

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS, AMERICA, INC., and GOOGLE LLC,

Petitioners

v.

CERENCE OPERATING COMPANY,

Patent Owner

Case IPR2024-00979

U.S. Patent No. 8,081,993

Petition for *Inter Partes* Review of

U.S. Patent No. 8,081,993

TABLE OF CONTENTS

PETITIONERS’ EXHIBIT LIST	vii
I. INTRODUCTION	1
II. GROUNDS FOR STANDING.....	1
III. STATEMENT OF PRECISE RELIEF REQUESTED FOR EACH CLAIM CHALLENGED	1
IV. OVERVIEW OF THE ’993 PATENT	2
V. OVERVIEW OF THE PRIOR ART	5
A. <i>Dolan</i>	5
B. <i>Freedman</i>	8
C. <i>Halonen</i>	9
VI. LEVEL OF ORDINARY SKILL IN THE ART	10
VII. CLAIM CONSTRUCTION	10
VIII. DETAILED EXPLANATION OF GROUNDS.....	11
A. Ground 1A: <i>Dolan</i> Renders Obvious Claims 1-2, 6-9.....	11
1. Claim 1	11
a. 1[pre]: “A method of operating a mobile communication device, said method comprising:”	11
b. 1[a]: “over a wireless messaging channel receiving a text message, wherein the text message contains a non-text representation of an utterance;”	12

c.	1[b]: “extracting the non-text representation from the text message;”	16
d.	1[c]: “synthesizing an audio representation of the spoken utterance from the non-text representation; and”	20
e.	1[d]: “playing the synthesized audio representation through an audio output device on the mobile communication device.”	22
2.	Claim 2: “The method of claim 1, wherein the mobile communication device is a cellular phone.”	23
3.	Claim 6: “The method of claim 1, wherein the wireless messaging channel is an SMS channel and the text message is an SMS message.”	24
4.	Claim 7: “The method of claim 1, wherein the received text message includes an indicator identifying the text message as containing a non-text representation of the utterance.”	25
5.	Claim 8: “The method of claim 1, wherein the non-text representation is a compressed version of the utterance.”	27
6.	Claim 9:	27
a.	9[a]: “The method of claim 1 further comprising: over the wireless messaging channel receiving a plurality of text messages in addition to the first-mentioned text message, said first-mentioned text message and said plurality of text messages forming a set of text messages, wherein each text message of the set of text messages contains a non-text representation of a different portion of the utterance;”	27
b.	9[b]: “extracting the non-text representations from the plurality of text messages; and synthesizing the audio representation of the spoken utterance from the non-text representations extracted from the set of text messages.”	30

B.	Ground 1B: <i>Dolan</i> in view of <i>Freedman</i> Renders Obvious Claims 1, 3-5.....	31
1.	Claim 1	31
a.	1[pre]: “A method of operating a mobile communication device, said method comprising:”	31
b.	1[a]: “over a wireless messaging channel receiving a text message, wherein the text message contains a non-text representation of an utterance;”	31
c.	1[b] through 1[d]: 1[b] (“extracting the non-text representation from the text message;”), 1[c] (“synthesizing an audio representation of the spoken utterance from the non-text representation; and”), and 1[d] (“playing the synthesized audio representation through an audio output device on the mobile communication device.”).....	36
2.	Claim 3: “The method of claim 1, wherein the non-text representation of the utterance is a string of symbols representing sounds of the utterance.”	37
3.	Claim 4: “The method of claim 3, wherein the symbols in the string of symbols are selected from the group consisting of phonemes, diphones, triphones, syllables, and demisyllables.”	37
4.	Claim 5: “The method of claim 3, wherein the symbols in the string of symbols are phonemes.”	39
C.	Ground 2A: <i>Dolan</i> in view of <i>Halonen</i> Renders Obvious Claims 10-11, 15-18.....	39
1.	Claim 10.....	39
a.	10[pre]: “A mobile communication device for receiving a voice message, said mobile communication device comprising:”	39

- b. 10[a] through 10[d]: 10[a] (“a processor system;”), 10[b] (“a transceiver for receiving a text message that contains a non-text representation of an utterance;”), 10[c] (“an audio output device; and”), 10[d] (“memory storing code which when executed on the processor system causes the mobile communication device to:”) 39
- c. 10[e]: “extract the non-text representation from the received text message;” 45
- d. 10[f]: “synthesize an audio representation of the spoken utterance from the non-text representation; and” 45
- e. 10[g]: “play the synthesized audio representation through the audio output device.” 45
- 2. Claim 11: “The mobile communication device of claim 10, wherein The [sic] mobile communication device includes a cellular phone.” 46
- 3. Claim 15: “The mobile communication device of claim 10, wherein the wireless messaging channel is an SMS channel and the text message is an SMS message.” 46
- 4. Claim 16: “The mobile communication device of claim 10, wherein the received text message includes an indicator identifying the text message as containing a non-text representation of the utterance.” 46
- 5. Claim 17: “The mobile communication device of claim 10, wherein the non-text representation is a compressed version of the utterance.” 46
- 6. Claim 18 47
 - a. 18[a]: “The mobile communication device of claim 10, wherein the code when executed on the processor further causes the mobile communication device to: over the wireless messaging channel, receive a plurality of text messages in addition to the first-mentioned text message, said first-mentioned text message and said plurality of

	text messages forming a set of text messages, wherein each text message of the set of text messages contains a non-text representation of a different portion of the utterance;”	47
b.	18[b]: “extract the non-text representations from the plurality of text messages; and synthesize the audio representation of the spoken utterance from the non-text representations extracted from the set of text messages.”	47
D.	Ground 2B: <i>Dolan</i> in view of <i>Halonen</i> and <i>Freedman</i> Renders Obvious Claims 10, 12-14.....	48
1.	Claim 10.....	48
a.	10[pre] through 10[d]: 10[pre] (“A mobile communication device for receiving a voice message, said mobile communication device comprising:”), 10[a] (“a processor system;”), 10[b] (“a transceiver for receiving a text message that contains a non-text representation of an utterance;”), 10[c] (“an audio output device; and”), 10[d] (“memory storing code which when executed on the processor system causes the mobile communication device to:”).....	48
b.	10[e]: “extract the non-text representation from the received text message;”	49
c.	10[f]: “synthesize an audio representation of the spoken utterance from the non-text representation; and”	50
d.	10[g]: “play the synthesized audio representation through the audio output device.”	50
2.	Claim 12: “The mobile communication device of claim 10, wherein the non-text representation of the utterance is a string of symbols representing sounds of the utterance.”	51
3.	Claim 13: “The mobile communication device of claim 12, wherein the symbols in the string of symbols are selected from	

	the group consisting of phonemes, diphones, triphones, syllables, and demisyllables.”	51
4.	Claim 14: “The mobile communication device of claim 12, wherein the symbols in the string of symbols are phonemes.” 51	
IX.	SECONDARY CONSIDERATIONS	51
X.	THE DISCRETIONARY FACTORS FAVOR INSTITUTING TRIAL	52
A.	35 U.S.C. § 314(a).....	52
1.	Stay.....	53
2.	Trial Date	53
3.	Diligence/Investment	54
4.	Overlap.....	55
5.	Parties.....	56
6.	Other considerations.	56
B.	35 U.S.C. §325(d).....	56
XI.	MANDATORY NOTICES UNDER 37 C.F.R. §42.8.....	57
A.	Real Parties-in-Interest.....	57
1.	Related Matters	57
B.	Lead and Backup Counsel.....	57
C.	Service Information.....	59
D.	Power of Attorney	60
XII.	FEES	60

PETITIONERS' EXHIBIT LIST

Exhibit No.	DESCRIPTION
1001	U.S. Patent 8,081,993 (“’993Pat”)
1002	Declaration of Mark Lanning (“ <i>Lanning</i> ”)
1003	Curriculum Vitae of Mark Lanning
1004	File History of U.S. Patent 8,081,993
1005	Canadian Patent CA2275828C (“ <i>Dolan</i> ”)
1006	U.S. Publication 2004/0073423A1 (“ <i>Freedman</i> ”)
1007	U.S. Patent 5,887,254 (“ <i>Halonen</i> ”)
1008	Excerpt from The New Oxford American Dictionary (2001) (“ <i>New Oxford American Dictionary</i> ”)
1009	U.S. Patent 5,870,427 (“ <i>Tiedemann</i> ”)
1010	U.S. Patent 6,081,724 (“ <i>Wilson</i> ”)
1011	U.S. Patent 5,963,548 (“ <i>Virtanen</i> ”)
1012	U.S. Patent 5,953,322 (“ <i>Kimball</i> ”)
1013	Excerpts from Computer Dictionary (4th ed. 1999) (“ <i>Computer Dictionary</i> ”)
1014	WO 1999/000791A1 (“ <i>Mermelstein</i> ”)
1015	U.S. Patent 6,324,515B1 (“ <i>Rabipour</i> ”)
1016	Cover Pleading of Plaintiff Cerence Operating Company’s Disclosure of Asserted Claims and Infringement Contentions, Dated March 11, 2024.

Exhibit No.	DESCRIPTION
1017	Docket Control Order from <i>Cerence Operating Company v. Samsung Electronics Co., LTD, et al.</i> , No. 2:23-cv-0482-JRG-RSP (ECF 029) (E.D. Tex. Apr. 16, 2014)

I. INTRODUCTION

Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Google LLC (collectively, “Petitioners”) request *inter partes* review (“IPR”) of claims 1-18 (“Challenged Claims”) of U.S. Patent No. 8,081,993 (“the ’993 patent”).

II. GROUNDS FOR STANDING

Petitioners certify that the ’993 patent is available for IPR, and that Petitioners are not barred or estopped from requesting IPR to challenge the claims on the grounds herein.

III. STATEMENT OF PRECISE RELIEF REQUESTED FOR EACH CLAIM CHALLENGED

Petitioners respectfully request review and cancellation under 35 U.S.C. §311 of the Challenged Claims in view of:¹

¹ Petitioners do not concede that any Challenged Claims satisfy other requirements for patentability that cannot be raised in IPR, including 35 U.S.C. §§101 and 112.

Ground	Claims	Basis
1A	1-2, 6-9	§103: <i>Dolan</i>
1B	1, 3-5	§103: <i>Dolan</i> + <i>Freedman</i>
2A	10-11, 15-18	§103: <i>Dolan</i> + <i>Halonen</i>
2B	10, 12-14	§103: <i>Dolan</i> + <i>Halonen</i> + <i>Freedman</i>

As shown below, each reference pre-dates the '993 patent's earliest purported priority date (April 20, 2004), but Petitioners do not concede that this priority date is correct and reserve the right to dispute it.

Reference	Date	Pre-AIA Prior Art at Least Under
CA2275828C (" <i>Dolan</i> ") (EX1005)	02/19/2000 (publication date)	§102(b)
US2004/0073423A1 (" <i>Freedman</i> ") (EX1006)	10/11/2002 (filing date) 04/15/2004 (publication date)	§§102(a), 102(e)
US5,887,254 (" <i>Halonen</i> ") (EX1007)	03/23/1999 (publication date)	§102(b)

IV. OVERVIEW OF THE '993 PATENT

The '993 patent relates to "[a] method of operating a mobile communication device" comprising "receiving a text message that contains a non-text representation of an utterance," "extracting the non-text representation from the text message," "synthesizing an audio representation of the spoken utterance from the non-text

representation,” and “playing the synthesized audio representation through an audio output device on the mobile communication device.” ’993*Pat*, Abstract. The method involves “sending and receiving spoken or audio information over the SMS² network available in cellular phones.” *Id.*, 3:42-43. The method can use a “phonetic recognition algorithm in the phone” to generate a non-text representation of a desired message or utterance spoken by the user into a cellular phone. *Id.*, 3:42-46. Alternatively, “other algorithms could be used which simply perform compression without performing any recognition.” *Id.*, 6:65-67. For example, “instead of using a phoneme recognizer, a vocoder could be used to generate the compressed representation and then that compressed representation would be inserted into the body of the SMS message. In other words, ***any algorithm that produces a non-text representation suitable for sending over SMS or another non-voice channel could be employed.***” *Id.*, 6:67-7:6.³ In view of these, the ’993 patent discloses inserting into an SMS message a “stored phoneme string” or a vocoder-generated “compressed representation.” *Id.*, 4:64-5:1, 6:67-7:6. The ’993 patent also describes

² SMS, which stands for Short Message Service, is a text messaging service, and SMS messages were and continue to be a common form of text messaging. *Lanning* ¶36.

³ All emphases/annotations/color are added unless noted otherwise.

programming an SMS application “to generate a sequence of multiple SMS messages to handle longer utterances for which the non-text representation will not fit into the body of a single message.” *Id.*, 6:25-27.

On the receiving end, an SMS application in the cellular phone “processes the message for presentation to the user.” *Id.*, 6:1-4. A flag within the received SMS message identifies the contents of the SMS message as a non-text representation that is processed by the synthesizer to generate an audio signal. *Id.*, 6:4-7. The non-text representation passes “to a synthesizer 220 within the cell phone, along with any stored parameters which were supplied to control synthesizer 220 and the way it generates the sounds.” *Id.*, 6:11-14. Using the cell phone’s speaker, the synthesizer plays the sequence of sounds that represent the non-text representation. *Id.*, 6:19-21. “The SMS application on the recipient’s side of the connection would also need to be programmed to recognize that the received non-text representation is to be constructed by concatenating the contents of more than one SMS message.” *Id.*, 6:33-37.

The ’993 patent is a divisional of U.S. Patent 7,395,078, which is the subject of concurrently filed IPR2024-00978. The ’993 patent’s claims are directed, generally speaking, to methods and devices for *receiving* over a wireless messaging channel a text-message containing a non-text representation of an utterance, and synthesizing and playing an audio representation of the utterance. The ’078 patent’s

claims are directed, generally speaking, to methods and devices for *sending*, over a wireless messaging channel, a non-text representation of a user's utterance in a body of a text message.

V. OVERVIEW OF THE PRIOR ART

The prior art references analyzed in the grounds below are analogous to the '993 patent because they are within the same field of endeavor as the '993 patent and reasonably pertinent to one or more problems addressed by the '993 patent. *Lanning* ¶¶43-46. For example, like the '993 patent, *Dolan* is directed to techniques for receiving on a mobile device a text message including a non-text representations of an audio message, extracting the non-text representation of the audio message and playing it back. *Id.* ¶44. *Freedman* is directed to the same type of phoneme-based techniques for compressing and decompressing user speech that is discussed in the '993 patent. *Id.* ¶45. *Halonen* provides implementation details of mobile phones used in systems disclosed in the '993 patent, *Dolan*, and *Freedman*. *Id.* ¶46.

A. *Dolan*

Dolan is titled "Using Discrete Message-Oriented Services to Deliver Short Audio Communications." *Dolan*, (54). *Dolan* discloses a method and system for the delivery of short audio communications ("such as a spoken phrase") to remote end-user devices using discrete message-oriented services such as Short Message Service (SMS). *Id.*, 3:9-19, 10:27-11:5; *see also id.*, Abstract, 1:4-6, 4:18-26, FIGs. 1, 2. In

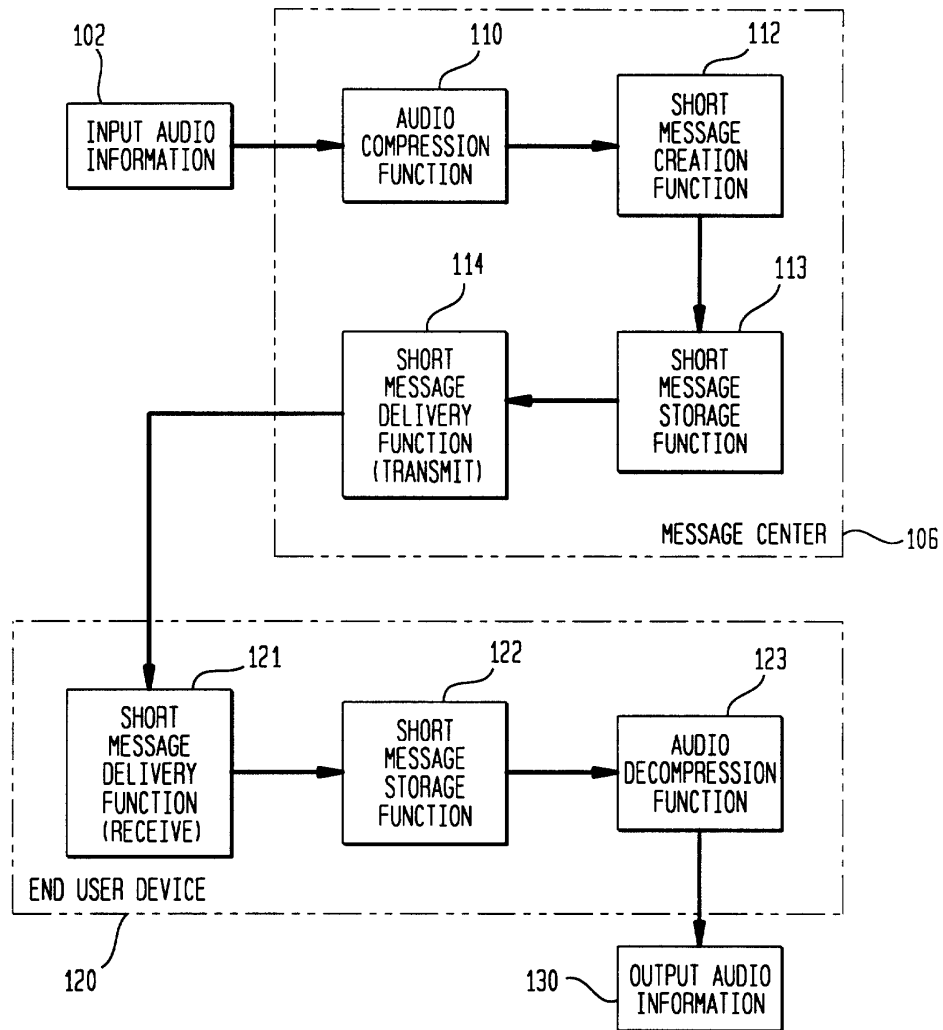
a preferred embodiment, *Dolan* discloses “the end user device is conceived as a digital mobile telephone handset.” *Id.*, 4:12-13.

Dolan discloses compressing captured audio information, and transmitting the compressed audio information (e.g., using “Short Message Service or another discrete message-oriented service”) to an end-user device, where it is decompressed and played back. *Id.*, 3:9-19; *see also id.*, 7:9-16, 7:26-8:10, FIG. 1. *Dolan*’s system is also designed to handle the segmentation and reassembly of audio messages that exceed the size limits of a single message (e.g., as “specified by the SMS standard according to the existing SMS conventions”), ensuring complete and coherent delivery to the recipient. *Id.*, 8:25-9:5, 9:16-29; *see also id.*, 3:26-4:9, 11:22-12:9, FIG. 5. *Dolan* discloses a message center with an audio compression function and short message creation function and the end-user device for receiving and playing back short audio messages. *Id.*, 3:9-19; *see also id.*, 4:18-26, 10:27-11:21, FIGs. 1-2.

With reference to figures 1 and 2, *Dolan* discloses embodiments in which an audio message is delivered to an end user device (e.g., a digital mobile telephone handset) using a Short Message Service. *Id.*, 5:25-6:3, FIGs 1-2. The end user device receives the compressed audio information (“such as a spoken phrase”) in an SMS message, optionally stores the message in the “End User Short Message Storage Function,” decompresses the audio information by the “End User Audio

Decompression Function,” and plays it to an output apparatus. *Id.*, 10:27-28, 12:18-13:7, FIG. 1.

FIG. 1



Dolan, FIG. 1

B. *Freedman*

Freedman is titled “Phonetic Speech-to-Text-to-Speech System and Method.” *Freedman*, (54). *Freedman* discloses a phonetic speech-to-text-to-speech system designed to optimize speech transmission with a small bandwidth from a source to a destination. *Id.*, Abstract, ¶[0008]; *see also id.* ¶¶[0035], [0048], [0063]. Specifically, the system processes speech by breaking it down into phonemes, then encoding these phonemes into a “series of symbols ... other than a known symbolic representation of the speech in a known language,” facilitating efficient transmission over telecommunication networks. *Id.* ¶[0011]; *see also id.* ¶¶[0020], [0035], [0038] (“encoding preferably results in a symbolic representation of the speech other than in a known human intelligible language”), [0048], [0050], [0053], FIG. 5. *Freedman* discloses that, at a receiving device, the encoded text is decoded, reconstituted to speech and output to a speaker or other output. *Id.* ¶[0063]; *see also id.* ¶¶[0048] (“The encoded text is transmitted to the speech generator 38 for decoding the text using a look-up table for reconstituting a speech based on the phonetic characters to an output port 40. The output port is in the form for example of a loudspeaker or a headphone when a listening party prefers to listen the speech in a more private environment.”), [0051], FIG. 3b.

C. *Halonen*

Halonen is titled “Methods and Apparatus for Updating the Software of a Mobile Terminal Using the Air Interface.” *Halonen*, (54). *Halonen* discloses hardware components of a typical cellular phone. For example, *Halonen* discloses a “controller 18 ... comprised of a digital signal processor (DSP) 18a and a microprocessor control unit (MCU) 18b,” to demodulate and decode received transmissions, including encoded voice, and perform high-speed signal processing. *Halonen*, 3:36-55; *see also id.*, 5:4-12, FIGs. 1, 3. *Halonen* discloses that “[t]he MCU 18b ... generally control[s] the operation of the terminal 10 to place and receive calls, to operate the keypad 22 and the display 20, to monitor the charge state of the battery 26, and other required functions.” *Id.*, 3:44-49. *Halonen* also discloses updating a mobile terminal’s operating program by receiving new or revised code blocks via Short Message Service (SMS), which are then acknowledged, processed, and stored for execution by the controller. *Id.*, 4:47-5:12.

Halonen discloses the cellular phone having a microphone, speaker, transceiver, and memory to store code for the controller. *Id.*, 2:53-3:14; *see also id.*, Abstract, 1:59-2:23. For example, *Halonen*’s transceiver is for bidirectional RF communications with a network. *Id.*, 1:59-2:23; *see also id.*, Abstract, 6:55-7:4, FIG. 1. *Halonen* also discloses memory units 24 for storing operating programs for the controller 18. *Id.*, 3:61-4:46; *see also id.*, Abstract, 1:59-2:23, FIGs. 1, 3.

VI. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSITA”) at the time of the ’993 patent’s purported priority date would have had at least a Bachelor’s of Science Degree (or equivalent) in electrical engineering, computer science, or computer engineering, or a related technical field and two years of experience working with mobile or wireless communications networks such as cellular networks, or a related technical field, and familiarity with short message service protocols. *Lanning* ¶¶22-24. A greater amount of education could compensate for fewer years of work experience and vice versa. *Id.* ¶23.

VII. CLAIM CONSTRUCTION

Petitioners are unaware of any “prior claim construction determination” related to the ’993 patent. *See* 37 C.F.R. §42.100(b). Given the close correlation and substantial identity between the prior art references and the Challenged Claims, Petitioners believe that no express constructions of the claims are necessary to assess whether the prior art reads on the Challenged Claims. Thus, the claims should be

given their plain and ordinary meaning.⁴ *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

VIII. DETAILED EXPLANATION OF GROUNDS

The sections below, as supported by the Declaration of Mark Lanning, demonstrate how the Challenged Claims are unpatentable. *See* 37 C.F.R. 42.104(b)(4)-(5).

A. Ground 1A: *Dolan* Renders Obvious Claims 1-2, 6-9

1. Claim 1

a. 1[pre]: “A method of operating a mobile communication device, said method comprising:”

To the extent the preamble is limiting, *Dolan* discloses or suggests this feature. *Lanning* ¶¶79-84. For example, *Dolan* discloses that the “present invention relates to delivery of audio messages to or from remote receiving units such as mobile telephones and, in particular, to a method for using Short Message Service or other discrete message-oriented services to deliver audio messages.” *Dolan*, 1:4-6. *Dolan* discloses an end user device (or remote receiving unit) for **receiving** and sending

⁴ Petitioners reserve all rights to raise claim construction arguments and other arguments in any parallel or future litigation concerning the '993 patent. For example, comparing the claims to the accused products in the litigation may raise controversies that require construction of certain claim terms.

audio messages via SMS. *Id.*, 2:26-27, 5:21-23, 7:28-8:3, 12:18-24, 15:4-7. In a preferred embodiment, “the end user device is conceived as a digital mobile telephone handset.” *Id.*, 4:12-13; *see also id.*, 10:22-23.

Accordingly, a POSITA would have understood *Dolan* to disclose or suggest receiving SMS messages (“operating”) on an end user device such as a digital mobile telephone handset (“mobile communication device”). *Lanning* ¶¶84.

b. 1[a]: “over a wireless messaging channel receiving a text message, wherein the text message contains a non-text representation of an utterance;”

Dolan discloses or suggests this feature. *Lanning* ¶¶85-103.

Dolan discloses that “[t]he transmission scheme used by the preferred embodiment of this invention is Short Message Service” *Dolan*, 8:2-3. A POSITA would have understood that communication of SMS messages (e.g., from a Message Center to an end user device) occur over a wireless messaging channel. *Lanning* ¶¶86-90. For example, *Dolan* discloses that Short Message Service is “currently defined in various standards such as GSM (Global System for Mobile Communications).” *Dolan*, 1:21-22; *see also id.*, 11:16-21 (“The Message Center Short Message Creation Function 112 is implemented by any of the devices and methodologies know [sic] in the art for implementing a Short Message or other discrete message-oriented service, such as SMS, where a header and length field wrap the actual message during transmission. Examples of these are found in the

TDMA, CDMA and GSM standards.”). A POSITA would have known that GSM, TDMA and CDMA were different standards for wireless communication implemented by mobile telephone devices that were commonly referred to as “cellular phones.” *Lanning* ¶¶87-91 (citing *Tiedemann, Wilson, and Virtanen*).⁵

Further, *Dolan* discloses that the Message Center communicates with the end user device using one of a variety of known methods, including wireless. *Dolan*, 11:1-5; *see also id.*, 8:2-7 (“The transmission scheme used by the preferred embodiment of this invention is Short Message Service or any other discrete message-oriented service wherein Short Messages are captured on behalf of an end user, stored in a messaging center until the end user device is available to receive delivery, and then delivered digitally to the end user, such as the user of a digital *wireless telephone device*.”); *Lanning* ¶92.

Dolan’s disclosure in this regard is consistent with the ’993 patent. *Lanning* ¶93. The ’993 patent explains in the Background of the Invention that “[m]ost legacy *wireless network systems* such as GSM, TDMA, and CDMA have a text/data

⁵ *Tiedemann, Wilson, and Virtanen* are cited in this Petition merely to demonstrate a POSITA’s knowledge and/or as evidence that a POSITA would have been motivated to make the combinations in the manner discussed in this Petition. These references are not part of the unpatentability grounds.

channel capable of sending and receiving SMS, so the infrastructure for this service already exists even in emerging markets in developing countries.” ’993*Pat*, 1:58-62; *see also id.*, 2:62-63 (“The wireless messaging channel is an SMS channel.”), 5:4-6 (“SMS application 180 then *wirelessly transmits* the SMS message over the SMS channel to the recipient’s cell phone.”); *Lanning* ¶93.

Moreover, as *Dolan* explains, the standard implementation of Short Message Service (i.e., before implementing the enhancements described in *Dolan*) is used to send and receive text messages on digital mobile phones. *See, e.g., Dolan*, 1:18-19 (“SMS is currently utilized only to deliver messages to mobile stations as short *text* messages.”) (emphasis in original), 2:20-21 (“Short Message Service capability is two-way, i.e. a digital mobile phone user can both receive and send short *text* messages utilizing this technology.”), 3:1-3 (“In particular, an object of the present invention is to utilize Short Message Service or other existing *text message-oriented services* to deliver short audio messages.”). *Dolan*’s disclosure is consistent with the ’993 patent, which identifies SMS messages as a form of text messages. ’993*Pat*, 2:40-41 (“the text message is an SMS message”); *Lanning* ¶¶94-95.

Dolan further discloses that what is included in the Short Message Service message is “[t]he compressed audio information.” *Dolan*, 3:14-15; *see also id.*, 3:15-17 (“The Short Message containing the compressed audio information is received at the end user device”), 7:27-8:1 (same). *Lanning* ¶96. A POSITA also would

have understood that the compressed audio information discussed in *Dolan* would encompass a voice or utterance. *Id.* ¶97. For example, *Dolan*'s examples of audio messages include phrases such as "Call home, emergency!" (*Dolan*, 6:16-17), which a POSITA would have understood to constitute a non-text representation of an utterance. *Lanning* ¶¶98-99 (citing *New Oxford American Dictionary*); *see also Dolan*, 10:27-29 ("[I]n a preferred embodiment of the system the audio information 102, *such as a spoken phrase*, is delivered to the Message Center Audio Compression Function 110 within a Message Center 106, where it is encoded."). Additionally, *Dolan* discloses encoding audio messages using "technology used in *voice coding schemes on wireless networks*" (*Dolan*, 7:9-12), which a POSITA also would have understood to mean that *Dolan*'s audio messages encompass voice messages that would constitute utterances. *Lanning* ¶100.

As noted in the preceding paragraph, *Dolan* discloses compressing the audio information using voice coding schemes/technology, which a POSITA would have understood to also commonly be referred to as vocoders. *Lanning* ¶101; *see also Dolan*, 11:6-14 (teaching that audio compression can be performed using "any of the various vocoders utilized by mobile phones in the industry"). A POSITA would have also understood that *Dolan*'s compressed audio information is a non-text representation of the voice/speech because it is a compressed version of an audio signal that is not human readable text. *Lanning* ¶101. *Dolan*'s compressed audio

information is similar to the '993 patent's disclosure, which recognizes that audio information compressed using a vocoder is a non-text representation of the audio. '993Pat, 6:67-7:3 (“[I]nstead of using a phoneme recognizer, a vocoder could be used to generate the compressed representation and then that compressed representation would be inserted into the body of the SMS message.”); *Lanning* ¶102.

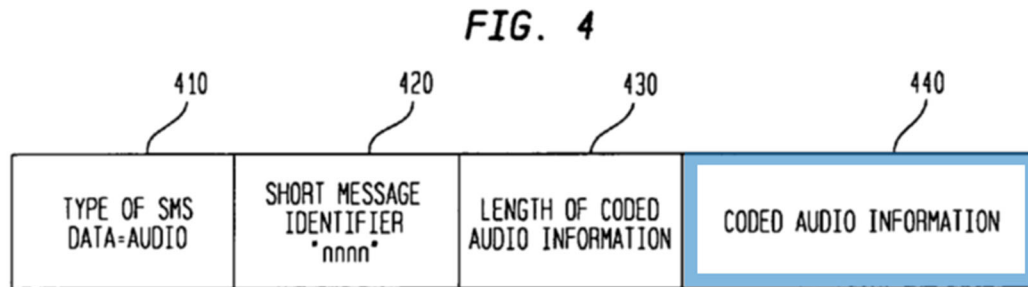
Accordingly, a POSITA would have understood *Dolan* to disclose or suggest using an SMS protocol incorporated into the GSM, TDMA or CDMA wireless communication standard (“over a wireless messaging channel”) to receive an SMS message (“receiving a text message”) containing a compressed voice audio message such as “Call home, emergency!” (“wherein the text message contains a non-text representation of an utterance”). *Id.* ¶103.

c. 1[b]: “extracting the non-text representation from the text message;”

Dolan discloses or suggests this feature. *Lanning* ¶¶104-115.

Dolan discloses that “the [compressed] audio information is decompressed by the End User Audio Decompression Function and relayed to the end user through the handset or other output apparatus of the End User Device.” *Dolan*, 5:11-13; *see also id.*, 7:27-8:1 (“The Short Message containing the compressed audio information is received at an end user device, the audio information is decompressed ...”).

With respect to figure 4, *Dolan* explains that “the major fields in a Short Message Service message used to carry coded audio information are a Type of Data field 410 ..., a Short Message Identifier field (‘nnnn’) 420 ..., a Length field 430 ..., and the coded audio information 440.” *Id.*, 8:14-20; *Lanning* ¶¶106-107.



Dolan, FIG. 4 (annotated).

A POSITA would have understood that “coded audio information” 440 to refer to the compressed audio information (i.e. the claimed “non-textual representation”). *Lanning* ¶108; see, e.g., *Dolan*, Abstract (“[a]udio information is ... encoded by means of audio compression technology”), 3:9-10 (“the captured [audio] information is encoded by means of audio compression technology”), 4:18-20 (“the audio information is delivered to a Message Center Audio Compression Function within a Message Center, where it is encoded and compressed digitally”), 7:10-11 (“the captured [audio] information is encoded by means of any audio compression technology known in the art”).

A POSITA would have understood the coded audio information 440 to comprise a body of the SMS message as it contains the encoded, compressed audio

information that is being transmitted by the SMS message. *Lanning* ¶109. At a minimum, a POSITA would have understood the encoded, compressed audio information to be in the body of the SMS message because fields 410-440 together comprise the SMS message where the audio message is part 440. *Id.*

After a message containing the compressed audio information is received by an end user device, *Dolan* describes the storage of the message in the “End User Short Message Storage,” and “[w]hen the end user chooses to listen to the audio information, the audio information is decompressed by the End User Audio Decompression Function 123 and relayed 130 to the end user through the handset or other output apparatus of the End User Device.” *Dolan*, 13:4-7; *see also id.*, 5:11-20. The type of decompression typically “depend[s] on the capabilities of the end user equipment [and] [m]obile phones generally have voice coders already built into the handset.” *Id.*, 13:11-13. *Dolan* discloses decompression by voice decoder or vocoder. *Id.*, 10:19-21 (“using the appropriate audio decompression technique, e.g., by passing the compressed audio information through a voice decoder within the end user device”).

A POSITA would have understood that “extracting” is used in the claim consistent with its ordinary meaning of the verb “extract,” which is “[t]o remove or duplicate items from a larger group in a systemic manner.” *Lanning* ¶111 (citing *Computer Dictionary*). A POSITA would have understood that decompressing audio

information from an SMS message in order to play it back (as *Dolan* describes) would have required removing or copying the compressed audio information from the SMS message. *Lanning* ¶112. Accordingly, a POSITA would have understood *Dolan* to disclose extracting the compressed audio information from the SMS message. *Id.* ¶113.

To the extent Patent Owner (PO) argues and the Board agrees that *Dolan* does not expressly or inherently disclose extracting the compressed audio information from the SMS message, it would at a minimum have been obvious to a POSITA to remove or copy the compressed audio information from the SMS message before decompressing it. *Id.* ¶114. That is because a POSITA would have recognized the desirability of separating the compressed audio information from the rest of the information in the SMS message (e.g., by removing or copying the compressed audio information from the SMS message) so that the rest of the SMS message fields do not interfere with the decompression process and/or are not mistaken for information that should/must be decompressed. *Id.*

Accordingly, a POSITA would have understood *Dolan* to disclose or suggest removing or copying the compressed audio information (“extracting the non-text representation”) from the SMS message (“from the text message”) in order to be able to decompress the audio information. *Id.* ¶115.

d. 1[c]: “synthesizing an audio representation of the spoken utterance from the non-text representation; and”

Dolan discloses or suggests this feature. *Lanning* ¶¶116-122.

Dolan discloses “audio compression technology known in the art, such as the technology used in voice coding schemes on wireless networks,” for compressing and encoding voice signals. *Dolan*, 7:9-16. For example, “[a]s a general proposition, in each of these compression techniques a voice signal is prepared for digital transmission by band-limiting and sampling at a convenient pre-specified frequency (such as 8 kHz). Each sample is then encoded into multi-bit PCM for transmission. At the receiver, the sample is then decoded in order to recreate the original voice signal.” *Id.*, 7:17-21; *Lanning* ¶117.

Dolan discloses that once the user chooses to listen to stored audio information on the end user device, “the audio information is reconstituted by using the appropriate audio decompression technique, e.g., by passing the compressed audio information through a voice decoder within the end user device, and playing the resulting sounds over the speaker system of the end user device [mobile telephone handset].” *Dolan*, 10:18-23; *see also id.*, 7:20-21 (“At the receiver, the sample is then decoded in order to recreate the original voice signal.”); *Lanning* ¶118. From this disclosure, a POSITA would have understood that the voice decoder in *Dolan* decompresses and/or decodes the compressed

audio information into a voice signal for playback through a speaker and, thus, that this decompression/decoding functionality generates (i.e., synthesizes) a voice signal, which is an audio representation of the spoken utterance. *Lanning* ¶¶119-120 (citing *Mermelstein*, 2:34-3:3 (“A speech decoder at the second mobile terminal decompresses the received compressed speech data to **synthesize** the original speech signal from the first mobile terminal.”); *Rabipour* 1:61-64 (“[T]he decoder section at the second wireless terminal **decompresses** the received compressed speech frames to **synthesize** the original speech signal from the first wireless terminal.”)).⁶ *Dolan*’s disclosure is consistent with the ’993 patent, which describes the synthesizer as “generat[ing] an audio signal.” ’993*Pat*, 6:5-8; *Lanning* ¶121.

Accordingly, a POSITA would have understood *Dolan* to disclose or suggest a decoder decompressing to generate a voice audio message comprising a spoken phrase (“synthesizing an audio representation of the spoken utterance”) using the compressed audio information (“from the non-text representation”). *Lanning* ¶122.

⁶ *Mermelstein* and *Rabipour* are cited in this Petition merely to demonstrate a POSITA’s knowledge and/or as evidence that a POSITA would have been motivated to make the combinations in the manner discussed in this Petition. These references are not part of the unpatentability grounds.

e. 1[d]: “playing the synthesized audio representation through an audio output device on the mobile communication device.”

Dolan discloses or suggests this feature. *Lanning* ¶¶123-127.

Dolan discloses that “the audio information is reconstituted by using the appropriate audio decompression technique, e.g., by passing the compressed audio information through a voice decoder within the end user device, and ***playing the resulting sounds over the speaker system of the end user device.***” *Dolan*, 10:18-22; *see also id.*, 7:27-8:2 (“The Short Message containing the compressed audio information is received at an end user device, the audio information is decompressed, and the decompressed audio information is ***played back*** to the end user (the intended message recipient).”); 5:11-13 (the end user listens to the decompressed audio information “through the handset or other output apparatus of the End User Device”); 13:4-7 (same).

Dolan’s disclosure is similar to how the ’993 patent describes outputting audio on a mobile communication device. For example, the ’993 patent discloses that “the appropriate decompression algorithm would need to be implemented to reconstruct the audio version of the spoken utterance,” (*id.*, 7:9-12), and “playing the synthesized audio representation through an audio output device on the mobile communication device,” (*id.*, 2:53-55; *see also id.*, 3:23-24 (same)).

Accordingly, a POSITA would have understood *Dolan* to disclose or suggest a voice decoder decompressing audio and playing it over a speaker system (“playing the synthesizing audio representation through an audio device”) on the end user device (“on the mobile communication device”). *Lanning* ¶127.

2. Claim 2: “The method of claim 1, wherein the mobile communication device is a cellular phone.”

Dolan discloses or suggests this claim. *Lanning* ¶¶128-134. For example, *Dolan* discloses that “in the preferred embodiment the end user device is conceived as a digital mobile telephone handset” (*Dolan*, 4:12-13, 10:22-23), and in various places refers to the end user device as a mobile or wireless telephone (*id.*, 1:5, 1:27-2:1, 3:5-6, 6:14, 6:20). *Dolan* further discloses that its “invention is easily codified into mobile phone standards” (*id.*, 7:3), that the Short Message Service protocol that is used to send audio messages to digital mobile telephone handsets is “currently defined in various standards such as GSM (Global System for Mobile Communications) [see, e.g., TIA/EIA/IS-637, Short Message Services for Wide Band Spread Spectrum *Cellular Systems*, 1995; TIA/EIA/TSB-79, Short Message Services for Wide Band Spread Spectrum *Cellular Systems*, 1997 (an update to IS-637); TS GSM 03.40, Digital *cellular telecommunications system*, Technical realization of the Short Message Service (SMS); Point-to-Point (PP)]” (*id.*, 1:21-26), and that examples of implementing SMS messages “are found in the TDMA, CDMA

and GSM standards” (*id.*, 11:20-21). A POSITA would have known that digital mobile telephone handsets or mobile telephones that implement the TDMA, CDMA and/or GSM standards were commonly known and referred to as cellular telephones. *Lanning* ¶132 (citing *Tiedemann*, *Wilson*, and *Virtanen*).⁷ *Dolan*’s disclosure is similar to the ’993 patent, which identifies mobile phones that implement the GSM standard as cellular phones. ’993*Pat*, 7:47-56 (describing the “cellular phone” can be a “smartphone 300” that “supports GSM voice calls”); *Lanning* ¶133.

Accordingly, a POSITA would have understood *Dolan* to disclose or suggest that the digital mobile telephone handset (“mobile communication device”) can implement any one of known standards such as TDMA, CDMA and/or GSM (“is a cellular phone”). *Lanning* ¶134.

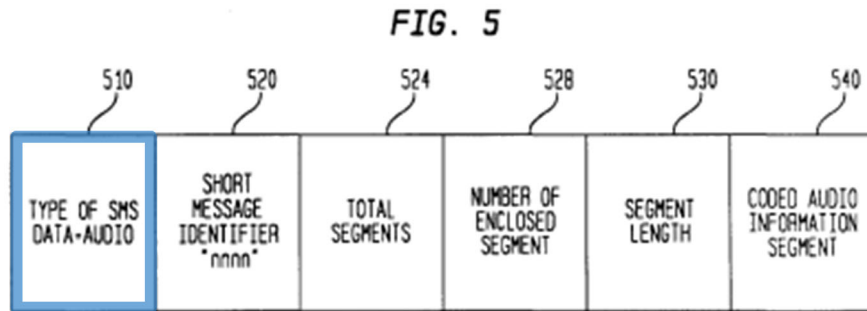
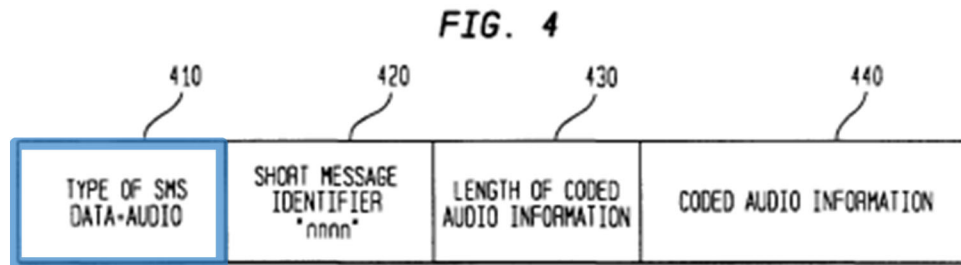
3. Claim 6: “The method of claim 1, wherein the wireless messaging channel is an SMS channel and the text message is an SMS message.”

Dolan discloses or suggests this claim for the reasons discussed in §VIII.A.1.b. *Lanning* ¶135.

⁷ See *supra* note 5.

4. Claim 7: “The method of claim 1, wherein the received text message includes an indicator identifying the text message as containing a non-text representation of the utterance.”

Dolan discloses or suggests this claim. *Lanning* ¶¶136-140. For example, *Dolan* discloses that “[t]he Short Message containing all or portions of the encoded audio information also contains a ***type field*** that indicates the contents of the Short Messages, as well as the type of audio decompression technique necessary to reconstitute the audio information.” *Dolan*, 8:11-13. This type field is shown as “Type of Data field 410” (figure 4) or “Type of Data field 510” (figure 5). *Dolan* discloses that “Type of Data field 410, indicat[es] that the associated message is an Audio message and including information on the type of translator needed to decompress and decode the message field in order to retrieve the audio message.” *Id.*, 8:14-17; *see also id.*, 10:7-8 (“The Type of Data field 510 is the same as for a non-segmented message.”), FIGs. 4-5.



Dolan, FIGs. 4 & 5 (annotated).

Figures 4 and 5 both show the content of the Type of Data field being, for example, “Type of SMS Data = Audio.” Further, as explained in §VIII.A.1.b, the compressed audio information to which “Type of SMS Data = Audio” refers is a non-text representation of the audio message. *Lanning* ¶139.

Accordingly, a POSITA would have understood *Dolan* to disclose or suggest receiving an SMS message (“the received text message”) that includes a Type of Data field with the SMS message (“includes an indicator”) which indicates the associated message is a compressed speech audio such as “Call home, emergency!” (“identifying the text message as containing a non-text representation of the utterance”). *Id.* ¶140.

5. Claim 8: “The method of claim 1, wherein the non-text representation is a compressed version of the utterance.”

Dolan discloses or suggests this claim for the reasons discussed in §VIII.A.1.b. *Lanning* ¶141.

6. Claim 9:

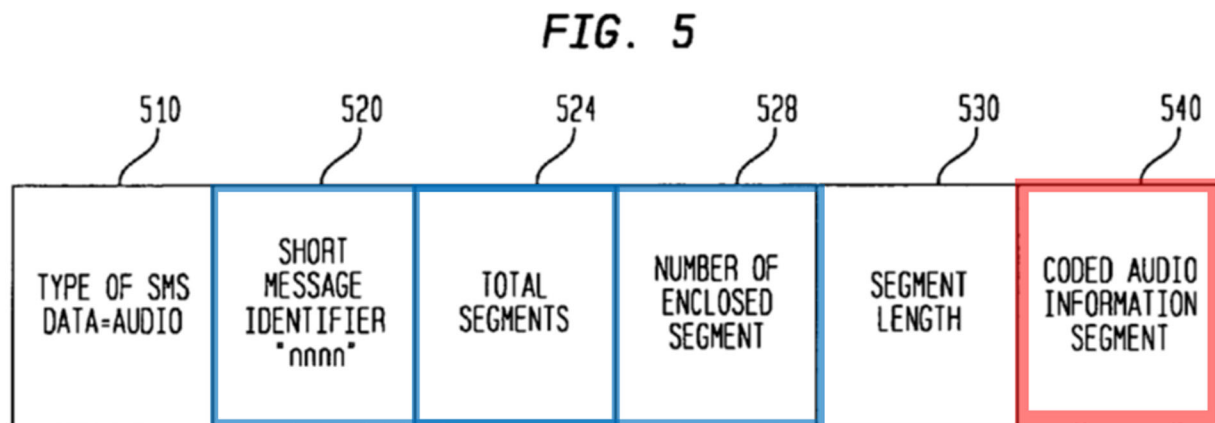
- a. 9[a]: “The method of claim 1 further comprising: over the wireless messaging channel receiving a plurality of text messages in addition to the first-mentioned text message, said first-mentioned text message and said plurality of text messages forming a set of text messages, wherein each text message of the set of text messages contains a non-text representation of a different portion of the utterance;”**

Dolan discloses or suggests this feature. *Lanning* ¶¶142-150.

Dolan discloses that “[i]f the audio information is too large to be contained in a single Short Message, *segmentation and reassembly* techniques commonly known in the art are applied to store and/or *deliver the audio information to the end user device*.” *Dolan*, 3:26-4:1; *see also id.*, 9:18-20. *Dolan* discloses that “[t]he handling of a Short Message containing information too long to be transmitted in a single message” can be done in at least two ways, including that “the Short Message Service provides *segmentation and reassembly* of any Short Message that exceeds intervening network size limits,” or that the “*segmentation and reassembly* process [can be] carried out by the two endpoints which are transmitting and receiving the

coded audio information” using “well known segmentation and reassembly techniques.” *Id.*, 9:18-29.

With reference to figure 5, *Dolan* discloses that “coded audio information that is too long for a single Short Message is broken into segments, for example, into Segment 1 of 3, Segment 2 of 3, and Segment 3 of 3.” *Id.*, 10:1-3; *see also id.*, 11:25-12:2 (disclosing “a separate segmentation/reassembly capability can be provided as part of the invention, operating to divide the audio message into segments and put the segments into separate Short Messages, each Short Message having an indicator signaling that the segment contained within the Short Message is a particular segment number out of some total number of segments.”).



Dolan, FIG. 5 (annotated).

Next, “[e]ach of these segments is then placed into a separate Short Message having” various fields as shown in figure 5 and discussed in *Dolan. Id.*, 10:4-16, FIG. 5; *see also id.*, 4:1-9. *Dolan* discloses that the “Short Message Identifier 520 for a

segmented message provides ... a means of identifying the messages containing the various segments of the same coded audio information message,” that the “Total Segments field 524 and the Number of Encoded Segments field 528 *provide the means to identify and then correctly reassemble the segments of the coded audio information into the correct order at the end user device,*” and that the “Coded Audio Information field 540 contains the segment itself.” *Id.* 10:8-16.

Accordingly, a POSITA would have understood *Dolan* to disclose or suggest an SMS protocol incorporated into the GSM, TDMA or CDMA wireless communication standard (“over the wireless messaging channel”) in which compressed audio information that is too large for one SMS message is segmented and inserted into several SMS messages containing identifying information for reassembly and which is received by the end user device (“receiving a plurality of text messages in addition to the first-mentioned text message”) wherein the content of each of the SMS messages is a different portion of the segmented compressed audio formatted (“wherein each text message of the set of text messages contains a non-text representation of a different portion of the utterance”). *Lanning* ¶149. Additionally, where compressed audio information is broken into multiple segments, the SMS message discussed with respect to claim 1 would be one of the plurality of SMS messages into which the multiple audio segments are placed (“said first-

mentioned text message and said plurality of text messages forming a set of text messages”). *Id.* ¶150.

b. 9[b]: “extracting the non-text representations from the plurality of text messages; and synthesizing the audio representation of the spoken utterance from the non-text representations extracted from the set of text messages.”

Dolan discloses or suggests this feature. *Lanning* ¶¶151-153.

Once the segmented message is received at the end user device and reassembled in the correct order as noted in §VIII.A.6.a, *Dolan* extracts (i.e., removes or copies) the compressed audio information from the text messages and decompresses the audio information to generate (“synthesize”) the audio as discussed in §§VIII.A.1.c and VIII.A.1.d. Additionally, *Dolan* explains that after reassembly, “the contents of the Short Message(s) are optionally stored until the end user chooses to listen to the audio information [and then] the audio information is reconstituted by using the appropriate audio decompression technique, e.g., by passing the compressed audio information through a voice decoder within the end user device, and playing the resulting sounds over the speaker system of the end user device.” *Dolan*, 10:17-22; *Lanning* ¶152.

Accordingly, a POSITA would have understood *Dolan* to disclose or suggest the contents of the segmented audio messages are removed or copied from the text messages (“extracting the non-text representations from the plurality of text

messages”), and using a voice decoder, the compressed audio information is reconstituted and decompressed to generate the voice audio message of a spoken phrase (“synthesizing the audio representation of the spoken utterance from the non-text representations extracted from the set of text messages.”). *Lanning* ¶153.

B. Ground 1B: *Dolan* in view of *Freedman* Renders Obvious Claims 1, 3-5

Ground 1B is directed to a combination of *Dolan* and *Freedman*, in which as explained below, a phoneme-based technique for compressing and decompressing audio as disclosed in *Freedman* is used to perform *Dolan*’s audio compression and decompression functions.

1. Claim 1

a. 1[pre]: “A method of operating a mobile communication device, said method comprising:”

To the extent the preamble is limiting, *Dolan* discloses or suggests this feature for the reasons discussed in §VIII.A.1.a. *Lanning* ¶¶154-155.

b. 1[a]: “over a wireless messaging channel receiving a text message, wherein the text message contains a non-text representation of an utterance;”

Dolan in combination with *Freedman* discloses or suggests this feature. *Lanning* ¶¶156-172.

As discussed in §VIII.A.1.b, *Dolan* discloses or suggests receiving over a wireless messaging channel compressed audio information in a Short Message, such

as an SMS message. While *Dolan* specifically mentions examples of using vocoders and voice decoders utilized by mobile phones to compress and decompress the audio message (*see, e.g., Dolan*, 10:18-22, 11:6-14, 13:11-16), *Dolan* states that “the captured [audio] information [can be] encoded by means of any audio compression technology known in the art” and that “[m]any techniques for compressing and encoding voice signals for digital transmission are well-known in the art (*id.*, 7:10-14); *Lanning* ¶¶158-159. *Dolan* “contemplate[s] that any of these [known] techniques may be used to perform the audio compression function of the invention.” *Dolan*, 7:15-16; *Lanning* ¶159. Similarly, *Dolan* contemplates “using the appropriate audio decompression technique” for decompression of the compressed audio information. *Dolan*, 4:11-12; *see also id.*, 10:19-20 (same); *Lanning* ¶159.

Freedman is an example of a known technique in the art for compressing and decompressing audio information, and specifically audio comprising human voice/speech, using a phoneme-based encoding technique. *Freedman*, Abstract; *Lanning* ¶160. *Freedman* provides “a system that allows for on-line transmission of speech with a small bandwidth from a source to a destination.” *Freedman* ¶[0008]; *Lanning* ¶161. *Freedman* accomplishes this by breaking spoken words into phonemes, thereby translating the provided speech “into a text that corresponds to the speech in a phonetic form.” *Freedman* ¶[0035]; *Lanning* ¶162. The phonetic text is then “transmitted via a telecommunication network such as the Internet or a public

telephony switching system,” to another device which restores the speech according to the phonemes received and provides the restored speech to an output port (e.g., a speaker). *Freedman* ¶[0035]; *see also id.* ¶[0051] (disclosing that a phrase “is reconstituted by the speech generator by performing a reverse operation, i.e. decoding the series of symbols for restoring the phonemes and for delivering the message at the output port.”).

As to the generation of the phonetic text, *Freedman* more particularly discloses “identify[ing] the phonemes when a part of a speech is received ... transcrib[ing] the phonemes into corresponding series of written characters such that a phonetic transcript of the original speech is generated ... [and] encoding the phonetic characters, the encoding resulting in a series of symbols The encoding ***preferably result[ing] in a symbolic representation of the speech other than in a known human intelligible language.***” *Id.* ¶[0038]; *see also id.* ¶[0057]. *Freedman* provides an example of using its technique to encode the sentence: “hello, the sun is shining” as the following phonemes: **he’leəðizsʌnɪzʃaɪnɪŋ**, which a POSITA would have understood to comprise a non-human intelligible string of symbols. *Freedman* ¶¶[0040]-[0041]; *Lanning* ¶164. On the receiving side, *Freedman* discloses “decoding the series of symbols to provide a signal representative of the speech and including data reflective of the phonemes reconstituted to form reconstituted speech similar to the received speech.” *Id.* ¶[0023]; *see also id.* ¶[0048]

(“The encoded text is transmitted to the speech generator 38 for decoding the text using a look-up table for reconstituting a speech based on the phonetic characters to an output port 40.”). A POSITA would have understood that *Freedman*’s phoneme-based technique for encoding speech would have resulted in a compressed form of the speech requiring less bandwidth for transmission than if the speech were transmitted without first being encoded as described by *Freedman*. *Lanning* ¶167; *see also Freedman* ¶¶[0007] (“It would be advantageous to provide with a system that requires reduced bandwidth to support voice communication.”), [0008] (“[I]t is an object of the present invention to provide with a system that allows for on-line transmission of speech with a small bandwidth from a source to a destination.”).

Freedman’s disclosure of using phonemes to generate a “series of symbols” or “a symbolic representation of the speech other than in a known human intelligible language” representing speech (*Freedman* ¶[0038]), is similar to the ’993 patent’s disclosure of using phonemes to generate a non-text representation of an utterance (*Lanning* ¶168). *See also* ’993*Pat*, 2:33-39 (“Generating the non-text representation of the received utterance involves ... generat[ing] a string of symbols, wherein the string of symbols is the non-text representation. The symbols in the string of symbols are selected from the group consisting of phonemes, diphones, and triphones (more specifically, the symbols are phonemes.”), 4:51-52 (“The output is a non-text representation of the spoken utterance, in this case, a phoneme string.”).

A POSITA would have found it obvious to use *Freedman*'s phoneme-based technique to perform *Dolan*'s audio compression and decompression functions. *Lanning* ¶169. *Dolan* itself expressly provides the motivation to do so by stating that “[m]any techniques for compressing and encoding voice signal for digital transmission are well-known in the art” and that “any of these techniques may be used to perform the audio compression function of the invention.” *Dolan*, 7:13-16. Similarly, *Dolan* permits for any “audio decompression technique” that is “appropriate.” *Id.*, 4:11-12; 10:19-20. A POSITA would have found the combination obvious because it amounted to the simple substitution of one known element (*Freedman*'s phoneme-based technique to compress and decompress speech) for another (*Dolan*'s vocoder-based technique to compress and decompress speech) to obtain predictable results (to perform the speech compression and decompression functions in *Dolan*'s system). *Lanning* ¶170.

Further, a POSITA would have had a reasonable expectation of success in combining *Dolan* and *Freedman* because both share a focus on enhancing communication efficiency through digital audio compression and transmission techniques. *Id.* ¶171. *Freedman*'s approach to minimizing bandwidth use with phonetic speech-to-text-to-speech conversion complements *Dolan*'s method of delivering audio via discrete messaging services. *Id.* This combination suggests a reasonable and acceptable solution for optimizing audio communication while

minimizing bandwidth usage, offering a solution that combines the benefits of short messaging and compression using phoneme-based encoding. *Id.*

Accordingly, a POSITA would have understood the *Dolan-Freedman* combination to disclose or suggest using an SMS protocol incorporated into the GSM, TDMA or CDMA wireless communication standard (“over a wireless messaging channel”) to receive a phoneme-based symbolic representation of a spoken phrase other than in a known human intelligible language formatted into an SMS message (“receiving a text message, wherein the text message contains a non-text representation of an utterance”). *Id.* ¶172.

- c. 1[b] through 1[d]: 1[b] (“extracting the non-text representation from the text message;”), 1[c] (“synthesizing an audio representation of the spoken utterance from the non-text representation; and”), and 1[d] (“playing the synthesized audio representation through an audio output device on the mobile communication device.”)

Dolan in combination with *Freedman* discloses or suggests these features. *Lanning* ¶¶173-174.

Dolan discloses or suggests extracting the non-text representation of a user’s utterance (e.g., “Call home, emergency!”) from a text message, synthesizing and playing the synthesized non-text representation of the utterance through an audio output for the reasons discussed in §§VIII.A.1.c, VIII.A.1.d and VIII.A.1.e, respectively. In the *Dolan-Freedman* combination, the non-text representation of the

user's utterance that is extracted and synthesized from the text message is the phonetic representation of the utterance. Doing so would have been obvious to a POSITA for the reasons discussed in §VIII.B.1.b.

2. Claim 3: “The method of claim 1, wherein the non-text representation of the utterance is a string of symbols representing sounds of the utterance.”

Dolan in combination with *Freedman* discloses or suggests this claim. *Lanning* ¶¶175-176. *Freedman* states that a phrase “is reconstituted by the speech generator by performing a reverse operation, i.e. *decoding the series of symbols for restoring the phonemes* and for delivering the message at the output port.” *Freedman* ¶[0051]. As described in §VIII.B.1.b, in the *Dolan-Freedman* combination, *Freedman* discloses identifying the phonemes when a part of a spoken phrase is received (“non-text representation of the utterance”) and encoding the phonetic characters preferably resulting in a symbolic representation of the speech comprised of a string of symbols other than in a known human intelligible language (“is a string of symbols representing sounds of the utterance”). *Id.* ¶176.

3. Claim 4: “The method of claim 3, wherein the symbols in the string of symbols are selected from the group consisting of phonemes, diphones, triphones, syllables, and demisyllables.”

Dolan in combination with *Freedman* discloses or suggests this claim. *Lanning* ¶¶177-180.

This claim is written in Markush form. *See Multilayer Stretch Cling Film Holdings, Inc. v. Berry Plastics Corp.*, 831 F.3d 1350, 1357 (Fed. Cir. 2016) (“Claim drafters often use the term ‘group of’ to signal a Markush group. A Markush group lists specified alternatives in a patent claim, typically in the form: a member selected from the group consisting of A, B, and C. It is generally understood that the members of the Markush group are alternatively usable for the purposes of the invention.”) (cleaned up). With respect to an element written in the Markush form, the entire element is disclosed by the prior art if one alternative in the Markush group is in the prior art. *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1298 (Fed. Cir. 2009).

Freedman discloses identifying the phonemes in the speech to be encoded and “provid[ing] the identified phoneme to a text generator ... [to] transcribe[] the phonemes into corresponding series of written characters such that a phonetic transcript of the original speech is generated ... [and] encoding the phonetic characters, the encoding resulting in a series of symbols The encoding preferably result[ing] in a symbolic representation of the speech other than in a known human intelligible language.” *Freedman* ¶[0038].

Accordingly, a POSITA would have understood the *Dolan-Freedman* combination to disclose or suggest the symbolic representation of the user’s utterance (“the symbols in the string of symbols”) being based on at least phonemes

identified in the utterance (“are selected from the group consisting of phonemes ...”). *Lanning* ¶180.

4. Claim 5: “The method of claim 3, wherein the symbols in the string of symbols are phonemes.”

Dolan in view of *Freedman* discloses or suggests this claim for the reasons discussed in §VIII.B.3. *Lanning* ¶181.

C. Ground 2A: *Dolan* in view of *Halonen* Renders Obvious Claims 10-11, 15-18

1. Claim 10

a. 10[pre]: “A mobile communication device for receiving a voice message, said mobile communication device comprising:”

To the extent the preamble is limiting, *Dolan* discloses or suggests a digital mobile telephone handset (“a mobile communication device”), and the receipt of an audio message (“for receiving a voice message”) for the reasons discussed in §§VIII.A.1.a and VIII.A.1.b, respectively. *Lanning* ¶¶182-183.

b. 10[a] through 10[d]: 10[a] (“a processor system;”), 10[b] (“a transceiver for receiving a text message that contains a non-text representation of an utterance;”), 10[c] (“an audio output device; and”), 10[d] (“memory storing code which when executed on the processor system causes the mobile communication device to:”)

Dolan in combination with *Halonen* discloses or suggests these features. *Lanning* ¶¶184-199.

For the reasons discussed in §VIII.A.2, a POSITA would have understood

Dolan's digital mobile telephone handset to be a cellular phone. A POSITA would have been motivated to look for additional information regarding how to implement *Dolan*'s digital mobile telephone handset (cellular phone) because *Dolan* itself does not focus on the implementation details of its digital mobile telephone handset. *Id.* ¶186. In so looking, a POSITA would have readily identified *Halonen*. *Id.*

Halonen discloses the hardware components incorporated into a typical cellular phone. *Halonen*, 2:43-45 (“Reference is made to FIGS. 1 and 2 for illustrating a wireless user or mobile terminal 10, such as but not limited to a cellular radiotelephone.”). As with *Dolan*'s digital mobile telephone handset, *Halonen*'s mobile terminal also implements one or more standard cellular communication protocols. *Id.*, 3:18-25 (“It should be understood that the mobile terminal 10 ... may be capable of operating with any of a number of air interface standards, including but not limited to ... GSM ... and IS-95 (CDMA).”). Similar to *Dolan*'s digital mobile telephone handset, *Halonen*'s mobile terminal can also process SMS messages. *Id.*, 4:55-56 (“By example, the code blocks can be sent using so-called Short Message Service (SMS) messages.”).

Halonen discloses its mobile terminal 10 having “controller 18 ... comprised of a digital signal processor (DSP) 18a and a microprocessor control unit (MCU) 18b” (*id.*, 3:38-40), a speaker 17 (2:61), and “a transceiver (14, 16) for conducting bidirectional RF communication with a communication network (32)” (*id.*,

Abstract). *See also id.*, 1:63-64, 2:8-9, claim 1 (“A wireless user terminal having a transceiver for conducting bidirectional RF communications with a communications network.”), claims 3, 4, 14, 16, FIG. 1 (showing the transceiver comprised of “transmitter 14” and “receiver 16”).

To the extent Patent Owner argues that *Halonen* does not disclose a transceiver because figure 1 separately labels a transmitter (14) and receiver (16), that argument would be contrary to a POSITA’s understanding of *Halonen*. *See Lanning* ¶189. By repeatedly stating that bidirectional RF communication is conducted by a “transceiver,” a POSITA would have understood *Halonen*’s disclosure to encompass using a single component to implement *Halonen*’s transmitting and receiving functions even though *Halonen*’s figure 1 separately labels the transmitter and receiver functions of such a transceiver. *Id.* In any event, a POSITA would have found it obvious to implement *Halonen*’s transmitting and receiving functions using a transceiver (instead of, for example, separate transmitter and receiver) because transceivers were well known in the art and doing so would have amounted to substituting one known element (a transceiver) for another (separate transmitter and receiver) to obtain predictable results (to effectuate

transmitting and receiving). *Id.* (citing *Kimball*).⁸

A POSITA would also have understood that the transceiver of *Halonen*'s mobile terminal 10 would have been configured to receive the Short Messages (e.g., SMS messages) containing the spoken compressed audio information such as "Call home, emergency!" for further processing by the end user device. *Id.* ¶190.

Halonen also discloses its mobile terminal having "various memories, shown collectively as the memory 24," and that "[a]n operating program for controlling the operation of controller 18 is also stored in the memory 24 (typically in a ROM device)." *Halonen*, 3:1-9; *see also id.*, 3:50-52 ("The software routines executed by the MCU 18b to operate the mobile terminal 10 are referred to herein as its operating program."), 3:64-66 ("The memories 24b and 24c are provided to store the operating program for the MCU 18b."), FIG. 3. A POSITA would have understood that "code" in the context of the '993 patent refers to "program instructions" and more particularly, here, to "[m]achine code consist[ing] of numerical instruction that the computer can recognize and execute and that were converted from source code."

⁸ *Kimball* is cited in this Petition merely to demonstrate a POSITA's knowledge and/or as evidence that a POSITA would have been motivated to make the combinations in the manner discussed in this Petition. *Kimball* is not part of the unpatentability grounds.

Lanning ¶193 (citing *Computer Dictionary*). A POSITA would have further understood that the operating program stored in *Halonen*'s memory 24 comprises program instructions (i.e., code) that when executed by *Halonen*'s controller 18 (e.g., DSP 18a and/or MCU 18b) causes the controller to perform the programmed functionality. *Lanning* ¶193.

A POSITA would have appreciated that the mobile communications devices in *Dolan* and *Halonen* are similar to each other in as much as both are what are commonly referred to as “cellular phones” and both are compatible with and configured to implement one or more common cellular telephone protocols such as GSM and/or CDMA. *Id.* ¶194. Thus, to the extent that *Dolan* does not expressly disclose the components of its digital mobile telephone handset, a POSITA looking for additional implementation details would have readily identified *Halonen* and would have understood the applicability *Halonen*'s teaching of a controller, a speaker, transceiver, and a memory to *Dolan*'s digital mobile telephone handset. *Id.* ¶195. That *Dolan* and *Halonen* disclose similar cellular telephone-type devices confirms that a POSITA would have understood how to predictably apply *Halonen*'s teaching regarding the components of a cellular telephone to *Dolan*'s digital mobile telephone handset. *Id.* ¶196.

Thus, a POSITA would have considered the combination to amount to the use of a known technique (*Halonen*'s teachings regarding the components of a cellular

telephone, including a controller, a speaker, a transceiver, and a memory) to improve similar devices (*Dolan* digital mobile telephone handset) in the same way (to incorporate components into *Dolan*'s digital mobile telephone handset to implement such a device). *Id.* ¶197.

Accordingly, a POSITA would have understood the *Dolan-Halonen* combination to disclose or suggest a digital mobile telephone handset (“mobile communication device”) having a controller comprising a DSP and a MCU (“processor system”), a transceiver for receiving a Short Message (e.g., an SMS message) including spoken compressed audio information such as “Call home, emergency!” (“a transceiver for receiving a text message that contains a non-text representation of an utterance”), a speaker (“an audio output device”), and a memory for storing an operating program for controlling the operation of the controller (“memory storing code which when executed on the processor system causes the mobile communication device to”). *Id.* ¶198.

Moreover, because *Halonen* discloses that the operating program controls the operation of mobile terminal 10 (*Halonen*, 3:7-9, 3:50-52, 3:64-6), the *Dolan-Halonen* combination discloses or suggests that when the operating program stored in the memory is executed by the controller, the controller causes the digital mobile telephone handset to perform operations that meet claim elements 10[e] through 10[g] and the dependent claims discussed below. *Lanning* ¶199.

c. 10[e]: “extract the non-text representation from the received text message;”

Dolan in combination with *Halonen* discloses or suggests this feature. *Lanning* ¶¶200-201. More particularly, *Dolan* discloses its digital mobile telephone handset performing this functionality for the reasons discussed in §VIII.A.1.c. As discussed in §VIII.C.1.b, in the *Dolan-Halonen* combination, when the operating program stored in the memory is executed by the controller, the controller causes the digital mobile telephone handset to perform this operation.

d. 10[f]: “synthesize an audio representation of the spoken utterance from the non-text representation; and”

Dolan in combination with *Halonen* discloses or suggests this feature. *Lanning* ¶¶202-203. More particularly, *Dolan* discloses its digital mobile telephone handset performing this functionality for the reasons discussed in §VIII.A.1.d. As discussed in §VIII.C.1.b, in the *Dolan-Halonen* combination, when the operating program stored in the memory is executed by the controller, the controller causes the digital mobile telephone handset to perform this operation.

e. 10[g]: “play the synthesized audio representation through the audio output device.”

Dolan in combination with *Halonen* discloses or suggests this feature. *Lanning* ¶¶204-205. More particularly, *Dolan* discloses its digital mobile telephone handset performing this functionality for the reasons discussed in §VIII.A.1.e. As

discussed in §VIII.C.1.b, in the *Dolan-Halonen* combination, when the operating program stored in the memory is executed by the controller, the controller causes the digital mobile telephone handset to perform this operation.

2. **Claim 11: “The mobile communication device of claim 10, wherein The [sic] mobile communication device includes a cellular phone.”**

Dolan in combination with *Halonen* discloses or suggests this claim for the reasons discussed above in §VIII.A.2. *Lanning* ¶206.

3. **Claim 15: “The mobile communication device of claim 10, wherein the wireless messaging channel is an SMS channel and the text message is an SMS message.”**

Dolan in combination with *Halonen* discloses or suggests this claim for the reasons discussed above in §VIII.A.3. *Lanning* ¶207.

4. **Claim 16: “The mobile communication device of claim 10, wherein the received text message includes an indicator identifying the text message as containing a non-text representation of the utterance.”**

Dolan in combination with *Halonen* discloses or suggests this claim for the reasons discussed above in §VIII.A.4. *Lanning* ¶208.

5. **Claim 17: “The mobile communication device of claim 10, wherein the non-text representation is a compressed version of the utterance.”**

Dolan in combination with *Halonen* discloses or suggests this claim for the reasons discussed above in §VIII.A.5. *Lanning* ¶209.

6. **Claim 18**

- a. **18[a]: “The mobile communication device of claim 10, wherein the code when executed on the processor further causes the mobile communication device to: over the wireless messaging channel, receive a plurality of text messages in addition to the first-mentioned text message, said first-mentioned text message and said plurality of text messages forming a set of text messages, wherein each text message of the set of text messages contains a non-text representation of a different portion of the utterance;”**

Dolan in combination with *Halonen* discloses or suggests these features. *Lanning* ¶¶210-211. More particularly, *Dolan* discloses its digital mobile telephone handset performing these functionalities for the reasons discussed in §VIII.A.6.a. As discussed in §VIII.C.1.b, in the *Dolan-Halonen* combination, when the operating program stored in the memory is executed by the controller, the controller causes the digital mobile telephone handset to perform this operation.

- b. **18[b]: “extract the non-text representations from the plurality of text messages; and synthesize the audio representation of the spoken utterance from the non-text representations extracted from the set of text messages.”**

Dolan in combination with *Halonen* discloses or suggests these features. *Lanning* ¶¶212-213. More particularly, *Dolan* discloses its digital mobile telephone handset performing these functionalities for the reasons discussed in §VIII.A.6.b. As discussed in §VIII.C.1.b, in the *Dolan-Halonen* combination, when the operating program stored in the memory is executed by the controller, the controller causes the

digital mobile telephone handset to perform this operation.

D. Ground 2B: *Dolan* in view of *Halonen* and *Freedman* Renders Obvious Claims 10, 12-14

Ground 2B is directed to a combination of *Dolan*, *Halonen* and *Freedman*, in which a phoneme-based technique for compressing and decompressing audio as described in *Freedman* is used to perform *Dolan*'s audio compression and decompression function, and *Halonen* provides additional details regarding the components incorporated into *Dolan*'s digital mobile telephone handset. A POSITA would have been motivated to combine *Dolan*, *Halonen* and *Freedman* for the same reasons discussed in §VIII.B.1.b (*Dolan* and *Freedman*), and §VIII.C.1.b (*Dolan* and *Halonen*).

1. Claim 10

- a. 10[pre] through 10[d]: 10[pre] (“A mobile communication device for receiving a voice message, said mobile communication device comprising:”), 10[a] (“a processor system;”), 10[b] (“a transceiver for receiving a text message that contains a non-text representation of an utterance;”), 10[c] (“an audio output device; and”), 10[d] (“memory storing code which when executed on the processor system causes the mobile communication device to:”)

Dolan in combination with *Halonen* discloses or suggests these features for the reasons discussed in §§VIII.C.1.a and VIII.C.1.b. *Lanning* ¶214.

b. 10[e]: “extract the non-text representation from the received text message;”

Dolan in combination with *Halonen* and *Freedman* discloses or suggests this feature. *Lanning* ¶¶215-217.

More particularly, *Dolan* in combination with *Freedman* discloses or suggests removing or copying a phoneme-based representation of a user’s utterance (e.g., “Call home, emergency!”) from an SMS message (“extract the non-text representation from the received text message”) for the reasons discussed in §§VIII.A.1.c and VIII.B.1.c. As discussed in §VIII.C.1.b, *Dolan* in combination with *Halonen* discloses or suggests that, when the operating program stored in the memory is executed by the controller, the controller causes the digital mobile telephone handset to perform this operation. *Freedman* is also compatible with *Halonen* because *Freedman* discloses that its phoneme-based speech processing is performed using a processor 20. *Freedman* ¶[0035]. A POSITA would have understood, therefore, that in the *Dolan-Halonen-Freedman* combination, *Freedman*’s teachings regarding how to reconstitute the speech audio from the phoneme-based representation of an utterance could readily be implemented through the operating program stored in the memory of, and executed by the controller of, the *Dolan-Halonen* combination. *Lanning* ¶217.

c. 10[f]: “synthesize an audio representation of the spoken utterance from the non-text representation; and”

Dolan in combination with *Halonen* and *Freedman* discloses or suggests these features. *Lanning* ¶¶218-219.

More particularly, *Dolan* in combination with *Freedman* discloses or suggests reconstituting the audio from the phoneme-based representation of an utterance (“synthesizing an audio representation of the spoken utterance from the non-text representation”) for the reasons discussed in §§VIII.A.1.d and VIII.B.1.c. As discussed in §VIII.C.1.b, *Dolan* in combination with *Halonen* discloses or suggests that, when the operating program stored in the memory is executed by the controller, the controller causes the digital mobile telephone handset to perform this operation.

d. 10[g]: “play the synthesized audio representation through the audio output device.”

Dolan in combination with *Halonen* discloses or suggests this feature. *Lanning* ¶¶220-221.

More particularly, *Dolan* in combination with *Freedman* discloses or suggests playing the reconstituted phoneme-based representation of a user’s utterance (e.g., “Call home, emergency!”) from an SMS message (“play the synthesized audio representation”) through the speaker (“audio output device”) for the reasons discussed in §VIII.A.1.e and VIII.B.1.c. As discussed in §VIII.C.1.b, in the *Dolan-Halonen* combination, when the operating program stored in the memory is executed

by the controller, the controller causes the digital mobile telephone handset to perform this operation.

2. **Claim 12: “The mobile communication device of claim 10, wherein the non-text representation of the utterance is a string of symbols representing sounds of the utterance.”**

Dolan in combination with *Halonen* and *Freedman* discloses or suggests this claim for the reasons discussed above in §VIII.B.2. *Lanning* ¶222.

3. **Claim 13: “The mobile communication device of claim 12, wherein the symbols in the string of symbols are selected from the group consisting of phonemes, diphones, triphones, syllables, and demisyllables.”**

Dolan in combination with *Halonen* and *Freedman* discloses or suggests this claim for the reasons discussed above in §VIII.B.3. *Lanning* ¶223.

4. **Claim 14: “The mobile communication device of claim 12, wherein the symbols in the string of symbols are phonemes.”**

Dolan in combination with *Halonen* and *Freedman* discloses or suggests this claim for the reasons discussed above in §VIII.B.4. *Lanning* ¶224.

IX. SECONDARY CONSIDERATIONS

There is no evidence in the '078 patent's prosecution history or elsewhere supporting any secondary considerations arguments, or evidence of nexus of such alleged evidence to the Challenged Claims. *See generally* EX. 1004; *Lanning* ¶225. To the extent Patent Owner asserts the existence of any secondary considerations in its responses, Petitioners reserve the right to address any such evidence.

X. THE DISCRETIONARY FACTORS FAVOR INSTITUTING TRIAL

A. 35 U.S.C. § 314(a)

To the extent the patent owner asks the Board to exercise its discretion to deny institution despite the strong invalidity showing on the merits, the Board should decline to do so because the weight of the factors articulated in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020) (precedential) favors institution.⁹

As an initial matter, there is no litigation currently pending against Co-petitioner Google. The '993 patent is asserted against Co-petitioner Samsung but not Co-petitioner Google. Accordingly, none of the *Fintiv* factors that depend on actions or activities of a Co-petitioner in a co-pending litigation apply in any respect to Google. When each of these factors is weighed against Co-petitioner Google, they strongly weigh against denial. Accordingly, the Board should decline to exercise its discretion under 35 U.S.C. §314(a).

⁹ The *Fintiv* framework should not be followed because it is legally invalid as (1) exceeding the Director's authority, (2) arbitrary and capricious, and (3) adopted without notice-and-comment rulemaking.

1. Stay

Factor 1 is neutral. Co-petitioner Samsung has not requested a stay but intends to do so. The PTAB has explained that it will not speculate on how any such motion would be resolved, before one is filed. *Google LLC v. Parus Holdings, Inc.*, IPR2020-00847, Paper 9 at 12 (PTAB Oct. 21, 2020); *see also Hulu LLC v. SITO Mobile R&D IP, LLC*, IPR2021-00298, Paper 11 at 10-11 (PTAB May 19, 2021) (concluding that without evidence of a requested stay or consideration by the district court in the parallel litigation, this factor does not significantly impact the Board’s exercising discretion to deny institution of the IPR).

2. Trial Date

The district court in the parallel litigation against Co-petitioner Samsung held a scheduling conference on March 25, 2024, and set jury selection for August 4, 2025, approximately 13 months away. Ex. 1017. Any comparison of a projected FWD date against the scheduled trial date is speculative. *See Dish Network L.L.C. v. Broadband iTV, Inc.*, IPR2020-01280, Paper 17 at 16 (PTAB Feb. 4, 2021) (“We cannot ignore the fact that the currently scheduled trial date is more than nine months away and much can change during this time”).

Setting that aside, this Petition is filed on July 24, 2024, so a FWD would be expected by January 2026. Although this is approximately five months after the currently scheduled (speculative) trial date, this factor is not determinative or

considered in isolation. *Facebook, Inc. v. USC IP P'Ship*, IPR2021-00034, Paper 13 at 11 (PTAB April 13, 2021) (“[T]his factor is not considered in isolation, but holistically along with other factors”) (citation omitted). Moreover, the Board has instituted IPR and found, on similar facts, that this factor weighs only minimally in favor of denial. *See, e.g., Google LLC, et al. v. Multimodal Media LLC*, IPR2024-00056, Paper 9 at 8 (PTAB Apr. 12, 2024) (a period of about six months between trial and the expected FWD “weighs only marginally in favor” of denial); *NetNut Ltd. v. Bright Data Ltd.*, IPR2021-01492, Paper 12 at 9-16 (PTAB Mar. 21, 2022) (instituting IPR without stipulation and copending trial date six months before FWD); *Facebook*, IPR2021-00034, Paper 13 at 11 (a period of five months between trial and expected FWD “slightly favors denial”); *Coolit Systems, Inc. v. Asetek Danmark A/S*, IPR2021-01195, Paper 10 at 11 (PTAB Dec. 28, 2021) (a period of five months between trial and expected FWD “weighs slightly in favor” of denial); *Equipmentsshare.com Inc. v. Ahern Rentals, Inc.*, IPR2021-00834, Paper 19 at (PTAB Nov. 16, 2021) (a period of seven months between trial and expected FWD “weighs somewhat in favor” of denial).

3. Diligence/Investment

Factor 3 weighs strongly against discretionary denial. No substantive orders have been issued by the court in the underlying litigation, and investment in the parallel litigation against Co-petitioner Samsung will have remained low at the time

of institution. *See, e.g., Hulu LLC v. SITO Mobile R&D IP, LLC*, IPR2021-00298, Paper 11 at 12-14 (PTAB May 19, 2021) (holding that this factor supports instituting IPR given the early stage of the district court proceedings, the lack of substantial discovery related to invalidity claims, and the petitioner's diligent filing of the petition after receiving preliminary infringement contentions). Assuming that a Decision on Institution is issued by January 2025, much work in district court will remain. *Id.* Claim construction briefing does not begin until January 6, 2025, and the *Markman* hearing is scheduled for February 21, 2025. Opening expert reports are due March 17, 2025, and dispositive motions are due April 28, 2025. *Id.*

4. Overlap

Factor 4 weighs against discretionary denial. Petitioners challenge claims 1-18 in this Petition, whereas Patent Owner has alleged infringement of only claims 1-2, 6-8, 10-11, 15-17. EX1016. Accordingly, a material number of the challenged claims will not be addressed by the district court. *See, e.g., Precision Planting LLC v. Maschio Gaspardo S.p.A.*, IPR2024-00008, Paper 12 at 18 (PTAB Mar. 26, 2024) (holding that despite substantial overlap in issues between the IPR petition and parallel district court action, the inclusion of claims in the petition not contested in court argues against discretionary denial due to incomplete overlap). Additionally, Co-petitioner Google is not a party to the underlying litigation, so this IPR is the only forum in which Google can present its invalidity challenge.

5. Parties

The Board should give little weight to the fact that Co-petitioner Samsung and Patent Owner are also parties to the parallel litigation because Co-petitioner Google and the defendant Samsung entities are not the same party.

6. Other considerations.

Even if the *Fintiv* factors favor discretionary denial (which they do not), the merits are compelling here. The Office did not consider a wealth of prior art during prosecution that discloses and/or suggests the alleged invention.

Petitioners therefore respectfully submit that the *Fintiv* factors favor institution and that discretionary denial of this Petition would be neither appropriate nor equitable.

B. 35 U.S.C. §325(d)

The Board should likewise not exercise its discretion under §325(d) to deny institution of Petitioner's petition. There are no references presented in the unpatentability grounds that were previously considered by the Office.

XI. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Parties-in-Interest

Petitioners identify themselves as the real parties-in-interest.¹⁰

1. Related Matters

To the best of Petitioners' knowledge, the '993 patent has only been involved in the following district court litigation: *Cerence Operating Co. v. Samsung Electronics Co., Ltd. et al.*, 2:23-cv-00482-JRG-RSP (E.D. Tex.), filed October 13, 2023.

To the best of Petitioners' knowledge, the '993 patent has not been challenged in any other *inter partes* review or post-grant review prior to this proceeding.

Petitioners are concurrently filing IPR2024-00978 directed to U.S. 7,395,078, from which the '993 patent is a divisional.

B. Lead and Backup Counsel

Lead Counsel	Back-Up Counsel
Ali R. Sharifahmadian (Reg. No. 48,202) ali.sharifahmadian@arnoldporter.com	Patrick Reidy (Reg. No. 72,148) patrick.reidy@arnoldporter.com Arnold & Porter Kaye Scholer LLP 70 West Madison Street

¹⁰ Google LLC is a subsidiary of XXVI Holdings Inc., which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.

Arnold & Porter Kaye Scholer LLP 601 Massachusetts Ave., NW Washington, DC 20001-3743 Tel: 202-942-5000 Fax: 202-942-5999	Suite 4200 Chicago, IL 60602-4231 Tel: 312-583-2300 Fax: 312-583-2360 Douglas L. Clark (Reg. No. 68,443) douglas.clark@arnoldporter.com Arnold & Porter Kaye Scholer LLP 777 South Figueroa St., 44th Floor Los Angeles, CA 900017-5844 Tel: 213-243-4008 Fax: 213-243-4199 Albert J. Boardman (Reg. No. 70,601) albert.boardman@arnoldporter.com Arnold & Porter Kaye Scholer LLP 250 West 55th Street New York, NY 10019-9710 Tel: 212-836-8135 Fax: 212-836-8689 Benjamin M. Haber (Reg. No. 67,129) bhaber@omm.com O'Melveny & Myers LLP 400 South Hope Street, 18th Floor Los Angeles, CA 90071 Tel: 213-430-6000 Fax: 213-430-6407 Jeff Baxter (Reg. No. 45,560) jbaxter@omm.com O'Melveny & Myers LLP 2501 North Harwood Street, Suite 1700 Dallas, TX 75201-1663 Tel: 972-360-1900
--	--

Lead Counsel	Back-Up Counsel
	Fax: 972-360-1901 Argirenia Zervos (pro hac vice anticipated) rzervos@omm.com O'Melveny & Myers LLP Washington, D.C. 20006 Tel: 202-383-5300 Fax: 202-383-5414 Kyla Butler (Reg. No.80,082) kbutler@omm.com O'Melveny & Myers LLP Washington, D.C. 20006 Tel: 202-383-5300 Fax: 202-383-5414

C. Service Information

Please address all correspondence to lead and back-up counsel at the addresses shown above. Petitioners consent to electronic service by email at the following addresses:

ali.sharifahmadian@arnoldporter.com
patrick.reidy@arnoldporter.com
douglas.clark@arnoldporter.com
albert.boardman@arnoldporter.com
xSamsungCerenceAP@arnoldporter.com
bhaber@omm.com
jbaxter@omm.com
rzervos@omm.com
kbutler@omm.com

D. Power of Attorney

A power of attorney is filed herewith according to 37 C.F.R. §42.10(b).

XII. FEES

Petitioners concurrently electronically submits the required fees for this Petition. The Board is authorized to charge Arnold & Porter Kaye Scholer LLP's deposit account, No. 50-2387, for any fee deficiency.

Date: July 24, 2024

Respectfully submitted,

/Ali R. Sharifahmadian/

Ali R. Sharifahmadian (Reg. No. 48,202)
Counsel for Petitioners

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that the foregoing Petition for *Inter Partes* Review contains 11,307 words, excluding those portions identified in 37 C.F.R. §42.24(a), as measured by the word-processing system used to prepare this paper.

/Ali R. Sharifahmadian/
Ali R. Sharifahmadian (Reg. No. 48,202)
Counsel for Petitioners

CERTIFICATE OF SERVICE

I certify that on July 24, 2024, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 8,081,993 and supporting exhibits to be served via overnight delivery on the Patent Owner at the following correspondence address of record as listed on PAIR:

Bruce Sunstein
Sunstein LLP
100 High Street
Boston, MA 02110-2321

A courtesy copy was also sent via electronic mail to Patent Owner's litigation counsel listed below:

Andrew D. Weiss (aweiss@raklaw.com)
Benjamin T Wang (bwang@raklaw.com)
Daniel Benjamin Kolko (dkolko@raklaw.com)
James Shrin Tsuei (jtsuei@raklaw.com)
Jonathan D Link (jlink@raklaw.com)
Qi Tong (ptong@raklaw.com)
Shani M Tutt (swilliams@raklaw.com)
Marc A Fenster (mafenster@raklaw.com)

/Ali R. Sharifahmadian/

Ali R. Sharifahmadian (Reg. No. 48,202)
Counsel for Petitioners