

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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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

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*Inter Partes* Review No.: IPR2019-00702

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**DECLARATION OF DR. HENRY H. HOUH  
IN SUPPORT OF PETITIONER'S REPLY TO  
PATENT OWNER'S RESPONSE TO PETITION**

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## EXHIBITS continued

### EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 7,969,925 to Lin (“ <b>925 patent</b> ”)
1002	Declaration of Dr. Henry Houh
1003	File History of U.S. Pat. No. 7,969,925 to Lin
1004	File History of U.S. Pat. No. 7,961,663 to Lin
1005	Certified Translation and Original of European Pat. App. Pub. EP 1 009 153 A1 (“ <b>Alos</b> ”)
1006	U.S. Pat. No. 6,847,632 (“ <b>Lee</b> ”)
1007	European Pat. App. Pub. EP 1 385 323 A1 (“ <b>Cordenier</b> ”)
1008	Complaint for Patent Infringement (“ <b>Uniloc Complaint</b> ”)
1009	<i>Declaration of Sandy Ginoza for IETF RFC 1122: Requirements for Internet Hosts - Communication Layers</i> with the exhibit RFC 1122, “Requirements for Internet Hosts - Communication Layers” (“ <b>RFC1122</b> ”)
1010	<i>Declaration of Sandy Ginoza for IETF RFC 793: Transmission Control Protocol</i> with the exhibit, RFC 793, “Transmission Control Protocol” (“ <b>RFC793</b> ”)
1011	U.S. Pat. App. Pub. No. 2003/0217174 (“ <b>Dorenbosch</b> ”)
1012	U.S. Patent No. 5,163,131 (“ <b>Row</b> ”)
1013	W. Richard Stevens, “Unix Network Programming,” Chapters 1, “Introduction”; 4, “A Network Primer”; 5, “Communication Protocols”; and, 6, “Berkeley Sockets”
1014	Information Disclose Statement Under 37 C.F.R. §§ 1.97 and 1.98 that includes “Universal Mobile Telecommunications System (UMTS); Technical realization of the Short Message Service (SMS) (3G TS 23.040 version 3.5.0 Release 1999)” and was submitted August 15, 2002, concurrently with U.S. Pat. App. 10/218,580, which application was published on February 27, 2003, as U.S. Pat. App. Pub. 2003/0040300 A1 (“ <b>SMS Specification</b> ”)

## EXHIBITS continued

Exhibit No.	Description
1015	W. Richard Stevens, TCP/IP ILLUSTRATED, VOLUME 2: THE PROTOCOLS (1994)
1016	U.S. Pat. No. 8,018,877 to Lin
1017	U.S. Pat. Pub. No. 2005/0278448 to Mazor (“ <b>Mazor</b> ”)
1018	Declaration of Harold Ogle Regarding JSR-000120, “Wireless Messaging API (WMA) for Java™ 2 Micro Edition Version 1.0” with the exhibit JSR 120, “Wireless Messaging API (WMA) for Java™ 2 Micro Edition Version 1.0” (“ <b>WMA</b> ”)
1019	IBM Dictionary of Computing, 10th Ed. (1993)
1020	Newton’s Telecom Dictionary, 11th Ed. (1996)
1021	<i>Declaration of Sandy Ginoza for IETF RFC 2543: SIP: Session Initiation Protocol</i> with the exhibit RFC 2543, “SIP: Session Initiation Protocol” (“ <b>RFC2543</b> ”)
1022	<i>Declaration of Sandy Ginoza for IETF RFC 791: Internet Protocol</i> with the exhibit RFC 791, “Internet Protocol”
1023	U.S. Pat. Pub. No. 2003/0040300
1024	<i>Declaration of Sandy Ginoza for IETF RFC 2026: The Internet Standards Process – Revision 3</i> with the exhibit, RFC 2026: “The Internet Standards Process – Revision 3” (“ <b>Internet Standards Process</b> ”)
1025	U.S. Pat. No. 7,181,231
1026	<i>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</i>
1027	<i>Declaration of Sandy Ginoza for IETF RFC 768: User Datagram Protocol</i> with the exhibit, RFC768: User Datagram Protocol
1028	Declaration of Dr. Henry Houh (for Petitioner’s Reply)

I, Dr. Henry H. Houh, do hereby declare:

## **I. INTRODUCTION**

1. As I discussed in the declaration dated February 22, 2019, that I provided for the Petition in this proceeding (Ex. 1002), I have been retained as an expert witness on behalf of petitioner Apple Inc. (“Apple”) for the above-captioned Petition for *Inter Partes* Review (“IPR”) of U.S. Patent No. 7,969,925 (“925 patent”). I am being compensated for my time in connection with this IPR at my standard consulting rate of \$620 per hour. My compensation is in no way dependent on the outcome of this matter.

## **II. BACKGROUND AND QUALIFICATION**

2. Section II of my prior declaration (Ex. 1002, ¶¶5-23) states my background and expertise that qualify me as an expert in the technical issues in this case. There are no relevant updates to that background or expertise.

## **III. MATERIALS CONSIDERED FOR THIS DECLARATION**

3. In addition to my general knowledge, education, and experience, and the prior art publications I listed in paragraphs 5 through 23 of Exhibit 1002, I considered the materials filed in this proceeding and the materials listed in the Exhibit List above in forming my opinions.

## **IV. UNDERSTANDING OF THE LAW**

4. Paragraphs 25 through 30 of Exhibit 1002 state the legal principles that Apple counsel explained to me and on which I rely.

## **V. SUMMARY OF MY OPINIONS**

5. Based on my review of the materials filed in this proceeding and the materials listed in the Exhibit List above, I maintain the opinions I expressed in Exhibit 1002. Further, in this declaration I address the arguments Patent Owner raised in Patent Owner's Response to Petition, Paper 9 ("POR").

6. Generally, I note that the POR is unsupported by any expert declaration, and relies on constructions that are contrary to the plain meaning of the claims as a person of ordinary skill in the art ("POSITA") would understand the claims, to what is actually taught in the specification, and even to what is technically possible.

## **VI. CLAIM CONSTRUCTION**

7. Patent Owner raises two claim construction issues: (1) the proper construction of the "opening a listening software port" limitation in independent claims 1, 8 and 15; and (2) whether the "opening a second listening software port" limitation in claims 2, 9 and 16 requires that this second port be opened only after the port in the independent claims. Both of Patent Owner's constructions are wrong.

### **A. The "opening a listening software port" Limitation**

8. The first step in independent claims 1, 8 and 9 recites in its entirety "opening a software listening port on an initiating mobile device to receive

communications through the data packet-based communications service.” The POR raises three separate issues with respect to this limitation.

**1. The Limitation Does Not Require That the “listening software port” Be Opened Only for a Specific Device**

9. The POR asserts that the “opening a listening software port” limitation must be construed as requiring that the port be opened for a specific target mobile device. POR, 7-8. This is an attempt to add the italicized limitations to what the claims actually recite: “opening a software listening port on an initiating mobile device to receive communications *from only a specific target mobile device* through the data packet-based communications service.” I disagree with this assertion for at least four reasons.

**a. The Plain Meaning Does Not Support Patent Owner’s Erroneous Construction**

10. Patent Owner’s construction is contrary to the plain language of the claims. A POSITA would understand that there is nothing in this limitation requiring that the software listening port be opened in such a way that it can receive communications from *only a specific* target mobile device. I note that Patent Owner offers no declaration from an expert or any other evidence to the contrary.

**b. The Specification Does Not Support Patent Owner's Erroneous Construction**

11. To support its erroneous construction, Patent Owner cites to only two disclosures in the specification, each of which identically recites:

Initially, the initiating mobile device opens a TCP port to listen for communications from the target mobile device [210/310].

Response, 8 (citing Ex. 1001, 4:38–40 and 4:58–62). Patent Owner seems to argue that those two passages lexicographically define “opening a listening software port” to require opening the port only for the target device. *Id.*, 8-9. That argument is nonsense. An equally plausible understanding of the passages relied on by Patent Owner is that they explain *why* the listening software port is opened, not the manner in which it is opened. For example, if one turns on one’s mobile phone to receive an expected call from a child, that does not mean that the mobile phone is or must be configured to receive a call from only that child. Indeed, this latter understanding is compelled when one realizes as explained in further detail below that configuring the listening software port for only the target mobile device is not possible under the circumstances and using the TCP/IP connection discussed in those passages. A POSITA would not understand those passages to clearly set forth a definition of the disputed claim term that is different from its plain and ordinary meaning as would be necessary to construe the “opening a listening



software port” limitation as being limited to opening the port for only a specific target mobile device.

**c. The File History Does Not Support Patent Owner’s Erroneous Construction**

12. To support its construction, Patent Owner also cites to assertions the applicant made during the prosecution of an earlier application that the same “opening a listening software port” limitation requires opening the port for only the specific target device. *See, e.g.*, Response, 8-9, 12-15. As discussed above, a POSITA would not understand the claim language to require opening a port for only the target device. Therefore, a POSITA viewing this statement in the prosecution history would have recognized that the statement was erroneous. I have been informed and understand that as between the plain language of the claim and a clearly erroneous statement, the claim language controls. Thus, a POSITA would not understand those statements in the prosecution history to compel Patent Owner’s erroneous construction.

**d. Patent Owner’s Erroneous Construction Is Wrong Because It Cannot Be Implemented Using TCP/IP**

13. Another fundamental problem with Patent Owner’s construction is that it is impossible to implement that construction under the conditions discussed in the 925 patent using a TCP connection, which is the only type of connection disclosed in the 925 patent used for implementing ports on the claimed data

packet-based communications service and which is specifically required by dependent claims 7, 14 and 20. *See, e.g.*, Fig. 2-3; 1:23-42, 2:21-27, 3:53-4:11, 4:31-5:20.

14. The Petition explains that an OPEN call can be either active or passive. Petition, 14 (citing Ex. 1010, RFC793). Both types of OPEN calls require arguments for an IP address of a remote/foreign host and for a port number of a process running on that remote/foreign host. *Id.* The combination of an IP address and port number is known as a socket address, or just a socket. A passive OPEN call with zeroes for each of the remote/foreign IP address and port arguments results in entry into the LISTEN state and allows for a connection with any foreign/remote process. Ex. 1010, 11. Alternatively, if a port is to be restricted to a particular foreign process, the OPEN call must specify the foreign socket address (both the IP address of the foreign host and the port number for the process on that host). Ex. 1010, 11.

15. Thus, if Patent Owner were correct that “opening a listening software port” requires opening the port only for the target device, the initiating device would need to know the target device’s socket address (IP address and port number) in order to specify those arguments in the TCP OPEN call. However, this is inconsistent with the problem the 925 patent purports to solve, which is that initiating device does not know the target device’s network (*e.g.*, IP) address or

port number. Ex. 1001, 1:42-51; 4:12-19 (“In order to provide direct data transfer capabilities between mobile devices, an initiating mobile device must have knowledge of the IP address (and possibly, a port) of the target device in order to establish a direct data transfer. Current mobile multimedia message solutions, such as MMS do not provide direct data transfer capabilities because the initiating mobile device is not able to obtain the receiving mobile device’s IP address.”) Therefore, in the embodiments described in the specification and specifically required in dependent claims 7, 14 and 20, Patent Owner’s construction is simply not possible. Indeed, if the initiating device already knew the information necessary to perform a TCP active OPEN, then the initiating device could simply proceed to the “establishing a data transfer session” step using TCP/IP without having to first use a page-mode messaging service to perform the “transmitting” and “receiving” steps as recited in claims 1, 8 and 15 of the 925 patent. Notably, the POR offers no explanation (let alone evidence) as to how a listening software port for only a specific target mobile device could be opened without knowledge of the target mobile device’s IP address and port number. The reason for the lack of evidence is simple – this is not possible using TCP.

## **2. The “listening software port” Only Need Be Opened Once**

16. In addition to arguing that claimed “listening software port” must be opened only for a specific target mobile device, Patent Owner also argues that “the

claim language ‘requires opening a listening software port *every time* that initiating mobile device desires to establish communications with a particular target mobile device.’” POR, 8-9 (citing the same prosecution history at Ex. 1004, 316 discussed above). However, this assertion is clearly erroneous as the words “every time” do not appear in the “opening a listening software port” limitation, and nothing in the specification indicates that a listening software port must be opened “every time” data is to be exchanged. Further, a requirement that a port be open “every time” is inconsistent with the claims, which recite that a port is open to receive plural “communications” (claim 1) and plural “invitation messages” (claim 2). Ex. 1001, 5:49-50, 6:2-3; *see also* identical language for claims 8-9 and 15-16. Therefore, a POSITA would not understand independent claims 1, 8, and 15 to require opening a new port for every connection to a target device.

### **3. Patent Owner’s Conclusory Attacks on Petitioner’s “Associating” Construction Are Both Wrong and Irrelevant**

17. Patent Owner attacks Petitioner’s construction of the “opening a listening software port” limitation by mischaracterizing Petitioner’s construction as “replac[ing] the word ‘opening’ with ‘associating.’” POR, 6. This is incorrect because Petitioner’s construction replaces the phrase “opening a listening software port” with the phrase “associating a port identifier with a process” rather than simply replace the word “opening” with “associating” as Patent Owner asserts. Petition, 21-22 and 10-17. Patent Owner further asserts that Petitioner’s

construction “fails to give effect to the meaningful and limiting term chosen by the patentee,” but Patent Owner never identifies any effect that Petitioner’s construction fails to give the “opening” term. Response, 6. Patent Owner’s assertion fails and Petitioner’s construction is correct because the construction uses “associating” in the same way that the claims themselves use “associated” in the “transmitting” limitations that immediately follow the “opening” limitations. *See, e.g.,* Ex. 1001, 5:52-57, 6:34-39, 7:19-24 (each reciting, “a network address associated with the initiating mobile device”) (emphasis added). As explained in the Petition, the port number associated with a process uniquely identifies that process on a computer and the IP address associated with the computer uniquely identifies that computer in the network. Petition, 12-13. Patent Owner’s Response also demonstrates the flaw in this attack when it uses “associated” in the same way to describe the 925 patent:

The initiating mobile device may further utilize and incorporates a unique identification number (e.g., telephone number, PIN number, etc.) associated with the target mobile device into the invitation message to locate and contact the target mobile device within the wireless mobile network.

POR, 2 (emphasis added). Patent Owner closes its first attack by complaining that “Petitioner offers no explanation as to why ‘associating’ is more appropriate here.”

Response, 6. The Petition explains at length why Petitioner’s construction is correct under applicable law. Petition, 21-22 and 10-17.

18. Patent Owner’s second attack is a variation of its first attack. Patent Owner again mischaracterizes Petitioner’s construction as “reduce the ‘opening’ limitations as merely purposed for ‘associating a port identifier with a process ...’” POR, 6-7. Substituting Petitioner’s construction in the limitation illustrates the mischaracterization:

~~opening a listening software port~~ **associating a port identifier with a process** on an initiating mobile device to receive communications through the data packet-based communications service

*See, e.g.*, Petition, 21-22 and 10-17. Patent Owner continues its second attack by asserting that it “is inconsistent with the remainder of the limitation and the surrounding context.” Response, 6-7. The Board should reject this second attack because Patent Owner never identifies any “surrounding context” and never explains how Petitioner’s construction is inconsistent with the remainder of the limitation or any “surrounding context.” Response, 6-7. The Board should also reject this attack because (i) as illustrated above, Petitioner’s construction retains all elements of the remainder of the limitation, and (ii) as explained for the first attack, Petitioner’s construction is consistent with the remainder of the claims and correct under applicable law.

19. Patent Owner's third attack asserts without explanation or evidence that Petitioner's construction is incorrect because it does not require opening the port only for the target device "notwithstanding the explicit claim language to the contrary." POR, 7. The Board should reject this attack because there is no requirement in the claim for the listening software port to be opened for only a specific target mobile device for the reasons discussed above.

20. In addition to being wrong, Patent Owner's arguments concerning "associating" are irrelevant because the POR fails to identify any reason why adopting the "associating" part of the construction in the Petition leads to an erroneous result.

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

21. As explained in the Petition, there is nothing in independent claims 1, 8 and 15 or in dependent claims 2, 9 and 16 that requires that the steps in the independent claims be performed in any particular order with respect to the steps in the dependent claims. Petition, 20-21. The Petition also explains that nothing in the specification requires any such temporal relationship. *Id.*, 22. Therefore, a POSITA would not understand those claims to require the steps in the independent and dependent claims be performed in any particular order.

22. Patent Owner identifies nothing more than the use of "second" in the dependent claims to support its construction that an order is required. POR, 10. A

POSITA would understand that claims 2, 9, and 16 use the word “second” to modify “software listening port” merely to distinguish the page-mode messaging service port from the packet-based service port, and would reject Patent Owner’s construction that “second” imposes a temporal order.

## **VII. PATENT OWNER’S ATTACKS ON THE SIX GROUNDS OF THE PETITION ARE ALL FLAWED**

### **A. Patent Owner’s First Attack Relies on a Flawed Construction**

23. Patent Owner first argues that all six grounds of the Petition are flawed because they rely on a construction of the “opening a listening software port” limitation of the independent claims that is not limited to a specific target mobile device. POR, 11-12. This argument fails because Patent Owner’s construction is wrong for the reasons discussed above. A POSITA would understand that the prior art cited in the Petition discloses that the intended purpose of opening the port is to receive responsive communications or invitations. Petition, 29-35 (Ground 1), 38-41 (Ground 2), 45-51 (Ground 3), 53-55 (Ground 4), 58-64 (Ground 5), and 65-68 (Ground 6).

### **B. Patent Owner’s Second Attack Based on Well-Known Ports Is Contrary to the Evidence On Which Patent Owner Relies**

24. Patent Owner next makes an argument concerning well-known ports. POR, 13-15. This argument is flawed for several reasons. First and foremost, each of the three grounds of the Petition directed to an independent claim relies on a theory that uses ports not known in advance in addition to a theory that uses well-



known ports. Petition, 29, 32 (Ground 1), 44, 48 (Ground 3), and 61 (Ground 5). Thus, even if any of Patent Owner's arguments concerning well-known ports had merit (they do not for the reasons discussed below), they would not be sufficient to overcome any challenge in the Petition.

25. Patent Owner also seems to argue that well-known ports would not be well-known to a POSITA. POR, 13. This is wrong as well-known ports were well-known to a POSITA as the applicant admitted in its appeal brief in the 994 Application. *See, e.g.*, Petition, 10-11 (*e.g.*, quoting Ex. 1004, 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.")

26. Patent Owner next cites Ex. 1010 for the proposition that well-known sockets are permanently assigned to a particular socket, and then argues that "[a] port that is *permanently assigned* and made available *a priori* to all devices in general is not one that [sic, is] even available for 'opening' as claimed." POR, 13-14. To the extent that this argument relies on Patent Owner's erroneous construction that requires that the listening software port be opened for a specific target mobile device, it must be rejected as being based on a flawed construction. To the extent that this is an argument that a well-known port cannot be opened because it is available "*a priori*," such an argument fails because a POSITA understands that any TCP port must be opened before it can be used. I note that

Patent Owner offers no expert testimony to the contrary. Moreover, the passage of the Appeal Brief discussed in the POR at 14 flatly contradicts this argument because it states: “Such *well-known TCP ports are not opened by default on mobile devices* because mobile devices do not run servers for data packet based communications services by default.” POR, 14 (citing Ex. 1004, 416) (emphasis added). The challenged claims all require that the “opening a listening software port” step be performed “on an initiating mobile device.” Ex. 1001, claims 1, 8, and 15. Contrary to Patent Owner’s bald assertion that these well-known ports are available on a mobile device “*a priori*,” a POSITA would understand that they must be opened if they are to be used, just like any other port.

### **C. Patent Owner’s Additional Attacks Are Also Flawed**

27. Patent Owner argues on 15-16 that the claims require that the port be opened for a specific target mobile device. This argument is flawed because it is based on a flawed construction as discussed above.

28. Patent Owner then distinguishes between packet-switched networks and circuit-switched networks, (POR, 16-17), and argues that this distinction defeats grounds based on the combination of Alos and RFC793 (*i.e.*, Grounds 1 and 2), (POR, 18-19), and grounds based on the combination of Cordenier and RFC793 (*i.e.*, Grounds 3 and 4), (POR, 19-20). Patent Owner does not contend that this distinction between packet-switched networks and circuit-switched

networks has any effect on Grounds 5 or 6 based on the combination of Lee and RFC793. Thus, even if this argument were sound (it is not), it does not overcome the Petition's showing of unpatentability for any claim.

29. Moreover, this argument is clearly flawed. As discussed in the Petition, Alos discloses that the wireless connections 13, 23 connect the phones 1, 2 to Internet service providers. Petition, 23. Thus, communications over wireless connections 13, 23 conform to the Internet Protocol, which is indisputably a packet-switched protocol. The implementation of Internet Protocol (ISO level 3) over lower level (*i.e.*, ISO level 2) switched telephone network links does not mean that the IP network is not packet-switched. Thus, Patent Owner's unsupported attorney argument is meritless.

30. Patent Owner's arguments regarding Cordenier are equally flawed. Patent Owner notes that Cordenier discloses that "responsive to a message from the first terminal 1, the second terminal logs onto a server 15." POR, 20 (citing Ex. 1007 ¶ 16 [7:2-15]). Patent Owner argues that the purpose of the 925 patent, which is to provide a technique in which "no separate data server need be used to provide a known location from which a recipient retrieves data such as multimedia content." POR, 20 (citing 925 patent, 1:54-67). However, server 15 in Cordenier's is a server that provides a temporary IP address for communications over GPRS, not a "separate data server" for multimedia content. Ex. 1007, Fig. 6,

1:28-2:25, 7:9-14; *see also*, Ex. 1001, Fig. 1, 3:53-4:11 (describing GPRS). Thus, this argument fails.

### **VIII. THE PETITION ESTABLISHES THE OBVIOUSNESS OF EVERY DEPENDENT CLAIM**

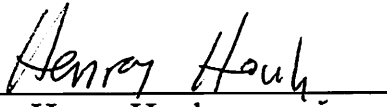
31. The POR's only arguments for the dependent claims are based on (1) its arguments for the independent claims, and (2) its claim construction argument that the "opening a second listening software port" limitation in dependent claims 2, 9 and 16 requires that this step be performed only after the port recited in the independent claims has been opened. POR, 21. Both of these arguments are wrong for the reasons discussed above.

### **IX. CONCLUSION**

32. I may utilize the documents cited and/or listed herein, or portions of those documents, as exhibits at any hearing or trial in this proceeding. I may further prepare and use exhibits that summarize portions of my testimony or key terms or concepts presented therein, or other demonstrative exhibits, at any hearing or trial in this proceeding.

33. I reserve the right to supplement my testimony and this report in response to any judicial determinations, in response to the arguments expressed by Uniloc or the opinions of Uniloc's experts in this proceeding, and/or in light of additional evidence or testimony brought forth at trial or otherwise brought to my attention after the date of my signature below.

34. I hereby declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct, and that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I understand that willful false statements are punishable by fine or imprisonment or both. *See* 18 U.S.C. § 1004.

  
Dr. Henry Houh  
January 29, 2020