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**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before the Honorable Thomas J. Pender
Administrative Law Judge**

In the Matter of

**CERTAIN WIRELESS
COMMUNICATION DEVICES,
PORTABLE MUSIC AND DATA
PROCESSING DATA DEVICES,
COMPUTERS AND COMPONENTS
THEREOF**

Investigation No. 337-TA-745

**RESPONDENT APPLE INC.'S RESPONSE TO THE COMMISSION'S
REQUEST FOR WRITTEN SUBMISSIONS**

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TABLE OF ABBREVIATIONS

CDX	Complainant’s Demonstrative Exhibit
CPX	Complainant’s Physical Exhibit
CPreHB	Complainant’s Pre-Hearing Brief
CPostHB	Complainant’s Post-Hearing Brief
CPet.	Complainant’s Petition for Review
CX	Complainant’s Exhibit
Dep.	Deposition
DWS	Direct Witness Statement
FH	File History
JX	Joint Exhibit
PTO	United States Patent and Trademark Office
RPreHB	Respondent’s Pre-Hearing Brief
RPostHB	Respondent’s Post-Hearing Brief
RDX	Respondent’s Demonstrative Exhibit
RPX	Respondent’s Physical Exhibit
RPet.	Respondent’s Petition for Review
RWS	Rebuttal Witness Statement
RX	Respondent’s Exhibit
Tr.	Transcript of Pre-Hearing Conference and Hearing
WS	Witness Statement

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Respondent Apple Inc. (“Apple”) respectfully submits this written submission in response to the thirteen enumerated questions and the issues of remedy and the public interest identified by the Commission in its June 25, 2012 Notice of Commission Decision to Review in Part a Final Initial Determination Finding a Violation of Section 337; Request for Written Submissions. Apple also submits the attached statements on remedy and the public interest from Dr. Michael Walker, the Head of School for Natural and Mathematical Sciences at King’s College London, Dr. Jerry Hausman, a professor of economics at the Massachusetts Institute of Technology, and Dr. Dennis Carlton, a professor of economics at the University of Chicago.

I. “Selected Chip Times” in the ’697 Patent

Question 1: *Does the description of the present invention in the specification of the ’697 patent (e.g., at col. 4, lns. 54-64) limit the scope of claim 1 to a $\pi/2$ BPSK modulation scheme at “selected chip times?” If so, does this restriction in the scope of claim 1 affect the validity of claim 4 under 35 U.S.C. § 112, ¶4, where claim 4 is also limited to a $\pi/2$ BPSK modulation scheme at “selected chip times?”*

With respect to U.S. Pat. No. 6,246,697 (“the ’697 patent”), the Commission requested further briefing regarding whether the description of the “present invention” in the specification limits the scope of claim 1 to a method that behaves like a $\pi/2$ BPSK modulation scheme at “selected chip times” and, if so, whether this affects the validity of claim 4 under 35 U.S.C. §112, ¶4, which is also limited to a method behaving like $\pi/2$ BPSK modulation at “selected chip times”

As noted by the Commission, the specification explains that:

Those persons skilled in the art should recognize that the spreading scheme that uses the complex PN generator of the present invention is neither a QPSK spreading scheme nor a $\pi/2$ BPSK spreading scheme; the spreading scheme produced by using the present invention is a hybrid wherein selected chip times behave like a $\pi/2$ BPSK spreading scheme and the remaining chip times behave like a QPSK spreading scheme. This hybrid spreading scheme avoids the low interference rejection of the $\pi/2$ BPSK spreading and avoids the high peak-to-average ratio of the QPSK spreading.

JX-4 ('697 patent) at col. 4, ll. 54-64.

This language describes attributes of **the present invention**, rather than an exemplary embodiment of the invention. The Federal Circuit has made clear that such descriptions operate to limit the scope of claims. *See, e.g., SciMed v. Advanced Cardiovascular Systems*, 242 F.3d 1337 (Fed. Cir. 2001) (affirming interpretation of claims reciting “separate” inflation and guide wire lumens as being limited to “coaxial lumen structures having annular inflation lumens.”); *Biogen v. Berlex*, 318 F.3d 1132 (Fed. Cir. 2003) (holding that, where only one embodiment was disclosed, statements in the application, which described the invention as using a particular marker gene, limited infringement to protein production processes that also used the gene, even though the gene was not recited in the claims); *Honeywell v. I.T.T.*, 452 F.3d 1312 (Fed. Cir. 2006) (“On at least four occasions, the written description refers to the fuel filter as ‘this invention’ or ‘the present invention’ Moreover, the written description does not indicate that a fuel filter is merely [an] . . . embodiment of the claimed invention. . . . Given the written description’s disclosure, we conclude that the patentee has limited the scope of the ’879 patent claims to a fuel filter.”).

Thus, as the Commission suggests, the specification limits the inventions of each of the claims in the ’697 patent to a hybrid spreading scheme that at “selected chip times behave[s] like a $\pi/2$ BPSK spreading scheme and the remaining chip times behave like a QPSK spreading scheme.” **JX-4** [’697 patent] at 4:59-61. Accordingly, the asserted claims of the ’697 patent (claims 1-4) are invalid as obvious over the prior art $\pi/2$ BPSK and QPSK modulation schemes. As Apple explained in its post-trial briefing, the claimed inventions behave like $\pi/2$ BPSK at selected chip times and like QPSK at other chip times renders all of the asserted claims of the ’697 patent (claims 1-4) invalid as obvious. RPostHB at 138-140. The ’697 patent itself as

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well as both Apple's expert (Mr. Lanning) and Motorola's expert (Dr. Kenney) acknowledge that the advantages and disadvantages of $\pi/2$ BPSK and QPSK modulation were well known in the art long before the filing date of the application leading to the '697 patent. **JX-4** ['697 patent] at col. 2, lns. 29-37; **RX-1286C.083** [Lanning DWS] at Q.245; **CX-2700C** [Kenney RWS] at Q.50; Tr. [Kenney] at 1923:10-1925:16. Specifically, a known advantage of $\pi/2$ BPSK was superior (*i.e.*, reduced) peak-to-average signal ratios and a known disadvantage of $\pi/2$ BPSK was inferior rejection of noise from other users, whereas a known advantage of QPSK was superior noise rejection and a known disadvantage was inferior (increased) peak-to-average signal ratios. *Id.* Because the known advantages and disadvantages of $\pi/2$ BPSK and QPSK are complementary in that they balance each other out, it would thus have been obvious to one of ordinary skill that the high peak-to-average ratio disadvantage of QPSK modulation could be mitigated by using $\pi/2$ BPSK modulation at selected chip times and the low interference rejection disadvantage of $\pi/2$ BPSK could be mitigated by using QPSK modulation at the other, unselected, chip times.

However, as the Commission correctly notes in its Question No. 1, there is an additional, independent reason why claim 4 may be invalid. Specifically, the portion of the specification cited by the Commission in Question No. 1 makes clear that claim 4 adds no further limitations to independent claim 1, upon which it depends, when the preselected phase angle in claim 1 is limited to $\pm 90^\circ$, as discussed above.

Claim 1 recites:

1. A method in a wireless communication system for generating a complex pseudonoise (PN) sequence for processing a code division multiple access signal, the method comprising the steps of:

selecting a chip time in a complex PN sequence generator; and

at each selected chip time, **restricting a phase difference between a previous complex PN chip and a next complex PN chip to a preselected phase angle.**

Claim 4 recites:

4. The method for generating a complex pseudonoise sequence according to claim 1 wherein the step of restricting a phase difference between a previous complex PN chip and a next complex PN chip to a preselected phase angle further includes restricting a phase difference between a previous complex PN chip and a next complex PN chip to 90°.

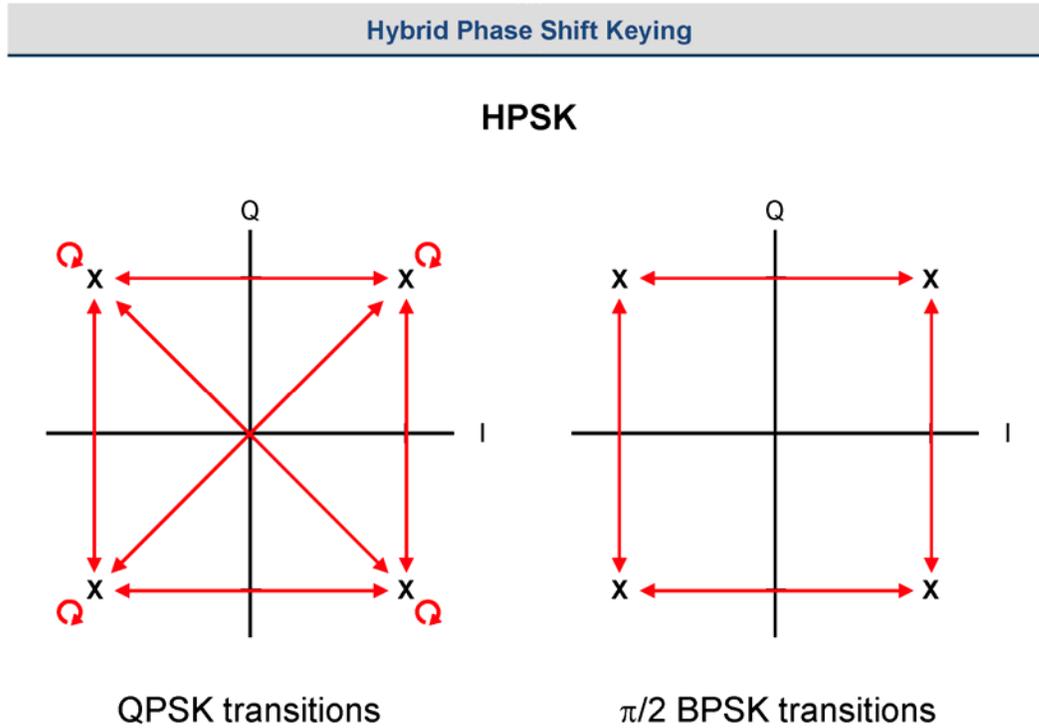
The private parties' proposed construction for the term "preselected phase angle," which is a limitation in claim 1 that appears again in claim 4, are set forth below:

Motorola	Apple
restricting an angle between two consecutive complex PN chips to a preselected phase angle	at the selected chip time, the next complex PN chip is limited to a predetermined phase transition

Final ID at 100. Although these constructions are facially similar, there is an important difference: Under Motorola's construction, the preselected phase angle refers to the magnitude of the angle only, and the limitation would cover angles with a given magnitude but would include both positive and negative signs (*i.e.*, the phase transition could be clockwise or counter-clockwise). CPostHB at 80-82. Under Apple's proposed construction, the preselected phase angle is defined in terms a predetermined phase transition, which would include both a predetermined magnitude and a predetermined sign. RPostHB at 127-128, RRPostHB at 46-47, CPostHB at 80-82, CRpostHB at 34-35. Thus, with respect to claim 4, Motorola contends that the restriction of the phase difference is limited to $\pm 90^\circ$, rather than only $+90^\circ$. CPostHB at 87. The Final ID adopted Motorola's construction. Final ID at 101-103.

It is undisputed that $\pi/2$ BPSK modulation restricts the phase difference between consecutive PN chips to $\pm 90^\circ$. RPostHB at 122; CPostHB at 75; **CX-2685C** [Kenny DWS] at

Qs. 52-53 and CDX 2.12. In contrast, QPSK modulation permits transitions of 0° , $\pm 90^\circ$, and 180° . This distinction is depicted in Dr. Kenny's illustrative CDX 2.14:



CDX-2.14

Thus, under Motorola's and the Final ID's construction of "preselected phase angle," claim 4 adds nothing to claim 1 where the restricted phase differences are already limited to the $\pi/2$ BPSK differences of $\pm 90^\circ$, and therefore violates 35 U.S.C. §112, ¶4 and is accordingly invalid. *Pfizer Inc. v. Ranbaxy Labs.*, 457 F.3d 1284, 1291-1292 (Fed. Cir. 2006) (violation of § 112, ¶ 4 renders claim invalid). However, as discussed below, under the doctrine of claim differentiation, the validity of claim 4 should be preserved by adopting Apple's proposed construction for "preselected phase angle."

II. Claim Differentiation in the '697 Patent

Question 2: *If claim 4 of the '697 patent is not invalid under 35 U.S.C. § 112, ¶ 4, can a claim differentiation argument be made with respect to claims 1 and 4 that would resolve the appropriate scope of claim 1, considering the description of the present invention in the specification of the '697 patent?*

The Commission also requested briefing on whether a claim differentiation argument can be made with respect to claims 1 and 4 that would resolve the appropriate scope of claim 1.

Claim differentiation is a claim construction doctrine that presumes that two claims in the same patent will not have the same scope and therefore that claims should, if consistent with the claim language and specification, be interpreted to have different scope. *See, e.g., Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) (“the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.”) (citations omitted); *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1348 (Fed. Cir. 2012) (“If ‘magnetic member’ meant magnet, new claim 35 would be entirely duplicative of amended claim 23. That result would be at odds with the ordinary principles of claim differentiation”).

Motorola agrees that claims should be interpreted to preserve their validity – indeed, it devotes an entire sub-section of the '697 patent portion of its Post-Hearing Brief to that proposition, albeit with respect to a different claim term:

[T]he Federal Circuit instructs that ambiguity in claims should be construed to preserve the claims' validity unless the intrinsic evidence compels the invalidating construction. *See Omega Eng'g. Inc. v. Raytek Corp.*, 334 F.3d 1314, 1335 n.6 (Fed. Cir. 2003) (“We note that the district court’s claim construction inevitably required the invalidation of claims . . . in contradiction to the canon that courts should attempt to construe claims to preserve their validity. Since the intrinsic evidence did not compel the invalidating construction, the district court thus erred.

CPostHB at 94.

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Here, as discussed in Apple's Response to Commission Question No. 1, above, Motorola's and the Final ID's construction of "preselected phase angle" inevitably requires the invalidation of claim 4 under 35 U.S.C. §112, ¶4. Moreover, the intrinsic evidence does not compel Motorola's and the Final ID's construction. RRPostHB at 47.

Under Apple's proposed construction, in contrast, claim 4 need not be invalid under 35 U.S.C. §112, ¶4. Claim 1 requires that the phase difference between consecutive chip times at selected chip times to be restricted to a pre-selected phase angle, and claim 4 specifies that that angle is $+90^\circ$. As discussed above, $\pi/2$ BPSK modulation restricts phase differences between consecutive chip times to $\pm 90^\circ$. So under Apple's construction, the selected chip times for claim 1 are either those when $\pi/2$ BPSK modulation restricts the phase difference between consecutive chip times to $+90^\circ$ or those when $\pi/2$ BPSK modulation restricts the phase difference between consecutive chip times to -90° (but not both) and the selected chip times for claim 4 are only those chip times when the $\pi/2$ BPSK modulation restricts the phase differences between consecutive chip times to be $+90^\circ$. The asserted claims impose limitations about what restrictions apply at selected chip times (so, for example, the $+90^\circ$ restriction of $\pi/2$ BPSK can be imposed) but are silent about what restrictions, if any, are imposed on unselected chip times. QPSK modulation allows transitions of $0, \pm 90^\circ$, or 180° , which includes the -90° restriction of $\pi/2$ BPSK. Accordingly, Apple's proposed construction is consistent with the specification's description that the spreading scheme is a hybrid of $\pi/2$ BPSK and QPSK. **JX-4** ['697 patent] at col.4, ll.57-61.

Apple's proposed construction preserves the validity of claim 4. Under that construction there is no infringement of claims 1-4 and no domestic industry by Motorola (because there is no single preselected phase angle (magnitude and sign) at selected chip times in the accused Apple

devices or under the UMTS standard; thus there is no violation of section 337 with respect to the '697 Patent. RPostHB at 131-134.

III. The “Currently Available” Limitation in the '333 Patent

Question 3: *With respect to the '333 patent, does the limitation “currently available” in claim 12 require that a non-web based software application need only be installed on a subscriber unit or does the software application have to be both installed and enabled for use? In discussing this issue, please refer to the ALJ’s finding that the '333 Accused Products do not communicate with Apple’s servers regarding changes in user credentials (see Final ID at 254). Also, please provide citations to the record in support of any arguments.*

With respect to U.S. Pat. No. 6,272,333 (“the '333 patent”), the Commission requested further briefing on the discrete issue of whether the “currently available” limitation of Claim 12 requires that a non-web based software application need only be installed on a subscriber unit or that such a software application must be both installed and enabled for use.¹ The relevant claim language refers to software applications that are “currently accessible to the subscriber unit” and to “a change in accessibility of an application.” Apple submits that “currently accessible” means that the software application is both installed and enabled for use by the subscriber unit.

Apple’s view is consistent with the stated goal of the '333 patent “not to send data to a subscriber unit that the subscriber unit cannot utilize.” **JX-2.7** ['333 patent] at col.1, ll. 27-29; *see also id.* at col.1, ll.54-58 (disclosing “sending the data only when the checking step determines that an application compatible with the data is accessible to the subscriber unit”); **JX-2.8** ['333 patent] at col.4, ll.36-44 (disclosing that the fixed portion of the communication system checks its copy of the application registry so it can “send the data only when the current copy **324** of the application registry indicates that an application compatible with the data is accessible

¹ Apple understands the phrase “non-web based software application” to refer to a software application that is not a “webapp.”

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to the subscriber unit **122** for which the data is intended”). If a software application is not enabled for use, it would waste network resources to send the subscriber unit data for that software application

The ALJ’s finding that the ’333 Accused Products do not communicate with Apple’s servers regarding changes in user credentials, *see* Final ID at 254, relates to software applications that require a subscription for access to content or enhanced content. Apple’s expert, Dr. Brian Noble, opined that the Accused Products do not infringe Claim 12 because there are no updates to any of the accused application registries or communications with any Apple server when a user’s subscription or login credentials expire (*e.g.*, for the Netflix app or the Facebook app), even though that would be “a change in accessibility” because without valid credentials, such a software application would no longer be accessible to the subscriber unit. **RX-1289C.32** [Noble DWS] at Q.67. Motorola’s expert, Dr. Vijay Madiseti admitted that some applications—such as the New York Times app or the Wall Street Journal app—require a subscription to access certain content, but he testified that activating a subscription “is not a change in accessibility. It is a change from whether it is accessible to currently accessible.” **Tr.** [Madiseti] at 992:19-24; 994:21-23. Dr. Madiseti’s distinction between “accessible” and “currently accessible” is not only nonsensical, it is inconsistent with Motorola’s proposed construction that the claimed application registry must include “a list of all software applications that are available for present use on the device by the subscriber.” *See* **CX-2689C** [Madiseti DWS] at Q. 252 (emphasis added); **CDX-3.105** (same). As such, his interpretation was properly rejected by the ALJ. *See* Final ID at 252.

To the extent that Question 3 was also directed at hidden applications, Apple respectfully submits that a software application remains enabled (and therefore “currently accessible to the

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subscriber unit”) even when it is hidden. As the ALJ correctly found, “the operator of the subscriber unit need only enter a password to utilize these applications and another command to make them appear.” See Final ID at 252. Notably, Claim 12 recites the language “currently accessible to *the subscriber unit*,” not “currently accessible to *the user*.” Thus, the fact that a child cannot access certain applications hidden by his or her parent does not mean they are no longer “currently accessible;” on the contrary, the parent who knows the four-digit passcode can easily remove the restriction by reentering the passcode. See **CX-132.196** [iPhone User Guide]; **RX-1077C.122** [iPad User Guide]. This means that such applications are very much “currently accessible to the subscriber unit,” whereas in the case of an expired login credential (discussed above), such an application is not “currently accessible” and there is nothing that can be done at the subscriber unit to change that fact. Assuming that hidden applications are “currently accessible,” the ’333 Accused Products do not infringe Claim 12 because Dr. Madisetti conceded that hidden applications do not appear on the home screen. **Tr.** [Madisetti] at 953:10-954:5. Specifically, under Motorola’s theory that the home screen is the claimed application registry, the home screen does not include “all software applications that are currently accessible to the subscriber unit” because hidden applications are currently accessible, yet missing the home screen. **RX-1289C.23-24, .27-28** [Noble DWS] at Q.53 & Q.61.

Conversely, even if hidden applications are not “currently accessible,” the ’333 Accused Products still do not infringe Claim 12, but for different reasons. As Dr. Noble explained, if a restricted application is not “currently accessible,” then changing whether an application is hidden would be a “change in accessibility” that must trigger (1) an update to the application registry and (2) a communication of the change to the fixed portion of the communication system. **RX-1289C.23-24** [Noble DWS] at Q.53. Yet, neither limitation of Claim 12 is met

IV. Switching Away from Standardized Technology

Question 4: *With regard to the '697 and '223 patents, are there substantial costs and delays associated with switching away from the standardized technology in question?*

With respect to the '697 patent and U.S. Pat. No. 5,636,223 (“the '223 patent”), the Commission requested further briefing as to whether there would be substantial costs and delays associated with switching away from the standardized technology in question. As discussed in detail below, Apple submits that switching away from either standardized technology would involve substantial costs and delays. Switching away from the standardized technology allegedly covered by the '697 patent would render the cellular functionality in the existing hardware inoperable with the new standard, while modifying the infrastructure to accommodate both standards would be extraordinarily expensive. Likewise, switching away from the Quality of Service feature in the IEEE 802.11n standard allegedly covered by the '223 patent would involve substantial costs to modify applications, wireless devices, and access points. In both cases, upgrading existing equipment would (i) be cost-prohibitive; (ii) involve the coordinated actions of many, many parties; and (iii) take years—especially since these are worldwide standards. Moreover, these design-around efforts would come at the expense of investments in next generation technologies.²

² Because Question 4 directly relates to the public interest, Apple is providing additional evidence to enable the Commission to review a more developed record on public interest issues.

A. **The '697 Patent**

1. **Background**

Motorola alleges the iPhone 3G, iPhone 4, iPad 3G, and iPad 2 3G (UMTS) infringe claims 1-4 of the '697 patent. The asserted claims of the '697 patent are directed to a specific method for generating a complex pseudo-noise (PN) code that minimizes certain undesirable properties in the standard QPSK modulation. **RX-1286C** [Lanning DWS] at Q.242. PN codes have been known for many years as well as methods for minimizing the undesirable properties associated with transitions within PN codes. *Id.* at Q.244-45. The '697 patent discloses that the alleged invention is the generation of a complex PN code having fewer undesirable properties. *Id.* at Q.242. Motorola accuses the generation of the long scrambling PN code in the UMTS standard. **RX-1290C** [Lanning RWS] at Q.329.

a. **UMTS Cellular System**

UMTS is a third-generation (3G) technology developed by the 3rd Generation Partnership Project (3GPP) that allows handsets and other cellular devices using baseband chips from multiple vendors to interoperate with base station equipment from multiple vendors. It was designed to coexist and add to the existing GSM/GPRS/EDGE standards (referred to as 2.5G) to provide higher data rates and better bandwidth efficiency. **Ex. 1** [<http://www.3gpp.org/article/w-cdma>]. Technical specifications are developed by 3GPP through industry members of telecommunications standards bodies known as Organizational Partners.³ Development of the UMTS standard began in 1998. **Ex. 2**

³ The 3GPP Organization Partners are ARIB (the Association of Radio Industries and Businesses, Japan), ATIS (the Alliance for Telecommunications Industry Solutions USA), CCSA (China Communications Standards Association), ETSI (European Telecommunications Standards Institute), TTA (Telecommunications Technology Association, Korea), and TTC (Telecommunications Technology Committee, Japan). **Ex. 3** [<http://www.3gpp.org/Partners>].

[<http://www.3gpp.org/article/umts>]. Since then, the UMTS standard has continued to evolve with near annual releases. **Ex. 4** [<http://www.3gpp.org/releases>]. The intentional coexistence of 2.5G and 3G standards, *see* **Ex. 5** [<http://www.3gpp.org/About-3GPP>], allows operators to upgrade to the 3G standard infrastructure in phases and users to gradually upgrade to 3G handsets. Consistent with this practice, the UMTS standard was designed to be backward compatible with the GSM standard. **Ex. 6** [<http://www.3gpp.org/article/w-cdma>]. Indeed, the UMTS standard requires the use of 2.5G communications when 3G service is not available. *See* **Ex. XX** [TS 25.215] at 5.1.4. .

The UMTS standard has been adopted in many countries, including the United States. *See* **Ex. 7** [http://www.gsacom.com//downloads/charts/HSDPA_deployments_world_map.php4]. This worldwide adoption allows user equipment to be designed for multiple countries. *See* **Ex. 8** [<http://support.apple.com/kb/HT1807>].

The UMTS standard defines the communications protocols between users and a network of base stations. **RDX-2-5**. Each base station supports many users through multiple communication channels. **RDX-2-6**. There are technical specifications directed to different parts of the cellular system. For example the 25 Series is a collection of hundreds of technical specifications for the radio aspects of the UMTS standard. **Ex. 1** [<http://www.3gpp.org/article/w-cdma>]. Other series describe aspects of the earlier 2G GSM standards. **Ex. 9** [<http://www.3gpp.org/article/gprs-edge>].

A UMTS cellular system consists of user equipment (*e.g.*, subscriber devices like cell phones, smart phones, computer tablets, and other data receiving devices)⁴ communicating with

⁴ Other uses include user equipment to transmit vital statistics from ambulances to hospitals, communicate with home security monitoring, to provide military communication, and to provide border patrol surveillance.

base stations. **RDX-2-5**. These base stations are distributed across the country to provide a network of cellular service. UMTS communication devices are currently very popular throughout the world, with over 1 billion subscribers as of January 2012. **Ex. 10** [<http://www.itu.int/ITU-D/ict/newslog/3GUMTS+Mobile+Subscriber+Base+Passes+One+Billion+Landmark.aspx>]; *see also* **Ex. 11** [<http://www.gsacom.com//downloads/charts/WCDMA%20subs%20growth%20in%20new%20markets.php4>]. Apple alone has sold more than 75 million UMTS iPhones and iPads. **Ex. 12** [Napper, Ex. 13 from WI case].

b. Accused Functionality of the UMTS Standard

UMTS is based on Code Division Multiple Access (CDMA). A CDMA-based system uses codes to create specific channels of data and other codes to identify users and base stations. **RDX-2-9; RX-1290C** [Lanning RWS] at Q.309, 312-313. One such type of code is a pseudo-noise code (PN code), which is a sequence of 0s and 1s that appears noise-like to other devices (hence the name), which serves to reduce interference with other transmissions, and allows only those receivers that know the code to recover the coded message. **RDX-2-9**.

As discussed above, the '697 patent is directed to a specific method of creating a PN code that minimizes certain undesirable properties in QPSK modulation. Motorola accuses certain aspects of the generation of the long scrambling PN code (C_{long}). Specifically, Motorola maps the selecting and restricting steps required by the asserted claims to the formula for generating the long scrambling code. **RX-241** [25.213] at 4.3.2.2.

$$C_{long,n}(i) = c_{long,1,n}(i) \left(1 + j(-1)^i c_{long,2,n}(2\lfloor i/2 \rfloor) \right)$$

This accused functionality is used by the baseband processor in the accused products. *See* **RX-1290C** [Lanning RWS] at Q.354.

The long scrambling PN code is used in a UMTS transmitting device to encode data and in a receiving device to recover the data. **Ex. 1** [<http://www.3gpp.org/article/w-cdma>]. If the transmitting and receiving devices are not using the same long scrambling PN code, the original data cannot be recovered.

2. **Alternative Existing U.S. Cellular Technologies**

The industry cannot switch to one of the existing earlier-developed cellular systems. While theoretically possible to disable 3G, 2.5G cellular systems can have significantly slower data rates and are not as efficient. **Exs. 9** [<http://www.3gpp.org/article/gprs-edge>], **1** [<http://www.3gpp.org/article/w-cdma>], **13** [<http://www.3gpp.org/HSPA>]. Reverting to an older technology with slower data rates and lower network capacity would not provide the same service, especially since mobile data surpassed mobile voice communications in 2009. **Ex. 14** [<http://www.ericsson.com/thecompany/press/releases/2010/03/1396928>].

Even switching to the alternative 3G cellular standard not an option, as Motorola has declared that the '697 patent is also essential to the CDMA2000 standard.⁵ *See Ex. 15* [O'Hara Ex. 8 –TIA statement] at 3. This is not a coincidence. The industry sought to harmonize aspects of the two cellular systems, so the same proposal was adopted for both standards. **Ex. 16** [MOTO-APPLE-0006200362_013292] at 1; **Ex. 17** [MOTO-APPLE-0006200362_013422] at 3. However, these harmonization efforts instead resulted in lock-in across multiple cellular standards. *See RX-408C.001* [Laird Article] at 1 (describing how the inventors' proposal was submitted for multiple standards). Therefore, CDMA2000 too would have to be redesigned to

⁵ Motorola has agreed that Apple's CDMA2000 cellular devices, which operate on Verizon's cellular network, are not accused in this Investigation. This is likely to avoid litigating a dispute over whether Apple's CDMA2000 baseband chip provider (Qualcomm) has a license to the '697 patent, an issue being litigated in another forum. *See Apple Inc. v. Motorola Mobility, Inc.*, No.: 3:12-cv-00355-DMS-BLM (S.D. Cal. Filed Feb. 10, 2012).

avoid infringement of the '697 patent. Also, switching from UMTS to CDMA2000 would eliminate a competing standard that is implemented worldwide.

Finally, the industry cannot switch to the new 4th generation (4G) LTE cellular technology. Like the 3G standards, the LTE devices are backwards-compatible with 3G technology as specified in the 4G standard to provide service when 4G service is not available, so the UMTS standard would need to be modified anyway. *See* **Ex. 18** [TS 36.214] at 5.1.4, 5.1.5, 5.1.7. In any event, switching to a next generation 4G LTE cellular system would not be possible for a number of years. LTE service is still in its infancy and the infrastructure is not ready to handle all current UMTS users.⁶ It is estimated that it will take years to build the LTE infrastructure.⁷ A premature switch to LTE would also be costly because it would deprive the industry of a reasonable return on its investment in 3G technology, which was anticipated to continue for a number of years.⁸ Moreover, millions of users would be forced to upgrade to LTE equipment.

3. **Switching to New Technology Would Require Significant Cost and Delays**

Cellular technologies worldwide are and would be governed by standards due to the high sunk costs in infrastructure and high number of user devices. To switch from the accused

⁶ *See* Verizon map showing 4G coverage in only 300 cities (which is likely not in all areas of those cities). **Ex. 19** [<http://network4g.verizonwireless.com/#!/coverage>]. This is consistent with the transition from 2.5G to 3G, which ramped up over a period of years. **Ex. 20** [UMTS Forum Report 44] at Figure 9, p. 25.

⁷ One organization is forecasting that the LTE subscriber base will only be 13% by 2015. **Ex. 20** [UMTS Forum Report 44] at p. 34.

⁸ One organization anticipates investments in 3G advancements will coexist for five to ten years due to the investment in 3G infrastructure and device penetration. **Ex. 21** [<http://www.4gamerica.org/documents/HSPA+LTE%20Carrier%20Aggregation%2006.26.12.pdf>] at 3.

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technology, the industry would need to develop a new standard. The '697 patent is directed to a narrow aspect of the UMTS standard (generating the long scrambling PN code), as discussed above. It may be possible to change only the method for generating the long scrambling code while keeping the rest of the UMTS standard intact. Indeed, that is why granting an exclusion order here is so objectionable – there are functional long scrambling PN code alternatives available, but these alternatives are not viable given the lock-in effect of standardization. Hardware based on a revised UMTS standard would not be able to communicate with existing equipment because the long scrambling PN codes in those devices would not be the same. No matter what modification is made, substantial costs and delays will be necessary because either all existing UMTS hardware would need to be updated to comply with the new standard, or all base stations would need to be updated to communicate with hardware compliant with both the new and old standards.

The process of switching to a new technology would initially involve 3GPP deciding to modify the standard. As part of that process, Apple would need to develop and present a proposal to the RAN working group charged with the relevant specification.⁹ The proposal would need to provide more than an alternative to the existing long scrambling code since it would involve a change to the baseband hardware. Indeed, it would likely need to show significant benefits—much more so than an alternative proposal at the time of the original specification—because of the hardware change.

As discussed above, 3GPP is made up of industry members of standards setting organizations throughout the world. These entities must all agree to cease using the current

⁹ Since Apple does not develop the baseband chip, it would likely need to partner with a baseband chip designer to develop the proposal.

standard and develop a new standard. **Ex. 3** [<http://www.3gpp.org/Partners>]. It may be difficult to convince the industry that a modification to the long scrambling code is necessary, especially since the primary purpose of the modification would be to avoid patented technology rather than improving performance or cost savings. *See Ex. 32* [<http://www.3gpp.org/change-requests>]. Indeed, unless it met the reasons for change requests: “Add a new feature; Correct / clarify / enhance an existing feature of a Release still under development; or Correct an error in a spec which is functionally frozen” it likely would not be successful. *See id.*

Reaching an agreement to modify the standard may be even more problematic since the industry harmonized the PN code generation across multiple standards, each of which would need to be modified. Even if such an agreement to change the standard were reached, the new proposal would need to be debated and refined in the relevant working group at 3GPP meetings. This process continues until it is adopted and made part of a new release. *See Ex. 22* [http://www.3gpp.org/ftp/Inbox/2008_web_files/The_change_control_cycle.ppt]. The proposal would then be submitted to the relevant standards setting entity or entities. *Id.*

Because the accused technology is implemented in hardware, baseband chips for user equipment and base stations would then need to be modified to comply with the new standard. This means that the chip manufacturers would need to develop new hardware designs, which would then go through testing and any approval process (*e.g.*, FCC) before these new chips could be incorporated into UMTS devices. Once the new chips are developed, UMTS user equipment manufacturers would need to design equipment to make the new chips and pass any certification processes to show compliant with the new standard. Also, base station hardware (including private base stations in houses or businesses that are not maintained by a carrier) would need to be updated to communicate using the new standard.

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However, requiring the industry to update all existing equipment would not be commercially feasible—especially given the amount of time that has transpired after the standard was adopted. While it is possible to enforce a cutoff date by which old UMTS technology is no longer supported, modifying the hundreds of millions of user devices,¹⁰ not to mention the infrastructure that would need to be upgraded by the carriers,¹¹ would be commercially cost-prohibitive and would deprive users and businesses of 3G cellular functionality (including emergency call capabilities) in the meantime waiting for upgrades. At best, users would be forced to use the slower 2.5G technology until new user equipment and base station infrastructure becomes available. Additionally, users would be deprived of the unaccused technology provided by the accused devices until the new technology is developed and incorporated.

Even requiring only new user equipment to be compliant with the newly adopted standard would be extremely costly and would take a significant amount of time to implement. In addition to the costs and delays to develop the new standard and new user equipment, the

¹⁰ Even if it were possible to replace just the baseband chip, the hardware alone would cost more than \$1 billion

¹¹ To maintain the existing capacity, all W-CDMA infrastructure hardware (including personal base stations not maintained by a carrier) would need to be upgraded. This would require a field engineer to upgrade or replace channels in every base station throughout the U.S. (and the other W-CDMA base stations worldwide if hardware compatibility is to be maintained). An estimate from 2011 found more than 2.3 million private (known as femtocells) and 1.6 million macro 3G base stations worldwide. **Ex. 23** [<http://www.telecoms.com/29922/3g-femtocells-outnumber-conventional-3g-basestations/>]. Femtocell base stations will need to be taken into the carrier for upgrade or replacement since they are unlikely upgradable by users who own them. These units can cost \$249, so they would be expensive if they needed to be replaced rather than modified. **Ex. 24** [<http://www.verizonwireless.com/verizon-network-extender.shtml>].

development of a new standard may be further delayed because it must be designed to coexist with the old UMTS standard (and the existing CDMA2000 standard) until existing equipment is phased out. Also, requiring only new user equipment to comply with the new standard does not alleviate the need to modify or replace potentially millions of base stations worldwide so that the base stations can communicate with the new equipment. Modifying the base stations to communicate with the new standard would not only be extremely expensive, it would take significant time. One estimate for deployment of an LTE system by one operator was 2 billion euros in a country with 50 million people. **Ex. 25** [<http://www.globaltelecomsbusiness.com/Article/2746206/Upgrading-to-LTE-will-be-cheaper-than-3G.html>]. All of this would stifle efforts to develop the 3G and 4G standards and delay investments in 4G LTE technology. And, the additional cost of switching to a new technology years after the 3G standard was developed would be passed on to the consumer through handset makers, chip manufacturers, and carriers rather than the true value of the '697 patent.

In short, given the massive expenditures made in developing and deploying 3G-compliant devices and infrastructure – precisely the expenditures the standardization process and FRAND commitments are designed to encourage – it is highly unlikely there will be any “switching away from the standardized technology in question.”

B. The '223 Patent

1. Background

The IEEE 802.11 standard is used around the world that allows wireless chips from multiple vendors in a wide variety of products to communicate with each other and with access points to wired networks from a variety of vendors. **Ex. 26** [<http://standards.ieee.org/news/2012/802.11-2012.html>]. The IEEE 802.11 standard defines

protocols for communicating wirelessly on a local area network. **RX-1290C** [Lanning RWS] at Q.34. Multiple devices can communicate with each other or with an access point (the hardware that allows a wireless device to connect to a wired network). *Id.*

Amendments to the IEEE 802.11 standard typically include a collection of modifications that are published as a single amendment. **Ex. 26** [<http://standards.ieee.org/news/2012/802.11-2012.html>]. From time to time, the amendments are incorporated into the IEEE 802.11 standard. *Id.* For example, the IEEE 802.11e and other amendments were incorporated into IEEE 802.11-2007 version of the IEEE 802.11 standard. *See* **RX-936.0006** [IEEE 802.11-2007]. Motorola alleges that the '223 patent broadly covers the selection of random delays based on priority of the message to be transmitted. **CX-2680C** [Almeroth DWS] at Q.66. In particular, Motorola asserts that the IEEE 802.11 Enhanced Data Channel Access (EDCA) functionality, sometimes referred to as Quality of Service (QoS), infringes claim 1 of the '223 patent. *Id.* at Q.106.

The accused EDCA/QoS technology was first added to the IEEE 802.11 standard in 2005 in an amendment referred to as IEEE 802.11e.¹³ **RX-935** [IEEE 802.11e Part 11]. Due to delays in approving this amendment that began development in 1999, an earlier version of the QoS functionality was released by WMM in 2003. **RX-1290C** [Lanning RWS] at Q.31; **CX-125** [Wi-Fi Certified for WMM] at MOTO-APPLE-0005218024.

The EDCA/QoS functionality is a narrow aspect of the IEEE 802.11 protocol. *Id.* at Q.33. Generally speaking, the EDCA/QoS functionality is one of the channel access protocols for managing what data will be transmitted over the air by a particular device and what priorities

¹³ The current EDCA/QoS functionality in the IEEE 802.11 standard is specified by the IEEE 802.11-2007 standard as amended by IEEE 802.11n.

data will be given relative to other types of data when the functionality is used. *Id.* at Q.36. In 2009, IEEE 802.11n added a requirement that IEEE 802.11 compliant devices must include EDCA/QoS capability. **CX-2680C** [Almeroth DWS] at Q.31.

Significantly, the EDCA/QoS protocol is not required for standard wireless communication. In other words, an application must choose to use EDCA. **RX-1290C** [Lanning RWS] at Q.36, 80. The EDCA functionality is only implemented 1) by a transmitting device that supports IEEE 802.11 EDCA functionality 2) when it is in communication with an access point that supports IEEE 802.11 EDCA functionality and 3) when a data packet for transmission has been identified as an EDCA data packet and assigned an access category (*e.g.*, by an application in the transmitting device). *Id.* at Q.80, 247. When these conditions are met, the EDCA protocol is implemented by the IEEE 802.11 chip and associated firmware in the transmitting device. *Id.* at Q.145. Even Motorola does not allege that a significant number of applications use the EDCA/QoS functionality—in fact it failed to identify a single Motorola application that used it on its alleged domestic industry product.

2. **Disabling EDCA/QoS Functionality**

As discussed above, the EDCA/QoS functionality is not necessary for standard IEEE 802.11 wireless communications and could be disabled.

However, because the IEEE 802.11n standard requires that the devices must be QoS-capable, even if they do not include any applications that use that capability, the accused products with QoS disabled would no longer be IEEE 802.11n compliant.

Therefore, Apple would need to convince its carriers and consumers that non-compliant IEEE 802.11 functionality is acceptable or convince IEEE to make the EDCA/QoS functionality optional. Even if Apple were successful, the effort to disable, replace, or demote the QoS functionality would likely take a significant amount of time.

For the industry to disable the EDCA/QoS functionality worldwide would be even more difficult. Disabling this functionality in existing products would not be feasible. There are hundreds of millions, and soon to be a billion, EDCA-enabled devices and access points (**Ex. 27** [<http://www.instat.com/press.asp?ID=3210&sku=IN1105086WS>]) and, even if they all could be modified, it may not be easy to disable the EDCA functionality in the hardware—much less the software—in those devices.

3. **Switching to a New Technology**

If IEEE were to agree to switch to develop a new prioritized channel access protocol, it would take a significant amount of money and time. Like modifying the UMTS standard, modifying the IEEE 802.11 standard would initially involve convincing the IEEE working group to modify or replace the EDCA functionality. Then the IEEE working group must seek, debate, and test new proposals, which would then be put to a vote for adoption. Because IEEE 802.11 amendments are published as a collection of proposed modifications and because the changes would remove functionality, the adoption might be delayed for years.

As discussed above, the EDCA functionality is implemented by an IEEE 802.11 chip and firmware. Therefore, the design of the chip and/or the firmware associated with the chip would need to be modified once the new protocol is finalized. Then, these new IEEE 802.11 chips for the devices and access points would then need to be approved by any governmental agencies

(e.g., the FCC). Device and access point manufacturers would also need to redesign their hardware and software to operate with the new chips.

Upgrading existing devices to use the new IEEE 802.11 Wi-Fi chips would be impractical. As discussed above, there are billions of existing IEEE 802.11 devices, which might not be amenable to upgrading, even if replacement hardware compliant with the new standard is available from a vendor.¹⁴

However, implementing the new IEEE 802.11 technology in only new hardware, firmware, and applications has its own issues—especially since IEEE is a worldwide standard. While the basic IEEE 802.11 wireless communications will continue to work, existing hardware would not benefit from new compliant software applications. Also, existing EDCA-enabled applications would not implement the old EDCA functionality.

In summary, designing a new protocol would be costly and could take years while detracting from the advancement of the next generations of the IEEE 802.11 standard.

V. Minor Components of the Accused Products

Question 5: *With regard to the '697 and '223 patents, do the patents in question cover relatively minor components of the accused products?*

With respect to the '697 and '223 patents, the Commission requested further briefing as to whether the patents cover relatively minor components of the respective accused products. As discussed in detail below, Apple submits that the answer is yes. The accused '697 patent functionality is but a small fraction of the standardized UMTS technology and a smaller component of the accused multi-component products. Likewise, the accused '223 patent

¹⁴ Those devices that were not IEEE 802.11e or n compatible are not EDCA-enabled and would not need to be updated to a new standard.

functionality is a small part of the standardized IEEE 802.11 technology that need not even be implemented by applications and a smaller component of the accused products.¹⁵

A. **The '697 Patent**

1. **Background**

As discussed above, Motorola accuses a small component of the cellular functionality provided by the Infineon baseband chips in the accused iPhone and iPad products, namely the accused formula for generating the long scrambling code (C_{long}) defined in the Spreading and Modulation technical specification. **RX-241.021** [TS 25.213] at 4.3.2.2.

$$C_{\text{long},n}(i) = c_{\text{long},1,n}(i) \left(1 + j(-1)^i c_{\text{long},2,n}(2\lfloor i/2 \rfloor) \right)$$

Specifically, Motorola's expert Dr. Kenney identified circuitry within the Infineon/Intel baseband chips that implements the mathematical operations that satisfy the requirements of the C_{long} formula. **CX-2685C** [Kenney WS] at Q.260, 263-281, **CDX-2-76 – CDX-2-90**. Due to the narrow scope of the asserted claims, only some of the circuitry used to generate the long scrambling code is accused.

The accused functionality is the formula above, which Motorola alleges performs the selecting and restricting steps of the asserted claims to generate the long scrambling code in the accused products. The long scrambling code is discussed on 2 of the 34 pages of the TS 25.213 technical specification. That technical specification is only one of many that define the radio aspects of the W-CDMA standard performed by the baseband chip. The "25" Series is a collection of hundreds of technical specifications— each of which have several pages.¹⁶ **Ex. 1**

¹⁵ Because Question 5 also relates to the public interest, Apple is providing additional evidence to enable the Commission to review a more developed record on public interest issues.

¹⁶ Most, but not all of the technical specifications apply to the accused products.

[<http://www.3gpp.org/article/w-cdma>]. Other series of technical specifications describe aspects of the earlier 2G GSM standards. **Ex. 9** [<http://www.3gpp.org/article/gprs-edge>]. In total, there are 26 other series that define the UMTS/HPSA and GSM standards—each of which has a number of technical specifications. There are thousands of pages that define the UMTS standard and thousands of pages that define the GSM standard in the baseband chip. In sum, the accused functionality is described on two pages out of thousands and thousands of pages of specifications defining the UMTS/HPSA and GSM cellular functionality. Also, when the limited circuitry identified by Dr. Kenney is compared to the breadth of the UMTS/HSPA and GSM standards, it is clear that the accused aspects of the generation of the C_{long} PN code are only a small component of the overall UMTS cellular functionality.

Moreover, the accused iPhone and iPad products themselves contain many components in addition to the baseband chip, such as other hardware, the iOS operating system, and software applications.

Therefore, the accused aspects of the generation of the C_{long} PN code are not only a small component of the cellular functionality in the baseband chip in the accused products, but an even smaller fraction of the total components in the accused iPhone and iPad products.

2. The Accused Functionality is a Small Component of the Accused Devices

The accused circuits for generating the long scrambling PN code (C_{long}) is a small portion of the baseband chip, which itself is a small component of each accused device.

a. The Accused Formula is a Small Portion of the Cellular Standard Implemented in the Accused Products

The long scrambling code PN code (C_{long}) formula is defined within Section 4.3.2.2 (Long Scrambling Code). **RX-241** [TS 25.213] at .020-.021. This section specifies other

aspects of the Long Scrambling code, which are not accused. For example, Motorola does not accuse the generation of the two PN codes ($C_{\text{long}1}$ and $C_{\text{long}2}$) identified in the C_{long} formula. *Id.* Section 4.3.2.2 is within the Spreading and Modulation technical specification of the UMTS standard. *Id.* This is just one of the technical specifications in the 25 Series (Radio Aspects); others define additional cellular functionality. **Ex. 28** [<http://www.3gpp.org/specification-numbering>]. For example, the 25 Series defines a number of other important aspects of the UMTS standard, including the HSPA functionality, multiplexing and channel coding, and radio transmission and reception. **Ex. 29** [<http://www.3gpp.org/ftp/Specs/html-info/25-series.htm>]. In addition to the 25 Series, other series of technical specifications are directed to different aspects of the UMTS standard such as 2.5G GSM cellular functionality (*see* Series 44 and 45) required when 3G service is unavailable and speech codecs (*see* Series 26) used for voice calls. **Ex. 28** [<http://www.3gpp.org/specification-numbering>].

b. **The Implementation of the Accused Formula is a Small Portion of the Baseband Processor**

Not only is the long scrambling code generation a small part of the UMTS and HSPA specifications, the hardware identified by Motorola's expert, Dr. Kenney as implementing the accused functionality consists of only a few circuits. **CX-2685C** [Kenney WS] at Q.302, 304; **CDX-2.90-.111**. This is only a small part of the baseband chip, which includes other hardware and functionality. For example, the PMB8878 baseband chip used in some of the accused products includes additional functionality such as camera support, graphics, and multimedia. **Ex. 30** [PMB8878 datasheet].

c. **The Accused Cellular Functionality is a Small Component of the Accused Products**

Even if the accused functionality were a significant part of the baseband chip, the baseband chip itself is only one component of the accused products. The accused products contain a significant amount of hardware and software that is not directed to the accused functionality. For example, the accused products include other hardware such as a System on a Chip (SoC) processor, Wi-Fi functionality, Bluetooth, GPS, accelerometer, gyroscope, light sensor, camera, multi-touch retina display, video recording and playback, audio playback, microphone, and speaker. *See CX-584, CX-1090, CX-1101, CX-1128* [iPhone and iPad technical specifications]. The accused products also include software such as the iOS operating system and applications such as email, Safari, App Store, Calendar, Contacts, Maps, FaceTime, Voice Memos, iTunes, iBook, and multiple language support. These other unaccused hardware and software technologies comprise a far greater portion of the accused devices than the technology accused of infringing the '697 patent.

The relative insignificance of the accused functionality to the overall functionality of the accused products is also illustrated by comparing the average purchase price of the baseband chips with the average sale prices of the iPhone and iPad products

Therefore, the portion of the baseband chip implementing the accused functionality (or even the baseband chip itself) is only a small component of the accused products.

B. The '223 Patent

1. The Accused Functionality is a Small Portion of the IEEE 802.11 Functionality

The accused EDCA functionality is a small portion of the IEEE 802.11 standard, which itself is a minor fraction of the functionality of the accused products. As discussed above, the accused EDCA functionality is one of multiple channel access methods defined by the standard that controls when data is transmitted by a particular device. The primary description of the accused EDCA functionality is in Sections 9.1.3.1 and 9.9.1. **RX-936.00330-32, .00334-340** [802.11-2007 standard]. These sections are approximately 10 pages of the 700+ page (not counting hundreds of pages of Appendices) IEEE 802.11 standard. *Id.* The remaining sections define other unaccused fundamental aspects of the standard such as basic wireless communications, physical layers, and security. *Id.* at **RX-936.0012-.0036**.

2. The Accused Functionality is a Small Component of the Accused Products

Motorola did not identify more than a couple of Apple applications that allegedly implement the EDCA/QoS functionality and did not identify any third party software designed for the accused products that implements the EDCA/QoS functionality. With respect to its domestic industry claim for the '223 patent, Motorola could not even point to a EDCA/QoS enabled application that it shipped with its domestic industry product. In any event, applications transmitting data over a wired connection such as Ethernet, would not implement the functionality.

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As discussed above, the accused iPhone and iPad products contain a significant amount of hardware and software that is directed to other functionalities.¹⁷ For example, the accused products include other hardware such as a System on a Chip (SoC) processor, cellular functionality, Bluetooth, GPS, accelerometer, gyroscope, light sensor, camera, multi-touch retina display, video recording and playback, audio playback, microphone, and speaker. *See* **CX-575, CX-577, CX-582, CX-587, CX-1128, CX-1090, CX-1101** [Technical Specifications for Accused Products]. The accused applications are merely a small part of all the software in the accused products. The accused products also include unaccused software such as the iOS operating system and preinstalled applications such as email, App Store, Calendar, Contacts, Maps, Voice Memos, iTunes, iBook, and multiple language support. *See, e.g.,* **CX-132** at MOTO-APPLE-0005128999-9001. These unaccused hardware and software technologies comprise a far greater portion of the accused devices than the technology accused of infringing the '697 patent. The accused FaceTime and AirPlay applications¹⁸ are minor in comparison to the totality of functionality provided in the accused products. Moreover, Apple's App Store includes hundreds of thousands of applications for iPhones and iPads,

The other accused products similarly include additional hardware and software directed to other functionality. For example, the iPod Touch 4 includes virtually the same additional hardware technologies and software as the iPhone and iPad products. **CX-575** [iPod Touch 4 Tech Specs]. The accused Apple TV also includes a processor, memory, remote, A/V ports, and

¹⁷ In addition to the cellular products accused of infringing the '697 patent, Motorola additionally accuses the iPhone 4 (CDMA2000) and iPad 2 3G (CDMA2000), which include the same additional hardware and software.

¹⁸ FaceTime allows a user to make a video call to another iPhone user and the accused AirPlay functionality streams video wirelessly to an Apple TV.

IR receiver and software such as an operating system, iTunes and audio/video software for streaming photos, audio, and video. **CX-587** [Apple TV Tech Specs]. The accused computer products (MacBook (2010), MacBook Pro (2011), MacBook Air (2010), iMac (2010), Mac mini (2010), and Mac Pro (2010)) have additional hardware such as processors, hard drive, blue tooth, Ethernet, camera, display (laptops and iMac), keyboard (laptops and Mac Pro), touchpad (laptops), mouse (Mac Pro), microphone, and speakers. *See, e.g.* **CX-577, CX-582** [Technical Specifications for iMac and Macbook products]. The accused desktop and laptop products are also sold with software such as the Mac OS X operating system and even more applications than the accused iPhone and iPad products.

The relative insignificance of the accused functionality is also illustrated by comparing the average purchase prices of the IEEE 802.11 chips with the average sales price of the accused products

Furthermore, as discussed above, the IEEE 802.11 chip provides functionalities other than EDCA/QoS, such as basic wireless communication and security. Finally, many of the accused devices are equipped with an Ethernet connection, so they are capable of operating without the

wireless functionality. Transmission of data over a wired connection such as Ethernet is not accused.

Therefore, the portion of the IEEE 802.11 chip implementing the accused functionality (or even the IEEE 802.11 chip itself) is only a small component of the accused products.

VI. Apple Has Not Waived its Right to Assert RAND Obligations

Question 6: *Has Apple waived its right to assert that Motorola failed to offer a license on reasonable and non-discriminatory (“RAND”) terms? In discussing this issue, please refer to Commission Investigative Staff Motion in Limine to Exclude The Expert Opinion of Jerry Hausman filed July 14, 2011, and to Respondent Apple Inc.’s Opposition to Commission Investigative Staffs Motion In Limine to Exclude the Expert Opinion of Robert O’Hara at page 1, n. 1 filed July 22, 2011.*

Apple has not waived its right to assert that Motorola failed to offer a license on reasonable and non-discriminatory (“RAND”) terms as part of the Commission’s consideration of the public interest. In footnote one of its opposition, Apple noted only that it had narrowed certain affirmative defenses it sought to try at the hearing before the administrative law judge. Neither the footnote nor the referenced letter withdrew or otherwise waived any public interest related argument, such as those presently being considered by the Commission.

Moreover, Apple has not—and cannot—waive the public interest concerns surrounding whether the Commission should issue relief based upon patents for which a RAND commitment has been made. As the Commission acknowledged in its Notice, “[i]f the Commission contemplates some form of remedy, it *must* consider the effects of that remedy upon the public interest.” Notice of Commission Decision to Review in Part a Final Initial Determination Finding a Violation of Section 337; Request for Written Submissions, Inv. 337-TA-745 at 6 (emphasis added). This is consistent with the broader principle that private parties cannot waive public interest concerns. *See, e.g., United States v. Zedner*, 547 U.S. 489, 500-01, 126 S. Ct. 1976, 164 L. Ed. 2d 749 (2006) (holding a defendant cannot waive the public’s interest in a

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speedy trial); *Russell Corp. v. American Home Assurance Co.*, 264 F.3d 1040, 1048 (11th Cir. 2001) (quoting *Archdiocese of Milwaukee v. Underwriters at Lloyd's, London*, 955 F.Supp. 1066, 1069 (E.D.Wis.1997)) (“Regardless of what a party bargains away, it may not waive the public’s interest; the court must still weigh the public interest involved...”).

The suggestion that Apple may have waived its ability to make any public interest-based argument also runs counter to Commission Rule 19 C.F.R. § 210.50, wherein the Commission specifically *precludes* the presiding administrative law judge from addressing the issue of the public interest. Apple can hardly be said to have waived before the administrative law judge something that the Commission has explicitly precluded that judge from addressing. This is also consistent with the statute, which sets out the public interest inquiry as being separate and distinct from consideration of legal and equitable defenses or counterclaims. *Cf.* 19 U.S.C. § 1337(c) *with* 19 U.S.C. § 1337(d)(1).

Moreover, nothing raised by either motion *in limine* filed by the Staff supports the assertion that Apple has waived any public interest related argument. Indeed, in the motions *in limine* filed on July 14, 2011, the Staff did not even assert that Apple had waived its ability to assert that Motorola’s offer was not RAND-compliant. To the contrary, the Staff acknowledged that Apple specifically asserted that Motorola had not made a RAND-compliant offer. *See, e.g.*, Commission Investigative Staff Motion *In Limine* to Exclude the Expert Opinion of Robert O’Hara at 2. Instead, the Staff’s motions were based on the erroneous proposition that for an expert’s opinion to be admissible, the expert must offer an opinion on the ultimate issue to be decided. Staff Motion in Limine at 3-4.

As Apple pointed out in its opposition, Apple retained Mr. O’Hara as an expert to opine on the role of SSOs, how SSOs develop standards, and the practical ways in which industry

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participants implement SSO IPR Policies. Additionally, Mr. O'Hara opined on the pragmatic considerations of SSO participants and implementers of standards once a patent is disclosed as essential to a standard. *See, e. g.*, Apple Opposition at 2. All of that testimony was pertinent to Apple's unclean hands defense and should have been considered. Respondent Apple Inc.'s Petition for Review and Contingent Petition for Review at 32-45.

The testimony expounded by Mr. O'Hara falls precisely within "the venerable practice of using expert testimony to educate the factfinder on general principles," Advisory Committee Notes on the 2000 Amendments to Fed. R. Evid. 702, and is within the ambit of longstanding precedent admitting different types of evidence that would assist the factfinder in reaching a conclusion on issues in the case. *Cf. AstraZeneca, LP v. Apotex, Inc.*, 633 F.3d 1042, 1053 (Fed. Cir. 2010) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005)) ("[E]xpert testimony can be useful 'for a variety of purposes, such as to provide background on the technology at issue, to explain how an invention works, [or] to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art. . . .'"); *Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc.*, 152 F.3d 1368, 1372-73 (Fed. Cir. 1998) (holding that district court properly admitted experts' testimony as background information to educate itself on a technical area, even if the court did not consider it in specifically construing the legal patent claims at issue).

Finally, the Commission need not itself decide whether Motorola has yet made an offer that complies with its RAND obligations to find that the public interest precludes the issuance of any exclusionary relief in this investigation. The interplay between a RAND commitment and exclusionary remedies is a separate issue from whether Motorola has failed to comply with its RAND commitment by making a RAND offer. This is because, as Apple explains further in its

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Responses to Questions 7-8, the existence of a RAND commitment precludes the availability of exclusionary remedies—without regard to whether the patentee has made a RAND-compliant license offer. As noted below, because the Commission lacks the ability to award monetary damages, it cannot grant the only relief to which the owner of a declared essential patent is entitled and even the threat of exclusionary relief gives rise to the very public interest concerns that the RAND commitments were designed to eliminate. Therefore, as extensively explained below, the Commission should neither institute an investigation nor grant any relief based upon patents for which RAND commitments have been made until, at the very least, the offer has been adjudicated by a court to be RAND and the proposed respondent has refused to pay that adjudicated amount. Here, it is beyond dispute that no such adjudication has been made. To the contrary, the only adjudication that has been made is Judge Posner’s holding that Motorola is *not* entitled to any exclusionary relief based upon Motorola’s patents that are subject to RAND commitments. *Apple, Inc. v. Motorola, Inc.*, No. 1:11-cv-08540 (N.D. Ill. June 22, 2012) (Posner, J., sitting by designation), slip op. at 19-22.

For all of these reasons and the reasons set forth below, Apple has not waived its right to assert that Motorola failed to offer a license on RAND-compliant terms, and the Commission should decline to issue any relief based on declared essential patents for reasons of public policy.

VII. RAND Obligations and the Public Interest

Question 7: *If the record of an investigation lacks evidence sufficient to support a RAND-based affirmative defense (e.g., equitable estoppel, implied license, waiver, etc.), under what circumstances (if any) should a RAND obligation nonetheless preclude issuance of an exclusion order? Please discuss theories in law, equity, and the public interest, and identify which (if any) of the 337(d)(1) public interest factors allegedly precludes issuance of such an order.*

A RAND obligation precludes a patentee from obtaining an exclusion order whether or not there is sufficient evidence to support a RAND-based affirmative defense. A RAND

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commitment, by itself, irrevocably commits the patent holder to license on RAND terms and precludes an exclusion order (or any other exclusionary relief), absent proof that the respondent has ignored a prior court order setting a RAND royalty. The Commission is required to consider, pursuant to 19 U.S.C. § 1337(d)(1), the public interest implications of an exclusion order, and RAND commitments will always—save, perhaps, in the exceptional scenario of an ignored court royalty determination—compel a conclusion that the public interest would be disserved by an exclusion order. As explained in greater detail below, the specific public interest factors enumerated in the statute that require this conclusion include: (1) “competitive conditions in the United States economy,” 2) “the production of like or directly competitive articles in the United States,” and 3) effects on “United States consumers.” 19 U.S.C. § 1337(d)(1). These statutory public interest factors are legal in nature, but overlap significantly with traditional equitable considerations governing injunctions. In its Response to Question 8, *infra*, Apple more fully explains the reasons why exclusionary remedies are inherently incompatible with a RAND commitment.

For Question 7, the critical point is that the Commission must consider the public interest factors set by Section 1337(d) in every investigation, without regard to whether the Respondent has adduced proof sufficient to establish affirmative defenses such as equitable estoppel, implied license, or waiver. This is particularly true given that the Commission rules prohibit administrative law judges from developing a record related to the public interest factors or otherwise considering them unless the Commission specifically authorizes the judge to do so. 19 C.F.R. § 210.50(b)(1). A RAND commitment and a patentee’s failure to comply therewith may provide powerful grounds for affirmative defenses such as those listed in Question 7, and these defenses may provide independent bases for a finding that there has been no Section 337

violation in a given case. But the Commission’s duty to consider the public interest does not depend on these defenses.

VIII. A RAND Obligation Precludes Issuance of an Exclusion Order

Question 8: *Does the mere existence of a RAND obligation preclude issuance of an exclusion order? Please discuss theories in law, equity, and the public interest, and identify which (if any) of the 337(d)(1) public interest factors allegedly precludes issuance of such an order.*

Yes. The mere existence of a RAND obligation precludes issuance of an exclusion order, except possibly in the extraordinary circumstance where a potential licensee has refused to pay a royalty after a court has determined that royalty to be RAND. A RAND obligation is an irrevocable commitment to license any implementer of the relevant standard on reasonable and non-discriminatory terms. *See* Decl. of Michael Walker in Supp. of Apple’s Statement on the Public Interest, July 9, 2012 (“Walker”) ¶¶ 22, 29. By making such a commitment, the patent holder both (i) promises that it will not take advantage of the standardization process to “hold up” implementers after they have become locked into the relevant standard, by demanding value conferred by standardization rather than the intrinsic value of the technology pre-standardization; and (ii) acknowledges that a RAND royalty is adequate compensation for practicing the patent. In exchange, the patentee obtains the benefit of having its patented technology incorporated into a widely-implemented standard, gaining opportunities to license its technology to many more licensees than would have been the case absent the standardization. *See, e.g., Apple, Inc. v. Motorola, Inc.*, No. 1:11-cv-08540 (N.D. Ill. June 22, 2012), ECF No. 1038, slip op. at 20 (Posner, J., sitting by designation) (characterizing agreement “to license . . . standard-essential patents on FRAND terms as a *quid pro quo* for their being declared essential to the standard). *See also* Walker ¶ 31.

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It would be manifestly inconsistent with this RAND bargain—and the relevant legal, equitable, and public interest considerations that arise from the RAND commitment—to permit a declared-essential patent holder to use the threat of an exclusion order to perpetrate the very hold up that the RAND requirement was designed to prevent. *See* Walker ¶¶ 30. These consequences would extend beyond this case and these parties to the broader marketplace for wireless communications devices that include standardized technology, and the harm to the public interest—as expressed in Section 1337(d)’s factors—would be severe. The use of exclusion orders as a hold-up mechanism would undercut competitive conditions in the United States economy. It would force licensees to absorb dead-weight losses from exorbitant royalties—and thereby reduce their resources for efficient investments in research, design, and supply of products—or, by increasing barriers to entry, lead device makers to forego these innovative activities entirely. This, in turn, would affect the production of like or directly competitive articles—fewer wireless-communications devices would be available, at higher prices (which would follow inevitably from a lower supply), and at lower levels of quality and innovation. Facing fewer choices, lower quality, and higher prices, consumers would suffer in this diminished marketplace.

That Motorola and certain other companies have sought to use FRAND patents as a hold-up mechanism is an increasing problem for the mobile-communications industry. This problem has drawn the scrutiny of the United States Department of Justice (which just opened an investigation into Samsung’s conduct with respect with declared-essential patents), the Federal Trade Commission (which issued a report²⁰ last year on the implications of declared-essential

²⁰ Federal Trade Commission, *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition* at 22 (Mar. 2011) (“Evolving IP Marketplace”).

patents for competition policy; recently made a public interest submission in this investigation, expressing serious concerns with the use of declared-essential patents to obtain exclusion orders; and has now opened an investigation into Motorola's conduct in this regard), and the European Commission (which has opened investigations into Motorola's and Samsung's use of declared-essential patents, focusing on the hold-up threat from injunctions).

This hold up problem has also drawn Congressional concern. On July 11, 2012, the Senate Judiciary Committee will hold a hearing on the use of declared-essential patents to obtain exclusionary remedies.

Were the Commission to permit exclusion orders on RAND patents, this would perpetuate the very problem that has prompted this extraordinary regulatory and Congressional attention. On the other hand, if the Commission now determines that RAND patents cannot be used as the basis for exclusionary remedies, this would help cure the hold-up problem—and restore RAND to its traditional role as the mechanism for preventing hold-up, as described below.

A. RAND as the Solution to the “Hold Up” Problem

Standard-setting offers “significant procompetitive advantages” by combining expertise across industry participants to reach consensus on technical solutions. *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 501 (1988).²¹ It can increase product quality, spur innovation and lower prices to consumers, and lower barriers to entry by creating a stable, widely-implemented platform for suppliers to offer products that interoperate efficiently.

²¹ See also Third Party United States Federal Trade Commission's Statement on the Public Interest at 2, June 6, 2012, Doc. ID 482234 (“FTC Public Interest Statement”); Comments on the Public Interest by Microsoft Corporation, June 6, 2012, Doc. ID 482241; Comments on the Public Interest by Nokia Corporation, June 6, 2012, Doc. ID 482247.

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Competition and consumers can benefit greatly when standard-setting functions in the way it is intended to function. See Confidential Decl. of Jerry A. Hausman in Supp. of Apple’s Statement on the Public Interest, July 8, 2012 (“Hausman”) ¶ 19; Statement of Dennis W. Carlton, July 9, 2012 (“Carlton”) ¶ 5.

Absent proper safeguards, however, standard-setting also has serious potential for anticompetitive harm because “[b]y its nature, standard setting displaces the competitive process through which the purchasing decisions of customers determine which interoperable combinations of technologies and products will survive.” *In the Matter of Rambus, Inc.*, No. 9302, 2006 WL 2330117, *2 (F.T.C. Aug. 2, 2006); see also *Allied Tube*, 486 U.S. at 501 (“Agreement on a product standard is, after all, implicitly an agreement not to manufacture, distribute, or purchase certain types of products.”); *Research in Motion Ltd. v. Motorola, Inc.*, 644 F. Supp. 2d 788, 796 (N.D. Tex 2008) (“[S]tandards, without proper safeguards, are inherently anticompetitive.”); Carlton ¶ 10. When alternative technologies compete before a standard is adopted, the price for each is constrained by its rivals. See Carlton ¶ 7. Once the standard has been set, however, the competitive dynamic changes as industry participants start to design, test, and produce goods that conform to the standard and the technologies incorporated therein. The amount of resources the industry commits to the standard naturally increases over time, as do the costs of switching to alternative technologies.

As a result, the industry is “locked” into the chosen standard, and holders of patents covering the standardized technology gain the power to “hold up” standard implementers by demanding supracompetitive prices or refusing to license their standard essential patents altogether. See *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297, 310 (3rd Cir. 2007); FTC Public Interest Statement at 2-3; Walker ¶¶ 26-27; Hausman ¶ 20. As Judge Posner recently put

it, “once a patent becomes essential to a standard, the [patentee’s] bargaining power surges because a prospective licensee has no alternative to licensing the patent; he is at the patentee’s mercy.” *Apple*, slip op. at 18.

The RAND requirement serves the vital purpose of committing the declarant to refrain from exploiting the hold-up power that standardization would otherwise convey. As the Third Circuit has observed: “To guard against anticompetitive patent hold-up, most SDOs require firms supplying essential technologies . . . to commit to licensing their technologies on FRAND terms.” *Broadcom*, 501 F.3d at 313. The European Commission likewise has stated, “The concept of FRAND has been developed in an attempt to limit the ability of SEP [standard-essential patent] holders to abuse their market power and to provide effective access to the standard for all interested third parties.” Case No COMP/M.6381 – *Google/Motorola Mobility* Commission decision pursuant to Art. 6(1)(b)¶ 113. *See also* Walker ¶¶ 22-23.

For purposes of determining whether a RAND obligation should preclude issuance of an exclusion order, two aspects of the RAND commitment are particularly critical, as Judge Posner recognized:

1. The declarant disavows hold-up power and agrees to “confine [its] royalty demand to the value conferred by the patent itself, as distinct from the hold-up value—conferred by the patent’s being designated as standard essential.” *Apple*, slip op. at 18.
2. The declarant commits to license its patent “to anyone willing to pay a [RAND] royalty and thus implicitly acknowledges that a royalty is adequate compensation to use that patent.” *Id.* at 18-19.

An exclusion order based on a RAND-committed patent would be antithetical to both of these commitments and fundamentally undermine their purposes.

B. Reasons for Precluding Use of Exclusion Orders as a “Hold Up” Mechanism

Permitting exclusion orders would empower makers of RAND declarations to engage in the very type of anticompetitive patent hold-up that they disavowed in return for having their

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purportedly essential technologies standardized. In particular, if an exclusion order is available, the patentee can use the threat of exclusion to distort the license bargaining process by taking advantage of the fact the potential licensee is locked into the relevant technology and the bargaining imbalance this creates. As a matter of law and equity—including as expressed in the statutory public interest factors—the Commission should not permit exclusion orders to issue for RAND-committed patents.

Under Section 1337(d), the ITC must consider the effects of an import ban on competitive conditions in the domestic market, the availability of like or directly competitive articles, and United States consumers—and, as explained above, each of these public interest factors weigh heavily against permitted exclusion orders for FRAND patents. The Statement on the Public Statement of the Federal Trade Commission—which the ITC is required to “consult with, and seek advice and information from” during the course of an investigation, 19 U.S.C. 1337(b)—clearly articulates the severity of the threat of an exclusion order based on a RAND-committed patent would pose to competitive conditions and U.S. consumers: _

[A] royalty negotiation that occurs under threat of an exclusion order may be weighed heavily in favor of the patentee in a way that is in tension with the RAND commitment. High switching costs combined with the threat of an exclusion order could allow a patentee to obtain unreasonable licensing terms despite its RAND commitment, not because its invention is valuable, but because implementers are locked in to practicing the standard. The resulting imbalance between the value of patented technology and the rewards for innovation may be especially acute where the exclusion order is based on a patent covering a small component of a complex multicomponent product. In these ways, the threat of an exclusion order may allow the holder of a RAND-encumbered [standard-essential patent] to realize royalty rates that reflect patent hold-up, rather than the value of the patent relative to alternatives, which could raise prices to consumers while undermining the standard setting process.

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FTC Public Interest Statement at 3-4.²² Judge Posner echoed the FTC's view when he flatly rejected the possibility of an injunction for patents subject to FRAND commitments, explaining that the FTC's logic in the context of ITC exclusion orders "embraces any claim to enjoin the sale of an infringing product." *Apple*, slip op. at 19. *See also Microsoft Corp. v. Motorola, Inc.*, No. 10-cv-1823 (W.D. Wash. May 14, 2012), ECF No. 318, slip op. at 24 ("[A] negotiation where [the licensor] must either come to an agreement or cease its sales throughout the country . . . fundamentally places that party at a disadvantage.").

The threat to competition associated with permitting exclusion orders based on RAND-committed patents is particularly acute where, as in this case, the accused device complies with many different standards, each of which is subject to many parties' claims to hold standard-essential patents. If exclusion orders were available, *each and every* party claiming to hold a standard-essential patent would be empowered to seek exclusion of standard-compliant products from the market—and to use that power to hold up suppliers of new and innovative products for exorbitant royalties or other license terms. Indeed, absent obtaining licenses in advance from *every* declared-essential patent holder for *every* standard covering its products—which would take years, if it could ever be feasible—device manufacturers could no longer invest in, develop, and bring to market new and innovative products without fear that *any* of the declared-essential

²² *See also* Comment on the Public Interest by AT&T, June 8, 2012, Doc. ID 482441; Comment in Response to the Request for Statements on the Public Interest by Cisco Systems, Inc., June 7, 2012, Doc. ID 482396; Comments on the Public Interest by Microsoft Corporation, June 6, 2012, Doc. ID 482241; Comments on the Public Interest by Nokia Corporation, June 6, 2012, Doc. ID 482247; Comments on the Public Interest by Business Software Alliance, June 6, 2012, Doc. ID 482232; Comments on the Public Interest by Hewlett-Packard Company, June 6, 2012, Doc. ID 482215; Comments Retail Industry Leaders Association, June 6, 2012, Doc. ID 482212.

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patent holders could seek to enjoin product sales. To put this into perspective, companies have declared thousands of patents as essential to the UMTS standard alone, and UMTS is only one of dozens of standards practiced by advanced wireless communications devices. *See, e.g.*, Public Interest Statement by Nokia Corporation at 4 (“For the UMTS standard, companies have disclosed thousands of patents as potentially essential to practice the standard. UMTS is only one of many, many standards that cover various components in modern high-technology devices such as computers and smartphones.”); Tim Simcoe, *Can Standard Setting Organizations Address Patent Holdup? Comments for the Federal Trade Commission*, August 5, 2011, available at <http://www.ftc.gov/os/comments/patentstandardsworkshop/00040-80169.pdf> (“ETSI requires explicit disclosure and sometimes gets thousands of declared essential patents for a single project.”); Fairfield Resources International, Inc., *Review of Patents Declared Essential to LTE and SAE (4G Wireless Standards) Through June 30, 2009*, January 6, 2010, available at <http://www.frlicense.com/LTE%20Final%20Report.pdf> (“The lists of patents and patent applications declared as essential to LTE or SAE [two fourth generation cellular technology standards] compiled by ETSI contains more than 1100 distinct entries declared as of June 30, 2009.”).

This anticompetitive effect would be all the more serious because declared standard-essential patent holders would have strong incentives to “hold out” and refuse to agree to RAND royalties, to take advantage of increased leverage from the sunk costs that potential licensees put into not only developing their devices, but also obtaining licenses from others—and patent holders could demand ever more exorbitant royalties as the price for removing the possibility of an exclusion order halting sales of the devices in which costs have been sunk. *See* Carlton ¶¶ 7-9. Not only would these incentives further distort the negotiation process, but they could lead

to even more delay before the device manufacturer could bring new and innovative products to market without threat of an exclusionary remedy.

The bottom line is that if exclusion orders were available for patents subject to RAND commitments, device makers would operate under a constant threat of being excluded from the market. The end result would be great harm to the competitive conditions of the United States economy. Product supply would be put at risk—either because of exclusion orders, or because companies decide practicing the standard is simply not worth the cost and voluntarily withdraw from the market or never introduce their products in the first place; product prices would increase sharply; the reduced supply would diminish the availability of like or directly competitive articles; and U.S. consumers would experience a substantial reduction in innovation and product quality, to their detriment. *See* 19 U.S.C. 1337(d)(1); *Evolving IP Marketplace* at 22. Nothing could be more inconsistent with the objectives of standard-setting—and the interests of the public, as memorialized in Section 1337(d)—in promoting innovation and opening robust competition to innovation around common standards. *See Walker* ¶ 30; *Hausman* ¶¶ 20-23.

C. Alternative Remedies That RAND Patent Holders Have Elected

Precluding exclusionary remedies for RAND patent holders would not leave them without a remedy—it would simply leave them without an ITC remedy, with the possible exception of where the proposed respondent had previously refused to comply with a court-determined payment of a RAND royalty. In the ordinary course, the patentee’s remedy would be money, in the form of RAND royalties. This is consistent with the RAND commitment itself, which involves the irrevocable election of one category of remedies (namely RAND royalties) rather than others. By making a RAND commitment, the patentee has agreed to

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license any standard implementer and has thereby conceded that a RAND royalty is proper and adequate compensation for practicing its patent. As Judge Posner explained:

By committing to license its patents on FRAND terms, Motorola committed to license [its declared-essential patent] to anyone willing to pay a FRAND royalty and thus implicitly acknowledged that a royalty is adequate compensation for a license to use its patent. How could it do otherwise? How could it be permitted to enjoin Apple from using an invention that it contends Apple *must* use if it wants to make a cell phone with UMTS telecommunications capability – without which it would not be a cell *phone*.

Apple, slip op. at 18-19.

As a matter of equity, this means that having made a RAND commitment, the patentee could never show that money damages (i.e., a RAND royalties) are inadequate compensation for practicing its patents—a pre-requisite under the *eBay* standard, *see eBay Inc. v. MercExchange L.L.C.*, 547 U.S. 388, 391 (2006), which also should be given due consideration under the Commission’s public interest analysis. As Judge Posner found in *Apple*, “a [RAND] royalty would provide all of the relief to which the [patentee] would be entitled if it proved infringement . . . , and thus it is not entitled to an injunction.” *Apple*, slip. op. at 21.

Similarly, having told anyone that wishes to implement the relevant standard that they may practice its declared-essential patents in return for FRAND royalties, the FRAND patent holder can hardly claim that it would be “irreparably harmed” by others practicing the patents—which is another *eBay* factor that holds relevance to a proper analysis of the public interest under Section 1337(d). Again, the FRAND patent holder’s remedy for any infringement is an award of a RAND royalty, through an action in a district court.

* * * * *

For the reasons discussed above, a RAND commitment should preclude an exclusion order. Simply put, RAND patents are categorically different from other patents, and the difference arises from the patentee’s own choice to participate in standard-setting and declare the

patent as RAND-committed. This choice brings benefits to the patent holder (for standards like UMTS, these include a huge class of prospective licensees) but it also brings constraints—including limiting its remedy to money damages. Having elected to accept this RAND bargain, the patent holder cannot later ignore the RAND constraints and seek exclusionary remedies.

IX. Refusing to Offer a RAND License to a Named Respondent

Question 9: *Should a patent owner that has refused to offer a license to a named respondent in a Commission investigation on a RAND obligated patent be able to obtain an exclusion order? Please discuss theories in law, equity, and the public interest, and identify which (if any) of the 337(d)(1) public interest factors allegedly precludes issuance of such an order.*

An exclusion order should not be available to a patent owner that has refused to offer a license to a named respondent in a Commission investigation on a RAND obligated patent. As discussed in Response to Question 8, a patentee should not be entitled to an exclusion order *under any circumstances*, unless, perhaps, if a potential licensee has refused to pay a royalty after a court has determined the royalty to be RAND. This principle does not turn on whether or not the patentee has refused to offer a license. To be sure, a refusal by a patentee to offer a license may, in and of itself, provide additional bases to deny an exclusion order. For example, the refusal may constitute a breach of the RAND contract or give rise to equitable defenses to patent enforcement. But a patentee cannot properly become eligible for an exclusionary order on RAND-committed patent simply by making a licensing offer.

If that were the rule, the patentee could simply make a license offer—whether or not reasonable and non-discriminatory—and put the potential licensee to the Hobson’s choice of either accepting the offer or facing the risk of having its products excluded from the US market. That would allow the patentee exploit the very hold-up power based on standardization and implementer lock-in that the RAND obligation was designed to preclude, and lead to the same

harms to United States competitive conditions, availability of like or directly competitive articles, and United States consumers discussed in response to Question 8.

Moreover, a patentee's offer of a license does nothing to alter its prior and ongoing concession that an exclusionary remedy is unnecessary to compensate it for the use of its patent, and that money damages are adequate. *See* Response to Question 8.

X. Refusing to Offer a RAND License to a Non-Respondent

Question 10: *Should a patent owner that has refused to offer a license on a RAND obligated patent to some entity (regardless of whether that entity is a named respondent in a Commission investigation) be able to obtain an exclusion order? Please discuss theories in law, equity, and the public interest, and identify which (if any) of the 337(d)(1) public interest factors allegedly precludes issuance of such an order.*

As discussed in Responses to Questions 8 and 9, a RAND commitment precludes exclusionary remedies whether or not the patentee has made a license offer—the preclusion is inherent in the nature of the RAND commitment itself. Accordingly, whether or not a patentee has refused to make a license offer to some entity (a respondent or a non-respondent) has no bearing on the unavailability of an exclusion order based on the presence of a RAND commitment. A refusal to offer a license is only relevant to the availability of an exclusion order to the extent that the refusal may give rise to separate and independent bases to find no Section 337 violation and deny an exclusion order.

XI. Refusing to Negotiate a RAND License to a Respondent

Question 11: *Should a patent owner that has refused to negotiate a license on RAND terms with a named respondent in a Commission investigation be precluded from obtaining an exclusion order? Please discuss theories in law, equity, and the public interest, and identify which (if any) of the 337(d)(1) public interest factors allegedly precludes issuance of such an order.*

As discussed in Responses to Questions 8 and 9, a RAND commitment, by itself, precludes an exclusion order. If a refusal to negotiate a license on RAND terms has any bearing

on the availability of an exclusion order, it is because such a refusal may give rise to additional bases to find no Section 337 violation and deny an exclusion order.

XII. Refusing to Negotiate a RAND License to a Non-Respondent

Question 12: *Should a patent owner that has refused to negotiate a license on RAND terms with some entity (regardless of whether that entity is a named respondent in a Commission investigation) be precluded from obtaining an exclusion order? Please discuss theories in law, equity, and the public interest, and identify which (if any) of the 337(d)(1) public interest factors allegedly precludes issuance of such an order.*

As discussed in Responses to Questions 8 and 9, a RAND commitment, by itself, precludes a complainant from seeking an exclusion order. If a refusal to negotiate a license on RAND terms with some entity has any bearing on the availability of an exclusion order, it is because such a refusal may give rise to additional bases to find no Section 337 violation and deny an exclusion order.

XIII. Refusing to Negotiate a RAND License to a Non-Respondent

Question 13: *Should a patent owner who has offered a RAND license that the named respondent in a Commission investigation has rejected be precluded from obtaining an exclusion order? Please discuss theories in law, equity, and the public interest, and identify which (if any) of the 337(d)(1) public interest factors allegedly precludes issuance of such an order.*

A patent owner should be precluded from obtaining an exclusion order, with the possible exception of where a potential licensee has affirmatively refused to a royalty *after* a court has determined that the royalty is RAND. A standard implementer's rejection of an offer that is *later* found to be RAND offer cannot entitle the patentee to an exclusion order. Parties may in good faith disagree as to whether the offer is indeed on RAND terms. If a patentee could make a licensee offer and force the potential licensee to bear the risk of an exclusion order concurrent with the finding that the offer was in fact RAND, it would be able to exploit the hold-up power that the RAND commitment is designed to preclude. In particular, the patentee would be able to

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extract value by exploiting the (one-way) risk to the potential licensee from uncertainty about whether the offer will later be found to have been RAND and its products will be excluded from the market. This would badly skew the bargaining outcome and force the potential licensee to overpay for a license to ensure against this (potentially disastrous) outcome. Accordingly, permitting an exclusion order in this circumstance would permit the patentee to exploit hold up power conveyed by standardization and lead to the same type of harm to United States competitive conditions and United States consumers that we discuss in response to Question 8.

This does not mean that the RAND patent holder is without remedy—it means simply that the patent holder is entitled only to the *monetary* remedy that it has irrevocably agreed is sufficient. Nor would it allow the potential licensee to game the system. As Judge Posner has pointed out, the implementer who rejects a license offer that is later found to be RAND “[runs] the risk of being ordered by a court to pay an equal or even higher royalty rate, but that is not the same thing as [the patentee’s] being excused from no longer having to comply with its FRAND obligations.” *Apple*, slip op. at 20. As discussed in Response to Question 8, inherent in a RAND commitment is that the patentee is precluded from obtaining an exclusion order.

XIV. Remedy and the Public Interest

The Commission also requested statements addressing the effect that an exclusion order and/or cease and desist order would have on (1) the public health and welfare, (2) competitive conditions in the U.S. economy, (3) U.S. production of articles that are like or directly competitive with those that are subject to investigation, and (4) U.S. consumers. *See* 19 U.S.C. § 1337(d)(1). The attached declarations of Dr. Walker, Dr. Hausman, and Dr. Carlton address these issues and, in particular, the broad effects of an exclusion order and/or cease and desist

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order in the context of standard essential patents that are subject to commitments to license on fair, reasonable, and non-discriminatory (“FRAND” or “RAND”) terms.²³

As Dr. Hausman explains in his declaration, an exclusion order and/or cease and desist order in this Investigation would have a substantial negative effect on Apple’s overall business and, consequently, the smartphone and tablet business in the United States. Consumers would experience lower quality and decreased choice of relevant products and would be prevented from performing certain tasks related to public health and welfare. A remedy against Apple’s products would significantly impact the U.S. economy and consumers by harming application developers and content providers that sell products on Apple’s platform. An exclusion order and/or cease and desist order would further harm the U.S. economy and consumers by reducing competition among smartphones, tablets, and personal computers.

Dr. Hausman further explains that Complainant Motorola Mobility, Inc. (“Motorola”) is bound by commitments to license its standard-essential patents on FRAND terms, and he explains that Motorola has failed to offer a FRAND rate to Apple. As discussed above in Apple’s answers to questions 6-13, Motorola’s failure to honor its FRAND commitments precludes the issuance of an exclusion order in this Investigation. Dr. Walker, in a separate declaration, explains the background of standard setting by the Third Generation Partnership Project (“3GPP”), whose members include the European Telecommunications Standard Institute (“ETSI”). Dr. Walker explains that Motorola’s request for an exclusion order in this Investigation breaches its irrevocable commitments, under ETSI and 3GPP rules, to license standards-essential patents on FRAND terms. Dr. Carlton, in another declaration, further

²³ This statement does not address the third factor because Apple is not aware of directly competitive articles manufactured in the United States. The asserted domestic industry products were manufactured in China. **JX-100C** [Deardorff Dep. Tr.] at 25:9-11, 33:17-23.

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explains why FRAND commitments are important to information technology industries, and how an exclusion order would harm the public interest by distorting the competitive process.

In addition, should the Commission issue an exclusion order in this investigation, Apple submits that any order should exempt replacement parts and devices necessary to fulfill warranties or insurance contracts. As Dr. Hausman notes in his declaration, the Commission implemented similar exemptions in *Certain Personal Data and Mobile Communications Devices and Related Software*, Inv. No. 337-TA-710 (December 29, 2011).

Dated: July 9, 2012

Respectfully submitted,

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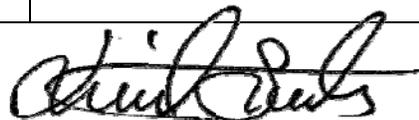
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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing was served on July 9, 2012 as indicated, on the following:

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I hereby certify that a copy of the foregoing **Public Version of Respondent Apple Inc.'s Response to the Commission's Request for Written Submissions** was served on Thursday, July 19, 2012 as indicated, on the following:

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