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

In the Matter of

**CERTAIN ELECTRONIC DEVICES,
INCLUDING WIRELESS
COMMUNICATION DEVICES,
PORTABLE MUSIC AND DATA
PROCESSING DEVICES, AND TABLET
COMPUTERS**

Inv. No. 337-TA-794

COMMISSION OPINION

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I. Introduction

In this investigation, complainants Samsung Electronics Co., Ltd. of Suwon-City, Korea, and Samsung Telecommunications America, LLC, of Richardson, Texas (collectively, “Samsung”) allege that iPhones, iPads, and iPod Touch devices imported and sold by respondent Apple Inc. of Cupertino, California (“Apple”) infringe several Samsung patents and violate section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337 or “section 337”). Four patents remain at issue: U.S. Patent No. 7,706,348 (“the ’348 patent”), U.S. Patent No. 7,486,644 (“the ’644 patent”), U.S. Patent No. 7,450,114 (“the ’114 patent”), and U.S. Patent No. 6,771,980 (“the ’980 patent”). On September 14, 2012, the presiding administrative law judge (“ALJ”) issued a final initial determination (“ID”) finding that the ’348, ’644, and ’980 patents are valid but not infringed and that the ’114 patent is both invalid and not infringed. The ALJ further found that while Samsung had shown that the economic prong of the domestic industry requirement had been satisfied, Samsung did not prove that the technical prong had been satisfied for any of the four patents at issue. Samsung, Apple, and the Commission investigative attorney (“IA”) filed petitions for review of the final ID.

On November 19, 2012, the Commission determined to review the ID in its entirety. The Commission issued a first notice soliciting written submissions from the parties and from the public on several issues. Some of the Commission’s questions related to Samsung’s assertion of two patents alleged to be essential to the Universal Mobile Telecommunications Standard (“UMTS”), a technical standard promulgated by the European Telecommunications Standards Institute (“ETSI”). Those patents are the ’348 patent and the ’644 patent. Samsung has stated the inventions covered by those patents are essential to the UMTS standard and that it will

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license those patents on fair, reasonable, and non-discriminatory (“FRAND”) terms.¹ The Commission received responses from Samsung, Apple, and the IA addressing all of the Commission’s questions in the first notice. In response to the FRAND questions posed to the public, the Commission received responses from the following (in alphabetical order): Association for Competitive Technology; Business Software Alliance; Ericsson Inc.; GTW Associates; Hewlett Packard Company; Innovation Alliance; Intel Corporation; Motorola Mobility LLC; Qualcomm Incorporated; Research In Motion Corporation; and Sprint Spectrum, L.P.

On March 13, 2013, the Commission issued a second notice soliciting submissions from the parties and from the public on additional issues, including some additional FRAND-related questions and questions concerning the scope of the requested remedy. In response to this second notice the Commission received responses from Samsung, Apple, the IA, and (in alphabetical order) Association for Competitive Technology; Business Software Alliance; Cisco Systems, Inc.; Hewlett Packard Company; Innovation Alliance; Micron Technology, Inc.; and Retail Industry Leaders Association. Notably, the principal wireless carrier for the products accused in this investigation, AT&T Wireless, did not submit any comments to the Commission.

¹ For ease of reference, in this opinion we refer to patents that a patent owner has declared to be essential to a technical standard as standard-essential patents (“SEPs”) or declared-essential patents. Our use of this term does not imply that we have determined that the technologies claimed in the ’348 and ’644 patents asserted in this investigation are, or continue to be, essential to the UMTS standard. As discussed below, no party asked the ALJ to make such findings. Further, our use of this term does not reflect a determination as to what obligations may or may not result from Samsung’s declarations that the ’348 and ’644 patents may be considered essential to the UMTS standard.

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Nor did the Commission receive comments from ETSI, the standard-setting organization (“SSO”) whose policies are at issue in this investigation.²

As explained in greater detail below, the Commission has determined that Samsung has proven a violation of section 337 with respect to the ’348 patent but has not proven a violation with respect to the ’644 patent, the ’980 patent, and the ’114 patent. The Commission vacates findings and conclusions of the ALJ that are contrary to this determination and adopts those findings and conclusions of the ALJ that support this determination. The Commission has determined to issue: (1) a limited exclusion order barring Apple from importing articles that infringe the ’348 patent; and (2) a cease and desist order barring Apple from further selling or

² In addition to the responses specifically invited in the Commission’s notices, on December 21, 2012, Apple submitted to the Commission a “Notice of New Facts Related to the Commission’s Questions on the Issues Under Review, and on Remedy, Bonding, and the Public Interest. That filing purports to quote Samsung as having stated it had withdrawn injunction requests against Apple based on standard essential patents pending in European courts,

On May 14, 2013, Apple submitted to the Commission a “Notice of New Authority Relevant to Issues on Review.” That filing cited a 207-page order in *Microsoft Corp. v. Motorola, Inc.*, Case No. C10-1823, 2013 U.S. Dist. LEXIS 60233 (D. Wash. April 25, 2013). Apple contends that the district court decision shows that courts, not the Commission, should determine what constitutes a FRAND royalty.

Apple’s May 14 submission also quoted a press release stating, “The European Commission has informed Motorola Mobility of its preliminary view that the company’s seeking and enforcing of an injunction against Apple in Germany on the basis of its mobile phone standard-essential patents (‘SEPs’) amounts to an abuse of a dominant position prohibited by EU antitrust rules.”

On May 22, 2013, Apple submitted to the Commission a “Notice of New Authority and New Facts Relevant to Issues on Review.” That filing cited a district court order in *Realtek Semiconductor Corp. v. LSI Corp.*, Case No. C-12-03451-RMW, (N.D. Cal. May 20, 2013), which issued a preliminary injunction barring a patent owner from enforcing any Commission exclusion order until the district court could determine whether the patent owner breached its RAND licensing obligations

Apple’s May 22 submission also summarizes arguments Samsung has allegedly made in *Ericsson Inc. v. Samsung Electronics Co., LTD.* (E.D. Tex.) (no case number provided by Apple).

The Commission’s notices soliciting briefing in this investigation both expressly stated that no submissions beyond those specifically requested by the Commission would be permitted unless otherwise ordered by the Commission. Apple did not request leave to file its submissions on December 21, 2012; May 14, 2013; and May 22, 2013. Even if Apple had obtained leave, the contents of its submissions would not change the determination we reach herein.

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distributing within the United States articles that infringe the '348 patent.³ Should Apple continue to import and sell infringing articles during the 60 day period of review of this determination by the President, the Commission has set a bond of zero per cent during that period.

II. BACKGROUND

A. The Accused Articles

The accused articles in this investigation are smartphones, portable music and data processing devices, and tablet computers.

With respect to the '348 patent, Samsung accuses Apple's iPhone 4 (AT&T models); iPhone 3GS (AT&T models); iPhone 3 (AT&T models); iPad 3G (AT&T models); and iPad 2 3G (AT&T models) (collectively, the "Accused '348 Products") of infringing claims 75-76 and 82-84. Samsung has designated the iPhone 4 AT&T 8 GB as a representative product on the basis that all Accused '348 Products contain Intel PMB9801 baseband processors with identical relevant source code. ID at 12.

With respect to the '644 patent, Samsung accuses Apple's iPhone 4S (all models); iPhone 4 (AT&T models); and iPad 2 (3G) (AT&T models) (collectively, the "Accused '644 Products") of infringing claims 9-16. Samsung has designated the iPhone 4S 16GB, which contains a Qualcomm MSM6610 baseband processor, as representative of the accused iPhone 4S products. Samsung has designated the iPhone 4 AT&T 8 GB as representative of the accused iPhone 4 and iPad 2 products, on the basis that it and the other accused iPhone 4 and iPad 2 products contain Intel PMB9801 baseband processors with identical relevant source code.

³ Commissioner Pinkert dissents from the determination on remedy and the public interest.

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With respect to the '980 patent, Samsung accuses Apple's iPhone 3GS (all carriers), the iPhone 4 (all carriers and models), and the iPhone 4S (all carriers) (collectively, the "Accused '980 Products") of infringing claims 10 and 13. Samsung has designated the iPhone 4S as representative of all the Accused '980 Products.

With respect to the '114 patent, Samsung accuses Apple's iPhone 4S (all models); iPhone 4 (all models); iPhone 3GS (all models); iPad 2 (all models); iPad (all models); and iPod Touch (4th generation) (collectively, the "Accused '114 Products") of infringing claims 1-5. Samsung has designated the iPhone 4S 16GB as representative of the Accused '114 Products.

B. The Alleged Domestic Industry Articles

With respect to domestic industry, Samsung is relying on the following products (the "Samsung Products"):

i. Samsung Devices Alleged to Practice All Patents

- The Gravity Smart (SGH-T589) and Dart (SGH-T499), which both contain Qualcomm MSM-7227-0 baseband processors. Samsung has designated the Gravity Smart as representative of these devices.
- The Galaxy S 4G (SGH-T959V), Infuse 4G (SGH-I997), Exhibit 4G (SGH-T759) and Sidekick 4G (SGH-T839), which all contain ST-Ericsson DB5730 processors. Samsung has designated the Galaxy S 4G as representative of these devices.

ii. Samsung Devices Alleged to Practice the '348 Patent

- The Impression Full Qwerty Touch (SGH-A877), Behold (SGH-T919), Eternity II (SGH-A597), Eternity Touch (SGH-A867), Flight II (SGH-A927), Highlight (SGH-T749), Rugby II (SGH-A847), Mythic (SGH-A897), and Solstice (SGH-A887),

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which all contain Qualcomm MSM6290 baseband processors. Samsung has designated the Impression Full Qwerty Touch as representative of these devices.

iii. Samsung Devices Alleged to Practice the '980 and '114 Patents

- The Galaxy S II (SGH-T989), Exhibit II 4G (SGH-T679), Nexus S (GH-I9020), Vibrant (SGH-T959), Captivate Glide (SGH-I927), Seine Galaxy S2 (SGH-I777), Galaxy S2 Skyrocket (SGH-I727), Behold II (SGH-T939), Double Time (SGH-I857), Captivate (SGH-I897), Droid Charge (SCH-I510), Galaxy Prevail (SPH-M820), Replenish (SPH-M580), Intercept (SPH-M910), Acclaim (SCH-R880), Continuum (SCH-I400), Epic 4G (SPH-D700), Fascinate/Mesmerize/Showcase (SCII-I500), Gem (SCH-I100), Moment/Instinct Q (SPH-M900), Transform (SPH-M920), and Indulge (SCH-R910), which all use Android operating system Froyo or later. Samsung has designated the Galaxy S 4G and Gravity Smart as representative of these devices.

III. ANALYSIS

A. The '348 Patent

The '348 patent is titled, "Apparatus and Method for Encoding/Decoding Transport Format Indicator in CDMA Mobile Communication System." The patent discloses an apparatus and method for encoding and decoding certain protocol signals, called transport format combination indicator ("TFCI") signals, in a cellular telephone network. TFCI signals inform a receiver of the data rate at which the transmitter will be transmitting. Prior to transmission, TFCI data is encoded into longer "codewords." The codewords are used for error correction, that is, to increase the likelihood that the receiver will correctly interpret the received TFCI information if some part of the transmission becomes corrupted en route.

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Five claims from the '348 patent remain asserted in this investigation: independent claims 75 and 82, and dependent claims 76, 83, and 84. All of the remaining asserted claims are apparatus claims. The asserted independent claims read as follows:

75. A Transport Format Combination Indicator (TFCI) encoding apparatus in a COMA [sic] mobile communication system, comprising:
a controller for outputting a 30 bit codeword from among a plurality of 30 bit codewords that corresponds to a 10 bit TFCI information input to the controller from a plurality of possible 10 bit TFCI information,
wherein the 30 bit codeword output by the controller is equivalent to a 32 bit codeword that corresponds to the 10 bit TFCI information input to the controller.

82. A Transport Format Combination Indicator (TFCI) encoding apparatus in a CDMA mobile communication system, comprising:
a controller for outputting a 32 bit codeword from among a plurality of 32 bit codewords that corresponds to a 10 bit TFCI information input to the controller from a plurality of possible 10 bit TFCI information; and
a puncturer for puncturing two bits from the 32 bit codeword output by the controller, each of the two bits being a punctured at a predetermined position, and outputting a 30 bit codeword that is equivalent to the 32 bit codeword output by the controller.

i. Claim Construction

a. "puncturing" (claims 82-84)

Claims 82-84 of the '348 patent require "a puncturer for puncturing two bits from the 32 bit codeword output by the controller." Samsung alleges that the ALJ erred in his construction of "puncturing."

The '348 patent describes at least two embodiments of the invention: (1) an encoder that outputs a 32-symbol codeword; and (2) an encoder that outputs a 30-symbol codeword. The first encoder is used in a scheme that incorporates a transmission frame with 16 slots and that allocates two symbols per slot for a total of 32 symbols per frame. '348 patent at 1:57-60. The patent explains the reason for the second embodiment that outputs a 30-symbol codeword:

Recently, the IMT-2000 standard specification dictates having 15 slots in one frame. Therefore the second embodiment of the present invention is directed to a (30, 10) TFCI encoder that outputs a 30-symbol TFCI codeword in view of 15 slots. Therefore, the

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second embodiment of the present invention suggests an encoding apparatus and method for outputting 30 code symbols by puncturing two symbols of 32 coded symbols (codeword) as generated from the (32, 10) TFCI encoder.

Id. at 31:19-25. Thus, the second embodiment of the invention outputs 30 code symbols by “puncturing” two symbols from a 32-symbol codeword.

At the *Markman* phase of the investigation, Apple proposed that “puncturer” be construed as “hardware and/or software for deleting/removing of bits.” *See* Order 63 at 31. The ALJ rejected this construction as too restrictive. In doing so, the ALJ noted that in one embodiment of the invention, a “generator 820 can generate 30 symbols which excludes [*sic*] the #0 and #16 symbols” of a longer 32-symbol codeword. *Id.* at 32 (citing ’348 patent at 32:11-14). The ALJ stated, “Generating 30 symbols, instead of 32 symbols, by not including the #0 and #16 symbols does not require removing or deleting them, whether by hardware or software.” *Id.* at 32. The ALJ further explained that Apple’s construction of “puncturing” was incorrect because it excluded embodiments in which two of the 32 symbols are “passed over, disregarded, ignored, or simply not generated.” *Id.* The ALJ stated that “there is more than one way for puncturing,” and therefore puncturing “does not necessitate removing or deleting bits.” *Id.* at 33. After having examined the teachings of the specification, the ALJ stated,

[A] person of ordinary skill would have understood the word “puncturing” according to its plain and ordinary meaning. The noun “puncture” generally means a perforation or hole in an object that has been pierced. This coincides with the way in which the inventors used the term in the ’348 patent.

Id. The order concluded that the term “puncturer” means “hardware or software for puncturing.”

Id.

In the final ID, the ALJ relied upon general purpose dictionaries to define “puncture” as “to pierce with or as if with a pointed instrument or object” and “to make useless or ineffective as if by a puncture.” ID at 52. The ALJ stated that “use of the terms ‘puncturer’ and

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‘puncturing’ in the ’3[48] patent is consistent with common usage of the rootword ‘puncture’ as defined in these dictionaries.” *Id.*

In its November 19, 2012, notice of review, the Commission asked the parties to address the following:

10. With respect to asserted claims 82-84 of the ’348 patent, identify any support in the patent specification or the record generally for construing the term “puncturing” in asserted claims 82-84 to encompass “excluding” bits (*see, e.g.*, ’348 patent at 32:10-17). What consequence would such a construction have on the issues of infringement, validity, and the technical prong of the domestic industry requirement?

In response to the notice, Samsung points to extrinsic evidence to argue that persons of skill in the art at the time of the invention understood “puncturing” to mean that certain bits of the coded block are suppressed. For example, *THE ART OF ERROR CORRECTING CODE*, by Robert H. Morelos-Zaragoza describes “not sending, some output bits” as a form of puncturing.

CXM-47 at 111. *UMTS ORIGINS, ARCHITECTURE AND THE STANDARD*, by Pierre Lescuyer, a book relevant to the UMTS technology in the ’348 patent, states:

When the size of the blocks provided by the channel coding function is greater than that of a physical block . . . , certain bits of the coded block are suppressed. This is known as ‘puncturing’. Puncturing is based on an algorithm for determining which bits can be suppressed, *i.e.* the bits whose suppression will not damage the error control too much.

CXM-48 at 121 (emphasis added). Furthermore, telecommunications related patents, such as U.S. Pat. No. 6,614,850, titled “Method and Apparatus for Puncturing Code Symbols in a Communications System,” disclose that puncturing can involve skipping code elements and transmitting only the un-skipped code elements. *See* CXM-49; JXM-17 at ¶ 91.

Samsung alleges that the patent teaches “excluding” bits in two scenarios: before a codeword is generated (*see* ’348 patent at 32:10-17) and after a codeword is generated (*see id.* at 32:4-10). Samsung argues that “puncturing” can therefore be construed to include “excluding” bits. Samsung cites testimony from the hearing that the Apple iPhone 4 products [[

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]]. See JX-63C Intel Dep. 73:13-16 (Schiele); Tr. 527:4-528:17 (Min); Tr. 2095:11-16 (Davis); Samsung contends that the accused devices therefore exclude or “puncture” [[]] as required by the asserted claims.

The IA concurs with Samsung that puncturing is “any” means by which to adapt the size of a sequence of bits to fit an acceptable transmission size. The IA notes that the ’348 provides no definition of “puncturing.” The IA contends, however, that the patent uses the word “excludes” as a synonym for “punctures,” citing the ’348 patent at col. 32, lines 4-17.

Apple argues that “puncturing” does not encompass “excluding” bits. Apple notes that the ’348 patent uses the term “excludes” to describe an alternative embodiment of the invention that generates basis sequences of only 30 bits in length. As a result, the output by the controller includes only 30 bits and nothing is punctured. Apple contends this “excluding” embodiment is captured in claims 68-74 of the ’348 patent. Apple argues that under the doctrine of claim differentiation, puncturing cannot comprise excluding. Apple also asserts that “not transmitting” bits is not the same as “excluding” bits or “puncturing” bits.⁴ Apple appears to contend that “puncturing” a bit requires actually writing over the bit in a memory location where a codeword is stored or erasing the electrical charge that represents a bit in a memory location.

To the extent that the ALJ construed the term “puncturing” in the context of the ’348 patent to mean “to pierce with or as if with a pointed instrument or object,” we find that

⁴ Presumably, Apple takes this claim construction position because, as discussed below, it claims that its devices [[]].

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construction to be incorrect and unhelpful in resolving the dispute between the parties.⁵ The construction of “puncturing” must be consistent with the way the term is used in the ’348 patent. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*), *aff’d*, 517 U.S. 370 (1996) (“Claims must be read in view of the specification, of which they are a part.”); *Phillips v. AHW Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (“Properly viewed, the ‘ordinary meaning’ of a claim term is its meaning to the ordinary artisan after reading the entire patent.”). The patent teaches that “excluding” two symbols from a 32-symbol codeword is one form of puncturing. *See* ’348 patent at 32:11-14. The ALJ appeared to agree with this concept in his *Markman* order, but arguably backed away from this concept in the final ID. *Compare* Order No. 63 at 32-33 *with* ID at 52. In particular, when the ALJ compared the ’348 patent claims to the devices accused of infringement and to the alleged domestic industry articles, the ALJ rejected arguments that “excluding” [[]] from a 32-symbol codeword is one form of puncturing. *See* ID at 52. The ALJ’s analysis therefore appears to be in tension with the specification of the ’348 patent.

The ’348 patent specification provides no explicit definition for the word “puncturer” or “puncturing.” In such a circumstance extrinsic evidence may be useful in understanding the meaning of the term to a person of ordinary skill in the art at the time of the invention. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1309 (Fed. Cir. 1999) (it is appropriate to consult trustworthy extrinsic evidence to ensure a claim construction is not

⁵ Samsung argued to the ALJ that the term “puncturer” should be construed according to its plain meaning, apparently without further elaboration. But arguments that “a claim term ‘needs no construction’ or has the ‘plain and ordinary meaning’ may be inadequate when a term has more than one ‘ordinary’ meaning or when reliance on a term’s ‘ordinary’ meaning does not resolve the parties’ dispute.” *See O2 Micro Intern. Ltd. v. Beyond Innovation Technology Co., Ltd.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008). The correct construction of “puncturing” must be the one that a person of skill in the art would understand in the context of the ’348 patent. *Markman*, 52 F.3d at 979.

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inconsistent with widely held understandings in the pertinent technical field); *Philips*, 415 F.3d at 1318 (extrinsic evidence may show a claim term has a particular meaning in the pertinent field). The extrinsic evidence in this record shows that a person of skill in the art at the time of the invention would understand that in the context of an encoding scheme, puncturing a codeword means that “certain bits of the coded block are suppressed.” *See* CXM-47 at 111; CXM-48 at 121; CXM-49; JXM-17 at ¶ 91.

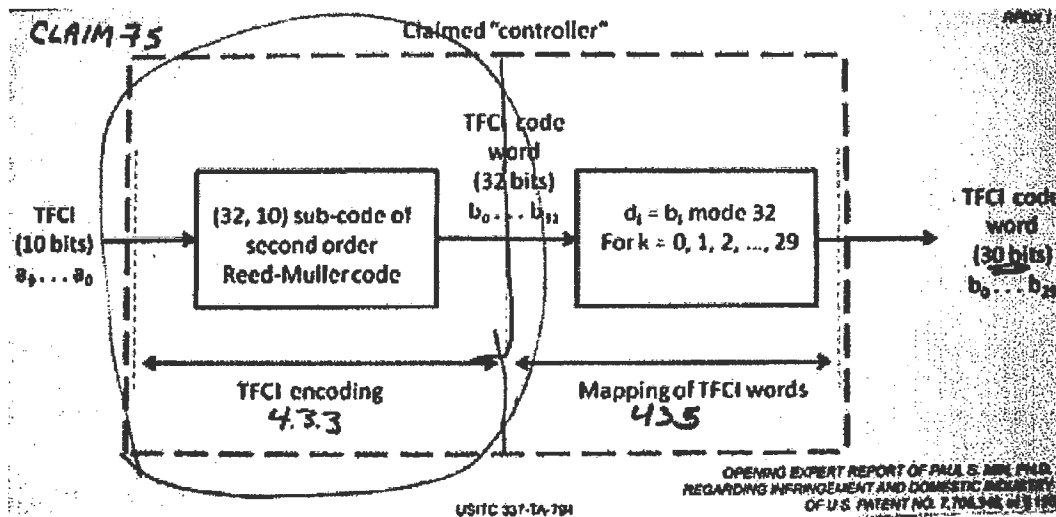
In view of the language of the claims, the '348 patent specification, the '348 patent prosecution history, and the extrinsic evidence on the record in this investigation, we conclude that a person of ordinary skill in the art at the time of the invention would construe “puncturing” bits from a codeword “at a predetermined position” to mean excluding, suppressing, ignoring, or skipping bits at the predetermined position. The parties have agreed that the construction of the term “puncturer” should be consistent with the interpretation of the term “puncturing.” Accordingly, we construe the term “puncturer” as hardware or software used for excluding, suppressing, ignoring, or skipping bits.

b. “controller” (all claims)

The disputed term “controller” appears in all asserted claims of the '348 patent. Independent claim 75 requires “a controller for outputting a 30 bit codeword,” while independent claim 82 describes “a controller for outputting a 32 bit codeword.” In his *Markman* order, the ALJ rejected Apple’s proposed construction that would limit the term “controller” to a hardware device. Order No. 63 at 17. The ALJ stated Apple’s construction “is not supported by the intrinsic evidence.” *Id.* The ALJ explained that in the '348 patent, “[a] controller involves logic,” and software may provide that logic. *Id.* The ALJ ultimately concluded that in both claim 75 and claim 82 the term controller “requires no construction and could be understood by a person of ordinary skill in the art according to its plain and ordinary meaning.”

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At trial, Samsung's expert Dr. Min illustrated his testimony about the alleged "controller" in the accused devices in at least two ways. In a first illustration, reproduced below, Dr. Min drew a circle around the alleged controller with a 32-bit output (claim 82), while the dashed line encompasses the alleged controller with a 30-bit output (claim 75):



RPDX-1; ID at 63-64.

In a second illustration, Dr. Min identified one set of firmware that allegedly corresponds to the controller of claim 82 and another set of firmware that allegedly corresponds to the controller of claim 75. As shown in the figure below, Dr. Min testified that the firmware functions listed in the left column correspond to a controller with a 32-bit output (claim 82), while the combination of firmware functions listed in both columns corresponds to a controller with a 30-bit output (claim 75):

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As illustrated above, Samsung contends that the controller meeting claim 82 comprises the firmware functions [] and []. Tr. (Min) at 1264-65. Samsung further contends that those same functions and additional functions are involved in the controller of claim 75. Those additional functions include: (1) [], which extracts [] stored by [] and punctures [] to create a [] codeword; (2) [], which packages the resulting [] TFCI codeword for use by the control channel; and (3) [], which writes the [] codeword and [] for transmission. Tr. (Min) at 1262-65.

Apple and the IA argued to the ALJ that because Samsung identifies two different sets of firmware in the same device as corresponding to a “controller,” Samsung’s infringement argument applies a different construction of the word “controller” when analyzing claim 75 than

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it applies when analyzing claim 82. The ALJ accepted the arguments advanced by Apple and the IA, stating that “identical words in claims within the same patent should be given the same meaning” and that “the term ‘controller’ cannot refer to two separate structures within the same accused product.” ID at 70-71.

Samsung argues that the ALJ erroneously concluded that the “controller” in claims 75 must be identical to the “controller” in claim 82 and have the same logic. Samsung contends that the “controller” in claim 75 is different from that in claim 82 because each is modified by claim language that defines additional functionality. *Id.* The IA and Apple disagree with Samsung and maintain that the ALJ correctly determined that the term “controller” has the same meaning in both claims 75 and 82.

We conclude that the ALJ’s *Markman* order: (1) correctly rejected Apple’s argument that a “controller” must be hardware; and (2) correctly stated that the word “controller” itself, as used in the ’348 patent claims, could be understood by a person of ordinary skill in the art according to its plain and ordinary meaning. However, we find that the ALJ erred in his interpretation of the claims when comparing the “controller” phrases in the claims to the accused devices in the ID.

It is well established that a claim term generally should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent. *See Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001). But it is equally well established that all claim terms are presumed to have meaning in a claim. *See Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1119 (Fed. Cir. 2004). Neither claim 75 nor claim 82 describes a mere general purpose “controller”; each claim limits the term “controller” in a unique way. Claim 75 describes “a controller *for outputting a 30 bit codeword*”

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(emphasis added), while claim 82 describes “a controller *for outputting a 32 bit codeword*” (emphasis added). Because those limiting phrases must be given meaning, we find that the specific controller defined in claim 75 is not identical to the specific controller defined in claim 82.

c. “10 bit TFCI information” (all claims)

Claims 75 and 82 of the '348 patent both describe controllers that output a codeword “that corresponds to a 10 bit TFCI information input to the controller.” The relevance of this term arises in connection with Samsung’s domestic industry showing. Samsung alleges two types of Samsung domestic industry products practice claims 75 and 82 of the '348 patent: (1) those using either a Qualcomm MSM7227-0 or a Qualcomm MSM6290 baseband processor, represented by the Samsung Gravity Smart and the Impression Full Qwerty Touch; and (2) those using an ST-Ericsson DB5730 baseband processor, represented by the Galaxy S 4G. Tr. at 595:24-601:10 (Min). As Samsung’s expert Dr. Min testified, Samsung domestic industry products using Qualcomm baseband processors contain controllers having a [[]]input for receiving[[]]. Tr. at 1254:23-1257:15 (Min); *see also id.* at 1244:19-1245:14 (Min), 1251:12-1253:12 (Min). The ALJ concluded that “the domestic industry products that incorporate the Qualcomm baseband processor do not practice claims 75 or 82 of the '348 patent, because they use [[]] bits of TFCI information rather than 10 bits[.]” ID at 547. In contrast, the record indicates that ST-Ericsson products encode [[]] of TFCI information into a [[]] codeword. Tr. at 635:14-637:19 (Min); CX-1193C at S-ITC-C00004146.

In its notice of review, the Commission asked the parties to address the following:

8. With respect to the asserted claims of the '348 patent, what record evidence shows that a person of ordinary skill in the art would understand the phrase “10 bit TFCI information” to allow or preclude the use of padding bits? What is the difference

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between the “10 bit TFCI information” in the portion of Table 1a shown in columns 13 and 14 of the ’348 patent and the TFCI information with padding zeroes allegedly used in the alleged domestic industry devices? Is the patent’s discussion of padding zeroes at col. 3, lines 27-34 of any relevance? What consequence would construing “10 bit TFCI information” to allow padding bits have on the issues of infringement, validity, and the technical prong of the domestic industry requirement?

In responding to the Commission’s question, all parties appear to agree that the ’348 patent specification discloses at least two embodiments of the invention: (1) a controller for use with data containing exactly 10 bits of significant TFCI information, and (2) a controller for use with 10 bits of data that contain at least some significant TFCI information. Thus, there is no question that the specification will support each party’s construction of this limitation. The question becomes, then, whether the language of the asserted claims limits their scope to a particular disclosed embodiment and excludes other disclosed embodiments. Apple and the IA contend the asserted claims are limited to the former embodiment listed above. Samsung argues the asserted claims cover both embodiments.

We note that no party asked the ALJ to construe “10 bit TFCI information” in the first instance, and neither the *Markman* order nor the ID offers any formal construction. However, the ALJ’s domestic industry analysis distinguished the products in question from the claims based on the products’ use of [[]]. In our view, that analysis demonstrates an interpretation of the patent claims that is in tension with the intrinsic evidence of the ’348 patent.

For example, the ’348 specification discusses a prior art system for encoding “basic TFCI,” which is normally composed of up to 6-bits. ’348 patent at 3:29-30. The patent explains that “where a basic TFCI bits of less than 6 bits are applied to the biorthogonal encoder 402, *0s are added* . . . to increase the number of the basic TFCI bits to 6.” *See id.* at 3:27-34 (emphasis added). Thus, the ’348 patent calls all 6 bits “basic TFCI bits,” even though some of the bits may be “0” bits added to pad out the total number of bits.

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Further, Samsung noted in response to the Commission's question another teaching of padding zeros in the '348 specification. In column 4, the patent describes a prior art system shown in Fig. 5. The specification teaches,

The extended TFCI are basically expressed in 10 bits. Therefore, in the case where an extended TFCI bits of less than 10 bits are input [*sic*], the controller 500 adds 0s to the MSB of the extended TFCI bits to represent the extended TFCI in 10 bits."

'348 patent at 4:8-12. In this passage, the patent refers to "extended TFCI" as "expressed in 10 bits," even where some of those bits are actually meaningless zeros.

The subsequent description of the prior art embodiment shown in Fig. 5 is informative. The patent states that when the prior art system decodes a codeword based on data that included padding zeros it "obtains 10 TFCI bits." '348 patent at 4:41. This disclosure lends support to a conclusion that "TFCI bits" can include padding zeros. *See also id.* at 4:55 ("the whole 10 TFCI bits"). Additionally, the patent uses parentheses several times to equate "TFCI bits" with "information bits" and "input information bits." *See, e.g., id.* at 2:12 ("...encoding TFCI bits (information bits) that define..."); 7:66 ("input of (n+k) TFCI bits (input information bits)"); 8:63-64 ("n+k information bits (TFCI bits)"); 10:16-17 ("all possible 10 input information bits (TFCI bits)"); 12:29 ("10 input information bits (i.e., TFCI bits)"); 34:43 ("10 information bits (TFCI bits)"). It follows that if "10 TFCI bits" can include padding zeros, as shown above, then the terms the patentee has declared as synonymous with "10 TFCI bits" can also include padding zeros. In view of these disclosures, we conclude a person of skill in the art would understand that "10 bit TFCI information" can include padding zeros.

Moreover, the '348 patent states that in the claimed invention, "TFCI information bits" "define the data rate of the DPDCH signals." '348 patent at 2:51-52; *see also id.* at 2:11. Apple has presented no evidence that the use of padding zeros in TFCI information interferes with the

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definition of a data rate. Accordingly, a construction of the asserted claims that allowed the use of padding zeros would not frustrate the stated purpose of TFCI information bits.

In sum, we conclude that a person of ordinary skill in the art would understand that in the context of the '348 patent "10 bit TFCI information" in the claimed invention could include less than 10 bits of significant TFCI information and padding "0" bits. In view of the foregoing, we construe "10 bit TFCI information input to the controller" to mean "a 10 bit input that contains at least some significant TFCI information and that may contain padding zeros."

**d. "from among a plurality of 30 bit codewords" and
"from among a plurality of 32 bit codewords" (all claims)**

Apple challenges the ALJ's the interpretation of the terms "from among a plurality of 30 bit codewords" in claim 75 and "from among a plurality of 32 bit codewords" in claim 82. To give context, the disputed phrase in claim 75 is reproduced below:

a controller for outputting a 30 bit codeword *from among a plurality of 30 bit codewords* that corresponds to a 10 bit TFCI information input to the controller from a plurality of possible 10 bit TFCI information . . .

'348 patent, claim 75 (emphasis added). The ALJ construed the phrases to mean "from more than one 30 bit codeword" (claim 75), and "from more than one 32 bit codeword" (claim 82). Order No. 63 at 24.

Apple argues that the '348 patent depicts two types of encoders: (1) the type shown in Figures 8 and 14 of the '348 patent, which calculate 30- or 32-bit codewords based on 10 input bits using a series of binary mathematical operations performed by multipliers and an adder; and (2) the type shown in Figure 13, which are hardware embodiments that use a "codeword table" or "encoding table" to look up a specific codeword associated with a specific 10-bit input. Apple states that the ALJ's construction is erroneous because it "reaches both the codeword table and realtime generation embodiments discussed above." Apple would limit claims 75 and 82 to the

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second type of encoder, which uses a codeword lookup table because in that embodiment the encoder selects a particular codeword from among the plurality of codewords in the lookup table.

The ALJ rejected Apple's argument during the *Markman* phase of the investigation. The ALJ determined that "[t]here is nothing in the claims or specification that supports Apple's proposed construction limiting the disputed terms to an encoding table." Order No. 63 at 24.

The ALJ explained:

The claims state that 10 bit TFCI information, with which there is a corresponding codeword, is among a plurality of possible 10 bit TFCI information, thus there has to be a plurality of corresponding codewords . . . [T]he "codeword" corresponds to 10 bit TFCI information input to the controller "from a plurality of possible 10 bit TFCI information." And since, explicitly, there is a plurality of 10 bit TFCI information, there is also a plurality of codewords corresponding therewith. Therefore, the apparatus disclosed in claims 75 and 82 does not require an encoding table to perform their outputting functions.

Id.

In its notice of review issued on November 19, 2012, the Commission asked the parties to address the following:

9. With respect to the asserted claims of the '348 patent, what claim language, if any, limits the claim to the use of a look-up table and precludes the claim from covering the embodiment of the invention shown in Figures 8 and 14 of the '348 patent?

In response to the Commission's question, both Samsung and the IA contend that the language of the asserted '348 patent claims does not limit the invention to the use of look-up tables. They argue that even in the embodiment of the invention that generates a codeword in real-time (*e.g.*, Figs. 8 and 14), the invention outputs a plurality of codewords, each one of which depends on the input. Accordingly, Samsung and the IA assert that the claims properly cover both a real-time codeword generator and a codeword look-up table.

Apple's response to the Commission's question focuses on the fact that the real-time codeword generator in Figs. 8 and 14 only produces one codeword at a time. Therefore, Apple argues, that embodiment does not output a codeword from among a plurality of codewords and is

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not covered by the claims. Apple further argues that because some non-asserted claims are expressly limited to an embodiment that generates codewords in real-time (*see, e.g.*, claims 36, 42, and 46), the asserted claims should not be construed to cover those embodiments.

We discern no error in the ALJ's construction. As the ALJ explained, the language of the asserted claims is broad enough to cover both of the alternative embodiments that Apple concedes are taught in the specification. Apple has not presented compelling reason to limit the wording in the asserted claims to only one of those embodiments. Additionally, we note that even if the claims were limited to the use of look-up tables, that construction would not change the ALJ's infringement and domestic industry findings with respect to this claim limitation. Both the accused products and the domestic industry products use [[]]. We therefore adopt the ALJ's construction of these claim terms, namely, "from more than one 30 bit codeword" (claim 75), and "from more than one 32 bit codeword" (claim 82).

ii. Infringement

When the claims are interpreted as described above, the record supports a conclusion that Apple's iPhone 4 (AT&T models); iPhone 3GS (AT&T models); iPhone 3 (AT&T models); iPad 3G (AT&T models); and iPad 2 3G (AT&T models) (collectively the "Accused '348 Products") infringe the asserted claims. These models all include Intel baseband processors with identical relevant source code. ID at 24.

Apple implements its TFCI encoding scheme in [[]]. *See* Min Tr. 543:7-20; *see also* CX-0010C at CX-0010.32; JX-0063C Intel Dep. 42:12-23 (Schiele). This [[]]. *See* CX-0008C at CX-0008.0015; *see also* CX-0014C at CX-0014.0264-65; Min Tr. 539:15 – 540:13.

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[[
]]. See Min Tr. 545:15-21; *see also* JX-0063C Intel Dep. 79:15-18 (Schiele).
[[
]]. CX-0005C at
593DOC000124-125; *see* Min Tr. 545:22-546:6. [[
]]. CX-0005C at 593DOC000126-129; *see* Min Tr. 546:7-12; *see also* Davis
Tr. 2118:1-2119:1.
[[
]]. CX-0006C at
593DOC000137-8, 593DOC000139-140; *see* Min Tr. 547:21-23. [[
]]. See Min Tr. 547:23-548:4;
see also JX-0063C Intel Dep. 84:18-23 (Schiele).
[[
]]. CX-0006C at
593DOC000134; *see* Min Tr. 548:5-549:21; *see also* JX-0063C Intel Dep. 85:16-22, 90:21-91:4,
94:18-95:13 (Schiele).
[[
]]. *Id.*; *see also* JX-0063C Intel Dep. 91:6-92:12 (Schiele). The resulting
[[
]] contains the same sequences disclosed in the '348 patent with the design
implementation of [[
]]. See
Min Tr. 549:22-550:22. The illustration below demonstrates this comparison. The encoding

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table on the left is derived from the '348 patent sequences and the encoding table on the right is

derived from [[[redacted]]]. These two encoding tables [[[redacted]]]. *Id.*

[[

Bit Position	W1	W2	W4	W8	W16	A11	M1	M2	M4	PAR
1	1	0	0	0	0	1	0	0	0	0
2	0	1	0	0	0	1	1	0	0	0
3	1	1	0	0	0	1	0	0	0	1
4	0	0	1	0	0	1	1	0	1	1
5	1	0	1	0	0	1	0	0	0	1
6	0	1	1	0	0	1	0	0	1	0
7	1	1	1	0	0	1	0	1	0	0
8	0	0	0	1	0	1	0	1	1	0
9	1	0	0	1	0	1	1	1	1	0
10	0	1	0	1	0	1	1	0	1	1
11	1	1	0	1	0	1	0	0	1	1
12	0	0	1	1	0	1	0	1	1	0
13	1	0	1	1	0	1	0	1	0	1
14	0	1	1	1	0	1	1	0	0	1
15	1	1	1	1	0	1	1	1	1	1
16	1	0	0	0	1	1	1	1	0	0
17	0	1	0	0	1	1	1	1	0	1
18	1	1	0	0	1	1	1	0	1	0
19	0	0	1	0	1	1	0	1	1	1
20	1	0	1	0	1	1	0	1	0	1
21	0	1	1	0	1	1	0	0	1	1
22	0	1	1	0	1	1	0	0	1	1
23	1	1	1	0	1	1	0	1	1	1
24	0	0	0	1	1	1	0	1	0	0
25	1	0	0	1	1	1	1	1	0	1
26	0	1	0	1	1	1	1	0	1	0
27	1	1	0	1	1	1	1	0	0	1
28	0	0	1	1	1	1	0	0	1	0
29	1	0	1	1	1	1	1	1	0	0
30	0	1	1	1	1	1	1	1	1	0
31	1	1	1	1	1	1	1	1	1	1
0	0	0	0	0	0	1	0	0	0	0
16	0	0	0	0	1	1	1	0	0	0

]]

CX-0006C [txdproc_rom.c] at 593DOC000134

JXM-0001 ['348 Patent] at 11:1-23

CDX-01.63; see Min Tr. 549:22-550:22.

[[

]]. See Min Tr. 553:12-555:14. [[

]].

CX-0013C at 593DOC002793-94; see JX-0063C Intel Dep. 16-24 (Schiele). [[

]].

See *id.*; see also JX-0063C Intel Dep. 85:24-86:14, 93:1-20 (Schiele). [[

]]. See Min Tr. 553:12-555:14; see also CX-0006C at 593DOC000141-142.

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[[

]]. See

Min Tr. 553:12-555:14; *see also* CX-0006C at 593DOC000136. [[

]]. See Min Tr. 557:4-558:10. [[

]]. *Id.*

The operation of the accused devices is best understood by a comparison with asserted claim 82. We therefore begin our analysis with that claim.

a. Independent Claim 82

82. A Transport Format Combination Indicator (TFCI) encoding apparatus in a CDMA mobile communication system, comprising:
a controller for outputting a 32 bit codeword from among a plurality of 32 bit codewords that corresponds to a 10 bit TFCI information input to the controller from a plurality of possible 10 bit TFCI information; and
a puncturer for puncturing two bits from the 32 bit codeword output by the controller, each of the two bits being a punctured at a predetermined position, and outputting a 30 bit codeword that is equivalent to the 32 bit codeword output by the controller.

1. **“a controller for outputting a 32-bit codeword . . . that corresponds to a 10 bit TFCI information input to the controller”**

Apple’s expert Dr. Davis conceded that the Accused ’348 Products contain a controller that satisfies this claim:

Q. If the controller can be [[]], you admit the accused products have a controller for outputting, don’t you sir?

A. I admit that the accused products have a controller for outputting a 32-bit codeword.

Davis Tr. 2079.

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Q. Dr. Davis, the iPhone 4 AT&T encodes[[
right?]],

A. That is correct.

Davis Tr. 2080.

Q. And the [[
correspond to the [[
]], that's output will
]], correct, sir?

A. It will correspond to the [[
]].

Davis Tr. 2082.

The ALJ found that Apple did not refute this allegation in its post-hearing submissions and therefore found that the Accused '348 Products meet this element of claim 82. ID at 37. We adopt this finding.

2. "a 10 bit TFCI information input to the controller from a plurality of possible 10 bit TFCI information"

Because each bit can be one of two values, a 0 or a 1, ten bits can be one of 2^{10} or 1024 possible values. See Min Tr. 518:24-520:25; see also CX-1099 at CX-1099.0047. Apple's expert Dr. Davis confirmed that the Accused '348 Products [[

]]:

Q. Sir, you don't dispute that whatever this is, [[
]], that there is [[
]] because you have two possible
states for each of the [[]] bits, ones or zeros,
correct?

A. That is correct.

Davis Tr. 2085:5-10.

Similarly, [[
]], as evidenced by
the variable [[
]] being set to [[
]]. Accordingly, the input to the controller
in the accused Apple devices can be [[
]]. See Min Tr. 552:7-22; see also

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CX-0005C at 593DOC000124-125. The ALJ found that Apple did not refute this allegation in its post-hearing submissions and found that the Accused '348 Products meet this element of claim 82. ID at 38. We adopt this finding.

3. "a 32 bit codeword from among a plurality of 32 bit codewords"

Apple's expert Dr. Davis testified as follows:

Q. Well, all I am asking is yes or no, do the accused products use [[]]?

A. That's what I was going to say. These are [[] if you want to communicate on a UMTS network. And I did say that on direct.

Q. And it is fair to say that this constitutes a [[]], right?

A. This does, yes.

Tr. at 2083-84 (Davis)).

The Accused '348 Products generate [[]

]]. Tr. at 557 (Min). The ALJ found that Apple did not refute this allegation in its post-hearing submissions and found that the Accused '348 Products meet this element of claim 82. ID at 40. We adopt this finding.

4. "a puncturer for puncturing two bits from the 32 bit codeword output by the controller"

The Intel chipset firmware in the Accused '348 Products contains [[]

]]. See CX-0013C; see also

CX-0006C; Min Tr. 553:12-555:13. [[]

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]]. *Id.* [[

]]. *See* Min Tr. 556:9-558:10. An Intel representative, Bernd Schiele, confirmed that [[

]]:

Q. So [[]]?

A. Yes, that's right.

JX-0063C Intel Dep. 87:1-4 (Schiele); *see also id.* at 53:1-4.

Samsung's expert Dr. Min testified that [[]] constitute a puncturer in the Accused '348 Products. [[

]]. *See* Tr. (Min) 553-558.

Apple's expert Dr. Davis gave consistent testimony:

[[

]]

Tr. (Davis) at 2048-49.

Because the puncturer in the Accused '348 Products always [[

]], the codeword is "punctured at a predetermined

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position” as required by claim 82. Tr. at 558 (Min) and 2048-49 (Davis). The forgoing evidence shows that the ’348 Accused Products satisfy the “puncturer” limitation in claim 82.

5. “outputting a 30-bit codeword”

Apple contends that the firmware that Samsung identified as the “puncturer” never outputs 30 bits. Rather, according to Apple, the firmware [[

]]. See Tr. at 2048:24-2049:19 (Davis). Apple argues that the output of the alleged “puncturer” is therefore actually [[]], and not the 30 bits required by claims 82-84. *Id.* (citing Hearing Tr. at 1209:12-15 (Min), 2056:10-18, 2127:18-2128:1 (Davis). Apple claims the ALJ never addressed this argument.

Apple’s argument lacks merit. First, contrary to Apple’s claim, the ALJ *did* address the opinion of Apple’s expert Dr. Davis that the accused Apple products do not infringe because they transmit [[]]. ID at 55-56. The ALJ noted that, as a matter of law, the fact that an accused device does more than required by the claims does not preclude a finding of infringement. See ID at 56 (citing *CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1361 (Fed. Cir. 2007); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997).) The ALJ also relied on the testimony of Apple’s own expert when finding that the accused Apple products transmit a 30-bit codeword:

Q. So you agree with me the iPhone 4 operating on AT&T only transmits [[]]
correct?

A. [[]]

ID at 56 (citing Davis Tr. 2095:11-16).

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Samsung's expert Dr. Min testified that the Accused '348 Products all [[
]].

See Min Tr. 527:4-528:17, 553:12-555:13; CX-1099 at CX-1099.0049; *see also* CX-0013C; CX-0006C; JX-0063C Intel Dep. at 51:20-23 (Schiele).

There appears to be no dispute that the Accused '348 Products transmit [[
]] to the base station. The ALJ found that Apple did not refute this allegation in its post-hearing submissions and found that the Accused '348 Products meet this element of claim 82. ID at 56. We adopt this finding.

6. "each of the two bits being punctured at a predetermined position"

The only reason the ALJ found this term was not met by the '348 Accused Products was because of his construction of the "puncturer" limitation. ID at 57. As we have explained above, we conclude that the ALJ's construction of this term was erroneous.

The Intel source code [[

]]. *See* JX-0063C Intel Dep. 52:17-19 (Schiele). [[

]]. Because the Accused '348 Products always [[
]], the codeword is "punctured at a predetermined position" as required by claim 82. *See* Tr. at 558 (Min) and 2048-49 (Davis). We therefore find that Samsung has proven the Accused '348 Products satisfy this limitation.

7. "a 30 bit codeword that is equivalent to the 32 bit codeword output by the controller"

Samsung contends that Apple's expert Dr. Davis agrees that the Accused Apple Products output a 30 bit codeword that is equivalent to the 32 bit codeword output by the controller. *See* Davis Tr. 2110:7-2111:8; *see also* Min Tr. 532:3-533:1. Dr. Davis testified:

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Q. Okay. But for the record, so we have a clean question and answer, you are not disputing that the phrase "that is equivalent to the 32-bit codeword output by the controller" is met by each of the accused products? Yes or no.

A. So that - I would say no.

Davis Tr. 2110:21-2111:8.

The ALJ found that Apple did not refute this allegation in its post-hearing submissions and found that the Accused '348 Products meet this element of claim 82. ID at 58. We adopt this finding.

In sum, Samsung has proven by a preponderance of the evidence that the Accused '348 Products meet every limitation of claim 82 and therefore infringe that claim.

b. Dependent Claims 83 and 84

The ALJ found that claims 83 and 84 of the '348 patent were not infringed because the accused devices lacked, in his view, a puncturer. *See* ID at 58, 61. Based on our construction of "puncturer," we find that Samsung has proven infringement of claims 83 and 84, as explained below. Those claims read as follows:

83. The TFCI encoding apparatus of claim 82, wherein each of the plurality of possible 10 bit TFCI information and each of the plurality of 32 bit codewords correspond to each other based on a combination of a basis orthogonal sequences, a basis mask sequences, and an all "1" sequence.

84. The TFCI encoding apparatus of claim 83, wherein a total number of the basis orthogonal sequences, the basis mask sequences and the all "1" sequence are identical to a number of bits of each TFCI information encoding process for coding the 10-bit TFCI information input into a 32-bit codeword.

The '348 patent discloses 5 basis orthogonal sequences, W1, W2, W4, W8, and W16, 4 basis mask sequences, M1, M2, M4, and M8, and an all "1" sequence to encode the TFCI. [[

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]]. See Min Tr. 577:24-578:10; see also CX-0006C at 593DOC000134. Therefore, [[
]], in
satisfaction of claim 83.

Further, the Intel source code file [[]] demonstrates that the Accused '348
Products utilize 10 bits of TFCI information. CX-0005C at 593DOC000124. Therefore, the
[[
]]. See
Min Tr. 580:22-583:20.

In view of the forgoing evidence, we find infringement of claims 83 and 84.

c. Independent Claim 75

Claim 75 reads as follows:

75. A Transport Format Combination Indicator (TFCI) encoding apparatus in a
COMA [sic] mobile communication system, comprising:
a controller for outputting a 30 bit codeword from among a plurality of 30 bit
codewords that corresponds to a 10 bit TFCI information input to the controller
from a plurality of possible 10 bit TFCI information,
wherein the 30 bit codeword output by the controller is equivalent to a 32 bit
codeword that corresponds to the 10 bit TFCI information input to the controller.

The ALJ found that Samsung did not prove that the Accused '348 Products infringe claim
75 based on the "controller" limitation. ID at 69-71. Samsung pointed to one portion of
firmware in the accused devices as satisfying the "controller" of claim 75 and to another portion
of firmwas as satisfying the "controller" of claim 82. The ALJ called this argument "protean"
and unsupported by the evidence. ID at 69. As noted above in our discussion of the proper
construction of the term "controller," we believe that the ALJ's conclusion is erroneous.

There are few differences between claim 75 and claim 82. In claim 82, the portion of the
invention designated as the "controller" outputs a 32-bit codeword that is then shortened to a

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30-bit codeword by the portion of the invention designated as the “puncturer.” In claim 75, the portion of the invention designated as the controller outputs a 30-bit codeword that is “equivalent to” a 32-bit codeword; the claim does not recite a “puncturer.”

Both claims are satisfied by firmware functions in the Accused '348 Products. Nothing in the '348 patent precludes overlapping firmware functions from satisfying more than one element of a claim. See *Linear Tech. Corp. v. Int'l Trade Comm'n*, 566 F.3d 1049, 1055 (Fed.Cir.2009) (declining to construe “second circuit” and “third circuit” to require “entirely separate and distinct circuits”); *Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1231-32 (Fed. Cir. 2011) (claimed “cutting box” and “dust collection structure” need not be separate components in infringing device); *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1303 (Fed.Cir.2011) (“The claims and the specifications indicate that the ‘needle holder’ and ‘retainer member’ need not be separately molded pieces.”); *NTP, Inc. v. Research in Motion, Ltd.*, 418 F.3d 1282, 1310 (Fed.Cir.2005) (noting that the asserted claim language did not support a limitation requiring that the claimed “RF receiver” and “destination processor” be separate and distinct).

As discussed in the claim construction section above, Samsung’s expert Dr. Min testified that some of the same firmware functions that constitute the controller of claim 82 overlap with the functions that constitute the controller of claim 75. Dr. Min testified that the firmware functions listed in the left column of the figure below correspond to a controller with a 32-bit output (claim 82), while the combination of firmware functions listed in both columns corresponds to a controller with a 30-bit output (claim 75):

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[[

As illustrated above, the firmware functions [[]] meet
the limitations of claim 82. Tr. (Min) at 1264-65. Those same functions and additional
functions are involved in the controller of claim 75. Those additional functions include:
(1) [[]]; (2) [[]]; and
(3) [[]]. Tr. (Min) at 1262-65.

In view of the forgoing evidence, and the consistent findings of the ALJ, we find
infringement of claim 75.

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d. Dependent Claim 76

Claim 76 reads as follows:

76. The TFCI encoding apparatus of claim 75, wherein each of the plurality of possible 10 bit TFCI information and each of the plurality of 30 bit codewords correspond to each other based on a combination of a basis orthogonal sequence, a basis mask sequence, and an all "1" sequence, the basis orthogonal sequence and the basis mask sequence being two bit punctured equivalents of a basis orthogonal sequence and a basis mask sequence corresponding to the equivalent 32 bit codeword.

Claim 76 adds the same limitations to independent claim 75 that claims 83 and 84 add to independent claim 82. For the same reasons we have articulated above with respect to claims 83 and 84, we determine that the Accused '348 Products infringe claim 76.

iii. Validity

The ALJ concluded that the prior art cited by Apple does not invalidate the asserted claims of the '348 patent. ID at 308. We determine that, taking into account the modifications to the ALJ's claim construction we discussed above, Apple has not proven the claims of the '348 patent to be invalid in view of the prior art.

a. Anticipation by the June 1999 3GPP Standard (All Claims)

ETSI, the SSO mentioned in the introduction of this opinion, is one of six SSOs that combine to form the Third Generation Platform Partnership ("3GPP"). Apple cited a prior art document published by the 3GPP and identified as "the June 1999 Standard." RX-371 (3GPP TS 25.212 v.2.0.0 (June 1999)). Apple argues that if Samsung's infringement theory regarding "puncturing" is accepted, then the June 1999 Standard anticipates the asserted claims of the '348 patent, or at the very least those claims would be obvious in view of the June 1999 Standard and a reference cited as MacWilliams. ID at 308.

The ALJ noted Apple provided "no other argument, rationale, or explanation . . . as to how the evidence demonstrates that the June 1999 Standard anticipates all of the limitations of

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the asserted claims” other than generally arguing that if Samsung’s infringement theory were accepted, the June 1999 Standard anticipates the invention claimed in the ’348 patent. ID at 308. The ALJ noted that he did not accept Samsung’s infringement theory and accordingly he found Apple had failed to prove the asserted claims were invalid as anticipated by the June 1999 Standard. *Id.*

Samsung urges the Commission to consider additional reasons why the June 1999 Standard does not invalidate the claims. Those additional arguments include: (1) the June 1999 Standard was cited and considered during prosecution; (2) the June 1999 Standard teaches away from the solution of the ’348 invention; and (3) the June 1999 Standard does not anticipate either claim 75 or claim 82 because both claims require a 30-bit codeword, a concept not found in the June 1999 Standard.

We have reviewed the record and the arguments of the parties on this point. We conclude Apple has not met its burden to prove that the June 1999 Standard anticipates the patent claims. The June 1999 Standard was considered during prosecution of the ’348 patent, and the patent examiner did not find it to anticipate the issued claims. This makes it especially difficult for Apple to prove anticipation. *See Metabolite Laboratories, Inc. v. Laboratory Corp. of America Holdings*, 370 F.3d 1354, 1368 (Fed. Cir. 2004). To anticipate a claim, a single prior art reference must contain each and every limitation in the claim. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009). All asserted ’348 patent claims describe a 30-bit codeword. The June 1999 Standard does not disclose a 30-bit codeword. For at least this reason, we find that the June 1999 Standard does not anticipate the asserted claims. We adopt all findings of the ALJ that are consistent with this conclusion.

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b. Anticipation by MacWilliams Textbook (All Claims)

Apple argues that the ALJ erred by holding that the MacWilliams textbook does not anticipate the asserted claims of the '348 patent. *See* RX-367 (MacWilliams). The ALJ determined that the textbook was not an anticipatory reference because “MacWilliams does not mention or address the subject of coding of Transport Format Combination Indicator (TFCI).” ID at 308. The IA and Samsung contend that the ALJ’s determination was correct. Both the IA and Samsung additionally argue that MacWilliams fails to disclose a 30-bit codeword that is equivalent to a 32-bit codeword, as required by all asserted claims of the '348 patent.

We have found no evidence in the record that MacWilliams discloses TFCI information or a 30-bit codeword, as required by all asserted claims of the '348 patent. Accordingly, we determine that the asserted claims of the '348 patent are not anticipated by MacWilliams. We adopt all findings of the ALJ that are consistent with this conclusion.

c. Obviousness Based on the June 1999 Standard and MacWilliams (Claim 82)

Both Apple and the IA argued to the ALJ that claim 82 of the '348 patent is invalid for obviousness in light of the June 1999 Standard and the MacWilliams textbook. The ALJ rejected this argument because the two references did not disclose “puncturing” within the meaning of claim 82:

[Apple’s expert] Dr. Davis essentially takes the position argued by [Samsung’s expert] Dr. Min with respect to infringement, that simply by using 30 bits of the Reed-Muller code, instead of 32 bits, puncturing has occurred. However, for the same reasons that Dr. Min’s contention regarding infringement was rejected, Apple’s contention regarding invalidity must be rejected. Dr. Davis testified that MacWilliams discusses puncturing, but what he did not describe is how the limitation of claim 82 that each of two bits of the 32 bits output by the controller are punctured at a predetermined position is satisfied. In this respect, Dr. Davis’s testimony is similar to Dr. Min’s in assuming that the use of 30 bits instead of 32 bits evidences puncturing. The Administrative Law Judge disagrees and finds that the evidence cited by Apple does not disclose the puncturing element of claim 82.

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ID at 309.

The IA argues before the Commission that the ALJ's analysis rests on an incorrect application of the term "puncturing." Apple echoes that criticism, and adds that (1) MacWilliams describes puncturing (RX-367 at 76322), and (2) Apple's expert Dr. Davis explained that puncturing must generally occur at a "predetermined position" (Tr. at 2021:4-22 (Davis)).

Under 35 U.S.C. § 103(a), a patent is valid unless "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made" to a person having ordinary skill in the art. 35 U.S.C. § 103(a). The underlying factual inquiries in an obviousness determination include: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) secondary considerations of non-obviousness. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966). Obviousness must be proved by clear and convincing evidence. *See Microsoft Corp. v. i4i Ltd. P'ship*, —U.S.—, 131 S.Ct. 2238, 2245-46 (2011).

We do not view the arguments presented by Apple and the IA to demonstrate clear and convincing evidence of obviousness. For example, the "puncturing" teaching that Apple relies upon from MacWilliams shows "deleting one or more coordinates from each codeword":

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(II) *Puncturing a code by deleting coordinates.* The inverse process to extending a code \mathcal{C} is called *puncturing*, and consists of deleting one or more coordinates from each codeword. E.g. puncturing the [3, 2, 2] code # 9,

	0 0 0
code # 9	0 1 1
	1 0 1
	1 1 0

by deleting the last coordinate gives the [2, 2, 1] code

0 0
0 1
1 0
1 1

RX-367 at 7623. However, the puncturing illustrated by MacWilliams appears to be on a coordinate-by-coordinate basis, where the puncturing of *one coordinate* results in the deletion of *four bits* in the right column of code #9 in the illustration. The record is devoid of any explanation as to how the technique taught by MacWilliams would be applied to remove two bits at a predetermined location from a 32-bit codeword, as required by claim 82, or why a person of skill in the art would think to do so. Furthermore, Apple’s claim that Dr. Davis testified that “puncturing must generally occur at a ‘predetermined position’” is without merit. The testimony Apple cites for this proposition, Tr. at 2021:4-22, is nothing more than Dr. Davis stating, without further explanation, that the passage from MacWilliams reproduced above satisfies the limitation of the two bits being punctured at a predetermined position. We also note Samsung’s evidence of secondary considerations of non-obviousness. *See ID* at 281-84.

In view of the foregoing, we determine that Apple has not met its burden to show that a person of ordinary skill in the art at the time of the invention claimed in the ’348 patent would find the invention to be obvious in view of the June 1999 Standard and MacWilliams.

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d. Obviousness Based on the June 1999 Standard Combined with Other Prior Art (Claim 82)

The IA argues that when the term “puncturing” in claim 82 is construed correctly, claim 82 is invalid for obviousness in light of the June 1999 Standard and descriptions of alleged prior art found within the '348 patent and elsewhere. The IA notes that the '348 patent describes a 15-slot transmission system as coming before the invention disclosed in the '348 patent. *See* '348 patent at 31:15-18 (“Recently, the IMT-2000 standard specification dictates having 15 slots in one frame.”). The IA contends it would have been obvious to adapt the encoding scheme found in the June 1999 standard, which utilizes a 16-slot transmission system, for a transmission system that utilizes 15 slots. The IA relies on other prior art references in the record to argue that the concept of puncturing would have been well-known to persons of ordinary skill in the art at the time. *See* RX-372 (Alcatel), RX-367 (MacWilliams). In view of the foregoing, the IA argues, it would have been obvious to use puncturing with the June 1999 Standard to arrive at the invention in claim 82.⁶

We conclude that the IA’s argument does not demonstrate clear and convincing evidence of obviousness. The IA has not pointed to any objective evidence in the record that a person of skill in the art would be motivated to apply a puncturing technique to the encoding scheme disclosed in the June 1999 Standard to arrive at the claimed invention. The IA’s argument rests on disclosures that were presented to the patent examiner, which makes it especially difficult to prove obviousness now. *See Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1467 (Fed. Cir. 1990). Moreover, the IA’s argument appears to employ impermissible hindsight by using the patent claims as a guide to pick elements from a number of prior art references. *See In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988) (“One cannot use hindsight reconstruction to pick

⁶ The IA concedes that dependent claims 83 and 84 would not be invalid in view of the art relied upon in this section.

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and choose among isolated disclosures in the prior art to deprecate the claimed invention.”). We determine that the record does not contain clear and convincing evidence that the asserted claims of the '348 patent would have been obvious in view of the June 1999 Standard combined with the prior art descriptions found in the '348 patent.⁷

e. Unpatentable Subject Matter Under 35 U.S.C. § 101

Apple contends that under Samsung's infringement theory, the asserted claims of the '348 patent are directed to unpatentable subject matter under 35 U.S.C. § 101. Apple argues that according to Samsung's infringement theory, the “puncturer for puncturing” limitation of claim 82 adds no structure. Thus, in Apple's view, the claims are directed to unpatentable subject matter because they merely claim (30, 10) subcodes of second order Reed-Muller codes—a set of purely mathematical relationships.

The '348 patent indeed describes the use of well-known Reed-Muller codes to encode TFCI information. *See, e.g.*, '348 patent at 7:9-13. However, the invention also devised a novel encoding scheme “so that hardware is simplified.” '348 patent at 35:53-56. The ALJ correctly concluded:

The invention concerns an information transmitting apparatus and method for transmitting a transport format combination indicator. (JXM-1 at 1 :20-25.) It involves more than mathematical calculations: it provides an apparatus and method for encoding TFCI in an IMT 2000 system that requires rate-matching convolution encoding and decoding. The fact that it involves an encoding process that is included among a broader range of encoding methods that are recognized in the field of encoding generally does not foreclose its application in the field of telecommunications systems and apparatus. The patent does not seek to pre-empt the use of the particular encoding process that is employed as part of the invention, but rather, the specific application of it with respect to mobile communication systems using controllers for encoding input words of a certain length and outputting words of a different length, which are equivalent to the words that were input.

⁷ We also note that Samsung's evidence of secondary considerations of non-obviousness supports our determination. *See* ID at 281-84.

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The embodiment of the novel encoding scheme in hardware or software, as defined by the apparatus claims asserted in this investigation, satisfies the machine-or-transformation test. *See In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir 1994) (rejecting claims 1-4 drawn to creating a hierarchy out of data, but accepting claim 5 that included a memory chip for performing those calculations). As stated by the Supreme Court, the machine-or-transformation test “is a useful and important clue” to determining whether a claim is patentable. *In re Bilski*, 130 S. Ct. 3218, 3226 (2010). We conclude that Apple has not proven that the asserted claims are invalid under 35 U.S.C. § 101.

iv. Apple’s Affirmative Defenses Based on Samsung’s Participation in a Standards-Setting Organization

Samsung has declared that the ’348 and ’644 patents may be considered essential to practicing technical standards promulgated by ETSI. RX-86; RX-723; RX-133; Tr. at 1395:5-1396:5 (Walker). Apple contends that Samsung’s declarations give rise to two affirmative defenses. First, Apple argues, “Samsung forfeited any right it might otherwise have to obtain an exclusion or cease-and-desist order when it made its FRAND commitments for the ’644 and ’348 patents.” *See, e.g.*, Apple Pre-hearing Br. at 163 (May 4, 2012) (under heading “Defenses Based On ... Samsung’s Commitments to ETSI”). Second, Apple asserts that the ’348 and ’644 patents are unenforceable because Samsung failed to timely disclose them to a standards-setting organization. *Id.* at 157-163.

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Some background on SSOs may assist in understanding Apple's defenses.⁸ To facilitate the interoperability necessary for various manufacturers' products to function on mobile telephone networks, various stakeholders have formed SSOs to establish technical specifications for how essential components of the network will operate. Standards may have both pro-competitive and anti-competitive effects. For example, standards encourage a larger market for the standardized technology, which may result in increased price competition among many suppliers all making standards-compliant products. Alternatively, standardization also creates a "lock-in" effect such that alternative technological approaches are practically unavailable as substitutes and thus owners of patents that are incorporated into a standard may conceivably demand higher royalties for use in the adopted patented technology.

In the telecommunications industry, standards also promote a beneficial "network effect." A single telephone not connected to a network has little utility, but a device that can connect to millions of other telephones and content providers can be very useful. Thus, the value of any individual device is enhanced in proportion to the number of other devices to which it may connect. Standards make the network effect possible across different manufacturers and wireless networks.

Apple and Samsung are both members of ETSI, an SSO headquartered in France. *See* Tr. at 423:20-424:6 (Min). ETSI is one of six SSOs that combine to form the Third Generation Platform Partnership ("3GPP"). 3GPP sets standards for mobile wireless carrier technology,

⁸ For more information on SSOs, *see, e.g.*, THIRD PARTY UNITED STATES FEDERAL TRADE COMMISSION'S STATEMENT ON THE PUBLIC INTEREST, Inv. No. 337-TA-752 (June 6, 2012), available at <http://www.ftc.gov/os/2012/06/1206ftcgamingconsole.pdf>; UNITED STATES DEPARTMENT OF JUSTICE, UNITED STATES PATENT & TRADEMARK OFFICE, POLICY STATEMENT ON REMEDIES FOR STANDARDS-ESSENTIAL PATENTS SUBJECT TO VOLUNTARY FRAND COMMITMENTS (January 8, 2013), available at <http://www.justice.gov/atr/public/guidelines/290994.pdf>; *Apple Inc. v. Samsung Electronics Co., Ltd.*, No. 11-CV-01846, 2012 WL 1672493 (N.D. Cal. May 14, 2012).

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including the Universal Mobile Telecommunications Standard (“UMTS”), the standard at issue in this case. During the development of the UMTS, Samsung participated in ETSI working groups and proposed and advocated for the standardization of certain technologies to perform functions included in the standard. Apple did not participate in the development of the UMTS standards in question.

ETSI has an intellectual property rights policy (“IPR Policy”), which is found in the record at RX-0710. The ETSI IPR Policy states that an “investment in the preparation, adoption and application of STANDARDS could be wasted as a result of an ESSENTIAL IPR for a STANDARD being unavailable.” RX-0710, Clause 3.1; Tr. at 1347:3-1348:5 (Walker). To avoid the risk that ESSENTIAL IPR could be “unavailable,” the IPR Policy requires a participant to “timely inform ETSI of ESSENTIAL IPRs it becomes aware of.” RX-0710, Clause 4.1. Clause 6.1 of the Policy states:

When an ESSENTIAL IPR relating to a particular STANDARD is brought to the attention of ETSI, the Director-General of ETSI shall immediately request the owner to give within three months an undertaking in writing that it is prepared to grant irrevocable licences [*sic*] on fair, reasonable and non-discriminatory [*i.e.*, FRAND] terms.

RX-0710, Clause 6.1.

In December 1998 Samsung submitted a general IPR licensing declaration to ETSI stating that if some of its technical proposals are incorporated into the UMTS, it would make that IPR available on FRAND terms. *See* Tr. at 1406:25-1407:12 (Walker). On December 31, 2003, Samsung disclosed to ETSI the U.S. patent application related to the '348 patent. RX-723. That declaration states:

The SIGNATORY has notified ETSI that it is the proprietor of the IPRs listed in Annex 2 and has informed ETSI that it believes that the IPRs may be considered ESSENTIAL to the Standards listed above.

The SIGNATORY and/or its AFFILIATES hereby declare that they are prepared to grant irrevocable licenses under the IPRs on terms and conditions which are in accordance with

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Clause 6.1 of the ETSI IPR Policy, in respect of the STANDARD, to the extent that the IPRs remain ESSENTIAL.

The construction, validity and performance of this DECLARATION shall be governed by the laws of France.

RX-723.

On May 16, 2006, Samsung disclosed to ETSI a patent in the same family as the '644 patent. RX-133; Tr. at 1395:5-1396:5 (Walker). The 2006 submission contains an identical statement to the 2003 submission reproduced above.

The ALJ rejected Apple's affirmative defense based on an alleged FRAND licensing obligation. ID at 460-470. The ALJ stated that investigations and remedies under section 337 are different than private patent suits in district courts, making district court decisions evaluating FRAND arguments in the injunction context inapposite. *Id.* at 461. The ALJ also expressed concern that if Apple's position were correct, an infringer of a standard-essential patent could make an end-run around a section 337 investigation by merely claiming that the patent owner's offer was not FRAND. *Id.* at 462. The ALJ went on to evaluate arguments as to whether Samsung negotiated with Apple in good faith concerning a license to Samsung's declared-essential patents. The ALJ found that the evidence did not support a conclusion that Samsung failed to offer Apple a license on FRAND terms. ID at 469-70. The ALJ concluded that "[m]ore than what has been cited by Apple is necessary in order to establish that Samsung violated" any FRAND obligation. Moreover, the ALJ stated, "Apple needs to establish a legal basis for foreclosing enforcement under Section 337 in this Investigation, which Apple has not done." *Id.* at 470.

In response to Apple's petition for review of the ALJ's conclusions, the Commission solicited comments, in two public notices, from the parties and the public about the assertion of standard-essential patents. Various responses to the Commission notices are relevant to

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affirmative defenses, the public interest analysis, or both. With respect to the affirmative defenses asserted here, the comments pertained generally to ETSI's IPR policy, obligations flowing from declarations to SSOs, how these obligations may be assessed, the potential for patent hold up or reverse patent hold up, and industry practices in negotiating licenses to standard essential patents. The Commission provides a summary of select comments relevant to the issues submitted in response to the notices in an Appendix to this Opinion. The Commission has carefully considered all comments received in response to both notices in arriving at the determinations reflected in this opinion.

a. Apple Did Not Prove an Affirmative Defense Based on Samsung's FRAND Declarations⁹

It is Apple's burden to show by a preponderance of the evidence that its FRAND defense precludes the Commission from finding a violation of section 337. *See Certain Lens-fitted Film Packages*, Inv. No. 337-TA-406, 1999 WL 436531, Comm'n Op., *3 (June 28, 1999) (affirmative defense of patent invalidity must be proven by clear and convincing evidence, but licensing defense need only be proven by preponderance of the evidence). We conclude Apple has not met its burden for a number of reasons.

First, Apple has cited no binding legal authority for its proposition that the Commission may not investigate a violation of section 337 based on infringement of patents subject to a FRAND undertaking. *See, e.g.*, *Apple Cont. Pet. for Review*, 44 (Oct. 1, 2012) ("[T]he ALJ

⁹ Commissioner Pinkert concurs in the Commission's determination that an affirmative defense based on FRAND principles has not been established by Apple. He bases this determination, however, on Apple's failure before the ALJ to meet its burden of proof as to the elements of the affirmative defense. In addition, he notes that Samsung does not dispute that it has made FRAND licensing commitments in regard to the '348 patent, and, as explained in his dissenting views, he has considered the evidence before the Commission in the current phase of the investigation and has found the weight of the evidence to indicate that Samsung has not made FRAND licensing terms covering the '348 patent available to Apple. Finally, to the extent that the Commission majority's analysis herein is otherwise inconsistent with the analysis in his dissenting views, he affirms the analysis in his dissenting views.

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should have held that Samsung was barred from even asserting these claims . . .”). The Commission “is a creature of statute, and must find authority for its actions in its enabling statute.” *Kyocera v. Int’l Trade Comm’n*, 545 F.3d 1340, 1355 (Fed. Cir. 2008). Section 337(b) requires the Commission to investigate any alleged violation based upon a complaint under oath. 19 U.S.C. § 1337(b)(1). If a violation is found, section 337 gives the Commission authority to exclude articles that infringe valid and enforceable U.S. patents. 19 U.S.C. §§ 1337(a)(1)(B), (d)(1). The statute makes no distinction between patents that have or have not been declared to be essential to a standard. Apple has not offered any statutory construction that demonstrates that the Commission *per se* cannot investigate violations of section 337 based on infringement of a declared-essential patent. Indeed, such an argument appears contrary to established authority. *See* 19 U.S.C. § 1337(c) (“The Commission shall determine, with respect to each investigation conducted by it under this section, whether or not there is a violation of this section,” except in narrow circumstances); *Farrel Corp v. Int’l Trade Comm’n*, 949 F.2d 1147, 1156 (Fed. Cir. 1992) (superceded by statute on other grounds) (“The language of section 337(c) explicitly limits the circumstances in which the Commission may terminate an investigation without reaching a determination as to whether a violation exists.”); *see also* 19 C.F.R. § 210.21.

The Commission and its ALJs have never adopted Apple’s theory that a FRAND undertaking *per se* precludes a determination of violation. For example, in *Certain Mobile Telephone Handsets, Wireless Communication Devices, and Components Thereof*, Inv. No. 337-TA-578, we determined not to review an initial determination rejecting an affirmative defense of patent misuse based on an alleged breach of a FRAND obligation where the elements of the defense had not been proved. *See id.*, Order 34, Initial Det., 2007 ITC LEXIS 228 (Feb. 20,

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2007) (nonreviewed Mar. 22, 2007). That determination implicitly rejected the proposition that an alleged violation of a FRAND obligation can *per se* preempt a violation of section 337.

Additionally, ALJs have frequently denied motions for summary determination based on disputed facts regarding FRAND obligations. *See, e.g., Certain Wireless Communications Equip., Articles Therein, and Products Containing Same*, Inv. No. 337-TA-577, Order No. 21 (Apr. 13, 2007) (Luckern, ALJ) (denying summary determination as to affirmative defenses related to FRAND obligations); *Certain Wireless Communications Equip., Articles Therein, and Products Containing Same*, Inv. No. 337-TA-577, Order No. 33 (Mar. 19, 2007) (same); *Certain 3G Mobile Handsets*, Inv. No. 337-TA-613, Order No. 29 (Apr. 25, 2008) (same). If the mere submission of a FRAND undertaking to ETSI were sufficient as a legal matter to preclude the Commission from finding a violation, as Apple asserts, then summary determination arguably would have been appropriate in the foregoing investigations. But as shown in the previously cited decisions, neither the Commission nor its ALJs have adopted that approach. Thus, while FRAND issues have been raised in numerous investigations (*e.g.*, Inv. Nos. 577, 578, 601, 613, 669, 745, and 752), not one investigation has resulted in a determination that the Commission lacks jurisdiction to conduct an investigation or find a violation of section 337 merely because the asserted patent is allegedly subject to FRAND obligations.

Furthermore, Apple's own witness testified that several attempts have been made to introduce language into the ETSI IPR Policy that would prohibit patent owners from seeking injunctive relief for standard-essential patents, but all such attempts have been unsuccessful. *Tr.* at 1450:1-1451:6 (Walker). Apple's own briefing admits the ETSI IPR Policy does not expressly forbid injunctions. *Apple Cont. Pet. for Review*, 48 (Oct. 1, 2012). Public comments from Qualcomm also explain that ETSI members have consistently rejected attempts to curtail

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the ability of FRAND declarants to seek injunctive relief. In view of this record, we cannot accept Apple's argument that infringement of a declared-essential patent cannot be a violation of section 337.

Second, Apple has not properly argued any recognized affirmative defense that would preclude the Commission from finding a violation based on assertion of a declared-essential patent. Section 337 states that "all legal and equitable defenses may be presented in all cases." 19 U.S.C. § 1337(c). *See also Lannom Mfg. Co. v. Int'l Trade Comm'n*, 799 F.2d 1572, 1578 (Fed. Cir. 1986) (the Commission recognizes the same defenses and applies the same burdens of proof as district courts). At least one district court has analyzed a FRAND obligation under a contract theory. But to the extent that Apple relies on a contract defense, Apple has not identified the basic elements necessary to prove a contract: the parties, the offer, the acceptance, the consideration, and definite terms. "In the absence of contractual intent or sufficiently definite terms, no contractual obligations arise." *Modern Systems Technology Corp. v. U.S.*, 979 F.2d 200, 202 (Fed. Cir. 1992). Further, Apple has not argued the elements of other recognized defenses, for example promissory estoppel, laches, or fraud.

Third, Apple has not identified what the specific obligations may be that flow from Samsung's FRAND declarations. Before a party can prove a breach of an alleged FRAND obligation, it must prove what the obligation is. In this investigation, such proof would require an interpretation of Samsung's written FRAND declarations. *See Allis-Chalmers Corp. v. Lueck*, 471 U.S. 202, 218 (1985) ("Because the right asserted not only derives from the contract, but is defined by the contractual obligation of good faith, any attempt to assess liability here inevitably will involve contract interpretation."). But Apple failed to preserve an argument as to the proper legal interpretation of the FRAND declarations at issue in this investigation. As one district

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court has stated, a “lack of briefing under the applicable law” leaves the tribunal “to guess at, among other things, which choice of law governs the [FRAND] policies, whether the policies are ambiguous, [and] whether review of extrinsic evidence is appropriate in interpreting the policies.” See *Microsoft Corp. v. Motorola, Inc.*, 854 F.Supp.2d 993, 1000-01 (W.D. Wash. 2012). Apple cannot prevail on its FRAND defense here when it, similarly, did not provide the Commission with arguments and evidence on such issues.

Even if the Commission were inclined to *sua sponte* attempt to interpret Samsung’s FRAND declarations (which it is not), we would not be able to reach any definitive conclusion about Samsung’s obligations based on the record of this investigation. Samsung’s declarations to ETSI state that “[t]he construction, validity and performance of this DECLARATION shall be governed by the laws of France.” RX-133, RX-723. That choice of law provision should be honored. See *Apple Inc. v. Samsung Electronics Co., Ltd.*, No. 11-CV-018462012, WL 1672493, *10 (N.D. Cal. May 14, 2012) (applying French law when determining Samsung’s ETSI obligations); see also *Apple, Inc. v. Motorola Mobility, Inc.*, No. 11-CV-178-BBC, 2012 WL 3289835, (W.D. Wis. Aug. 10, 2012) (applying French law when determining Motorola’s ETSI obligations); *Novamedix, Ltd. v. NDM Acquisition Corp.*, 166 F.3d 1177, 1180 (Fed. Cir. 1999) (applying choice of law provision in settlement agreement); *Scherbatskoy v. Halliburton Co.*, 178 F.3d 1312, 1999 WL 13377, *4 (Fed. Cir. 1999) (unpublished) (choice of law provision in license agreement controls). The parties agree, however, that at the hearing in this investigation Apple presented no evidence of how “the laws of France” would view Samsung’s obligations with respect to declared-essential patents in this forum. Without such evidence, the Commission

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cannot determine what Samsung's legal obligations may be and whether those obligations have been breached.¹⁰

Fourth, Samsung's declarations to ETSI state that Samsung believes the '348 and '644 patents may be considered essential to the standard and that Samsung is "prepared to grant irrevocable licenses under the IPRs on [FRAND] terms and conditions . . . to the extent that the IPRs remain ESSENTIAL." RX-133, RX-723. As noted above, we cannot determine, on the record presented by Apple, how this language should be construed in this investigation. We observe (without deciding) that this language appears to establish a condition precedent for any obligation by Samsung, namely, that the inventions in Samsung's asserted patents are essential to practice the relevant standard.

Samsung has asserted to ETSI that the '348 and '644 patents may be considered essential to the UMTS standard, but Apple argued to the ALJ that the '348 and '644 patents are *not* essential. *See* Apple Resp. to Samsung's Pet. for Review, 4 (Oct. 9, 2012) ("Of course, only Samsung has declared the '348 patent as 'essential,' and the ALJ, like numerous other courts have, correctly found that Samsung [was] wrong to do so."); *id.* at 32-33 ("Samsung argued that the '644 patent is standards essential—a claim not tested by the standards setting organization As the ALJ found, there are numerous ways to implement a UE receiver . . ."). A factual dispute on this point clearly exists among the parties, but no party asked the ALJ to resolve this dispute. Thus, the ID contains no comparison of the asserted claims of the '348 or '644 patents to the technical disclosures of the ETSI standards in question to determine whether the claimed

¹⁰ In Order No. 47, the ALJ determined that under French law, price is a necessary term for the formation of a contract and that Samsung's FRAND declaration did not grant Apple a constructive license to the '348 and '644 patents. *See id.* at 37. By failing to petition for review of the order in its petition for review of the final ID, Apple waived any challenge to the ALJ's conclusions.

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inventions are in fact essential to practice the standard. Without such a comparison, it would be impossible to know whether Samsung's FRAND declarations impose obligations or to know what the scope of any obligation may be under governing law. *See Certain Optoelectronic Devices, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-669, Initial Det. at 86-88 (Mar. 12, 2010) (nonreviewed May 19, 2010) (rejecting a FRAND defense due to a lack of evidence demonstrating the patent-in-suit was necessarily infringed by an implementation of the standard-at-issue). We decline to analyze this issue now when the parties did not ask the ALJ to do so in the first instance. *See, e.g., Ajinomoto Co. v. Int'l Trade Comm'n*, 597 F.3d 1267, 1277 (Fed. Cir. 2010) (complainant waived its claim to a priority date that was not relied upon in its pre-trial brief); *Kinik Co. v. Int'l Trade Comm'n*, 362 F.3d 1359, 1367 (Fed. Cir. 2004) (failure to raise validity argument in pre-trial brief results in waiver). Apple's defense fails for this reason as well.

Fifth, Apple fails to cite any precedent for its proposition that the Commission cannot address infringement of standard-essential patents other than in the exceptional scenarios such as where a potential licensee has refused to pay a royalty after a U.S. court has determined that royalty to be FRAND, or where no U.S. court has jurisdiction over the potential licensee in order to set a FRAND rate. Apple's regime would have the Commission be a forum of last resort, when all other remedies have failed. But such an approach is directly contrary to the Commission's enabling statute: section 337 provides for remedies, including exclusion orders, that are "in addition to" any monetary damages or injunctive relief available from any other

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forum. *See* 19 U.S.C. § 1337(a)(1).¹¹ By this language, “Congress implicitly recognized that more than one proceeding might result from its statutory scheme.” *Farrel*, 949 F.2d at 1155 (quoting *In re Convertible Rower Exerciser Patent Litigation*, 616 F.Supp. 1134, 1143, 228 USPQ 726, 732 (D. Del. 1985)).

In view of the foregoing, we find that Apple has failed to prove any affirmative defense to infringement or to a violation of section 337 based on the fact that Samsung has submitted FRAND declarations to ETSI for the ’348 and ’644 patents.

Even if we were to assume, for the sake of thoroughness, that (1) Apple had proffered an interpretation of Samsung’s FRAND declarations under French law; (2) the inventions in the asserted claims of Samsung’s ’348 and ’644 patents are necessary to practice the relevant ETSI standard; (3) Samsung’s FRAND declaration imposed a legally enforceable obligation on Samsung; and (4) Samsung must “grant irrevocable licenses under the IPRs on [FRAND] terms” to any comer, such as Apple, we would still find no merit in Apple’s arguments. After all of those assumptions, we would be left to consider whether Samsung has satisfied an obligation to grant licenses on terms that were to be established in the future. The Federal Circuit has stated that “a provision which calls upon the parties to a contract to agree in the future on a specified point or contract term, often referred to as an ‘agreement to agree,’ imposes an obligation on the parties to negotiate in good faith.” *North Star Steel Co. v. U.S.*, 477 F.3d 1324, 1332 (Fed. Cir. 2007) (citing *Aviation Contractor Employees, Inc. v. United States*, 945 F.2d 1568, 1572 (Fed.

¹¹ Because section 337 remedies are available “in addition to” all other remedies (*see* 19 U.S.C. § 1337(a)(1)), Samsung’s decisions to pursue or relinquish remedies in other fora do not dissuade us from our conclusions here. Thus, we see little relevance to Samsung’s statement, cited by Apple in its May 14, 2013, supplemental submission, that Samsung will not pursue injunctive relief for certain patents in European courts. In any event, the Commission does not have a sufficient record concerning the proceedings in which Samsung allegedly made that statement to make an informed determination as to its significance.

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Cir. 1991); *see also Gardiner, Kamyra & Assocs. v. Jackson*, 369 F.3d 1318, 1322 (Fed. Cir. 2004); *City of Tacoma v. United States*, 31 F.3d 1130, 1132 (Fed. Cir. 1994); *Microsoft Corp. v. Motorola, Inc.*, 864 F.Supp.2d 1023, 1038 (W.D. Wash. 2012) (“[A]lthough the language of Motorola’s agreements do not require it to make offers on RAND terms, any offer by Motorola (be it an initial offer or an offer during a back-and-forth negotiation) must comport with the implied duty of good faith and fair dealing inherent in every contract.”). Assuming (without deciding) that this case law applies here, we examine below whether Samsung negotiated in good faith with Apple concerning a FRAND license to the ’348 and ’644 patents.

1. The Factual History of Negotiations Between Samsung and Apple^{12, 13}

The history of negotiations between Samsung and Apple relating to the ’348 and ’644 patents is largely undisputed. Apple released its first UMTS phone, the iPhone 3G, on July 11, 2008. At that time Samsung and Apple had an ongoing business relationship in which Samsung supplied Apple with a number of components for its products, including the iPhone 3G. Samsung introduced its first Android-based smartphone in 2009. On August 4, 2010, Apple accused Samsung of infringing Apple’s patents.

¹² Many of the facts recited in this section were presented to the ALJ and relied upon by him in concluding that Apple had not proved that Samsung breached a FRAND obligation. Other facts in this section were provided by the parties in response to the Commission’s notice issued on March 13, 2013. Because Apple failed to prove what Samsung’s FRAND obligations may or may not be, our determination herein would be the same even if we limited our review to the negotiation history presented to the ALJ. In any event, the facts recited here appear to be undisputed and are now of record.

¹³ Commissioner Aranoff dissented from the Commission’s March 13, 2013, decision to seek additional written submissions, including supplemental briefing and evidence regarding the course of license negotiations between Samsung and Apple. *See* Dissenting Memorandum, EDIS Doc. ID 505695 (March 13, 2013). Given that Apple failed to prove a FRAND-based affirmative defense before the ALJ, she does not believe Apple should have received a second opportunity to present evidence or argument regarding its course of dealing with Samsung related to licensing. Accordingly, while she does not necessarily disagree with the following discussion, she does not view it as a required element of her analysis in this investigation.

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On October 5, 2010, Samsung and Apple met in Washington, D.C. At the meeting, Apple proposed that the parties enter into a cross-license under their respective patent portfolios with Samsung to make a recurring payment of a running royalty on its smartphone and tablet sales, and the royalty to depend on the type of device sold. Apple structured the proposed royalty as \$30 per smartphone and \$40 per tablet, with the following discounts: (1) a 20 percent discount for Apple's cross-license to Samsung's portfolio; (2) a 40 percent discount if the device used an operating system licensed by Apple (*i.e.*, Windows Mobile); (3) a 20 percent discount for using Apple-licensed processors; and (4) a 20 percent discount for "Not Using Proprietary Features" that Apple defined as "distinctive industrial designs, software platforms or feature sets." Apple's offer was set forth in a presentation shown at the meeting, although the hard copy that Apple provided to Samsung after the meeting omitted the financial terms. CX-0394C.0015. At the conclusion of the meeting, Apple informed Samsung [[]] at the party's next meeting, which was scheduled for November 4, 2010 in Seoul, Republic of Korea.

On November 4, 2010, the parties met in Seoul. At the meeting, Samsung provided [[

]]. Samsung proposed [[

]]. Based on Samsung's view that [[

]], Samsung proposed that [[

]] Samsung's offer would result in [[

]]. Apple did not accept this offer.

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On April 15, 2011, Apple sued Samsung in the Northern District of California seeking, among other things, damages for alleged patent infringement, as well as an injunction that would prevent Samsung from selling Android-based devices and other products in the United States. Samsung filed suit against Apple in the Northern District of California on April 27, 2011. In that action, Samsung asserted a number of patents, including several that Samsung had declared may be considered essential to the UMTS standard.

On April 29, 2011, Apple sent Samsung a letter requesting specific terms for a unilateral FRAND license for declared-essential UMTS patents (*i.e.*, a license to Samsung's patents without a cross-license of Apple's patents). This was the first time since the parties' discussions had begun that Apple had expressed an interest in obtaining terms for a license limited solely to Samsung's declared-essential UMTS patents. Until then, the discussions had focused exclusively on [[]]. At the time of Apple's request, Samsung had never been asked for a unilateral license to its declared-essential UMTS patents.

On July 25, 2011, Samsung sent a letter that offered Apple a license under all Samsung patents "that are essential to comply with past/current UMTS/WCDMA Standards . . . at a royalty of 2.4 percent for each relevant end product." The offer included a license to the '348 and '644 patents asserted in this investigation. The offer letter also indicated Samsung's preference for a negotiated cross-license agreement.

Meanwhile, the Commission instituted this investigation on July 27, 2011, based on a complaint filed by Samsung that alleges, inter alia, infringement of the '348 and '644 patents. Apple, in turn, filed a complaint with the Commission, asserting infringement of seven Apple patents. In response to Apple's complaint, the Commission instituted Investigation No. 337-TA-796 on August 2, 2011. That investigation remains pending.

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Apple sent negotiation letters to Samsung on August 18, 2011; October 31, 2011; and December 24, 2011. Apple's letters [[

]]. Samsung continued to engage Apple through letters dated January 31, 2012; April 9, 2012; April 25, 2012; and May 11, 2012.

On September 7, 2012, after the close of briefing in this investigation and the completion of the trial in the Northern District of California litigation, Apple offered [[

]]. Apple proposed [[

]].

In letters dated October 16 and November 14, 2012, Apple also proposed [[

]]. On November 22, 2012, Samsung proposed that the parties meet face-to-face in December to [[

]]. In the event such efforts failed, Samsung stated that it would be willing to [[

]]. Samsung proposed that [[

]].

On December 3, 2012, Samsung responded to [[]] that Apple had proposed in its September 7, 2012, letter. Specifically, Samsung counter-proposed that [[

]]. The letter referred to [[

]].

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The parties then held face-to-face meetings in Seoul on December 12, 2012, at which they agreed to discuss [[]]] at another meeting that month.

On December 17, 2012, Apple proposed [[]]]

]]. Apple also proposed [[]]]

]]. The following day, December 18, 2012, Samsung made a new proposal, whereby [[]]]

]].

Samsung's offer [[]]]

]].¹⁴ The parties also discussed [[]]]

]]. The parties,

however, were unable to reach agreement and opted to meet again in January 2013.

On January 14, 2013, Samsung and Apple met for another face-to-face negotiation. At this meeting, Apple proposed [[]]]

]]. Samsung rejected Apple's counter-offer because [[]]]

]]. Although the parties were

not able to reach agreement, they arranged to meet the following month.

Samsung and Apple met again in person on February 7, 2013. At this meeting, the parties focused on [[]]]

¹⁴ Samsung contends that Apple's 2012 sales of smartphones and tablets are approximately [[]]] units per year. [[]]], Samsung's offer would require Apple to [[]]].

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]]. The parties drafted a memorandum of understanding that they agreed to take back to management reflecting this arrangement, [[]].

After [[]], Apple brought a counter-proposal to a meeting with Samsung on February 20, 2013.¹⁵ Samsung declined the counter-proposal. Apple's representatives called Apple management [[]].

Apple's representatives informed Samsung that [[]].

Samsung understood Apple's representatives [[]].

]].

On March 22, 2013, Samsung wrote to Apple and asked that it reopen negotiations. To our knowledge, Apple has not responded to that letter. Samsung asserts that its December 18, 2012, offer, as reflected in its March 22, 2013, letter, remains available to Apple.¹⁶

Apple submitted in its briefing to the Commission a report from its expert Mr. Donaldson. Mr. Donaldson calculated a FRAND royalty of, at most, \$[[]] per device for the '348 patent. Mr. Donaldson asserts that his calculation uses the baseband processor chip, not the end device, as the royalty base because it is the baseband processor that incorporates the functionality claimed in the '348 patent. Mr. Donaldson also states that his royalty rate reflects what the aggregate royalty burden would be if all essential patent holders took the same approach (in order to avoid the so-called royalty stacking problem). Apple appears willing to pay this royalty

¹⁵ The Commission is not aware of the terms of Apple's counter-proposal.

¹⁶ Samsung reiterated in March 2013 that its [[]] offer [[]] of December 2012 remains open, and that the offer [[]]. See Samsung Reply Br. in Resp. to March 13, 2013, Notice at 18 (April 10, 2013) (citing Exs. C44, C64, G).

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(\$[[]] per device)¹⁷ if Samsung obtains a section 337 violation determination from the Commission and prevails on an appeal of that determination to the Federal Circuit.

2. Analysis of the Parties' Negotiations

In light of the negotiations above, Apple has not proved a failure by Samsung to negotiate in good faith.¹⁸ Apple does not dispute that on September 7, 2012, Apple proposed [[

]]. Apple indicated that [[

]]. On a

unit by unit basis, such a valuation would result in [[]].

Apple's December 17, 2012, offer also [[

]]. By

December 18, 2012, Samsung was offering [[

]]. While we recognize that these offers leave

some ambiguity concerning the respective sales volumes of the two parties, we cannot say that Samsung's royalty offers have been unreasonable or lacking good faith. Moreover, the fact that representatives for both parties were able to reach a memorandum of understanding on February 7, 2013, that [[]] indicates that Samsung is negotiating in good faith and, to be colloquial, is playing in the same ballpark as Apple. In light of these facts, we cannot say that Apple has proven that Samsung is violating any assumed FRAND obligation.

¹⁷ By way of comparison to Samsung's [[]] offer made on December 18, 2012, we calculate that if Apple sold [[]] Mr. Donaldson's calculated royalty of \$[[]] per device, Apple [[]].

¹⁸ We emphasize that our analysis of these negotiations is predicated on assumptions about Samsung's obligations flowing from its FRAND declarations.

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Apple argues that Samsung was obligated to make an *initial* offer to Apple of a specific fair and reasonable royalty rate. The evidence on record does not support Apple's position. Apple's witness on ETSI policy and practice testified the ETSI IPR Policy document has "no precise definition of FRAND" and that it is expected that parties arrive at a FRAND license through negotiation. Tr. at 1442:17-1443:14 (Walker). Further, there is no legal authority for Apple's argument. Indeed, the limited precedent on the issue appears to indicate that an initial offer need not be the terms of a final FRAND license because the SSO intends the final license to be accomplished through negotiation. See *Microsoft Corp. v. Motorola, Inc.*, 864 F.Supp.2d 1023, 1038 (W.D. Wash. 2012) (because SSOs contemplated that RAND terms be determined through negotiation, "it logically does not follow that initial offers must be on RAND terms").

Apple also criticizes Samsung's attempt to negotiate a cross-license of both parties' mobile telephone patent portfolios. We cannot say that Samsung's offers in this regard are unreasonable. The record contains evidence of more than 30 Samsung licenses that cover the '348 and '644 patents. See RX-173C, RX-178C, RX-188, RX-189C, RX-191C, RX-193C to -209C, RX-421C, RX-423C. All of those licenses include a cross-license to the licensee's portfolio. That evidence supports a conclusion that a portfolio cross-license offer is typical in the industry and reasonable.

Apple has offered no evidence to suggest that such portfolio cross-licenses are atypical in the industry.¹⁹ In fact, Apple's own witness on ETSI policies affirmed that ETSI anticipates cross-licensing may be part of the process of negotiating a FRAND license between two parties.

¹⁹ The Commission notes that none of the licenses submitted in this investigation are to a single declared-essential patent, rather they are all portfolio cross-licenses, in some instances covering [[]]. See RX-173C, RX-178C, RX-188, RX-189C, RX-191C, RX-193C to 209C, RX-421C, RX-423C. In addition, [[]], the record supports a conclusion that a common industry practice is to use the end-user device as a royalty base. *Id.*

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See Tr. at 1443 (Walker). Additionally, the negotiating history recounted above shows that Apple has made cross-license offers to Samsung.

We also note that commentators have stated that an offer to cross-license both parties' patents may be consistent with a FRAND obligation, for example:

The obligation to make a FRAND offer does not prevent the standard-essential patent owner from entering into an alternative licensing arrangement, such as a portfolio cross license, with an implementer of the standard. It will often make sense for private parties to enter into a deal that reflects their specific circumstances.

[A] FRAND offer to a party that owns standard-essential patents can be made conditional on the would-be licensee itself making a reciprocal FRAND offer.

Lemley, Mark A. and Shapiro, Carl, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents* Stanford Public Law Working Paper No. 2243026, 5-6, 17 (March 30, 2013), available at <http://ssrn.com/abstract=2243026>. That approach appears consistent with the expectations of ETSI, as has been explained on the record in this investigation. See Tr. at 1443 (Walker). Moreover, the ETSI declarations Samsung executed specifically contemplate that a FRAND license will involve "terms and conditions," not just a royalty rate. See RX-723.

Apple also complains that Samsung's offer is unreasonable because [[

]].

Apple's argument lacks merit for several reasons. First, as has been articulated in comments to the Commission from Qualcomm, Ericsson, and Samsung, a FRAND license could encompass a range of reasonable terms. A reasonable cross-license with one competitor may involve a balancing payment to Samsung while a reasonable cross-license with another competitor may involve Samsung making a balancing payment. Both types of agreements may be reasonable, depending on the two portfolios at issue and each party's respective volume of sales. For example, if one of Samsung's competitors has a less comprehensive patent portfolio than

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Samsung but a higher sales volume, that competitor could reasonably expect to make a balancing payment to Samsung in a portfolio cross-license. The dozens of patent licenses of record in this investigation reflect this industry practice. *Compare, e.g.*, RX-191C ([[]]) with RX-203C ([[]]).

In view of the record, we cannot say Samsung has been unreasonable in its negotiations with Apple.

We have already touched on a second problem with Apple's argument that it should not have to pay Samsung because [[]]. Apple focuses on specific offers made by Samsung to Apple that [[]]. But, as one court has recognized, satisfaction of the obligation flowing from a FRAND declaration is not measured by a specific offer, "be it an initial offer or an offer during a back-and-forth negotiation." *Microsoft Corp. v. Motorola, Inc.*, 864 F.Supp.2d 1023, 1038 (W.D. Wash. 2012). Thus, even if it were true that a FRAND *agreement* that requires Apple to pay Samsung ultimately is not reasonable (an issue on which we have no opinion), the *offers* that Apple criticizes do not necessarily demonstrate that Samsung has violated its FRAND obligations by failing to negotiate in good faith.

Apple also criticizes Samsung for tying some of its license offers to the settlement of litigation. We find Apple's argument to be somewhat hypocritical. The following sentence from Apple's submission to the Commission on April 10, 2013, indicates that Apple has no intention of paying Samsung any royalties until after the conclusion of litigation:

If the Commission were to determine that the '348 patent is valid, infringed, and enforceable—and it should not for all the reasons the ALJ found and Apple previously briefed—and if that judgment were affirmed on appeal, Apple would stand ready to pay FRAND royalties.

Resp. Apple Inc.'s Reply Submission at 20 (April 10, 2013) (public version April 12, 2013).

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Apple's position illustrates the potential problem of so-called reverse patent hold-up, a concern identified in many of the public comments received by the Commission.²⁰ In reverse patent hold-up, an implementer utilizes declared-essential technology without compensation to the patent owner under the guise that the patent owner's offers to license were not fair or reasonable. The patent owner is therefore forced to defend its rights through expensive litigation. In the meantime, the patent owner is deprived of the exclusionary remedy that should normally flow when a party refuses to pay for the use of a patented invention.

Finally, we note that the Commission's March 13, 2013, notice asked for comments from the parties and the public concerning which factors in *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970) are most relevant to determining whether Samsung has offered to license the '348 patent to Apple on fair, reasonable, and non-discriminatory terms. As summarized in the Appendix to this opinion, no party or commenter urged the Commission to adopt the *Georgia-Pacific* factors *in toto* when analyzing a FRAND obligation. We observe that our analysis above has some overlap with some of the *Georgia-Pacific* factors, particularly our examination of Samsung's other licenses, our discussion of Apple's offer to license its patent portfolio to Samsung, and our findings concerning the prevalence of portfolio cross-licensing in the mobile telephone industry. Beyond those observations, however, we find the issues in this investigation may be resolved without making dispositive pronouncements about the applicability of the *Georgia-Pacific* factors in determining compliance with a FRAND obligation.

In sum, we determine that Apple has not met its burden to prove that Samsung's FRAND undertakings prevent the Commission from finding a violation of section 337 based on

²⁰ Commissioner Aranoff does not join this paragraph.

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infringement of the '348 and '644 patents. We adopt all findings of the ALJ consistent with this determination.

b. Apple Did Not Prove Unenforceability Due to Failure to Disclose the '348 and '644 Patents to a Standards-Setting Body

As noted above, the ETSI IPR Policy states a member “shall use its reasonable endeavours to timely inform ETSI of ESSENTIAL IPRs it becomes aware of.” RX-710. Apple contends that the '348 and '644 patent are unenforceable against UMTS-compliant products due to Samsung’s intentional failure to disclose such patents to ETSI in a “timely” manner. Apple argues that Samsung delayed disclosing the '348 patent until four years after the standard provisions relevant to that patent were adopted by ETSI and delayed disclosing the '644 patent until one year after the adoption of the standard relevant to that patent.

The ALJ rejected the legal and factual assertions made by Apple with respect to the '644 patent. ID at 485. However, the ALJ apparently did not address Apple’s unenforceability defense with respect to the '348 patent.

In *Qualcomm, Inc. v. Broadcom Corp.*, 548 F.3d 1004 (Fed. Cir. 2008), the Federal Circuit explained:

By failing to disclose relevant intellectual property rights (“IPR”) to an SSO prior to the adoption of a standard, a “patent holder is in a position to “hold up” industry participants from implementing the standard. . . . In order to avoid “patent hold-up,” many SSOs require participants to disclose and/or give up IPR covering a standard.

548 F.3d at 1010 (citations omitted). If a participant violates that duty, however, a court may apply the equitable doctrine of implied waiver when it finds the participant’s conduct “was so inconsistent with an intent to enforce its rights as to induce a reasonable belief that such right has been relinquished.” *Id.* at 1020; *accord Hynix Semiconductor Inc. v. Rambus Inc.*, 645 F.3d 1336, 1348 (Fed. Cir. 2011). A court “may in appropriate circumstances order patents unenforceable as a result of silence in the face of an SSO disclosure duty,” as long as the scope

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of the remedy is properly limited in relation to the underlying breach. *Qualcomm*, 548 F.3d at 1026.

Thus, to establish unenforceability due to an implied waiver, Apple needed to establish four points: (1) that under the ETSI IPR Policy, Samsung had a duty as an ETSI participant to disclose Samsung's patents on essential technology to ETSI; (2) that the '348 and '644 patents fell within the scope of that duty; (3) that Samsung breached its disclosure duty by failing to disclose the '348 and '644 patents in a timely manner; and (4) that appropriate circumstances exist justifying a decision to hold the '348 and '644 patents unenforceable against products practicing the ETSI TFCI standard. *See Qualcomm*, 548 F.3d at 1012.

We conclude that Apple has failed to prove the elements required for a determination of unenforceability of both the '348 and '644 patents under the *Qualcomm* standard. Even if it is assumed that Samsung had a duty to disclose essential patents, Apple itself has disputed Samsung's assertion that the '348 and '644 patents are actually essential. *See* Apple Resp. to Samsung's Pet. for Review, 4 (Oct. 9, 2012) ("Of course, only Samsung has declared the '348 patent as 'essential,' and the ALJ, like numerous other courts have, correctly found that Samsung [was] wrong to do so."); *id.* at 32-33 ("Samsung argued that the '644 patent is standards essential—a claim not tested by the standards setting organization . . . As the ALJ found, there are numerous ways to implement a UE receiver . . ."). Apple's equivocation undercuts its claim that Samsung's '348 and '644 patents are "essential" and therefore trigger a duty to disclose.

Further, with respect to the question of whether Samsung violated a duty to "timely" disclose essential IPR, the record contains substantial evidence supporting the ALJ's conclusion that ETSI itself cannot agree on what "timely" disclosure means. *See* ID at 486 (citing RX-713 at API.NDC-WH-000012464 ("Definitions for "Timeliness" or "Timely" cannot be agreed . . .)).

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We also note that Apple's expert on the ETSI IPR Policy, Mr. Walker, conceded that neither the ETSI General Assembly nor any other body of ETSI has ever taken action against a company for an alleged failure to timely disclose essential IPR. Tr. at 1440:7-1442:16 (Walker).

Finally, to the extent that the duty to timely disclose is based on a concern about later "patent hold-up" from a company hiding IPR during the standard adoption process, the record evidence shows that "hold-up" concern is not present here. Samsung prospectively announced to ETSI in 1998 that it would offer FRAND licenses to any Samsung patent that reads on a standard adopted by ETSI. See Tr. at 1406:25-1407:12 (Walker). Samsung can hardly be accused of patent hold-up when it has licensed its declared-essential patents—including the '348 and '644 patents—to more than 30 companies. See RX-173C, RX-178C, RX-188, RX-189C, RX-191C, RX-193C to -209C, RX-421C, RX-423C.

In view of the foregoing, we cannot say that the ALJ erred in rejecting Apple's unenforceability defense with respect to the '644 patent, and we adopt all findings by the ALJ consistent with that conclusion. We also determine here, for the same reasons given above and consistent reasons given by the ALJ with respect to the '644 patent, that Apple has not proved the '348 patent to be unenforceable.

v. Apple's Patent Exhaustion Defense

Apple's contingent petition for review asked the Commission to determine that Samsung has exhausted its rights in the '348 and '644 patents as applied to the Intel and Qualcomm baseband processor chips in the Apple accused products because Intel and Qualcomm made licensed sales of baseband chipsets to Apple with Samsung's explicit authorization. The Federal Circuit has held, however, that a patent is not exhausted where the sale of the product alleged to embody the claimed invention does not occur within the United States. *Fuji Photo Film Co. Ltd.*

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v. Jazz Photo Corp., 394 F.3d 1368, 1376 (Fed. Cir. 2005). Here, the ALJ determined that the evidence in the record was inadequate to conclusively demonstrate that Intel or Qualcomm made authorized sales to Apple of baseband chips in the United States. ID at 509, 518-19. The ALJ therefore concluded that Apple's patent exhaustion argument was without merit. *Id.*

We find that the ALJ's determination is supported by the record evidence. At trial, Apple's witness for these issues, Apple executive Tony Blevins, could not testify regarding the details of the licensing agreements between Samsung, Intel, and Qualcomm, and was unable to confirm the accuracy of the documentation of Intel and Qualcomm sales to Apple that Apple sought to introduce into evidence:

Q. And so this contract is arising out of [[
]]; is that right?

A. Again, I am going to have to take your word for it.
I don't know.

. . .

Q. So are you aware of any agreements that were entered
[[]] in connection
with this transaction?

A. This document would appear to be that, but I couldn't
say for certain.

Tr. at 995:19-23, 996:19-25 (Blevins). The documents referenced above ultimately were not accepted into evidence. *See id.* at 995:24-996:17. In the absence of specific evidence of sales in the United States from Intel and Qualcomm to Apple, and in the absence of proof that those sales were authorized by Samsung, we determine that the ALJ properly rejected Apple's patent exhaustion arguments.

Moreover, we note that Samsung has abandoned any claim to relief from the Commission against Apple articles that utilize a Qualcomm baseband processor to connect to a cellular

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network. *See, e.g.*, Samsung Initial Sub. in Response to March 13, 2013 Notice, 5-6 (April 3, 2013) (“Because Samsung has not accused devices containing a Qualcomm baseband chip of infringing any claims of the ’348 patent, under their current configurations, Apple’s iPhone 4 (CDMA version), iPhone 4S and iPhone 5 devices would not be subject to an exclusion order or cease and desist order . . .”). Therefore, Apple’s argument concerning exhaustion with respect to such devices is moot.

vi. Domestic Industry – Technical Prong

As noted above with respect to claim construction, we have determined that the ALJ erred in his construction of “puncturing,” a term found in asserted claims 82-84 of the ’348 patent, and “10 bit TFCI information input,” a term found in all asserted claims of the ’348 patent. Applying those erroneous constructions, the ALJ determined that Samsung had not proven a domestic industry in articles protected by the ’348 patent. ID at 547, 556-57.

We have reevaluated the record evidence in light of the constructions we adopted above. We conclude that Samsung has shown by a preponderance of the evidence that its domestic industry products practice the asserted ’348 patent claims. Those products may be divided into two groups, which we analyze below.

a. Samsung Products with Qualcomm Processors

Within the firmware of the Qualcomm-based products, the function [[
]] (CX-0477C at Q1ITC794SC0000617; CX-
0481C at Q1ITC794SC0000772) sends [[

]]. *See* Min Tr. 607:11-608:22.

Dr. Min testified that the evidence indicates that the variable [[
]] is
assigned [[
]]. *See* Min Tr. 608:6-22; CX-0475C at Q1ITC794SC0000546
([[
]]); CX-0480C at

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Q1ITC794SC0000680 ([

]). The [

]). *Id.* [

The file [], which is a DSP language file within the modem DSP of the Qualcomm baseband processor, assigns the value of []. *See* Min Tr. 619:13-20; *see also* CX-0475C at Q1ITC794SC0000547; CX-0480C at Q1ITC794SC0000681. The value stored in [

]). *See* Min Tr. 620:4-5; *see also* CX-0475C at Q1ITC794SC0000553; CX-0480C at Q1ITC794SC0000687.

The file [] defines the function []. CX-0475C at Q1ITC794SC0000581; CX-0480C at Q1ITC794SC0000716; *see* Min Tr. 616:12-17, 620:3-14. Dr. Min testified that this function [

]). *See* Min Tr. 616:9-17. The function [], to implement the encoder. CX-0476C; CX-479C; *see* Min Tr. Min Tr. 620:3-14.

The element []]. CX-0476C at Q1ITC794SC0000586-7; CX-479C at Q1ITC794SC0000677-8; *see* Min Tr. 621:16-622:23. [

]). *Id.* [

]].

See Min Tr. 632:9-24. The illustration below demonstrates this comparison. The encoding table on the left is derived from the '348 patent sequences and the encoding table on the right is

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[[]]. The encoding tables [[]]. *Id.* Therefore, [[]]
 generates codewords with a minimum distance of 12.

Bit Position	W1	W2	W4	W8	W16	A1	M1	M2	M4	M8
1	1	0	0	0	0	1	0	0	0	0
2	0	1	0	0	0	1	1	0	0	0
3	1	1	0	0	0	1	0	0	0	1
4	0	0	1	0	0	1	1	0	1	1
5	1	0	1	0	0	1	0	0	0	1
6	0	1	1	0	0	1	0	0	1	0
7	1	1	1	0	0	1	0	1	0	0
8	0	0	0	1	0	1	0	1	1	0
9	1	0	0	1	0	1	1	1	1	0
10	0	1	0	1	0	1	1	0	1	1
11	1	1	0	1	0	1	0	0	1	1
12	0	0	1	1	0	1	0	1	1	0
13	1	0	1	1	0	1	0	1	0	1
14	0	1	1	1	0	1	1	0	0	1
15	1	1	1	1	0	1	1	1	1	1
16	1	0	0	0	1	1	1	1	0	0
17	0	1	0	0	1	1	1	1	0	1
18	1	1	0	0	1	1	1	0	1	0
19	0	0	1	0	1	1	0	1	1	1
20	1	0	1	0	1	1	0	1	0	1
21	0	1	1	0	1	1	0	0	1	1
22	1	1	1	0	1	1	0	1	1	1
23	0	0	0	1	1	1	0	1	0	0
24	1	0	0	1	1	1	1	1	0	1
25	0	1	0	1	1	1	1	0	1	0
26	1	1	0	1	1	1	1	0	0	1
27	0	0	1	1	1	1	0	0	1	0
28	1	0	1	1	1	1	1	1	0	0
29	0	1	1	1	1	1	1	1	1	0
30	1	1	1	1	1	1	1	1	1	1
31	0	0	0	0	0	1	0	0	0	0
32	0	0	0	0	1	1	1	0	0	0

JXM-0001 [348 Patent] at 11:1-23

CX-0476C [[
 CX-0479C [[

]]
]]
]]

CDX-01.94; *see* Min Tr. 632:9-24.

Once [[]] generates [[]], another DSP assembly language file, is responsible for [[]]. *See* Min Tr. 625:24-626:14; *see also* CX-0474C; CX-0478C. This file defines the function [[]], which creates [[]] for transmission. *See* Min Tr. 625:24-626:14; *see also* CX-0474C at Q1ITC794SC0000509; CX-0478C at Q1ITC794SC0000668. [[]]

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]]. *Id.* [[

]]. *Id.*

Apple disputes that the foregoing description shows that the domestic industry products practice the claims of the '348 patent for two main reasons. First, Apple contends that the Qualcomm-based products only [[]] of TFCI information, not 10. Second, Apple argues that [[]] is not “puncturing.”

With respect to Apple’s first criticism, we have concluded above that “10 bit TFCI information” can include padding zeros. We further note that Apple admits that [[

]]. *See* Apple Sub. at 41; *see also* Tr. at 264:14-265:9; CX-0475C at 553, line 423.

Thus, when the Qualcomm encoding controller [[]], it produces an output in response to [[]].

Because a [[]] input necessarily includes “a 10 bit TFCI information input,” we conclude that the Qualcomm-based products meet this claim limitation when properly construed. It is irrelevant that the Qualcomm controller [[

]]. A device may still read on patent claims when it has features beyond those required by the claims. *See Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1178 (Fed. Cir. 1991) (a claiming using the term “comprising,” is an “open” claim which “will read on devices which add additional elements”).

There is also circumstantial evidence that the Qualcomm devices are capable of [[

]]. Apple admits that the constant [[]] is comprised of

[[]]. Apple Reply Sub. on Issues Under Rev., 27 n.12 (Dec. 10, 2012); *see also* Min

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Tr. 621:21-622:23. Further, Apple’s expert Dr. Davis testified that the number of sequences in an encoding scheme must be the same as the number of bits in the TFCI. Tr. at 1990:16-24. If [[]], we may reasonably conclude that the Qualcomm-based products [[]].

With respect to Apple’s second criticism, there is no factual dispute that [[

]]. *Id.* [[]].

As explained above, such a process satisfies the “puncturing” limitation of claim 82.

Whether a product practices a patent need only be proven by a preponderance of the evidence, and we conclude Samsung has met that burden here. Accordingly, we determine that Samsung has shown a domestic industry exists with respect to articles protected by claims 75 and 82 of the ’348 patent.

b. Samsung Products with Ericsson Processors

There is no dispute that the ST-Ericsson-based products [[

]]. Instead, the dispute between the parties concerns whether those products meet the “puncturer” limitation. In particular, it appears that Samsung’s expert, Dr. Min, was unable to identify in the relevant ST-Ericsson source code a particular function that converts a 32-bit codeword to a 30-bit codeword. Dr. Min did identify an encoding function that [[

]]. Further, Dr. Min testified that [[

]]. On this basis, he concluded that the ST-Ericsson products must be [[]] in a manner that falls within the meaning of “puncturing.”

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We determine that Samsung has proven that the ST-Ericsson-based products practice at least claim 75. Claim 75 does not expressly require puncturing; instead it requires outputting a 30-bit codeword that is equivalent to a 32-bit codeword. The record supports a conclusion that the codeword the ST-Ericsson-based products transmit is [[

]]. *See, e.g.*, ID at 547-554 (evidence cited by Samsung).

We therefore determine that Samsung has proven a domestic industry with respect to its Ericsson-based products.

B. The '644 Patent

The '644 patent is titled, "Method and Apparatus for Transmitting and Receiving Data With High Reliability in a Mobile Communication System Supporting Packet Data Transmission." The patent discloses a method and apparatus for transmitting control information of a small block size with high reliability in a cellular telephone network supporting uplink packet data service. Eight claims of the '644 patent are asserted in this investigation: method claims 9-12 and apparatus claims 13-16. The asserted independent claims are recited below:

9. A method of receiving control information associated with uplink packet data transmission in a mobile communication system, comprising the steps of:
extracting a 60-bit rate-matched block from a signal received from a Node B;
generating 90 coded bits by rate-matching the rate-matched block according to a rate matching pattern representing positions of bits to be depunctured;
generating a 6-bit control information and a 16-bit user equipment identifier (UE-ID) specific cyclic redundancy check (CRC) by decoding the coded bits at a coding rate of 1/3; and
outputting the control information by checking the UE-ID specific CRC,
wherein the rate matching pattern comprises {1, 2, 5, 6, 7, 11, 12, 14, 15, 17, 23, 24, 31, 37, 44, 47, 61, 63, 64, 71, 72, 75, 77, 80, 83, 84, 87, 88, 90}.

13. An apparatus for receiving control information associated with uplink packet data transmission in a mobile communication system, the apparatus comprising:
a physical channel demapper for extracting a 60-bit rate-matched block from a signal received from a Node B;

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- a rate dematcher for generating 90 coded bits by rate-dematching the rate-matched block according to a rate matching pattern representing positions of bits to be depunctured;
- a channel decoder for generating 6-bit control information and a 16-bit user equipment identifier (UE-ID) specific cyclic redundancy check (CRC) by decoding the coded bits at a coding rate of 1/3; and
- a CRC checker for outputting the control information by checking the UE-ID specific CRC,
wherein the rate matching pattern comprises {1, 2, 5, 6, 7, 11, 12, 14, 15, 17, 23, 24, 31, 37, 44, 47, 61, 63, 64, 71, 72, 75, 77, 80, 83, 84, 85, 87, 88, 90}.

The '644 patent relates generally to a wireless telecommunications channel that a network base station, called a "Node B," uses to control how mobile devices send data to the Node B. The control information a Node B transmits is 6-bits long and called an Absolute Grant (or "AG"). The Node B follows a sequence of steps to transmit an AG. First, the Node B combines a user equipment identifier ("UE-ID") for the target mobile device with a cyclic redundancy check ("CRC") used to detect transmission errors to form what is called a "16-bit UE-ID specific CRC." The Node B then combines the 6-bit AG and 16-bit UE-ID specific CRC with 8 tail bits to form a 30 bit message. Those 30 bits are then convolutionally encoded at a 1/3 rate to generate 90 coded bits. Because the relevant channel transmits in 60-bit frames, the Node B must remove 30 of the 90 coded bits before transmission. The removal of the bits is a process known as rate-matching. The Node B punctures 30 bits at specific, known bit positions, resulting in a 60-bit rate-matched block that gets transmitted to the mobile device.

The '644 patent states claims directed to Node B transmitters (claims 1 and 5) and claims directed to mobile devices, which the patent calls "UE" receivers (claims 9 and 13). Only the receiver claims are asserted here, and these claims recite steps that directly reverse the transmission steps of the Node B transmitter: "extracting a 60-bit rate-matched block," "generating 90 coded bits by rate-dematching the rate matched block," "decoding the coded bits

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at a 1/3 rate,” and “outputting the control information by checking the UE-ID specific CRC.”
'644 patent at claims 9 and 13.

i. Infringement

a. “extracting a 60-bit rate-matched block” (all claims)

Samsung contests the ALJ’s determination that neither the accused Apple products nor the asserted domestic industry Samsung products read on the asserted claims of the '644 patent. A central issue to the ALJ’s determinations concerns the requirement “extracting a 60-bit rate-matched block,” found in all asserted claims of the '644 patent.

After the evidentiary hearing, the ALJ concluded that rather than “extracting a 60-bit rate-matched block,” the Intel and Qualcomm baseband processors in both the accused products and the domestic industry products [] ID at 110. These [], according to Samsung’s expert Dr. Min, consist of [] (in the case of devices using a Qualcomm processor) or [] (in the case of devices using Intel processors). ID at 110. The ALJ noted that Dr. Min attempted to equate these [] with the term “bit” as used in the claims of the '644 patent. *Id.* at 110-111. The ALJ found this impermissible given the parties’ agreed-upon construction of the claim term “bit” as a single “binary digit.” *See, e.g.*, ID at 97, 111. Accordingly, the ALJ found Samsung had failed to demonstrate that the accused Apple products and the alleged domestic industry products meet this limitation. ID at 111, 558.

Samsung contends that the ALJ ignored evidence in the record concerning the composition of []. Citing testimony from Dr. Min, Samsung asserts that [] corresponds to the coded bit recited in the claim. *See* Tr. 1282:25-1283:15 (Min). Samsung contends that []

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]].

Samsung argues that in the Apple and Samsung devices [[

]] is the bit that is extracted.” Samsung asserts that the fact that the Apple and Samsung devices [[]] cannot, as a matter of law, preclude infringement.

We note that the asserted claims use the transitional phrase “comprising,” and therefore an accused device does not avoid infringement merely by performing additional functions beyond those recited in the claim. *See Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368 (Fed. Cir. 2003) (“The transition ‘comprising’ in a method claim indicates that the claim is open-ended and allows for additional steps.”). However, we ultimately conclude that substantial evidence supports the ALJ’s determination that Samsung did not prove that the devices in question “extract[] a 60-bit rate-matched block.” Samsung has argued to the Commission that in the Apple and Samsung devices [[

]] *See Samsung Pet. for Review at 47* (emphasis added). The following cross-examination of Samsung’s expert Dr. Min with respect to the Qualcomm-based products casts doubt on that assertion:

Q. And show us the line of code that says what you just told us is true, you extract one bit of information at a time?

A. [[

]].

Q. Dr. Min, show me the line of code that extracts the one bit by itself?

A. By itself?

Q. Yes.

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A. There is no such thing.

Q. It never happens?

A. It will always [[]].

. . . .

Q. [[]]?

A. [[]].

Q. Show me.

A. [[]].

. . . .

Q. Right. And they are [[]],
correct?

A. I would say [[]].

Tr. at 1302:6-1303:15.

The only evidence in the record that Dr. Min could point to, for both the Qualcomm-based and Intel-based products, was [[

]]. These variables contain values that, Dr. Min admits, [[

]] See Tr. at 1302:20-24. We conclude that the record does not show that the devices in question ever “extract” a collection of 60 bits that represent a rate-matched block. Even though Samsung claims that the devices “extract” [[]], Dr. Min could not point to any line of code to prove that assertion. Additionally, Dr. Min eventually gave up on the proposition that the Apple and Samsung devices “extract” [[]]. See Tr. at 1303:14-15 (“[[]]”).

We discern no error in the ALJ’s ultimate conclusion that the devices in question do not “extract[] a 60-bit rate-matched block,” and we adopt all findings of the ALJ that are consistent

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with our analysis here. In addition to that analysis, we emphasize that Samsung did not show proof that the Apple and Samsung devices “extract” a 60-bit rate-matched block, as described above.

Although no party appears to address the ALJ’s construction of “rate-matched block” in their arguments to the Commission, we note that we have given full consideration to the ALJ’s construction reaching the conclusion above. The ALJ’s construction deserves some discussion, as it may at first blush appear to be in tension with our determination. During the *Markman* phase of the investigation, Apple argued that a “rate-matched block” must be “a set of contiguous bits . . . created through rate-matching.” Order No. 63 at 40. The ALJ determined that “Apple’s proposed construction requiring contiguity is not borne out by the intrinsic evidence.” *Id.* at 48. The ALJ therefore construed the term “rate-matched block” as “a block of channel-coded bits that have been matched to transmittable bits on a physical channel by puncturing or repeating bits at predetermined positions.” We conclude that the ALJ’s construction of “rate-matched block” is not erroneous, and we do not disturb it with our factual determination here. Rather, we determine here that the record lacks proof that the accused devices “extract” the 60 bits in question.

Finally, we note that asserted claim 9 of the ’644 patent and its dependent claims are method claims. The ALJ therefore correctly analyzed whether a violation of section 337 could be supported based on the importation of articles that indirectly infringe those method claims. *See* ID at 142-144; *Certain Electronic Devices with Image Processing Systems, Components Thereof, and Associated Software*, Inv. No. 337-TA-724, USITC Pub. No. 4374, Comm’n Op. at 17-19 (Feb. 2013). The ALJ found no indirect infringement based on his conclusion of no direct infringement. *Id.* at 144. We affirm that determination.

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1. Evidentiary Rulings Concerning “[]”

Samsung seeks to have the entire discussion of [] in the ID reversed on evidentiary grounds. During discovery, Apple raised its [] argument for the first time in its expert’s rebuttal report. The ALJ struck portions of the report, but expressly ruled that he was not striking the underlying evidence and would allow cross-examination on the issue. *See* Order No. 86 at 22 (June 26, 2012) (“[I]t is noted that the underlying evidence is not stricken, and Respondent is free to explore this evidence with Dr. Min on cross-examination. Should Respondent choose to do so, however, Dr. Min will be permitted to offer responsive opinions.”).

Samsung argues that the ALJ should not have allowed Apple to cross-examine Dr. Min about [] at trial. It also argues that once Apple’s cross-examination was allowed, it should have been allowed to make a new doctrine of equivalents argument that []

[]. Samsung made similar arguments before the ALJ, who denied Samsung’s request to strike the evidence, holding that “Apple was prohibited from introducing testimony from Dr. Stark that had not been timely disclosed. . . . However, beyond that limitation, Apple was not prohibited from exercising its right of full cross-examination [of Dr. Min] to the same extent as Samsung was permitted to do so and was also allowed to elicit testimony from Dr. Stark included in the portions of his reports that were not stricken.” ID at 105. The ALJ continued, “The fact that it is testimony of Dr. Min elicited during cross-examination that Apple and Staff primarily rely on for their noninfringement contentions does not make his statements and the inferences derived therefrom unsupported attorney argument, as Samsung characterizes it. . . . Dr. Min’s testimony along with Dr. Stark’s and the Intel and Qualcomm source code and documentation were sufficient to support Apple’s and Staff’s arguments.” *Id.* at 106.

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We determine that the ALJ's evidentiary rulings were sound and well within the Judge's discretion, and we affirm.

b. "checking the UE-ID Specific CRC" (all claims)

Samsung claims the ALJ erred when comparing the claim term "checking the UE-ID specific CRC" to the accused Apple devices and the alleged Samsung domestic industry products.

The ALJ's reasoning begins with the construction of "UE-ID specific CRC ID." The parties agreed that this term means a "CRC masked with a UE-ID." ID at 133. The ALJ then determined the products in question do not meet this limitation because they "[[
]]]" ID at 135.

We conclude that the ALJ's analysis with respect to this claim term is erroneous. The claims in question use the open-ended transitional term "comprising." See '644 patent, claims 9-16. Accordingly, the claims may read on devices that perform additional steps beyond those recited in the claims. See *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368 (Fed. Cir. 2003) ("The transition 'comprising' in a method claim indicates that the claim is open-ended and allows for additional steps."). The asserted '644 patent claims contain no prohibition on demasking the CRC before checking it, and no party has argued that "checking" should be construed to preclude demasking. Moreover, Apple appears to concede that the accused Apple devices and the alleged Samsung domestic industry articles [[
]]. See ID at 32. However, correcting this error does not change the ultimate conclusion that the accused Apple articles do not infringe the '644 patent because, as noted above, those articles do not extract a 60-bit rate-matched block.

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ii. Validity

a. Obviousness Based on Work Conducted by Siemens

Apple contends that the ALJ erred in finding that the asserted '644 claims are not obvious based on the prior art references relied on by Apple, either separately or combined. The ID concluded that the references “all lack disclosure of the specific rate-matching pattern espoused by the patent, and the bridge between what is disclosed in the entire prior art mentioned by Apple and what is claimed in the '644 patent with respect to the rate-matching pattern has not been established by Apple.” ID at 349.

We determine that the ALJ's determination was correct, as none of the references cited by Apple disclose the rate matching pattern found in claims 9 and 13 of the '644 patent, in which depuncturing occurs at bit positions “{1, 2, 5, 6, 7, 11, 12, 14, 15, 17, 23, 24, 31, 37, 44, 47, 61, 63, 64, 71, 72, 75, 77, 80, 83, 84, 85, 87, 88, 90}.” *See* '644 patent at claims 9, 13.

Apple relies on the prior work of Siemens as shown in RX-927 (Siemens Change Request, R1-041520, TSG RAN Working Group 1 Meeting #39, Yokohama, Japan (Nov. 15-19, 2004)) (“R1-041520”) and subsequent documents RX-1527C (Siemens' R1-020604) and RX-450 (Siemens' U.S. Patent No. 7,346,835 to Lobinger). In November 2004, Siemens proposed that the 3GPP working group tasked with developing the E-AGCH (or HSUPA) telecommunications standard adopt an E-AGCH coding chain that Siemens disclosed in 3GPP document R1-041520. RX-927 at 77-79 (R1-041520, proposed §§ 4.10-4.10.5). R1-041520 proposed that scheduling grants transmitted over the absolute grant channel (E-AGCH) should be encoded at the base station in the manner shown in Figure 24 of RX-927.:

In our view, these documents do not render the asserted claims of the '644 patent invalid for at least two reasons. First, Siemens' proposal was directed to encoding scheduling grant information at the base station. *See id.* § 4.10.1 fig. 24. Claims 9 and 13 of the '644 patent,

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however, are directed to decoding that information once received by a mobile device. Second,
[[

]]. See RX-392C at 20 (Ericsson, Limited Internal
Minutes of Meeting, 3GPP RAN WG1#39) (“[[

]].”). As Samsung’s expert testified:

Q. Do you remember that claims 9 and 13 I believe have that real specific rate-matching pattern as the last element of each claim?

A. That is correct.

Q. Does the Siemens E-DCH proposal RX-0927 disclose any specific ratematching pattern?

A. No, there is no rate-matching pattern.

Tr. at 3021:9-15 (Min). Thus, the Siemens prior disclosures neither contain nor suggest key elements of the asserted claims. We discern no error in the ALJ’s determination that Apple failed to prove that the ’644 patent is invalid based on the Siemens disclosures, and we adopt it.

b. Inventorship Under 35 U.S.C. § 102(f)

Apple contends that the ALJ erred in finding that the ’644 inventors did not derive their claimed invention from Siemens’ prior work. The ID found that “[t]he evidence does not clearly and convincingly establish that the inventors did derive their invention from Siemens. . . .

[[

]].” ID at 334.

Apple’s derivation defense arises from 35 U.S.C. § 102(f), which states that a person is not entitled to a patent if “he did not himself invent the subject matter sought to be patented[.]”

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Apple asserts that the inventors named in the '644 patent are not the true inventors because Siemens conceived of the invention first, as allegedly shown by the R1-041520 reference, which originated from Siemens.

We conclude that the inventions disclosed in the Siemens references are not the same as the invention in the '644 patent, for the reasons discussed above in connection with Apple's obviousness contentions. Not only is the specific puncturing pattern for rate-matching claimed in the '644 patent absent from the Siemens document, but there is evidence that Siemens had actually tried and failed to develop an optimal rate-matching pattern for use in E-AGCH transmissions. *See, e.g.*, RX-136 § 4.10.4 (R1-041354, TSG-RAN WG1 #39 Yokohama, Japan, Nov. 15-19, 2004, Nov. 19, 2004) ("Editor's note: The exact number of bits and the ratematching pattern needs to be clarified."). We submit, therefore, that the ID was correct in holding the following:

While the evidence does show that the '644 inventors made use of the Siemens proposal, there is no getting around the fact that the suitability of that proposal for purposes of the objectives of the '644 invention was short of the mark and the inventors had to engage in extensive trial and error activities and simulations in order to come up with their rate-matching determinations.

Id. at 349. We adopt the ALJ's findings and determination on this matter.

iii. Domestic Industry – Technical Prong

The domestic industry products that Samsung relies upon with respect to the '644 patents use the same Qualcomm baseband processor as the Apple articles that Samsung accuses of infringing the '644 patent. Samsung has agreed that if the accused Apple products do not infringe the '644 patent, the domestic industry articles do not practice the '644 patent for the same reasons. *See ID* at 557.

As we explained above with respect to infringement, we conclude that the record evidence shows that the Qualcomm baseband processors in question do not "extract[] a 60-bit

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rate-matched block,” as required by all asserted claims of the ’644 patent. Accordingly, we determine that Samsung did not prove a domestic industry exists in the United States related to articles protected by the ’644 patent.

iv. Inequitable Conduct at the PTO

Apple argued to the ALJ that Samsung committed inequitable conduct by failing to disclose the Siemens documents described above to the patent examiner during prosecution of the ’644 patent. The ALJ rejected this argument, concluding that “there is no clear and convincing evidence that there was a deliberate decision to withhold material evidence during the prosecution of the ’644 patent that renders it unenforceable.” ID at 498.

A patent is unenforceable on the grounds of inequitable conduct if an applicant provides materially false information or withholds material information from the U.S. Patent and Trademark Office (“PTO”) with an intent to mislead or deceive. *Digital Control Inc. v. Charles Mach. Works*, 437 F.3d 1309, 1313 (Fed. Cir. 2006). Materiality and intent to deceive must be proven by clear and convincing evidence. *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1365 (Fed. Cir. 2008).

We conclude that Apple did not present clear and convincing evidence that the references in question were material to the prosecution of the ’644 patent. A reference is only material when the patent would not have issued “but for” the nondisclosure. *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1291-92 (Fed. Cir. 2011). For the reasons discussed above with regard to Apple’s obviousness contentions, we submit that the Siemens references do not meet that standard. The references are concerned with downlink communication from the base station, not with decoding information at the mobile device, and they fail to disclose the specific rate-matching pattern found in the asserted claims of the ’644 patent. Given the limited

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relevance of these references, Apple has not shown that the '644 patent would not have issued if the applicants brought the Siemens work to the attention of the examiner.

Moreover, even if the Siemens work were shown to be material, Apple's inequitable conduct argument would still fail because Apple has not alleged sufficient facts to find any intent to deceive the USPTO. Apple has not alleged with particularity who exactly attempted to deceive the USPTO or how they attempted to do so. Absent any evidence of intent to deceive, there can be no finding of inequitable conduct as a matter of law. We therefore conclude that the ALJ correctly determined that the '644 patent is not unenforceable due to inequitable conduct at the PTO.

v. Apple's Affirmative Defenses Based on Samsung's Participation in a Standards-Setting Organization

As discussed above, Apple contends that Samsung's FRAND-related commitments preclude Samsung from seeking exclusionary remedies at the Commission and that Samsung failed to timely disclose the '348 and '644 patents to ETSI. These arguments are without merit for the reasons discussed above. Further, because the accused Apple devices do not infringe the '644 patent, any other affirmative defenses raised by Apple, including a FRAND defense, are moot.

vi. Apple's Patent Exhaustion Defense

Apple contends that the ALJ erred when he rejected Apple's argument that Samsung's rights in the '644 patent were exhausted through a series of contractual agreements with Intel, Qualcomm, and Apple. As we noted above in connection with the '348 patent, we conclude that the record lacks specific evidence of sales in the United States from Intel and Qualcomm to Apple, and in the absence of proof that those sales were authorized by Samsung, the ID properly rejected Apple's patent exhaustion arguments. *See Fuji Photo Film Co. Ltd. v. Jazz Photo Corp.*,

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394 F.3d 1368, 1376 (Fed. Cir. 2005). We discern no error in the ALJ's determination, and we adopt it. Moreover, we note, as we did above, that Samsung has abandoned any claim to relief from the Commission against Apple articles that utilize a Qualcomm baseband processor to connect to a cellular network. *See* Samsung Initial Sub. in Response to March 13, 2013 Notice, 5-6 (April 3, 2013). Therefore, Apple's argument concerning exhaustion with respect to such devices is moot.

C. The '980 Patent

The '980 patent, entitled "Method for Dialing in a Smart Phone," is directed to a method for dialing a selected phone number in a smartphone during the performance of a PDA function. '980 patent at 1:25-27. Another object of the invention is to allow the user to register a phone number in an electronic phone book application in the smartphone, also during the performance of a PDA function. *Id.* at 1:28-31. In either case, the user is able to save or dial the phone number without having to memorize the number, exit the PDA application, and then retype the number from memory. *Id.* at 1:15-23.

The '980 patent has thirteen claims, all of which are method claims. Samsung now asserts only independent claim 10 and dependent claim 13. Those claims read as follows:

10. A method for dialing a phone number in a smart phone having both personal digital assistant (PDA) and mobile phone functions, comprising the steps of:
executing a dialing program for editing and dialing a phone number and displaying a phone editor and a dialing icon when a PDA function is utilized in said smart phone;
switching a display screen into a dialing state for selecting a phone number when said dialing icon is selected during the performance of said PDA function;
storing an identifying name designated for the selected phone number into a phone book; and
dialing the selected phone number.

13. The method as defined in claim 10, wherein said selected phone number is selected by one of pressing a touch screen and dragging a mouse.

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Samsung seeks review of the ALJ's determinations with respect to claims 10 and 13. The IA also seeks review of the ALJ's analysis with respect to these claims.

i. Claim Construction

- a. **“executing a dialing program for editing and dialing a phone number and displaying a phone editor and a dialing icon when a PDA function is utilized” (claim 10)**

Samsung contends that the ALJ incorrectly construed the term “dialing program for editing and dialing” in claim 10 of the '980 patent to require that editing and dialing occur “contemporaneously” and that dialing take place “within the same PDA function from which the number was selected.”

The IA contends claim 10 of the '980 patent should be construed according to the grammatical doctrine of last antecedents. “The doctrine of last antecedents provides that any modifying words or phrases refer to the language immediately preceding the modifier, unless it is clear that the modifier was intended to apply to something more distant or less obvious.” *Certain Cigarettes and Packaging Thereof*, Inv. No. 337-TA-643, Comm'n Op. at 9 n.2 (Oct. 1, 2009); *see also Barnhart v. Thomas*, 540 U.S. 20, 26 (2003)). The IA argues there is no punctuation or specific language in claim 10 to suggest that the modifying clause “when a PDS function is utilized” should apply to anything other than the language immediately preceding it. Thus, in the IA's view, the “when” clause in the disputed phrase modifies only the immediately adjacent clause. *See, e.g., In re Hyatt*, 708 F.2d 712, 714 (Fed. Cir. 1983) (“A claim must be read in accordance with the precepts of English grammar.”). The IA therefore concludes that the claim does not require “executing a dialing program for editing and dialing a phone number” when a PDA function is utilized; the claim instead requires “displaying a phone editor and a dialing icon” when a PDA function is utilized. The IA contends that the ALJ improperly rejected this construction. *See ID* at 151.

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We conclude that all parts of the “executing” step in claim 10 occur during utilization of a PDA function. In other words, the limitation in question specifies three events: (1) executing a dialing program, (2) displaying a phone editor, and (3) displaying a dialing icon, all of which occur during the utilization of a PDA function. This construction is consistent with the ’980 patent specification. Below we annotate a portion of that specification with the claim language numbered *supra* to show the congruency between the specification and the disputed language:

[W]hen the PDA section 20 is utilized, (1) the phone program for editing and dialing a phone number is loaded in the RAM, and (3) the telephone icon is displayed on the display screen of the display device 204. Then, if the user selects a phone 65 number and selects the telephone icon during operation of the PDA function, the control unit executes the phone program (2) to register the selected phone number into the phone book and/or send a signal corresponding thereto after terminating the PDA function.

’980 patent at 3:62-4:3 (emphasis and annotations added).

b. “dialing icon” (claim 10)

Samsung contends that the ID erred in by improperly restricting the scope of “dialing icon” to import a “pictorial element” limitation.” In Samsung’s view, a hyperlinked piece of text, such as a phone number, can constitute a “dialing icon.” The ID rejected this interpretation, finding that Samsung’s expert “did not suitably explain his reasoning for why a person of ordinary skill in the art would have understood a hyperlink or the call (### # ##-####) button that he identified, both of which would differ every time a user identified a phone number, to be the same as an ‘icon.’” ID at 162. The ID therefore determined that “the hyperlinked phone number and button with the selected phone number in the accused phones, both of which lack any pictorial elements,” do not meet the “dialing icon” limitation of claim 10. *Id.* at 162, 166.

We conclude that the ALJ’s construction of the “dialing icon” limitation is correct. An “icon” is not a string of text or numbers, as Samsung argues. Even the dictionary definitions that Samsung has presented to the Commission suggest that some pictorial element, or “symbolic

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representation,” is required. *See* Samsung Pet. at 66 (citing *The Illustrated Dictionary of Electronics* (7th ed. 1997) (“defining icon as, ‘a symbol that aides the user in recognizing a selection that can be made’”); *McGraw-Hill Dictionary of Scientific And Technical Terms* (5th ed. 1994) (“defining icon as, ‘[a] symbolic representation of a computer function that appears on an electronic display and makes it possible to command this function by selecting the symbol.’”). Accordingly, we discern no error in the ALJ’s determination that the proper construction of “dialing icon” requires a pictorial element.

ii. Infringement

a. **“executing a dialing program for editing and dialing a phone number and displaying a phone editor and a dialing icon when a PDA function is utilized” (claim 10)**

Apple asserts that the Commission should affirm the ALJ’s findings of no infringement of the ’980 patent for a number of reasons in addition to the grounds set forth in the ID. Among these are Samsung’s allegedly shifting contentions as to which components of the accused products and which components of the domestic industry products constitute the “phone program” in the asserted claims. Apple contends that at the hearing, Samsung argued for the first time that the “dialing program” in claim 10 was met by a combination of unspecified aspects of seven different software components: the Phone, Safari, Mail, Calendar, and Notes applications, Data Detectors, and Springboard). Similarly, with regard to the domestic industry products, Apple notes that Samsung argued that the “dialing program” limitation was met by a combination of unspecified pieces from ten different software components: Phone, Dialer, Android Application Framework, CacheBuilder, Linkify, Email, Web, Calendar, Memo, and Messaging.

In the ID, the Judge held the following with regard to Samsung’s infringement contentions:

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Apple also persuasively makes the point that Samsung and Mr. Cole did not previously assert that specific PDA functions (CDX-3.53) are part of this claimed “phone program” in Samsung’s pleadings, infringement contentions, Mr. Cole’s expert reports, or Mr. Cole’s deposition. (Tr. at 2491-99:19, 2501- 02 (Cole); Complaint, Ex. 16.) This change in infringement theory is troublesome and lacks substance and credibility. Indeed, Mr. Cole was unable to answer specific questions about what other portions of the iOS are part of the alleged “phone program.” (Tr. at 2505:24- 2506:3 (Cole).) The Administrative Law Judge concludes that Samsung has failed to adequately or persuasively explain its shift in position, let alone what this alleged phone program is or how it is loaded after the PDA function is requested by a user.

ID at 159-60.

To clarify the confusing state of the record, the Commission asked the parties the following in its notice:

12. With respect to the ’980 patent, has Samsung waived all infringement and domestic industry allegations except for those based on claim 10? Identify by source code file name or other specific record designation the precise “dialing program” that Samsung relies upon to prove infringement and domestic industry with respect to claim 10. Also identify, using record evidence, the conditions that trigger execution of the “dialing program” in the relevant devices.

From our review of Samsung’s response to this question, we see no evidence that a “dialing program” exists in the accused devices that would satisfy all of the limitations of claim 10. Samsung attempts to construe pieces of the following software programs within the accused Apple products to constitute the claimed “dialing program”: the PDA application from which the phone number is selected; [[]]. In our view, Samsung’s argument has no merit. Even if those disparate programs could be considered “a dialing program,” there is insufficient evidence to conclude that they are executed at the time and in the manner required by claims 10 and 13. Accordingly, we determine that Samsung has not met its burden to show direct infringement of claims 10 and 13, and we adopt all findings of the ALJ that consistent with this determination.

Additionally, we note that asserted claims 10 and 13 of the ’980 patent are method claims. The ALJ therefore correctly analyzed whether a violation of section 337 could be

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supported based on the importation of articles that indirectly infringe those method claims. *See* ID at 169; *Certain Electronic Devices with Image Processing Systems, Components Thereof, and Associated Software*, Inv. No. 337-TA-724, USITC Pub. No. 4374, Comm'n Op. at 17-19 (Feb. 2013). The ALJ found no indirect infringement based on his conclusion of no direct infringement. *Id.* We adopt this conclusion as well.

iii. Validity

Apple argues that if the Commission were to reverse the ALJ's noninfringement determination with regard to claim 10 of the '980 patent, then the Commission also should review the determination that Apple did not show by clear and convincing evidence that claim 10 is invalid. *See, e.g.*, ID at 360, 372-73. Because we do not disturb the ALJ's noninfringement determination, we decline to address Apple's conditional petition on this point. We adopt the ALJ's determination that Samsung did not prove the '980 patent to be invalid.

iv. Domestic Industry – Technical Prong

Samsung contends that even if the ALJ were correct in construing “dialing icon” to require a picture, the ALJ ignored evidence of picture icons in the alleged Samsung domestic industry devices. In response to Samsung's argument, the Commission posed the following question in its notice:

13. With respect to the '980 patent, if the Commission were to construe “dialing icon” to require a “pictorial element,” what record evidence demonstrates that Samsung's alleged domestic industry products meet that limitation?

When responding to this question, both Samsung and the IA identified a green “Call” graphical button in the Samsung domestic industry products that included the silhouette of a telephone. *See* CDX-03.98; CDX-03.131C.

We conclude that Samsung's evidence concerning the green “Call” button with a telephone silhouette satisfies the claim term “dialing icon,” at least in isolation. But we still must

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conclude that Samsung has not proven that a domestic industry exists relating to the '980 patent. Samsung has not sufficiently identified a "dialing program" that meets all of the limitations required by the claims. Samsung attempts to define as one "program" a combination of portions of the PDA application, [[]] (depending on the PDA application), the Android [[]], and the Dialer and Phone applications. We conclude Samsung has failed to show that the disparate parts of these software elements constituted a "dialing program" that "execut[es] . . . when a PDA function is utilized," as required by claims 10 and 13. Samsung therefore has not proven a domestic industry in articles protected by claims 10 and 13.

D. The '114 Patent

The '114 patent is titled, "User Interface Systems and Methods for Manipulating and Viewing Digital Documents." The patent discloses systems for viewing and manipulating a display of digital documents. The disclosed system includes a user interface for detecting user input from a pointer on a touch-sensitive display. In particular, the touch-sensitive display detects movement across the touch-screen and moves a cursor or graphical interface tool (such as a simulated magnifying glass) across the display accordingly. The disclosed invention may also include a velocity detector that determines the velocity of movement across the touch-screen and a means for applying a "velocity characteristic" to a document displayed on the screen. '114 patent at 2:64-3:39. One such velocity characteristic may be "inertial scrolling," in which a document continues to scroll after the user input ends and then gradually slows to a stop, simulating the effects of inertia and friction. *Id.* at 14:15-32. The '114 patent has a total of five apparatus claims, all of which are asserted in this investigation. Claims 1 and 3 are the asserted independent claims:

1. A computer device having a system for simulating tactile control over a document, comprising:

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a processor, memory, and a touch-sensitive display,
system code stored within the memory and adapted to be executed by the processor to
provide a digital representation of a document including data content and a page
structure representative of a page layout of the document,
an engine for rendering an image of at least a portion of the page layout of the digital
representation on the touch-sensitive display,
a display monitor in communication with the touch-sensitive display screen for
detecting motion of a pointer across the touch-sensitive display,
a velocity detector for determining a velocity vector based on a velocity of the
detected motion,
an interface process in communication with the display monitor for processing the
motion detected by the display monitor to detect one of a plurality of commands,
wherein the plurality of commands includes a pan command,
wherein, in response to the command detected by the interface process being the pan
command, the engine pans the displayed document on the display at a rate based
on the determined velocity vector.

3. A computer device having a system for simulating tactile control over a document,
comprising

a processor, memory, and a touch-sensitive display,
system code stored within the memory and adapted to be executed by the processor to
provide a digital representation of a document including data content and a page
structure representative of a page layout of the document,
an engine for rendering an image of at least a portion of the page layout of the digital
representation on the touch-sensitive display,
a velocity detector for determining a velocity vector associated with the detected
motion,
an interface process in communication with the display monitor for processing the
motion detected by one of a plurality of commands, wherein the plurality of
commands includes a pan command,
wherein, in response to the command detected by the interface process being the pan
command, the engine renders a series of pages of the document on the touch-
sensitive display at a rate based on the determined velocity vector and a page
inertia.

i. Infringement

a. “velocity detector” (all claims)

Independent claims 1 and 3 contain the following limitations: “a velocity detector for
determining a velocity vector based on a velocity of the detected motion” (claim 1), and “a
velocity detector for determining a velocity vector associated with the detected motion” (claim

3). The ALJ found the evidence does not demonstrate that the accused products satisfy these

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limitations, and accordingly held that the asserted claims are not infringed. ID at 239-40. For the same reasons, the ALJ also held that the asserted domestic industry products do not practice the asserted claims of the '114 patent. *Id.* at 588-89. Samsung disputes these determinations, contending that the ALJ improperly construed the terms “velocity detector” and “based on a velocity of / associated with the detected motion” and consequently erred in his infringement determination.

The term “velocity detector” was not one of the disputed claim terms construed in the *Markman* phase of this investigation. However, in proposing a construction for the claim term “rate based on the determined velocity detector[,]” Samsung took the position that the velocity detector “takes position readings periodically, such as every centi-second,” and in so doing, prevailed in the claim construction it proposed. *See* ID at 247. Samsung’s expert witness, Dr. Abowd, agreed with this construction and used it in his infringement analysis. *See id.* at 246-48.

When applying the claims to the accused devices at his deposition, Dr. Abowd testified that the “velocity detector” in the accused products consisted of two components, [[

]]:

Q. Can you give me any name at all about what you are calling the determined velocity detector in the accused Apple products?

A. Yes, I can, and the name I would give you is the two components: [[]].

ID at 248 (citing Abowd Dep. Tr. at 475 (Apr. 25, 2012)). [[

]]. ID at

245; *see also id.* at 190-91, 242-46.

In an errata sheet submitted five days before trial, Dr. Abowd abandoned this theory and amended his deposition testimony substantially. ID at 248 (citing Apple Posthearing Br. exh. 4

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at 1 (Abowd Dep. Tr. Errata)). At trial Dr. Abowd took the position that the “velocity detector” in the accused products is the [[]]. The ALJ held that “[t]his is a substantive change in testimony, not an error in transcription. . . . [W]hat Dr. Abowd testified at his deposition stands and contradicts his testimony at the hearing and, therefore, is impeaching.” ID at 248-49. He further determined:

Dr. Abowd’s testimony at the hearing, and Samsung’s position now, that a person of ordinary skill in the art would understand velocity detector to mean something that determines a velocity vector, not something that “takes position readings,” is materially different from Dr. Abowd’s expert report and Samsung’s contention in the *Markman* proceedings.

ID at 246. The ALJ found that this change in testimony was both untimely and unreliable, and ruled that Samsung was bound by its earlier claim construction and infringement arguments. *See, e.g.*, ID at 246 (“The Administrative Law Judge finds that the principal evidence relied on by Samsung for its proof of infringement, the expert opinions provided by Dr. Abowd, is not reliable.”), 248 (“Samsung and Dr. Abowd are bound by the position that they took prior to the hearing, not only as expressed by Dr. Abowd but by Dr. Cole, too.”).

Samsung does not dispute that if: (1) a “velocity detector” must take position readings periodically and (2) the velocity detector in the accused products consists of [[

]], then the accused products do not infringe the asserted claims of the ’114 patent. Dr. Abowd admitted that if [[]] are the velocity vector in the accused products, as he had testified at his deposition, the Accused Products do not infringe the ’114 patent. ID at 250 (citing Tr. at 1737-38 (Abowd)). Accordingly, the ID found no infringement. ID at 250.

In light of the inconsistent testimony by Dr. Abowd, we find no error in the ALJ’s noninfringement determination. We therefore adopt it.

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ii. Validity

a. Anticipation by Minakuchi

The ID found that the asserted claims of the '114 patent are invalid as anticipated by U.S. Patent No. 5,844,547 ("Minakuchi"). ID at 422-28; *see* RX-504 (Minakuchi). Samsung contests this determination, arguing that the Minakuchi reference does not disclose the following elements of the asserted claims: "data content," "page layout," "series of pages," and "velocity detector."

The Minakuchi reference, entitled "Apparatus for Manipulating an Object Displayed on a Display Device by Using a Touch Screen," is directed to a touchscreen computing device that allows a user to scroll at a rate based on the velocity of the user's pointing means on the touchsensitive display and a "page inertia" that is used to decrease the rate of scrolling. RX-504.

The IA provides the following chart, summarizing evidence that Minakuchi discloses each element of the asserted claims of the '114 patent:

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Claim Element	Present in Minakuchi
A computer device having a system for simulating tactile control over a document, comprising a processor, memory, and a touch-sensitive display, (claims 1 and 3)	Yes. "The present invention relates to an apparatus for manipulating an object displayed on a display device by using a touch screen." RX-504 at 1:10-12. Minakuchi discloses a computer device that has a processor, a memory, and a touchscreen. <i>See, e.g., id. fig.2.</i>
system code stored within the memory and adapted to be executed by the processor to provide a digital representation of a document including data content and a page structure representative of a page layout of the document, (claims 1 and 3)	Yes. "A system controller 50, a touch discriminator 51, a display controller 52, which are programs stored in the memory 5 and executed by the CPU 4 (or may be constructed by hardware), and a display information table 1T, stored in the main memory 5, control the display operations performed by the present invention." <i>Id.</i> at 3:23-27.
an engine for rendering an image of at least a portion of the page layout of the digital representation on the touch-sensitive display, (claims 1 and 3)	Yes. Minakuchi contains a "display controller" that acts as an engine for rendering an image on a touch-sensitive display. "On receipt of the display update request 4Q from the system controller 50, the display controller 52 reads a display data file (including object data), specified by the file name, from the hard disk 7 and stores the data into the main memory 5. The display controller 52 then updates the object data in accordance with the display update data from the system controller 50 and loads the thus-updated object data into the frame memory 6 (FIG. 2) thereby to display the object on the display unit 3 (FIG. 2), as manipulated by the operator on the touch screen unit 1." <i>Id.</i> at 4:6-26.
a display monitor in communication with the touch-sensitive display screen for detecting motion of a pointer across the touch-sensitive display, (claims 1 and 3)	Yes. Minakuchi contains a "display controller" that acts as a display monitor. "The touch discriminator 51, based on the touch screen information 2I from the touch screen unit 1, discriminates the type of touch which the operator's finger has on the touch screen 11. . . . The touch discriminator 51 sends, to the system controller 50, the result of the touch discrimination performed thereby as a touch report 3R, which includes touch type and, according to the touch-screen information 2I, one or two sets of touch coordinates." <i>Id.</i> at 3:63-4:5.
a velocity detector for determining a velocity vector based on a velocity of the detected motion, (claims 1 and 3)	Yes. "[T]he system controller 50 determines the speed at which the finger has moved from right to left, for example, based on a change in the X-coordinate in terms of data, between a touch report 3R and the following one." <i>Id.</i> at 5:41-45.

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Claim Element	Present in Minakuchi
<p>an interface process in communication with the display monitor for processing the motion detected by the display monitor to detect one of a plurality of commands, (claims 1 and 3)</p>	<p>Yes. Minakuchi contains a "system controller" that acts as an interface process. "Based on the touch report 3R from the touch discriminator 51 and the display information table 1T, the system controller 50 determines the type of manipulation which was conducted by the operator and, according to the determination, updates the display information table 1T. Then, the system controller 50 sends, to the display controller 52, a display update request 4Q including 'display update data' which reflects the updated contents of the display information table 1T including display position information, filed information and normal display file name and special state file name." <i>Id.</i> at 4:6-16.</p>
<p>wherein the plurality of commands includes a pan command, (claims 1 and 3)</p>	<p>Yes. The "system controller" can detect a plurality of commands, including a pick manipulation, push, flip, flip-under-gravity, roll, and distort-restore. '547 patent, col. 4:36-5:14, 6:20-8:21. "When a 'continuous touch start' is reported and the 'object type' is defined as 'out-screen' in the display information table 1T as shown in FIG. 7(b), the system controller 50 recognizes the manipulation as a scroll and the object as a large one extending beyond the display screen." <i>Id.</i> at 5:37-41; fig.7.</p>
<p>wherein, in response to the command detected by the interface process being the pan command, the engine pans the displayed document on the display at a rate based on the determined velocity vector. (claim 1)</p>	<p>Yes. "Depending on whether the finger has moved at a speed of more (high-speed) or less (normal-speed) than 20 dots, for example, the object display position on the display screen is scrolled initially at corresponding intervals of 100 or 500 milliseconds, respectively." <i>Id.</i> at 5:46-50.</p>
<p>panning the displayed document comprises rendering different views of the document on the touch-sensitive display at a rate based on the determined velocity vector and a page inertia. (claim 2)</p>	<p>Yes. "Then, the interval, at which the display update request 4Q is sent to the display controller 52, is increased by a factor of 1.5 at each touch report 3R and, when the interval reaches 2 seconds, the scrolling is stopped." <i>Id.</i> at 5:50-53.</p>

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Claim Element	Present in Minakuchi
<p>wherein, in response to the command detected by the interface process being the pan command, the engine renders a series of pages of the document on the touch-sensitive display at a rate based on the determined velocity vector and a page inertia. (claim 3)</p>	<p>Yes, for the reasons described in connection with claims 1 and 2. <i>Id.</i> at 5:37-53.</p>
<p>the rate at which the engine renders the series of pages of the document decreases over time based on the page inertia. (claim 4)</p>	<p>Yes, for the reasons described in connection with claim 2. <i>Id.</i> at 5:50-53.</p>
<p>wherein in response to the interface process detecting a subsequent pan command based on a subsequent motion of a pointer across the display, the engine alters the rate at which it renders the series of pages based on a velocity vector the velocity detector determines in relation to the subsequent motion. (claim 5)</p>	<p>Yes. "When another 'continuous touch' is reported before the scroll currently in progress comes to a stop, a new scroll can start from this point and at the first speed described above." <i>Id.</i> at 6:9-11.</p>

As demonstrated above, each element of asserted claims 1-5 of the '114 patent can be found expressly in the Minakuchi reference. Tr. at 2678:11-2679:21 (Balakrishnan). Accordingly, we conclude that Minakuchi renders the '114 patent invalid as anticipated. We adopt the ALJ's determination to that effect.

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b. Anticipation by Korhonen

Apple contends that EP 0880091B1 (“Korhonen”) anticipates the asserted claims of the ’114 patent. *See* RX-512. The ALJ rejected this argument, and Apple petitions for review. Apple Pet. at 71-73. The ALJ noted that the claims of the ’114 patent require a “page layout,” which the specification describes as “page size, margins, and other page layout information.” ID at 428 (citing ’114 patent at 7:61-63). The ALJ found that the Korhonen reference is directed to “scrolling long lists” in an “imaginary cylinder with no page size, margins, or any other page layout.” ID at 428. Apple concedes that Korhonen discloses a long list on an imaginary cylinder. Apple Pet. at 72-73. We conclude that the ALJ’s determination is not erroneous and we adopt it.

c. Anticipation by Asami

Apple contends that JP 63- 174125 (“Asami”) anticipates the asserted claims of the ’114 patent. *See* RX-511. The ALJ rejected this argument, and Apple petitions for review. Apple Pet. at 73-74. The ALJ found that the Asami reference does not disclose a digital representation of a document, including data content and a page structure representative of a page layout of the document. The ALJ further found that “Apple’s vacillating positions” as to how the Asami reference reads on the claims, as well as “the ambiguous disclosure” in that reference “are insufficient to provide clear and convincing evidence that this limitation has been met.” ID at 429. We conclude that the ALJ’s determination is not erroneous and we adopt it.

d. Obviousness Based on Minakuchi and Other Art

Samsung petitions for review of the ALJ’s determination that Minakuchi in combination with other prior art references would render the asserted claims of the ’114 patent invalid for obviousness. The ALJ held that “having found that the ’547 [Minakuchi] patent anticipates the ’114 patent, the Administrative Law Judge further finds that a combination of the ’547 patent

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with the '634 patent, or with any of the other three cited prior art references, renders the claims of the '114 patent obvious and, therefore, invalid under 35 U.S.C. § 103(a).” ID at 442-43. The ALJ relied upon “the evidence cited by Apple and Staff” as supporting this determination. That analysis includes an analysis of the motivation to combine the references and secondary considerations. ID at 430-442. In light of the evidence relied upon the ALJ, we discern no error in a determination that Apple proved obviousness based on Minakuchi in combination with other prior art cited by Apple. We therefore adopt the ALJ’s determination.

e. Indefiniteness

Apple argues that the asserted claims of the '114 patent are indefinite for mixing method-of-use steps in an apparatus claim. Apple Pet. at 75 (citing *IPXL Holdings, LLC v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005)). *IPXL* held that a single claim covering both an apparatus and a method of use of that apparatus is indefinite under section 112 of the Patent Act because “it does not apprise a person of ordinary skill in the art of its scope[.]” *IPXL*, 430 F.3d at 1384.

The IA submits that this argument was not meaningfully raised in pretrial briefing and is therefore waived. The IA avers that Apple’s entire argument on this point in its prehearing brief consisted of a single unsupported sentence: “Further, these claims are indefinite for improperly reciting method-of use steps in an apparatus claim.” Apple Prehearing Br. at 156 (May 3, 2012).

The ALJ determined that the clauses to which Apple objects are not impermissible method-of-use steps but rather disclose how the apparatus defined by the claim must respond to various commands. *See, e.g.*, ID at 453. We discern no error in the ALJ’s determination that the claims are not indefinite. We therefore adopt the ALJ’s analysis.

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iii. Domestic Industry – Technical Prong

b. “velocity detector” (all claims)

As noted above, the ALJ held that Samsung had not proven that the asserted Samsung domestic industry products include the “velocity detector” required by all asserted claims of the ’114 patent. *Id.* at 588-89. Samsung petitions for review of this determination. We conclude that substantial evidence supports the ALJ’s determination that Samsung did not meet its burden of proof on the technical prong of the domestic industry requirement based on the inconsistent testimony from Samsung’s expert Dr. Abowd. *See* ID at 246-250. We therefore adopt the ALJ’s determination.

E. Economic Prong of the Domestic Industry Requirement

Apple challenges three aspects of the ALJ’s determination that Samsung satisfies the economic prong of the domestic industry requirement: (1) whether the cost of foreign repair and replacement parts should have been treated as an investment in a domestic industry; (2) whether repackaging costs were properly included in the domestic industry analysis; and (3) whether Samsung’s investments in its domestic industry are substantial in the context of the company and industry.

First, we note that Apple does not contest most of the record evidence concerning Samsung’s domestic investments in research and development and engineering related to articles alleged to practice the asserted patents. We summarize that evidence below. We view the following evidence as a dispositive showing that Samsung has satisfied the domestic industry requirement at least under section 337(a)(3)(C), based on Samsung’s substantial investments in research and development and engineering. All of the following Samsung investments occur in the United States.

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Samsung's Mobile Network Operations ("MNO") labs comprise approximately [[]] engineers responsible for three principal activities: customization of the user interface during the development process with the carriers; incorporating carrier specific software into mobile devices; and working on software updates after devices are launched. Sheppard Tr. 898:3–899:2; 906:11-17. From 2010-2011, Samsung invested approximately \$[[]] for work performed by MNO labs attributable to Samsung products that practice the '348 patent; \$[[]] to products that practice the '644 patent; and \$[[]] to products that practice the '980 and '114 patents. CDX-0027C.8 – CDX-0027C.10; Mulhern Tr. 1781:23–1784:3.

Mobile Engineering Lab ("MEL") comprises [[]] engineers who perform two primary activities. First, MEL works with carriers to ensure that Samsung's devices can pass certain required tests to ensure that the devices work as intended and in an efficient manner on the carriers' networks, particularly given that each carrier has its own spectrum and unique network. Second, MEL conducts quality assurance activities. MEL is primarily responsible for understanding and replicating bugs reported to Samsung, and assigning the job of taking care of bugs to a specific engineering team. Sheppard Tr. 899:3 – 900:2; 906:11-17. From 2010-2011, Samsung invested approximately \$[[]] for work performed by the MEL attributable to products that practice the '348 patent; \$[[]] to products that practice the '644 patent; and \$[[]] to products that practice the '980 and '114 patents. CDX-0027C.8–CDX-0027C.10; Mulhern Tr. 1781:23–1784:3.

Samsung's Wireless Terminals Lab ("WTL") is part of its Dallas Technology Lab, located in Richardson, Texas. WTL consists of [[]] software engineers responsible for near-term development of particular technologies to be deployed on mobile handsets. Sheppard Tr. 901:9–902:9. From 2010-2011, Samsung invested approximately \$[[]] for

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work performed by the WTL attributable to Samsung products that practice the '348 patent; \$[[]] to products that practice the '644 patent; and \$[[]] to products that practice the '980 and '114 patents. CDX-0027C.8–CDX-0027.C.10; Mulhern Tr. 1781:23–1784:3.

Samsung's Mobile Communications Lab ("MCL") is located in San Jose, California, and employs [[]] U.S. engineers. These STA engineers work with Google, which provides the Android operating system used in many of Samsung's mobile devices, including most of the Domestic Industry Products. Sheppard Tr. 902:10–903:2. From 2010-2011, Samsung invested approximately \$[[]] for work performed by MCL attributable to Samsung products that practice the '348 patent; \$[[]] to products that practice the '644 patent; and \$[[]] to products that practice the '980 and '114 patents. CDX-27C.8–CDX-27.C.10; Mulhern Tr. 1781:23–1784:3.

We conclude that the evidence above supports a determination that Samsung has made significant domestic investments in an industry related to articles protected by the asserted patents. Again, Apple does not dispute the evidence of those investments. We have considered Samsung's investment in the context of the industry in question and Samsung's relative size and resources. *See Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-694, Comm'n Op. (public corrected version), 15-16 (Aug. 8, 2011). The fact that Samsung's total sales revenues in 2010 and 2011 were much greater than its domestic engineering and research and development expenses, as Apple argues, does not negate the fact that Samsung has invested millions of dollars domestically relating to protected articles.

Finally, we need not reach the question raised by Apple as to whether Samsung's investments in repair parts and repacking are best analyzed under subsection 337(a)(3)(A), (B), or (C). Even if the Commission were to exclude all of Samsung's repair and repacking expenses

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challenged by Apple, Samsung's domestic investments independent of those activities are substantial, totaling millions of dollars. We therefore conclude that Samsung has met its burden to show that the economic prong of the domestic industry requirement has been met. We adopt all findings of the ALJ consistent with this determination.

F. Remedy, Public Interest, and Bonding

i. Remedy

We have concluded above that Samsung has shown a violation of section 337 based on infringement of the '348 patent. Under the statute, if the Commission determines a violation has been committed, "it shall direct that the articles concerned . . . be excluded from entry into the United States, unless, after considering the effect of such exclusion upon the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumer, it finds that such articles should not be excluded from entry." 19 U.S.C. § 1337(d)(1).

The Commission may also issue cease and desist orders against further sale or distribution of infringing articles within the United States, after consideration of these public interest factors. *See* 19 U.S.C. § 1337(f)(1). The Commission generally issues cease and desist orders "when there is a commercially significant amount of infringing imported product in the United States that could be sold so as to undercut the remedy provided by an exclusion order." *See, e.g., Certain Laser Bar Code Scanners and Scan Engines, Components Thereof and Products Containing Same*, Inv. No. 337-TA-551, Comm'n Op. (Pub. Version) at 22 (June 14, 2007).

The ALJ recommended that, in the event that the Commission were to find a violation of section 337, the Commission issue a limited exclusion order against Apple barring entry of

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infringing products and a cease and desist order against further sale and distribution of infringing products in the United States. Samsung and the IA agree with the ALJ's recommendation of a limited exclusion order. Samsung and the IA aver that Apple maintains large inventories of the accused articles in the United States, and both agree a cease and desist order should issue against Apple.

As noted earlier, the Commission requested comments from the parties, government agencies, and interested members of the public with respect to remedy and the public interest in two notices. The Commission received responses from Samsung, Apple, the IA. The Commission notes that the submissions of the IA were particularly helpful in analyzing the issues to be decided by the Commission. The Commission also received submissions from the following (in alphabetical order): Association for Competitive Technology; Business Software Alliance; Cisco Systems, Inc.; Ericsson Inc.; GTW Associates; Hewlett Packard Company; Innovation Alliance; Intel Corporation; Micron Technology, Inc.; Motorola Mobility LLC; Qualcomm Incorporated; Research In Motion Corporation; Retail Industry Leaders Association; and Sprint Spectrum, L.P. Select comments are summarized in an Appendix to this opinion. The Commission has carefully considered all comments received in response to both notices in arriving at the determinations reflected in this opinion.

As discussed in more detail below, we have determined that a limited exclusion order should be entered against Apple barring entry of articles that infringe the '348 patent. The record supports the ALJ's finding that Apple maintains [[]] of infringing articles in the United States. *See* Order No. 89. Apple does not dispute that fact. *See* Recommended Determination at 4. Accordingly, we have determined to issue a cease and desist order barring

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the further sale and distribution of infringing articles. As discussed below, we do not find that the statutory public interest factors counsel against these remedies.

ii. The Public Interest

Section 337 defines a two-stage process for the Commission to act upon a complaint. The Commission first “determines, as a result of an investigation under this section” whether “there is a violation of this section.” *See* 19 U.S.C. §§ 1337(d)(1), (f)(1). If the Commission determines a violation has occurred, the Commission “*shall* direct that the articles concerned . . . be excluded from entry into the United States unless after considering *the effect* of such exclusion” on four public interest factors the Commission determines a remedy should not issue. *Id.* (emphasis added). Those factors are (1) the public health and welfare; (2) competitive conditions in the U.S. economy; (3) the production of competitive articles in the U.S.; and (4) U.S. consumers. *Id.* The same public interest factors apply to the Commission’s issuance of a cease and desist order. *Id.* When the circumstances of a particular investigation require, the Commission has denied an exclusionary remedy or has tailored its relief in light of the statutory public interest factors. *See, e.g., Spansion, Inc. v. Int’l Trade Comm’n*, 629 F.3d 1331, 1360 (Fed. Cir. 2010) (discussing historical application of the public interest factors); *Certain Personal Data and Mobile Communications Devices and Related Software*, Inv. No. 337-TA-710, USITC Pub. No. 4331, Comm’n Op., 83 (June 2012) (delaying the effective date of an exclusion order based on competitive conditions in the U.S. economy); *Certain Baseband Processor Chips and Chipsets, Transmitter and Receiver (Radio) Chips, Power Control Chips, and Products Containing Same, Including Cellular Telephone Handsets*, Inv. No. 337-TA-543, USITC Pub. No. 4258, Comm’n Op., 148-54 (October 2011) (grandfathering certain existent mobile telephone models from the scope of the exclusion order); *Certain Automated Mechanical*

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Transmission Systems for Medium-Duty and Heavy-Duty Trucks, and Components Thereof, Inv. No. 337-TA-503, Comm'n Op., 5 (May 9, 2005) (exempting from the scope of the exclusion order replacement parts for existing truck transmissions); *Certain Sortation Systems, Parts Thereof, and Products Containing Same*, Inv. No. 337-TA-460, Comm'n Op., 18-20 (Feb. 19, 2003) (exempting from the scope of the exclusion order replacement parts for a UPS hub facility).²¹

With this context in mind, we turn to the particular facts at issue in this investigation. The only adjudicated devices that infringe the '348 patent are the Apple iPhone 3G, iPhone 3GS, iPhone 4, iPad 3G, and iPad 2 3G, all operating on the AT&T wireless network. Of those devices, it appears undisputed that the only devices actively being imported into the United

²¹ Commissioner Aranoff notes that if the Commission issues a remedy after considering the statutory public interest factors, the President of the United States may, "for policy reasons," disapprove the Commission's determination. 19 U.S.C. § 1337(j)(2). When the President disapproves the Commission's determination, any remedy issued by the Commission "shall have no force or effect." *Id.* The public interest factors set forth in section 337(d)(1) are not public policies that the Commission seeks to promote through its orders. Instead, they are statutory criteria that may indicate at the remedy stage of a section 337 investigation that "articles should not be excluded from entry." *See* 19 U.S.C. § 1337(d)(1). Thus, when determining the final disposition of an investigation, the proper question is not whether a particular disposition will promote "competitive conditions in the United States," for example. Rather, "the statute requires relief for an aggrieved patent holder, except in those limited circumstances in which the statutory public interest concerns are so great as to trump" the enforcement of intellectual property rights. *Certain Baseband Processor Chips*, Inv. No. 337-TA-543, USITC Pub. No. 4258, Comm'n Op. at 153-152. Thus, the Federal Circuit has held that the Commission need not consider arguments for denying relief for a violation of section 337 that are not premised on the statutory public interest factors. *See Spansion, Inc. v. Int'l Trade Comm'n*, 629 F.3d at 1360 (finding that it was not erroneous for the Commission to decline to treat existence of an ongoing PTO reexamination proceeding as a consideration weighing against relief because "such proceeding is not explicitly listed as a public interest factor in Section 337"). By contrast, section 337(j)(2) does not place any limits on the "policy reasons" the President may consider in determining whether to disapprove relief issued by the Commission. As discussed below in footnote 23, Commissioner Aranoff believes that most of the arguments put forward by the parties and public commenters with regard to the public interest factors in this investigation are in fact policy arguments that are better directed to the President.

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States and sold by Apple are the iPhone 4 (GSM model) and the iPad 2 3G (GSM model).

Accordingly, our analysis focuses on those devices.

No party or public commenter raises an argument that excluding the iPhone 4 and iPad 2 3G would have an adverse effect on “the public health and welfare.” *See* 19 U.S.C. §§ 1337(d)(1), (f)(1). Further, no one has argued that remedial orders in this investigation will affect “the production of like or directly competitive articles in the United States.” *See id.* No competitive articles are now produced in the United States, and exclusionary relief in this investigation is not likely to change that fact. Accordingly, we find that these two factors do not counsel against the issuance of an exclusion order.

We next consider “competitive conditions in the United States economy” and the effect on “U.S. consumers.” *See id.* The private parties are in fairly close agreement as to the number of products that would be affected by remedial orders based on infringement of the ’348 patent. Samsung estimates that remedial orders will affect less than [[]] of the smartphones sold in the United States and [[]] of the tablets sold. *See* Samsung Initial Sub. in Response to March 13, 2013 Notice, 6-7 (April 3, 2013). According to Apple, [[]] of smartphones sold in the United States in 2012 were the iPhone 4 (AT&T) and [[]] of cellular-enabled tablets sold were the iPad 2 3G (AT&T). *See* Apple Initial Resp. to March 13, 2013, Notice, 13 (April 3, 2013).

Also, all parties agree that any Apple products that use a Qualcomm baseband processor for cellular network connectivity should not be barred from entry. Later Apple products, including the iPhone 5 and iPad 3, use Qualcomm baseband processors. Thus, it appears that an exclusionary remedy will have no effect on those later generation Apple products.

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As for the availability of competitive articles, there appears to be no dispute that a wide variety of smartphones and tablets, including products made by Apple, will still be available for U.S. consumers when the iPhone 4 and iPad 2 3G are barred from entry. No party disputes the ability of Apple and its competitors to supply the consumer demand currently met by the iPhone 4 and iPad 2 3G.

Apple presents two arguments that alternative products are not acceptable for would-be consumers of the articles found to infringe the '348 patent. First, Apple claims that the iPhone 4 models at issue in this investigation serve a low-end price point for GSM-network users who might not be able to afford more expensive Apple phones that operate on a GSM network. We conclude that this argument does not indicate that remedial orders in this investigation would have a substantial adverse effect on the public interest. The parties' submissions indicate that low price point smartphones are available from manufacturers other than Apple, and low price point Apple phones are available on networks other than AT&T and T-Mobile GSM networks. See, e.g., Samsung Initial Sub. in Response to March 13, 2013, Notice, 9-10 (April 3, 2013); IA Initial Resp. to March 13, 2013, Notice, 5-8 (April 3, 2013). In addition, Apple is free to adjust prices of its non-infringing products to meet consumer demand.

Apple's second argument against alternative substitutes is that certain applications ("apps") and rights-controlled content (e.g., iTunes music) available on the iPhone 4 and iPad 2 3G cannot be used on a non-Apple device or transferred to a non-Apple device. We conclude that this argument does not indicate that remedial orders in this investigation would have a substantial adverse effect on the public interest. As the IA points out, the most popular apps on Apple devices are also available for competitive devices such as those running the Android operating system. IA Initial Resp. to March 13, 2013, Notice, 5-8 (April 3, 2013). Similarly, purchasing

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interfaces on Android phones, such as Google Play, provide equivalent content to Apple's iTunes store. *Id.* Moreover, a present user of an Apple device will not be forced by a remedial order to purchase a non-Apple device. Should that user desire to purchase another device in the future, Apple devices will still be available that will allow seamless transfer of content.

As for carriers, it appears undisputed that exclusion of the iPhone 4 and iPad 2 3G would affect handsets offered by two national carriers (AT&T and T-Mobile) and two regional carriers (General Communication Inc. ("GCI") in Alaska and CT Cube, L.P. ("CT Cube") in Texas). However, the record shows that these carriers all offer other Apple products. *See, e.g.*, IA Reply Resp. to March 13, 2013, Notice, 3-4 (April 10, 2013). These carriers also offer non-Apple products that are comparable in price and features to the excluded iPhone 4 and iPad 2 3G. *See id.* Significantly, none of the affected networks submitted any statements in response to the Commission's multiple public notices. Such silence indicates that any adverse impact on these networks may be *de minimis* at best. A lack of response from the affected networks also indicates that an exclusion order in this investigation is unlikely to have any substantial adverse effect on competition between wireless carriers.

In view of the foregoing, the record before the Commission does not show that the issuance of remedial orders in this investigation will harm competitive conditions in the U.S. economy or U.S. consumers to such a degree that relief should be denied.

Apple and some public commenters have suggested that issuing exclusionary relief to redress a violation of section 337 based on infringement of a patent subject to a FRAND declaration is *per se* prohibited and contrary to the public interest considerations of section 337. These arguments are unsupported by the governing law and the facts of record in this investigation, as discussed in section III.A.iv above. Like the Commission's authority to find a

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violation of section 337, the Commission's public interest considerations are based on the statutory language of section 337, which does not include the *per se* prohibition Apple urges. *See Spansion*, 629 F.3d at 1359 (the Commission's public interest considerations are based on "statutory underpinnings").

Apple also argues that it would be contrary to the public interest to allow Samsung to obtain a remedy in this investigation because Samsung has breached an alleged obligation to offer Apple a license to the '348 patent on FRAND terms. We rejected above (*see* section III.A.iv) the argument that Samsung breached any obligations. As we have noted, Apple failed to introduce evidence as to how Samsung's FRAND declarations should be construed, failed to ask the ALJ to determine whether the '348 patent is essential to practice any standard, failed to articulate specifically Samsung's obligations under its FRAND declarations, and failed to show that Samsung breached any alleged obligation. Even assuming Samsung's FRAND declarations imposed obligations on Samsung, we determined above that the record does not support a conclusion that Samsung breached any such obligation with respect to Apple.²²

²² Commissioner Aranoff notes that some have suggested that the Commission has an independent duty to examine whether Samsung has satisfied its alleged FRAND obligations under the statutory public interest factors found in section 337 before providing a remedy. They contend the Commission has this obligation even if Apple failed to prove an affirmative defense based on Samsung's FRAND obligations. Commissioner Aranoff disagrees. She believes that the Commission may only consider claims concerning whether a complainant made and/or fulfilled its obligations pursuant to FRAND commitments in the context of an affirmative defense to a claim of patent infringement. The district courts are currently considering the relationship between patent infringement and FRAND commitments. *See, e.g., Barnes & Noble, Inc. v. LSI Corp.*, 849 F.Supp.2d 925 (N.D. Cal. 2012); *Microsoft Corp. v. Motorola, Inc.*, Case No. C10-1823JLR (W.D. Wash.). When considering affirmative defenses to patent infringement, the Commission applies the same law as would a district court. *See Lannom Mfg. Co. v. Int'l Trade Comm'n*, 799 F.2d 1572, 1577-78 (Fed. Cir. 1986). If the Commission were to find a FRAND-based affirmative defense is proven, the Commission would find no violation of section 337 and would not need to reach the issues of remedy and public interest. In this investigation, the ALJ found that Apple failed to pursue with specificity its claim that Samsung had not fulfilled its FRAND commitment to ETSI with respect to the '348 patent. When a

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Apple and some public commenters have also argued that issuing a remedy for a patent owner that has breached its FRAND obligation would result in patent hold-up, undermine SSOs, and thereby harm competitive conditions in the U.S. economy and U.S. consumers. Whatever the merits of such arguments, they are inapt to the facts of this investigation. As we have determined above, Apple has not proved that Samsung violated a FRAND obligation, and Samsung has widely licensed the '348 patent. We need not decide here whether some future investigation showing evidence of patent hold-up or of harm to SSOs would require a different analysis.²³

respondent fails to raise a FRAND-based affirmative defense or fails to prove that defense and the Commission finds a violation of section 337, Commissioner Aranoff believes that the Commission should not consider the same course of conduct a second time, in the context of its public interest inquiry.

If the Commission could revisit the facts underlying a FRAND affirmative defense in the context of its public interest analysis, it raises serious questions as to what other affirmative defenses the Commission could address at the remedy stage. For example, one could argue it is contrary to the public interest to issue a remedy based on infringement of a patent that was obtained through inequitable conduct, even if the affirmative defense of inequitable conduct was not argued before the ALJ. Commissioner Aranoff believes that it would be *ultra vires* for the Commission to consider such an issue in the context of its public interest inquiry. Such consideration would be tantamount to the Commission claiming equitable powers to deny relief to a complainant it considers a bad actor. The Commission, however, is a creature of statute and has no equitable powers under section 337 with respect to remedy. *See Spansion, Inc. v. Int'l Trade Comm'n*, 629 F.3d at 1359 (contrasting the equitable principles exercised by district courts in granting injunctive relief with the statutory remedial scheme established by Congress for proceedings before the Commission).

²³ Commissioner Aranoff observes that, as summarized herein, many commenters assert that issuing an exclusion order (or any form of injunctive relief) based on infringement of a FRAND encumbered patent enhances the patentee's ability to engage in hold-up, which in turn would make patent owners reluctant to participate in SSOs, ultimately reducing interoperability, innovation, and consumer choice. Other commenters argue the opposite: that denying owners of FRAND encumbered patents access to injunctive remedies gives implementers the incentive to engage in so-called reverse hold-up, with similarly adverse effects on SSOs, interoperability, innovation, and consumer choice. With very limited exceptions, none of the parties or commenters submitted any evidence that either result has actually occurred in the market. *See, e.g., Innovation Alliance Resp. to Nov. 19, 2012, Notice at 2-4 (Dec. 3, 2012); Tr. at 1440:7-1442:16 (Walker)*. Absent empirical evidence of actual harm to consumers or innovation, what remains are policy arguments that the risk of hold-up occurring is sufficiently great to warrant

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As we have stated above, the Commission's public interest duty in this investigation is to consider "the effect" of an exclusion order and a cease and desist order that would bar the entry, sale, and distribution of articles that infringe the '348 patent. *See* 19 U.S.C. §§ 1337(d)(1), (f)(1). We have fulfilled that duty by analyzing what effect barring the Apple products at issue would have on (1) the public health and welfare; (2) competitive conditions in the U.S. economy; (3) the production of competitive articles in the U.S.; and (4) U.S. consumers. As we have noted above, the effect of the remedy we order today will not be unduly adverse to the four public interest considerations enumerated in section 337.

iii. Tailoring the Remedy

In view of the foregoing and the entire record of the investigation, we have determined to issue a limited exclusion order against Apple barring the entry of products that infringe the asserted claims of the '348 patent. We have also determined to issue a cease and desist order against Apple barring the further domestic distribution of infringing goods.

Apple contends that any remedial orders issued by the Commission should have exceptions for service and repair to prevent harm to innocent third parties and consumers and a provision allowing entry upon certification that the articles in question do not infringe. Samsung and the IA agree that any remedial orders should have an exception for warranty service and repair. We have determined to include a provision in the remedial orders that allows Apple to provide, for a period of two years, refurbished handsets as replacements for identical infringing handsets that were purchased prior to the entry of an exclusion order. Such a provision is justified to protect

denying an exclusion order to Samsung in this investigation. The Commission is not a policy-making body and is not empowered to make that decision. The parties are free to raise these arguments to the President during the 60-day review period. The President may, should he so choose, weigh the relative risks of hold-up and reverse hold-up in deciding whether to disapprove the remedy the Commission is issuing today.

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U.S. consumers who have purchased infringing goods. *Certain Personal Data and Mobile Communications Devices and Related Software*, Inv. No. 337-TA-710, USITC Pub. No. 4331, Comm'n Op. at 73 (June 2012).

Next, Apple asks that any orders expressly state that Apple products containing Qualcomm baseband processors are not within the scope of the orders. Samsung does not dispute that those Apple products that connect to a cellular network using a Qualcomm baseband processor should not be subject to exclusion. The IA suggests that the most appropriate way to accomplish the result Apple seeks is with a provision that allows Apple to certify that the products presented for importation are licensed. We have determined that a certification provision will be the most appropriate way to address the issue of products containing Qualcomm chips, particularly because a visual inspection of an imported device by a Customs officer would not reveal the type of baseband processor the device contains.

Finally, Apple requests that the Commission delay the effective date of any remedial orders by five months to allow networks time to find alternatives to any excluded Apple products. The IA does not object to Apple's request, but Samsung does. Apple and the IA rely on the Commission's remedy in *Certain Personal Data and Mobile Communications Devices and Related Software*, Inv. No. 337-TA-710, USITC Pub. No. 4331, Comm'n Op. at 83 (June 2012) as precedent for delaying the effective date of an exclusion order.

We conclude that the facts of this investigation are readily distinguishable from those that led to our remedy in the 710 investigation. In the 710 investigation, the Commission published a notice seeking public comment on a potential limited exclusion order against certain HTC smartphones. In response to the Commission notice, a third-party carrier, T-Mobile, filed a brief discussing the adverse impact that such an order would have upon its business. In particular, T-

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Mobile noted its recent investment in building a 4G network and its reliance on HTC devices to give consumers access to that network. T-Mobile stated that a majority of its sales were HTC smartphones and that it offered only one non-HTC smartphone. T-Mobile also stated it was particularly reliant on HTC devices to compete with other networks because, at the time, T-Mobile was the only one of the four major wireless carriers that did not offer a version of the popular Apple iPhone. T-Mobile requested that the Commission delay the effective date of any exclusion order by four to six months to allow it to test and procure non-HTC substitutes and to obtain regulatory approval to sell those devices. The Commission credited T-Mobile's arguments, and also recognized recent statements by the President and the Department of Justice describing the importance of 4G networks and the importance of T-Mobile to a vibrant mobile marketplace. The Commission found, under these circumstances, an exclusion order could have an adverse effect on the competitive conditions in the U.S. economy. Based on these concerns, which were in part unique to T-Mobile's competitive position in the marketplace at the time, the Commission determined to delay the effective date of its remedy with respect to T-Mobile by four months. The Commission found, however, that this delay unfairly favored T-Mobile and extended the four-month delay to all infringing smartphones, and not just those sold by T-Mobile. *See id.*, Comm'n Op. at 78-83.

In contrast to the facts of the 710 investigation, none of the potentially affected carriers in this investigation (AT&T, T-Mobile, GCI and CT Cube) provided comments to the Commission in response to the public notices issued in this investigation. Additionally, the record shows that all networks that offer the Apple devices in question have other competitive devices to offer consumers, including other Apple products. Moreover, there is no record of any concern about

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competition among wireless carriers if an exclusion order is entered. In view of these facts, we decline to delay the effective date of remedial orders.

iv. Bonding

If the Commission issues a remedy after considering the statutory public interest factors, the President of the United States may, within 60 days, disapprove the Commission's determination "for policy reasons"; if he does so, any remedy issued by the Commission "shall have no force or effect." 19 U.S.C. § 1337(j)(2). During the 60-day period of Presidential review, imported articles otherwise subject to remedial orders are entitled to conditional entry under bond. 19 U.S.C. § 1337(j)(3). The amount of the bond is specified by the Commission and must be an amount sufficient to protect the complainant from any injury. *Id.*; 19 C.F.R. § 210.50(a)(3). The Commission sets the bond by attempting to eliminate the difference in sales prices between the patented domestic product and the infringing product or based upon a reasonable royalty. *Certain Microsphere Adhesives, Process For Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op. at 24, USITC Pub. No. 2949 (Jan. 1996). In some cases where the Commission does not have sufficient evidence upon which to base a determination of the appropriate amount of the bond, the Commission has set a 100 percent bond. *See, e.g., Certain Sortation Systems, Parts Thereof, and Products Containing Same*, Inv. No. 337-TA-460, Comm'n Op., 21 (Mar. 2003). However, a complainant bears the burden of establishing the need for a bond amount in the first place. *See Certain Rubber Antidegradants, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-533, Comm'n Op., 39-40 (July 21, 2006).

In our determinations above, we concluded that Samsung has proven a violation with respect to Apple's iPhone 4 (AT&T models); iPhone 3GS (AT&T models); iPhone 3 (AT&T

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models); iPad 3G (AT&T models); and iPad 2 3G (AT&T models). The ALJ recommended a bond set at zero percent for infringing iPhones and a bond set at 100 percent for infringing iPad devices.²⁴ The ALJ reasoned that Samsung was not entitled to a bond on iPhones because Samsung neglected to obtain relevant pricing data during discovery. With respect to the iPad devices, the ALJ determined that it would not be possible to determine a price differential between the patented domestic product and the infringing product.

Samsung asks the Commission to set a bond rate of 4.25 percent for infringing iPhones. Samsung proposes this rate based on evidence of median royalty rates in the telecommunications and electronics industries. Samsung also urges adoption of the ALJ's 100 percent recommendation for iPad devices.

Apple asks the Commission to set the bond rate for all accused products at zero percent. With respect to the iPad, Apple argues there is no evidence that a 100 percent bond is required to protect Samsung from injury, particularly where Samsung presented no evidence of competing products. Apple further argues that, given that Apple's products sell for higher prices than Samsung's competing products, any bond should be set at zero percent.

The IA asks the Commission to set the bond for iPhones at zero percent, not because Samsung neglected to obtain pricing evidence in discovery but because the iPhone is priced so much higher than Samsung's devices. The IA does not comment on the recommended bond rate for the iPad devices.

We determine that the bond for all articles that infringe the '348 patent should be set at zero percent. In our view, Samsung has not shown a need for protection by bond. With respect

²⁴ The ALJ also recommended a bond be set at 100 percent for iTouch devices. Because we have not found a violation with respect to the accused iTouch devices, it is not necessary to set a bond for those devices.

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to the iPad products, Samsung has presented no evidence of a competing product that needs protection from injury during the Presidential review period. With respect to iPhones, the fact that iPhones are priced significantly higher than Samsung's competing products indicates no bond is necessary. Moreover, we are influenced by the ALJ's determination that Samsung neglected to pursue the discovery necessary to prove different bond terms would be more appropriate.

IV. CONCLUSION

For the reasons outlined above, we determine that Samsung has proved a violation of section 337 based on infringement of the '348 patent but has not proved a violation with respect to any other asserted patent. We issue herewith a limited exclusion order barring entry of Apple articles that infringe the asserted claims of the '348 patent and issue a cease and desist order against the further sale or distribution of infringing articles by Apple, as tailored herein. We set a bond of zero percent for all infringing articles.

By order of the Commission:



Lisa R. Barton
Acting Secretary to the Commission

Issued: **JUL - 5 2013**

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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of

**CERTAIN ELECTRONIC DEVICES,
INCLUDING WIRELESS
COMMUNICATION DEVICES,
PORTABLE MUSIC AND DATA
PROCESSING DEVICES, AND TABLET
COMPUTERS**

Inv. No. 337-TA-794

APPENDIX TO COMMISSION OPINION

**Select Submissions Received in Response to the Commission's
November 19, 2012 Notice and March 13, 2013 Notice**

In response to Apple's petition for review of the ALJ's conclusions, the Commission solicited comments from the parties and the public about the assertion of standard-essential patents in, two public notices. We list some of the questions the Commission posed and summarize select comments received in response to each question below.¹ Responses from parties to the investigation are listed first, followed by responses from other members of the public in alphabetical order. The Commission has carefully considered all comments received in response to both notices in arriving at the determinations reflected in its opinion.

A. Responses to the November 19, 2012, Notice

- 1. Does the mere existence of a FRAND undertaking with respect to a particular patent preclude issuance of an exclusion order based on infringement of that patent? Please discuss theories in law, equity, and the public interest, and identify which (if any) of the 337(d)(1) public interest factors preclude issuance of such an order.**

¹ Various responses summarized in this section are relevant to affirmative defenses, the public interest analysis, or both.

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Samsung Electronics Co., Ltd. of Suwon-City, Korea, and Samsung Telecommunications America, LLC, of Richardson, Texas (collectively, "Samsung")

Samsung contends that in the absence of an express change by Congress to the ITC's statutory authority, there is no legitimate basis for the Commission to create a bright-line rule preventing it from issuing the only relief it can grant, solely because an asserted patent may be subject to some type of FRAND obligation. Samsung notes that a robust body of law concerning standards-based defenses already exists, including theories of unenforceability due to waiver, equitable estoppel, and unclean hands. Where these defenses are pled, Samsung argues, the Commission can apply that law to determine whether the patent holder specifically waived its rights to seek injunctive relief from the Commission through its participation in the standard-setting process. That did not occur here, Samsung asserts, because ETSI IPR policy does not require its members to waive injunctive relief when signing a FRAND undertaking.

Samsung also argues that the problem of so-called patent hold-up, much discussed among academicians, is not a problem in real life. Samsung points to evidence in record before the Commission in this investigation that patent hold-up has never been a problem at ETSI. Instead, Samsung describes the problem of "reverse hold-up," whereby infringers can thwart patentees from obtaining meaningful remedies merely by stating they do not believe the patentee's license offer was FRAND.

Samsung examines each of the statutory public interest factors found in section 337(d). Samsung contends that iPhones and iPads do not implicate public health and welfare. With respect to competition, Samsung notes that there are plenty of non-infringing alternatives to the accused devices. Samsung also asserts that Apple is the only major handset manufacturer that has not taken a license to Samsung's 3G patents. Samsung alleges that Apple's attempts to free-

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load off of companies that invested heavily to build a standardized 3G network hurts competition. Next Samsung notes that the accused devices are not manufactured in the United States, so there will be no effect on the production of like or competitive articles in this country. Samsung also contends that if FRAND commitments diminish injunctive rights, participation in SSOs will decline, resulting in less robust and less interoperable networks. That development would harm consumers.

Apple Inc. of Cupertino, California (“Apple”)

Apple contends that the existence of a FRAND obligation precludes issuance of an exclusion order, other than in the exceptional scenarios such as where a potential licensee has refused to pay a royalty after a U.S. court has determined that royalty to be FRAND, or where no U.S. court has jurisdiction over the potential licensee in order to set a FRAND rate. Apple argues that such a rule is necessary because after an industry is locked into a chosen standard, holders of patents allegedly covering the standardized technology gain the power to “hold up” others who want to use the standardized technology by demanding supracompetitive prices or refusing to license their standard essential patents altogether. According to Apple, the FRAND requirement restrains SSO participants from exploiting the hold-up power that standardization would otherwise convey.

According to Apple, if companies are forced to pay high royalties as a result of patent hold-up, the dead-weight economic loss of paying such royalties would reduce these companies’ resources for investments in research, design, and supply of products. Other implementers might decide the cost is simply too high, and forego product development and sales altogether. This will inhibit competitive conditions in the United States economy and reduce production of like or directly competitive articles. Fewer wireless-communications devices would be available, at

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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, United States consumers would suffer in this diminished marketplace.

Apple concedes that the ETSI IPR Policy at issue in this investigation does not expressly forbid injunctions.

Association for Competitive Technology (“ACT”)

ACT’s membership includes more than 5,000 small- and medium-sized software and mobile app companies. ACT contends that the value of a networked device increases in direct proportion to the number of devices on a network, and standardization enables more devices to communicate on a network. ACT further argues that smaller companies rely on standards to lower the barriers to entry for a given market, which encourages economic growth.

ACT argues that the choice to sign a FRAND undertaking is a choice to forego the option of injunction or exclusion. ACT argues that granting an exclusion order based on infringement of a standard-essential patent is against the public interest because “competition would suffer from fewer, higher-priced, less innovative, and lower quality products; production would go down; and consumers would be harmed through diminished options and impaired competition.”

ACT also asserts that requiring larger companies to obtain licenses in advance from every declared-essential patent holder for every standard implicated by a product would be impossible.

Business Software Alliance (“BSA”)

BSA’s members include: Adobe, Apple, Autodesk, A VEVA, A VG, Bentley Systems, CA Technologies, CNC/Mastercam, Cadence, Compuware, Corel, Dell, Intel, Intuit, Kaspersky, McAfee, Microsoft, Minitab, Progress Software, PTC, Quark, Quest Software, Rosetta Stone, Siemens PLM, Dassault Systemes SolidWorks, Sybase, Symantec, and The Math Works.

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BSA argues that the statutory public interest factors in section 337(d) counsel against the entry of exclusion orders based on infringement of standard-essential patents. BSA contends if companies cannot trust FRAND commitments to prevent exclusionary relief, they will have little incentive to participate in SSOs and will likely forego investment in new technologies and standards. If the role of SSOs diminishes, parties will have additional costs in negotiating licenses for individual patents because no FRAND terms will be readily available. These higher costs will create barriers to entry by new companies and stifle competition. With respect to consumers, BSA argues that the diminishment of SSOs will result in higher transition costs when consumers switch or upgrade devices.

Ericsson Inc. (“Ericsson”)

Generally, Ericsson believes that infringement of a standard-essential patent may support the entry an exclusion order. Ericsson argues it is not aware of any FRAND undertaking that requires the patentee to forego its right to enjoin or exclude infringing articles when the accused infringer refused to accept a FRAND license. Ericsson contends that foreclosing exclusionary remedies for infringement of standard-essential patents would encourage potential licensees to refuse FRAND offers and would discourage innovators from contributing to standards.

Ericsson does not support exclusionary relief if the holder of a declared-essential patent has failed to abide by its commitment to offer a FRAND license. Ericsson notes that U.S. district courts have entertained patent unenforceability defenses due to standards-setting misconduct based on theories of fraud, equitable estoppel, waiver, implied waiver, unclean hands, and implied license.

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GTW Associates (“GTW”)

GTW is a standards and trade policy consultancy. It argues that nothing in the statutory language of section 337 precludes relief based on infringement of a FRAND-encumbered patent. GTW also contends that the Commission must determine whether a violation of section 337 has or has not occurred unless it terminates the investigation based on a consent order or settlement. GTW further asserts that a rule barring exclusion orders based on FRAND-encumbered patents will discourage participation in SSOs. GTW cites research showing that in a survey of ten SSOs, including ETSI, no SSO requires owners to relinquish their right to injunctive relief for infringement of a standard-essential patent.

HP

HP argues against Commission exclusion orders based on infringement of standard-essential patents, asserting that such an exclusion order “will always be contrary to the public interest” as defined in section 337(d)(1). Rather, HP contends, money damages are the only appropriate remedy. According to HP, an exclusion order based on a standard-essential patent would “undermine the continued functioning of standard-setting organizations that play a critical role in the modern economy, threaten to create anticompetitive hold-up in industries where access to standards-essential patents is required, lead to an increase in costs to consumers, and reduce consumer choice, market efficiency, fluidity in international trade, and innovation.” HP stresses the threat of patent hold-up, the ability of standards-essential patent owners to exclude products based on a single patent, and the potential for a standards-essential patent holder to obtain excessive royalties. HP adds that the cost of shifting away from the technology of the standard may impact not only the product at issue, but also the affected company’s complementary products and the complementary investments of other firms working to the

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standard. Furthermore, HP warns that “consumers will bear the costs of switching and of delay” or “may be completely shut out of the standard-ruled network by an exclusion order because that order prohibits the product from accessing the network.”

With respect to the rights of the patent holder, HP argues that potential licensees have ample incentive to enter into licensing agreements on reasonable terms to avoid uncertainty in business planning and litigation costs, and that a potential infringer runs the risk of substantial monetary damages or a non-FRAND, court-imposed royalty. HP asserts, however, that such damages awards are adequate to compensate the holder of a declared-essential patent.

Specifically, HP argues that exclusion orders based on infringement of standard-essential “lead to overcompensation of patent holders” and that eliminating the ability of the owner of a standard-essential patent to extract rents from the market does not undermine incentives to innovate; it aligns those incentives with the patentee’s actual inventive contribution.

HP rejects the notion that a Commission-issued exclusion order may be appropriate in cases when the patent infringer refuses to pay the FRAND rate, refuses to pay a court-ordered royalty, challenges the validity of the patent, or argues non-infringement. In each case, HP asserts, the patent holder has recourse to sue in district court for monetary damages. HP argues that, in the case of an infringer who refuses to pay a court-ordered royalty, “the appropriate remedy is not an exclusion order, but a contempt order from a court where the reasonable-royalty judgment is enforceable.”

Innovation Alliance

Innovation Alliance is a coalition of companies that seek to “protect[] the integrity of the U.S. patent system.” Innovation Alliance argues that to deny exclusion orders based on infringement of standard-essential patents would make “sweeping changes” to U.S. trade laws

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based on “the mere possibility of potential harm, and without any actual evidence of harm to U.S. consumers.” Innovation Alliance notes that critics of exclusionary remedies for infringement of standard-essential patents, including the FTC, base their arguments on the potential problem of so-called “patent hold-up.” Innovation Alliance cites at least eight sources, including scholarly publications, that find little evidence that patent hold-up is actually a problem. Innovation Alliance notes that litigation involving declared-essential patents is not necessarily evidence of patent hold-up.

Innovation Alliance also asserts that barring the availability of exclusion orders for infringement of standard-essential patents will have negative consequences. An implementer of standardized technology will have little motivation to bargain in good faith with patentees because litigation can defer payment of royalties. Further, participants in SSOs would have fewer patent rights than non-participants, which would result in fewer innovators participating in SSOs.

Innovation Alliance further argues that companies viewed by an industry as failing to comply with the spirit of FRAND commitments run the risk of having their technologies excluded from future standards.

Intel Corporation (“Intel”)

Intel argues that the public interest should generally preclude an exclusion order based on infringement of a declared-essential patent except in two circumstances: (1) when a U.S. court or a binding arbitration has determined prior to the institution of an ITC investigation that the complainant has made a FRAND offer rejected by the respondent; or (2) when the respondent is not subject to jurisdiction in U.S. courts and “the ITC’s in rem authority is the only recourse.”

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Intel contends that in this case issuing an exclusion order would allow Samsung to exploit market power “which was created by an industry standard,” not by Samsung. Intel claims this would create the risk of a “windfall” settlement that would “distort competition, undermine the standard-setting process, and injure consumers.” More specifically, Intel argues that the threat of an exclusion order empowers Samsung to extract “an unreasonably high settlement . . . , thereby raising prices to consumers.” Intel also asserts that unfulfilled FRAND commitments will undermine the standards-setting process, which will ultimately hurt consumers who benefit from interoperability of high-technology devices.

Intel argues that “patent-related rights can be contracted away,” and Samsung’s “contractual promises to accept compensation . . . leave no room for Commission action” in this case.

Motorola Mobility LLC (“Motorola”)

Motorola asserts that section 337 requires the Commission to issue an exclusion order upon finding a violation of its terms absent a finding that the public interest counsels against a remedy. Motorola argues that the statutory interest factors do not automatically preclude exclusion orders based on infringement of a declared-essential patent. To adopt a contrary rule would, according to Motorola, “dramatically expand the scope of the public interest standard.” Motorola contends that the statutory public interest factors historically have been construed very narrowly. The Commission has declined to issue an exclusion order based on the public interest on only three occasions. Motorola notes that in each case an exclusion order was denied because there would have been an inadequate supply in the United States of products necessary for some important health or welfare need: energy efficient automobiles, basic scientific research, or hospital equipment. *See Spansion, Inc. v. ITC*, 629 F.3d 1331, 1359-60 (Fed. Cir. 2010).

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Motorola argues that those who believe a FRAND undertaking prohibits exclusionary relief arrive at that conclusion by performing the equity analysis that district courts apply when considering injunctive relief. Motorola contends following such an approach at the Commission would be error because the Commission's remedies are statutory, not equitable. *See Spansion*, 629 F.3d at 1359-60. Motorola also notes that the equitable factors articulated in the Supreme Court's *eBay* decision require a consideration of irreparable harm to the patentee. If the Commission were to apply that analysis to its remedy determinations, Motorola warns, the Commission would erroneously reintroduce an injury requirement to section 337 proceedings. Motorola noted that Congress eliminated an injury requirement from section 337 with a statutory amendment in 1988.

Moreover, Motorola contends, a district court in Wisconsin has held that the ETSI FRAND undertaking does not prohibit a patentee from seeking injunctive relief in a district court or an exclusion order at the Commission. *See Apple Inc. v. Motorola Mobility, Inc.*, No. 11-cv-178, 2012 WL 5416941 at *15 (W.D. Wis. Oct. 29, 2012).

To adopt a rule barring relief based on declared-essential patents would, according to Motorola, devalue an entire category of patents and upset the careful balance within SSOs that has worked well in the past. Motorola notes that the threat of exclusion orders discourages infringers from "holding out" and refusing to pay royalties on essential technology. Motorola contends this threat historically has encouraged companies to cross-license entire patent portfolios. If that threat were removed, Motorola argues, the only risk an infringer would face would be the possibility of a damages judgment "limited to pre-standardization value of the individual patents" litigated. A prospective licensee would know that a patent portfolio holder would have to spend considerable sums in litigation to collect on each individual patent in its

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portfolio. Motorola contends that would lead to infringers paying below market value for any individual license and would consequently devalue all patents in the portfolio.

Motorola further asserts that depriving innovators who participate in SSOs of an established patent remedy creates disincentives to participate in the development of standards. Motorola contends this will retard the development of newer, more efficient communication protocols and have potentially devastating consequences on one of the most innovative sectors of the American economy.

Qualcomm Incorporated (“Qualcomm”)

Roger Brooks submitted comments on behalf of Qualcomm. Mr. Brooks has written extensively about the history and meaning of ETSI IPR policy.

Qualcomm argues that a FRAND commitment is an enforceable contract voluntarily entered into by private parties. The parties to the contract are the SSO on the one hand and the patent owner who signs a FRAND undertaking on the other. Companies that use the technology covered by the standard-essential patent are third-party beneficiaries to this contract. Qualcomm notes this contract theory has been adopted by some U.S. district courts.

Qualcomm contends that the meaning of any particular FRAND undertaking must be found by ordinary principles of contract interpretation. These principles include looking first to the plain meaning of the agreement, and then, where the language of the contract does not resolve the question, looking to the intention and understanding of the parties at the time they formed the contract.

Applying those principles, Qualcomm urges the Commission to pursue three lines of inquiry: (1) the relevant written undertakings and ETSI agreements; (2) the deliberative history

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of the ETSI IPR policy; and (3) the licensing custom and practice in the relevant industry. These are, Qualcomm urges, fact-specific inquiries.

Beginning with the language of the relevant documents, Qualcomm notes that the ETSI undertaking only imposes an obligation to offer FRAND licenses “to the extent that the IPR(s) are or become, and remain ESSENTIAL” to practice the standard. In other words, if Samsung’s patents are not essential to the 3G standard, Samsung has no FRAND obligations whatsoever. Because Apple has argued that Samsung’s asserted patents are not essential, Qualcomm contends, Apple’s claim that Samsung has breached its FRAND obligations rings hollow.

After exhaustively reviewing the history of the ETSI IPR policy, Qualcomm concludes that ETSI members are not asked to agree and do not agree to a categorical waiver of injunctive or exclusionary relief when making a FRAND commitment. For example, Qualcomm notes that in 1993 ETSI briefly adopted a policy stating that a FRAND commitment would waive a patent owner’s right to an injunction. That policy was amended in 1994 to remove the injunction waiver.

Qualcomm goes on to describe the negative outcomes that could flow from removing the opportunity for exclusionary relief based on infringement of declared-essential patents. Qualcomm argues such a policy would weaken legitimate rights in existing patent portfolios, penalize patent owners for making FRAND commitments, and reduce participation in SSOs. This latter consequence could result in the proliferation of non-complimentary technologies and the reduction of the procompetitive efficiencies fostered by standardization. Qualcomm also asserts that if the Commission were to adopt a rule that it will not issue relief for infringement of declared-essential patents, the “ironic” outcome would be that the Commission, which is recognized as one of the most efficient, timely, and effective venues for patent enforcement,

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would no longer be involved in the enforcement of some of the most valuable patents in the U.S. economy.

If “the relevant evidence in a particular case” shows that the owner of a standard-essential patent has violated its FRAND obligation, Qualcomm contends that the discretionary doctrine of equitable estoppel allows a court to decline to issue injunctive relief. The Commission may similarly decline to issue an exclusionary remedy when it determines that the public interest would be damaged by entering an exclusion order against a party that would have been licensed if the patent owner had complied with its FRAND obligation.

Research In Motion Corporation (“RIM”)

RIM argues that excluding products based on infringing activity that accounts for “a miniscule proportion” of the product’s value would injure competition “by removing one of just a few smartphone platforms from the market.” RIM notes that this argument does not depend on whether the patent in question is FRAND-burdened or not.

RIM further argues that the “public policy interest” that has shaped “recent judicial reluctance to issue injunctions” after the *eBay* decision “is in perfect harmony with the competition and consumer welfare-based public interest factors” that the ITC must consider.

Sprint Spectrum, L.P. (“Sprint”)

Sprint argues that the appropriate remedy in FRAND cases is to impose a reasonable royalty. Because the Commission has no authority to impose such a royalty, Sprint argues, “it should not investigate FRAND cases.” Nevertheless, Sprint concedes that if a patent owner can demonstrate no effective means to obtain FRAND compensation through U.S. district courts, then an exclusionary remedy at the Commission may be available. Sprint hypothesizes that relief may be available at the Commission based on (1) importation by foreign counterfeiters;

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(2) distribution schemes purposefully dispersed among various international distribution points to render FRAND negotiations impractical; or (3) insolvent respondents that cannot pay on FRAND terms. Even in these scenarios, Sprint argues, district courts are better positioned than the Commission to determine whether injunctive relief is appropriate.

Sprint avers that smartphones encompass technology embodied in thousands of patents. Accordingly, Sprint supports Justice Kennedy's statement in *eBay* that it "may not serve the public interest" to issue an injunction against patent infringement in cases where "the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations." *See eBay v. MercExchange, LLC*, 547 U.S. 388, 396-97 (2006) (Kennedy, J., concurring). Sprint argues that the threat of an exclusion order artificially inflates a patent's value and results in unreasonable licensing terms.

Sprint goes on to provide four reasons that the Commission should not adjudicate cases involving declared-essential patents. First, Sprint argues that the ITC is not accustomed to weighing evidence to determine what constitutes a fair patent royalty. Second, the threat of an exclusionary remedy "increases the patentee's bargaining power" and "skews the measurement" of a reasonable royalty. Third, the Commission is not authorized to order a payment equal to FRAND terms. Fourth, Sprint argues that because section 337 states that the Commission "shall" issue a remedy upon finding a violation, the Commission has "a diminished capacity to exercise discretion over whether to issue injunctive-type relief." Sprint implies this is contrary to the "equitable discretion" that is required in patent actions "to allow courts to adapt to the rapid technological and legal developments in the patent system." *See eBay*, 547 U.S. 388 at 396 (Kennedy, J., concurring).

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Sprint further warns that an exclusion order against a handset “stops the flow of an entire distribution chain, and impacts the inventory of thousands of distribution points, including national retailers, company-owned facilities, and franchises.” Sprint claims it “wastes millions of advertising dollars” and can “tarnish Sprint’s reputation for a perceived failure to deliver the advertised goods.”

Sprint contends that anyone who uses a standard is automatically the beneficiary of an implied license to all standard-essential patents implicated by the standard. According to Sprint, that implied license is a complete defense to patent infringement. Thus, as soon as the Commission determines that FRAND commitments apply to a particular patent, the Commission should cease the investigation in deference to an entity that can adjudicate the proper license amount.

Finally, Sprint claims that, under a ruling from the FTC, seeking an injunction based on a standard-essential patent is an unfair method of competition.

- 2. Where a patent owner has offered to license a patent to an accused infringer, what framework should be used for determining whether the offer complies with a FRAND undertaking? How would a rejection of the offer by an accused infringer influence the analysis, if at all?**

Samsung

Samsung contends it was Apple’s burden to show that Samsung’s licensing efforts (including a 2010 [[] offer, a July 2011 offer [[]], and subsequent offers to negotiate) were unfair, unreasonable, or discriminatory.

Samsung also argued it was Apple’s burden to show that Samsung’s declared essential patents are, in fact, essential to the standards, because any obligation to offer FRAND licensing terms

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only extends to essential patents. Samsung argues that Apple repeatedly and unequivocally argued the opposite—that Samsung's patents are not actually essential.

As a general rule, Samsung argues, the Commission should not put itself in the position of having to determine a single FRAND rate, or FRAND range, that applies to one or more asserted patents that happen to be the subject of some type of FRAND undertaking. At most, the Commission, upon a petition for review, should limit its inquiry to whether a respondent met its burden of proving that a specific offer was outside the normative FRAND range in connection with the equitable defenses pled.

Samsung argues that rejection of an offer, standing alone, should not be dispositive of whether an offer is FRAND—especially where the evidence shows that a respondent refused to negotiate in good faith, or even make a counteroffer.

Apple

Apple contends that determining whether an offer complies with a FRAND undertaking involves both procedural and substantive frameworks. Procedurally, Apple asserts that parties who cannot reach FRAND terms should ask a U.S. district court to set a FRAND royalty rate because those courts are empowered to award money judgments. Substantively, Apple argues that three factors are critical in determining FRAND terms: (1) the royalty base on which the rate is to be applied, which must correspond to the standardized functionality; (2) the level of the royalty rate itself; and, (3) whether the licensor is treating all prospective licensees in an evenhanded, non-discriminatory fashion. Apple contends that a FRAND rate is limited by the cumulative royalty an implementer of the standard must pay to practice all patents declared essential to the standard.

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Apple argues that whether a potential licensee accepted an offer might be some evidence whether the offer is FRAND; if it were FRAND, a rational economic actor would likely accept it. That said, Apple does not contend that rejection of an offer, by itself, demonstrates that the offer was not FRAND. The rejection does not alone decide the FRAND issue—just as the tender of an offer does not, by itself, demonstrate that the offer is FRAND. The view of one party, whether licensor or licensee, is not decisive.

Ericsson

Ericsson argues the Commission should judge a patent owner's conduct against the specific FRAND undertaking at issue and determine whether there has been a breach of that undertaking. Ericsson contends that such a determination will be fact-intensive. According to Ericsson, a FRAND license should not be construed to be a particular rate because real world licenses for the same portfolio tend to fall in a range of rates.

To determine whether a patent owner has complied with its FRAND undertaking, Ericsson encourages the Commission to consider (1) the scope, importance, and value of the patents; (2) the full range of all patents in the industry essential to the standard at issue; (3) comparable licenses; (4) the patent holder's contributions in developing the standard; (5) the value of the standard to the infringing product; (6) the relevant industry's norms for patent licensing; (7) the patent holder's efforts to consummate a license; and (8) the accused infringer's willingness to enter into good-faith negotiations.

Innovation Alliance

Innovation Alliance asserts that the Commission is fully competent to determine whether an offer is FRAND by taking evidence in its normal proceedings under section 337. Innovation Alliance contends the Commission should evaluate "the market experience of participants in the

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relevant industry” and “whether the patent owner has negotiated in good faith.” Each case must be decided on its own facts. A respondent’s refusal of a FRAND offer may justify an exclusion order, and a complainant’s refusal to negotiate a FRAND license in good faith may be an affirmative defense against exclusionary relief.

Innovation Alliance also contends that some implementers of standardized technology have no intention of taking a FRAND license. Instead, they use the FRAND commitment as a negotiating tool for extracting sub-competitive licensing terms.

Motorola

Motorola argues that a respondent has the burden to prove that a FRAND defense applies to the facts of a particular investigation. Where the respondents fails to meet this burden, proof of a violation of section 337 should result in an exclusionary remedy under section 337(d).

Relying on a recent opinion from the Western District of Wisconsin, Motorola contends that a FRAND defense is grounded in principles of contract law. *See Apple Inc. v. Motorola Mobility, Inc.*, No. 11-cv-178, 2012 WL 3289835 at *19-21 (W.D. Wis. Aug. 10, 2012).

Motorola argues that, as with any contract, the words of a specific undertaking govern.

In the case of an ETSI undertaking, Motorola contends that an offer by one party is only the starting point for a complex process. Motorola quotes an opinion from the Western District of Washington addressing a RAND defense similar to the FRAND defense raised here:

Because the [relevant] agreements anticipate that the parties will negotiate toward a RAND license, it logically does not follow that initial offers must be on RAND terms. Here, critical to the court is the observation that RAND terms cannot be determined until after a negotiation by the parties (or, in this case, after a court determines RAND terms because the parties cannot agree).

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Microsoft Corp. v. Motorola, Inc., 864 F.Supp.2d 1023, 1038 (W.D. Wash. 2012). The patentee “must comport with the implied duty of good faith and fair dealing inherent in every contract.”

See id.

Motorola notes that companies in the mobile phone industry have historically negotiated cross-licenses of global portfolios, based on the value of the entire device. Motorola contends that the ETSI IPR scheme allows these negotiations, and “there is no basis to import artificial and rigid rules from U.S. patent damages case law that seek to assess a single value for a single patent for past infringement.”

Qualcomm

Qualcomm argues that when considering a FRAND defense, the question facing the Commission is *not* “What is *the* FRAND royalty or terms for these patents?” but rather, “Has the patentee acted in a manner inconsistent with its undertaking to offer to grant licenses on FRAND terms?” In resolving this question, Qualcomm states that nothing in the terms or history of the ETSI IPR policy suggests that an infringer may defeat injunctive relief if it does not like the first offer made by the patent owner. On the contrary, Qualcomm asserts, ETSI has explicitly indicated that licensing terms are commercial issues to be negotiated by private parties.

Qualcomm notes that intellectual property licensing often involves extended negotiation, with each party attempting to pull the other in one direction or another. Accordingly, Qualcomm asserts, whether a patent owner has complied with its FRAND undertaking cannot and should not be answered solely on the basis of its initial offer. The question should consider all factors relevant to the specific transaction at issue, including royalty rate, royalty base, royalty caps, fixed or lump-sum payments, other financial consideration, non-financial terms like cross-licensing, length of the license, downstream exhaustion, synergistic business relationships, and

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termination rights. A tribunal may also consider how the patent owner may have expected the negotiations to unfold based on factors like the licensee's creditworthiness.

Qualcomm urges that the burden is on an accused infringer to show that the patent owner's actions, taken as a whole, fall outside the range of actions that can be considered fair and reasonable in licensing negotiations. In other words, a FRAND undertaking "allows for a range of possible opening offers and a range of possible outcomes." Qualcomm contends that this approach is consistent with the history of the ETSI IPR policy, which shows that ETSI has repeatedly rejected attempts to expressly define activities that satisfy or violate the FRAND obligation.

Qualcomm next argues that the offer of license terms that have been previously accepted by others for the same patents under similar commercial circumstances should operate as a safe harbor for a standard-essential patent owner against a FRAND defense. Qualcomm contends this approach is justified by the prominence of the first two factors for determining a reasonable patent royalty under *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 120 (S.D.N.Y. 1970). Those two factors are: (1) royalties received by the patentee for licensing the patent in suit, and (2) the rates paid by the licensee for other comparable patents.

Finally, Qualcomm argues that because the FRAND undertaking is a contract, each party involved in the FRAND negotiation is obligated to negotiate in good faith to achieve the objective of that contract: a consummated FRAND license. Thus, the Commission may consider evidence of subjective good or bad faith by either party in analyzing a FRAND defense.

Research In Motion Corporation ("RIM"):

RIM argues that assessing whether an offer complies with a FRAND undertaking requires consideration of the overall relationship between the parties in question. RIM argues

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against a one-size-fits-all solution. On the one hand, RIM contends that denying injunctive relief to a patentee that demands excessively high royalties “incentivizes reasonable licensing offers, resulting in limitations on royalty costs that benefit consumers.” On the other hand, RIM asserts that in a two-way patent lawsuit where one side asserts non-FRAND-encumbered patents and the other side can only assert FRAND-encumbered patents, denying injunctive relief to the party with FRAND-encumbered patents creates an uneven playing field. If both parties are able to use the threat of an injunction, RIM argues, the parties will arrive at a more economically efficient solution. RIM urges the Commission to consider the relative bargaining positions of the parties when deciding FRAND issues.

RIM further argues that an inflexible rule that prevents injunctive relief for FRAND-encumbered patents would, over time, cause firms to invest less in standard setting. The technological quality of standards would diminish and the innovations that are the fruit of a vibrant standard would also diminish.

Notwithstanding its calls for a flexible approach, RIM argues that “*under no circumstances*” should patent assertion entities be permitted to seek exclusion orders or injunctions.

- 3. Would there be substantial cost or delay to design around the technology covered by the '348 and '644 patents asserted in this investigation? Could such a design-around still comply with the relevant ETSI standard?**

Samsung

Samsung argues that if Apple would take a license, no design-around would be necessary. Samsung also notes Apple could choose to avoid offering 3G devices entirely. It could, for example, market a 2G, 2.5G, WiMax, or WLAN-only compliant device. Such devices

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would permit Apple to sell its products without needing to comply with the standard at issue here.

Apple

As a threshold matter, Apple argues no design-around is necessary in this investigation because, in Apple's view, the ALJ correctly found the accused Apple devices practice none of the asserted claims of the '348 and '644 patents. Assuming that Apple's accused devices were found to infringe, Apple contends that there would be viable design-around options from a purely technical perspective. The implementation of those design-arounds likely would have to be undertaken by (or with the assistance of) Apple's baseband processor suppliers—*i.e.*, Intel Corporation and Qualcomm Inc. But if additionally the technology covered by the '348 and '644 patents were also found to be necessary to practice the ETSI 3G standard, design-around would not be possible without creating noncompliance with the standard. This would be so even though a design-around (or the selection of an alternative technology at the outset) would be feasible, because the standard "locks in" particular approaches to certain functionality.

- 4. What portion of the accused devices is allegedly covered by the asserted claims of each of the '348 and '644 patents? Do the patents cover relatively minor features of the accused devices?**

Samsung

Samsung argues that the '348 and '644 patents are critical to the operation of the devices on the 3GPP, UMTS and HSUPA networks. Without this technology, the products could not reliably communicate on the network. Consumers demand fast, reliable communications, Samsung asserts, and these patents allow user experience such as music and video streaming and downloading, synchronization and storage of materials through the iCloud.

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Samsung contends that Apple recognizes the importance of these patents, as demonstrated by the price differences among Apple products that do or do not use the patented technology. Samsung notes the iPod Touch has all of the features of an iPhone except the 3GPP network connectivity. The cost of an iPhone 4S [[]], whereas the cost of an iPod Touch starts at \$179. CX-0448C; Blevins Tr. 986:16-25. Samsung argues that this difference in price illustrates the value of the '348 and '644 patents to Apple.

Apple

Apple claims that only a very minor portion of the functionality contained in the baseband processor chips it purchases from Intel and Qualcomm is allegedly covered by the asserted claims of each of the '348 and '644 patents. Apple also contends that the functionality purportedly covered by the asserted claims of the '348 and '644 patents are merely “tweaks” to a massive set of standards. Apple argues that its devices offer a great number of features that have nothing to do with operability on a 3G cellular network, let alone the purported functionality of the '348 and '644 patents. Those features range from the distinctive industrial design of the Apple devices, to hundreds of thousands of software applications that offer users countless ways to use their iPhones and iPad, to the still and video camera functionality, to the Apple operating system and its ground-breaking touch-screen functionality. Apple states that it has invested immense resources in developing its non-standardized, product-differentiating innovations.

5. What evidence in the record explains the legal significance of Samsung's FRAND undertakings under French law?

Apple filed a motion for summary determination in which it argued that Samsung's FRAND undertakings required the Commission to terminate this investigation. Apple and Samsung both submitted declarations from experts about the meaning of Samsung's FRAND

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undertakings under French law. The expert retained by Apple opined that ETSI members are contractually bound by French law to adhere to the ETSI IPR Policy, including the obligation to make timely disclosure of potentially-essential IPR under Clause 4 and to make irrevocable FRAND commitments under Clause 6.1. Apple's expert also explained that as a matter of French law, a FRAND declaration constitutes a binding license offer by the declarant that can be accepted by a party implementing the standard regardless of whether certain terms, such as price, remain to be fixed.

Samsung's expert stated that ETSI declarations do not constitute binding agreements under French law because they are not specifically directed at a particular person.

The ALJ denied Apple's motion for summary determination. After that denial, Apple abandoned its "present license" theory. Neither party submitted any evidence at the hearing as to the meaning of Samsung's undertaking under French law. Both parties agree that the record is devoid of any evidence about the meaning of Samsung's undertakings under French law.

6. Does Samsung's offer to license the '348 and '644 patents to Apple satisfy any obligation that may arise from Samsung's FRAND undertaking? Why or why not?

Samsung

Samsung states categorically that it has satisfied any FRAND obligation by making multiple good faith offers to Apple, particularly given Apple's failure to show that it is willing to engage in negotiation. Nevertheless, Samsung states that its offer to license Apple to its declared-essential UMTS patents remains open and Samsung will gladly negotiate with Apple once Apple indicates it is willing to do so.

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Apple

Apple maintains that Samsung's offer to license its patents at 2.4 percent does not satisfy Samsung's FRAND obligation. Indeed, Apple seems to imply that any offer by Samsung at this point cannot be FRAND because Samsung sought to use FRAND-committed patents to exclude Apple products from the market, which is in Apple's view fundamentally inconsistent with Samsung's FRAND commitments. Moreover, Samsung's license offer only came after it initiated this investigation. According to Apple the offer was not only too late, it was also too much.

7. **Does the fact that Apple has not accepted Samsung's offer to license the '348 and '644 patents influence a determination as to whether Samsung has satisfied any obligation that may arise from a FRAND undertaking? Why or why not?**

Samsung

Samsung contends that the fact that Apple has not accepted Samsung's offer is alone not necessarily dispositive. But, when coupled with Apple's failure to present any evidence that it is willing to negotiate, this fact should influence a determination that Samsung, at least for now, has satisfied any obligation it might have had. Samsung contends that it is Apple that has held up the FRAND process, not Samsung.

Apple

Apple argues that the fact that it has not accepted Samsung's licensing demand is at least some evidence that Samsung's demand was not FRAND. But, Apple notes, an offer's FRAND status is not necessarily determined by whether it was accepted or rejected. Apple believes the rules for adjudicating FRAND disputes should not turn solely on one party's subjective belief.

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Apple contends it was justified in not accepting Samsung's offer because Samsung has been losing patent cases to Apple all over the world.

B. Responses to the March 13, 2013 Notice²

8. **Which factors in *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970) are most relevant to determining whether Samsung has offered to license the '348 patent to Apple on fair, reasonable, and non-discriminatory terms? Please apply any relevant Georgia-Pacific factors to Samsung's offer(s) to license the '348 patent to Apple. This analysis should include a comparison of Samsung's licensing offers to a hypothetical negotiation between the parties prior to adoption of the '348 patent into the standard at issue here. What other factors, if any, are relevant in determining whether Samsung has made a fair, reasonable, and non-discriminatory offer?**

For reference, the fifteen *Georgia-Pacific* factors are as follows:

1. The royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty.
2. The rates paid by the licensee for the use of other patents comparable to the patent in suit.
3. The nature and scope of the license, as exclusive or non-exclusive; or as restricted or non-restricted in terms of territory or with respect to whom the manufactured product may be sold.
4. The licensor's established policy and marketing program to maintain his patent monopoly by not licensing others to use the invention or by granting licenses under special conditions designed to preserve that monopoly.
5. The commercial relationship between the licensor and licensee, such as, whether they are competitors in the same territory in the same line of business; or whether they are inventor and promoter.
6. The effect of selling the patented specialty in promoting sales of other products of the licensee; the existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales.
7. The duration of the patent and the term of the license.

² Responses to other questions posed in the March 13, 2013, Notice are incorporated into our analysis throughout this opinion.

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8. The established profitability of the product made under the patent; its commercial success; and its current popularity.
9. The utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results.
10. The nature of the patented invention; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention.
11. The extent to which the infringer has made use of the invention; and any evidence probative of the value of that use.
12. The portion of the profit or of the selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.
13. The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.
14. The opinion testimony of qualified experts.
15. The amount that a licensor and a licensee would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement.

318 F. Supp. at 1119-20.

Samsung

Samsung contends that the *Georgia-Pacific* test as a whole is not applicable to this inquiry. According to Samsung, *Georgia-Pacific* outlines a non-exhaustive list of fifteen factors for determining a reasonable royalty to award in damages to a plaintiff that has successfully proven patent infringement. But Samsung asserts that there is little relevant discussion as to how these factors apply in determining a FRAND offer. Factors 3 (whether license is exclusive or limited) and 4 (whether patentee chooses not to license) are not relevant because, according to Samsung, a FRAND obligation does not allow for exclusive licenses. Similarly, Samsung does not believe factor 5 (competitive relationship between the parties) applies because a FRAND obligation does

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not allow discrimination against a competitor. Samsung contends that factor 15 (the hypothetical negotiation) is inapt for determining whether a real-world negotiation meets a FRAND obligation because real-world negotiations concerning standard-essential patents occur on a portfolio-wide basis.

Samsung contends that the *Georgia-Pacific* factors which are relevant show that Samsung's offers to Apple have been fair and reasonable. These include factor 1 (royalties actually received) and factor 2 (comparable licenses) because Samsung's outstanding offer is consistent with its own and other standard-essential patent license agreements.

Apple

Apple contends that *Georgia-Pacific* factors 3 (whether license is exclusive or limited); 4 (whether patentee chooses not to license); 5 (competitive relationship between the parties); and 11 (value infringer gains from using invention) are relevant because a FRAND commitment imposes restrictions and obligations on the licensor that are not applicable to the ordinary licensor. With respect to these factors, Apple contends that FRAND licenses are non-exclusive, non-discriminatory, and provide no competitive advantage. Apple asserts that factor 9 (advantages over older technology) is relevant as to the timing of negotiation. Apple also argues that factors 6 (convoys sales); 8 (commercial success); 10 (benefit of technology to licensor); and 13 (proportion of the patentable feature to device as a whole) are relevant to determining the appropriate royalty base for a FRAND license. Apple contends that factors 1 (royalties actually received); 2 (comparable licenses); and 12 (customary royalties) are relevant to determining the appropriate FRAND royalty rate.

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IA

The IA notes that Samsung and Apple appear to be in agreement that the Georgia-Pacific factors have limited utility in determining whether Samsung has met its FRAND obligations. Nevertheless, the IA concedes that certain factors, such as the royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty and the rates paid by the licensee for the use of other patents comparable to the patent in suit, are useful pieces of information to consider when determining whether a licensing offer is made on FRAND terms.

The IA divides the *Georgia-Pacific* factors into four groups, ranging from most to least relevant to a FRAND inquiry. The most relevant factors are 1 (royalties actually received); 2 (comparable licenses); 12 (customary royalties); 13 (proportion of the patentable feature to device as a whole); and 15 (the hypothetical negotiation).

Next, less relevant but potentially important factors include 6 (convoys sales); 7 (duration and term of the license); 8 (commercial success); 14 (expert opinion).

Because in a FRAND setting the licensor is required to license the patented technology to all comers, the IA finds the following factors likely to be irrelevant: 3 (whether license is exclusive or limited); 4 (whether patentee chooses not to license); and 5 (competitive relationship between the parties).

Finally, the IA submits that the following factors would not be relevant: 9 (advantages over older technology); 10 (benefit of technology to licensor); 11 (value infringer gains from using invention).

The IA contends the record is insufficient to determine an actual FRAND royalty rate. Nevertheless, the IA contends that FRAND obligations can be satisfied over a course of dealings,

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as long as the patent-holder conducts negotiations in a fair, reasonable, and nondiscriminatory manner. In the IA's view, Apple has not established that Samsung's overall course of conduct demonstrates a failure to offer to license the '348 patent for a reasonable royalty of the type contemplated in *Georgia-Pacific*.

The IA also asserts that the unusual circumstances of this investigation are not readily amenable to a *Georgia-Pacific*-type analysis. First, *Georgia-Pacific* asks what amount the two parties would have agreed upon as a reasonable royalty rate "if both had been reasonably and voluntarily trying to reach an agreement" at the time the infringement began. *Georgia-Pacific Corp.*, 318 F. Supp. at 1120. In a FRAND context, however, the question is: What would have been a reasonable rate as of the time that the licensor declared the patent essential to a standard and committed to license the technology on fair, reasonable, and nondiscriminatory terms? The parties are no longer "voluntarily trying to reach an agreement" – the patent-holder must offer a license, and the licensee must either agree to licensing terms or forego practicing the industry standard.

Second, *Georgia-Pacific* presupposes that that it is possible to construct a hypothetical neutral situation in which both parties have as their main goal the successful negotiation of a license agreement, but have not yet litigated the issues of infringement or validity. In a true FRAND context, unlike in normal litigation, the patent at issue is presumably "essential" (or at least far superior to available alternatives), and is thus necessarily infringed, inevitably affecting the bargaining positions of both parties. Finally, the current situation is unique in that the two largest competitors in the industry, Samsung and Apple, are engaged in worldwide, multi-forum litigation, including reciprocal attempts by Apple to bar Samsung products from the United States. This, too, must inevitably affect their bargaining positions. For these reasons, the IA

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submits that the *Georgia-Pacific* factors are of limited use in this investigation or in the section 337 context generally.

Cisco, HP, & Micron:

In a joint submission, Cisco, HP, & Micron contend that the *Georgia-Pacific* factors should be rejected as they are outdated and unreliable. They point to statements to this effect by Judge Posner and the Federal Trade Commission. These submitters contend that at least three methodologies exist for determining reasonable royalties: (1) determining the incremental value of the patented invention over the next best alternative; (2) determining the patented invention's value through apportionment; and (3) considering an established royalty for the patented invention to determine its economic value. See *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1159 (6th Cir. 1978); *Hughes Tool Co. v. G.W. Murphy Indus., Inc.*, 491 F.2d 923, 931 (5th Cir. 1973); *Smithkline Diagnostics, Inc. v. Helena Labs. Corp.*, 12 U.S.P.Q.2d 1375, 1379 (E.D. Tex. 1989), *aff'd*, 926 F.2d 1161 (Fed. Cir. 1991).

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DISSENTING VIEWS OF COMMISSIONER PINKERT ON THE COMMISSION'S ISSUANCE OF AN EXCLUSION ORDER AND A CEASE-AND-DESIST ORDER

Although I concur with my colleagues on all issues related to claim construction, infringement, and affirmative defenses (except as noted in the majority opinion), I dissent on whether an exclusion order and a corresponding cease-and-desist order should issue for infringement of the '348 patent by Apple, meaning that I diverge from the majority on the proper application of the public interest factors set forth in Section 337 ("the effect of such [exclusion or order] upon the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers. . ."). 19 U.S.C. §§ 1337(d)(1), (f)(1). A key issue in that regard arises from the obligation undertaken by Samsung to license the '348 patent on a fair, reasonable, and non-discriminatory ("FRAND") basis, an obligation undertaken because the patent was declared essential to an industry standard (the UMTS standard) for the baseband processors found within the accused devices. Samsung does not dispute the existence of such an obligation with respect to the '348 patent. Whether and to what extent it bears on the public interest, however, are highly contested matters of first impression for this agency. As explained below, I find that Samsung's FRAND obligation is relevant in determining whether elimination of the infringing articles from competition in the U.S. market is consistent with the public interest, and, after taking into account a range of public interest considerations, I determine that the relief in question is not consistent with the public interest and should not issue.

Qualcomm's December 3, 2012, comments ("Qualcomm Submission") provide a useful starting point for the analysis of these issues. Qualcomm observes that a FRAND undertaking is a contractual obligation between a patent holder and a standards setting organization. Hence, in order for a respondent to establish an affirmative defense based on FRAND, ordinary principles

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of contract interpretation must be invoked, looking first to the plain meaning of the agreement, and then, where not clearly addressed by the agreement, to the intent of the parties who entered into the contract. Qualcomm Submission at 4. Qualcomm goes on to claim that the public interest requires consideration of the facts and circumstances of each case and that a blanket rule against exclusion orders in relation to declared-essential patents subject to a FRAND undertaking would strip the Commission of the ability to enforce patents that are often the most valuable and fundamental to a given technology or industry. Qualcomm Submission at 8-9. Qualcomm then characterizes the public interest inquiry that remains once it is determined that an affirmative defense based on FRAND has not been established. Qualcomm maintains that the remaining inquiry centers on whether “a standardized product truly faces no meaningful competitive alternatives. . . ,” which should be balanced against other considerations such as the “importance of protecting patent rights and incentives to take licenses voluntarily.” Qualcomm Submission at 9. In other words, Qualcomm appears to maintain that, once the ITC concludes that the affirmative defense has not been proved, no further consideration should be given to the FRAND undertaking.

In the present investigation, however, although Apple failed in the proceedings before the Administrative Law Judge to meet the burden of proof for establishing an affirmative defense based on FRAND, the weight of the evidence before the Commission in this remedial phase indicates that Samsung has thus far been unable or unwilling to make a FRAND licensing offer to Apple in relation to the ‘348 patent. The absence of a FRAND licensing offer from the course of dealings between the parties clearly has a bearing on whether relief under Section 337 is in the public interest.

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I note in this regard that Samsung has made no effort to demonstrate that the license terms it has offered Apple specifically with respect to the '348 patent, or specifically with respect to a portfolio of declared-essential patents that includes it, satisfy an objective standard of reasonableness, has not identified a methodology for determining whether they satisfy such a standard, and nowhere suggests an intention to make them more attractive to Apple. Rather, Samsung's claim that it has made FRAND terms available to Apple in relation to the '348 patent is based largely on an oral offer it made during discussions with Apple in December 2012, and that offer included [[

]]. Samsung April 3, 2013, Submission at 24; Apple April 3, 2013, Submission at 28-29; Watrous April 3, 2013, Decl. Paras. 11, 14; Watrous April 10, 2013, Decl. Para. 7. Samsung referenced the December discussions in a letter to Apple dated March 22, 2013, but [[

]]. Samsung April 3, 2013, Submission at Exhibit C44. Although licenses to non-FRAND-encumbered patents may certainly be included in a consensual resolution of a dispute over a FRAND-encumbered patent, it is neither fair nor non-discriminatory for the holder of the FRAND-encumbered patent to *require* licenses to non-FRAND-encumbered patents as a condition for licensing its patent. *Cf.* Lemley and Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, Stanford Public Law Working Paper No. 2243026, at 18 (March 30, 2013) ("While the issue is not free from doubt, we think that an offer made conditional on the would-be licensee licensing any patents *other* than standard-essential patents reading on the standard at issue is *not* a FRAND offer.") (emphasis in original). For this reason, I do not find Samsung's arguments on this issue to be persuasive.

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Apple, on the other hand, points out [[

]], despite the fact that Samsung is just one of many companies holding patents that have been declared essential to the standard for that processor. Apple April 3, 2013, Submission at 27-31, 35-36; Samsung April 3, 2013, Submission at Exhibit C42 (setting forth [[]] specific to Samsung’s declared-essential patents).

These circumstances raise the specter of significant costs being imposed on the economy as a consequence of relief under Section 337, and the statute gives the ITC a broad remit in considering such costs. Not only is the relevant statutory language very general – “public health and welfare, competitive conditions in the United States economy . . . and United States consumers,” 19 U.S.C. §§ 1337(d)(1), (f)(1) – but the legislative history indicates that “the public health and welfare and the assurance of competitive conditions in the United States economy must be the overriding considerations in the administration of this statute” and that “any evidence” of price gouging or monopolistic practices on the part of the domestic industry would be a proper basis for denying exclusion. Senate Rep. No. 93-1298 at 197 (1974).

As the U.S. Federal Trade Commission has observed regarding commitments to license on a reasonable and non-discriminatory (RAND) basis:

RAND commitments mitigate the risk of patent hold-up, and encourage investment in the standard. [Citation omitted.] After a RAND commitment is made, the patentee and the implementer will typically negotiate a royalty or, in the event they are unable to agree, may seek a judicial determination of a reasonable rate. However, a royalty negotiation that occurs under the threat of an exclusion order may be weighted heavily in favor of the patentee in a way that is in tension with the RAND commitment. High switching costs

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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 SEP [standards-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.

U.S. Federal Trade Commission Third Party Submission, Inv. No. 337-TA-745, at 3-4. I take this to imply that, where FRAND commitments have been undertaken and the weight of the evidence indicates that the complainant is not making FRAND terms available to the respondent, granting the complainant relief under Section 337 based on a patent covering a minor element of a complex multi-component product would in all likelihood impose substantial costs on consumers while undermining the standards setting process and thus public welfare and competitive conditions in the U.S. economy.

The U.S. Department of Justice and the U.S. Patent and Trademark Office have also offered guidance, maintaining that “it is important for innovators to continue to have incentives to participate in standards-setting activities and for technological breakthroughs in standardized technologies to be fairly rewarded.” January 8, 2013, Policy Statement by the United States Department of Justice, Antitrust Division, and the United States Patent and Trademark Office, at 8. This emphasizes the need for balance in the adjudication of issues related to FRAND commitments and counsels us to be sensitive to the facts of each case in determining whether the public interest precludes relief under Section 337 based on the infringement of a FRAND-encumbered patent.

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A central question in applying these principles to the facts of this case is whether the ‘348 patent covers a relatively minor element of a complex multi-component device. I find that it does, that the ‘348 patent represents nothing more than a “tweak” to the UMTS standard, which itself represents but a small portion of the value of the accused devices. As Apple points out, “while there is undoubtedly value in the UMTS standard as a whole because it provides cellular functionality to the accused devices, the devices also offer a great number of features that have nothing to do with UMTS, let alone the purported functionality of the ‘348 and ‘644 patents.” Apple December 3, 2012, Submission at 24. Moreover, the baseband processors that contain the infringing functionality sell for less than \$[[]] – while the accused devices are priced in the hundreds of dollars – and the ‘348 patent covers only very specific and limited features of those processors. *Id.* at 16, 25. Because I therefore find that the patent in question covers a relatively minor element of a complex multi-component device and because, as discussed above, the weight of the evidence indicates that Samsung is not making FRAND licensing terms available to Apple, I determine that elimination of the infringing articles from competition in the U.S. market would in all likelihood impose substantial costs on consumers while undermining the standards setting process and thus public welfare and competitive conditions in the U.S. economy.

I now consider this determination in light of other information pertaining to the public interest. As background, I note that the only Apple articles alleged to infringe the asserted claims of the ‘348 patent are the iPhone 4, iPhone 3 GS, iPhone 3G, iPad 2 3G, and iPad 3G. Of those, only the iPhone 4 and iPad 2 3G are still being sold by Apple in the United States. Apple April 3, 2013, Submission at 12. In 2012, [[]] of the smartphones sold in the United States were iPhone 4 products and [[]] of the 3G-enabled tablets were iPad 2 3G

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products. *Id.* at 13. Also in 2012, approximately [[]] of 3G- or 4G-enabled tablets were iPad 2 3G products. *Id.*

Elimination from competition of the iPhone 4 and iPad 2 3G would adversely affect U.S. consumers by denying entry-level devices to those who rely on the GSM network, which enable them to access the large and diverse library of popular software applications that are uniquely available on Apple platforms. *Id.* at 12. The iPhone and the iPad are rapidly evolving high technology platforms that are able to command from generation to generation a high level of consumer recognition and loyalty as well as substantial consumer investment in related hardware, software, and services, and the iPhone features a degree of interoperability with other Apple devices that is simply not available with other manufacturers' smartphones. *Id.* at 15; OUII April 3, 2013, Submission at 8 (platform loyalty is a "significant factor" in the smartphone and tablet markets). It follows that, were the iPhone 4 and iPad 2 3G to be eliminated from competition, consumers would experience very significant switching costs.

It also follows from these circumstances that producers of related hardware and software would be severely harmed by the imposition of relief under the statute. In addition, the degree of interoperability across the universe of Apple products is a powerful indicator that remedial action would be injurious to competitive conditions in a wide range of markets, not merely those in which the accused devices are sold.

Accordingly, I determine that an exclusion order and a corresponding cease-and-desist order should not issue as a result of Apple's infringement of the '348 patent. I emphasize, however, that I have not adopted a blanket rule to the effect that relief under Section 337 is precluded under the public interest provisions whenever a FRAND obligation has been undertaken with respect to the patent(s) in question. Rather, I have considered whether Samsung

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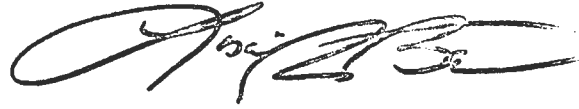
is making FRAND licensing terms available to Apple, and I have found the weight of the evidence to indicate that Samsung is not. I have also considered whether a Section 337 remedy given such circumstances would impose significant costs on the U.S. economy, harming consumers while undermining the standards setting process and thus public welfare and competitive conditions, and I have taken into account other factors pertaining to the public interest as well. My determination rests on the totality of this analysis.

**CERTAIN ELECTRONIC DEVICES, INCLUDING WIRELESS
COMMUNICATION DEVICES, PORTABLE MUSIC AND DATA
PROCESSING DEVICES, AND TABLET COMPUTERS**

Inv. No. 337-TA-794

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **COMMISSION OPINION** has been served by hand upon, the Commission Investigative Attorney, Lisa Murray, Esq., and the following parties as indicated on **July 5, 2013**.



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