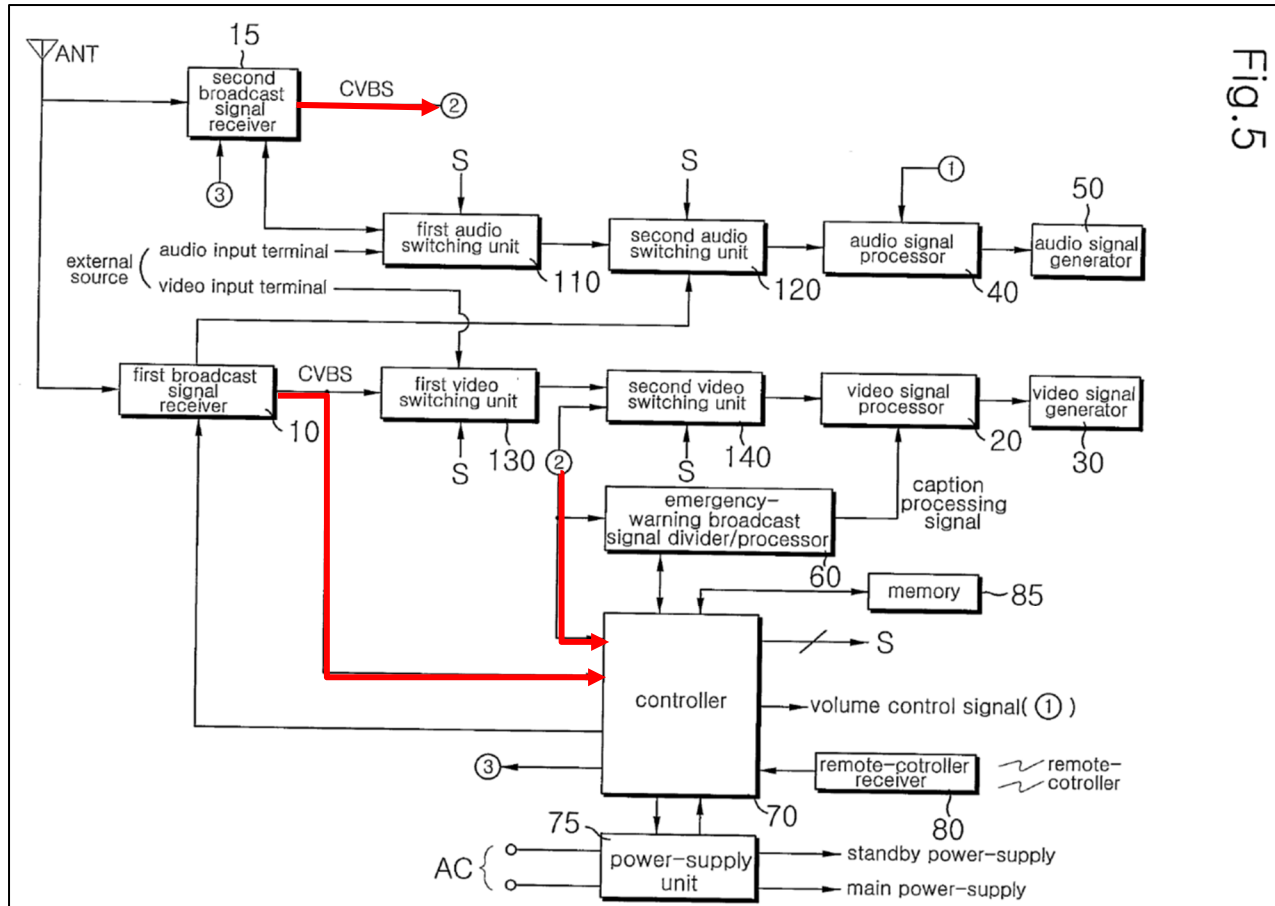
b. 1[a]

Kim discloses “*monitoring [e.g., by controller 70] media streams [e.g., digital television broadcast signals] associated with channels [e.g., channels “r” and “s”] in a communication environment [e.g., television broadcast system].*”



Ex[1008], Fig. 5(annotated).

Kim's system contains two broadcast signal receivers, 10 and 15, and controller 70, shown in Figure 5 above. Controller 70 is connected to these broadcast signal receivers, enabling it to "*monitor*[]" individual channels." *Id.*, 14:7-12. These *channels* carry "digital broadcast signal[s]" "composed of data streams," divided into "predetermined units (*i.e.*, packet[s])," and transmitted in "the divided data sections." *Id.*, 29:20-24. For example, specific channels 'r' and 's' each carry "digital broadcast data" "composed of video data, audio data, and auxiliary data (*i.e.*, emergency-warning broadcast data)," making up the *media streams* associated with their respective channels 'r' and 's'. *Id.*, 29:20-30:13. The channels have differing priority (*e.g.*, *id.*, 23:2-18) and are in a *communication environment* formed by the television broadcast system. Ex[1002], ¶¶261-264.



Ex[1008], Fig. 5.

c. 1[b]

Kim discloses “receiving an alert [e.g., emergency-warning broadcast start code] in one of the media streams [e.g., the television broadcast signal associated with channel ‘r’ or ‘s’].”

Kim discloses that “controller 70 receives an emergency-warning broadcast signal shown in Fig. 1,” reproduced below. Ex[1008], 14:13-14. This signal is added in packets to the “digital broadcast signal” (*media stream*). *Id.*, 29:20-21. An emergency-warning broadcast starts when the “emergency-warning broadcast signal is suddenly propagated” in the *media stream*, beginning with a “TV automatic

emergency-warning broadcast start” code. *Id.*, 7:7-9, 23:4-5.

Fig. 1

control code	TV automatic emergency-warning broadcast start		test code		TV automatic emergency-warning broadcast transmission time		TV automatic emergency-warning broadcast duration		The number of TV automatic emergency-warning broadcast reception areas		TV automatic emergency-warning broadcast reception area 1	
Hex	ID37	ID37			year/month/day/hour/minute	year/month/day/hour/minute	xx	xx	xx	xx	xx/xx/xx/xx	xx/xx/xx/xx
The number of bytes	2	2	1	1	5	5	1	1	1	1	4	4

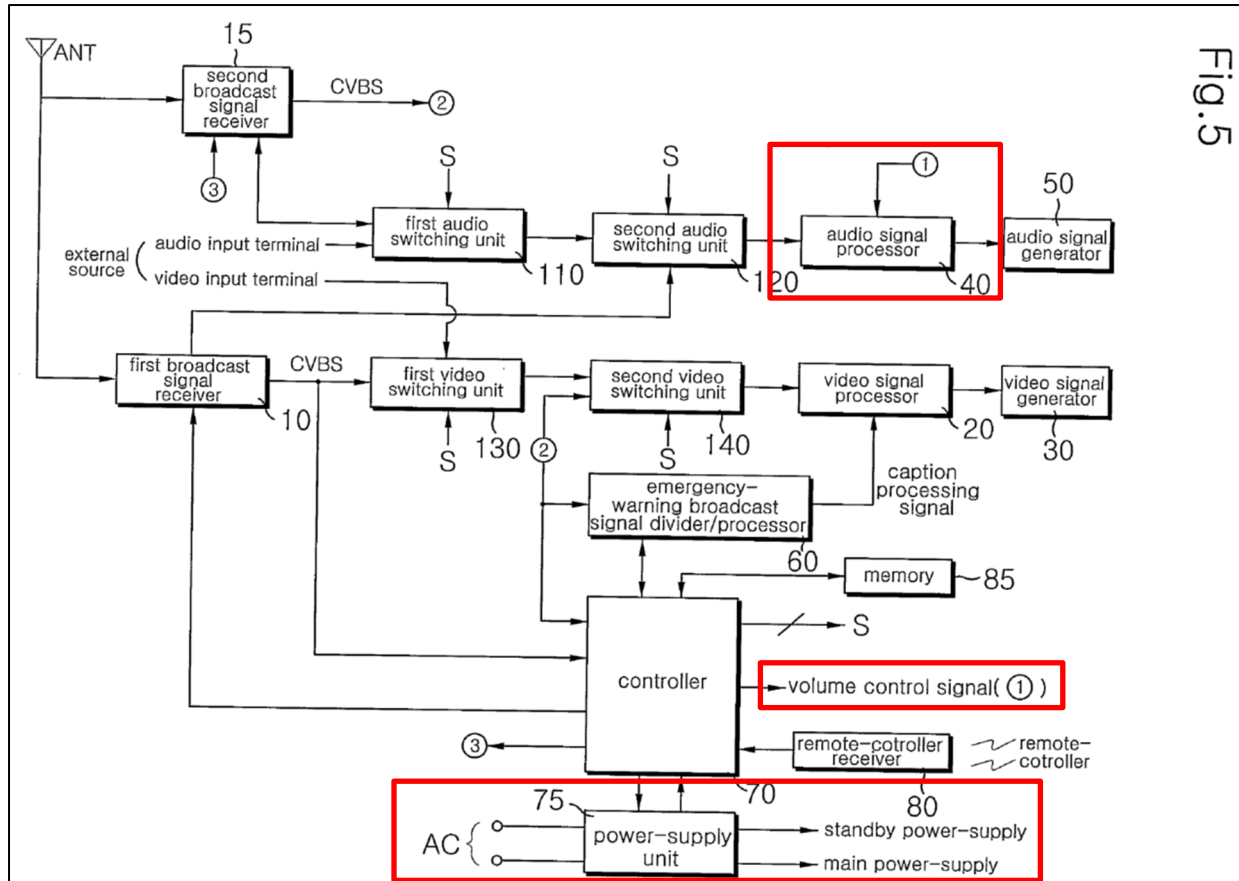
	TV automatic emergency-warning broadcast reception area 2			TV automatic emergency-warning broadcast reception area Nt		TV automatic emergency-warning broadcast reception group		TV automatic emergency-warning broadcast caption start		TV automatic emergency-warning broadcast caption data	TV automatic emergency-warning broadcast caption termination		TV automatic emergency-warning broadcast termination	
	xx/xx/xx/xx	xx/xx/xx/xx		xx/xx/xx/xx	xx/xx/xx/xx	xx	xx	ID39	ID39	text	ID3A	ID3A	ID38	ID38
	4	4		4	4	1	1	2	2		2	2	2	2

Ex[1008], Fig. 1.

Thus, Kim discloses *receiving* an emergency-warning broadcast start code (*alert*) in the digital broadcast data (*media stream*). Ex[1002], ¶¶265-267.

d. 1[c]

Kim discloses “*elevating a priority associated with the media stream [e.g., digital broadcast data] receiving the alert [e.g., emergency-warning broadcast], such that an adjustment is made to how the media stream is provisioned [e.g., adjusting volume of the media stream relative to other broadcast data via audio signal processor 40 or controlling power supply unit 75] to an endpoint in the communication environment [e.g., the viewer’s television].*”

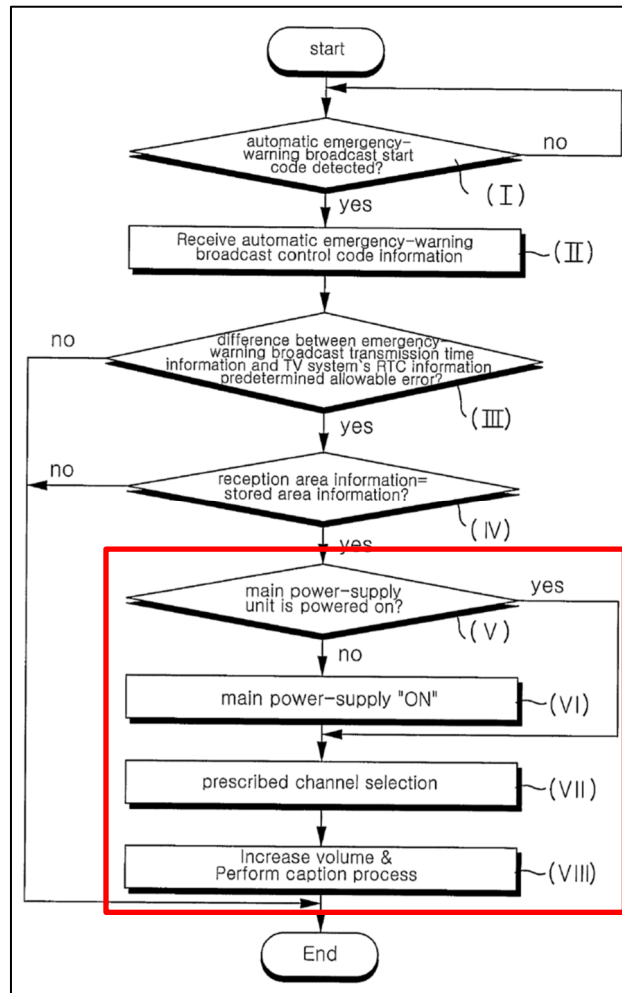


Ex[1008], Fig. 5.

To ensure that a viewer “can quickly receive the emergency-warning broadcast signal” (*alert*) whether or not the TV is off, muted, or “the TV viewer currently views and listen to a TV program of another channel” (Ex[1008], 29:16-19), Kim teaches that controller 70 makes *adjustments to how the media stream is provisioned to an endpoint in the communication environment*.

Upon receiving an emergency-warning broadcast (*alert*), controller 70 *adjusts and elevates the priority of the media stream receiving the alert* by “power[ing] the TV system on, convert[ing] a system operation mode into a TV viewing mode, and control[ing] the TV system to output broadcast data of the prescribed emergency-

warning broadcast channel in the form of AV data.” *Id.*, 26:10-14. Additionally, the controller “outputs a volume control signal to increase a volume level of the TV system.” *Id.*, 27:16-17. Controller 70 determines which of these adjustments need to be made based on the flowchart shown in Figure 3 below.



Ex[1008], Fig. 3.

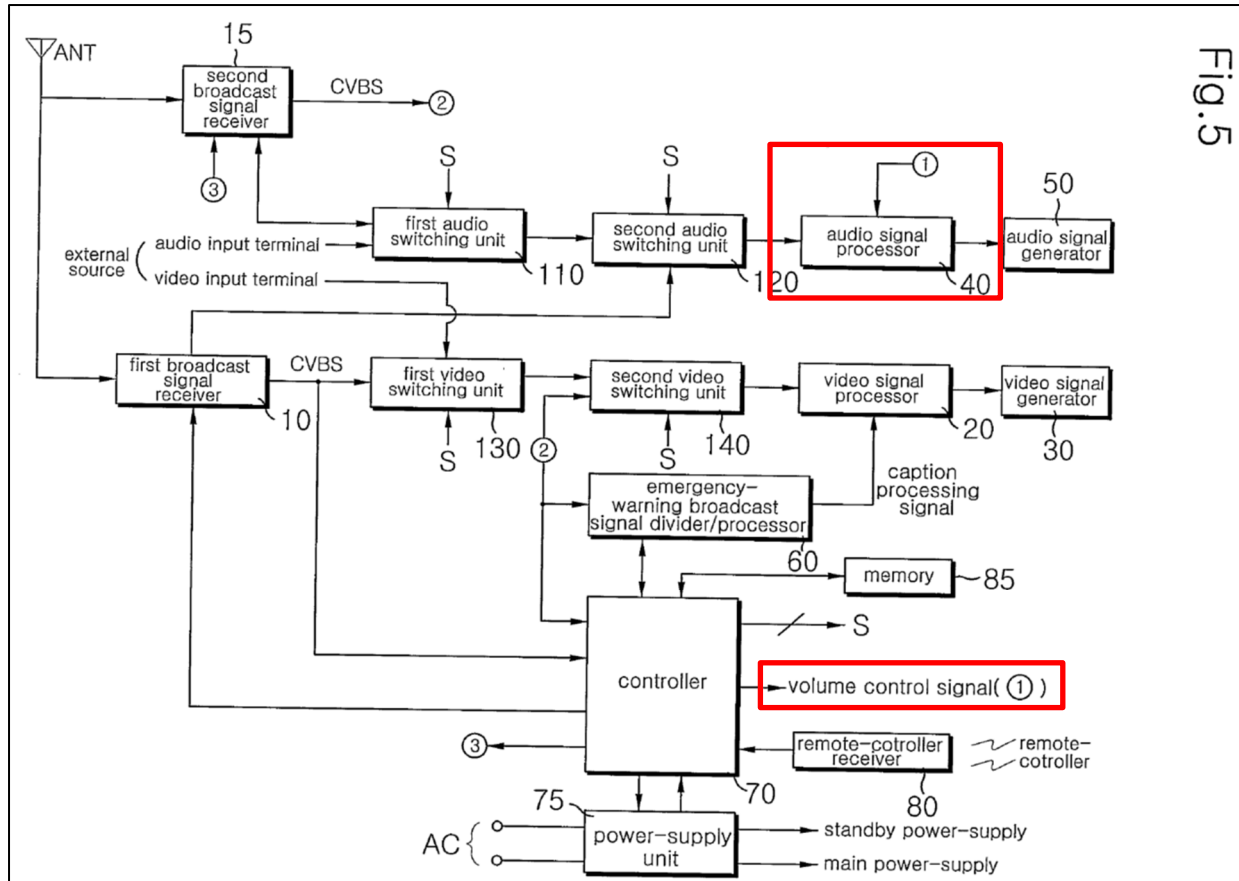
These *adjustments* to power, mode, output, and volume all serve to *elevate* the visibility (*priority*) of the digital broadcast data (*media stream*) receiving the emergency-warning information (*alert*) by *adjusting* how that broadcast (*media*

stream) is *provisioned* to the viewer's television⁹ (*endpoint in the communication environment*). Ex[1002], ¶¶268-272; Ex[1008], Abstract, 12:2-17, 16:6-14, 17:19-18:21, 19:15-20:6, 23:15-18, 26:5-17, 26:24-27:20, 29:16-19, 30:4-13, 33:22-34:8, 37:1-9, 39:9-21, 41:10-14.

2. Claim 2

Kim discloses “*increasing the volume* [e.g., adjusting volume via audio signal processor 40] *of the media stream receiving the alert.*”

⁹ The viewer's television exchanges data; it receives broadcast signals from the receivers and sends remote control signals to the receiver. *E.g.*, Ex[1008], 11:9-12; Ex[1002], ¶271.



Ex[1008], Fig. 5; Ex[1002], ¶¶273-277.

As discussed previously, to ensure that a viewer “can quickly receive the emergency-warning broadcast signal [*alert*] via a dedicated emergency-warning broadcast tuner” whether or not the TV is muted, Kim teaches *increasing the volume of the media stream receiving the alert*. *Supra* §VII.G.1.d.

3. Claim 6

Kim discloses “*identifying a primary channel [e.g., channel ‘s’] and rendering the alert message to the primary channel.*”

Kim provides that even if “the TV viewer currently views and listen to a TV program of another channel, he or she can quickly receive the emergency-warning

broadcast signal via a dedicated emergency-warning broadcast tuner.” Ex[1008], 29:16-19. For example, “[i]f the channel ‘s’ starts broadcasting an emergency-warning broadcast program” while a viewer is watching “a TV program of the channel ‘r’, the broadcasting station changes the channel code ‘r’ to the other channel code ‘s’ in such a way that it can compulsorily control the TV viewer of the channel r’ [*sic*] to view the emergency-warning broadcast program of the channel ‘s’.” *Id.*, 30:4-11. Thus, Kim discloses the ability to “freely change a current channel code to another channel code if needed.” *Id.*, 30:11-13.

A POSITA would have understood channel ‘s’ to be the *primary channel* because it is broadcasting information that takes precedence over the program being broadcast and watched on channel ‘r’, thus rendering obvious this limitation. Ex[1002], ¶¶278-281.

4. Claim 7

Kim discloses “*turning a volume down on media streams not receiving the alert.*”

Kim changes “the channel code ‘r’ to the other channel code ‘s’...to view the emergency-warning broadcast program.” Ex[1008], 30:4-13; *supra* §VII.G.3. A POSITA would have understood that changing from channel ‘r’ to ‘s’ would effectively turn the volume of channel ‘r’ to zero, thus rendering obvious this limitation. Ex[1002], ¶¶282-284.

5. Claim 8

Kim discloses “*the alert is received in a header of a packet of the media stream.*”

Kim provides that the “emergency-warning broadcast signal divider/processor” separates the “emergency-warning broadcast signal” (*alert*) “being overlapped with or inserted in reception broadcast signal” (*media stream*). Ex[1008], 3:21-4:3. This insertion is done by adding “data streams” “in predetermined units (*i.e.*, packet[s])” to the signal. *Id.*, 29:20-21; *see also id.*, 3:19-4:11, 29:20-24, 6:16-7:6, 29:20-30:13.

Figure 1 below depicts an example of an “emergency-warning broadcast signal” broken into its “predetermined units (*i.e.*, packets).” *Id.*, 3:21-4:3, 29:20-21. The first packet sent (*i.e.*, the *header packet*) of this digital data signal is a “TV automatic emergency-warning broadcast start” code. *Id.*, 7:7-9. “If the emergency-warning broadcast start information is detected, it is determined that the emergency-warning broadcast signals are currently propagated.” *Id.*, 7:9-11; Ex[1002], ¶¶285-289.

Fig. 1

control code	TV automatic emergency-warning broadcast start		test code		TV automatic emergency-warning broadcast transmission time		TV automatic emergency-warning broadcast duration		The number of TV automatic emergency-warning broadcast reception areas		TV automatic emergency-warning broadcast reception area 1	
Hex	ID37	ID37			year/month/day/hour/minute	year/month/day/hour/minute	xx	xx	xx	xx	xx/xx/xx/xx	xx/xx/xx/xx
The number of bytes	2	2	1	1	5	5	1	1	1	1	4	4

TV automatic emergency-warning broadcast reception area 2			TV automatic emergency-warning broadcast reception area Nt	TV automatic emergency-warning broadcast reception group		TV automatic emergency-warning broadcast caption start		TV automatic emergency-warning broadcast caption data	TV automatic emergency-warning broadcast caption termination	TV automatic emergency-warning broadcast termination			
xx/xx/xx/xx	xx/xx/xx/xx		xx/xx/xx/xx	xx/xx/xx/xx	xx	xx	ID39	ID39	text	ID3A	ID3A	ID38	ID38
4	4		4	4	1	1	2	2		2	2	2	2

Ex[1008], Fig. 1.

Thus, Kim discloses *receiving* an emergency-warning broadcast start code (*alert*) in a *header packet* to indicate an emergency-warning broadcast in a digital broadcast signal composed of data streams (*media stream*).

6. Claim 9

Kim discloses “*the alert is received in a control packet of the media stream.*”

Kim discloses *receiving* an emergency-warning broadcast start code (*alert*) in a *packet* to indicate an emergency-warning broadcast in a digital broadcast signal (*media stream*). *Supra* §VII.G.5. This alert packet contains “data with emergency-warning broadcast control information” (*control packet*). Ex[1008], 3:21-4:3. These “control codes” are shown in Figure 1 below. *Id.*, 5:6-8.

Fig. 1

control code	TV automatic emergency-warning broadcast start		test code		TV automatic emergency-warning broadcast transmission time		TV automatic emergency-warning broadcast duration		The number of TV automatic emergency-warning broadcast reception areas		TV automatic emergency-warning broadcast reception area 1	
Hex	ID37	ID37			year/month/day/hour/minute	year/month/day/hour/minute	xx	xx	xx	xx	xx/xx/xx/xx	xx/xx/xx/xx
The number of bytes	2	2	1	1	5	5	1	1	1	1	4	4

TV automatic emergency-warning broadcast reception area 2			TV automatic emergency-warning broadcast reception area Nt		TV automatic emergency-warning broadcast reception group		TV automatic emergency-warning broadcast caption start		TV automatic emergency-warning broadcast caption data	TV automatic emergency-warning broadcast caption termination		TV automatic emergency-warning broadcast termination	
xx/xx/xx/xx	xx/xx/xx/xx		xx/xx/xx/xx	xx/xx/xx/xx	xx	xx	ID39	ID39	text	ID3A	ID3A	ID38	ID38
4	4		4	4	1	1	2	2		2	2	2	2

Ex[1008], Fig. 1.

Thus, Kim discloses that these *control packets* containing the emergency *alert* are overlapped with or inserted into the transmission of the *media stream* and then received by “the emergency-warning broadcast signal divider/processor 60.” *Id.*, 23:7-8; Ex[1002], ¶¶291-294.

7. Claim 11

Claim 11 is a computer-readable media claim that otherwise recites similar limitations as claim 1,¹⁰ and thus is obvious over Kim for the same reasons. *Supra*

¹⁰ The steps of claim 11 are identical to those of claim 1, except that claim 11 does not recite “such that an adjustment is made to how the media stream is provisioned to an endpoint in the communication environment.” *Compare* Ex[1001], Cl.1 with Ex[1001], Cl.11.

§VII.G.1; *Bancorp* 687 F.3d at 1277.

To the extent the preamble is limiting, Kim discloses a “[n]on-transitory readable media that includes code for execution and when executed by a processor operable to perform operations comprising” the limitations of claim 11 (which are the same as the method of claim 1). Ex[1001], Cl.11. Kim discloses “emergency-warning broadcast signal divider/processor 60” and “[c]ontroller 70 controls” this processor “on the basis of control program data stored in a memory 85.” Ex[1008], 11:25-12:2; 23:2-14. A POSITA would have understood that memory 85’s control program data *includes code for execution by a processor to perform operations*. Ex[1002], ¶295.

Kim discloses automatically increasing the volume of a broadcast signal receiving an emergency-warning broadcast, among other adjustments, to ensure that the viewer is alerted to the priority information in the broadcast. *Supra* §VII.G.1.d. Thus, for all of the same reasons described for claim 1, incorporated here, Kim renders claim 11 obvious. Ex[1002], ¶296.

8. Claim 16

Claim 16 is nearly identical to claim 1. Claim 16 recites “*an apparatus, comprising: a memory element; a processor; and a management element stored in the memory element and configured to interface with the processor such that the apparatus is configured for*” performing substantially the same steps as the

“*method*” in claim 1.¹¹ Ex[1001], cls.1, 16; *Bancorp*, 687 F.3d at 1277. Kim discloses “a television (TV) apparatus” controlled by “[c]ontroller 70...on the basis of control program data stored in a memory 85.” Ex[1008], 11:25-12:2; 23:2-14; *see also id.*, cls.14-19. A POSITA would have understood that the Kim system includes a memory element (memory 85), a processor (controller 70), and a management element (control program data) stored in the memory element and configured to interface with the processor. Ex[1002], ¶299.

Kim discloses automatically increasing the volume of a broadcast signal receiving an emergency-warning broadcast, among other adjustments to ensure that the viewer is alerted to the priority information in the broadcast. *Supra* §VII.G.1.d. Thus, for all of the same reasons described for claim 1, incorporated here, Kim also renders claim 16 obvious. Ex[1002], ¶300.

9. Claims 12, 15, 17, and 20

Claims 12 and 17, are nearly identical to claim 2, and claims 15 and 20 are nearly identical to claim 6. The only difference is that claims 12 and 15 depend from claim 11 and claims 17 and 20 depend from claim 16. Ex[1001], cls.2, 6, 12, 15, 17, 20. Thus, for all of the same reasons described for claims 2, 6, 11, and 16 incorporated here, Kim also invalidates claims 12, 15, 17, and 20. *Supra*

¹¹ Claim 16 does not recite “such that an adjustment is made to how the media stream is provisioned to an endpoint in the communication environment.” *Compare* Ex[1001], Cl.1 *with* Ex[1001], Cl.16.

§§VII.G.2-VII.G.3, VII.G.7-VII.G.8; Ex[1002], ¶¶297-298, 301.

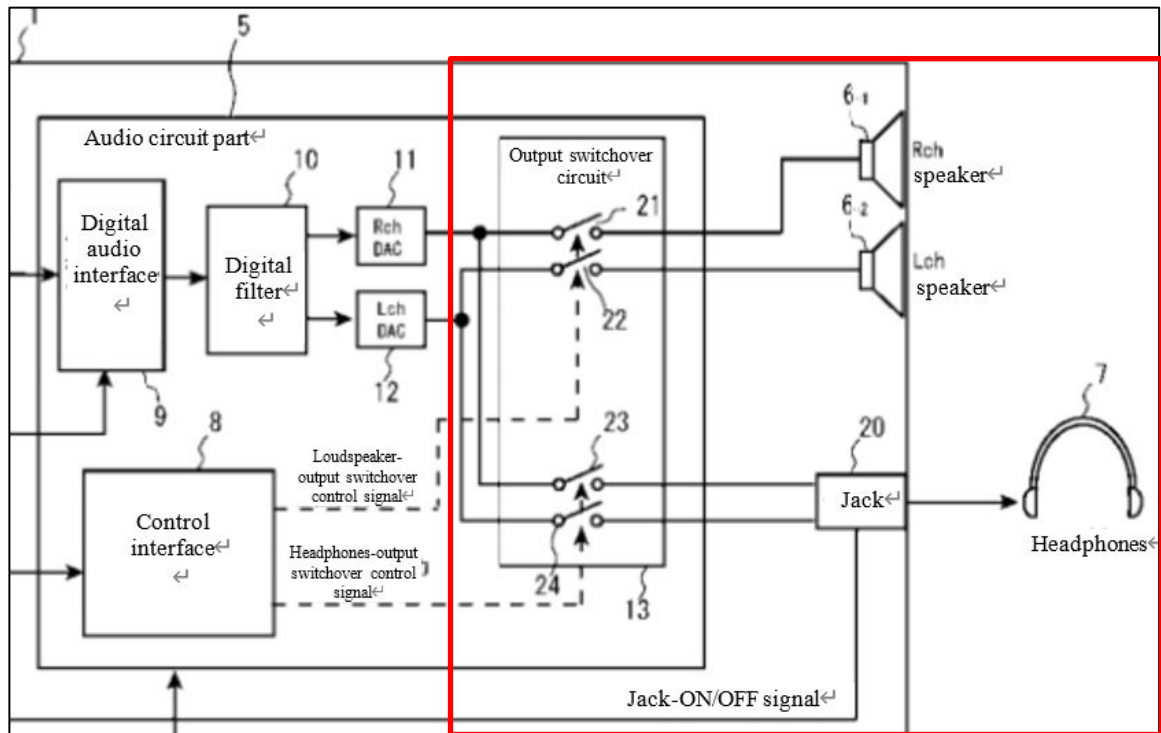
H. Ground 8: Claims 3-5, 13-14, and 18-19 are obvious over Ground 7 in view of Ishibashi.

1. A POSITA Would Have Combined Ground 7 with Ishibashi.

A POSITA would have been motivated to combine, and would have reasonably expected success in combining Kim and Ishibashi to arrive at Claims 3-5, 13-14, and 18-19 of the '664 Patent. Ex[1002], ¶302. Kim and Ishibashi are in the same field of endeavor as each other and the '664 Patent, *e.g.*, emergency communication systems. Ex[1001], 1:18-32; Ex[1008], Abstract, 1:3-9; Ex[1009], Title, [0001]; Ex[1002], ¶303. Both Kim and Ishibashi provide a method and apparatus for notifying a viewer of a disaster situation via a television that receives emergency warning information from a broadcast station. Ex[1008], Title, 3:19-4:11; Ex[1009], [0001]-[0002], [0004]. Additionally, Kim and Ishibashi are directed to similar problems regarding ensuring the warning information is conveyed to the viewer. Ex[1008], 2:10-4:25; Ex[1009], [0004]-[0005]; Ex[1002], ¶304.

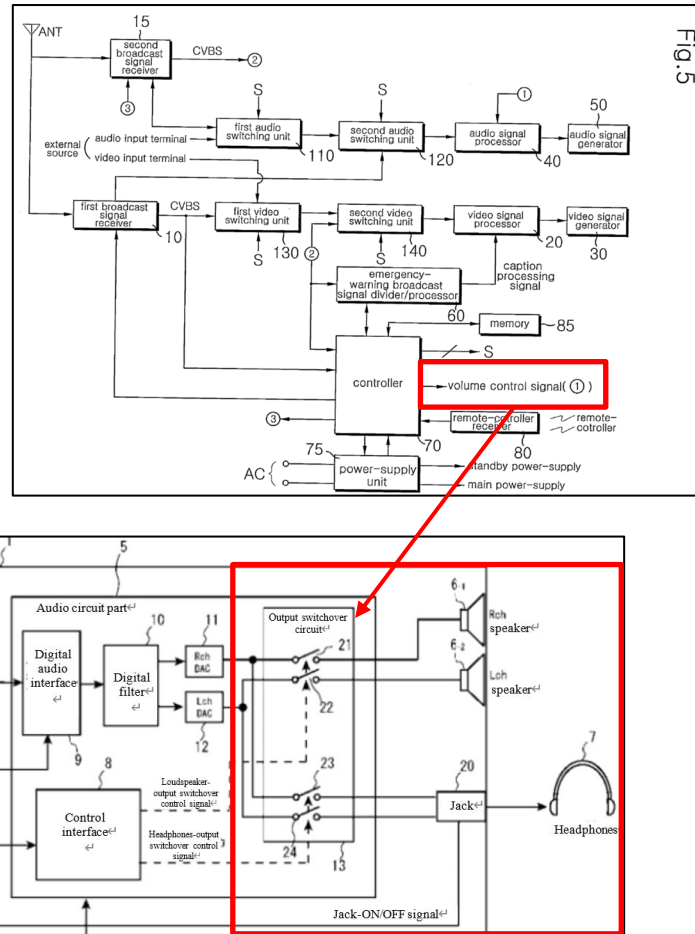
Kim recognizes that a goal of emergency warning broadcast systems is to ensure that the viewer receives the emergency warning information. Ex[1008], 3:13-19; Ex[1002], ¶304. Ishibashi discloses that problems can arise, for example, “when the audience has forgotten to unplug their headphones or earphones from the jack,” thus potentially preventing the viewer from hearing the audio portion of the warning. Ex[1009], [0005]. Ishibashi solves this problem by use of an “output-

switchover circuit” which “switches the output of audio signals to loudspeaker 6.” *Id.*, [0015]. According to Ishibashi, this ensures that sound is output from “at least the loudspeaker 6 during the broadcasting of an emergency-alert.” *Id.*, [0017].



Ex[1009], Fig. 1(excerpt).

A POSITA would have been motivated to implement Ishibashi’s audio output-switchover circuit in Kim’s controller system, as shown in the combined figure below, to ensure that an emergency warning broadcast is received by the viewer even in situations where a headphone jack is left plugged in but unattended (e.g., not being worn) by the viewer. Ex[1002], ¶305.



Ex[1008], Fig. 5; Ex[1009], Fig. 1(excerpt).

A POSITA would have understood implementing Ishibashi's audio output-switchover circuit as another option for Kim's controller unit would have been a predictable combination of known techniques reasonably expected to succeed because both Kim and Ishibashi disclose emergency warning notification systems focused primarily on televisions, and the audio output-switchover circuit had already been implemented in Ishibashi's system. Ex[1002], ¶306. It would have been within the abilities of a POSITA to implement Ishibashi's audio-output switchover circuit in Kim, and a POSITA would have understood that the combination would

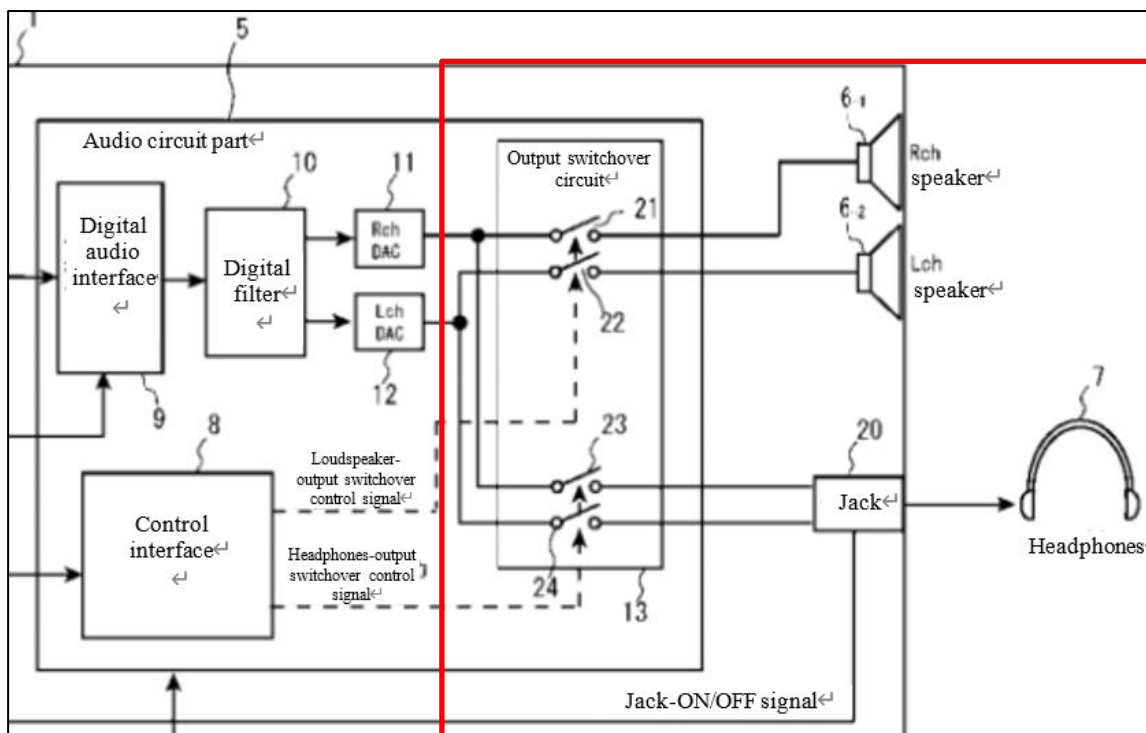
have provided Ishibashi's benefit of alerting the viewer to Kim's system, even if the user left their headphones plugged in. Ex[1002], ¶306.

Therefore, a POSITA would be both motivated, and able, to combine Kim and Ishibashi with an expectation of success. Ex[1002], ¶307.

2. Claims 3 and 5

Kim+Ishibashi discloses or at least renders claims 3 and 5¹² obvious.

Kim+Ishibashi discloses “*changing a spatial direction [e.g., from headphones to speakers] for rendering the media stream receiving the alert.*”



Ex[1009], Fig. 1(excerpt).

¹² *Supra* note 6. “Priority spatial direction” is disclosed by Ishibashi, as explained herein. Kim+Ishibashi, therefore, discloses the limitations of claims 3 and 5.

Ishibashi discloses an “Emergency-Alert Broadcast Receiver and Method for Receiving Emergency-Alert Broadcasts.” Ex[1009], Title. One method Ishibashi teaches to ensure that a viewer is informed of an emergency warning broadcast is to “allow[] audio to be output through the loudspeaker when an emergency-alert broadcast starts— even if headphones or earphones are left plugged into the jack” via “output-switchover circuit 13 that switches the output of audio signals to loudspeaker 6 or headphones 7.” *Id.*, [0007]; [0015]. This *changes the spatial direction* at which *the media stream receiving the alert is rendered* “so that the audio” from the alert “is output...from at least loudspeaker 6.” *Id.*, [0017]. These audio output options, and the output-switchover circuit are shown in the excerpt from Figure 1, shown above. Ex[1002], ¶¶308-312.

A POSITA would have understood Ishibashi’s loudspeaker to be a priority spatial direction because it “allows audio to be output through the loudspeaker when an emergency-alert broadcast starts...preventing the audience from missing an emergency-alert broadcast.” *Id.*, [0007]; Ex[1002], ¶¶315-320.

Ishibashi discloses the alternative that when “viewing/listening to a broadcast, etc., on headphones 7, audio will be output through both loudspeaker 6 and headphones 7,” Ex[1009], [0043], thereby rendering the alert audio in multiple *spatial directions*, including the *priority direction*. These audio output options are shown in the excerpt from Figure 1, shown above. *See also id.*, [0006], [0007], [0015]-[0017], [0026], [0028], [0032], [0038], [0043], Fig. 1.

Thus, Kim+Ishibashi discloses the ability to *change* the *spatial direction* of the audio output so that the audio from the broadcast station's (*media stream*) emergency warning broadcast (*alert*) is *rendered* in the *priority spatial direction* (speakers). As discussed above, a POSITA would have been motivated to combine Ishibashi with Kim to expand the reach of emergency messaging systems and ensure emergency messages are heard. *Supra* §VII.H.1; Ex[1002], ¶¶308-312, 315-320.

3. Claim 4

Claim 4 recites a combination of the limitations of 2 and 3, and thus is rendered obvious for the same reasons described above. *Supra* §§VII.G.2, VII.H.2. That is, Ishibashi discloses elevating the priority by both “*adjust[ing] the audio output to the maximum volume*,” like Kim (*supra* §VII.G.2), and changing a spatial direction for rendering the media stream receiving the alert (*supra* §VII.H.2). Ex[1002], ¶¶313-314. This is an effective combination because “the audience can hear the emergency-alert broadcast at the maximum volume, at least on the loudspeaker.” *Id.*, [0007].

4. Claims 13-14, and 18-19

Claims 13 and 18, are nearly identical to claim 3, and claims 14 and 19 are nearly identical to claim 4. The only difference is that claims 13-14 depend from claim 11 and claims 18-19 depend from claim 16. Ex[1001], cls.3-4, 13-14, 18-19. Thus, for all of the same reasons described for claims 3-4, 11, and 16 incorporated here, Kim+Ishibashi invalidates claims 13-14, and 18-19. *Supra* §§VII.H.2-

VII.H.3, VII.G.7-VII.G.8; Ex[1002], ¶¶321-323.

I. Ground 9: Claim 10 is obvious over Ground 7 in view of Goss.

1. A POSITA Would Have Combined Ground 7 with Goss.

Kim and Goss both disclose emergency warning communication systems, providing a method for notifying a user of an emergency via a broadcast system. Ex[1008], Title, Abstract; Ex[1010], 1:31-37; Ex[1002], ¶324.

It would have been obvious to combine Kim and Goss. First, they are in the same field of endeavor as each other and the '664 Patent, *e.g.*, emergency communication systems. Ex[1001], 1:18-32; Ex[1008], Abstract, 1:3-21; Ex[1010], Abstract, 1:31-55; 3:1-5, 3:24-26; Ex[1002], ¶325. Second, they are directed to similar problems regarding conveying warning information to the user. Ex[1008], 2:10-4:25; Ex[1010], 6:4-7, 7:55-57.

Kim is designed for situations when the viewer is viewing a different channel than the one receiving the alert, the TV is muted, or the TV is turned off. Ex[1008], 3:13-18. A first (10) and second (15) “broadcast signal receiver 10,” “receive[s] digital TV broadcast data,” via an “antenna” is connected to among other components, which can receive “a channel transferring the emergency-warning broadcast signal,” and provide it to the user. *Id.*, 24:15-16, 14:7-12.

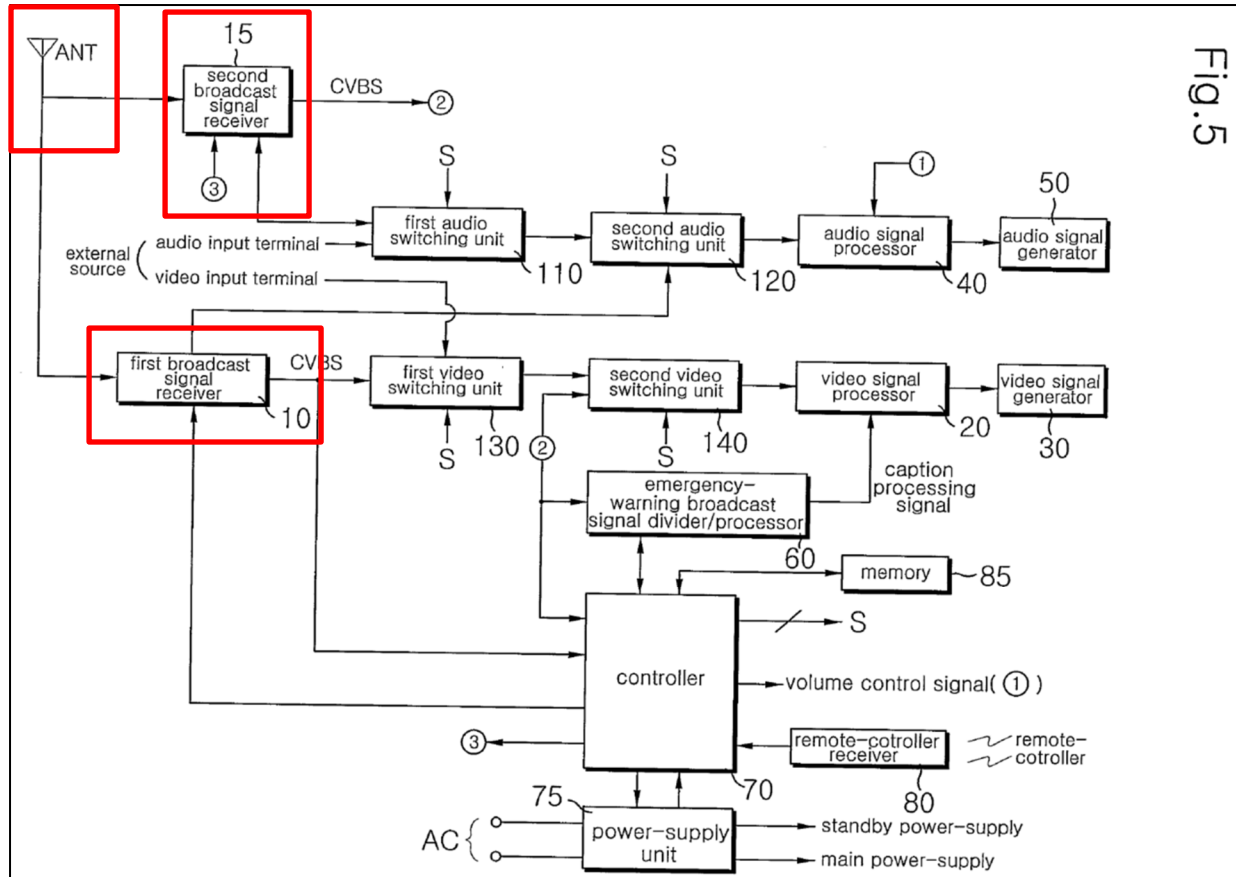


Fig.5

Ex[1008], Fig. 5.

Kim recognizes that a goal of emergency warning broadcast systems is to ensure that the viewer receives the emergency warning information. Ex[1008], 3:13-19; Ex[1002], ¶¶326-327. Goss discloses that problems can arise when, for example, users do “not receive the message when first transmitted.” Ex[1010], 6:6-7. Goss solves this problem alerts by providing that “[b]roadcast announcement messages may be retransmitted from time to time” and the potential to “transmit one or more broadcast messages on an occasional basis,” thus “alerting users to an urgent situation.” *Id.*, 6:4-6, 7:55-57.

A POSITA would have been motivated to implement Goss’s retransmissions

in Kim’s emergency warning system to improve the likelihood that an emergency warning broadcast is received by the viewer. Ex[1002], ¶328.

A POSITA would have understood implementing Goss’s broadcast retransmissions as another option to be received by Kim’s antenna and broadcast signal receivers would have been a predictable combination of known techniques reasonably expected to succeed. Ex[1002], ¶329. Kim and Goss describe similar receiving systems and the technique of retransmitting broadcasts was already being implemented in the system of Goss. Ex[1002], ¶329. It would have been well within the abilities of a POSITA to modify the communication environment of Kim to enable Kim’s system to receive retransmissions, which would have advantageously improved the likelihood that viewers receive an emergency broadcast. Ex[1002], ¶329.

Therefore, a POSITA would be both motivated, and able, to combine Kim and Goss with an expectation of success. Ex[1002], ¶330.

2. Claim 10

Kim+Goss discloses “*the alert is duplicated [e.g., retransmitted] and rendered at a higher volume [e.g., by controller 70].*”

Goss teaches that “[b]roadcast announcement messages [*alerts*] may be retransmitted [*duplicated*] from time to time to alert users who did not receive the message when first transmitted.” Ex[1010], 6:4-7. Goss accomplishes this by “repeatedly transmitting an alert message on a periodic basis while said broadcast

message is transmitted.” *Id.*, 11:26-29. For example, Goss’s retransmitted messages would be received by the antenna and broadcast signal receivers in the Kim system. These signals are then processed by controller 70 which *increases the volume of the alert*. *Supra* §VII.G.2; Ex[1002], ¶¶331-334.

Therefore, the Kim+Goss combination renders obvious *duplicating the alert* and *rendering it at a higher volume* as recited in Claim 10.

VIII. SECONDARY CONSIDERATIONS

Petitioner is aware of no evidence of secondary considerations that would meaningfully rebut a finding of obviousness. Ex[1002], ¶¶335-336. Petitioner reserves the right to rebut any purported objective evidence of non-obviousness raised by Patent Owner.

IX. INSTITUTION SHOULD BE GRANTED

A. Discretion Under 35 U.S.C. §314(a)

The Board should not exercise its discretion under §314(a) to deny this Petition. First, no other petitions have been filed against the ’664 Patent. Accordingly, the *General Plastics* factors weigh in favor of institution.

Second, if the Board applies the analysis in *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 19-20 (P.T.A.B. Sept. 12, 2018)

(precedential)¹³ or *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (P.T.A.B. Mar. 20, 2020) (precedential), those factors taken together support institution.

Factor 1: Potential Stay

The Board should “not attempt to predict how the district court in the related district court litigation will proceed.” *Sand Revolution II LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24 at 7 (P.T.A.B. Jun. 16, 2020) (informative). Institution should not be denied based on this factor.

Factor 2: Trial Date

Trial is currently scheduled for June 2024 in the EDTX litigation. Ex[1029], p.1. That is approximately eight months before the projected February 2025 statutory deadline for the Board to enter a final written decision in this proceeding (if instituted). Accordingly, “the decision whether to institute will likely implicate other factors...such as the resources that have been invested in the parallel proceeding.” *Apple*, IPR2020-00019, Paper 11 at 9. As discussed below, if trial were to proceed as scheduled, this factor is outweighed by other factors here.

Factor 3: Investment in the parallel proceeding

¹³ Petitioner recognizes the Board must apply its precedential caselaw, but reserves its objection to the Board’s application of the *NHK-Fintiv* caselaw as non-justiciable under the APA.

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The parties have served infringement and invalidity contentions and the claim construction process has just begun. Ex[1029], p.4. The effort and resources expended to date are “typical of the early stages of litigation,” and thus this factor “does not favor exercising discretion to deny institution.” *Apple Inc. v. Smart Mobile Techs. LLC*, IPR2022-00808, Paper 24 at 52 (P.T.A.B. Sept. 29, 2022).

Petitioner worked diligently to file this Petition. As noted above, Petitioner moved to dismiss on December 12, 2022, and filed this petition just over a month after the magistrate judge recommended denial of that motion. To conserve resources of the Board and the parties, it was not unreasonable for Petitioner to wait to file petitions for IPR because the motion to dismiss had the potential to resolve the case. Furthermore, since serving its original infringement contentions on January 5, 2023, Patent Owner has served proposed supplemental infringement contentions on three separate occasions, including a proposal just two months ago to more than double the number of asserted claims (including eight additional claims of the ’664 Patent) and added a number of new accused products. Ex[1033], p.4. Given Patent Owner’s shifting infringement theories, it was entirely reasonable for Petitioner to wait to file the instant Petition until the scope of the EDTX litigation crystallized. There will certainly be “much work remain[ing] in the district court case as it relates to invalidity” when this proceeding is ready for institution. *Sand Revolution*, Paper 24 at 11. Coupled with Petitioner’s diligence in filing this Petition, this factor weighs against discretionary denial. *Cf. id.* at 10-11; *Google*

LLC v. Parus Holdings, Inc., IPR2020-00846, Paper 9 at 18 (P.T.A.B. Oct. 21, 2020).

Factor 4: Issue Overlap

The Petition challenges each claim asserted in the EDTX Litigation. Ex[1033], p.2. The Petition also challenges claims not asserted in the litigation (*e.g.*, 11-15, 18, and 19 which includes independent Claim 11).

Factor 5: Party Overlap

Petitioner and Patent Owner are parties in the EDTX Litigation.

Factor 6: Other Circumstances Favoring Institution

Additional circumstances favor institution. First, Petitioner acted with diligence, as noted above. Petitioner has gained no advantage from the parallel litigation, which favors institution. *See Oticon Med. AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 at 22-23 (P.T.A.B. Oct. 16, 2019) (precedential).

Moreover, the merits favor institution as the strong multiple grounds in this Petition demonstrate. “In such cases, the institution of a trial may serve the interest of overall system efficiency and integrity because it allows the proceeding to continue in the event that the parallel proceeding settles or fails to resolve the patentability question presented in the PTAB proceeding.” *Google*, Paper 9 at 21 (quoting *Fintiv*, Paper 11 at 14-15); *Fintiv*, IPR2020-00019, Paper 11 at 14-15; Ex[1030], p.4 (USPTO Guidance indicating “compelling, meritorious challenges

will be allowed to proceed at the PTAB even where the district court litigation is proceeding in parallel”).

B. Discretion Under 35 U.S.C. §325(d)

The Board should not exercise its discretion under 35 U.S.C. §325(d). None of the references relied upon in Grounds 1-9 were presented to the Office or considered during prosecution. Ex[1001], Cover.

X. CONCLUSION

Petitioner respectfully requests institution of IPR and that the Challenged Claims be canceled as unpatentable pursuant to 35 U.S.C. §318(b).

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Respectfully Submitted,

August 21, 2023

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CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on August 11, 2023, a complete and entire copy of the **PETITION FOR *INTER PARTES* REVIEW OF CLAIMS 1-20 OF U.S. PATENT NO. 8,831,664 B2** including exhibits and testimony relied upon were served on Patent Owner via FedEx overnight at the correspondence address of record for the '664 Patent and via email to counsel for Patent Owner in the EDTX Litigation, as included below:

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

Pursuant to 37 C.F.R. § 42.24(d), the undersigned hereby certifies that the word count under § 42.24(a)(1) for the foregoing Petition for *Inter Partes* Review totals 13,926 words, within the 14,000 word limit allowed under § 42.24(a)(1)(i).

Date: August 21, 2023

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