UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

UNILOC 2017 LLC,
Patent Owner

U.S. Patent No. 7,969,925
Filing Date: July 8, 2010
Issue Date: June 28, 2011
Title: Peer-to-Peer Mobile Data Transfer Method and Device

Inter Partes Review No.: IPR2019-00702

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,969,925 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§ 42.1-100, ET SEQ.

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1019	IBM Dictionary of Computing, 10th Ed. (1993)
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1021	*Declaration of Sandy Ginoza for IETF RFC 2543: SIP: Session Initiation Protocol* with the exhibit RFC 2543, "SIP: Session Initiation Protocol" ("**RFC2543**")
1022	*Declaration of Sandy Ginoza for IETF RFC 791: Internet Protocol* with the exhibit RFC 791, "Internet Protocol"
1023	U.S. Pat. Pub. No. 2003/0040300
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1025	U.S. Pat. No. 7,181,231
1026	*Declaration of Mr. Craig Bishop regarding ETSI TS 123 040 V3.5.0, "Universal Mobile Telecommunications System (UMTS); Technical Realization of the Short Message Service (SMS) (3GPP TS 23.040 version 3.50 Release 1999)* with appendices A-D
1027	*Declaration of Sandy Ginoza for IETF RFC 768: User Datagram Protocol* with the exhibit, RFC768: User Datagram Protocol

I. INTRODUCTION

Apple Inc. ("Apple" or "Petitioner") hereby petitions for *inter partes* review of U.S. Patent No. 7,969,925 (Ex. 1001, "925 patent"). The 925 patent describes a technique for using an SMS invitation message to establish a peer-to-peer IP-based connection between two devices. The same technique is disclosed in each of the three primary prior art references presented in this Petition. The secondary references disclose well-known implementation details for network communications; specifically, the use of ports (e.g., to define a socket) and the use of TCP (e.g., for TCP/IP communications). In fact, these implementation details were taught by the same standards that defined the network communication protocols taught in the primary references, rendering the challenged claims obvious.

II. COMPLIANCE WITH FORMAL REQUIREMENTS

A. Mandatory Notices Under 37 C.F.R. §§ 42.8(b)(1)-(4)

1. Real Party-In-Interest

Apple is the real party-in-interest.

2. Related Matters

According to the assignment records at the USPTO, the 925 patent is currently owned by Uniloc 2017 LLC ("Uniloc"). The 925 patent was asserted against Apple by Uniloc Luxembourg S.A. and Uniloc USA, Inc. in *Uniloc USA,*

Inc., et al. v. Apple Inc., Case No. 1:18-cv-00166-LY (W.D. Tex.) ("the Related Litigation"), in a complaint filed on February 22, 2018. Ex. 1008.

Petitioner is contemporaneously filing IPR2019-00700 and IPR 2019-00701 on related U.S. Patent Nos. 8,406,116 and 8,018,877, respectively, which involve many of the same issues addressed herein. Uniloc has asserted each of the above patents in the Related Litigation.

3. Lead and Backup Counsel

Lead counsel is Brian Erickson Reg. No. 48,895, of DLA Piper LLP (US), 401 Congress Avenue, Suite 2500, Austin, TX 78701; brian.erickson@dlapiper.com, 512-457-7059 (phone), 512-457-7001 (fax).

Backup counsel is James M. Heintz, Reg. No. 41,828, of DLA Piper LLP (US), 11911 Freedom Drive, Suite 300; Reston, VA 20190; jim.heintz@dlapiper.com, 703-773-4148 (phone), 703-773-5200 (fax).

4. Service Information

Service information for lead and back-up counsel is provided in the designation of lead and back-up counsel above. Apple consents to electronic service to lead and back-up counsel and to Apple-Uniloc-IPR@dlapiper.com.

B. Proof of Service on the Patent Owner

As identified in the attached Certificate of Service, a copy of this Petition and supporting evidence is being served electronically by agreement of the parties and pursuant to 37 C.F.R. §§ 42.6&42.105(b).

C. Power of Attorney

Powers of attorney are being filed with designation of counsel in accordance with 37 C.F.R. § 42.10(b).

D. Standing

In accordance with 37 C.F.R. §42.104(a), Petitioner certifies that the 925 patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this Petition.

E. Fees

The undersigned authorizes the Director to charge the fee specified by 37 C.F.R. § 42.15(a) and any additional fees that might be due in connection with this Petition to Deposit Account No. 50-3266.

III. STATEMENT OF PRECISE RELIEF REQUESTED

A. Prior Art

The following references are pertinent to the grounds of unpatentability under Title 35 United States Code, pre-AIA:

- "**Alos**" (Ex. 1005) – EP 1 099 153 A1, published on June 14, 2000, is prior art under Section 102(b).
- "**Cordenier**" (Ex. 1007) – EP 1 385 323 A1, published on January 28, 2004, is prior art under Section 102(a).

- "**Lee**" (Ex. 1006) – U.S. 6,847,632, issued from an application filed on December 22, 1998, is prior art under Section 102(e).
- "**RFC793**" (Ex. 1010) – Request for Comment 793, published no later than 1992, is prior art under Section 102(b). As explained by Sandy Ginoza, RFC793 was indexed and published on a publicly available website and repository making it available and accessible to any interested person no later than October 1992. Ex. 1010 at 1-3 (original publication date of September 1981). As explained by Dr. Houh, anyone, including a POSITA, would have had access to, and would have been able to locate RFC793 no later than October 1992. Ex. 1002 ¶55; *see also* Ex. 1024 at 10-11. Indeed, the purpose of publishing Requests for Comments was to publicly solicit input from POSITAs for the standards setting processes. *Id.* RFC793 was in fact available and located by POSITAs, as established by its citation in contemporaneous documents. Ex. 1012 at 6:40-43 (U.S. Patent issued in 1992 and incorporating RFC793 by reference).
- "**SMS Specification**" (Ex. 1014) – SMS Specification, published no later than August 15, 2002, is prior art under Section 102(b). As explained at length by Craig Bishop, both ETSI and 3GPP published the SMS Specification as part of their standards setting processes. Ex.

1026 ¶¶ 1-34 and Appendices A-D (detailing the development and publication of the SMS Specification by ETSI and 3GPP). Mr. Bishop attended the meeting where the SMS Specification was "frozen" and explains in detail how interested persons could locate the publication. *Id.* at ¶20 (meeting and archive.org confirmation), ¶¶22-30 (access). Additionally, the SMS Specification was published no later than February 27, 2003, the publication date of U.S. App. 10/218,580 and its file history. Ex. 1014 at 1-6 (IDS dated August 15, 2002); Ex. 1023 (U.S. Pat. App. Pub. 2003/0040300) at [0002]-[0013] (describing and pointing a POSITA to the SMS Specification, a copy of which was in the publicly available file history); Ex. 1025 (U.S. Pat. No. 7,181,231) at 1:21-2:45 (same). Ex. 1002 ¶56 (explaining how a POSITA would have been aware of and able to locate the SMS Specification from the relevant standards bodies).

- "**WMA**" (Ex 1018) – WMA, published no later than August 21, 2002, is prior art under Section 102(b). As explained by Harold Ogle, WMA was indexed and published by the Java developers website no later than August 21, 2002. Ex. 1018 at 1-2, 6; Ex. 1002 ¶57 (explaining how a POSITA would have been able to locate WMA).

- "**Dorenbosch**" (Ex 1011) – U.S. 2003/0217174, filed on May 15, 2002 and published on November 20, 2003, is prior art under Sections 102(a) and (e).

B. Grounds

This Petition, supported by the declaration of Dr. Henry Houh ("Houh Declaration") (Ex. 1002), requests cancellation of claims 1-20 of the 925 patent on the following grounds under Title 35, United States Code pre-AIA:

- **Ground 1:** Claims 1, 3-8, 10-15, 17-20 are invalid under Section 103 over the combination of Alos and RFC793
- **Ground 2:** Claims 2, 9 and 16 are invalid under Section 103 over the combination of Alos, RFC793, SMS Specification and WMA
- **Ground 3:** Claims 1, 3-8, 10-15, 17-20 are invalid under Section 103 over the combination of Cordenier and RFC 793
- **Ground 4:** Claims 2, 9 and 16 are invalid under Section 103 over the combination of Cordenier, RFC793 and Dorenbosch
- **Ground 5:** Claims 1, 3-8, 10-15, 17-20 are invalid under Section 103 over the combination of Lee, RFC793 and SMS Specification
- **Ground 6:** Claims 2, 9 and 16 are invalid under Section 103 over the combination of Lee, RFC793, SMS Specification and WMA

IV. THIS PETITION IS PROPER UNDER 35 U.S.C. §§ 314(A) AND 325(D)

None of Alos, Lee, Cordenier, RFC793, SMS Specification, Dorenbosch or WMA were considered during prosecution or any post-grant proceeding of the 925 patent, and they are not cumulative of any references of record.

V. FULL STATEMENT OF REASONS FOR REQUESTED RELIEF

A. Summary of the 925 Patent

The 925 patent describes a technique for transferring data between mobile devices that does not require a server. Ex. 1001 at 1:61-67. With this technique, a first mobile device sends an SMS invitation message that includes its IP address to a second mobile device, and the second mobile device responds by initiating a TCP/IP connection to the first mobile device's IP address. Fig. 2, Ex. 1001 at 4:23-35; Ex. 1002 ¶32.

B. Claims of the 925 Patent

Claim 1 tracks the disclosed technique by claiming (1.pre) a method of establishing a data connection comprising (1.a) opening a listening software port, (1.b) transmitting an invitation via page-mode messaging (e.g., SMS), (1.c) receiving a response at the software port, and (1.d) establishing a peer-to-peer data transfer session. Ex. 1002 ¶33. These steps are highlighted in annotated Figure 2 below.

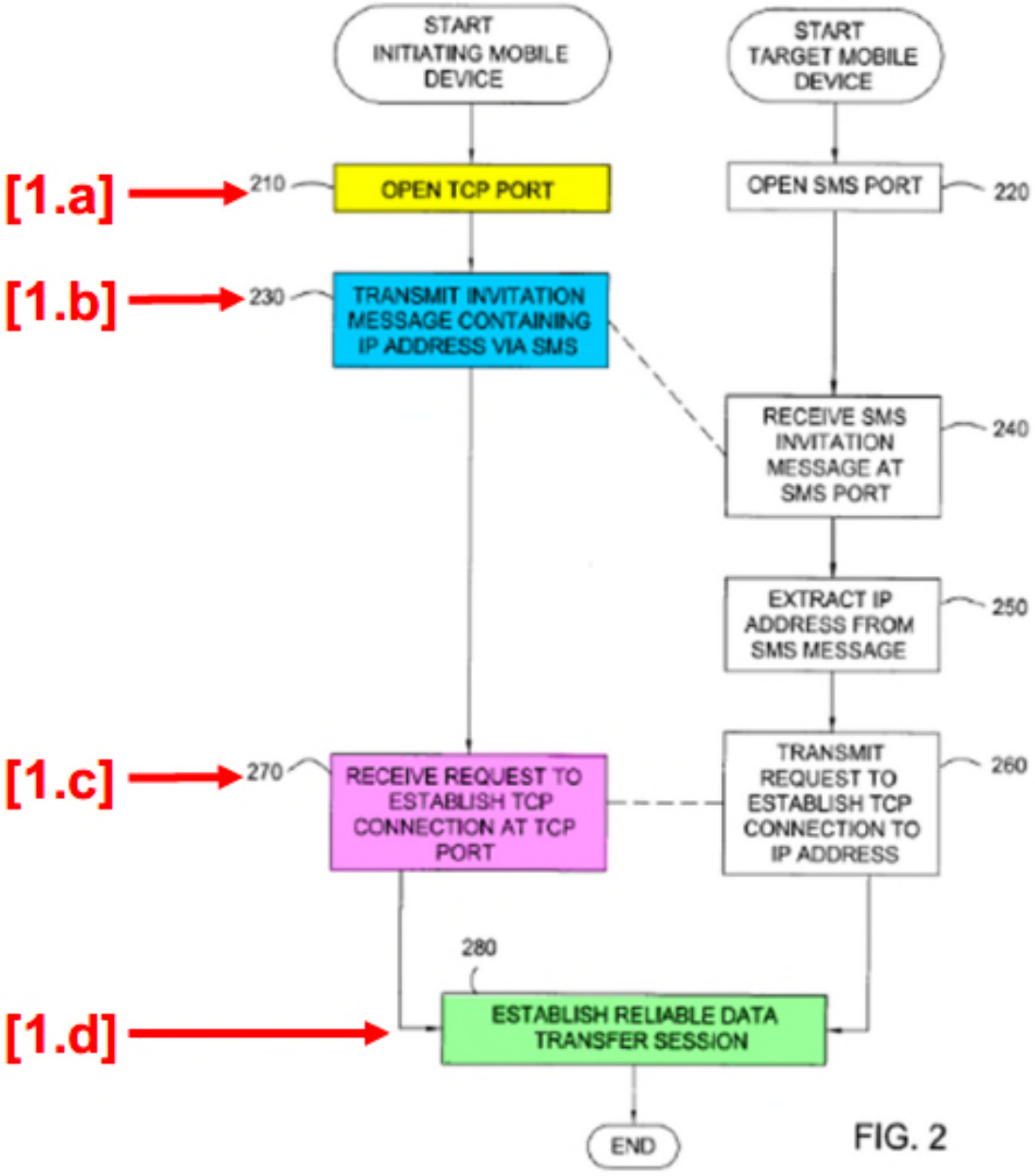


FIG. 2

Challenged claim 2 recites that the initiating mobile device receives similar invitations from "another" mobile device through the page-mode messaging service and transmits a response thereto. Challenged claim 3 specifies the type of address (IP), claims 4-5 specify the type of page-mode messaging service (SMS

and PIN-to-PIN, respectively), claim 6 specifies the type of unique ID used by the service (telephone number), and claim 7 specifies the type of data session (TCP). Ex. 1002 ¶34.

Challenged claims 8-14 (mobile device) and claims 15-20 (*Beauregard*) parallel claims 1-7. *Id.*

C. Person of Ordinary Skill in the Art

A person of ordinary skill in the art at the time of the alleged invention of the 925 patent (a "POSITA") would have had a Bachelor's degree in computer science or a comparable field of study, plus approximately two to three years of professional experience with cellular phone and IP networks, or other relevant industry experience. Additional graduate education could substitute for professional experience and significant experience in the field could substitute for formal education. The knowledge of a POSITA would have included the following subject matter. Ex. 1002 ¶35.

1. Networking and the Internet

A lowercase-I "internet" or "internetwork" is a network of networks that all use the same protocol suite to communicate. Ex. 1015 at 7; *see also* Ex. 1013 at 13, 12-14. "The goal of internetworking is to hide the details of what might be different physical networks, so that the internet functions as a coordinated unit." Ex. 1013 at 13; Ex. 1015 at 8; Ex. 1002 ¶36.

The uppercase-I "Internet" is an internet or internetwork that uses the TCP/IP protocol suite. Ex. 1009 at 10-12; *see also* Ex. 1013 at 40; Ex. 1015 at 4. The TCP/IP protocol suite includes the "Transmission Control Protocol" (TCP), "User Datagram Protocol" (UDP), and "Internet Protocol" (IP). Ex. 1009 at 12-14, 31-42 (introducing the network layer protocols and describing the IP), 81 (describing UDP), 86 (describing TCP). Ex. 1002 ¶37.

2. TCP/IP Ports

The 925 patent discusses the use of TCP ports. *See, e.g.*, Fig. 2 (step 210 "Open TCP Port"). During prosecution of the first application to which the 925 patent claims priority, applicant admitted that opening a TCP Port was well-known in the prior art. *See, e.g.*, Ex. 1004 at 415 ("It is well-known in the art that any general computer system may open different types of default or well-known listening software ports for specific purposes."), *id* ("well-known TCP ports … are opened as a default to service any and all devices for specific purposes (e.g., FTP, telnet, HTTP, etc.) … ."), 416 ("mobile devices may generally have the **capability** (and indeed **must** have such a capability for Applicant's claimed invention) to open a listening software port … .") (emphasis original), 416 (footnote 4, discussing "well-known TCP ports" for FTP and other services), 422 (Annex D disclosing well-known TCP/UDP ports). These admissions are consistent with the level of disclosure in the 925 patent, which simply states that ports may be opened

and used without any further explanation. Ex. 1002 ¶38; *see, e.g.*, *Ex parte Reisner*, 2013 WL 6217754 at *3 (PTAB Nov. 14, 2013) ("In failing to provide a more detailed teaching disclosure, Appellant's Specification essentially presumes that a person of ordinary skill in the art already knows how to configure an electromagnetic loop to function as a transmitter.").

Applicant's admissions as to the prior art are correct. A POSITA would have known that the Transport Layer of the Internet Protocol suite, most notably the Transmission Control Protocol ("TCP") and the User Datagram Protocol ("UDP") used ports. Ex. 1009 at 12-13 (explaining the two most prominent transport layers TCP and UDP); Ex. 1004 at 416, 422 (Annex D reciting same and listing the admittedly well-known ports for both TCP and UDP). Because certain dependent claims recite that the transport layer is TCP, this Petition focuses on the use of TCP ports. Ex. 1002 ¶39.

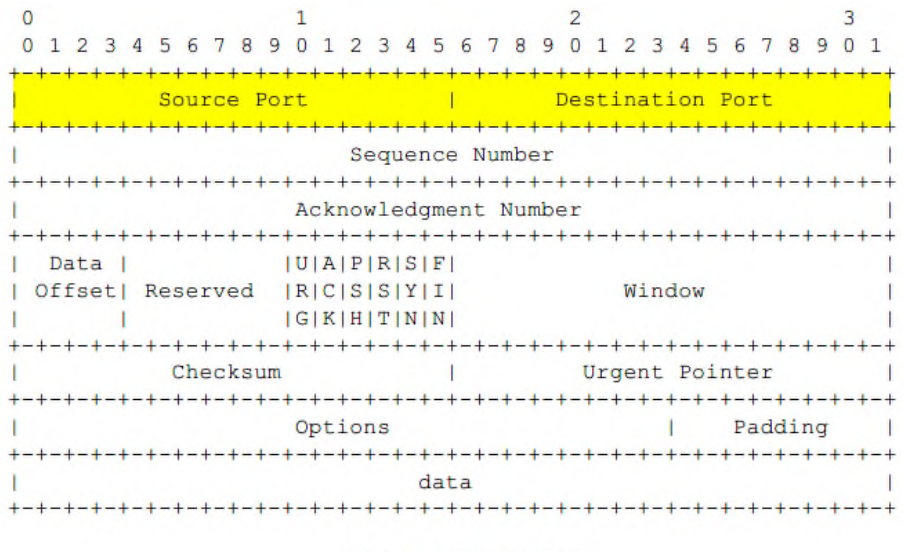
Ports were extensively described in the Transmission Control Protocol (TCP) specification, RFC793, published in 1981. Ex. 1010 at 16, 19-21, 24-28, 30 ("LISTEN - represents waiting for a connection request from any remote TCP and port."), 54-55, 90 ("port: The portion of a socket that specifies which logical input or output channel of a process is associated with the data"). TCP itself was also notoriously well-known in the art at the time of the 925 patent as a large portion of Internet messages, both then and now, are conducted using TCP/IP. RFC793

explains that TCP is "intended to provide a reliable process-to-process communication service in a multinetwork environment." Ex. 1010 at 11, 10, 12, 14, 16-17, 18-19, 93. TCP interfaces on one side to a user or application process, and on the other side to a lower level protocol, typically Internet Protocol, which does not itself provide reliable communication service. Ex. 1010 at 12; Ex. 1022 at 10-12; Ex. 1002 ¶40.

To allow for many processes within a single host to utilize the TCP software communications facilities, TCP provides a set of addresses, referred to as port identifiers or simply ports, within each host. Ex. 1010 at 14 and 19. Thus, a port is the address for a particular process at the host level in the same way that the IP address is the address for a particular host at the network level. Ex. 1015 at 14 (referring to demultiplexing to identify particular process/application at host based on TCP port number). The ports are independently defined by a particular host, but are not necessarily unique as between hosts. Ex. 1010 at 19. To define a unique address, the TCP port is concatenated with the IP address to form what is known as a "socket address" or simply "socket," which uniquely identifies a particular process on a particular host (a communication end point) across the network. *Id*. Two active interconnected sockets thus uniquely and fully define a connection over the network. *Id*. TCP messages include headers that specify both the source and destination ports in the same way that IP headers define both source

and destination IP addresses. Ex. 1010 at 24. The combination of an IP address and port is also commonly referred to in the art as a "transport address." Ex. 1013 at 35; Ex. 1002 ¶41.

The standard TCP header includes both source and destination ports as shown in Figure 3 of RFC793:



TCP Header Format

Note that one tick mark represents one bit position.

Figure 3.

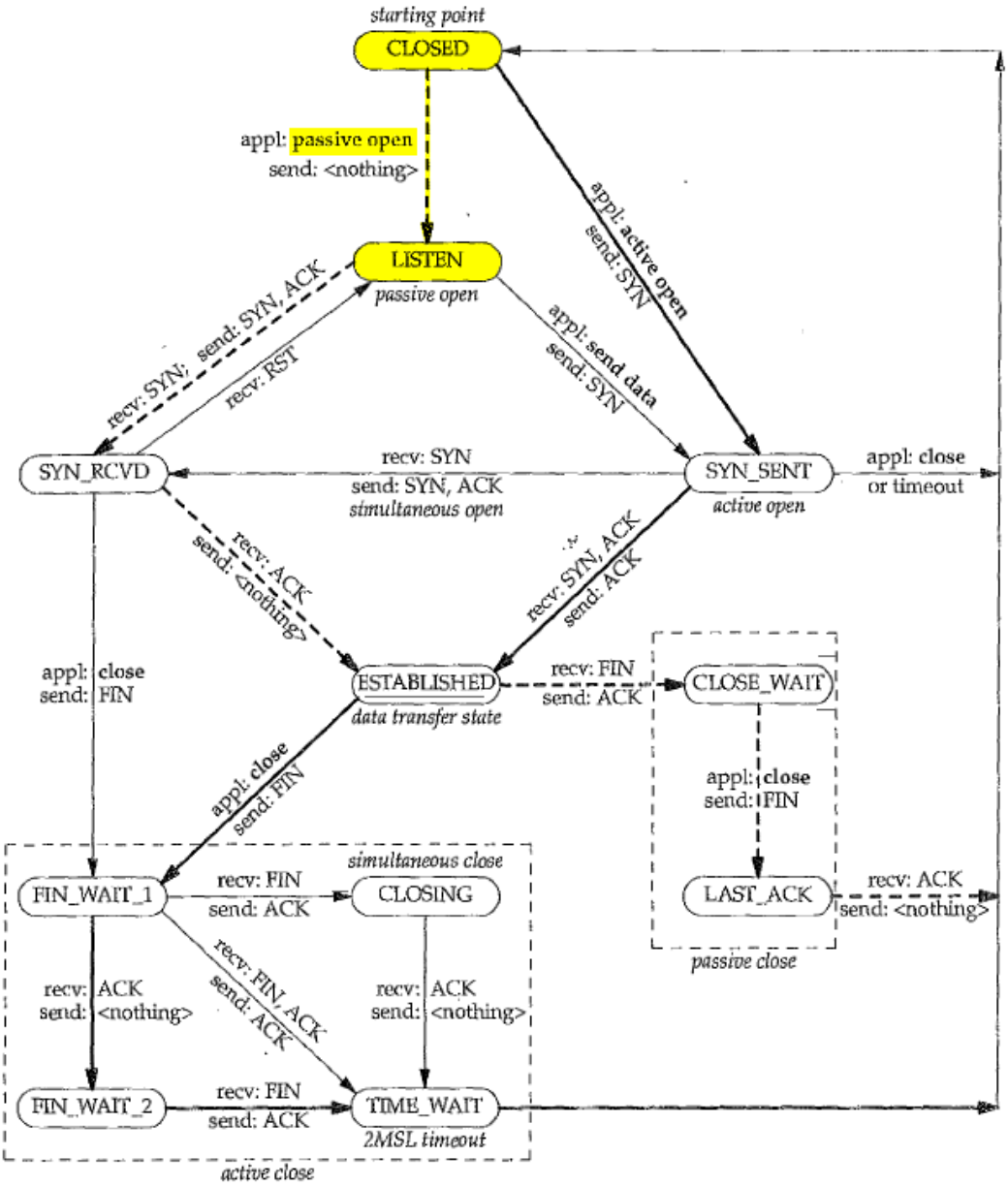
Ex. 1010 at 24 (highlighting added); *see also* Ex. 1015 at 69; Ex. 1002 ¶42.

The TCP software running on a particular host assigns port numbers to processes running on that host, although industry organizations have reserved certain port numbers for certain commonly used processes. Ex. 1010 at 20; Ex. 1015 at 15-16. For example, port 21 is associated with FTP (file transfer protocol) for file transfer programs, port 25 is associated with SMTP (simple mail transfer protocol) for email programs, and port 80 is associated with HTTP (hypertext

transfer protocol) for web browsers. Since 2002, these well-known ports, as well as registered ports and private ports, have been maintained by IANA (Internet Assigned Numbers Authority) in an on-line database. Ex. 1015 at 16. While well-known port assignments were permanent, other ports, referred to in the art as ephemeral ports, are temporary ports that are assigned on an as-needed basis. Ex. 1015 at 16. Ex. 1002 ¶43.

A process on a host utilizes TCP by making calls to OPEN or CLOSE a connection, SEND or RECEIVE data, or to obtain STATUS about a connection. These calls are like other calls from user programs on the operating system, such as calls to open, close, read to, or write from files. Ex. 1010 at 18. To open a TCP connection, an application performs an OPEN call that specifies local port and foreign socket arguments. *Id*. at 19. The local port argument specifies the local port on which incoming communications are received, and the foreign socket identifies the IP address and port of the foreign TCP endpoint. The OPEN call can be active or passive. *Id*.; *see also* Ex. 1015 at 84. A passive OPEN call "means that the process wants to accept incoming connection requests rather than attempting to initiate a connection." Ex. 1010 at 20, 19-21, 32, 45-46, 79. If the process wishes to accept a connection from any other process, the passive OPEN call specifies a foreign socket with all zeroes. *Id*. at 20. This allows for a connection to be established with any process on any host that requests a

connection to the local socket (the local port on the host and the IP address of the host). *Id*. Alternatively, the OPEN call can specify a particular foreign socket. RFC793 explains that a passive OPEN call "is a call to LISTEN for an incoming connection." *Id*. at 54 (emphasis added). This is illustrated diagrammatically in the TCP state transition diagram in Ex. 1015 at 85, which shows a transition from CLOSED to LISTEN when an application performs a passive open of a TCP port.



Ex. 1015 at 85 (highlighting added). In other words, the result of a passive OPEN call is that the TCP software on the host is set to the LISTEN state in which it listens for an incoming message on the specified local port. Ex. 1002 ¶44.

A POSITA would also understand that a port must be OPEN in order for messages specifying that port to be received. RFC793 discloses that when a

"connection does not exist (CLOSED) then a reset is sent in response to any incoming segment except another reset. In particular, SYNs addressed to a non-existent connection are rejected by this means. If the incoming segment has an ACK field, the reset takes its sequence number from the ACK field of the segment, otherwise the reset has sequence number zero and the ACK field is set to the sum of the sequence number and segment length of the incoming segment. The connection remains in the CLOSED state." Ex. 1010 at 45. Thus, a POSITA would understand that a passively opened listening port would be required to receive any messages, otherwise any incoming message would be rejected. Ex. 1002 ¶45.

3. SMS Ports

The 925 patent also discusses the use of SMS ports. Ex. 1001 at Fig. 2 (step 220 "Open SMS Port"), 4:40-43 and 6:2-4. Applicant similarly admitted that SMS ports were well-known in the prior art. Ex. 1004 at 415-16 ("For example, a mobile device may support a default SMS listening software port opened to receive SMS messages from all other devices … ."). This is consistent with the specification that merely mentions the optional use of SMS ports without further explanation. *Ex parte Reisner*, 2013 WL 6217754 at *3 (PTAB Nov. 14, 2013). Ex. 1002 ¶46.

Applicant's admissions are well founded, as the use of ports in connection with SMS messages was also well-known and standardized in the prior art SMS Specification itself. As disclosed in SMS Specification, 8- and 16-bit application port addressing "allows short messages to be routed to one of multiple applications in the TE (terminal equipment), using a method similar to TCP/UDP ports in a TCP/IP network." Ex. 1014 at 72-73, 66-69. The 16-bit port addresses 0-15999 are well-known ports allocated by the IANA just like the ports for TCP and UDP. *Id*. at 73. A POSITA would also have known that SMS ports could be opened in a listen mode. For example, WMA discusses an application program interface that supports the use of ports that an application on a device such as a mobile phone could use to send and receive wireless messages on services such as GSM SMS or CDMA SMS. Ex. 1018 at 21; Ex. 1018 at 44. WMA further discloses opening a port in listening mode in order to receive an SMS message and notify an application associated with that port. Ex. 1018 at 11-12, 22 (disclosing the MessageListener interface), 27-28, 31-34, 37-45. Ex. 1002 ¶47.

4. SMS Invitations and TCP/IP-based Responses

A POSITA would have been familiar with the well-known technique of sending SMS invitations and providing IP-based responses. The 925 patent acknowledges this in its discussion of the MMS protocol, which was one well known and standardized example of that technique. Ex. 1001 at 1:23-57. In the

MMS protocol, a server sends its URL to the target mobile device using a "WAP Push over the Short Message Service ('SMS') protocol." *Id.* The mobile device responds by using the server's URL to initiate a TCP/IP connection to obtain the multimedia content. *Id.* A POSITA would know that the mobile device opens the WAP port to listen for the WAP Push over SMS, so that the message can be routed to the WAP browser, which can then use the URL to initiate the TCP/IP connection. A POSITA also understands that the server opens and listens on a TCP port for the expected TCP/IP response. An example of a WAP Push over SMS followed by a TCP/IP response is U.S. Pat. App. No. 2003/0217174 (Dorenbosch). Ex. 1011 at Fig. 3, [0027]-[0037]; Ex. 1002 ¶48.

D. Claim Construction Under 37 C.F.R. § 42.104(b)(3)

The claims are interpreted using the same claim construction standard that is used to construe the claim in a civil action in federal district court. 83 FR 51340-59.

Petitioner does not contend that the constructions proposed herein are complete constructions of these limitations or the claims for any other purpose, including for issues that have been raised in the related litigation. Because the prior art asserted herein discloses the preferred embodiment within the indisputable scope of the claims, the Board need not construe the outer bounds of the claims as part of these proceedings. The district court may have to address other bounds of

the claims in addressing infringement. *See, e.g.*, 83 FR 51340 at 47-48, 55 ("[O]nly those terms that are in controversy need be construed, and only to the extent necessary to resolve the controversy"), 65-71.

1. "page-mode messaging service" (claims 1-2, 4-5, 8-9, 11-12, 15-16, 18)

This limitation need not be construed explicitly for purposes of the issues raised in the Petition. The claims and specification disclose that "page-mode messaging service" encompasses the Short Message Service ("SMS"). Ex. 1001 at 3:13-17 and claims 4, 11, 18. The prior art asserted herein discloses SMS. Ex. 1002 ¶49.

2. No Order Required Between the Steps of Claims 1 and 2; 8 and 9; and 15 and 16.

Independent claims 1, 8 and 15 are each directed to an initiating device that sends an invitation to a target mobile device and then establishes a connection with that device. Dependent claims 2, 9, and 16 each add limitations to their respective independent claims related to an invitation received by the initiating mobile device from "another" mobile device. There is no claimed relationship between the timing of any of the steps in these independent claims vis-à-vis the steps in these dependent claims, such that the steps of the dependent claims can be performed at any time before or after the steps of the independent claims. Nor does the

specification require any temporal relationship. Thus, none is required. Ex. 1002 ¶50; *see, e.g., Altiris Inc. v. Symantec Corp.*, 318 F.3d 1363, 1371 (Fed. Cir. 2003).

3. "opening a listening software port" (claims 1, 8, and 15) / "opening a second listening software port" (claims 2, 9, and 16)

Each of these limitations means "associating a port identifier with a process," which is the ordinary meaning of these phrases to a POSITA. As is well known in the art and as established above in Sections V.C.2&3, opening a listening port means associating a port identifier with a process, as that is what enables the device to receive messages at that port and route them to the correct process. Ex. 1015 at 13 ("Both TCP and UDP use 16-bit port numbers to identify applications."); Ex. 1013 at 22 (describing how "both UDP and TCP have a 16-bit port number that identifies the user process" for demultiplexing incoming data), 32 (*e.g.*, "[e]ach process on a host must have a unique identifier on that host" and "both TCP and UDP use 16-bit port numbers to identify specific user processes."). *See also,* Ex. 1020 at 3 (defining "port"). The TCP specification defines "port" to mean "[t]he portion of a socket that specifies which logical input or output channel of a process is associated with the data." Ex. 1010 at 90, 20 (*e.g.*, "[w]ell-known sockets are a convenient mechanism for a priori associating a socket address [*e.g.*, port identifier] with a standard service [*e.g.*, process]."). The SMS Specification makes clear that opening an SMS port is analogous to opening a TCP/IP port. Ex.

1014 at 72-73, 66-69, 72-73 (explaining that SMS ports operate "using a method similar to TCP/UDP ports in a TCP/IP network."). Ex. 1002 ¶51.

The Board should reject any proposed construction that attempts to narrow this phrase to require that the port be opened exclusively for receiving a response from only the target device. During prosecution of a related application, applicant argued that additional claim language (not present in the claims of the 925 patent) excluded the use of well-known ports. Ex. 1004 at 414-16 (Appeal Brief at 10-12, relying on additional claim language that required the port be opened expressly "for the target mobile device").

4. "PIN-to-PIN messaging service" (claims 5, 12)

This limitation means "a service that transmits information through the use of unique numbers associated with the devices." Ex. 1001 at 2:7-11, 5:20-29; Ex. 1017 at [0003]-[0006], [0020]-[0022]. As explained in Mazor, a "PIN" is a dedicated device number that enables network communications via PIN-to-PIN messaging. Ex. 1017 at [0006]. A POSITA would understand that a PIN identifier may comprise any indicator that serves to identify a particular wireless device on a wireless network. Ex. 1017 at [0022]; Ex. 1002 ¶52.

5. "network address" associated with the initiating mobile device (claims 1, 3, 8, 10, 15, 17) / other mobile device (claims 2, 9, 16)

"Network address" is entitled to its ordinary meaning, which does not require a port. Ex. 1001 at claims 1, 3 (reciting that the network address "is" an IP address and not reciting a port). The claims recite that the "network address" is associated with a "device," and a port is not required for that association. The specification expressly recites "port" where a port is required. Ex. 1001 at 2:2-7. Similarly, related patents expressly recite "network address and port" in the claims where a port is required. Ex. 1016 at claim 1; Ex. 1002 ¶53. *See NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1293 (Fed. Cir. 2005).

VI. GROUND 1: THE COMBINATION OF ALOS AND RFC793 RENDERS OBVIOUS CLAIMS 1, 3-8, 10-15 AND 17-20

A. Alos Overview

Alos discloses a technique for transferring data between mobile devices without an intermediating server. In Alos, mobile phones 1 and 2 are connected to a GSM cellular network 4 as shown in Fig. 1 below. Ex. 1005 at [0014]. Phones 1 and 2 are also connected to the Internet 3 through a wireless link (e.g. GSM) to Internet service providers 31, 32. Ex. 1005 at Fig. 1, [0015]-[0016]; Ex. 1002 ¶58.

Alos discloses that phone 1 either has a permanent IP address or connects to the Internet to obtain a temporary IP address and then sends an SMS message containing that IP address (IP1) to phone 2. Ex. 1005 at [0025]-[0026]; *see also*

Fig. 2A, steps 41-54. Upon receipt of the SMS message, phone 2 connects to the Internet, obtains a temporary IP address (IP2), and sends an IP-based reply message via Internet 3 to phone 1. Ex. 1005 at [0028]; *see also* Fig. 2A, steps 71-73. This IP-based reply message is addressed using IP1 (the IP address of phone 1 from the SMS message) and IP2 (the IP address of phone 2), such that a bidirectional IP connection is established over the Internet 3 between phone 1 and phone 2. *Id*.; *see also* Fig. 2A, step 74; Ex. 1002 ¶59. These steps are highlighted in Figure 2A below, with annotations for the corresponding claim steps in the 925 patent.

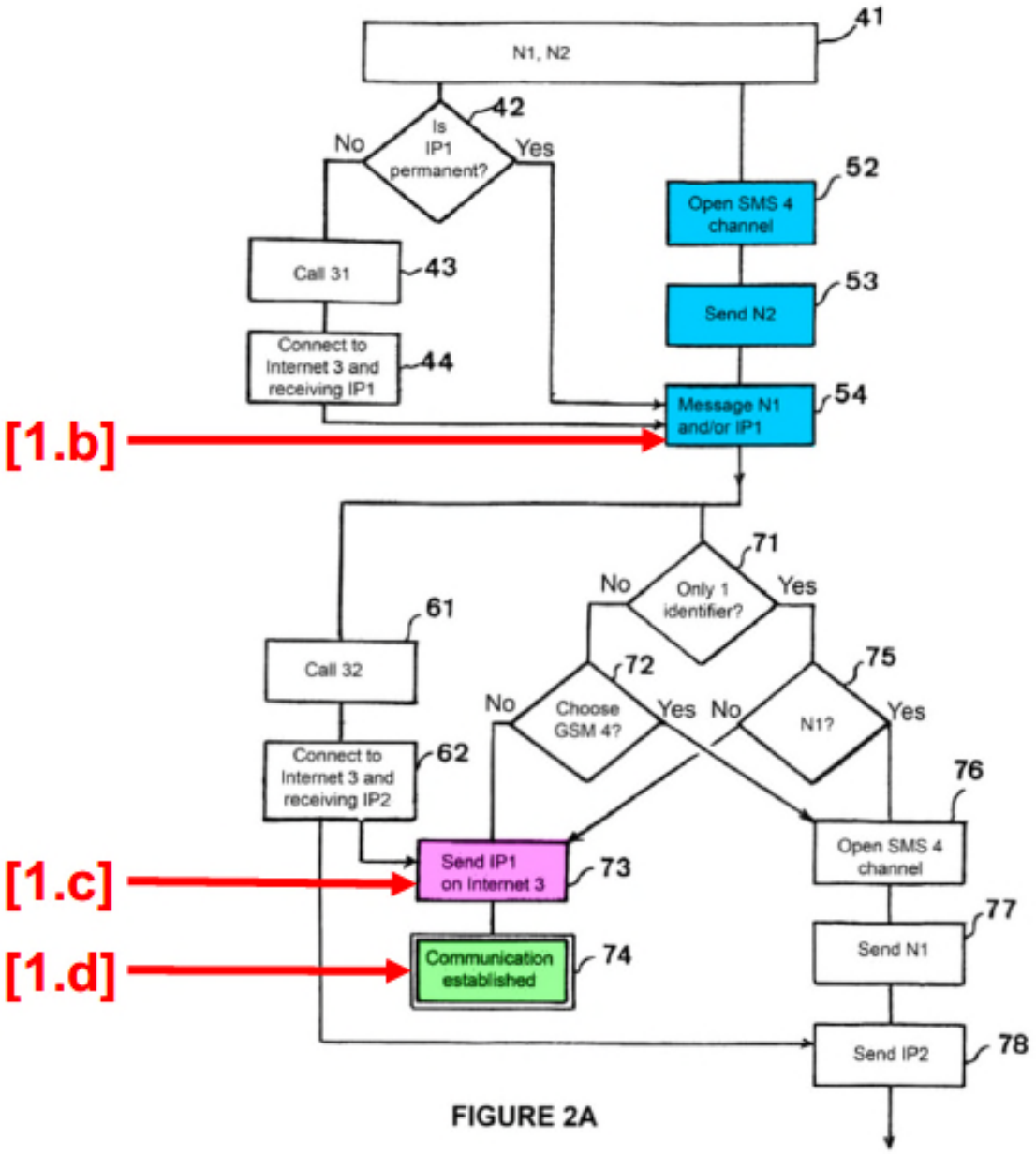


FIGURE 2A

Thus, Alos expressly discloses all of the subject matter claimed in the 925 patent with two exceptions. First, Alos does not expressly disclose the use of ports as required in claims 1 and 2, but using ports to route incoming network traffic to the correct process was obvious in light of the very standards that define the Internet and SMS networks disclosed in Alos. Second, Alos does not expressly

disclose that the Internet connection is a TCP connection as claimed in claims 7, 14 and 20, but using TCP would have been obvious because TCP provides a standardized, widely supported, and reliable connection. Ex. 1002 ¶60.

B. RFC793 Overview

An overview of RFC793 is provided above in Section V.C.2. Ex. 1002 ¶61.

C. Rationale for Combining Alos and RFC793

A POSITA would have been motivated to incorporate the use of TCP and TCP ports as disclosed in RFC793 in connection with Alos. In particular, Alos discloses that phone 2 responds to the SMS invitation message from phone 1 with an IP-based response message (Ex. 1005 at [0028] and Fig. 2A, steps 71-73), but does not disclose what transport layer protocol to use for that IP-based response message. Thus, in implementing the IP-based response message disclosed in Alos, a POSTIA would have been motivated to select an appropriate transport layer protocol, which would have led them to consider and use TCP. Ex. 1009 at 12 ("To communicate using the Internet system, a host must implement the layered set of protocols comprising the Internet protocol suite. A host typically must implement at least one protocol from each layer."), 13 ("The transport layer provides end-to-end communication services for applications. There are two primary transport layer protocols at present: - Transmission Control Protocol (TCP) [and] - User Datagram Protocol (UDP)."). Ex. 1002 ¶62.

A POSITA would have been motivated to use TCP to implement the communications disclosed by Alos because wireless communication links, like those in Alos, are less reliable than wired links, and TCP was a well-known technique for providing reliability for IP communications. A POSITA would understand that IP by itself is not reliable and doesn't guarantee delivery of a packet. TCP adds header information that enables hosts to (1) ensure that every packet is received (and request retransmission of dropped packets), and (2) to correctly order the packets (since they might be received out of order). Ex. 1010 at 13. Using TCP to was well known and standardized in RFC793, such that a POSITA would have had a reasonable expectation of success of achieving the predictable result of reliable TCP/IP communications. Ex. 1002 ¶63 (additionally explaining why a POSITA would not use UDP for the types of data transfers disclosed in Alos).

Alos discloses that the data communication can comprise sending a predetermined file or updating a database element. Ex. 1005 at [0001], [0028]. A POSITA would have been particularly motivated to use TCP/IP for transferring a file and updating a database element as disclosed in Alos to ensure that the file is transferred correctly and the database is updated correctly. Alos also discloses that its protocol can be used for voice transmission. Ex. 1005 at [0001]. A POSITA would have been motivated to use TCP/IP for at least the control channels for such

voice transmissions to ensure the voice transmission is set up correctly. This is in contrast to the other transmissions, where a POSITA might have found an unreliable protocol like UDP (the other primary transport layer protocol) sufficient. Moreover, TCP was well-known and widely supported, and software for TCP implementations was widely available. Ex. 1002 ¶64.

A POSITA would also have been motivated to configure phone 1 to make a passive OPEN call to open a TCP port in a listen mode because, if the TCP port on phone 1 were not opened, the TCP response message from phone 2 could not be received and processed. Ex. 1010 at 45 ("If the connection does not exist (CLOSED) then a reset is sent in response to any incoming segment except another reset. In particular, [requests to connect] addressed to a non-existent connection are rejected by this means."); Ex. 1002 ¶65.

A POSITA would understand that this port likely would either be assumed (e.g., a well-known port) or would be expressly included in the SMS invitation. In some implementations, the POSITA developing the Alos communication software on the various mobile devices would know in advance which port an initiator would open and which port the responder would use for the response. This is the case with the admittedly well-known ports such as FTP, telnet, http, etc. Ex. 1002 ¶66.

In other implementations, a POSITA would have been motivated to have the initiating device expressly include the TCP port in the invitation message with the IP address. This was a known technique when port numbers were not known in advance. Ex. 1021 at 72 ("6.40.1 Requests. The client originating the request MUST insert into the request a Via field containing its host name or network address and, if not the default port number, the port number at which it wishes to receive responses."). Additionally, a POSITA would have understood that it was possible for multiple processes on phone 1 to utilize TCP/IP communications, such as separate voice, file transfer, and database applications to handle the corresponding communications described by Alos. Ex. 1005 at [0001], [0028]. A POSITA would have understood that each of the applications could be assigned their own port number, such that the port number for the type of communication sought would be expressly included in each individual SMS invitation. A POSITA would also have been motivated to expressly include the TCP port number in the SMS invitation because this would provide robustness for increased compatibility and flexibility in multi-application environments and future implementations. Ex. 1002 ¶67.

D. Detailed Claim Analysis

1. Claim 1.pre: "A method of establishing a direct data transfer session between mobile devices that support a data packet-based communications service over a digital mobile network system, the method comprising"

Claim 8.pre: "A mobile device enabled to establish a direct data transfer session with other mobile devices in a digital mobile network system, the mobile device comprising a processor configured to perform the steps of"

Claim 15.pre: "A non-transitory computer-readable storage medium including instructions that, when executed on a processor of a mobile device that supports a data packet-based communications service over a digital mobile network system, causes the processor to establish a direct data transfer session by performing the steps of"

To the extent these preambles are limiting, they are disclosed by Alos. With respect to claim 1, Alos discloses a method of establishing a direct data transfer session between mobile devices (mobile phones 1 and 2), that support a data packet-based communications service (IP), over a digital mobile network system (Internet 3 accessed over the wireless network 4). *See* claims 1.a-1.d below; Ex. 1005 at Figs. 2A-B, [0001], [0015], [0036]. With respect to claim 8, Alos discloses a mobile device (phone 1) enabled to establish a direct data transfer session with other mobile devices (e.g., phone 2), and that the mobile device (phone 1) includes a processor configured to perform the disclosed protocol. *Id*. at [0035] ("microprocessor for automatically managing the above protocol"). With respect to claim 15, because Alos's phone 1 includes a microprocessor to perform the disclosed protocol, it is inherent that Alos's phone 1 also includes a non-transitory computer-readable storage medium including instructions for that microprocessor because the disclosed protocol cannot be performed by a

microprocessor without such storage medium and instructions. Ex. 1003 at 335-36 (admitting programs inherently contain instructions). In the alternative, providing a non-transitory computer-readable storage medium including instructions as recited in the preamble would have been obvious, because a POSITA would have been motivated to do so to cause the microprocessor disclosed in Alos to perform the protocol disclosed in Alos. Ex. 1002 ¶68.

2. Claim 1.a, 8.a, 15.a: "opening a software listening port on an initiating mobile device to receive communications through the data packet-based communications service"

Alos in combination with RFC793 renders this limitation obvious. Alos discloses that the response from phone 2 is sent to phone 1 as an IP-based response message over the Internet 3 and does not specify a transport layer protocol for that message. Ex. 1005 at [0028] and Fig. 2A, step 73. As established above in Sections V.C.2. and VI.C., it would have been obvious to a POSITA to use TCP as the transport protocol for the IP-based response because TCP/IP was well-known, widely supported, and would provide reliability. It would have been obvious to a POSITA to configure phone 1 to passively open a TCP port in a listening state with an unspecified foreign host so that the TCP/IP response message from the as-yet unknown socket address at phone 2 could be received at phone 1. Ex. 1010 at 20, 45; *supra* Sections V.C.2 (establishing how the RFC793 teaches that TCP ports

must be opened to receive messages and applicant's admissions during prosecution that opening such ports was well known); Ex. 1002 ¶69.

3. Claim 1.b, 8.b, 15.b: "transmitting an invitation message to a target mobile device through a page-mode messaging service, wherein the invitation message comprises a network address associated with the initiating mobile device, and wherein the target mobile device is located by providing a unique identifier to the page-mode messaging service"

Alos discloses initiating mobile device (phone 1) transmitting an invitation message (an SMS message) to a target mobile device (phone 2) through a page-mode messaging service (the SMS service on the GSM network 4). Ex. 1005 at Figs. 2A-B (steps 52-54), [0020], [0026]; Ex. 1002 ¶70.

Alos discloses that the SMS message includes IP1, the network address of phone 1 on Internet 3. Ex. 1005 at Figs. 2A-B (step 54), [0020], [0026]; Ex. 1002 ¶71.

Alos discloses that phone 2 is located by providing a unique identifier (telephone number N2) to the page-mode messaging service (SMS). Ex. 1005 at [0018], [0026] ("called number N2"); *see also* Ex. 1014 at 42-43, 48-51 (describing the destination address in the SMS header); Ex. 1002 ¶72.

Additionally, it would have been obvious to a POSITA to include a TCP port number in the SMS invitation message along with the network address IP1 to ensure that the TCP/IP response message from phone 2 was directed to the correct

TCP port on phone 1, as established above in Sections V.C.2. and VI.C. Ex. 1002 ¶73.

4. Claim 1.c, 8.c, 15.c: "receiving a response from the target mobile device at the listening software port on the initiating mobile device"

Alos in combination with RFC793 renders this limitation obvious. Alos discloses initiating mobile device (phone 1) receiving, at IP1, a response to the SMS invitation message from the target mobile device (phone 2) via the data packet-based communications service (Internet 3). Ex. 1005 at Figs. 2A-B (step 73), [0020]-[0021], [0028]-[0029]. As established above with respect to claim 1.a and in Sections V.C.2. and VI.C, it would have been obvious to implement the response using TCP/IP and, therefore, to receive it at the previously opened TCP listening port. Ex. 1002 ¶74.

5. Claim 1.d, 8.d, 15.d: "establishing a data transfer session through the data packet-based communications service between the initiating mobile device and the target mobile device, wherein the data transfer session is established in a peer-to-peer fashion without a server intermediating communications through the established data transfer session between the initiating mobile device and the target mobile device"

Alos in combination with RFC793 renders this limitation obvious. Alos discloses establishing voice and data transfer sessions through Internet 3 using the respective IP addresses of the mobile phones. Ex. 1005 at [0001], [0006]-[0007], [0021], [0028], [0030]-[0035]. In the combination of Alos and RFC793, this data

transfer session uses TCP/IP as established above for reliability. Because the devices address the TCP/IP packets to each other using their actual IP addresses, this is a peer-to-peer communication without an intermediating server, precisely as disclosed in the 925 specification. Alos expressly recognizes the advantage that no appointment server is necessary. Ex. 1005 at [0008]. Ex. 1002 ¶75.

6. Claims 3, 10, 17: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the network address of the initiating mobile device is an IP address"

Alos discloses that the network address of the initiating mobile device is an IP address, specifically, IP1 on Internet 3. Ex. 1005 at Figs. 2A-B (step 54), [0020], [0026]; Ex. 1002 ¶76.

7. Claims 4, 11, 18: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the page-mode messaging service is SMS"

Alos discloses that the page-mode messaging service is SMS. Ex. 1005 at Figs. 2A-B (steps 52-54), [0020], [0026]; Ex. 1002 ¶77.

8. Claims 5, 12: "The [method of claim 1/mobile device of claim 8], wherein the page-mode messaging service is a PIN-to-PIN messaging service"

Alos discloses that the page-mode messaging service is SMS. Ex. 1005 at Figs. 2A-B (steps 52-54), [0020], [0026]. SMS is a species of the claimed genus of "PIN-to-PIN messaging service" as properly construed, because SMS uses the unique phone number (e.g., N2) of the target device to transmit information over

the wireless network. *See, e.g.*, Ex. 1017 at [0021] ("SMS messages used by cell phones are also PIN-to-PIN messages."); Ex. 1002 ¶78.

9. Claims 6, 13, 19: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the unique identifier is a telephone number"

Alos discloses that the unique identifier is the telephone number (N2) used to address the SMS message. Ex. 1005 at [0018], [0026] ("called number N2"); *see also* Ex. 1014 at 42-43, 48-51 (describing the destination address in the SMS header); Ex. 1002 ¶79

10. Claims 7, 14, 20: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the data transfer session utilizes a TCP connection"

As established above, it would have been obvious to a POSITA to use TCP as disclosed in RFC793 as the transport protocol for the IP-based data transfer sessions disclosed in Alos because TCP/IP was well-known, widely supported, and provided reliability. *See supra* Sections V.C.2, VI.C. Ex. 1002 ¶80.

VII. GROUND 2: THE COMBINATION OF ALOS, RFC793, WMA AND THE SMS SPECIFICATION RENDERS CLAIMS 2, 9 AND 16 OBVIOUS

A. SMS Specification Overview

The SMS Specification describes the Short Message Service (SMS), including protocols and protocol layering. Ex. 1014 at 13-14. The SMS Specification describes application port addressing. Ex. 1014 at 66-69, 72-73. As

discussed above in Section V.C.3, the SMS Specification discloses that SMS ports work similarly to TCP/IP ports, and SMS supports both 8-bit and 16-bit port addresses. *Id*.; Ex. 1002 ¶81.

B. WMA Overview

WMA describes the message API included in the JSR (Java Specification Request) 120 Wireless Messaging API specification, and also describes Sun Microsystem's reference implementation of the API. Ex. 1018 at 9. In other words, WMA describes an implementation by Sun Microsystems of code for an API that can be used by an application to send and receive wireless messages over services such as SMS. Ex. 1018 at 21; Ex. 1002 ¶82.

C. Rationale for Combining Alos, RFC793, the SMS Specification and WMA

Alos discloses that either of phones 1 and 2 can initiate communications with the other. Therefore, phone 1 can also receive SMS invitations from phone 2 and transmit an IP-based response thereto in order to create a data connection. Ex. 1005 at [0022]; Ex. 1002 ¶83.

Alos discloses that the SMS message "orders" and "specif[ies]" that the receiving device use the transmitted IP address to respond with an IP message, and that these operations be performed automatically, prior to alerting the user. Ex. 1005 at [0020], [0026], [0035]. However, Alos does not expressly articulate how the receiving phone should distinguish these SMS invitation messages from

regular SMS messages that merely are displayed. A POSITA would have been aware that the SMS standard disclosed SMS port addressing that (like TCP port addressing) allowed SMS messages to be directed to specific applications. Ex. 1014 at 66-69, 72-73. A POSITA would have understood that a generic SMS application would not have supported the new Alos protocol, and would have been motivated to use SMS port addressing on phone 2 to receive and route Alos's SMS invitation messages to an application designed to support the Alos protocol. A POSITA would have been motivated to implement SMS port addressing to isolate the Alos-specific application from the carrier's standard SMS application. Ex. 1002 ¶84.

A POSITA would have further been motivated to open an SMS port in listen mode in connection with the SMS invitation message as disclosed in WMA in order to receive such a message. Ex. 1018 at 21, 27, 30-34, 37-45 (*e.g.*, at 44 "The first application to allocate a given port number will get it."). In particular, a POSITA would have been motivated to configure the separate application on phone 1 to open the SMS port with which the separate application is associated in the listen mode in order to ensure that an incoming SMS invitation message is properly received and routed to the appropriate application as disclosed in WMA. A POSITA would further have understood that such an SMS port number for the invitation message would have been known in advance by mobile phones 1 and 2

(and other phones utilizing Alos's protocol). A POSITA would have been motivated to incorporate the functionality disclosed in WMA of making calls to open ports in a listening mode, and it would have been well within their skill to do so, as a POSITA would have been familiar with such functionality in the context of both SMS and TCP ports. Notably, the 925 patent merely states that software listening ports may be opened, and relies entirely on the knowledge of a POSITA to implement that functionality. Ex. 1002 ¶85; *see, e.g., Ex parte Reisner*, 2013 WL 6217754 at *3 (PTAB Nov. 14, 2013).

D. Detailed Claim Analysis

1. Claims 2.pre ("The method of claim 1 further comprising:"), 9.pre ("The mobile device of claim 8 wherein the processor is further configured to perform the steps of:"), 16.pre: ("The non-transitory, computer-readable storage medium of claim 15, further including instructions that cause the processor to perform the steps of:")

These dependent claims require that the initiating mobile device of claim 1 (phone 1 in the preceding Ground) receive and respond to an invitation from another device. Alos discloses that each of phone 1 and phone 2 can initiate and respond to SMS invitations. Ex. 1005 at [0022]. Thus, a POSITA would have understood that phone 1, the initiating mobile device for claim 1, can also receive and respond to invitations from phone 2 (or any other Alos-enabled device) using the functionality relied on above in claims 1.pre-1.d. Ex. 1002 ¶86.

2. Claims 2.a, 9.a, 16.a: "opening a second listening software port on the initiating mobile device to receive invitation messages through the page-mode messaging service"

The combination of Alos, the SMS Specification, and WMA renders this limitation obvious. Alos discloses that the initiating mobile device (phone 1) can receive invitation messages (SMS invitations) through the page-mode messaging service (SMS). *See* claim 1.b; Ex. 1005 at [0022]. Alos discloses that the SMS invitation can "order" the recipient to respond but does not disclose how that functionality would have been implemented between SMS application and other software. Ex. 1005 at [0020]; Ex. 1002 ¶87.

It would have been obvious to a POSITA to configure Alos's phones to open a passive listener on an SMS port (e.g., WDP Port) as taught in the SMS Specification and WMA in order to ensure that an incoming SMS invitation message described by Alos is received by the standard SMS application and routed to the Alos-application configured to respond to such invitation messages. *See supra* Section VII.C (establishing it would have been obvious to open an SMS port); Ex. 1014 at 66-69, 72-73; Ex. 1018 at 21, 27, 30-34, 37-45. Thus, a POSITA would also have found it obvious to open an SMS port (the second listening software port) on phone 1 (the initiating mobile device of claim 1) to receive SMS invitation messages in order to ensure that they are properly received and processed. Ex. 1002 ¶88.

3. Claims 2.b, 9.b, 16.b: "receiving, at the second listening software port and through the page-mode messaging service, a message from another mobile device inviting the initiating mobile device to establish a data transfer session, wherein such message comprises a network address associated with the other mobile device"

As established immediately above for claim 2.a, it would have been obvious to receive, at the second listening software port (WDP Port) and through the page-mode messaging service (SMS) a message (SMS invitation) from another mobile device (phone 2) inviting the initiating mobile device (phone 1) to establish a data transfer session (e.g. voice or data transmission over the Internet). *See,* claim 1.b; Ex. 1005 at [0001], [0022]; Ex. 1002 ¶89.

Alos discloses wherein such message (SMS invitation) comprises a network address (IP address IP2) associated with the other mobile device (phone 2). *See,* claim 1.b; Ex. 1005 at [0022]; Ex. 1002 ¶90

4. Claims 2.c, 9.c, 16.c: "transmitting a response to the network address associated with the other mobile device, wherein the response acknowledges the ability to establish a data transfer session"

Alos discloses transmitting a response (IP message via Internet 3) to the network address (IP2) associated with the other mobile device (phone 2). *See* claim 1.c; Ex. 1005 at [0022]; Ex. 1002 ¶91.

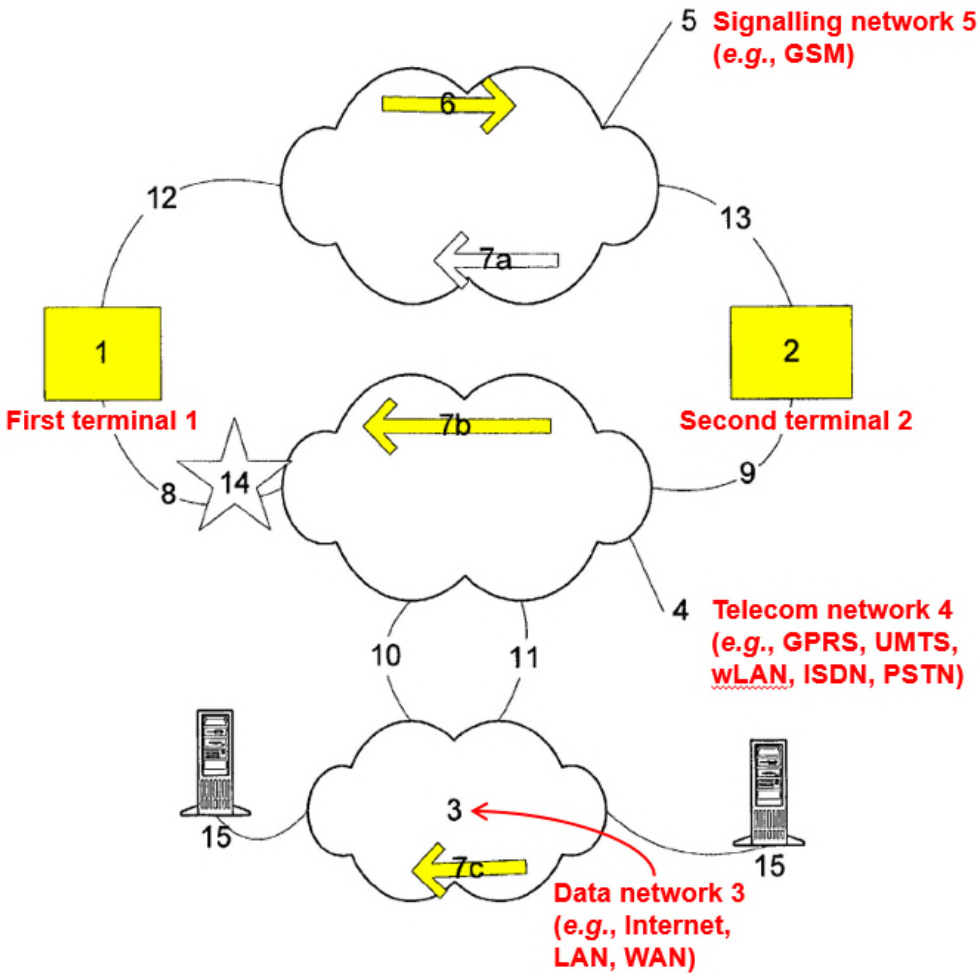
Alos discloses wherein the response acknowledges the ability to establish a data transfer session. Specifically, Alos discloses that the response message

includes the IP address of the responding device, acknowledging that the responding device can engage in IP communication at that address. Ex. 1005 at Figs. 2A-B (step 73), [0020]-[0021], [0028]-[0029]. Furthermore, in the combination of Alos with RFC793, the response is the initiation of a TCP/IP connection. *See, e.g.*, RFC793 at Figure 7 (messages 2 and 4). This is the same "acknowledgement" disclosed in the 925 patent. Ex. 1001 at Fig. 2 (step 260); Fig. 3 (step 350). Ex. 1002 ¶92.

VIII. GROUND 3: THE COMBINATION OF CORDENIER AND RFC793 RENDERS OBVIOUS CLAIMS 1, 3-8, 10-15 AND 17-20

A. Cordenier Overview

Cordenier discloses "[a] system, a method and apparatus for peer-to peer exchange of information" that eliminates the need for any exchange server. Ex. 1007 at Title, 2:29-33. Cordenier discloses a first terminal 1 and a second terminal 2 (e.g., wireless telephones) that are connected to each other by a signaling network 5 (e.g., a GSM network implementing SMS), and a data network 3 (e.g., the Internet) that can be reached by each of the terminals via a telecom network 4 (e.g., a cellular network such as GPRS, alone or in combination with a fixed telephone network). *Id.* at Fig. 6, 6:19-54; Ex. 1002 ¶93.



Ex. 1007 at Fig. 6 (annotations and highlighting added).

In one embodiment, Cordenier discloses that the first terminal 1 sends an SMS message 6 including the IP address of the first terminal 1 to the second terminal 2 via the signaling network 5. *Id.* at 6:44-57. Upon receiving the SMS message 6, the second terminal 2 sends a message including the IP address of the second terminal 2 to the first terminal 1. *Id.* at 7:2-19. Cordenier discloses that this message may be sent via one of three ways: as an SMS message (message 7a), via the telecom network 4 (message 7b), or through the data network 3 which is

reached via the telecom network 4 using channels 9, 11, 10 and 8 (message 7c). *Id*. at 7:20-37. Once the first terminal 1 receives the response message from the second terminal 2, containing the network address of terminal 2 (*id.* at 7:14-19, 7:54-56), the first terminal 1 may start exchanging data with the second terminal 2 via the data network 3. *Id*. at 7:54-8:2; Ex. 1002 ¶94.

B. Rationale for Combining Cordenier and RFC793

A POSITA would have been motivated to incorporate the use of TCP and TCP ports as disclosed in RFC793 in connection with the peer-to-peer exchanges disclosed by Cordenier. Cordenier discloses that mobile phone 2 may respond to the SMS invite by sending an IP-based response 7c via data network 3, which may be the Internet. Ex. 1007 at 1:17-36, 7:14-15, 7:20-37, 10:17-19, 13:4-11. Cordenier is silent as to the transport layer protocol for response 7c and the ensuing data exchange, leading a POSITA to consider well-known protocols. A POSITA would have been motivated to use TCP/IP for the response 7c and ensuing data exchanges over Internet 3. Ex. 1009 at 12-13 (explaining that Internet hosts must implement a transport layer, and that the two most prominent transport layers TCP and UDP). Ex. 1002 ¶95.

A POSITA would have been motivated to use TCP to implement the IP communications disclosed in Cordenier as TCP/IP communications because wireless communication links, like those in Cordenier, are less reliable than wired

links, and TCP was a well-known and widely supported technique to provide reliable communications as established in Section V.C.2 (explaining TCP); Ex. 1009 at 12-13. A POSITA would been motivated to use a reliable protocol like TCP/IP for response 7c to ensure that the peer-to-peer communications were set up correctly, and for the types of peer-to-peer communications disclosed in Cordenier to make sure the data is transferred correctly. Ex. 1007 at 1:18-26 (file and document exchange, chat), 7:47 (chat), 9:30-41 (texting), 10:40-41 (transfer files); see Ex. 1010 at 10-14, 16-19; Ex. 1002 ¶96 (also explaining why UDP would not be used).

A POSITA would have been motivated to configure terminal 1 to make a passive OPEN call to open a TCP port in listen mode because, if the TCP port on terminal 1 were not opened, the TCP/IP response message 7c could not be received and processed. Ex. 1010 at 20, 45; Ex. 1002 ¶97.

A POSITA would have understood that the TCP/IP port would have been either assumed by terminal 1 and 2 (e.g., a well-known port) or it would have been expressly included in the SMS invitation along with the IP address. E.g., Ex. 1011 at [0022], [0029]. In other implementations, a POSITA would have been motivated to have the initiating device expressly include the TCP port in the invitation message with the IP address. This was a known technique when port numbers were not known in advance. Ex. 1021 at 72. A POSITA would have

been motivated to expressly include the TCP port number in the SMS invitation as one way to indicate which of the particular peer-to-peer communication applications disclosed in Cordenier should send the response 7c. Moreover, a POSITA would also have been motivated to expressly include the TCP port number in the SMS invitation because this would provide robustness for increased compatibility and flexibility in multi-application environments and future implementations. Ex. 1002 ¶98.

C. Detailed Claim Analysis

1. Claim 1.pre: "A method of establishing a direct data transfer session between mobile devices that support a data packet-based communications service over a digital mobile network system, the method comprising"

Claim 8.pre: "A mobile device enabled to establish a direct data transfer session with other mobile devices in a digital mobile network system, the mobile device comprising a processor configured to perform the steps of"

Claim 15.pre: "A non-transitory computer-readable storage medium including instructions that, when executed on a processor of a mobile device that supports a data packet-based communications service over a digital mobile network system, causes the processor to establish a direct data transfer session by performing the steps of"

To the extent these preambles are limiting, they are disclosed by Cordenier. With respect to claim 1, Cordenier discloses a method of establishing a direct data transfer session between mobile devices (first terminal 1 and second terminal 2) that support a data packet-based communications service (IP), over a digital mobile

network system (Internet 3 accessed via, e.g., GPRS and channels 8-11). (*see* claim 1.a-1.d below). Ex. 1007 at Fig. 6, 2:29-33, 6:6-54. With respect to claim 8, Cordenier discloses a mobile device (first terminal 1) enabled to establish a direct data transfer session with other mobile devices (e.g., second terminal 2), that the mobile device (first terminal 1) and Cordenier's first terminal 1 and second terminal 2 each include a processor ("processing unit") configured to perform the disclosed protocol. *Id.* at 3:38-4:10, 4:24-54, 4:58-5:11, 6:6-7:53, 10:32-11:5. With respect to claim 15, because Cordenier's first terminal 1 includes "a processing unit that can be programmed for performing the functions described in this document" (*id.* at 10:52-55, 6:6-7:53), and because those terminals include a memory (*id.* at 10:25-25 and 6:9-18), it is inherent that Cordenier's terminals include a non-transitory computer-readable storage medium including instructions for the processor because the disclosed functions cannot be performed by a processor without such storage medium and such instructions. Ex. 1003 at 335-36 (admitting that a "computer program" inherently discloses a computer readable storage medium). In the alternative, providing a non-transitory computer-readable storage medium including instructions as recited in the preamble would have been obvious, because a POSITA would have been motivated to do so to cause the processor disclosed in Cordenier to perform the functions disclosed in Cordenier. Ex. 1002 ¶99.

2. Claim 1.a, 8.a, 15.a: "opening a software listening port on an initiating mobile device to receive communications through the data packet-based communications service"

Cordenier, in combination with RFC793, renders this limitation obvious. Cordenier discloses that a response message 7c from the terminal 2 is sent to the terminal 1 as an IP-based response message over the Internet and does not specify a transport layer protocol for that message. Ex. 1007 at 7:20-37. It would have been obvious to a POSITA to use TCP as the transport protocol for the IP-based response, because TCP/IP was well-known, widely supported, and would provide reliability. *See supra,* Section VIII.B. It would have been obvious to a POSITA to configure terminal 1 to passively open a TCP port in a listening state with an unspecified foreign host so that the TCP/IP response message from the as-yet unknown socket address at terminal 2 could be received at terminal 1. Ex. 1010 at 20, 45; *supra*. Section V.C.2 (establishing how the RFC793 teaches TCP ports must be opened to receive messages and applicant's admissions during prosecution that opening such ports was well known); Ex. 1002 ¶100.

3. Claim 1.b, 8.b, 15.b: "transmitting an invitation message to a target mobile device through a page-mode messaging service, wherein the invitation message comprises a network address associated with the initiating mobile device, and wherein the target mobile device is located by providing a unique identifier to the page-mode messaging service"

Cordenier discloses initiating mobile device (termina1 1) transmitting an invitation message (SMS message 6) to a target mobile device (terminal 2). Ex.

1007 at Fig. 6, 6:44-57, 7:2-8, 7:20-26, 8:27-45, 9:15-20, 13:4-25, 15:1-22; Ex. 1002 ¶101.

Cordenier discloses that the SMS message 6 includes the "first data network address" of terminal 1 on data network 3, which Cordenier discloses is an "IP-address." *Id.* at 2:43-45 ("IP-address"), 6:44-51, 7:9-15, 8:46-9:5, 13:4-11, 14:56-15:8; Ex. 1002 ¶102.

Cordenier discloses that terminal 2 is located on GSM network 5 by providing a unique identifier (its MSISDN (*i.e.* telephone number)) to the page-mode messaging service (SMS). *Id.* at Fig. 6, 8:27-45; Ex. 1014 at 42-43, 113; Ex. 1002 ¶103.

Additionally, it would have been obvious to a POSITA to include a TCP port number in the SMS invitation to ensure that the TCP/IP response is directed to the correct port/application as established above in Sections V.C.2 and VIII.B. Ex. 1002 ¶104.

4. Claim 1.c, 8.c, 15.c: "receiving a response from the target mobile device at the listening software port on the initiating mobile device"

Cordenier in combination with RFC793 renders this limitation obvious. Cordenier discloses terminal 1 receiving response 7c from terminal 2 via the data network 3. Ex. 1007 at Fig. 6, 7:16-19, 7:31-37, 8:53-57, 12:38-43, 14:30-36. As established above with respect to claim 1.a, it would have been obvious to

implement response 7c using TCP/IP and, therefore, to receive response 7c at the previously opened TCP listening port. Ex. 1002 ¶105.

5. Claim 1.d, 8.d, 15.d: "establishing a data transfer session through the data packet-based communications service between the initiating mobile device and the target mobile device, wherein the data transfer session is established in a peer-to-peer fashion without a server intermediating communications through the established data transfer session between the initiating mobile device and the target mobile device"

Cordenier in combination with RFC793 renders this limitation obvious. Cordenier discloses establishing various types of data transfer sessions via network 4 (e.g., GPRS), channels 8-11 and the data network 3. Ex. 1007 at Fig. 6, 1:18-26 (file and document exchange, chat), 7:47 (chat), 9:30-41 (texting), 10:40-41 (transfer files). It would have been obvious to a POSITA to implement this session using TCP/IP for reliability. *See supra,* Section VIII.B. Because the devices address the TCP/IP packets to each other using their actual IP addresses, this is a peer-to-peer communication without an intermediating server, precisely as disclosed in the 925 specification. *Id.* at Title ("peer-to-peer"), 2:13-33, 8:46-9:5, 9:30-41, 10:8-31; Ex. 1002 ¶106.

Cordenier additionally discloses the potential use of NATs (Figs. 7-8, 8:3-26, 9:51-10:7), but that additional disclosure relates to alternative embodiments, which are not relevant to this Petition. Ex. 1002 ¶107.

6. Claims 3, 10, 17: "The [method of claim 1/mobile device of claim 8/non-transitory, computer-readable storage medium of claim 15], wherein the network address of the initiating mobile device is an IP address"

Cordenier discloses that the network address of the initiating mobile device is an IP address. Ex. 1007 at 2:43-45 ("IP-address"), 7:9-15, 8:46-9:5, 13:4-11; Ex. 1002 ¶108.

7. Claims 4, 11, 18: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the page-mode messaging service is SMS"

Cordenier discloses that the page-mode messaging service is SMS. Ex. 1007 at Fig. 6, 6:44-57 ("SMS message"), 7:20-26, 9:15-20, 13:4-25 ("SMS protocol"); Ex. 1002 ¶109.

8. Claims 5, 12: "The [method of claim 1/mobile device of claim 8], wherein the page-mode messaging service is a PIN-to-PIN messaging service"

Cordenier discloses that the page-mode messaging service is SMS. Ex. 1007 at Fig. 6, 6:44-57 ("SMS message"). SMS is a species of the claimed genus of "PIN-to-PIN messaging service" as properly construed, because SMS uses the unique phone number (e.g., MSISDN) of the target device to transmit information over the wireless network. *See, e.g.*, Ex. 1017 at [0021] ("SMS messages used by cell phones are also PIN-to-PIN messages."); Ex. 1002 ¶110.

9. Claims 6, 13, 19: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the unique identifier is a telephone number"

Cordenier discloses that the unique identifier is the telephone number (MSISDN) used to address the SMS message. Ex. 1007 at 8:27-45; Ex. 1014 at 42-43, 113; Ex. 1002 ¶111.

10. Claims 7, 14, 20: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the data transfer session utilizes a TCP connection"

As established above, it would have been obvious to a POSITA to use TCP as disclosed in RFC793 as the transport protocol for the IP-based data transfer sessions disclosed in Cordenier because TCP/IP was well-known, widely supported, and would provide reliability. *See supra* Sections V.C.2. and VIII.B. Ex. 1002 ¶112.

IX. GROUND 4: THE COMBINATION OF CORDENIER, RFC793 AND DORENBOSCH RENDERS CLAIMS 2, 9 AND 16 OBVIOUS

A. Overview of Dorenbosch

Dorenbosch discloses a server sending a WAP Push over SMS containing the IP address and port of a host 105 to a mobile station 103. Ex. 1011 at Fig. 3 (steps 307, 309), [0022] ("host IP address and port number where a response is expected"), [0029], [0031], [0035]. A WAP Push over SMS is directed to the WDP port, which is the SMS port used for WAP Pushes. *Id*. at [0031]. Thus,

Dorenbosch provides a specific example of the use of an SMS port, as discussed above for Ground 2. When the mobile station 103 receives the WAP Push on the WDP port, it is directed to the OTA-WAP layer, then the encapsulated SIP application ID is extracted, and then the message is forwarded to the SIP application for processing. *Id.* at [0036]. The SIP application processes the message and responds to the host 105 with an IP-based SIP message "200 OK." *Id*. at Fig. 3 (step 315), [0036]. Dorenbosch teaches that using the WDP port as an intermediary is more widely implemented than routing to the application directly. *Id*. at [0033]. Ex. 1002 ¶113.

B. Rationale for Combining Cordenier, RFC793 and Dorenbosch

It would have been obvious to combine Cordenier and RFC793 as established in the preceding Ground, and it would have been obvious to further combine them with Dorenbosch because Dorenbosch discloses WAP Push implementation details lacking in Cordenier. Specifically, Cordenier discloses that the SMS invitation messages are implemented as a lightweight WAP Push. Ex. 1007 at 7:38-53, 9:42-50. As established immediately above, Dorenbosch discloses that WAP Pushes are implemented over SMS by opening a WDP Port. Furthermore, Cordenier teaches that sub-addressing may be used in sending a message (Ex. 1007 at 6:49-53), and Dorenbosch details how that sub-addressing can use the WDP Port. Notably, the 925 patent admits that receiving a WAP Push

over SMS and responding via TCP/IP was known in the art. Ex. 1001 at 1:23-57. Thus, it would have been obvious to a POSTIA implementing Cordenier's lightweight WAP Push to open a software listening port (the WDP Port) to receive those invitations as taught by Dorenbosch. Ex. 1002 ¶114.

C. Detailed Claim Analysis

1. Claims 2.pre ("The method of claim 1 further comprising:"), 9.pre ("The mobile device of claim 8 wherein the processor is further configured to perform the steps of:"), 16.pre: ("The non-transitory, computer-readable storage medium of claim 15, further including instructions that cause the processor to perform the steps of:")

These dependent claims require that the initiating mobile device of claim 1 (terminal 1 in the preceding Ground) receive and respond to an invitation from another device. A POSITA would understand that terminals 1 and 2 are identical and Cordenier's disclosure of terminal 1 as the initiating device is only exemplary. Cordenier describes that the terminals are "peers" (Ex. 1007 at Title), with the same structure (*id*. at 6:6-6:30), that each can receive an SMS message with the other's IP-address prior to initiating an IP connection (*id*. at 6:44-52, 7:20-26), and that each terminal can send information to the other (*id*. at 5:30-33). Thus, a POSITA would have understood that terminal 1, the initiating mobile device for claim 1, can also receive and respond to invitations from terminal 2 (or any other Cordenier-enabled device) using the functionality relied on above in claims 1.pre-1.d. Ex. 1002 ¶115.

2. Claims 2.a, 9.a, 16.a: "opening a second listening software port on the initiating mobile device to receive invitation messages through the page-mode messaging service"

The combination of Cordenier and Dorenbosch renders this limitation obvious. Cordenier teaches that the initiating terminal 1 may receive an invitation message (WAP Push via SMS) through the page-mode messaging service (SMS). Ex. 1007 at 7:38-53; 9:42-50. Dorenbosch teaches the implementation details of how such a WAP Push over SMS would be received and routed to the responding application, specifically, by opening a second listening software port (WDP Port). *See supra* Section IX.B. Thus, it would have been obvious for terminal 1 to open a software listening port (WDP Port) as taught by Dorenbosch to receive the WAP Push over SMS as disclosed by Cordenier. Ex. 1002 ¶116.

3. Claims 2.b, 9.b, 16.b: "receiving, at the second listening software port and through the page-mode messaging service, a message from another mobile device inviting the initiating mobile device to establish a data transfer session, wherein such message comprises a network address associated with the other mobile device"

As established immediately above, in the combination of Cordenier and Dorenbosch, terminal 1 receives, at the second listening software port (WDP Port) and through the page-mode messaging service (SMS) a message from another mobile device (terminal 2 or any other Cordenier-enabled device). That SMS message invites the initiating mobile device (terminal 1) to establish a data transfer

session and includes the network address of the other mobile device as established above for claim 1.b. Ex. 1002 ¶117.

4. Claims 2.c, 9.c, 16.c: "transmitting a response to the network address associated with the other mobile device, wherein the response acknowledges the ability to establish a data transfer session"

Cordenier discloses transmitting a response ("acknowledge message 7c") to the network address associated with the other mobile device acknowledging the ability to establish a data transfer session. Ex. 1007 at 7:16-19, 31-37; 8:53-9:5 ("acknowledge message 7c"). Cordenier discloses that response 7c includes the IP address of the responding device (here, initiating terminal 1) for use in the session, acknowledging the ability to establish that session at that address. *Id*. at 7:54-8:2; Ex. 1002 ¶118.

X. GROUND 5: THE COMBINATION OF LEE, RFC793, AND THE SMS SPECIFICATION RENDERS OBVIOUS CLAIMS 1, 3-8, 10-15 AND 17-20

A. Lee Overview

Lee discloses a technique that allows an Internet Wireless Enabled Handset (IWEH1) to establish voice communications over the Internet (VoIP call) with a second Internet Wireless Enabled Handset (IWEH2). Ex. 1006 at 1:66-2:4 and 5:18-21. Lee further discloses that IWEH1 sends an SMS message to IWEH2 to set up, initiate and establish the VoIP call. *Id*. at Fig. 2, 2:5-9 and 8:1-11; Ex. 1002 ¶119.

Lee describes "scenario 3" for establishing a VoIP call between mobile phones IWEH1 and IWEH2, which description often incorporates aspects of scenarios 1 and 2 by reference. Ex. 1006 at Fig. 1 (steps 10, 31, 32, 33, 34, 23, 24, 25, 26 and 15), Fig. 3, 5:14-8:11; 8:12-10:13. Scenario 3 includes an SMS invite (Fig. 1(step 23), Fig. 3 (steps 305-306)), an IP-based response (Fig. 1(step 26) , Fig. 3 (steps 310-311)), and a P2P connection (Fig. (step 15), Fig. 3 (step 312)); Ex. 1002 ¶119. These steps are highlighted in Figure 3 below, with annotations for the corresponding claim steps in the 925 patent.

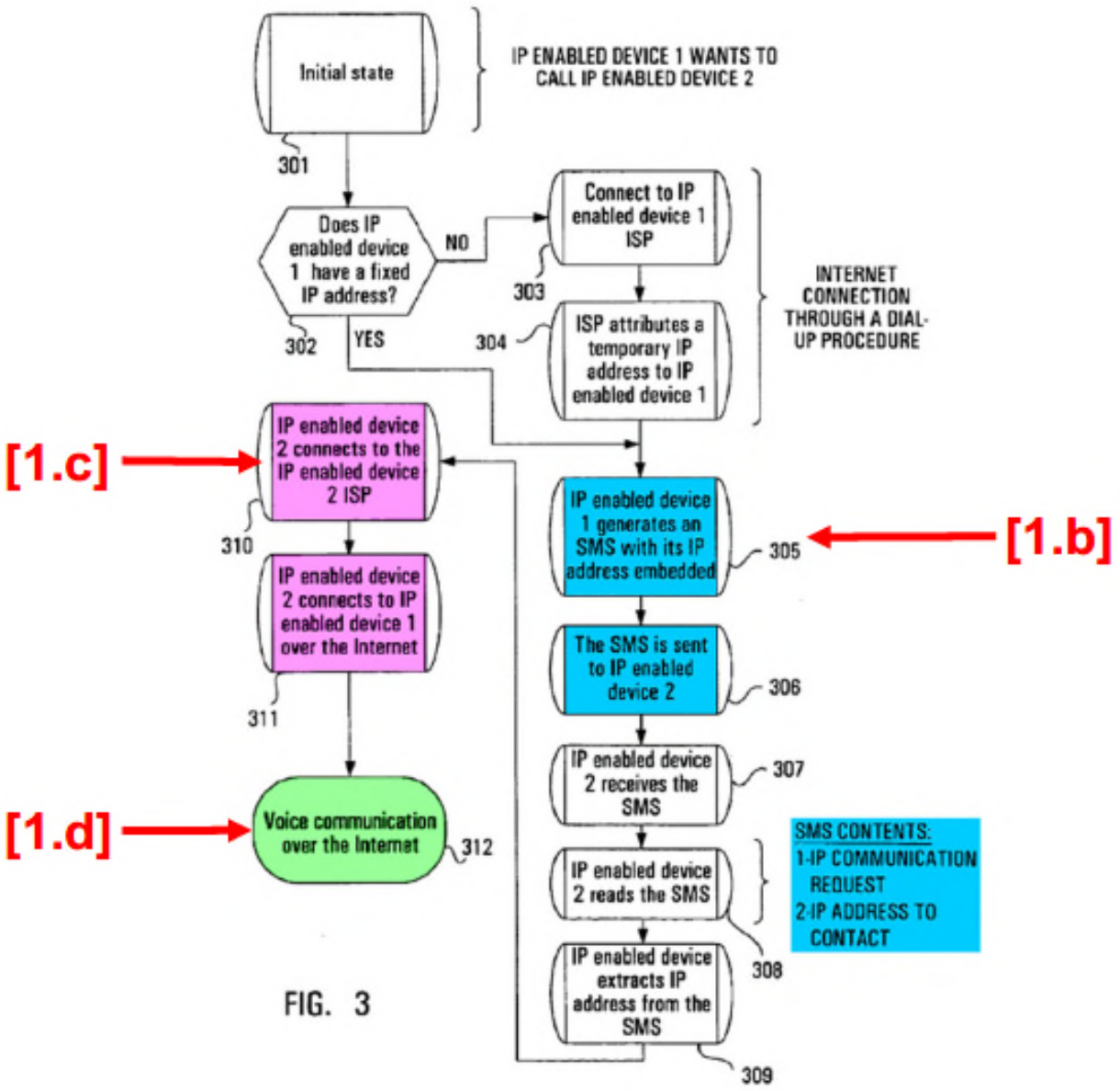


FIG. 3

B. Rationale for Combining Lee, RFC793, and the SMS Specification

Lee discloses that IWEH2 responds to the SMS invitation message from IWEH1 with a TCP/IP H.225 call control message to set up the requested VoIP call. Ex. 1006 at Fig. 1 (step 26), Fig. 3 (step 311), 16:61-17:4. A POSITA would have been motivated to open a TCP software port as taught by RFC793 in order to

receive and route the TCP/IP H.255 call set up message to the VoIP application as disclosed in Lee, otherwise, that response would be rejected. *See supra* Section V.C.2; Ex. 1010 at 20, 45; Ex. 1002 ¶121.

As explained fully below for claim 1.b, Lee discloses that the invitation message is sent via SMS but does not explicitly disclose how that SMS message is addressed. A POSITA implementing the SMS message disclosed in Lee would have been motivated to address the SMS message with the telephone number of IWEH2 as taught by the SMS Specification so that the SMS service could identify and route the SMS message to IWEH2. Ex. 1002 ¶122.

C. Detailed Claim Analysis

1. Claim 1.pre: "A method of establishing a direct data transfer session between mobile devices that support a data packet-based communications service over a digital mobile network system, the method comprising"

Claim 8.pre: "A mobile device enabled to establish a direct data transfer session with other mobile devices in a digital mobile network system, the mobile device comprising a processor configured to perform the steps of"

Claim 15.pre: "A non-transitory computer-readable storage medium including instructions that, when executed on a processor of a mobile device that supports a data packet-based communications service over a digital mobile network system, causes the processor to establish a direct data transfer session by performing the steps of"

To the extent these preambles are limiting, they are disclosed by Lee. With respect to claim 1, Lee discloses a method of establishing a direct data transfer

session (VoIP call) between mobile devices (IWEH1, IWEH2) that support a data packet-based communications service (TCP/IP), over a digital mobile network system (wireless network 62 and the Internet 66). Ex. 1006 at Figs. 1 and 2, 5:14-21, 7:57-8:11, 14:58-62. With respect to claim 8, Lee discloses a mobile device (IWEH1) enabled to establish a direct data transfer session (VoIP call) with other mobile devices (e.g., IWEH2) in a digital mobile network system (wireless network 62 and Internet 66), IWEH1&2 comprising a processor (microcontrollers 519, 520 and DSPs 505, 508). Ex. 1006 at 14:25-15:63. With respect to claim 15, Lee discloses a non-transitory computer-readable storage medium (ROMs 523, 518, 510, 507) including instructions (programs for each of the microcontrollers and DSPs) that, when executed on a processor of IWEH1, causes the processor to establish a direct data transfer session (VoIP call). Ex. 1006 at Fig. 5, 11:13-20, 11:50-51, 16:5-6; Ex. 1003 at 335-36 (admitting programs inherently contain instructions). In the alternative, it would have been obvious to a POSITA that the disclosed programs in the disclosed memories comprised the claimed instructions for the disclosed processors. Ex. 1002 ¶123.

2. Claim 1.a, 8.a, 15.a: "opening a software listening port on an initiating mobile device to receive communications through the data packet-based communications service"

Lee in combination with RFC793 renders this limitation obvious. Lee discloses that IWEH1 will transmit an SMS message to IWEH2 to initiate a VoIP

call, and that IWEH1 will be listening for a response from IWEH2 in the form of a TCP/IP H.225 call control message. Ex. 1006 at Fig. 1 (step 26), Fig. 3 (step 311), 5:64-66, 6:7-9, 7:56-8:11, 9:67-10:1, 14:48-15:24 (H.225 response uses TCP/IP), 15:48-63 (same), 16:61-17:1. A POSITA would therefore have found it obvious to open a software listening port on IWEH1 as taught by RFC793 to receive and process the TCP/IP H.225 call control message as taught by Lee, as the failure to do so would result in the response being rejected. *See supra* Ex. 1010 at 20, 45; Section V.C.2 (establishing how the RFC793 teaches that TCP ports must be opened to receive messages and applicant's admissions during prosecution that opening such ports was well known); Ex. 1002 ¶124.

3. Claim 1.b, 8.b, 15.b: "transmitting an invitation message to a target mobile device through a page-mode messaging service, wherein the invitation message comprises a network address associated with the initiating mobile device, and wherein the target mobile device is located by providing a unique identifier to the page-mode messaging service"

Lee in combination with the SMS Specification renders this limitation obvious. Lee discloses the initiating mobile device (IWEH1) transmitting an invitation message (SMS message) to a target mobile device (IWEH2). Ex. 1006 at Fig. 1 (step 23), Fig. 3 (step 305-306), 5:57-61, 6:7-9, 7:16-35, 7:66-8:2 ("IP address"), 8:39-9:57 ("IP address"), 21:5-12, 22:24-26. Ex. 1002 ¶125.

Lee discloses that the SMS message includes the network address (IP address) associated with the initiating mobile device (IWEH1). *Id.* Ex. 1002 ¶126.

Lee discloses that the SMS service forwards the message to IWEH2 and that a POSITA would have been familiar with SMS, but does not disclose how the SMS message is addressed to accomplish that function. *Id.* at 1:25-35, 9:47-57. In implementing the SMS message disclosed in Lee, it would have been obvious to a POSITA to address the SMS message with the telephone number of IWEH2, so that the SMS service could locate IWEH2 as taught by the SMS Specification and known in the art. Ex. 1014 at 42-43 (telephone numbers), 16 (SMS-Submit), 42-43 (defining Address Fields), 48-51 (SMS-Submit), 58 (TP-Destination-Address); Ex. 1002 ¶127.

Additionally, it would have been obvious to a POSITA implementing Lee to expressly include a TCP port number in the SMS invitation. *See supra* Section VI.C (establishing that including a port number was a known technique, and that a POSTIA would have been motivated to include the port number in an SMS message when the port was not known in advance, to identify the responsive application, and to provide robustness and flexibility for future implementations). Lee expressly teaches that its SMS message can be adapted to include more than just the IP address. Ex. 1006 at 9:39-46; Ex. 1002 ¶128.

4. Claim 1.c, 8.c, 15.c: "receiving a response from the target mobile device at the listening software port on the initiating mobile device"

Lee, in combination with the SMS Specification, renders this limitation obvious. Lee discloses initiating mobile device (IWEH1) receiving a response (TCP/IP H.225 call control message) from the target mobile device (IWEH2). Ex. 1006 at Fig. 1 (step 26), Fig. 3 (step 311), 5:64-66, 6:7-9, 7:56-8:11, 9:67-10:1, 14:48-15:24, 15:48-63, 16:61-17:1 (H.225 response). It would have been obvious to receive the TCP/IP H.225 message taught by Lee at the listening software port (TCP port) opened on IWEH1 as taught by the SMS Specification as established above for claim 1.a. Ex. 1002 ¶129.

5. Claim 1.d, 8.d, 15.d: "establishing a data transfer session through the data packet-based communications service between the initiating mobile device and the target mobile device, wherein the data transfer session is established in a peer-to-peer fashion without a server intermediating communications through the established data transfer session between the initiating mobile device and the target mobile device"

Lee discloses establishing a data transfer session (a VoIP call including a call setup exchange using a TCP/IP session) through the data packet-based communications service (wireless network 62 and Internet 66), between the initiating mobile device (IWEH1) and the target mobile device (IWEH2). Ex. 1006 at Fig. 1 (step 15), Fig. 3 (step 312), 6:7-9, 7:57-8:11, 14:48-15:24 (H.225

and H.245 use TCP/IP), 15:48-63 (describing TCP/IP packet headers and logical channels), 16:65-17:6. Ex. 1002 ¶130.

Lee discloses that the VoIP call uses TCP/IP sessions for the call and system control information (H.225 and H.245) which are addressed using the IP addresses for IWEH1 and IWEH2, which is precisely how the TCP/IP session is established in a peer-to-peer fashion without an intermediating server in the 925 patent. *Id.*; Ex. 1002 ¶131.

6. Claims 3, 10, 17: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the network address of the initiating mobile device is an IP address"

Lee discloses that the network address of the initiating mobile device is an IP address. *See* claim 1.b (citing, e.g., Ex. 1006 at 7:66-8:2 ("IP address"), 8:39-9:57 (same)); Ex. 1002 ¶132.

7. Claims 4, 11, 18: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the page-mode messaging service is SMS"

Lee discloses that the page-mode messaging service is SMS. *See* claim 1.b (citing, e.g., Ex. 1006 at 7:66-8:2 ("SMS message"), 8:39-9:57 (same)); Ex. 1002 ¶133.

8. Claims 5, 12: "The [method of claim 1/mobile device of claim 8], wherein the page-mode messaging service is a PIN-to-PIN messaging service"

Lee discloses that the page-mode messaging service is SMS. *See* claim 1.b (citing, e.g., Ex. 1006 at 7:66-8:2 ("SMS message"), 8:39-9:57 (same)). SMS is a species of the claimed genus of "PIN-to-PIN messaging service" as properly construed, because SMS uses the unique phone number of the target device to transmit information over the wireless network. *See, e.g.*, Ex. 1017 at [0021] ("SMS messages used by cell phones are also PIN-to-PIN messages."); Ex. 1002 ¶134.

9. Claims 6, 13, 19: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the unique identifier is a telephone number"

It would have been obvious to implement the SMS message disclosed in Lee by addressing the SMS message with the telephone number of IWEH2 as taught by the SMS Specification and known in the art. Ex. 1014 at 16, 42-43, 48-55, 58; Ex. 1002 ¶135.

10. Claims 7, 14, 20: "The [method of claim 1/mobile device of claim 8/non-transitory computer-readable storage medium of claim 15], wherein the data transfer session utilizes a TCP connection"

Lee discloses that the data transfer session (with VoIP call setup exchange) utilizes a TCP connection for H.225 call and H.245 system information. Ex. 1006 at 14:48-15:24, 15:48-63, 16:65-17:6; Ex. 1002 ¶136.

XI. GROUND 6: THE COMBINATION OF LEE, RFC793, THE SMS SPECIFICATION AND WMA RENDERS CLAIMS 2, 9 AND 16 OBVIOUS

A. Rationale for Combining Lee, RFC793, the SMS Specification and WMA

A POSITA would have been motivated to combine Lee, RFC793, the SMS Specification and WMA in order to use SMS ports to route the incoming SMS invitation message to the correct application. *See* Section VII.C (establishing why a POSITA would open SMS ports as taught by the SMS Specification and WMA to receive SMS invitation messages); Ex. 1002 ¶137.

B. Detailed Claim Analysis

1. Claims 2.pre ("The method of claim 1 further comprising:"), 9.pre ("The mobile device of claim 8 wherein the processor is further configured to perform the steps of:"), 16.pre: ("The non-transitory, computer-readable storage medium of claim 15, further including instructions that cause the processor to perform the steps of:")

These dependent claims require that the initiating mobile device of claim 1 (IWEH1 in the preceding Ground) receive and respond to an invitation from another device (IWEH2 or any other Lee-enabled device). Lee discloses that IWEH1 and IWEH2 are identical. Ex. 1006 at Fig. 5, 10:4-15:63. A POSITA would understand that Lee's disclosure of IEWH1 as the initiating device is only exemplary, and that IWEH1, the initiating mobile device for claim 1, has the identical capability to receive and respond to invitations from IWEH2 using the functionality relied on above in claim 1.pre-1.d. Thus, it would have been obvious

for IWEH1 to use that disclosed capability to respond to incoming invitations. Ex. 1002 ¶138.

2. Claims 2.a, 9.a, 16.a: "opening a second listening software port on the initiating mobile device to receive invitation messages through the page-mode messaging service"

The combination of Lee, the SMS Specification and WMA renders this limitation obvious. Lee renders obvious to a POSITA that the initiating mobile device (IWEH1) can utilize the disclosed capability to receive an invitation message (SMS message) through the page-mode messaging service (SMS). *See* claim 1.b. Ex. 1002 ¶139.

Lee does not explicitly disclose opening an SMS port to receive an SMS invitation message, but it would have been obvious to do so as taught by the SMS Specification and WMA. Lee discloses a non-standard "type field" of "IPCALLRQ" that the receiving device must recognize in order to route the VoIP call request to the responding VoIP application. Ex. 1006 at 9:33-36. A POSITA would have understood that this implementation would require modifying the SMS application to support that non-standard field. A POSITA would have known, as established above in Section V.C.3, that standard SMS applications already support SMS ports which could perform this function. Ex. 1014 at 66-69, 72-73; Ex. 1018 at 21, 27, 30-34, 37-45. A POSITA would have been motivated to configure IWEH1 to open an SMS port in a listen mode as taught by WMA in order to

receive and route incoming SMS call request messages to the responding VoIP application. Ex. 1002 ¶140.

A POSITA implementing Lee would have been motivated to use this known technique in order to make Lee's implementation compatible with standard SMS applications. This would maximize the deployment potential of Lee's application in SMS phones that use standard SMS applications. Ex. 1006 at 4:45-64, 10:4-12. A POSITA would also have been motivated to use this known technique to make the SMS application and VoIP application code bases independent to assist in maintenance, debugging and upgrading of those independent applications. Indeed, this is a major reason why ports are used to being with—to allow applications to be independent of the operating system that manages the network connections. Ex. 1010 at 12, 17-18; Ex. 1002 ¶141.

3. Claims 2.b, 9.b, 16.b: "receiving, at the second listening software port and through the page-mode messaging service, a message from another mobile device inviting the initiating mobile device to establish a data transfer session, wherein such message comprises a network address associated with the other mobile device"

As established immediately above for claim 2.a, in the combination of Lee, SMS Specification and WMA, IWEH1 receives, at the second listening software port (WDP Port) and through the page-mode messaging service (SMS) a message from another mobile device (IWEH2 or any other Lee-enabled device). That SMS message invites the initiating mobile device (IWEH1) to establish a data transfer

session and includes the network address of the other mobile device as established above for claim 1.b. Ex. 1002 ¶142.

4. Claims 2.c, 9.c, 16.c: "transmitting a response to the network address associated with the other mobile device, wherein the response acknowledges the ability to establish a data transfer session."

Lee discloses transmitting a response (here, IWEH 1 transmitting the H.225 TCP/IP call control and setup information for a VoIP call) to the network address associated with the other mobile device acknowledging the ability to establish a data transfer session (the VoIP call). *See* claim 1.c. Ex. 1002 ¶143.

XII. CONCLUSION

For the foregoing reasons, Petitioner requests that the Board institute trial and cancel claims 1-20 of the 925 patent.

Dated: February 22, 2019

Respectfully Submitted,

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CERTIFICATION UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,865, as calculated by Microsoft Word, which is less than the 14,000 allowed under 37 CFR § 42.24(a)(i).

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(b), the undersigned hereby certifies that a copy of the foregoing Petition for *Inter Partes* Review and all Exhibits was provided to Patent Owner by emailing a copy of same (by agreement) to the following attorneys of record for the Patent Owner:

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