

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

META PLATFORMS, INC.,
Petitioner

v.

VOIP-PAL.COM, INC.,
(Alleged) Patent Owner

U.S. PATENT NO. 8,630,234

Case IPR2022-01231

**DECLARATION OF DR. VIJAY MADISETTI IN SUPPORT OF PETITION
FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. §312 AND 37 C.F.R. §42.104**

META 1003 META
V. VOIP-PAL

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 8,630,234 ('234 Patent)
1002	File History of U.S. Patent No. 8,630,234
1003	Declaration of Dr. Vijay Madisetti
1004	Curriculum Vitae of Dr. Vijay Madisetti
1005	U.S. Patent No. 7,668,159 ("Buckley")
1006	U.S. Patent No. 7,995,565
1007	U.S. Patent No. 6,954,654 ("Ejzak")
1008	U.S. Patent App. Pub. No. 2009/0047922
1009	U.S. Patent No. 8,731,163 ("Bates")
1010	IETF RFC 3261, <i>available at</i> https://datatracker.ietf.org/doc/html/rfc3261
1011	U.S. Patent No. 7,245,609
1012	Claim Construction Order (Dkt. No. 67) in Case No. 6:21-cv-00668-ADA (W.D. Tex.)
1013	Joint Claim Construction Statement (Dkt. No. 59) in Case No. 3:22-CV-03202-JSC (N.D. Cal)
1014	U.S. Patent Pub. No. 2008/0167039
1015	U.S. Patent Pub. No. 2002/0102973
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1017	Exhibit 2016 in <i>Apple, Inc. v. VoIP-Pal.com, Inc.</i> , IPR 2016-01201 (P.T.A.B. Feb. 10, 2017)
1018	Email with attachment from Counsel for Patent Owner Regarding Claim Construction, dated March 2, 2022
1019	"Convergence Technologies for 3G Networks IP, UMTS, EGPRS and ATM", by Jeffery Bannister <i>et al.</i> , Wiley, England (2004)

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Exhibit No.	Description
1020	IETF RFC 3986, <i>available at</i> https://datatracker.ietf.org/doc/html/rfc3986
1021	IETF RFC 2543, <i>available at</i> https://datatracker.ietf.org/doc/html/rfc2543
1022	U.S. Patent No. 7,283,507
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1024	Excerpts from Wireless Encyclopedia, Althos Publishing (2007)
1025	International Patent Publication No. WO 01/89145 A2
1026	Excerpt from the File History of U.S. Patent No. 10,880,721 – “Roaming – Wikipedia” (submitted along with IDS on September 24, 2013)

I. INTRODUCTION

1. I have been retained by Meta Platforms, Inc. (“Meta” or “Petitioner”) to provide my opinion regarding whether claims 1-3, 6, 10-11, 19-22, 24-25, and 28-29 (“Challenged Claims”) of U.S. Patent No. 8,630,234 (EX1001, the “’234 Patent”) would have been obvious to one of ordinary skill in the art, as part of the above-captioned petition of *inter partes* review (IPR) of the ’234 Patent.
2. I am being compensated for my time at my standard hourly consulting rate of \$600 per hour. My compensation does not depend on the outcome of this litigation or the opinions I form.
3. In forming my opinions expressed in this declaration, I have relied on my extensive knowledge, training, and experience, as well as all of the materials cited herein.

II. QUALIFICATIONS

4. My qualifications and publications can be found in my Curriculum Vitae, which is Exhibit 1004, along with a listing of the cases in which I have testified as an expert at trial or by deposition within the preceding five years. My background and experience qualify me to offer the opinions offered in this Declaration and are described below.

5. In 1984, I received my Bachelor of Technology (Honors) in Electronics and Electrical Communication Engineering at the Indian Institute of Technology (IIT) in Kharagpur, India. In 1989, I obtained my Ph.D. in Electrical Engineering and Computer Science at the University of California, Berkeley. That year, I also received the Demetri Angelakos Outstanding Graduate Student Award from the University of California, Berkeley, and the IEEE/ACM¹ Ira M. Kay Memorial Paper Prize. I authored several papers and proposals during this time, including “Multilevel Range/NEXT Performance in Digital Subscriber Loops”, IEEE Proceedings on Communications, Speech and Vision, Vol 136, Issue 2, April 1989, and “Comparison of Line Codes and Proposal for Modified Duobinary”, Contribution T1D1.3-85- 237, American National Standards Institute, November 1985.
6. In 1989, I joined the faculty at Georgia Tech. My first position was an assistant professor position. I became an associate professor in 1995. In 1997, I was awarded the VHSIC Hardware Description Language (or VHDL) International Best Ph.D. Dissertation Advisor for my contributions in the area of rapid prototyping. I became a full professor in 1998 and have maintained that title ever since. As a faculty member at Georgia Tech, I have been an

¹ IEEE is the Institute of Electrical and Electronics Engineers. ACM is the Association for Computing Machinery.

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active contributor in several disciplines, including wireless networks, cellular communications, computer engineering, embedded systems, chip design, software systems, and image and video processing.

7. From 1999-2003, I consulted with a team of engineers to design an integrated Soft Switch & Media Server, the SNX 850/8500, that was being sold and installed in Asia. The SNX 8500 was a one-box solution to VOIP, LAN switching, and iPBX/PBX solutions for enterprise customers, and has been installed as part of BPL Telecom's then offerings in Asia. The PBX modules within SNX 850/8500 supported Analog Phones, Digital Feature Phones, E1/ISDN PRI Trunks, E1 or PRI at the PSTN gateway, VOIP (SIP) soft phones, SS7 interfaces, and operated via a browser-based console. It included a variety of features, such as Automatic Call Back, Busy Override, Do Not Disturb, etc., through support for 16 ISDN BRI circuits.
8. Since 1995, I have authored, co-authored, or edited several books in the areas of communications, signal processing, chip design, and software engineering, including VLSI Digital Signal Processors (1st ed. 1995), Quick-Turnaround ASIC Design in VHDL (1st ed. 1996), The Digital Signal Processing Handbook (2d. ed. 2010), Cloud Computing: A Hands-On Approach (1st ed. 2013), Internet of Things: A Hands-On Approach (1st ed. 2014), and Big Data Science & Analytics (1st ed. 2016).

9. Between 1998 and 2004, my students and I studied different codecs and published IETF draft standards² on audio and video streaming applications over the internet including: V. Madisetti and A. Argyriou: Voice and Video over Mobile IP Networks, IETF Draft, May 20, 2002; and V. Madisetti and A. Argyriou: A Transport Layer Technology for Improving QoS of Networked Multimedia Applications, IETF Draft July 25, 2002.
10. I have served on the paper-reviewing committees for many leading conferences in my field, and I have taken on editorial roles for leading technical journals in fields pertinent to my research. For example, I served as the Editor-in-Chief of the IEEE Press/CRC Press's three-volume Digital Signal Processing Handbook for Edition 1 (1998) and Edition 2 (2010). I have also authored over 100 articles, reports, and other publications pertaining to electrical engineering, and in the areas of communications, communications signal processing, and computer engineering.
11. Throughout my time at Georgia Tech, I have designed several specialized computer and communication systems for tasks such as wireless, audio, video, and protocol processing for portable platforms (like cell phones and PDAs). I

² IETF is the Internet Engineering Task Force.

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have also been actively involved in the areas of wireless communication, software engineering, system design methodologies, and software systems.

12. Beyond my work in academia, I have worked in industries relating to speech, audio, and image processing since the early 1980s. I developed efficient algorithms for echo cancellers for speech and voice applications that reduce complexity and improve performance. This work resulted in a peer-reviewed publication called “Dynamically Reduced Complexity Implementation of Echo Cancellers,” IEEE ICASSP 96, Tokyo.
13. From 2000-2001, I designed three Global System for Mobiles multiband mobile phones for a leading telecom equipment manufacturer in Asia.
14. From 2000-2007, I designed and provided optimized mobile speech to one of the leading mobile phone and base station manufacturers in the world. This implementation has been deployed on millions of 3G/4G mobile phones and numerous base stations.
15. During that same time frame, I also designed and provided several VOIP codecs to leading VOIP phone vendors that are now deployed in several generations of enterprise VOIP phone products in the USA and abroad. I designed and provided echo cancellers for VOIP applications.
16. From 2002-2007, I developed wireless baseband and protocol stack software and assembly code for a leading telecommunications handset vendor. The

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software and code focused on efficient realization of speech codecs and echo-cancellation and optimization of 3G software stack. My work included creating software code and analyzing and revising existing software code.

17. I have also developed speech and video codecs that comply with 3GPP standards.³ I developed software to implement the associated 3GPP standards and developed tests to verify compliance with these standards. I have also developed several speech and VOIP (voice over Internet Protocol) codecs that conform with the ITU (International Telecommunications Union) standards G.723.1, G.729 and Echo Cancellers conforming with the ITU G.168 standards.
18. The software and code I have developed and tested based on the ITU standards are now used by one of the leading suppliers of VOIP/Internet telephones in the world. This software is also part of commercially released soft switches for internet telephony used extensively in Asia.
19. In addition to my academic and industrial pursuits, I am also a long-standing member of several professional technical organizations. I was the Technical Program Chair for both the IEEE MASCOTS in 1994 and the IEEE Workshop on Parallel and Distributed Simulation in 1990. More recently, I was elected

³ 3GPP stands for 3rd Generation Partnership Project, a collection of standards organizations that develop protocols for mobile telecommunications.

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to the Fellowship of the IEEE because of my contributions to embedded computing systems. Fellows are in the highest tier of membership in the IEEE, a world professional body consisting of over 300,000 electrical and electronics engineers. Only 0.1% of the IEEE membership is elected to the Fellowship each year.

20. I also serve as the official representative from Georgia Tech to the 3GPP/ETSI⁴ standards organization. As such, I am familiar with the standard processors for speech, audio and video applications in the context of mobile and wireless communications.
21. Through the past twenty years, I have been retained to test various commercial mobile and wireless products to determine if they comply with various technical standards. I have participated in and contributed to activities of Standards Setting Organizations (“SSOs”) such as the IEEE, IETF, ETSI, and others, as part of my work as a teacher and researcher in advanced telecom, wireless, and computer technologies.
22. Over the past three decades, I have studied and designed wireless networking and image and video processing circuits for numerous applications, including

⁴ ETSI stands for European Telecommunications Standards Institute.

digital and video cameras, mobile phones, and networking products for leading commercial firms.

III. UNDERSTANDING OF PATENT LAW

23. I am not an attorney, but I have been provided with an understanding of certain legal principles relevant to my analysis and opinions in this matter.
24. I understand that a person of ordinary skill in the art (a “POSITA”) is a hypothetical person who is presumed to have known the relevant art at the time of the invention, and that the factors that may be considered in determining the level of ordinary skill in the art may include: (a) type of problems encountered in the art; (b) prior art solutions to those problems; (c) rapidity with which innovations are made; (d) sophistication of the technology; and (e) educational level of active workers in the field. In a given case, every factor may not be present, and one or more factors may predominate.
25. I have been informed that patent claims are construed or interpreted from the perspective of a POSITA at the time of the claimed invention. I understand that the most important evidence to consider in construing the claims is the “intrinsic” evidence. This includes the claim language, the patent’s specification, and the prosecution history (including references cited in the prosecution history). I understand that the POSITA must read the claim terms

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in the context of the claim and in the context of the entire patent specification.

I understand that the patentee may explicitly define a claim term in a way that differs from the plain and ordinary meaning in the art.

26. I further understand that a POSITA may also consider “extrinsic” evidence when interpreting the meaning of claim terms, which are documents and testimony beyond the patent to ensure that a claim is construed consistently with the understanding of those of skill in the art at the time of the claimed invention. I also understand that extrinsic evidence may not be relied on if it deviates from the meaning of the claim provided by the intrinsic evidence.
27. I further understand that inventors may draft their claims as a means or step for performing a specified function, but that they must also disclose in the specification the structure that performs the function, or that claim is indefinite. I also understand that construing a means-plus-function claim requires identifying the claimed function and determining what structure, if any, disclosed in the specification corresponds to the claimed function. I further understand that a term with a computer-implemented function must have a clearly linked structure in the form of an algorithm. I understand that if I cannot identify such an algorithm, the term lacks a clearly linked structure and is therefore indefinite. I further understand that a general purpose

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computer cannot be the structure for a computer-implemented function because this amounts to purely functional claiming.

28. I understand that a claim is invalid if it is anticipated or obvious. Anticipation of a claim requires that every element of a claim be disclosed expressly or inherently in a single prior art reference, arranged in the prior art reference as arranged in the claim.
29. It is my understanding that a patent claim is invalid for obviousness if the claimed invention would have been obvious at the time the invention was made to a person having ordinary skill in the art (POSITA).
30. I understand that the following factors are considered in an obviousness analysis: (1) the scope and content of the prior art; (2) the differences between the art and the claims at issue; (3) the level of ordinary skill in the art at the time the invention of the asserted patent was made; and (4) objective evidence of nonobviousness. In order to determine whether claim elements are found in the prior art, it is necessary to compare the properly construed claim language of the patent with the teachings of the prior art.
31. I understand that certain factors-often called “secondary considerations” may support or rebut an assertion of obviousness of a claim. I understand that such secondary considerations include, among other things, commercial success of the alleged invention, skepticism of those having ordinary skill in the art at

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the time of the alleged invention, unexpected results of the alleged invention, any long-felt but unsolved need in the art that was satisfied by the alleged invention, the failure of others to make the alleged invention, praise of the alleged invention by those having ordinary skill in the art, and copying of the alleged invention by others in the field. I further understand that there must be a nexus—*i.e.*, a connection—between any such secondary considerations and the alleged.

32. I further understand that a claim can be found obvious if it unites old elements with no change to their respective functions, or alters prior art by mere substitution of one element for another known in the field, with that combination yielding predictable results. While it may be helpful to identify a reason for this combination, common sense should guide, and there is no rigid requirement for a teaching, suggestion, or motivation to combine. For example, design incentives and other market forces can prompt variations of a product, either in the same field or different one. If a person having ordinary skill in the relevant art can implement a predictable variation, obviousness can bar patentability. Similarly, if a technique has been used to improve one device, and a person having ordinary skill in the art would recognize that the technique would improve similar devices in the same way, use of the technique is obvious. I further understand that a claim may be obvious if

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common sense directs one to combine multiple prior art references or add missing features to reproduce the alleged invention recited in the claims.

33. I also understand that any one or more of the following rationales may support a finding of obviousness:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;
- User of known technique to improve similar devices (methods, or products) in the same way;
- Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- "Obvious to try" - choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;
- Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

34. I also understand that it is impermissible to use the claimed invention itself as a blueprint for piecing together elements in the art. In other words, it is impermissible to use hindsight reconstruction to pick and choose among disclosures in the prior art to reconstruct the claimed invention.

IV. OVERVIEW OF OPINION

35. I cite many documents in this declaration in support of my analysis, but my opinion regarding the obviousness of the Challenged Claims is fundamentally based on two references:

- **U.S. Patent No. 7,668,159 (“Buckley”) (EX1005)**, filed on August 3, 2007 and granted on February 23, 2010. I understand that, based on Buckley’s filing date, it is prior art to the ’234 Patent.
- **U.S. Patent No. 8,731,163 (“Bates”) (EX1009)**, filed on May 9, 2007 and granted on May 20, 2014. I understand that, based on Bates’s filing date, it is prior art to the ’234 Patent.

36. In my opinion, claims 1-3, 6, 10-11, 19-22, 25, and 28-29 of the ’234 Patent would have been obvious to a POSITA before February 4, 2008, as summarized in the following table:

Ground	Claims	Analysis
I	1-3, 6, 10-11, 19-22, 25, and 28-29	Obvious over Buckley
II	1-3, 6, 10-11, 19-22, 24-25, and 28-29	Obvious over Buckley in view of Bates

37. As noted above in the Introduction section, for the present assignment, I was only asked to analyze the obviousness of the Challenged Claims, and the scope of my analysis in this declaration is limited to those Challenged Claims. Accordingly, I do not address herein any other claims in the ’234 Patent. No inferences should be drawn from the limited scope of my analysis in this declaration. I have been asked to consider certain other claims in the ’234

Patent, and claims in another related patent, and my opinions with respect to those claims are addressed in separate declarations.

V. THE '234 PATENT

A. Priority Date

38. The '234 Patent issued on January 14, 2014, from U.S. Application No. 13/056,277, filed on January 27, 2011. It claims priority to Provisional Application No. 61/129,898, filed on July 28, 2008.
39. Although the earliest claimed priority date on the face of the '234 Patent is July 28, 2008, I understand that Patent Owner has contended that the earliest corroborated date of invention for the '234 Patent is February 4, 2008. I have performed my analysis herein assuming that the priority date of the patent is February 4, 2008, although I have not seen any evidence suggesting the the invention was in fact conceived at that earlier date, and my opinions herein would not change if the priority date were actually July 28, 2008 (*i.e.*, the earliest priority date appearing on the face of the patent).

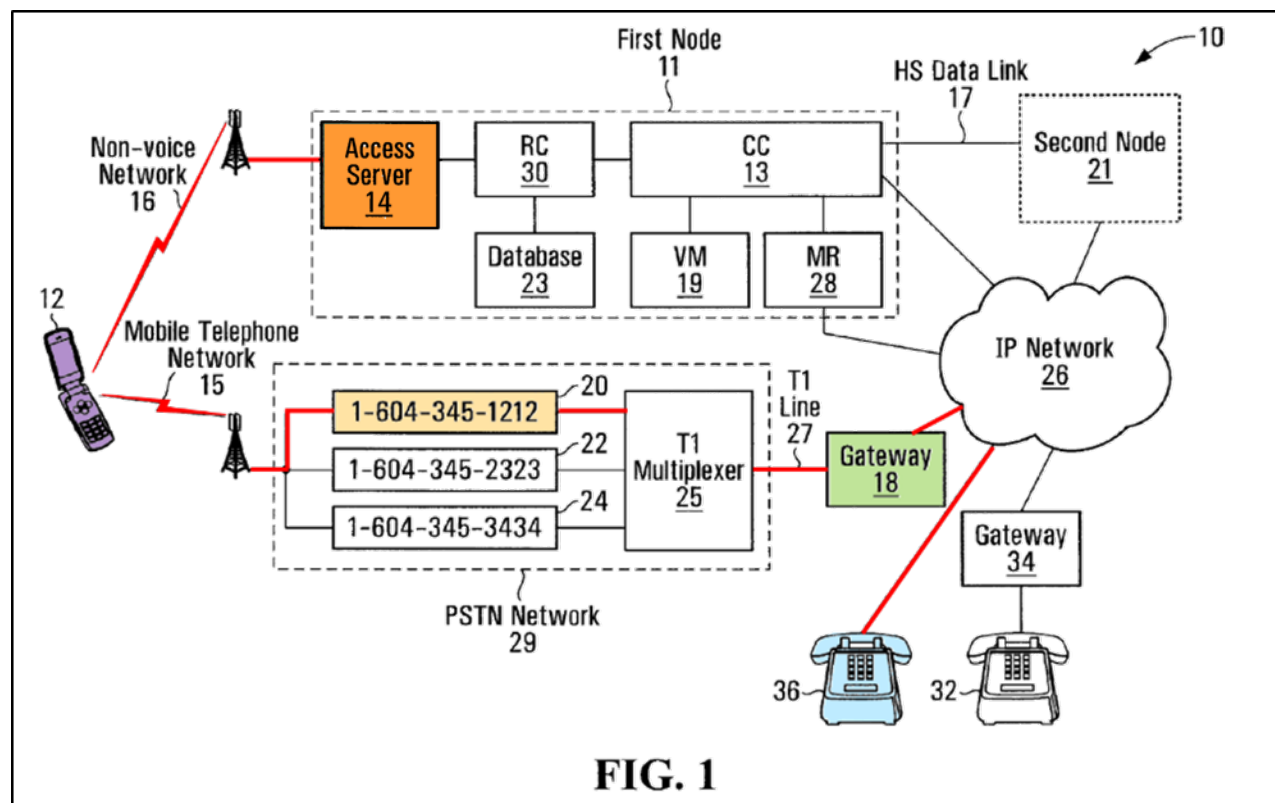
B. Technology Overview

40. Traditional Public Switched Telephone Networks (PSTNs) route telephone calls over circuit-switched telephone networks, which are also called “voice” networks. *See* EX1007, 1:19-22. The '234 Patent uses a sequence of messages sent over a “non-voice” network (such as a packet-switched Internet Protocol (IP) network) to route voice calls over an IP network (aka Voice-over-IP or

VoIP). EX1001, 8:33-39, 9:6-13. As background, “circuit-switched” networks involve a particular, dedicated circuit connection to transmit data (in the form of electrical signals) between the caller and callee. “Packet-switched” networks such as the Internet, on the other hand, break data into small packets that are separately routed over network connections to the recipient, which reassembles the packets once they are received.

41. The '234 Patent's call routing process begins when a mobile telephone (purple⁵ element 12 in Figure 1 below) sends an “access code request message” to an access server (orange element 14) belonging to a telecommunications service provider (such as AT&T). EX1001, 11:44-48. The access code request message includes the intended callee's identifier, such as a telephone number, and the caller's “location identifier.” *Id.* 11:59-62, 12:13-15. Based on that information in the access code request message, the access server responds with an “access code” in an “access code reply message.” *Id.* 12:55-59. The “access code” is a temporary number, such as a local telephone number, used to route the call. *Id.* 12:63-66.

⁵ All emphasis and color is added, unless indicated otherwise.

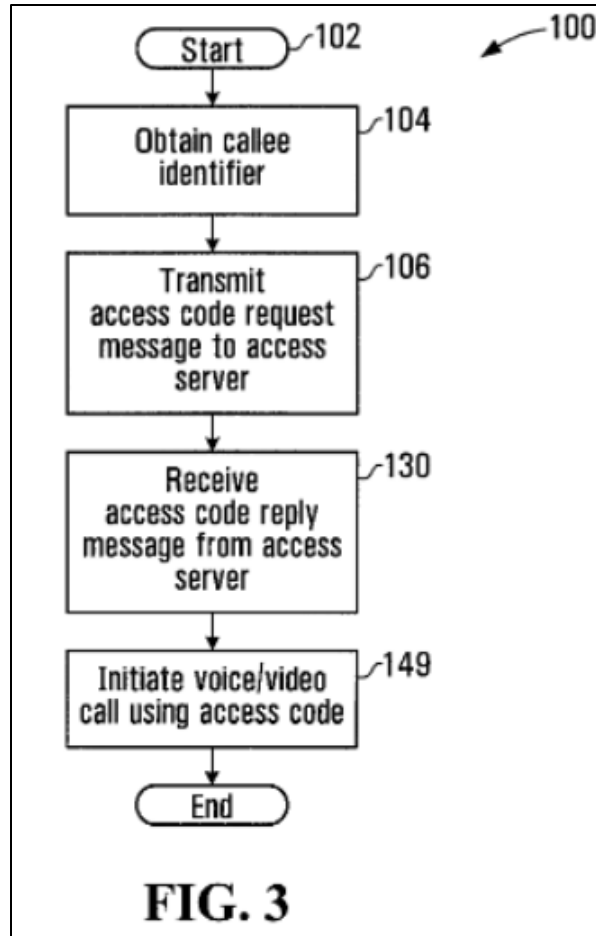


42. In Figure 1, the “access code” is the temporary telephone number in yellow-highlighted element 20 (*i.e.*, 1-604-345-1212). This temporary number is used to route the call within the phone’s home network towards a gateway (green element 18). The gateway bridges the PSTN (element 29) to an IP Network (element 26), so that calls originating or terminating on the PSTN (element 29) can be routed over IP network (element 26) to a callee’s IP phone (blue element 36). *Id.* 13:40-47. As was well-known in the art, IP networks such as the Internet do not apply long-distance or roaming charges, so routing a call over such networks in the manner described above avoids such charges. *See, e.g.*, EX1011 (prior art), 1:7-19 (“By moving voice traffic to IP networks,

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companies may reduce or eliminate certain toll charges associated with transporting calls over [PSTN]”).

43. The access server (element 14) may receive the access code request message “over a non-voice network, such as an internet using WiFi or GPRS technology for example” EX1001, 11:51-52. The mobile telephone’s location identifier (which is included in the access code request message) may be “an IP address of the mobile telephone [] in a wireless IP network, such as the non-voice network...” *Id.* 12:19-22. The server’s access code reply message, which includes the temporary number (access code), may be returned over the non-voice, IP network (element 16). The mobile telephone may then use the access code to initiate a call on the voice network (element 15) that is then routed over the IP Network (element 26).
44. The purported invention is summarized in Figure 3, which depicts the process from the telephone’s perspective as found, for example, in claim 1:



C. Person of Ordinary Skill in the Art

45. In my opinion, a POSITA at the time of the alleged invention described in the Asserted Patent would have had a Bachelor's degree in Computer Science or Electrical Engineering, or an equivalent field, and approximately two years of experience working with networks. Additional education might compensate for less experience, and vice-versa.
46. This level of ordinary skill experience largely aligns with the level of ordinary skill that VoIP-Pal's expert set forth in his declaration in an *inter partes* review of U.S. Patent No. 8,542,815. See EX1017 ¶ 14 (“[I]t is my opinion

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that one of ordinary skill in the art as of the priority date would be someone with an undergraduate degree in either Computer Science, Computer Engineering, Electrical Engineering, or a closely related discipline. Furthermore, I believe that such a person would also have 2 years of experience in system-level software development. In my opinion a greater degree of professional experience could serve to replace some degree of formal education. I also believe that some greater degree of formal education could serve to replace some degree of professional work experience.”). The ’234 Patent and the ’815 Patent were both originally assigned to Digifonica (International) Limited (as indicated on the face of the patents), share an overlapping named inventor in Johan Emil Viktor Bjorsell, and are in the same field. *Compare* EX1001, 1:10-19 (“1. Field of Invention. This invention relates generally to telecommunication, and more particularly to methods, systems, apparatuses, and computer readable media for initiating or enabling a call with a mobile telephone to a callee. 2. Description of Related Art. Mobile telephone service providers often charge significant fees for long distance telephone calls, particularly when the mobile telephone is roaming in another mobile telephone service provider’s network.”), *with* EX1016, 1:11-13 (“1. Field of Invention. This invention relates to voice over IP communications and methods and apparatus for routing and billing.”).

47. Based on my education and experience, I am familiar with the level of knowledge that one of ordinary skill would have possessed during the relevant period of time. By the of the earliest possible priority date (February 4, 2008), I was at least a person of ordinary skill in the art, and I am familiar with how persons of ordinary skill in the art would have interpreted the '234 Patent.

VI. CLAIM CONSTRUCTION

A. Agreed Constructions

48. I understand that, in the parallel litigation between the parties, the parties have agreed to the following constructions for certain terms governed by 35 U.S.C. § 112 ¶ 6. I have applied these constructions in my analysis.

Claim Term	Agreed Construction
“means for receiving, from a user of the mobile telephone, a callee identifier” (claim 11)	<u>Function</u> : receiving, from a user of the mobile telephone, a callee identifier <u>Structure</u> : a dialing input, which is a key pad, a voice recognition unit, or a parameter memory with prestored callee identifiers

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“means for transmitting an access code request message to an access server” (claim 11)	<u>Function</u>: transmitting an access code request message to an access server <u>Structure</u>: a network interface
“means for receiving an access code reply message from the access server in response to said access code request message” (claim 11)	<u>Function</u>: receiving an access code reply message from the access server in response to said access code request message <u>Structure</u>: a network interface
“means for receiving from the mobile telephone said access code request message” (claim 19)	<u>Function</u>: receiving from the mobile telephone said access code request message <u>Structure</u>: a network interface
“means for transmitting said access code reply message including said access code to the mobile telephone” (claim 19)	<u>Function</u>: transmitting said access code reply message including said access code to the mobile telephone <u>Structure</u>: a network interface

B. “local call” - Claims 1, 11, 20

49. I understand that Petitioner has contended that a “local call” is a “call within the PSTN local calling area of the mobile telephone.” EX1013. I further understand that Patent Owner has contended that “local call” should be construed as “a call that is made in a geographical area associated with the caller’s device.” *Id.* I further understand that a court in W.D. Tex. construed the term to mean “[a] call treated as ‘local’ (for example, as opposed to long distance) by a service provider. Not limited to PSTN.” EX1012. My opinion that the Challenged Claims are obvious over the grounds asserted herein applies regardless of which of these constructions is adopted, and I have applied all of them in my analysis. In particular, as discussed below, the prior art techniques include both network operator-based locality (based, for example, on the user device’s home network and location information), and geographic locality (based, for example, on the user device’s geographic location and location information).

C. “means for initiating a call using said access code to identify the callee” - Claim 11

50. In my opinion, this term has a function of “initiating a call using said access code to identify the callee” and a structure of “a network interface, including switched line channels in a public switched telephone network (PSTN).”

51. The corresponding structure in the patent is easily identified. The claimed “means” element appears in claim 11 after three prior elements reciting (i) “means for receiving . . . a callee identifier,” (ii) “transmitting means,” and (iii) “means for receiving an access code reply message.” EX1001, 35:34-56. These four functions correspond directly to the four steps recited in the patent Abstract and the four steps in the flowchart contained in Figure 3. The ’234 patent thus associates the function of “initiating a call using said access code” with the operations described in connection with the last step in Figure 3, which is identified as block 149 and has the label “Initiate voice/video call using access code.”
52. The specification gives the following explanation of the block 149 step: “[B]lock 149 directs the microprocessor 52 to initiate a call with the mobile telephone (12) on the mobile telephone network 15 (illustrated in FIG. 1) using the access code received in the access code field 142 of the access code reply message 140 (shown in FIG. 5) to identify the callee. In the illustrated embodiment, the codes in block 149 direct the microprocessor 52 to initiate a call to the channel (20, 22 or 24) identified by the access code, using the mobile telephone network interface 72 of the I/O port 56 of the mobile telephone network (12), to engage the mobile telephone network (15).” *Id.*, 13:29-39. This description recites that the microprocessor in the mobile

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- telephone (item 52 in FIG. 1) initiates a call to one of the available mobile telephone network service channels (items 20, 22, or 24 in FIG. 1). These channels are “associated with PSTN telephone numbers.” EX1001, 9:22-25. The channel that the processor uses is “identified by the access code.” EX1001, 13:36. If the access code is a telephone number, then it will “identify” the telephone network service channel having that same telephone number. EX1001, 2:44, 4:14-16, 35:39-40. The corresponding structure includes the switched line channels through which a call is initiated based on correspondence between the telephone number of the channel and the telephone number associated with the access code. There is no disclosure in the patent of any alternative method.
53. I understand that a court in W.D. Tex. adopted Patent Owner’s previously proposed construction of this term, incorporating the structure of a “[m]obile wireless device 12 having a microprocessor 52 programmed to implement the algorithm illustrated in FIG. 3, which includes block 149 labeled ‘Initiate voice/video call using access code.’ The wireless device 12 includes I/O port(s) 56 capable of acting as an interface to external networks (70, 72, 15, 16). See FIG. 2.” EX1012.

54. My opinion that the Challenged Claims are obvious over the grounds asserted herein applies regardless of which of these constructions is adopted, and I have applied both of them in my analysis.

D. “means for communicating with said routing controller to obtain from said routing controller said access code” - Claim 19

55. In my opinion, this term has a function of “communicating with said routing controller to obtain from said routing controller said access code” and a structure of “an input/output port that transmits the access code request message, as received from the mobile telephone, to the routing controller and receives, from the routing controller, the access code reply message.” *See* EX1001, 14:30-43, 14:48-54.

56. I understand that Patent Owner has contended the term should be construed to incorporate the structure of “[a]n I/O port of an access server and/or an I/O port of a routing controller.” EX1018.

57. My opinion that the Challenged Claims are obvious over the grounds asserted herein applies regardless of which of these constructions is adopted, and I have applied both of them in my analysis.

E. Other Terms

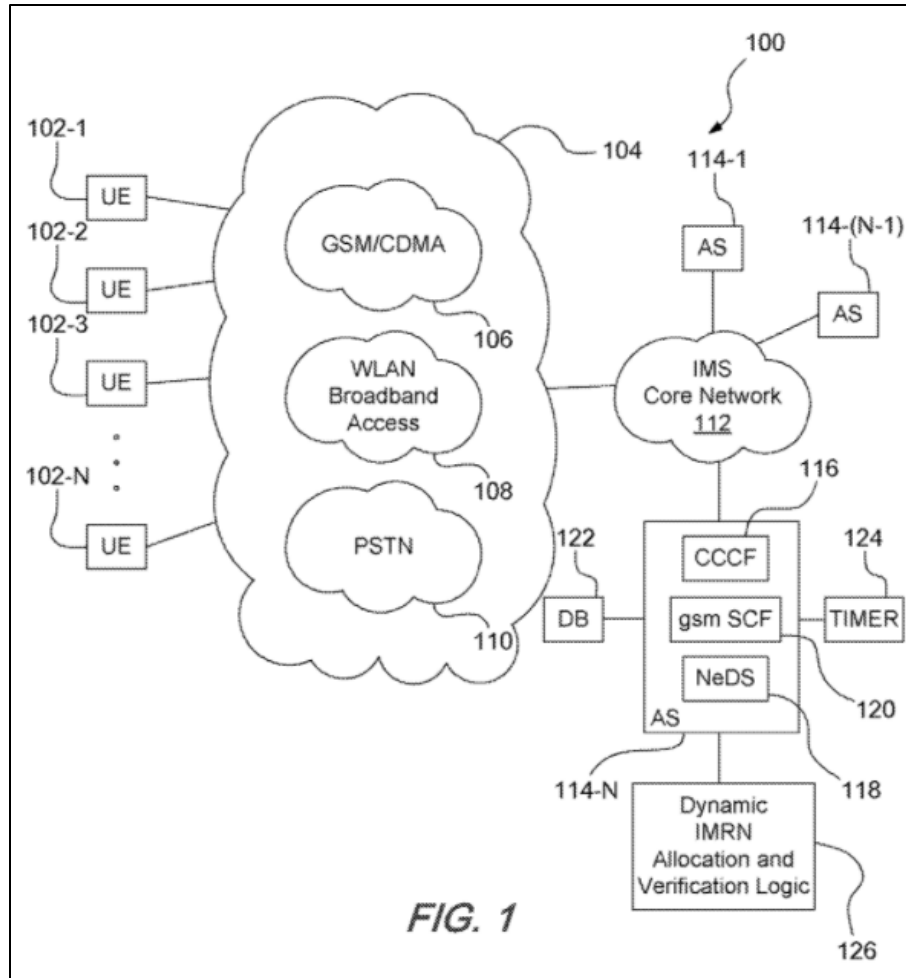
58. No other claim terms require construction for purposes of resolving the issues raised in this Petition. The fact that I do not propose additional constructions for purposes of my analysis herein does not, however, imply that I agree that

any other term should be construed according to some unspecified “plain and ordinary” meaning; rather, it means only that no other claim term requires construction for purposes of evaluating the invalidity of the challenged claims in view of the prior art asserted herein.

VII. OVERVIEW OF THE PRIOR ART

A. Buckley

59. Buckley teaches routing PSTN calls over packet-switched networks. *See* EX1005, Abstract. Figure 1 in Buckley (below) depicts example components that may be involved, including: mobile phones (*i.e.* User Equipment (UE) (element 102)); Circuit-Switched (CS) networks (*e.g.* PSTN (element 110)); and Packet-Switched (PS) networks (*e.g.* wireless Local Area Network (WLAN) Broadband Access (element 108) and Internet protocol Multimedia Subsystem (IMS) Core Network (element 112)). *Id.*, 3:19-65. As explained below, Buckley teaches Application Servers (AS) (elements 114-1 to 114-N) and associated network entities that perform access code messaging, temporary access code selection, and call routing in the same way as the '234 Patent's access server. *Id.*, 3:65-4:62.



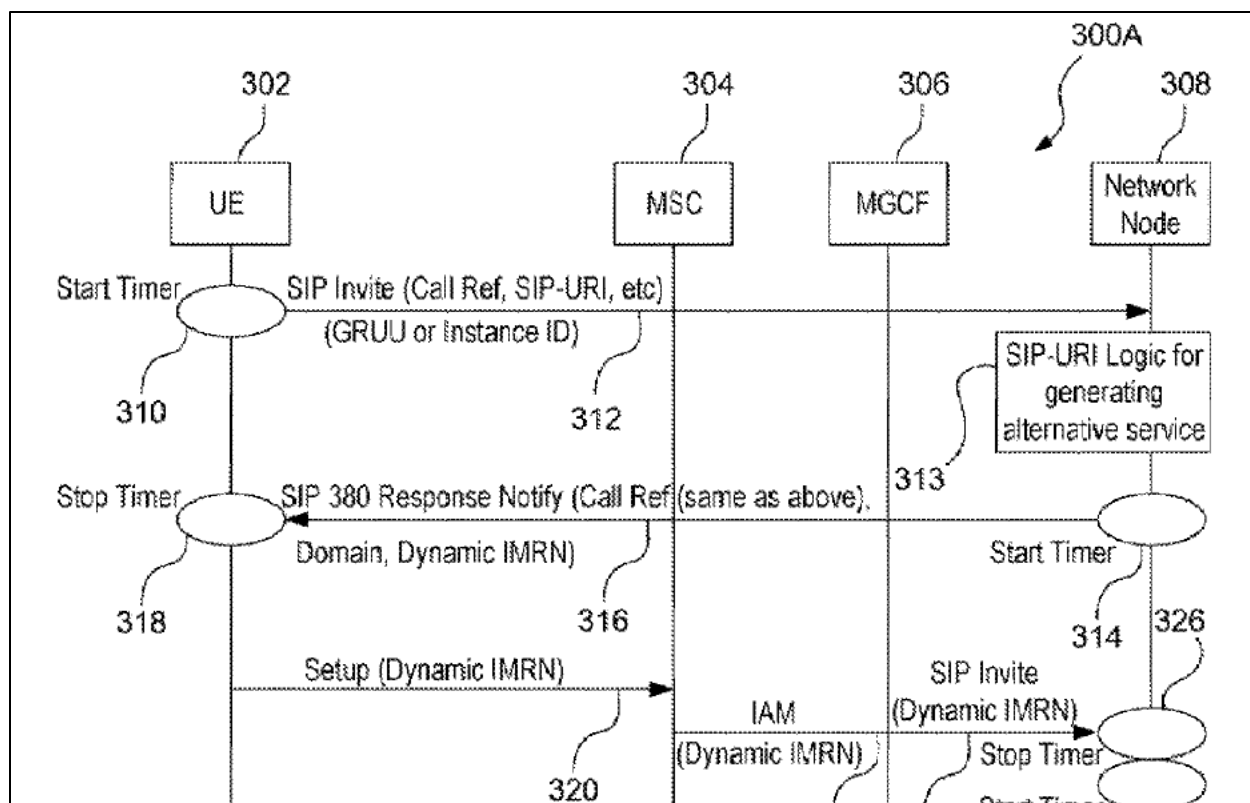
PSTN, GSM/CDMA, and WLAN Broadband are technologies that allow the UE to access the network. The Public Switched Telephone Network (PSTN) is the technology behind telephony systems based on Circuit-Switched networks. GSM/CDMA are 2nd generation cellular technology that allows UE access to the network. WLAN Broadband is another access technology. See EX1019, 11.

60. The analog telephone was invented around 150 years ago and switched to digital telephony systems around 50 years ago. The Internet and TCP/IP

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protocols enabled carrying voice and more advanced services over IP. Session Initiation Protocol (SIP) is the IETF's RFC 2543 (EX1021), which defines establishing VoIP connections. SIP defines a control protocol for creating, modifying, and terminating sessions with one or more users. Buckley's AS uses this well-known Session Initiation Protocol (SIP)⁶ messaging (access code request and reply messages) to assign a temporary IP Multimedia Routing Number (IMRN) (access code) that allows CS-originated calls to be routed over IMS (IP) networks. *Id.* For example, Figure 3A (excerpted below) depicts this process at a high level, which begins when the calling mobile phone (UE, element 302) sends a SIP Invite message (element 312) to the home AS (network node 308). *Id.*, 6:55-63. The AS selects a temporary IMRN from a pool and sends it back to the mobile telephone (UE) in a SIP Response message (element 316). *Id.*, 4:31-40, 7:29-42. The UE then uses the IMRN to initiate a call (element 320) that an AS routes to the callee. *Id.*, 4:15-40, 7:47-64. The SIP messaging includes caller and callee Uniform Resource Indicators (URI) that identify location. *Id.*, 2:62-3:12, 5:18-58, Figures 3A, 3B.

⁶ The '234 Patent also uses SIP messaging. EX1001, *e.g.*, 23:4-58, Fig. 14.

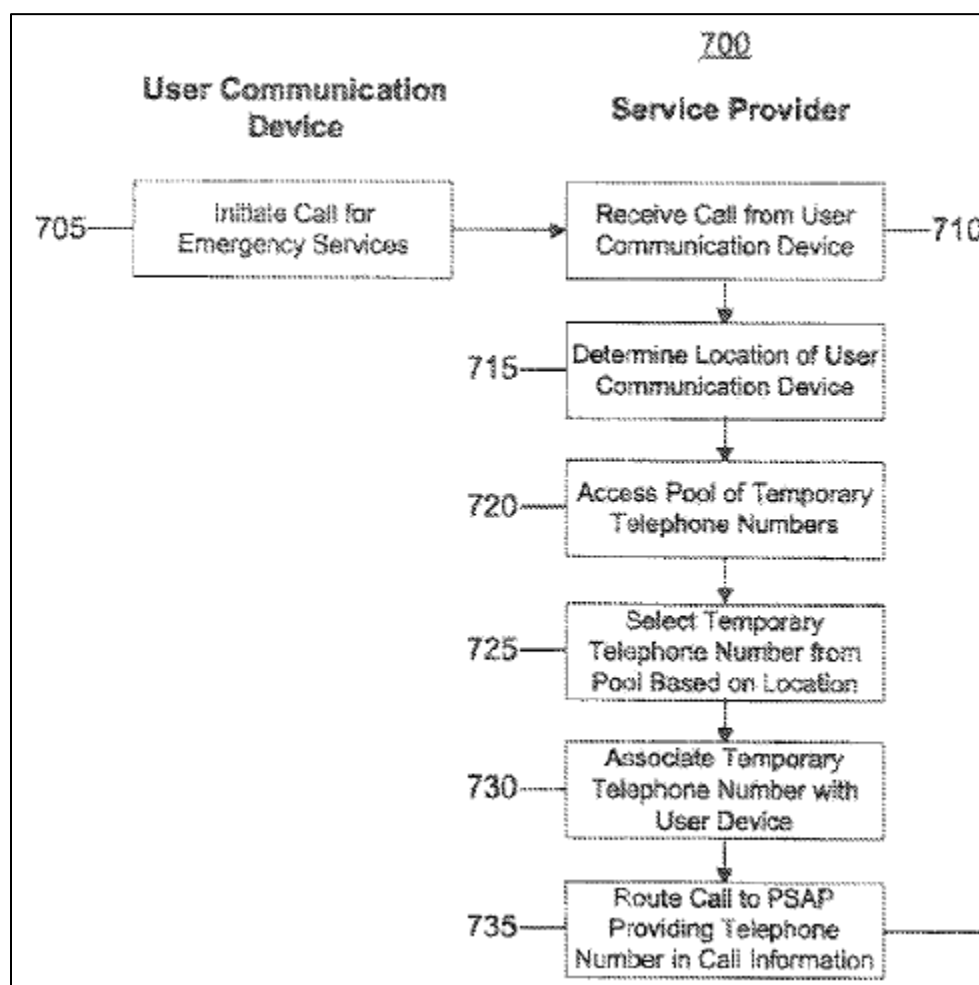


B. Bates

61. Bates teaches a highly similar process of selecting a temporary number for a call. *See* EX1009, Abstract. The temporary number can be used to improve emergency call routing, among other things. *See id.*, 12:25-31. Bates teaches that routing the call to the appropriate Public Safety Answering Point (PSAP) may require a “circuit-switched voice network, [or] a packet-switched data network,” where “circuit-switched voice networks may include the PSTN, and packet-switched data networks may include networks based on the Internet protocol (IP).” *Id.* 6:32-38. Bates teaches how to improve such call routing decisions by selecting a temporary number for the call from a pool of

temporary numbers, where the selection is based on the geographic location of a call participant. EX1009, Abstract, 12:25-31, Fig. 7.

62. In Figure 7 of Bates (excerpted below), a mobile telephone initiates a call by sending an access code request message to a Service Provider's node. Based on the mobile telephone's location, a temporary number is selected from a pool of numbers that enable a local call to be made and routed.



VIII. SPECIFIC GROUNDS OF OBVIOUSNESS

A. **Ground I: Claims 1-3, 6, 10-11, 19-22, 25, and 28-29 Are Rendered Obvious by Buckley.**⁷

1. **Claim 1**

a. **Element 1[preamble]: “A method of roaming with a mobile telephone, the method comprising”**

63. In my opinion, Buckley teaches roaming with a mobile telephone.

⁷ A POSITA would have understood that all of the disclosures relied upon in my analysis are part of a single embodiment as disclosed by Buckley, albeit a particular mode or implementation of that embodiment. For example, although Buckley states that “[i]n some embodiments, the IMRN may be mapped to all the received SIP call information” (EX1005, 6:1-3), a POSITA would have understood that the same structure and processes are used even where the IMRN is mapped to fewer than “all” the received SIP call information; thus, whether the IMRN is mapped to “all” or less than “all” the received call information represents merely specific implementations of the same overarching embodiment (notwithstanding Buckley’s imprecise use of the term “embodiment”). In each case, my analysis relies on the embodiment of the SIP interaction between the UE and AS node taught by Buckley, as depicted at a high level in Figure 3A (for example). However, to the extent the disclosures I rely on from Buckley are not considered to all be part of the same embodiment, a POSITA would have recognized that the disclosures are minor variations of each other, and that the disclosures are thus all compatible with each other. EX1005, 23:33-38 (“[T]he operation and construction of the embodiments of the present patent application will be apparent from the Detailed Description set forth above. While the exemplary embodiments shown and described may have been characterized as being preferred, it should be readily understood that various changes and modifications could be made therein without departing from the scope of the present disclosure....”). A POSITA would have been motivated to construct the particular embodiment of Buckley analyzed herein in order to efficiently route calls and avoid unnecessary long-distance and roaming charges, as was well-known in the art. See, e.g., EX1014 at Abstract (teaching “a method of providing a local access number”), [0036] (“[T]he subscriber may use the local access number to connect to a chosen long distance service provider.”); EX1001 at 1:20-28 (“One known technique for avoiding the long distance charges of mobile

64. Buckley teaches methods for UEs (User Equipment), in particular “mobile communication device[s] (e.g. cellular phones ...),” that are “untethered,” “capable of operating in multiple modes,” and “can transition from one mode of communications to another mode of communications without loss of continuity.” EX1005, 3:25-40. A POSITA would have understood that an “untethered” UE performing such transitions would commonly be roaming across different geographic locations, and that Buckley’s methods would be applied during such roaming, including because transitioning modes of communications occurs when moving from a home network to another service provider’s network, otherwise there would not likely be a need to transition modes of communication. The purpose of mobile telephones was specifically to enable telecommunications more easily while traveling, so a POSITA would have expected the mobile telephone might be roaming at least some of the time by virtue of their expected, intended use case. *See, e.g.*, EX1015 [0029] (“Cellular telephones have enabled mobile station users to roam over large geographic areas while maintaining immediate access to telephony

telephone service providers is to use a ‘calling card’. A ‘calling card’ may permit the user of the mobile telephone to place a call to a local telephone number.... The user may thus avoid the long distance charges of the mobile telephone service provider, which may be higher than the charges for using the ‘calling card’.”).

services.”). The ’234 Patent recognizes that roaming was common and that at least some mobile telephones roamed at least some of the time. EX1001, 1:17-19 (“Mobile telephone service providers *often* charge significant fees for long distance telephone calls, *particularly* when the mobile telephone is roaming in another mobile telephone service provider’s network.”).

65. Buckley was designed for use across different “wireless technologies such as Global System for Mobile Communications (GSM) networks and Code Division Multiple Access (CDMA) networks,” and such networks were operated by a number of different service providers. EX1005, 3:41-53. As shown by the definition of “Roaming” from Wikipedia submitted during the prosecution of the ’234 Patent, the concept of roaming was actually developed in the context of those network types in order to address the issues that arose when a user was outside his or her home GSM network (for example) and in another provider’s network. *See* EX1002 at 1962 (“The term ‘roaming’ originates from the GSM (Global System for Mobile Communications) sphere; the term ‘roaming’ can also be applied to the CDMA technology. Traditional GSM Roaming is defined ... as the ability for a cellular customer to automatically make and receive voice calls, send and receive data, or access other services, including home data services, when travelling outside the geographical coverage area of the home network, by means of using a visited

network.”). Additionally, Buckley “envisaged that the teachings hereof may be extended to *any* 3rd Generation Partnership Project (3GPP)-compliant cellular network,” and a POSITA would have understood that such networks and 3GPP standards provided for roaming by being in another mobile telephone service provider’s network and not the mobile telephone’s home network, including because 3GPP is a set of standards that different network providers agree on specifically to ensure interoperability across networks and devices. EX1005, 3:41-53.

66. Buckley also teaches performing its methods in situations where UEs had to “register” with new networks, where the AS was “required” to provide “inter-operator” functions for UEs to communicate over different service operator networks, and where UEs would communicate with servers in the user’s “*home* IMS network.” EX1005, 2:34-47, 4:1-6, 8:22-47. A POSITA would have understood that such steps occur when the UE was roaming in another mobile telephone service provider’s network and not in the mobile telephone’s home network, as recited in the preamble.

b. **Element 1[a]: “receiving, from a user of the mobile telephone, a callee identifier associated with the callee”**

67. In my opinion, Buckley teaches this element.
68. Buckley teaches that a “called party” (callee) can be “identified with a Uniform Resource Indicator (URI)” (callee identifier, which is associated

with the callee). EX1005, 1:51-53. The “user of the UE device” (user of the mobile telephone) “either enters the URI via a suitable interface ... or selects it from a list stored in the UE.” EX1005, 5:22-25.

- c. **Element 1[b]: “transmitting an access code request message to an access server to seek an access code from a pool of access codes wherein each access code in said pool of access codes identifies a respective telephone number or Internet Protocol (IP) network address that enables a local call to be made to call the callee identified by the callee identifier, said access code request message including said callee identifier and a location identifier separate and distinctive from said callee identifier, said location identifier identifying a location of the mobile telephone”**

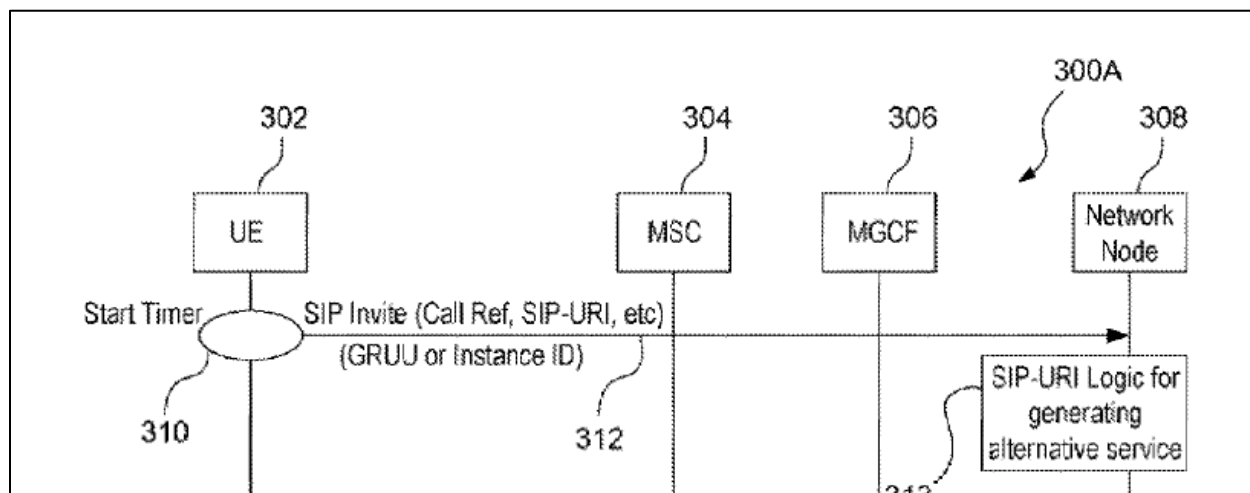
69. In my opinion, Buckley teaches this element.

70. As shown, for example, in Figure 3A (cropped in relevant part below),⁸ Buckley teaches that when a UE (mobile phone) 302 initiates a call, it transmits an SIP Invite (access code request) message 312 to a network node 308 called an Application Server (AS) (access server). EX1005 6:58-63 (“A Wireless UE device 302 ... is operable to generate a SIP Invite message 312

⁸ References herein to Buckley Figure 3A also include the analogous portions of Figure 3B “wherein certain intermediary nodes in a home network 350 are exemplified.” EX1005, 8:22-26.

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towards an application server (AS) node 308 in response to detecting that a SIP call is being initiated from UE device 302”).



The SIP Invite message invites (*i.e.*, requests) the AS to provide an IP multimedia routing number (IMRN) (access code), which the AS selected from a pool of IMRNs. EX1005, 8:54-61 (“[W]hen the UE device detects that it needs to invoke CS call origination, it may produce and send a SIP Invite message. [T]he SIP Invite message is set to indicate that the call needs to be set up over CS.”); *id.*, 4:34-37 (AS node capable of “configuring and managing *a pool of IP multimedia routing numbers (IMRNs)* from which a select IMRN may be dynamically-allocated or otherwise selected for purposes of SIP call routing....”).

71. The IMRN identifies, for example, a telephone number known as an E.164 number. EX1005, 4:47 (“E.164 numbers [] are operable as IMRNs”), 4:63-67 (“E. 164 is indicative of the International Telecommunications Union

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- (ITU) telephone numbering plan....”). The IMRN telephone numbers are access codes because they provide access to call the callee. EX1001, 2:44 (“The access code may include a telephone number.”). For example, the IMRN is required for the UE to have access to a communication channel set up as a CS-network call. EX1005, 9:61-63 (“[T]he UE shall use the IMRN ... as the E.164 number to set up a CS call”). Relatedly, the IMRN telephone number is a code of digits used by the mobile telephone in place of the original callee identifier (*i.e.* the URI provided by the caller) to connect to the AS node so that the AS node can complete the call to the callee’s original URI, which is the AS node’s purpose in providing the IMRN. EX1005, 6:38-40 (“[T]he UE sets up a call using the IMRN that terminates on the AS node. The IMRN is then interrogated against the record to retrieve the called party’s URI”).
72. The SIP Invite (access code request message) includes the callee’s URI (callee identifier). EX1005, 6:63-65 (“[T]he SIP Invite message 312 includes applicable call information such as [the] called party’s SIP URI....”).
73. The SIP Invite (access code request message) also includes the UE’s (mobile telephone’s) location information. For example, it includes the “calling party’s SIP URI.” EX1005, 5:47-53. Buckley teaches that a “typical” form of “the URI (or SIP address)” is in “the form of sip:<username>@<hostname>” (EX1005, 5:25-27, 7:1-2), and provides an example showing that the

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hostname can be an IP address (EX1005, 9:27: “Contact: sip:alice@**192.0.2.1**”). Indeed, RFC 3261 (EX1010 at 149), which is cited in Buckley (EX1005, 5:29-33), teaches that the host name can contain a IP address. Thus, Buckley teaches that a “typical” calling party’s SIP URI can be in the form of a network address that includes an IP address, which a POSITA would recognize (as the ’234 Patent admits was well known) is a location identifier. EX1005, 19:37-38 (“network address [] identifies [a] network location”); EX1001, 12:19-20 (“[T]he location identifier in the location identifier field [] may include an IP address”).

74. As long as the caller is not calling himself or herself, the caller’s URI is different than the callee’s URI for all calls. The callee’s URI (callee identifier) is therefore necessarily separate and distinctive from the caller’s URI (location identifier) for all outbound calls to anyone other than the caller himself or herself.
75. As a further example, the SIP Invite (access code request) message can also include a P-Preferred-ID. EX1005, 8:67-9:20. “The P-Preferred-ID is set to the calling line identity (CLI) associated with the user or subscriber of the UE device for identification in the CS network”—in other words, a telephone number. *Id.*, 9:3-6, 9:20 (example “P-Preferred-Identity: <tel: +1-555-1001>”). A POSITA would have recognized that the telephone number

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- includes a location identifier (e.g. a country or area code) for a telephone's network location in a circuit-switched (CS) network such as a PSTN; likewise, a POSITA would have also recognized that the country code and area code, and in some situations the telephone prefix (*i.e.*, the three digits in a telephone number before the final four digits), are each associated with the phone's location. *See* EX1001, 12:32-34 “([T]he location identifier may include a ... local calling area where the mobile telephone is or may be situated.”); EX1005, 5:34-44. The P-Preferred-ID is thus a location identifier, and because it identifies the caller rather than the callee, it is also separate and distinctive from the callee identifier (*i.e.*, the callee's URI). *See id.*
76. Buckley's selected IMRN “terminate[s] on the AS node” (EX1005, 4:46-48), which is “disposed in the user's *home* IMS network” and thus enables a local call, because routing a call through the “home” node to select the appropriate IMRN and to facilitate a CS call using that IMRN treats such a call differently from routing the call to a non-“home” node. EX1005, 7:29-34, 6:44-54 (teaching “message flow between the UE device *and the home IMS network's AS node*” such that “the UE device and its *home IMS AS node [are] operable to facilitate CS-originated SIP calls*”), 8:22-47.
77. A POSITA would also recognize that Buckley's IMRN enables a local call because a benefit of including location information, such as the caller's SIP

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URI and P-Preferred ID discussed above, in the SIP Invite message was that the AS node could facilitate making a local call based on such information in order to, for example, avoid needless long distance and roaming charges. The benefit of using a local number to avoid such charges was well known in the art. *See, e.g.*, EX1014, Abstract (teaching “a method of providing a local access number”), [0036] (“[T]he subscriber may use the local access number to connect to a chosen long distance service provider.”); EX1001 at 1:20-28 (“One known technique for avoiding the long distance charges of mobile telephone service providers is to use a ‘calling card’. A ‘calling card’ may permit the user of the mobile telephone to place a call to a local telephone number.... The user may thus avoid the long distance charges of the mobile telephone service provider, which may be higher than the charges for using the ‘calling card’.”). Relatedly, a POSITA would recognize that enabling such a local call is one reason to “map[]” the IMRN to “*all* [of] the received SIP call information,” as Buckley teaches, given that the SIP invite message includes location information. *See* EX1005, 6:2-3. A POSITA would at least have found it obvious that the selected IMRN would enable a local call to be made to achieve these benefits (*i.e.*, avoiding unnecessary long-distance charges), by using the location information expressly required in Buckley’s IMRN selection process.

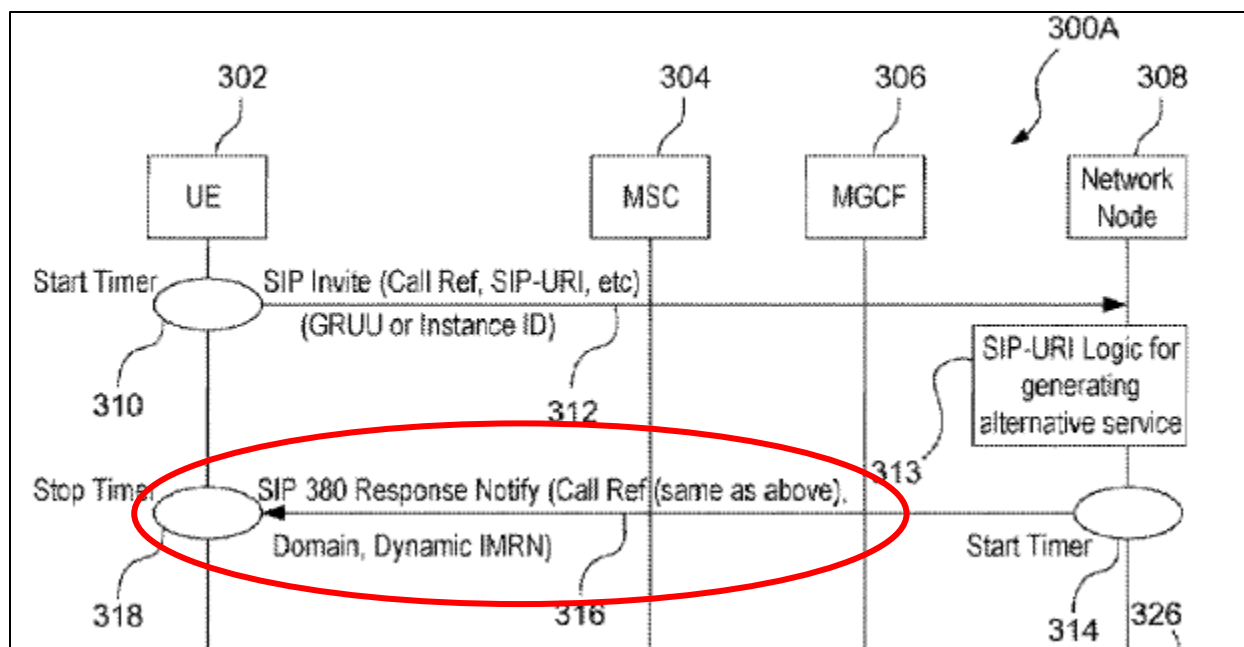
78. Buckley's "pool" of IMRNs is stored on the user's "home" AS node, and thus each IMRN (access code) in the pool enables a local call (as discussed above) to the home node. *See* EX1005, 4:34-37 (AS node containing "a pool of IP multimedia routing numbers (IMRNs) from which a select IMRN may be dynamically-allocated or otherwise selected for purposes of SIP call routing..."); *id.*, 6:44-54 (teaching "message flow between the UE device **and the home IMS network's AS node**" such that "the UE device and its **home IMS AS node** [are] operable to facilitate CS-originated SIP calls"). Buckley's "pool" may in fact comprise multiple pools of IMRNs, each pool containing different number ranges for different local calls. *Id.* 5:5-7 ("[I]t may be desirable to provide for different pools of IMRNs to be configured from different number ranges.") As discussed above, a POSITA would have recognized the benefit of sending the SIP request to the "home" node (as opposed to a remote node) is so that the home node would select an IMRN that enables a local call, and thus a POSITA would have expected, or at least found it obvious, that each access code in the pool enables a local call to be made. *Id.* 5:5-7. Alternatively, another "pool" that would have rendered this claim element obvious is the subset of of IMRNs available at the home AS node that enable a local call. EX1005, 5:5-7; *Compare* EX1001, Figure 10 (table of access codes with multiple area codes).

- d. **Element 1[c]: “receiving an access code reply message from the access server in response to said access code request message, said access code reply message including an access code different from said callee identifier and associated with said location identifier and/or associated with a location pre-associated with the mobile telephone and wherein said access code expires after a period of time”**

79. In my opinion, Buckley teaches this element.

80. As shown, for example, in Figure 3A below (cropped in relevant part), Buckley teaches that UE 302 (mobile telephone) receives from AS network node 308 (access server) a SIP Response 316 (access code reply) message in response to the SIP Invite (access code request) 312 message. EX1005, 7:29-34 (“***Responsive to the Invite message 312***, ... AS node 308 disposed in the user’s home IMS network is operable to launch SIP-URI logic 313 for generating and populating a suitable SIP 380 (Alternative Service) Response message (e.g. SIP 380⁹ Response message).”).

⁹ “380” in “SIP 380 Response” refers to an “Alternative Service” response code, which a responding server may use to indicate that it will connect the call in a different manner than was requested, and such a “SIP 380 Response” message in the context of Figure 3A refers to element 316. *See* EX1005, 7:41-42 (“SIP 380 message 316”), 7:49-50 (“SIP 380 Response message 316”).



81. The SIP Response includes an IMRN (access code) that the UE uses to get access to communicate with the callee. EX1005, 7:36-42 (“[T]he network node (in this example, the IMS AS node) dynamically allocates or otherwise identifies a selected IMRN mapped to the call information or parameters ... and returns it back to UE device 302 via SIP 380 [Response] message 316.”).
82. The IMRN (access code) is an E.164 number that is different from, and hence at the AS it must be “mapped to,” the callee’s URI (callee identifier). EX1005, 4:41-51. For example, Buckley teaches “dynamically allocating or otherwise selecting the E.164 number [IMRN] to a received called party’s URI (e.g. SIP URI or Tel URI) and other received information; and providing the selected E.164 number to the originating UE device via a SIP 380

(Alternative Service) Response message” to provide access to reach the called party. EX1005, 4:52-57.

83. Buckley also teaches that the IMRN is associated with the location identifier (which, as discussed above, can be either the caller’s URI or P-Preferred ID) and/or associated with a location pre-associated with the caller’s mobile telephone. Specifically, Buckley teaches the IMRN can be constructed based on “some relationship(s) to one or more of the parameters received in a message ... from the UE device” or “may be mapped to ***all the received SIP call information***” in the SIP Invite message. EX1005, 3:4-12, 4:41-49, 6:1-3. And, “all the received SIP call information” would include the caller’s SIP URI and, additionally, the P-Preferred-Identity. *Id.*, 5:47-53 (“The call information may include information such as ... [the] calling party’s SIP URI...”), 6:63-66 (“[T]he SIP Invite message 312 includes applicable call information such as ... the P-Preferred-Identity”). The SIP URI and P-Preferred Identity both include location identifiers for the caller’s mobile phone as discussed above in Element 1[b]. Thus, this mapping to “***all the received SIP call information***” associates the IMRN with the location identifiers and/or locations pre-associated with the caller’s mobile telephone, namely the caller’s SIP URI and/or P-Preferred ID. And a person of ordinary skill in the art would have found it obvious from Buckley’s disclosure, and

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the known motivation to complete calls using local numbers to reduce or eliminate long distance or roaming charges, to select an IMRN based on a “relationship” to the location “parameters” received from the UE device.

84. Buckley also teaches that the IMRN (E.164 number) (access code) expires after a period of time, using the “Timer” mechanisms identified, for example, in Figure 3A (elements 314, 326, 328, and 330). EX1005, 2:51-59 (“If the timer has expired, the mobile device may refrain from utilizing the E.164 number [access code] (now deassigned due to timer expiration) in the CS call setup message and alternatively obtain an utilize a new E.164 number....”).

e. **Element 1[d]: “initiating a call with the mobile telephone using said access code to identify the callee.”**

85. In my opinion, Buckley teaches this element.

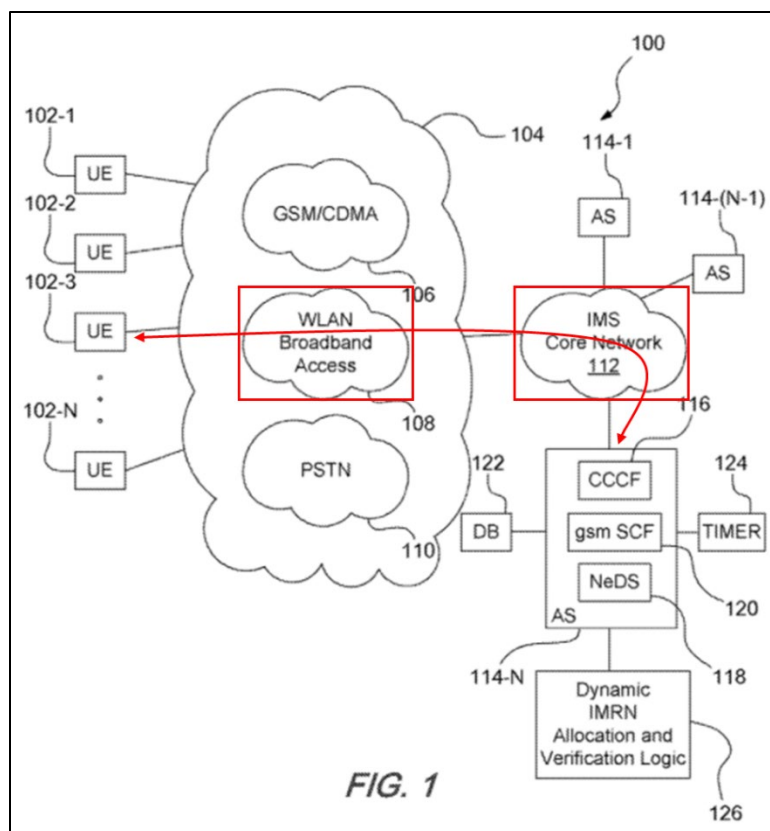
86. Buckley teaches the UE (mobile telephone) initiating a call using the IMRN (access code) to identify the callee, e.g., using “a call setup message 320 that includes the selected IMRN” resulting in messages “towards the AS node, which then uses the IMRN mapping for establishing the SIP session or call to the called party.” EX1005, 7:50-56, Figure 3A. The call is initiated through the AS, which associates the IMRN to the callee’s URI (callee identifier per Element 1[a]). EX1005, 6:37-43 (“Upon correlating the IMRN with the call reference number, the *UE sets up a call using the IMRN* that terminates on the AS node. The IMRN is then interrogated against the record to *retrieve the*

called party's URI for establishing a SIP session with the called party”);

EX1005, 8:37-39 (“A call setup message 368 having the IMRN is provided to MSC 304, which initiates a CS origination procedure 370.”)..

2. Claim 2: “The method of claim 1 wherein transmitting comprises transmitting said access code request message to said access server on a non-voice network.”

87. In my opinion, Buckley teaches this claim. Buckley teaches the method of claim 1, as discussed above. Buckley further teaches “wherein transmitting comprises transmitting said access code request message to said access server on a non-voice network.”
88. For example, Figure 1 depicts a UE (mobile telephone) connected to an AS (114-N) (access server) via a non-voice, packet switched (PS) network including a WLAN Broadband Access network (108) and the IMS Core Network (112) as annotated in red below. EX1005, 3:23-24 (“[A]ccess space 104 [is] comprised of a number of access technologies available to a plurality of UE devices”), 3:41-43 (“The access space 104 may be comprised of both CS and *PS networks*, which may involve wireless technologies, wireline technologies, broadband access technologies, etc.”).



89. The UE transmits its SIP Invite (access code request message) “to an application server (AS) node in the IMS network” through this WLAN Broadband Access network. *Id.* 14:33-36. PS networks, including the IMS and WLAN Broadband Access networks, are non-voice networks in the ’234 patent’s parlance because they carry IP data packets, not circuit-switched voice signals. EX1001, 11:51-52 (“non-voice network, such as an Internet, using WiFi or GPRS technology for example”).
90. A POSITA would also have found it obvious to transmit the SIP Invite through a non-voice network because the SIP Invite is not a voice signal, so there is no specific need for a voice network to transmit the message, and a

non-voice network would more efficiently handle such data communication.

The SIP protocol is part of the TCP/IP protocol suite that is the foundation of the Internet and packet switching networks, which are non-voice networks, and thus it would be expected that the SIP Invite would be transmitted through a non-voice network because SIP was specifically designed for non-voice networks. For example, Buckley teaches that it was well-known that for IP networks, “IP is used to transport both bearer traffic [voice traffic] and SIP-based signaling traffic.” EX1005, 3:58-62.

3. Claim 3: “The method of claim 1 wherein transmitting said location identifier comprises transmitting an IP address of the mobile telephone in a wireless IP network.”

91. In my opinion, Buckley teaches this claim. Buckley teaches the method of claim 1, as discussed above. Buckley further teaches “wherein transmitting said location identifier comprises transmitting an IP address of the mobile telephone in a wireless IP network.”
92. As discussed in Element 1[b], Buckley’s SIP Invite message (access code requests message) includes the “calling party’s SIP URI” which “may take on the form of sip: <username>@<*hostname*>.” EX1005, 5:47-53, 5:25-27. A POSITA would have recognized that the hostname can “contain[] ... [a]

numeric IPv4 or IPv6 address.” EX1010 (RFC 3261)¹⁰, 148-49. Buckley teaches an exemplary SIP URI of “sip:alice@**192.0.2.1**,” which includes an IP address as the hostname, namely “192.0.2.1”. *Id.*, 9:27. Thus, Buckley teaches transmitting the mobile telephone’s IP address (as the hostname) when transmitting the location identifier in the SIP invite message.

93. As discussed in Claim 2, Buckley teaches that the SIP Invite is sent through a WLAN Broadband Access network, which includes “wireless local area networks” and a POSITA would have understood this to include a wireless IP network in order to enable wireless capabilities at “broadband” speeds. EX1005, 3:51.

4. Claim 6: “The method of claim 1 wherein receiving said access code reply message comprises receiving said access code reply message from said access server on a non-voice network.”

94. In my opinion, Buckley teaches this claim. Buckley teaches the method of claim 1, as discussed above. Buckley further teaches “wherein receiving said access code reply message comprises receiving said access code reply message from said access server on a non-voice network.”

¹⁰ RFC 3261 is cited in relevant part in Buckley. EX1005, 5:29-33.

95. Buckley teaches a UE and AS (access server) connect via a non-voice, packet-switched network. *See* Claim 2.
96. Buckley teaches the IMRN is received after being transmitted from the AS via a packet-based SIP Response (access code reply message) over the IMS network (a non-voice PS network in the '234 Patent's parlance). EX1005, Cl. 39 (the mobile communication device "receive[s] a SIP 380 (Alternative Service) Response message from the IMS network"). A POSITA would also have found it obvious that the SIP Response could be received through another type of non-voice network because the SIP Response is not a voice signal, so there is no specific need for a voice network to transmit the message, and a non-voice network would more efficiently handle such data communication, as discussed above in the context of claim 2.

5. Claim 10

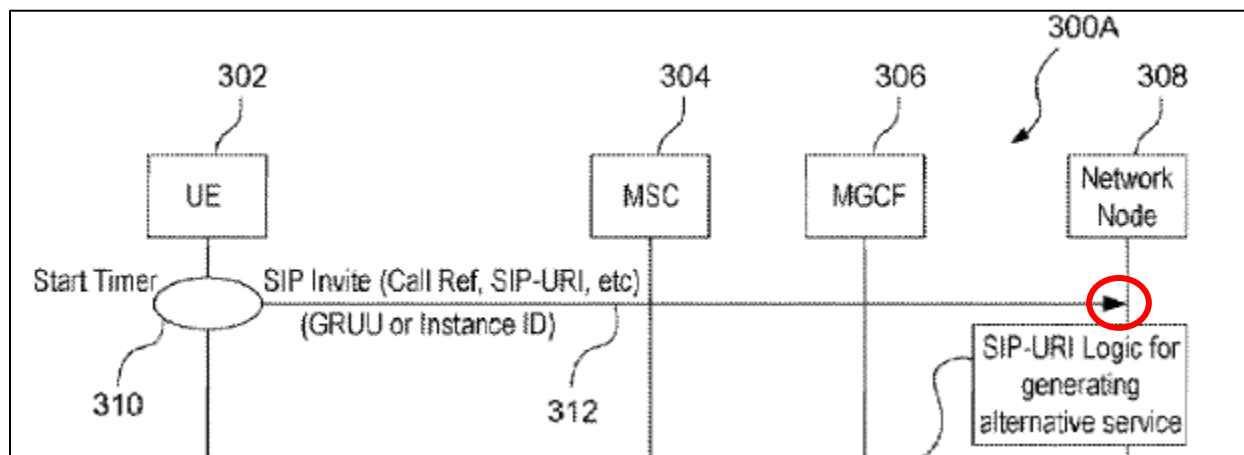
a. Element 10[preamble]: "The method of claim 1 further comprising:"

97. In my opinion, Buckley teaches this element. *See* Element 1[preamble].

b. Element 10[a]: "receiving from the mobile telephone said access code request message;"

98. In my opinion, Buckley teaches this element.
99. When the mobile telephone "transmit[s] an access code request message" as discussed in Element 1[b] above, that access code requests message is

received by the home AS node, as shown for example in this excerpted portion
of Figure 3A from Buckley:



- c. **Element 10[b]: “communicating with a routing controller to obtain from the routing controller said access code wherein said access code identifies a communications channel associated with said location identifier and wherein said access code is useable by the mobile telephone to cause the routing controller to establish a call to the callee using the channel; and”**

100. In my opinion, Buckley teaches this element.

101. As the '234 Patent describes, “the access server 14 and the routing controller 30 need not be separate, but may, for example, be combined in a single component” and “the routing controller 30 executes a process to facilitate communication between callers and callees.” EX1001, 15:4-10. Buckley teaches a network node (308 in Figs 3A and 3B) where an AS (access server) is “provided with appropriate logic/structure/software/firmware module(s).” EX1005, 4:42-45. A POSITA would have understood that these modules

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comprise a routing controller because the modules execute the process to facilitate communication between callers and callees described above with respect to Claim 1 where, e.g., an E.164 number is used as an IMRN (access code). For example, AS contains modules that: “maintain[] a pool of E.164 numbers that are operable as IMRNs which terminate on the AS node,” select an E.164 number and map it a “called party’s” URI (callee identifier), “provid[e] the selected E.164 number to the originating UE device,” and “verify[] that the selected E.164 number has not timed out when that selected E.164 number is returned” during CS call set up. *Id.*, 4:46-58. These modules are AS components that establish a call to the callee by, inter alia, verifying the IMRN has not timed out and establishing a SIP session for carrying out the call based on the IMRN correlation. EX1005, 4:57-60 (The modules “verify[] that the selected E.164 number has not timed out when that selected E.164 number is returned (via conventional CS call setup) to AS 114-N for effectuating a SIP call session with respect to the called party.”); *Id.* 8:2-4, (“If the IMRN has not timed out, the AS node may establish the SIP session based on the IMRN correlation.”); *id.*, 8:45-47 (“Regardless, once the IMRN is received at the AS node 308, appropriate call correlation is made to establish the SIP call between the UE and the called party.”); *id.*, 4:31-40 (“IP multimedia **routing** numbers (IMRNs) from which a select IMRN may be

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dynamically-allocated or otherwise selected for purposes of SIP call ***routing***). Buckley also teaches that the “IMRN mapping” is used “for establishing the SIP session or call to the called party” and that it was “understood by those skilled in the art” to use further intermediate messaging and “resource allocation/reservation negotiations” such that a “bearer path is established between the UE device [] and the called party,” which meets, or at least renders obvious, the routing controller and channel functionality in this claim element. *Id.*, 7:53-64.

102. A POSITA would have understood that an E.164 telephone number (used in Buckley as an IMRN (access code) identifies a communications channel. For example, the '234 Patent confirms that it was known that a telephone number identifies a communication channel. *See, e.g.*, EX1001 3:30-32 (“[t]he access code may include a telephone number identifying a channel operably configured to cooperate with an IP network.”).
103. Further, Buckley’s SIP messaging process described above creates a “SIP session” based on the IMRN (E.164 number), and a SIP session is a channel because it establishes the end-to-end communication pathway for the duration of the communication “session.” EX1005, 7:50-56, 6:39-43 (“The IMRN is then interrogated against the record to retrieve the called party’s URI for ***establishing a SIP session with the called party*** (i.e. between the calling party

(UE device) identified by the A-party address and the called party identified by the B-party address”¹¹); EX1010 (RFC 3261),¹² 1 (“This document describes Session Initiation Protocol (SIP), an application-layer control (signaling) protocol for creating, modifying, and terminating sessions with one or more participants. These sessions include Internet telephone calls, multimedia distribution, and multimedia conferences. ... *SIP makes use of elements called proxy servers to help route requests to the user’s current location*, authenticate and authorize users for services, *implement provider call-routing policies*, and provide features to users. SIP also provides a registration function that allows users to upload their current locations for use by proxy servers.”). As part of establishing a SIP connection, the Real-Time Transport Protocol (RTP) carries the media stream (e.g., voice and video) along the SIP Channel. *Id.* 7:19-21 (“A cause value in the SIP Invite message will be set appropriately to indicate that a radio bearer channel for the session is to be established over the CS domain.”). The E.164 number thus identifies

¹¹ Buckley occasionally refers to the two parties to a call as the “A-party” and “B-party.” *See, e.g.*, EX1005, 6:41-43.

¹² RFC 3261 is expressly cited in Buckley. EX1005, 5:29-33.

the channel and, as discussed above, is associated with the location identifier.

See Element 1[c].

- d. **Element 10[c]: “transmitting said access code reply message to the mobile telephone.”**

104. In my opinion, Buckley teaches this element. *See* Element 1[c].

6. Claim 11

- a. **Element 11[preamble]: “A mobile telephone apparatus comprising:”**

105. In my opinion, Buckley teaches this element. *See* Element 1[preamble] .

- b. **Element 11[a]: “means for receiving, from a user of the mobile telephone, a callee identifier associated with the callee;”**

106. In my opinion, Buckley teaches this element.

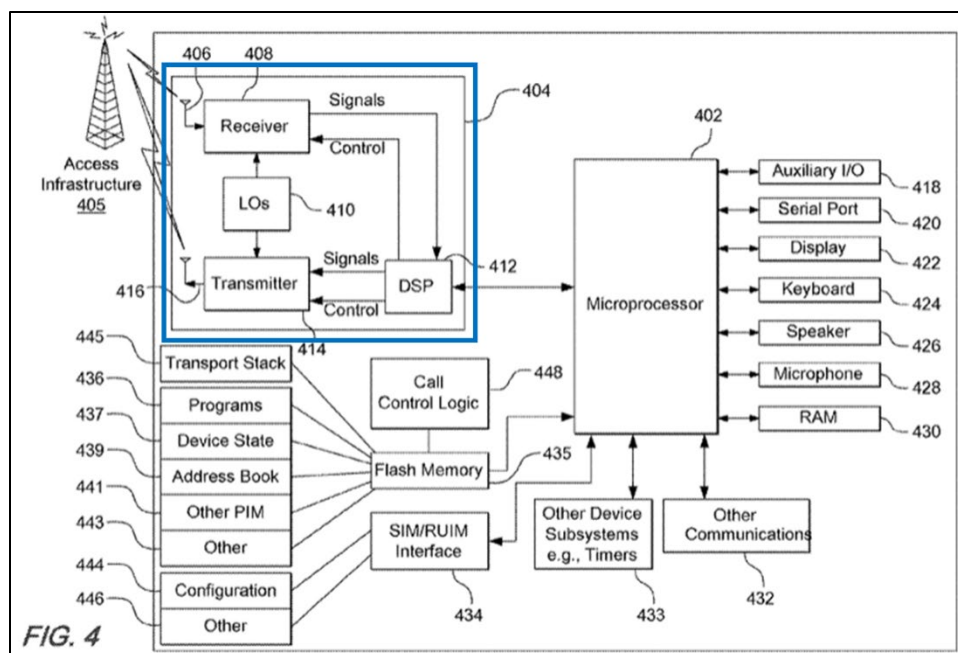
107. Buckley teaches means for receiving, which the parties agree incorporates the structure of a dialing input, which is a keypad, a voice recognition unit, or a parameter memory with pre-stored callee identifiers. For example, Buckley teaches a keypad. *See* EX1005, 13:65-67 (“[D]isplay 422, **keyboard/keypad 424**, ... are part of the user interface of the mobile communication device”).

Buckley teaches the element’s remainder. *See* Element 1[a].

- c. **Element 11[b]: “transmitting means for transmitting an access code request message to an access server to seek an access code from a pool of access codes wherein each access code in said pool of access codes identifies a respective telephone number or Internet Protocol (IP) network address that enables a local call to be made to call the callee identified by the callee identifier,**

said access code request message including said callee identifier and a location identifier separate and distinctive from said callee identifier, said location identifier identifying a location of the mobile telephone”

108. In my opinion, Buckley teaches this element.
109. Buckley teaches transmitting means, which the parties agree incorporates a network interface structure. Figure 4 depicts a “mobile communication device” with a “communication subsystem 404 [that] includes one or more receivers 408 and one or more transmitters 414,” as outlined below in blue. EX1005, 13:23-39. As a POSITA would have recognized, and as the data transmission lightning-bolt shapes indicate, this structure comprises a network interface that communicates with, for example, Access Infrastructure 405 which provides access to the mobile network. The network communication system 404 includes the Receiver 408 and the Transmitter 404, which are the fundamental building blocks of a communication network interface. The network interface may include multiple Transmitters and Receivers and is capable of multi-mode communications, including in the CS domain and IP domain such as IMS. EX1005, 13:35-38.



110. Buckley teaches the element's remainder. See Element 1[b].

- d. **Element 11[c]: “means for receiving an access code reply message from the access server in response to said access code request message, said access code reply message including an access code different from said callee identifier and associated with said location identifier and/or associated with a location pre-associated with the mobile telephone and wherein said access code expires after a period of time; and”**

111. In my opinion, Buckley teaches this element.

112. Buckley teaches the means for receiving, which the parties agree incorporates a network interface structure. Figure 4 depicts a “mobile communication device” with a “communication subsystem 404 generally includes one or more receivers 408 and one or more transmitters 414.” EX1005, 13:37-39; Figure 4. See Element 11[b].

113. Buckley teaches the element's remainder. See Element 1[c].

e. **Element 11[d]: “means for initiating a call using said access code to identify the callee.”**

114. In my opinion, Buckley teaches this element.

115. Buckley teaches means for initiating, which the Patent Owner contends incorporates a “[m]obile wireless device 12 having a microprocessor 52 programmed to implement the algorithm illustrated in FIG. 3, which includes block 149 labeled ‘Initiate voice/video call using access code.’ The wireless device 12 includes I/O port(s) 56 capable of acting as an interface to external networks (70, 72, 15, 16). See FIG. 2.” EX1013, 6-7. Buckley’s Figure 4 depicts a “mobile communication device” where a “microprocessor 402 providing for the overall control of an embodiment of UE 302 is operably coupled to a communication subsystem 404.” EX1005, 13:23-35; Figure 4. Buckley also discloses the microprocessor implements the algorithm illustrated in Figure 3 for initiating a call because it is “coupled to a communication subsystem 404 that is capable of multi-mode communications (e.g. CS domain, IP domain such as IMS, etc.)” that transmits an access code request message, receives an access code reply message, and initiates a call. *Id.*, 13:35-37; Element 11[b]-[c]; Element 1[d]. Part of the “multi-mode communications” includes the “PSTN.” EX1005, Figure 1, 3:53-55 (“[P]art of the access space 104 is the conventional wireline PSTN infrastructure

110”). The microprocessor also obtains a callee identifier from the user. *See* Element 11[a].

7. Claim 19

- a. **Element 19[preamble]: “A system for enabling roaming by a mobile telephone, the system comprising the mobile telephone apparatus of claim 11 and further comprising:”**

116. In my opinion, Buckley teaches the preamble. *See* Element 1[preamble]; Claim 11. Buckley also teaches “a system.” EX1005, 1:23.

- b. **Element 19[a]: “a routing controller; and”**

117. In my opinion, Buckley teaches this element.

118. Buckley teaches a network node contains a routing controller. *See* Element 10[b].

- c. **Element 19[b]: “an access server comprising:”**

119. In my opinion, Buckley teaches this element. *See* Element 1[b].

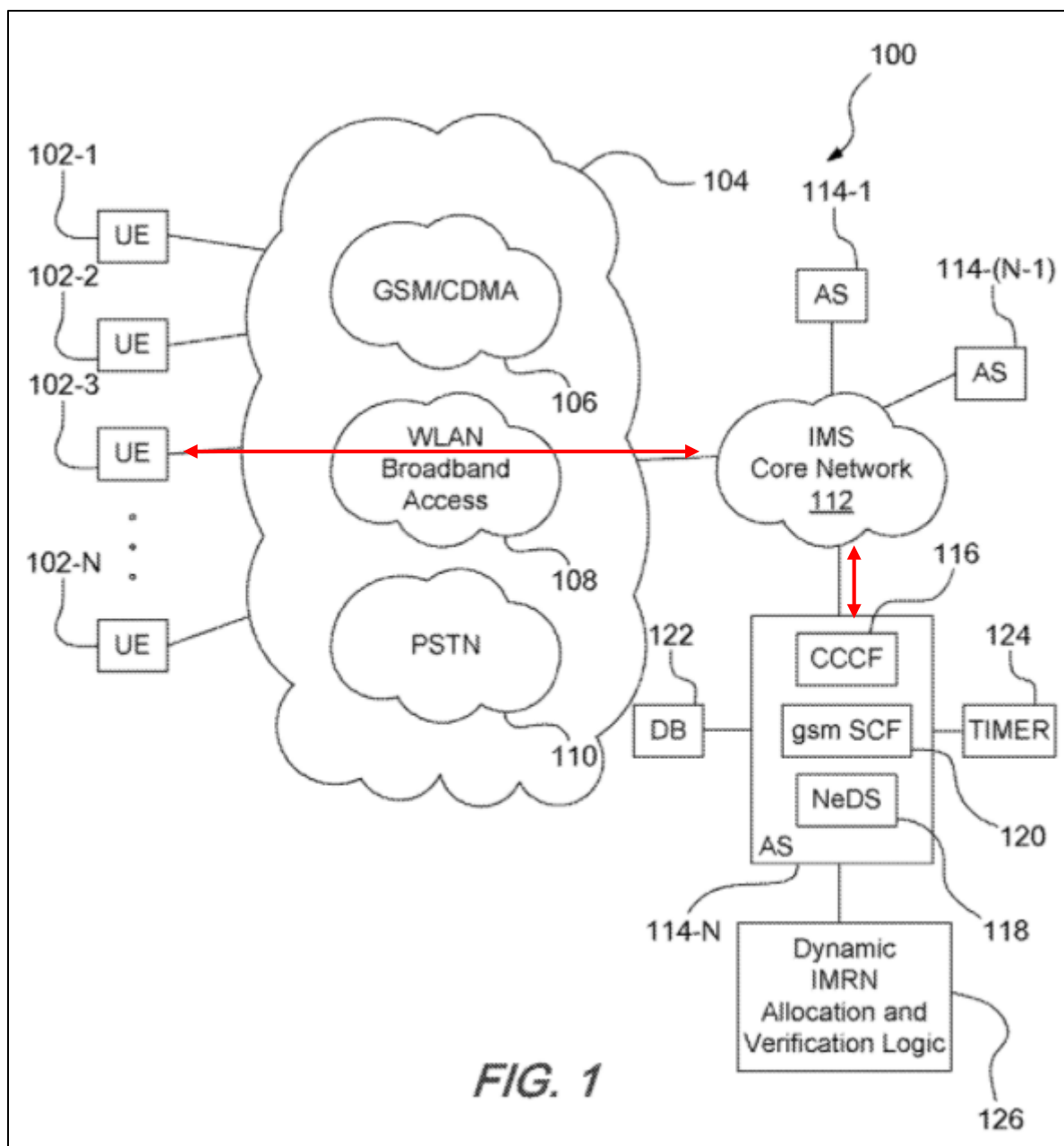
- d. **Element 19[c]: “means for receiving from the mobile telephone said access code request message;”**

120. In my opinion, Buckley teaches this element.

121. Buckley teaches means for receiving, which the parties agree incorporates the structure of “a network interface.” Buckley teaches the application server or AS node has a network interface that allows communication with the UE via the IMS core network, as depicted in Figure 1. And, Figure 1 depicts network “infrastructure,” which a POSITA would have understood to include the

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hardware and software interfaces necessary to send and receive network messages as described throughout Buckley's disclosure. EX1005, 1:65-67.; *see also id.* 3:56-58 (describing that the networks are "coupled"); *id.*, 4:41-43 (describing that the AS node as "appropriate logic/structure/software/firmware module(s)... ."); *id.* 6:44-50 (confirming that POSITA would recognize that the message flow "may be mediated through a number of other appropriate network infrastructure elements" as appropriate to the device capabilities, network features, and network protocols being used). A POSITA would have understood the AS node depicted in Figure 1 contains a network interface to connect to the "IMS Core Network" and ultimately the UE as annotated in red in Figure 1 below; without such a network interface, it is unclear what the lines in the diagram would be intended to convey or how Buckley would be operable.



122. Buckley teaches the element's remainder. *See* Element 10[a].

- e. **Element 19[d]: “means for communicating with said routing controller to obtain from said routing controller said access code wherein said access code identifies a channel associated with said location identifier and wherein said access code is useable by**

**the mobile telephone to cause the routing controller to
establish a call to the callee using the channel; and”**

123. In my opinion, Buckley teaches this element.
124. Buckley teaches means for communicating, which incorporates the structure of “an input/output [I/O] port that transmits the access code request message, as received from the mobile telephone, to the routing controller and receives, from the routing controller, the access code reply message.” This structure also incorporates the alternative construction of “[a]n I/O port of an access server and/or an I/O port of a routing controller.” “The I/O port 156 includes a non-voice network interface” *See* EX1001 14:6-7. Buckley teaches the AS contains a routing controller and an I/O port. *See* Element 10[b]; 19[c]. Buckley’s mobile telephone utilizes its own I/O port to send and receive messages with the AS and routing controller. *See* Element 11[b], [c]; 1[b],[c].
125. Buckley teaches the element’s reminder. Element 1[d]; 10[b].

f. **Element 19[c]: “means for transmitting said access code reply message including said access code to the mobile telephone.”**

126. In my opinion, Buckley teaches this element.
127. Buckley teaches means for transmitting. *See* Element 19[c].
128. Buckley teaches the element’s remainder. *See* Element 10[c].

8. Claim 20

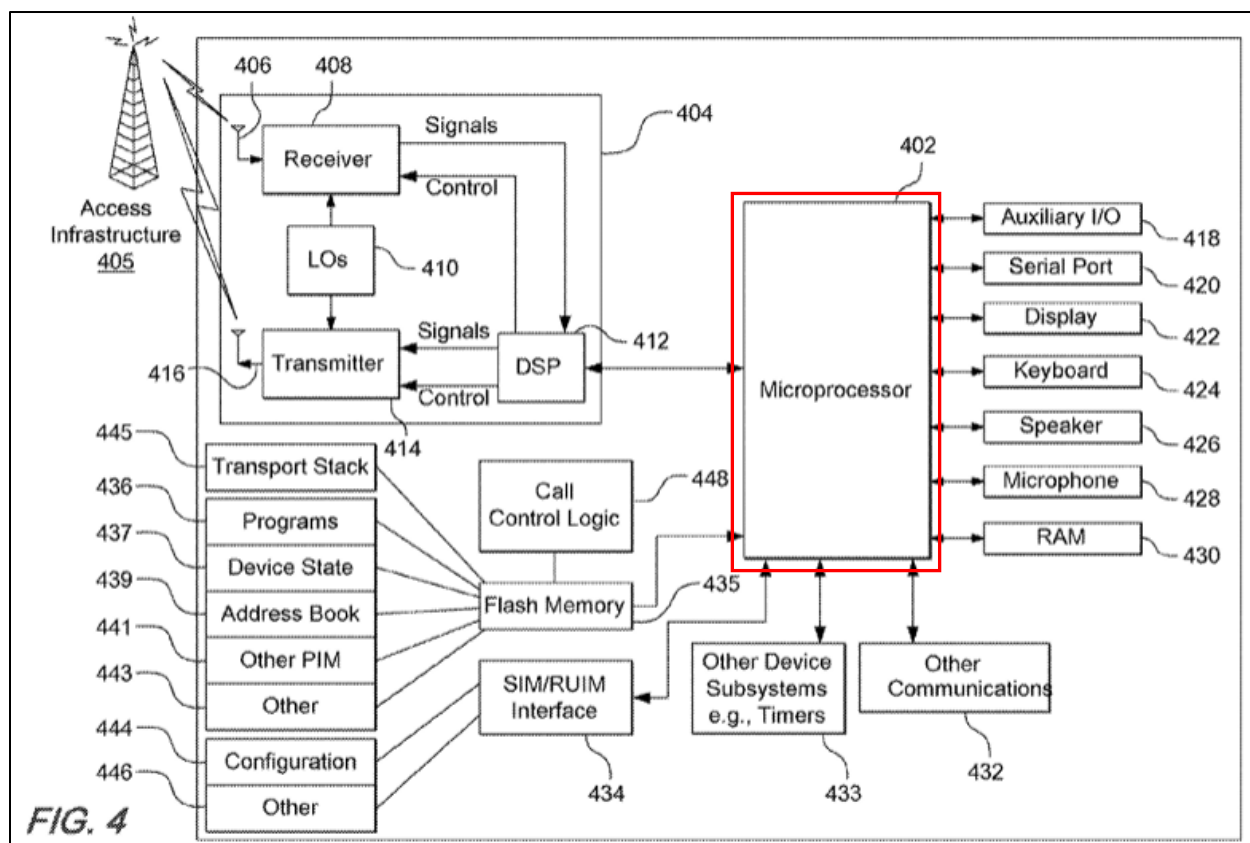
a. Element 20[preamble]: “A mobile telephone apparatus comprising:”

129. In my opinion, Buckley teaches this element. *See* Element 11[preamble].

b. Element 20[a]: “a processor circuit;”

130. In my opinion, Buckley teaches this element.

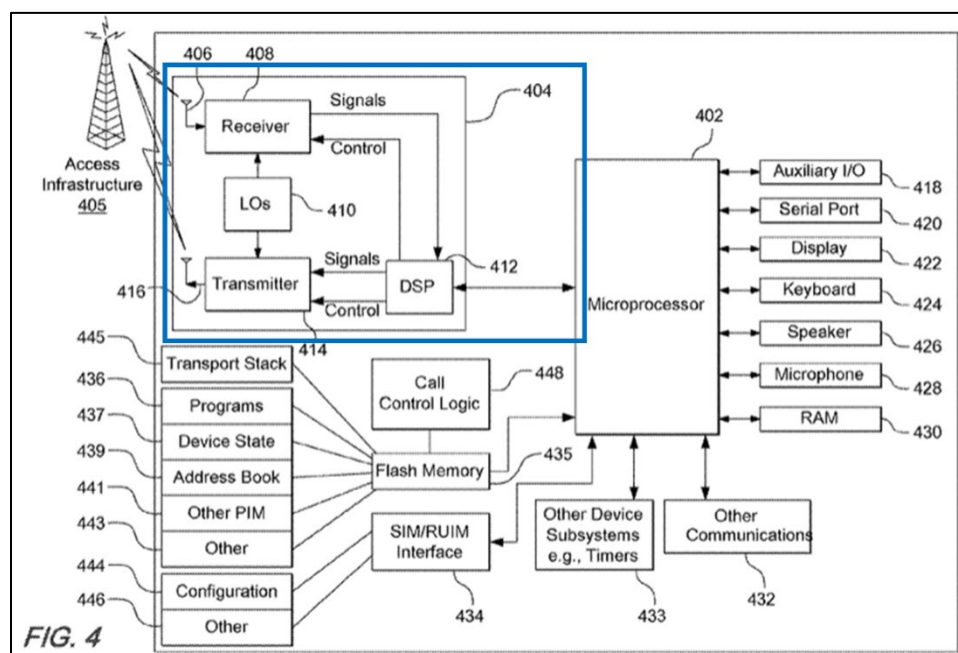
131. Buckley teaches a mobile telephone with “a microprocessor” in FIG 4, as outlined in red. *See* EX1005, Figure 4. A microprocessor is a particular kind of circuit that, as its names implies, processes information.



c. **Element 20[b]: “a network interface in communication with said processor circuit; and”**

132. In my opinion, Buckley teaches this element.

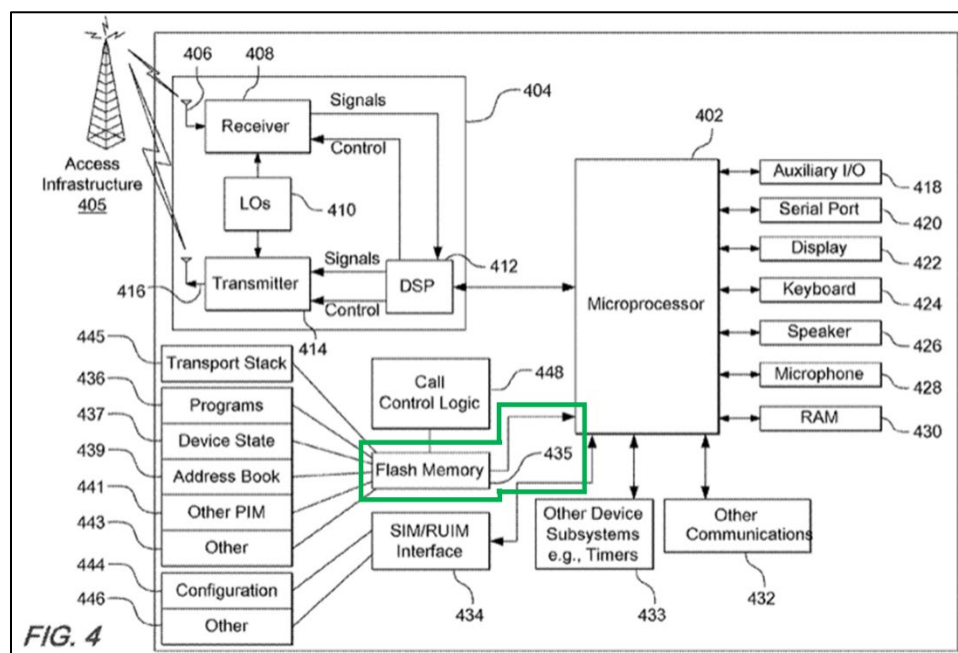
133. Buckley teaches a mobile telephone with a network interface. *See* Claim 11[b]. The network interface is in communication with a processor as outlined in blue below in FIG 4. *See* EX1005, Figure 4, 13:33-37 (“A **microprocessor** [] providing for the overall control of an embodiment of UE [] **is operably coupled to a communication subsystem** [] that is capable of multi-mode communications (e.g. CS domain, IP domain such as IMS, etc.)”).



d. **Element 20[c]: “a computer readable medium in communication with said processor circuit and encoded with codes for directing said processor circuit to:”**

134. In my opinion, Buckley teaches this element.

135. Buckley teaches a mobile telephone with a computer readable medium in communication with a processor as outlined in green in FIG 4 below. See Figure 4, 14:11-14 (“Operating system software and applicable service logic software may be embodied in a persistent storage module (i.e., non-volatile storage) such as Flash memory”).



- e. **Element 20[d]: “receive, from a user of the mobile telephone, a callee identifier associated with the callee;”**

136. In my opinion, Buckley teaches this element. See Element 1[a].

- f. **Element 20[e]: “cause an access code request message to be transmitted to an access server to seek an access code from a pool of access codes wherein each access code in said pool of access codes identifies a respective telephone number or Internet Protocol (IP) network address that enables a local call to be made to call the callee identified by the callee identifier, said access code request message including said callee identifier**

**and a location identifier separate and distinctive from
said callee identifier, said location identifier identifying
a location of the mobile telephone;”**

137. In my opinion, Buckley teaches this element. *See* Element 1[b].

- g. **Element 20[f]: “receive an access code reply message from the access server in response to said access code request message, said access code reply message including an access code different from said callee identifier and associated with said location identifier and/or associated with a location pre-associated with the mobile telephone and wherein said access code expires after a period of time; and”**

138. In my opinion, Buckley teaches this element. *See* Element 1[c].

- h. **Element 20[g]: “initiate a call using said access code to identify the callee.”**

139. In my opinion, Buckley teaches this element. *See* Element 1[d].

- 9. **Claim 21: “The mobile telephone apparatus of claim 20 wherein said network interface comprises a non-voice network interface, and wherein said codes for directing said processor circuit to cause said access code request message to be transmitted include codes for directing said processor circuit to cause said access code request message to be transmitted to said access server using said non-voice network interface on a non-voice network.”**

140. In my opinion, Buckley teaches this element. *See* Claim 2.

141. Buckley teaches a mobile telephone with an IP (“non-voice” in the ’234 Patent’s parlance) network interface. *See* EX1005, Figure 4, 13:33-39 (“A microprocessor [] providing for the overall control of an embodiment of UE [] is operably coupled to a communication subsystem [] that is capable of

multi-mode communications (e.g. CS domain, ***IP domain such as IMS***, etc.).

The communication subsystem [] generally includes one or more receivers []
and one or more transmitters”).

10. **Claim 22: “The mobile telephone apparatus of claim 20 wherein said location identifier comprises an IP address of the mobile telephone in a wireless IP network.”**

142. In my opinion, Buckley teaches this element. *See* Claim 3.

11. **Claim 25: “The mobile telephone apparatus of claim 20 wherein said network interface comprises a non-voice network interface, and wherein said codes for directing said processor circuit to receive an access code reply message include codes for directing said processor circuit to cause said access code reply message to be received from said access server using said non-voice network interface on a non-voice network.”**

143. In my opinion, Buckley teaches this element. *See* Claims 6, 21.

12. **Claim 28**

- a. **Element 28[preamble]: “A system for enabling roaming by a mobile telephone, the system comprising the mobile telephone of claim 20 and further comprising:”**

144. In my opinion, Buckley teaches this element. *See* Elements 19[preamble],
20[preamble].

- b. **Element 28[a]: “a routing controller; and”**

145. In my opinion, Buckley teaches this element. *See* Element 19[a].

- c. **Element 28[b]: “an access server comprising a processor circuit and a computer readable medium in communication with the processor circuit, the**

**computer readable medium encoded with codes for
directing said processor circuit to:’**

146. In my opinion, Buckley teaches this element.

147. Buckley’s AS is an access server. *See* Claim 1[b]. That AS has “one or more *processors*,” EX1005, Cl. 34, and is “provided with *appropriate logic/structure/software/firmware module(s)*.” *Id.*, 4:42-43. A POSITA would recognize that computer readable medium in the form of memory is necessarily required in order to store software and firmware modules capable of performing the logic and operations ascribed to the AS. There must be some place to store the “software/firmware module(s)” that Buckley teaches is provided on the AS, and that is the purpose of memory, which is a computer-readable medium that is encoded with software and firmware codes with “logic/structure” for performing that actions performed by the AS as discussed above.

**d. Element 28[c]: “receive from the mobile telephone said
access code request message;”**

148. In my opinion, Buckley teaches this element. *See* Element 10[a].

**e. Element 28[d]: “communicate with said routing
controller to obtain from said routing controller said
access code wherein said access code identifies a
channel associated with said location identifier and
wherein said access code is useable by the mobile
telephone to cause the routing controller to establish a
call to the callee using the channel; and”**

149. In my opinion, Buckley teaches this element. *See* Element 10[b].

- f. **Element 28[e]: “transmit said access code reply message to the mobile telephone.”**

150. In my opinion, Buckley teaches this element. *See* Element 10[c].

13. Claim 29

- a. **Element 29[preamble]: “A non-transitory computer readable medium encoded with codes for directing a processor circuit to enable mobile telephone roaming, said codes being operable to direct the processor circuit to:”**

151. In my opinion, Buckley teaches this element. *See* Element 1[preamble];
Element 20[c].

- b. **Element 29[a]: “receive, from a user of a mobile telephone, a callee identifier associated with a callee;”**

152. In my opinion, Buckley teaches this element. *See* Element 1[a].

- c. **Element 29[b]¹³: “transmit an access code request message to an access server to seek an access code from a pool of access codes telephone wherein each access code in said pool of access codes identifies a respective telephone number or Internet Protocol (IP) network address to enable a local call to be made to call the callee identified by the callee identifier, said access code request message including said callee identifier and a location identifier separate and distinctive from**

¹³ A POSITA would have understood that there is a typo in this limitation, as the word “telephone” appears out of context in the middle of this element right after “pool of access codes.” Striking this apparent typo renders this Element the same as Element 1[b].

**said callee identifier, said location identifier identifying
a location of the mobile telephone;”**

153. In my opinion, Buckley teaches this element. *See* Element 1[b].

- d. **Element 29[c]: “receive an access code reply message from the access server in response to said access code request message, said access code reply message including an access code different from said callee identifier and associated with said callee location identifier and/or associated with a location pre-associated with the mobile telephone and wherein said access code expires after a period of time; and”**

154. In my opinion, Buckley teaches this element. *See* Element 1[c].

- e. **Element 29[d]: “initiate a call using said access code to identify the callee.”**

155. In my opinion, Buckley teaches this element. *See* Element 1[d].

**B. Ground II: Claims 1-3, 6, 10-11, 19-22, 24-25, and 28-29 Are
Rendered Obvious by Buckley in Combination with Bates.**

1. Motivation to Combine

156. Bates builds upon Buckley’s disclosed transmission of location information, and further informs a POSITA why such location information is important in selecting a temporary number that will optimize call routing and enable a local call. In my opinion, a POSITA would have been motivated to modify Buckley with Bates for a number of reasons.

157. Both references are in the field of call routing and are directed to improving call routing. Both teach methods of routing PSTN and VoIP calls across packet-switched networks and circuit-switched networks. *Compare* EX1005

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(Buckley), Abstract (“Methods and apparatus for use in processing Session Initiation Protocol (SIP) calls in a network environment which includes a circuit-switched (CS) network and an Internet Protocol (IP) multimedia subsystem (IMS) network”), *with* EX1009 (Bates), 14:26-31 (Invention “enabl[es] interoperability of non-traditional communication networks with established, traditional PSTN-based emergency services.”).

158. The similarities between references is substantial, and a POSITA therefore would have had a reasonable expectation of success in combining Buckley with Bates. For example, both references teach selecting temporary telephone numbers to allow calls to be transferred between IP (*i.e.*, packet-switched (PS)) and circuit-switched (CS) (*e.g.*, PSTN) networks. *Compare* EX1005 (Buckley), 4:26-40, *with* EX1009 (Bates), 14:2-8, 26-37. Both references also teach selecting telephone numbers from a pool of numbers that are temporarily assigned in response to a communication request. *Compare* EX1005 (Buckley), 4:46-49, *with* EX1009 (Bates), 1:32-37. Both references also teach receiving a message that contains a user device’s location information and using that received information when selecting a temporary number from the pool. *Compare* EX1005 (Buckley), 3:4-12, 4:41-49, 6:1-3, *with* EX1009 (Bates), 3:42-49, 18:67-19:2, 19:54-55. The analogous overlap

can also be seen in comparing, for example, Figure 3A of Buckley with Figure 7 of Bates (particularly elements 705-725).

159. A POSITA also would have had a reasonable expectation of success in combining the references because Buckley expressly contemplates routing emergency calls, and Bates seeks to improve on such routing. For example, Buckley teaches XML code for establishing registration information used for emergency calls.¹⁴ See EX1005 11:28-43 (“<!ELEMENT alternative-service (type, action, ics-mo-address, reason)> <!ELEMENT type (emergency | MO-call)> ... <!ELEMENT action (emergency-registration)>”), 12:8-18 (e.g., “xs:element name=‘emergency-registration’”). A POSITA would therefore have understood that Bates’s techniques and rationale for selecting a geographically-correct telephone number (described in further detail below) could be utilized by Buckley’s system to select a local IMRN E.164 telephone number in the interest of optimizing routing decisions, including ensuring proper routing of emergency calls and avoiding unnecessary long distance and roaming charges. Multiple prior art references from the same inventor (Buckley, and also Andrew Allen) and assignee (Research in Motion) further

¹⁴ IETF RFC 4826 defines “XML Formats for Representing Resource Lists.” IETF RFC 4190 defines “Frameworks for Supporting Emergency Telecommunication Services (ETS) in IP Telephony.”

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confirm that a POSITA would have understood from Buckley's disclosure that Buckley's system included ensuring proper routing of emergency calls. *See* EX1006, 11:31-45 ("In other XML coding schemes, various additional elements may also be provided to indicate emergency sessions.... [A] <type> child element, set to 'emergency' to indicate that it was an emergency call"); EX1008, [0041]-[0042] ("XML body that includes an <alternative service> element with the <type> child element set to 'emergency', the UE shall automatically send an ACK request.... The UE can attempt an emergency call setup in the CS domain according to the procedures described in 3GPP TS 24.008."), Figure 6 ("emergency-registration"). And Buckley's SIP system is capable of accounting for Bates's location information. *See* EX1010 (RFC 3261),¹⁵ 1 ("SIP also provides a registration function that allows users to upload their current locations for use by proxy servers.").

160. A POSITA also would have had a reasonable expectation of success in combining, and be motivated to combine, Buckley and Bates because they both teach techniques for establishing channels for bi-directional communication. Buckley's IMRN access code, which may be an E.164 telephone number as discussed above in Ground I, identifies a channel for

¹⁵ RFC 3261 is expressly cited in Buckley. EX1005, 5:29-33.

communication. *See, e.g.*, EX1001 3:30-32 (“The access code may include a telephone number identifying a channel operably configured to cooperate with an IP network.”). So too does Bates’s geographically-correct telephone number identify a channel for communication. EX1009, 3:43-50, Fig 4 (“Establish the Communication Session Including the Temporary Telephone Number”). Buckley’s and Bates’s techniques for mapping such temporary numbers to call participants identifies the channels on which those participants communicate.

161. A POSITA would also have been motivated to modify Buckley with the teachings of Bates to produce better routing results, including for routing local calls. Buckley teaches the IMRN can be constructed based on “some relationship(s) to one or more of the parameters received in a message ... from the UE device” in the SIP Invite message. EX1005, 3:4-12, 4:41-49. But Buckley does not expressly teach all such “relationship(s)” that a POSITA may use to map the received information to an IMRN. A POSITA would have been motivated to select available and known techniques for creating such relationships and mappings to embody Buckley’s system. Bates provides one such technique that determines a “***geographically-correct telephone number*** (e.g., a telephone number including a 202 area code for a call that was determined to have been made by a user located in the Washington, D.C. area,

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where the 202 area code indicates that the user placed the call from the Washington, D.C. area).” EX1009, 3:43-50. A POSITA would thus appreciate that Bates’s “geographically-correct” relationship technique is a known technique that can be used to improve or carry out Buckley’s similar system with predictable results, and was an obvious-to-try option for mapping IMRNs to the “received SIP call information” that yields predictable results (a local call).

162. Bates itself teaches the communication service that selects temporary telephone numbers may do so whenever the server “determine[s] that the type of communication session requested by the user communication device 110 would benefit from having a temporary telephone number.” EX1009, 7:55-64; *Id.* 11:26-31 (“The communications service provider 120 determines whether the type of communication session would benefit from a temporary telephone number (420). In one implementation, the communications service provider 120 may analyze the communication session request to determine whether a temporary telephone number would be beneficial.”). Bates further teaches using a “geographically-correct telephone number” allows “the temporary telephone number [to be] used to ... route the call to the appropriate public safety answering point [(PSAP)] for the location of the user communication device 110,” which is helpful to ensure, for example, that a

mobile phone caller with a Los Angeles area code does not get connected to the Los Angeles 9-1-1 when that caller is traveling in New York. *See* EX1009, 12:28-32. Thus, a POSITA would have been motivated to modify Buckley with Bates to produce better call routing results, including in the emergency services context. Additionally, as discussed above, a POSITA would have known that selecting a “geographically correct” local telephone number can produce a local call that avoids long distance and roaming charges, providing further motivation to modify Buckley with Bates’s techniques to obtain these predictable and desirable results. *See* EX1014, Abstract, [0036]; EX1001, 1:20-28.

2. Claim 1

a. Element 1[preamble]: “A method of roaming with a mobile telephone, the method comprising”

163. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 1[preamble]. Further, Bates additionally teaches that the mobile phone would be roaming. EX1009, 4:43-47 (“[T]he user communication device 110 may be mobile such that the user communication device 110 may establish a connection with communications service provider 120 at multiple different points in data network 130 located in multiple different geographic areas.”).

b. **Element 1[a]: “receiving, from a user of the mobile telephone, a callee identifier associated with the callee”**

164. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 1[a].

165. Bates teaches “a request to place a call to a call recipient is received from the user” EX1009, Abstract. Moreover, Bates teaches the “user *places a call* for emergency services (e.g., a *9-1-1 call*).” *Id.*, 3:39-40. The 9-1-1 number is a callee identifier associated with the callee, which is emergency services.

c. **Element 1[b]: “transmitting an access code request message to an access server to seek an access code from a pool of access codes wherein each access code in said pool of access codes identifies a respective telephone number or Internet Protocol (IP) network address that enables a local call to be made to call the callee identified by the callee identifier, said access code request message including said callee identifier and a location identifier separate and distinctive from said callee identifier, said location identifier identifying a location of the mobile telephone”**

166. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 1[b].

167. Bates teaches the service “receive[s] a request from the user communication device [] to establish a communication session with the recipient communication device,” and “the *location key* [(location identifier)] may be included in the request.” EX1009, 11:12-15, 12:7-8. “The location key is an identifier used by the communications service provider 120 to identify a

particular location” of the user’s mobile telephone. *Id.* 9:27-29. That location key may be input by the user for transmission to the service provider’s access server. *Id.*, 8:56-9:1 (“[T]he user provides his or her current location by explicitly providing his or her address (e.g., entering location in a text box provided in a graphical user interface (GUI) of the communications service provider 120 or orally reciting location in a voice communication). In another implementation, the communications service provider 120 maintains a list of potential locations for the user and the user selects a location from a list provided by the communications service provider....”). Bates therefore teaches that the access code request message includes a location identifier (Bates’s “location key”) that is separate and distinctive from said callee identifier (9-1-1, in this example).

168. Bates teaches “the communications service provider [] maintains a pool of telephone numbers.” EX1009, 10:11-14, 19-21. From among that pool, Bates teaches techniques to “select a temporary telephone number that corresponds to the location of the user communication device.” EX1009, 18:67-19:2. “The temporary telephone number is a geographically-correct telephone number” that enables a local call because a geographically-correct telephone number “route[s] the call to the appropriate public safety answering point for the location of the user communication device.” *Id.* 19:53-55, 12:30-31. For

example, Bates teaches selecting “a telephone number including a 202 area code for a call that was determined to have been made by a user located in the Washington, D.C. area, where the 202 area code indicates that the user placed the call from the Washington, D.C. area.” EX1009, 3:43-50. In this analysis, Bates’s technique for selecting a “geographically-correct telephone number” from among its pool of such numbers determines Buckley’s selection of IMRN from a pool of telephone (E.164) numbers (access codes) in order to ensure that a local call is made so that the correct emergency services is contacted and no unnecessary long distance or roaming charges are incurred.

169. A POSITA would have understood that selecting a geographically-correct telephone numbers from Bates’s pool, when applied to Buckley’s system, enables a local call because the purpose is to “route the call to the appropriate public safety answering point for the location of the user communication device,” which is the local public safety answering point that is actually located near to the person and not emergency services in a different state (for example). EX1009, 12:30-31. A POSITA would at least have found it obvious that selecting a geographically-correct telephone numbers in Bates’s pool, when applied to Buckley’s system, would each enable a local call for the same reasons that selecting from Buckley’s pool of IMRNs in its “home” AS would each enable a local call, as described above. Alternatively, another

“pool” in this analysis is the subset of numbers within Bates’s pool that enable a local call. EX1005, 5:5-7(“[I]t may be desirable to provide for different pools of IMRNs to be configured from different number ranges.”); *Compare* EX1001, Figure 10 (table of access codes with multiple area codes).

170. The remaining components of this element are taught by Buckley as described above in Ground I.

- d. **Element 1[c]: “receiving an access code reply message from the access server in response to said access code request message, said access code reply message including an access code different from said callee identifier and associated with said location identifier and/or associated with a location pre-associated with the mobile telephone and wherein said access code expires after a period of time”**

171. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 1[c].

172. As described above, Buckley teaches receiving an access code reply message from the access server in response to said access code request message. Ground I, Element 1[c]. In the asserted combination, the access code included in the access code reply message is selected based on Bates’s techniques to select a geographically correct telephone number that would be used by the caller’s mobile phone to enable a local call. EX1009, 18:67-19:2 (“[A] communications service provider may ... select a temporary telephone number that corresponds to the location of the user communication device.”);

- 19:53-55 (“The temporary telephone number is a geographically-correct telephone number”); 3:45-49 (“***geographically-correct telephone number*** (e.g., a telephone number including a 202 area code for a call that was determined to have been made by a user located in the Washington, D.C. area, where the 202 area code indicates that the user placed the call from the Washington, D.C. area)”). Either the caller’s IP address or P-Preferred-ID as taught by Buckley or the location key as taught by Bates would provide the location information necessary to utilize Bates technique to select a geographically-correct IMRN (access code).
173. Bates’s geographically-correct telephone number selection technique, when applied in Buckley’s system, yields a number that is different than the emergency number dialed (e.g. 9-1-1) because the geographically-correct telephone number will have a local area code, such as 202 in the Washington, D.C. example. EX1009, 3:43-50. Bates’s technique to select a geographically-correct telephone number (access code), when applied to Buckley’s system, includes associating the telephone number with the location identifier (whether Buckley’s caller’s IP address or P-Preferred-ID or Bates’s location key) and/or with a location pre-associated with the mobile telephone. The purpose of selecting a geographically-correct telephone number in this analysis is to choose a number that ensures the caller is placing a local call to

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local emergency services, and not (for example) placing a call to emergency services in California when the caller is in Washington, D.C, nor needlessly incurring long distance or roaming charges. EX1009, 3:54-56 (Teaching the system “routes the call to the appropriate public safety answering point (PSAP) based on the location associated with the temporary telephone number”).

174. Bates further teaches that its system “may *wait a threshold amount of time* ... prior to *returning the temporary telephone number to the pool of available telephone numbers*” rather than doing so immediately. EX1009, 12:44-51. Returning the number to the pool means the number’s association to the communication session has expired because then the number “may be assigned to a different user communication device in a subsequent communication session request.” *Id.* 13:15-16. Bates therefore teaches that the access code expires after a period of time.

175. The remaining elements are taught by Buckley as described above in Ground I, Element 1[c].

e. **Element 1[d]: “initiating a call with the mobile telephone using said access code to identify the callee.”**

176. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 1[d].

3. Claim 2: “The method of claim 1 wherein transmitting comprises transmitting said access code request message to said access server on a non-voice network.”

177. In my opinion, Buckley in view of Bates renders this claim obvious. *See* Ground I, Claim 2.

4. Claim 3: “The method of claim 1 wherein transmitting said location identifier comprises transmitting an IP address of the mobile telephone in a wireless IP network.”

178. In my opinion, Buckley in view of Bates renders this claim obvious. *See* Ground I, Claim 3.

179. Bates teaches the location identifier is an IP address. *See* EX1009, 9:4-9 (“the communications service provider 120 may *determine a current location* of the user communication device 110 *based on an IP address the user communication device* is using to connect to the data network 130”). Bates also teaches the user communication device may be “a wireless phone” that connects via a “data network [that] may include ... a wired or *wireless* data pathway.” *id.*, 4:22-23, 6:10-13. A POSITA would recognize that when the user communication device is connected to a wireless network, its IP address would be wireless IP network address, because IP addresses are network addresses, as discussed above.

5. Claim 6: “The method of claim 1 wherein receiving said access code reply message comprises receiving said access

code reply message from said access server on a non-voice network.”

180. In my opinion, Buckley in view of Bates renders this claim obvious. *See* Ground I, Claim 6.

6. Claim 10

a. **Element 10[preamble]: “The method of claim 1 further comprising:”**

181. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 10[preamble].

b. **Element 10[a]: “receiving from the mobile telephone said access code request message;**

182. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I; Element 10[a].

c. **Element 10[b]: “communicating with a routing controller to obtain from the routing controller said access code wherein said access code identifies a communications channel associated with said location identifier and wherein said access code is useable by the mobile telephone to cause the routing controller to establish a call to the callee using the channel”**

183. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 10[b].

184. As the '234 Patent describes, “the access server 14 and the routing controller 30 need not be separate, but may, for example, be combined in a single

component” and “the routing controller 30 executes a process to facilitate communication between callers and callees”. EX1001, 15:4-10.

185. Bates’s “emergency services proxy server” comprises a routing controller because the emergency services proxy server facilitates communication between a caller and callee by assigning the “geographically correct telephone number” and establishing a call to or from the appropriate PSAP (which may be a caller or callee) while informing the PSAP of the UE’s location. *See* EX1009, 13:61-14:1 (“[T]he emergency services proxy server 524 may be configured to assign a temporary, geographically-correct telephone number to the user device ... and relay the request to enhanced emergency service provider 540 including the temporary telephone number”); *Id.*, 3:53-57 (“The traditional emergency services call handling system routes the call to the appropriate public safety answering point (PSAP) based on the location associated with the temporary telephone number and establishes the emergency services call between the user and the PSAP”); *Id.*, 14:13-15 (“the user communication device [] may be able to receive a return call from the PSAP at the temporary telephone number”); Element 1[c], [d].
186. A POSITA would have understood that the geographically correct telephone number used in Bates identifies a communications channel, similar to how Buckley’s telephone number identifies a communications channel, because

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the telephone number identifies the pathway for end-to-end communications during the communication session. The circuit itself is a channel in a circuit-switched network, where information entered into one end is transmitted directly to the other end, while in a packet-switched network, the purpose of Session ***Initiation*** Protocol is to establish the communication channel via RTP protocol that carries the media stream (*e.g.*, voice and video). EX1001, 3:30-32. Additionally, the '234 Patent confirms that a telephone number identifies a communication channel. *See, e.g.*, EX1001 3:30-32 (“[t]he access code may include a telephone number identifying a channel operably configured to cooperate with an IP network.”). Additionally, Bates’s temporary number selection process and system described above is used to “***establish a communication session*** with an emergency services provider” or between “communication device[s],” and such a “communication session” is a channel. EX1009, 14:26-32, 4:48-61, 11:26-31, 12:17-21 (“The communications service provider 120 establishes the communication session requested by the user communication device 110 including the temporary telephone number in information used to establish the communication session (450).”), 15:28-30.

187. Bates’s session (channel) is associated with the location identifier because Bates’s technique to select a “geographically correct telephone number” used

to establish the session is based on the location identifier. Ground II, Element 1[c].

- d. **Element 10[c]: “transmitting said access code reply message to the mobile telephone.”**

188. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 10[c].

7. Claim 11

- a. **Element 11[preamble]: “A mobile telephone apparatus comprising:”**

189. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 11[preamble].

- b. **Element 11[a]: “means for receiving, from a user of the mobile telephone, a callee identifier associated with the callee;”**

190. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 11[a].

- c. **Element 11[b]: “transmitting means for transmitting an access code request message to an access server to seek an access code from a pool of access codes wherein each access code in said pool of access codes identifies a respective telephone number or Internet Protocol (IP) network address that enables a local call to be made to call the callee identified by the callee identifier, said access code request message including said callee identifier and a location identifier separate and distinctive from said callee identifier, said location**

identifier identifying a location of the mobile telephone”

191. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 11[b]; Ground II, Element 1[b].

- d. **Element 11[c]: “means for receiving an access code reply message from the access server in response to said access code request message, said access code reply message including an access code different from said callee identifier and associated with said location identifier and/or associated with a location pre-associated with the mobile telephone and wherein said access code expires after a period of time; and”**

192. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 11[c]; Ground II, Element 1[c].

- e. **Element 11[d]: “means for initiating a call using said access code to identify the callee.”**

193. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 11[d].

8. Claim 19

- a. **Element 19[preamble]: “A system for enabling roaming by a mobile telephone, the system comprising the mobile telephone apparatus of claim 11 and further comprising:”**

194. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 19[preamble].

b. **Element 19[a]: “a routing controller; and”**

195. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 19[a]; Ground II, Element 10[b].

c. **Element 19[b]: “an access server comprising:”**

196. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I; Element 19[b].

d. **Element 19[c]: “means for receiving from the mobile telephone said access code request message;”**

197. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 19[c].

e. **Element 19[d]: “means for communicating with said routing controller to obtain from said routing controller said access code wherein said access code identifies a channel associated with said location identifier and wherein said access code is useable by the mobile telephone to cause the routing controller to establish a call to the callee using the channel; and”**

198. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 19[d]; Ground II, Element 10[b].

f. **Element 19[e]: “means for transmitting said access code reply message including said access code to the mobile telephone.”**

199. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 19[e].

9. Claim 20

a. Element 20[preamble]: “A mobile telephone apparatus comprising:”

200. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 20[preamble].

b. Element 20[a]: “a processor circuit;”

201. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 20[a].

c. Element 20[b]: “a network interface in communication with said processor circuit; and”

202. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 20[b].

d. Element 20[c]: “a computer readable medium in communication with said processor circuit and encoded with codes for directing said processor circuit to:”

203. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 20[c].

e. Element 20[d]: “receive, from a user of the mobile telephone, a callee identifier associated with the callee;”

204. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 20[d].

f. Element 20[e]: “cause an access code request message to be transmitted to an access server to seek an access

code from a pool of access codes wherein each access code in said pool of access codes identifies a respective telephone number or Internet Protocol (IP) network address that enables a local call to be made to call the callee identified by the callee identifier, said access code request message including said callee identifier and a location identifier separate and distinctive from said callee identifier, said location identifier identifying a location of the mobile telephone;”

205. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 20[e]; Ground II, Element 1[b].

g. **Element 20[f]: “receive an access code reply message from the access server in response to said access code request message, said access code reply message including an access code different from said callee identifier and associated with said location identifier and/or associated with a location pre-associated with the mobile telephone and wherein said access code expires after a period of time; and”**

206. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 20[f]; Ground II, Element 1[c].

h. **Element 20[g]: “initiate a call using said access code to identify the callee.”**

207. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 20[g].

10. **Claim 21: “The mobile telephone apparatus of claim 20 wherein said network interface comprises a non-voice network interface, and wherein said codes for directing said processor circuit to cause said access code request message to be transmitted include codes for directing said processor circuit to cause said access code request message to be**

transmitted to said access server using said non-voice network interface on a non-voice network.”

208. In my opinion, Buckley in view of Bates renders this claim obvious. *See* Ground I, Claim 21.

11. Claim 22: “The mobile telephone apparatus of claim 20 wherein said location identifier comprises an IP address of the mobile telephone in a wireless IP network.”

209. In my opinion, Buckley in view of Bates renders this claim obvious. *See* Ground I, Claim 22; Ground II, Claim 3.

12. Claim 24: “The mobile telephone apparatus of claim 20 wherein said location identifier comprises a user-configured identifier of a location associated with the mobile telephone.”

210. In my opinion, Buckley in view of Bates renders this claim obvious.

211. Bates teaches “the current physical address of the user accessing the communications service provider 120 with the user communication device ... may be *explicitly supplied by the user.*” EX1009, 5:30-34; Ground II, Element 1[b].

13. Claim 25: “The mobile telephone apparatus of claim 20 wherein said network interface comprises a non-voice network interface, and wherein said codes for directing said processor circuit to receive an access code reply message include codes for directing said processor circuit to cause said access code reply message to be received from said access

server using said non-voice network interface on a non-voice network.”

212. In my opinion, Buckley in view of Bates renders this claim obvious. *See* Ground I, Claim 25.

14. Claim 28

a. **Element 28[preamble]: “A system for enabling roaming by a mobile telephone, the system comprising the mobile telephone of claim 20 and further comprising:”**

213. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 28[preamble].

b. **Element 28[a]: “a routing controller; and”**

214. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 28[a].

c. **Element 28[b]: “an access server comprising a processor circuit and a computer readable medium in communication with the processor circuit, the computer readable medium encoded with codes for directing said processor circuit to:”**

215. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 28[b].

d. **Element 28[c]: “receive from the mobile telephone said access code request message;”**

216. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 28[c].

- e. **Element 28[d]: “communicate with said routing controller to obtain from said routing controller said access code wherein said access code identifies a channel associated with said location identifier and wherein said access code is useable by the mobile telephone to cause the routing controller to establish a call to the callee using the channel; and”**

217. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I; Element 28[d]; Ground II, Element 10[b]; Ground II, Element 1[c].

- f. **Element 28[e]: “transmit said access code reply message to the mobile telephone.”**

218. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 28[e].

15. Claim 29

- a. **Element 29[preamble]: “A non-transitory computer readable medium encoded with codes for directing a processor circuit to enable mobile telephone roaming, said codes being operable to direct the processor circuit to:”**

219. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 29[preamble].

- b. **Element 29[a]: “receive, from a user of a mobile telephone, a callee identifier associated with a callee;”**

220. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 29[a].

- c. **Element 29[b]¹⁶: “transmit an access code request message to an access server to seek an access code from a pool of access codes telephone wherein each access code in said pool of access codes identifies a respective telephone number or Internet Protocol (IP) network address to enable a local call to be made to call the callee identified by the callee identifier, said access code request message including said callee identifier and a location identifier separate and distinctive from said callee identifier, said location identifier identifying a location of the mobile telephone;”**

221. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 29[b]; Ground II, Element 1[b].

- d. **Element 29[c]: “receive an access code reply message from the access server in response to said access code request message, said access code reply message including an access code different from said callee identifier and associated with said callee location identifier and/or associated with a location pre-associated with the mobile telephone and wherein said access code expires after a period of time; and”**

222. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 29[c]; Ground II, Element 1[c].

¹⁶ A POSITA would have understood that there is a typo in this limitation, as the word “telephone” appears out of context after “pool of access codes.” Striking this apparent typo renders this Element the same as Element 1[b].

e. **Element 29[d]: “initiate a call using said access code to identify the callee.”**

223. In my opinion, Buckley in view of Bates renders this element obvious. *See* Ground I, Element 29[d].

IX. SECONDARY CONSIDERATIONS

224. I am not aware of any evidence of secondary considerations that would support a finding of non-obviousness. In particular, I am not aware of any commercial success of the alleged invention in the Challenged Claims; skepticism by those having ordinary skill in the art at the time of the alleged invention regarding the possibility, utility, or success of the alleged invention of the Challenged Claims; unexpected results achieved by the alleged invention of the Challenged Claims; any long-felt but unsolved need in the art that was satisfied by the alleged invention of the Challenged Claims; the failure of others to make the alleged inventions of the Challenged Claims; praise of the alleged invention in the Challenged Claims by those having ordinary skill in the art; or copying of the alleged invention in the Challenged Claims by others in the field.

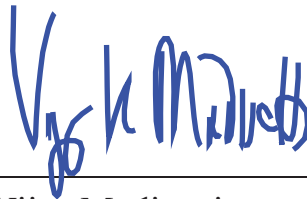
X. CONCLUSION

225. Based on my analysis above, it is my opinion that the challenged claims of the ’234 Patent are obvious over Buckley alone and also obvious over Buckley in view of Bates.

Declaration of Dr. Vijay Madiseti in support of
Petition for *Inter Partes* Review of U.S. Patent No. 8,630,234

226. I hereby declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct, and that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I understand that willful false statements are punishable by fine or imprisonment or both. See 18 U.S.C. § 1001.

Date: June 30, 2022



Vijay Madiseti