PUBLIC VERSION

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**

INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND RECOMMENDED DETERMINATION ON REMEDY AND BOND

Administrative Law Judge E. James Gildea

(September 14, 2012)

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Pursuant to the Notice of Investigation, 76 Fed. Reg. 45860-61 (August 1, 2011), this is the Initial Determination of the Investigation in the Matter of Certain Electronic Devices, Including Wireless Communication Devices, Portable Music and Data Processing Devices, and Tablet Computers, United States International Trade Commission Investigation No. 337-TA-794. See 19 C.F.R. § 210.42(a).

With respect to Respondent Apple Inc., it is held that no violation of Section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain electronic devices, including wireless communication devices, portable music and data processing devices, and tablet computers, by reason of infringement of one or more of claims 75-76 and 82-84 of United States Patent No. 7,706,348.

With respect to Respondent Apple Inc., it is held that no violation of Section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain electronic devices, including wireless communication devices, portable music and data processing devices, and tablet computers, by reason of infringement of one or more of claims 9-16 of United States Patent No. 7,486,644.

With respect to Respondent Apple Inc., it is held that no violation of Section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain electronic devices, including wireless communication devices, portable music and data processing devices, and tablet computers, by reason of infringement of one or more of claims 5, 9-10, and 13 of United States Patent No. 6,771,980.

With respect to Respondent Apple Inc., it is held that no violation of Section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain electronic devices, including wireless communication devices, portable music and data processing devices, and tablet computers, by reason of infringement of one or more of claims 1-5 of United States Patent No. 7,450,114.

It is further held that a domestic industry does not exist that practices U.S. Patent Nos. 7,706,348, 7,486,644, 6,771,980 and 7,450,114.

The following abbreviations may be used in this Initial Determination:

JX	Joint exhibit
JXM	Joint Markman Exhibit
CX	Complainants' exhibit
CXM	Complainants' Markman exhibit
CDX	Complainants' demonstrative exhibit
CPX	Complainants' physical exhibit
CBr.	Complainants' initial post-hearing brief
CRBr.	Complainants' reply post-hearing brief
RX	Respondent's exhibit
RXM	Respondent's Markman exhibit
RDX	Respondent's demonstrative exhibit
RPX	Respondent's physical exhibit
RBr.	Respondent's initial post-hearing brief
RRBr.	Respondent's reply post-hearing brief
SBr.	Staff's initial post-hearing brief
SRBr.	Staff's reply post-hearing brief
Tr.	Hearing transcript
MTr.	Markman Hearing transcript

I. BACKGROUND

A. Institution and Procedural History of this Investigation.

By publication of a Notice of Investigation in the Federal Register on August 1, 2011, pursuant to subsection (b) of Section 337 of the Tariff Act of 1930, as amended, the Commission instituted Investigation No. 337-TA-794 with respect to U.S. Patent No. 7,706,348 ("the '348 patent"); U.S. Patent No. 7,486,644 ("the '644 patent"); U.S. Patent No. 6,771,980 ("the '980 patent"); U.S. Patent No. 6,879,843 ("the '843 patent"); and U.S. Patent No. 7,450,114 ("the '114 patent") to determine:

> whether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain electronic devices, including wireless communication devices, portable music and data processing devices, and tablet computers that infringe one or more of claims 75-78 and 82-84 of the '348 patent; claims 9-16 of the '644 patent; claims 5-7 and 9-13 of the '980 patent; claims 1-11 of the '843 patent; and claims 1-5 of the '114 patent, and whether an industry in the United States exists as required by subsection (a)(2) of section 337[.]

76 F.R. 45860 (August 1, 2011). The Notice of Investigation names Samsung Electronics Co., Ltd. and Samsung Telecommunications America, LLC (collectively, "Samsung") as complainants and Apple Inc. ("Apple") of Cupertino, California as respondent. The Commission Investigative Staff of the Office of Unfair Import Investigations ("Staff") is also a party in this Investigation.

On April 13, 2012, the Administrative Law Judge issued an initial determination extending the target date of the Investigation. (See Order No. 54.) The Commission did not review said extension. (See Notice of Commission Decision Not to Review an Initial Determination Extending the Target Date for Completion of the Investigation (U.S.I.T.C., May 8, 2012.)

On January 10 and 11, 2012, the Administrative Law Judge held a Markman hearing in order to permit the parties to present their positions with respect to the interpretation of certain disputed claim language in the asserted patents. Samsung, Apple, and Staff attended the Markman hearing.

On May 10, 2012, the Administrative Law Judge issued Order No. 63 (the "Markman Order") construing the patent claim terms at issue in this Investigation. On May 11, 2012, the Administrative Law Judge issued Order No. 67, which corrected an error in Order No. 63.

On May 11, 2012, the Administrative Law Judge issued an initial determination granting an unopposed motion for partial termination with respect to claims 6-7, 11-12 of U.S. Patent No. 6,771,980, and claim 78 of U.S. Patent No. 7,706,348. (See Order No. 66.) The Commission determined not to review this decision. (See Notice of Commission Decision Not to Review an Initial Determination Terminating the Investigation with Respect to Certain Patent Claims (U.S.I.T.C., May 31, 2012.)

On June 1, 2012, the Administrative Law Judge denied Samsung's motion for summary determination with respect to importation, but found certain facts to be established. (Order No. 85.)

On June 4, 2012, the Administrative Law Judge issued an initial determination granting an unopposed motion for partial termination with respect to all asserted claims of U.S. Patent No. 6,879,843, and claim 77 of U.S. Patent No. 7,706,348. (See Order No. 87.) The Commission determined not to review this decision. (See Notice of Commission Decision Not to Review an Initial Determination Terminating the Investigation with Respect to Certain Patent Claims (U.S.I.T.C., June 28, 2012.)

On June 6, 2012, the Administrative Law Judge denied Samsung's motion for summary determination with respect to commercially significant inventories of accused products, but found certain facts to be established. (Order No. 89.)

The evidentiary hearing on the question of violation of Section 337 began on June 4, 2012, and ended on June 15, 2012. Complainants, Respondent, and Staff were represented by counsel at the hearing.

B. The Parties.

1. Complainants Samsung Electronics Co., Ltd. and Samsung Telecommunications America, LLC.

Samsung Electronics Co., Ltd. is a corporation organized under the laws of Korea, with its principal place of business at in Suwon-City, Korea. (Complaint at 2-3; CBr. at 5.) Samsung Telecommunications America, LLC is a limited liability company organized under the laws of Delaware, with its principal place of business in Richardson, Texas. (*Id.*)

Samsung is in the business of designing, developing and marketing a wide range of products, including wireless communication devices. (*Id.*)

2. Respondent Apple Inc.

Apple Inc. is a corporation organized under the laws of California and has its principal place of business in Cupertino, California. (Complaint at 3.) Respondent is alleged to import, market, and sell within the United States electronic devices, including wireless communication devices, portable music and data processing devices, and tablet computers. (*Id.*)

C. Overview of the Technology.

At issue are certain electronic devices, including wireless communication devices, portable music and data processing devices, and tablet computers. These electronic devices

allow for communications and data transfer over networks, including establishing data connections, execution of user operations, and audio play back of digital data. (Complaint at 3.)

D. The Patents at Issue.

U.S. Patent No. 7,706,348.

This Investigation concerns U.S. Patent 7,706,348 "Apparatus and Method for Encoding/Decoding Transport Format Indicator in CDMA Mobile Communication System" (the '348 patent), which resulted from U.S. Patent Application No. 11/006,388 filed on December 7, 2004 and is a continuation of Application Ser. No. 09/611/069 filed on July 6, 2000, now U.S. Patent No. 6,882,636, which claims priority under 35 U.S.C. § 119 to a Korean application filed on July 6, 1999 that was assigned Serial No. 1999-27932. (JXM-1 at Samsung-AppleITC000002, -000022.) The patent issued on April 27, 2010 and names Jae-Yoel Kim and Hee-Won Kang as inventors. (*Id.*) The patent was assigned to Samsung Electronics Co., Ltd. upon issuance. (Id.)

The patent discloses an apparatus and method for encoding and decoding transport format combination indicator (TFCI) in a CDMA mobile communication system. (*Id.* at Samsung-AppleITC000002 (Abstract).) The '348 patent has 85 claims, 5 of which remain asserted in this Investigation: independent claims 75 and 82, and dependent claims 76, 83, and 84. These claims, as well as underlying independent claim 75, 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.

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.

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 apunctured at a predetermined position, and outputting a 30 bit codeword that is equivalent to the 32 bit codeword output by the controller.

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.

(*Id.* at 45:52-46:12, 46:40-62.)

U.S. Patent No. 7,486,644.

This Investigation concerns U.S. Patent 7,486,644, "Method and Apparatus for Transmitting and Receiving Data With High Reliability in a Mobile Communication System Supporting Packet Data Transmission," (the "'644 patent"), which resulted from U.S. Patent

Application No. 11/289,572 filed on November 30, 2005. (JXM-3 at Samsung-AppleITC000047.) The '644 patent issued on February 3, 2009 and names Young-Bum Kim, Yujian Zhang, Ju-Ho Lee, Youn-Hyoung Heo, and Jeon-Young Cho as inventors. (*Id.*) The patent was assigned to Samsung Electronics Co., Ltd. (*Id.*)

The patent discloses a method and apparatus for transmitting control information of a small block size with high reliability in a mobile communication system supporting uplink packet data service. (*Id.* at Abstract).) The '644 patent has 16 claims, eight of which are asserted: independent claims 9 and 13 and dependent claims 10-12 and 14-16, which 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}
>
> **10**. The method of claim **9**, wherein the control information comprises an indication of an allowed maximum data rate for transmission of uplink packet data.
>
> **11**. The method of claim **10**, wherein the control information comprises a 5-bit power offset equivalent to the allowed maximum data rate and a 1-bit validity process indicator indicating whether the control information is valid for an entire hybrid automatic repeat request (HARQ) process.

12. The method of claim **9**, wherein the UE-ID specific CRC is generated by modulo-2 operating a 16-bit CRC with a 16-bit UE ID.

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:

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}

14. The apparatus of claim **13**, wherein the control information comprises an indication of an allowed maximum data rate for transmission of uplink packet data.

15. The apparatus of claim **14**, wherein the control information comprises a 5-bit power offset equivalent to the allowed maximum data rate and a 1-bit validity process indicator indicating whether the control information is valid for an entire hybrid automatic repeat request (HARQ) process.

16. The apparatus of claim **13**, wherein the UE-ID specific CRC is generated by modulo-2 operating a 16-bit CRC with a 16-bit UE ID.

(*Id.* at 27:31-28:32.)

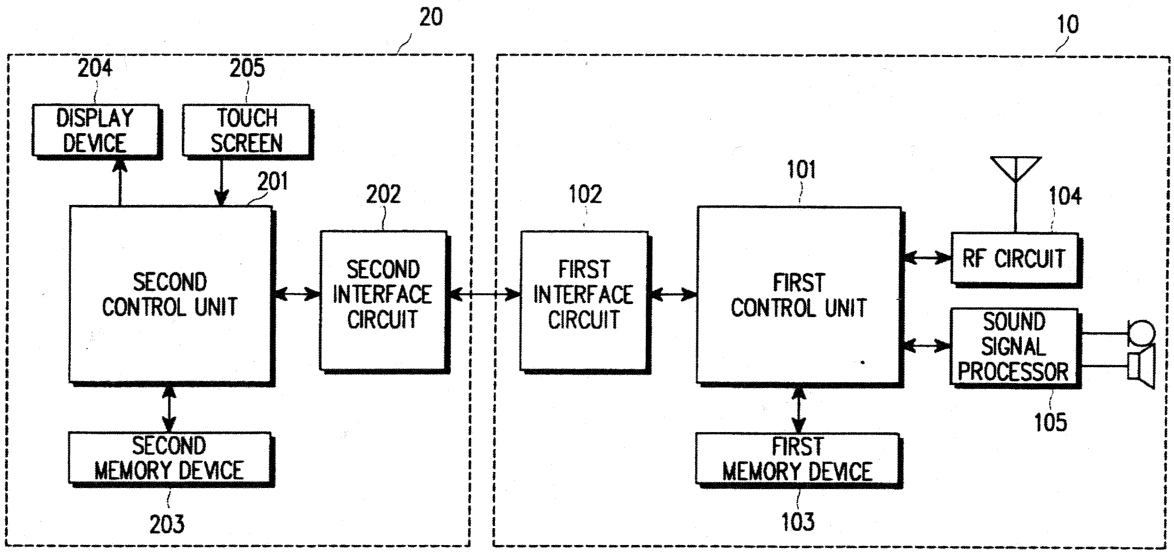
U.S. Patent No. 6,771,980.

This Investigation concerns U.S. Patent No. 6,771,980, entitled "Method for Dialing in a Smart Phone" ("the '980 patent"), issued on August 3, 2004 and ensuing from U.S. Patent Application No. 09/728,814 filed on December 1, 2000. (JXM-5 at Samsung-AppleITC000068.)

The '980 patent claims priority to foreign application (KR) 1999-54380, dated December 2, 1999. (*Id.*) The named inventor of the '980 patent is Jeong-Kyu Moon, and Samsung Electronics Co., Ltd. is listed as the assignee. (*Id.*)

The '980 patent generally discloses methods for phone dialing and registering phone numbers in an electronic phone book in a smart phone during execution of a personal digital assistant ("PDA") program. (JXM-5 at 1:7-12, 26-31.)

FIG. 1



(*Id.* at Fig 1.) The specification explains that a smart phone consists of a mobile phone section **10** and a PDA section **20**. (*Id.* at 2:8-15.) In the preferred embodiment, if a user enters start data through the touch screen **205**, the second control unit **201** executes the program for operating the PDA section **20**. (*Id.* at 2:47-58; Fig. 2.) Then the first control unit **101** of the mobile phone section measures the received signal strength indicator ("RSSI") of the signals received through

the antenna and if the RSSI is greater than or equal to a predetermined value, the control unit displays a dialing icon. (*Id.* *See also* Fig. 3.) This permits the user to select a phone number and then dial it with the dialing icon during operation of the PDA function. (*Id.* at 2:47-3:17; Fig. 2.)

The '980 patent has thirteen claims, four of which remain asserted: independent claims 5 and 10, and dependent claims 9 and 13. (76 F.R. 45860 (August 1, 2011); JXM-5.) The asserted claims read as follows:

> **5.** A method for dialing a phone number in a smart phone having random access memory (RAM) and both personal digital assistant (PDA) and mobile phone functions during operation of a PDA function, comprising the steps of:
>
> loading an operating system (OS) program for said PDA function;
>
> loading a phone program for editing and dialing a phone number along with displaying a phone editor and dialing icon if said PDA function is requested by a user;
>
> executing said phone program if said user selects a phone number during operation of said PDA function;
>
> storing an identifying name designated for the selected phone number into a phone book; and
>
> dialing the selected phone number.
>
> **9**. The method as defined in claim **5**, wherein said phone number is selected by one of pressing a touch screen and dragging a mouse.
>
> **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.

(JXM-5 at 4:36-6:12.)

U.S. Patent No. 6,879,843.

The '843 patent has been terminated from the Investigation.

U.S. Patent No. 7,450,114.

This Investigation concerns U.S. Patent 7,450,114 "User Interface Systems and Methods for Manipulating and Viewing Digital Documents" (the "'114 patent"), which resulted from U.S. Patent Application No. 09/835,458 filed on April 16, 2001. (JXM-9 at Samsung-AppleITC000092.) The patent issued on November 11, 2008 and names Majid Anwar as inventor. (*Id.*) The patent was assigned to Picsel (Research) Limited who assigned it to Samsung Electronics Co., Ltd. on October 2, 2009. (*Id.*; Complaint, Ex. 11.)

The patent discloses systems and methods for viewing and manipulating a display of digital documents. (JXM-1 at Samsung-AppleITC000092 (Abstract); Samsung-AppleITC000105 (Field of the Invention).) The '114 patent has five claims, all of which are asserted, and two of which are independent: claims 1 and 3. Each of the claims is recited below.

> **1.** 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 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.

2. The computing device of claim **1**, wherein 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.

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.

4. A computing device according to claim **3**, wherein the rate at which the engine renders the series of pages of the document decreases over time based on the page inertia.

> **5**. A computing device according to claim **3**, 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.

(JXM-9 at 16:2-65.)

E. The Products at Issue.

The products at issue 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 asserted claims 75-76 and 82-84 of the '348 patent. (CBr. at 23.) Samsung has designated the iPhone 4 AT&T 8GB as a representative product on the basis that all the Accused '348 Products contain Intel baseband processors with identical relevant source code. (Samsung Post-Hearing Rule 7.1 Submission.)

With respect to the '644 patent, Samsung accuses the iPhone 4S (all models); iPhone 4 (AT&T models); and iPad 2 (3G) (AT&T models) (collectively, the "Accused '644 Products") of infringing asserted claims 9-16 of the '644 patent. (Samsung Post-Hearing Rule 7.1 Submission.) Samsung has designated the iPhone 4S 16GB, which contains a Qualcomm MDM6610 baseband processor, as representative of the accused iPhone 4S products. (*Id.*) 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. (*Id.*)

Samsung accuses the "iPhone 3GS (all carriers), the iPhone 4 (all carriers and models), and the iPhone 4S (all carriers)" (collectively, the "Accused '980 Products") of infringing the

asserted claims 5, 9-10, and 13 of the '980 patent. (CBr. at 145, n.36.[1]) According to Samsung, all of the Accused '980 Products "run iOS 4 or later and currently run a version of iOS 5[.]" (*Id.*) Samsung says that whether an iPhone has iOS 4 or iOS 5 does not affect the infringement analysis here. (*Id.*) Samsung has designated the iPhone 4S with iOS 5 as representative of all the Accused '980 Products. (*Id.* at 145-46.)

Samsung accuses the 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 the asserted claims 1-5 of the '114 patent. (Samsung Post-Hearing Rule 7.1 Submission.) Samsung has designated the iPhone 4S 16GB as representative of the Accused '114 Products on the basis that all the Accused '114 Products infringe in the same way by running iOS 5. (*Id.*)

The Accused '348 Products, Accused '644 Products, Accused '980 Products, and Accused '114 Products may collectively be referred to as the "Accused Products."

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

> The Gravity Smart (SGH-T589) and Dart (SGH-T499) both comprise { } baseband processors. They both practice the '644, '348, '980, and '114 patents, and the Gravity Smart is representative of all of these devices.
>
> The Galaxy S 4G (SGH-T959V), Infuse 4G (SGH-I997), Exhibit 4G (SGH-T759) and Sidekick 4G (SGH-T839) comprise { }. They practice the '348, '644, '980, and '114 patents. The Galaxy S 4G is representative of all of these devices.
>
> In addition to the devices listed above, the Galaxy S II (SGH-T989), Exhibit II 4G (SGHT679), 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 (SGHI857), Captivate (SGH-I897), Droid Charge (SCH-I510), Galaxy Prevail (SPH-M820), Replenish (SPH-M580),

[1] Samsung appears to have withdrawn its assertion that the iPhone 3G (all models running iOS 4.0 or later) infringes the asserted claims of the '980 patent. (*Compare* CBr. at 145, n.36 *with* Samsung Post-Hearing Rule 7.1 Submission.) Thus it has waived this argument pursuant to Ground Rule 10.1.

> Intercept (SPH-M910), Acclaim (SCH-R880), Continuum (SCH-I400), Epic 4G (SPH-D700), Fascinate/Mesmerize/Showcase (SCH-I500), Gem (SCH-I100), Moment/Instinct Q (SPH-M900), Transform (SPH-M920), and Indulge (SCH-R910) all use Android operating system Froyo or later. These practice the '980 and '114 patents. The Galaxy S 4G and Gravity Smart are representative of these devices for these patents.
>
> The Impression Full Qwerty Touch (SGH-A877), Behold (SGH-T919), Eternity II (SGHA597), Eternity Touch (SGH-A867), Flight II (SGH-A927), Highlight (SGH-T749), Rugby II (SGH-A847), Mythic (SGH-A897), and Solstice (SGH-A887) comprise { } baseband processors. These phones practice the '348 patent and the Impression Full Qwerty Touch is representative of all these devices.

(CBr. at 7.)

II. JURISDICTION AND IMPORTATION.

In order to have the power to decide a case, a court or agency must have both subject matter jurisdiction and jurisdiction over either the parties or the property involved. *See Certain Steel Rod Treating Apparatus and Components Thereof*, Inv. No. 337-TA-97, Commission Memorandum Opinion, 215 U.S.P.Q. 229, 231 (U.S.I.T.C., 1981). For the reasons discussed below, the Administrative Law Judge finds the Commission has jurisdiction over this Investigation.

Apple has responded to the Complaint and Notice of Investigation and has fully participated in the Investigation by, among other things, participating in discovery, participating in the Markman and evidentiary hearings, and filing pre-hearing and post-hearing briefs. Accordingly, the Administrative Law Judge finds that Respondent Apple has submitted to the personal jurisdiction of the Commission and that the Commission has in rem jurisdiction over the Accused Products. *Certain Cloisonné Jewelry*, Inv. No. 337-TA-195, Initial Determination at 40-43 (U.S.I.T.C., March, 1985) (unreviewed).

Section 337 declares to be unlawful "[t]he importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or

consignee, of articles" that infringe a valid and enforceable United States patent if an industry relating to the articles protected by the patent exists or is in the process of being established in the United States. See 19 U.S.C. §§ 1337(a)(1)(B)(i) and (a)(2). Pursuant to Section 337, the Commission shall investigate alleged violations of the Section and hear and decide actions involving those alleged violations.

With respect to the asserted patents, it is undisputed that the importation or sale requirement of Section 337 establishing subject matter jurisdiction as to Apple has been met. (CBr. at 8; RBr.[2]; SBr. at 25; Order No. 85 at 6.) Accordingly, the Administrative Law Judge finds that Apple sells for importation, imports, or sells after importation into the United States, articles that are accused in this Investigation. *See Certain Electronic Devices with Image Processing Systems, Components Thereof, and Associated Software*, Inv. No. 337-TA-724, Comm'n Op. at 9-10 (U.S.I.T.C., Dec. 21, 2011[3]).

III. CLAIM CONSTRUCTION

A. '348 Patent

1. Level of Ordinary Skill in the Art

The Administrative Law Judge concluded that a person of ordinary skill in the field of the invention of the '348 patent need not have possessed a graduate degree; a bachelor's degree in electrical engineering or an equivalent and two to three years of experience working in telecommunications technology including digital cellular standards would have been adequate for the technology at issue in the '348 patent. (Order 63 at 10.) The Administrative Law Judge found that training or education in coding theory, while useful, was not necessary, given the level of understanding of mathematics required for bachelor degrees in either mathematics or

[2] Apple does not appear to have included a discussion of any kind with respect to jurisdiction or importation in its initial post-hearing brief and therefore has waived the matter. (Ground Rule 10.1.)
[3] Date of public opinion.

engineering and incidental to having two or more years of experience working in telecommunications technology, inclusive of digital cellular standards. (*Id.*)

2. Claims 75-76 and 82-84—"*TFCI Encoding Apparatus*"

The term "TFCI encoding apparatus" (or variants thereof) appearing in the preambles of independent claims 75 and 82 is not limiting and therefore does not require construction. (Order No. 63 at 15.)

3. Claims 75 and 82—"controller for outputting"

The Administrative Law Judge concluded that the term requires no construction and could be understood by a person of ordinary skill in the art according to its plain and ordinary meaning. (Order No. 63 at 17.)

4. Claims 75, 76, 82, and 83—"*codeword*"

The Administrative Law Judge concluded that "codeword" means "coded information." (Order No. 63 at 21.)

5. Claim 75—"from among a plurality of 30 bit codewords"; and Claim 82—"from among a plurality of 32 bit codewords"

The Administrative Law Judge found that these terms mean as follows: "from more than one 30 bit codeword" (claim 75), and "from more than one 32 bit codeword" (claim 82). (Order No. 63 at 24.)

6. Claims 75 and 82—"*equivalent*"

The Administrative Law Judge concluded that the word "equivalent" as used in the asserted claims of the '348 patent does not carry any special meaning and should be understood according to its plain and ordinary meaning. (Order No. 63 at 28.)

7. Claim 76--"*punctured equivalents*"

The Administrative Law Judge concluded that the term "punctured equivalents" means: "32 bit codeword that has been punctured such that it corresponds to TFCI information in the same way that a 30 bit codeword corresponds to TFCI information." (Order No. 63 at 30.)

8. Claim 82—"*puncturer*"/"*puncturing*"

The Administrative Law Judge concluded that a person of ordinary skill would have understood the word "puncturing" according to its plain and ordinary meaning. (Order No. 63 at 33.) The Administrative Law Judge concluded that the term "puncturer" means "hardware or software for puncturing." (*Id.*)

9. Claim 82--"predetermined position"

The Administrative Law Judge concluded that "predetermined position" in the context of the patent as a whole and claim 82 in particular does not require construction and should be understood and applied according to the plain and ordinary meaning of the term. (Order No. 63 at 38.)

B. '644 Patent

1. Level of Ordinary Skill in the Art

The Administrative Law Judge concluded that a person of ordinary skill in the art at the relevant time would have been a person with at least a bachelor's degree in electrical engineering, or an equivalent thereof, and two years' experience working in the field of telecommunications. (Order No. 63 at 40.)

2. Claims 9 and 13—"*rate-matched block*"

The Administrative Law Judge concluded that the term "rate-matched block" as it appears in claim 9 and 13 means the following: "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." (Order No. 63 at 48.)

3. Claims 9 and 13—"*decoding the coded bits at a coding rate of 1/3*"

The Administrative Law Judge concluded that the term "decoding the coded bits at a coding rate of 1/3" means: "decoding bits that were encoded according to a coding rate that outputs one bit for every three input bits." (Order No. 67.) There are two aspects to the term: decoding bits that, prior to decoding, had been encoded at a rate of 1/3. (*Id.*) There is no mystery to the words or the concept and the term is self-evident according to the words themselves. (*Id.*)

C. '980 Patent

1. Level of Ordinary Skill in the Art

The Administrative Law Judge was persuaded that with respect to the '980 patent, the relevant art is the art of computer software development. (Order No. 63 at 64.) One of ordinary skill in the art would have had a bachelor's degree in computer science, electrical engineering, or equivalent education, and at least two years of experience as a software developer. (*Id.*)

2. Claims 5, 10--"*PDA function*"

The parties agreed that the term "PDA function" as it is used in claims 5 and 10 of the '980 patent should mean "a function performed by a personal digital assistant." (Order No. 63 at 64.) The Administrative Law Judge rejected Apple's proposed limitation that a "PDA function" may not include a web page-based function. (*Id.*at 68.) The Administrative Law Judge also rejected the argument that the PDA and phone functions could not overlap. (*Id.* at 70-71.)

3. Claims 5, 10--"*mobile phone function*"

The parties agreed that the term "mobile phone function" as it is used in claims 5 and 10 of the '980 patent should mean "a telephone function of a mobile phone." (Order No. 63 at 71.)

The Administrative Law Judge rejected the argument that the PDA and phone functions could not overlap. (*Id.* at 72.)

4. Claim 5--"*a phone program*"; and Claim 10—"*a dialing program*"

A person of ordinary skill in the art reviewing the claims in the context of the '980 patent specification would find that these two terms should be given their plain and ordinary meanings. (Order No. 63 at 74.)

5. Claims 5, 9, 10--"*phone editor*"

The Administrative Law Judge found that a person of ordinary skill in the art reviewing "phone editor" in view of the claims and specification of the '980 patent would understand that this term means "a user interface that allows the user to edit a phone number prior to dialing." (Order No. 63 at 78.)

6. Claim 5--"*loading*"

The Administrative Law Judge concluded that one of ordinary skill in the art would have understood "loading" in claim 5 of the '980 patent to mean "copying or transferring into memory." (Order No. 63 at 81-82.)

7. Claims 5, 10--"*identifying name*"

The Administrative Law Judge finds that a person of ordinary skill in the art would understand that "identifying name" as it is used in claims 5 and 10 of the '980 patent means "a name associated with the selected number." (Order No. 63 at 85.)

8. Claims 6, 10--"*dialing state*"

The Administrative Law Judge concludes that a person of ordinary skill in the art, reading asserted claims 6 and 10 of the '980 patent in view of the specification, would understand "dialing state" to mean "a mode in which the smart phone can dial a phone number." (Order No. 63 at 91.)

D. '114 Patent

1. Level of Ordinary Skill in the Art

The subject of the '114 patent is user interface systems and methods for manipulating and viewing documents. (Order No. 63 at 120.) The Administrative Law Judge concluded that a person of ordinary skill in the relevant art would have had a bachelor's degree in computer science or electrical engineering, or the equivalent, and three years' experience in interface design. (*Id.*)

2. Claim 1--"*rate based on the determined velocity vector*"

The Administrative Law Judge concluded that the term "rate based on the determined velocity vector" means "rate calculated from the determined velocity vector." (Order No. 63 at 127.)

3. Claims 2 and 3—"*rate based on the determined velocity vector and a page inertia*"

The Administrative Law Judge concluded that the term "rate based on the determined velocity vector and a page inertia" means, "rate calculated from the determined velocity vector and a page inertia." (Order No. 63 at 131.)

4. Claims 1, 3, and 5—"*an interface process*"

The Administrative Law Judge concluded that the term "interface process" did not require construction under 35 U.S.C. § 112 ¶ 6. (Order No. 63 at 136.) In addition, the Administrative Law Judge found that the term "an interface process" would be understood by a person of ordinary skill to mean "a process that handles a user interface." (*Id.*) Further, the Administrative Law Judge concluded that the '114 patent discloses multiple interface processes that can be used in the invention such as "a flip-page detector for detecting a motion across the surface of a touch-screen at a location presenting a portion of the page layout graphically

representative of a corner of a document" (JXM-9 at 3:17-21); "a gesturing process for detecting a predefined movement representative of a command for selecting a portion of the page layout to be rendered, or for altering data content of the digital representation of the document" (*id.* at 3:26-30); and "tools representative of a magnifying tool, a ruler, a text entry cursor, a thumbnail navigation column, a thumbnail view of linked content and a query tool" (*id.* at 3:36-39), and for handling a pan command (*id.* at 16:18-22). (*Id.* at 136-37.)

5. Claims 1, 2, 3, 4, and 5—"*a display monitor*"

The Administrative Law Judge concluded that the term "display monitor" would be understood by a person of ordinary skill in the art in the context of the asserted claims and the patent as a whole and did not require construction in accordance with 35 U.S.C. § 112 ¶ 6. (Order No. 63 at 143.) The term "a display monitor" in the context of the asserted claims and the patent as a whole would be understood by a person of ordinary skill to mean "a process that monitors the display." (*Id.*)

6. Claims 1, 3, and 5—"*wherein*"

The Administrative Law Judge concluded that the term "wherein" is commonly used in reciting patent claims and would be understood according to its plain and ordinary meaning by persons of ordinary skill in the art to which the asserted claims relate. (Order No. 63 at 145.) Therefore, "wherein" required no construction. (*Id.*)

IV. INFRINGEMENT DETERMINATION

A. Applicable Law

1. Direct Infringement

"Determination of infringement is a two-step process which consists of determining the scope of the asserted claim (claim construction) and then comparing the accused product . . . to the claim as construed." *Certain Sucralose, Sweeteners Containing Sucralose, and Related*

Intermediate Compounds Thereof, Inv. No. 337-TA-604, Comm'n Op. at 36 (U.S.I.T.C., April 28, 2009) (citing *Litton Sys., Inc. v. Honeywell, Inc.*, 140 F.3d 1449, 1454 (Fed. Cir. 1998) "*Litton*"). An accused device literally infringes a patent claim if it contains each limitation recited in the claim exactly. *Litton*, 140 F.3d at 1454. Each patent claim element or limitation is considered material and essential. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991). In a Section 337 investigation, the complainant bears the burden of proving infringement of the asserted patent claims by a preponderance of the evidence. *Enercon GmbH v. Int'l Trade Comm'n,* 151 F.3d 1376, 1384 (Fed. Cir. 1998).

If the accused product does not literally infringe the patent claim, infringement might be found under the doctrine of equivalents. The Supreme Court has described the essential inquiry of the doctrine of equivalents analysis in terms of whether the accused product or process contains elements identical or equivalent to each claimed element of the patented invention. *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 40 (1997). Under the doctrine of equivalents, infringement may be found if the accused product or process performs substantially the same function in substantially the same way to obtain substantially the same result. *Valmont Indus., Inc. v. Reinke Mfg. Co.,* 983 F.2d 1039, 1043 (Fed. Cir. 1993).

2. Indirect Infringement

Induced Infringement.

"Whoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b). A patentee asserting a claim of inducement must show (i) that there has been direct infringement and (ii) that the alleged infringer "knowingly induced infringement and possessed specific intent to encourage another's infringement." *Minnesota Mining & Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1304-05 (Fed. Cir. 2002). With respect to the direct infringement

requirement, the patentee "must either point to specific instances of direct infringement or show that the accused device necessarily infringes the patent in suit." *ACCO Brands, Inc. v. ABA Locks Mfrs. Co., Ltd.*, 501 F.3d 1307, 1313 (Fed. Cir. 2007) (citation omitted). This requirement may be shown by circumstantial evidence. *Vita-Mix Corp. v. Basic Holding, Inc.*, 581 F.3d 1317, 1326 (Fed. Cir. 2009). "[A] finding of infringement can rest on as little as one instance of the claimed method being performed during the pertinent time period." *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1317 (Fed. Cir. 2009).

The specific intent requirement for inducement necessitates a showing that the alleged infringer was aware of the patent, induced direct infringement, and that he knew or should have known that his actions would induce actual direct infringement. *DSU Medical Corp. v. JMS Co., Ltd.*, 471 F.3d 1293, 1305 (Fed. Cir. 2006) (en banc in relevant part); *Global-Tech Appliances, Inc. v. SEB S.A.*, 131 S.Ct. 2060, 2068-70 (2011) (holding that willful blindness may be sufficient to meet specific intent requirement). The intent to induce infringement may be proven with circumstantial or direct evidence and may be inferred from all the circumstances. *DSU*, 471 F.3d at 1306; *Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 699 (Fed. Cir. 2008).

Contributory Infringement.

35 U.S.C. § 271(c) sets forth the rules for contributory infringement:

> Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination, or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.

35 U.S.C. § 271(c). Specifically with respect to Section 337 investigations, the Federal Circuit has held that "to prevail on contributory infringement in a Section 337 case, the complainant

must show inter alia: (1) there is an act of direct infringement in violation of Section 337; (2) the accused device has no substantial non-infringing uses; and (3) the accused infringer imported, sold for importation, or sold after importation within the United States, the accused components that contributed to another's direct infringement." *Spansion, Inc. v. International Trade Comm'n*, 629 F.3d 1331, 1353 (Fed. Cir. 2010). "[N]on-infringing uses are substantial when they are not unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental." *Vita-Mix*, 581 F.3d at 1327. To determine whether a use is substantial, an Administrative Law Judge may evaluate "the use's frequency, . . . the use's practicality, the invention's intended purpose, and the intended market." *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 851 (Fed. Cir. 2010).

B. Analysis of the Accused Products with Respect to the '348 Patent

Samsung has accused five Apple products of infringing claims 75-76 and 82-84 of the '348 patent: the iPhone 4 (AT&T), iPhone 3GS (AT&T), iPhone 3 (AT&T), the iPad 3G (AT&T), and the iPad 2 (3G) (AT&T). (CBr. at 23.) The iPhone 4 (AT&T) and iPad 2 (3G) (AT&T) include an Intel PMB 9801 baseband processor (sometimes referred to as XGold 616). (*Id.* at 23-24 (citing CX-1278C at 36-37), 24, n. 1 (citing Tr. at 484:21-23 (Min)).) Samsung says the iPhone 3GS (AT&T), iPhone 3G (AT&T), and iPad 3G (AT&T) include an Intel PMB 9801 baseband processor. (*Id.* (citing CX-1278C at 36-37).) Samsung says the parties agree that the source code for these chipsets { }. (*Id.* (citing JX-0054C (Shi Dep.) at 30, 40-41).)

UMTS Capability—

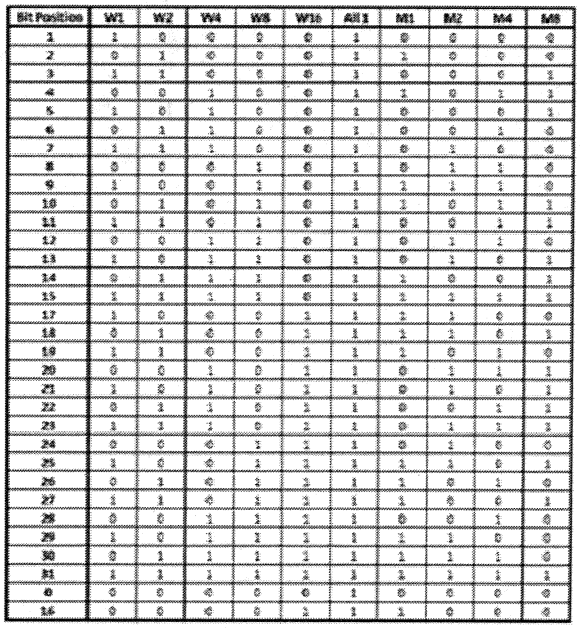
Samsung says that Accused Products support UMTS ("Uniform Mobile Telecommunications System"). (*Id.* at 24 (citing JX-0054C at 67).) In order to communicate in

accordance with UMTS, the Accused Products have to comply with 3GPP ("Third Generation Partnership Project") standards, including TS 25.212 and TS 25.211. (*Id.* (citing Tr. at 2070 (Davis) and 483 (Min)).) Samsung says that Sections 4.3.3 and 4.3.5 of TS 25.212 are relevant to TFCI ("Transport Format Combination Indicator") encoding. (*Id.* (citing Tr. at 2070-71 (Davis)).) Samsung contends that each Accused Product conforms to TS 25.212 rel. 99 and later. (*Id.* at 20.) Samsung says that Dr. Davis, one of Apple's experts, admitted that "section 4.3.3 of that standard describes encoding a maximum of 10 bits of information representing the TFCI into a 32-bit codeword" and that "section 4.3.5 of TS 25.212 describes mapping the TFCI bits for transmission." (*Id.* at 24 (citing Tr. at 2070-71).) Samsung says that Dr. Davis admitted that in order for mobile phones to communicate on a UMTS network, a chip designer would have no choice, other than implementing the code that is described in Sections 4.3.3 and 4.3.5. (*Id.* (citing Tr. at 2071, 2086 (Davis)).)

According to Samsung, the Accused Products make use of the specific TFCI coding scheme set forth in TS 25.212. (*Id.* at 24-25 (citing CX-1099 at 46).) Samsung says that TS 25.212 explains that the TFCI, which is expressed as a 10-bit binary number, $a_9, a_8 \ldots, a_0$, is encoded into a "TFCI codeword," which is expressed as a 32-bit binary number, $b_0, b_1, \ldots, b_{31}$. (*Id.* at 25 (citing CX-1099C at 1099.0047-48; Tr. at 505-506, 510-511 (Min); 2070-71 (Davis)).) Samsung says that if the TFCI consists of less than 10-bits, the TFCI input is padded with zeros to equal 10 bits, by setting the most significant bits to zero. (*Id.* (citing CX-1099C at 1099.0047).)

Samsung says that Table 8 in Section 4.3.3 contains the same sequence disclosed in the '348 patent with the design implementation of moving bits at 0 and 16 to the bottom of the encoding table. (*Id.* (citing Tr. at 516-518 (Min)).) Samsung says that the following illustration

demonstrates this comparison: the encoding table on the left is derived from the '348 patent sequences and the encoding table on the right is Table 8. (*Id.*) The two encoding tables are identical, according to Samsung, and therefore Table 8 generates codewords with a minimum distance of 12. (*Id.*)



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

{

}

(*Id.* at 26 (citing CDX-01.44; Tr. at 516-518 (Min)).)

Samsung says that after the TFCI codeword is generated, Section 4.3.5 of TS 25.212 describes how to map the codeword to the transmission frame. (*Id.* (citing Tr. at 527-528 (Min)).) According to Samsung, TS 25.211 provides the specification for the transmission frame. (*Id.* (citing CX-1098 at 1098.0012-13).) Samsung says that TS 25.211 discloses that the transmission frame, in normal mode, contains 15 slots, each of which holds two coded TFCI bits, for a total of 30 bits of a TFCI codeword. (*Id.* (citing Tr. at 2087-91 (Davis)).) According to Samsung, Dr. Davis agrees that the Accused Products map the TFCI codeword to the 15 slots of the transmission frame so that only 30 bits of the generated 32 bits are transmitted and the two

remaining bits, b_{30} and b_{31}, are not mapped to any radio frame slots. (*Id.* (citing CX-1099 at 1099.0049; Tr. at 2095-96 (Davis) and 528 (Min)).) Samsung contends that these last two bits of the TFCI codeword are punctured, or ignored. (*Id.* (citing Tr. at 528 (Min)).)

Samsung argues that during the hearing Apple introduced a new non-infringement argument that was not in its contentions, expert reports, or prehearing brief, which is that the standard is based on a proposal from the other 3GPP members and not based on Samsung's proposal which embodies the technology set forth in the '348 patent. (*Id.* at 26-27.) Samsung says that during the hearing Samsung preserved its objection to Apple's questions related to his theory. (*Id.* (citing Tr. at 2040 (Davis)).) Samsung says that to the extent that Apple argues this point in its post-hearing brief such argument should be struck because it was not previously disclosed. (*Id.*)

Apple says that Samsung's reliance on Section 4.3.5 of the ETSI standard for proof of infringement is misplaced, for two reasons. (RBr. at 41.) In the first place, Apple asserts that Section 4.3.5 concerns "mapping" and does not refer to a puncturer at all, much less require the use of one. (*Id.*) Apple says the title to Section 4.3.5, "Mapping of TFCI words," makes clear that this section of the standard relates only to mapping TFCI codewords, which is a separate operation from TFCI encoding, and uses separate firmware. (*Id.* (citing Tr. at 2071 (Davis)).) Apple argues that Section 4.3.5 provides that TFCI codeword bits are directly mapped to the slots of the radio frame, according to a prescribed formula. (*Id.* (citing CX-1099 at S-ITC-010559834 (ETSI TS 25.212)).) Section 4.3.5 does not require that hardware or software for puncturing be used prior to transmission or that anything be done to the codeword by way of puncturing, perforating, or rendering ineffective any of the bits that make up that codeword. (*Id.*) According to Apple, Section 4.3.5 avoids making any modification to the TFCI codeword,

and according thereto, the codeword is simply mapped until there are no more slots remaining in the radio frame. (*Id.* (citing CX-1099 at S-ITC-010559834).) Apple points out that Dr. Min admitted, during his rebuttal testimony, that not every means of reducing a 32-bit codeword to 30 bits involves puncturing. (*Id.* (citing Tr. at 2997-98(Min)).)

Secondly, Apple says Section 4.3.5 amounts to a rejection, rather than acceptance, of Samsung's puncture proposal for TFCI. (*Id.*) Apple notes that the TS 25.212 standard was amended at the request of Siemens, LGIC, ETRI, and Ericsson, other participating members of ETSI, who requested that the need for puncturing be eliminated. (*Id.*) Specifically, says Apple, Samsung had proposed to ETSI the use of a puncturer that would puncture the 1st and the 17th bits of a 32-bit TFCI codeword prior to mapping. (*Id.* at 41-42 (citing Tr. at 1219-22(Min)).) Apple notes that ETSI at first accepted Samsung's proposal for puncturing prior to mapping (*id.* (citing Tr. at 1224-25(Min); RX-375)) but on December 2, 1999 Siemens et al submitted a Change Request for the purpose of eliminating the puncture step from the TFCI encoding, such that the encoding process uses a (32, 10) sub-code of the second order Reed Muller code, rather than the (30,10) punctured sub-code as Samsung had proposed. (*Id.*) Apple references the following excerpt showing pertinent modifications reflected in this Change Request:

The TFCI bits are encoded using a (32, 10) ~~punctured~~ sub-code of the second order Reed-Muller code. The coding procedure is as shown in figure 10.

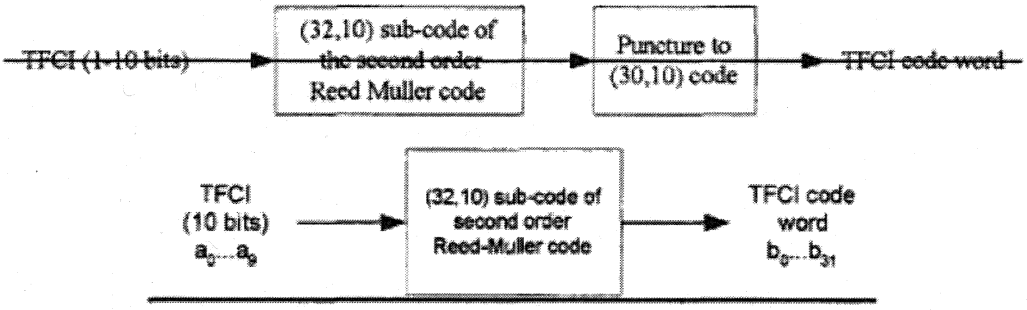


Figure 10: Channel coding of TFCI bits

(*Id.* at 42 (citing RX-73 at APL-794-A0000028820-21 (TSG-RAN Working Group1 meeting #9)).) Apple points out that the Change Request includes as well a note to Section 4.3.5.1 of the standard, indicating that because there are only 15 slots in the radio frame, the last two bits of the 32-bit codeword will not be transmitted. (*Id.* (citing RX-73 at APL-794-A0000028825 ("Note that this means that bits b_{30} and b_{31} are not transmitted.")).) Apple says the mapping section of the standard does not indicate that anything must be done to the 32-bit codeword to perforate those last two bits, or render them ineffective, or that there is even any software that contains an instruction to skip over or disregard them. (*Id.* at 43.) Apple notes that ETSI adopted the proposed changes in Siemens's Change Request and they are the existing standard. (*Id.* (citing Tr. at 1227-28 (Min)).) Thus, argues Apple, Samsung and Dr. Min were left to argue that claim 82, which was specifically drafted to cover Samsung's puncturing proposal, covers a standard that rejected that proposal and instead adopted one requiring no puncturing. (*Id.*)

Source Code Functionality—

Samsung alleges that Apple implements the '348 invention in {

} (CBr. at 27 (citing Tr. at 548 (Min)).) According to Samsung, {

} (*Id.* (citing Tr. at 545 (Min)).) Samsung say this code declares the following enumerations:

{

} (*Id.* (citing CX-0005C at 593DOC000124-125; Tr. at 545-546 (Min).) Samsung says the

{

[4] This stands for "digital signal processor," a specialized processor that does mathematical functions. (Tr. (Min) at 607.)

(*Id.* (citing CX-0005C at 593DOC000126-129; Tr. at 546 (Min)).)

According to Samsung, {

}. (*Id.* at 27-28 (citing CX-0006C at 593DOC000137-8, 593DOC000139-140; Tr. at 547 (Min)).) Samsung says {

}. (*Id.* at 28 (citing CX-0006C at 593DOC000134; Tr. at 548-549 (Min)).) {

}. (*Id.* (citing JX-0063C at 91-92 (Schiele Dep.)).) Samsung says that the resulting { } contains the same sequences disclosed in the '348 patent, {

}. (*Id.* (citing Tr. at 549-550 (Min)).) Samsung says the following illustrations demonstrate this comparison. {

Bit Position	W1	W2	W4	W8	W16	All 1	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
17	1	0	0	0	1	1	1	1	0	0
18	0	1	0	0	1	1	1	1	0	1
19	1	1	0	0	1	1	1	0	1	0
20	0	0	1	0	1	1	0	1	1	1
21	1	0	1	0	1	1	0	1	0	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

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

}

(*Id.*) According to Samsung, the encoding table on the left is derived from the '348 patent sequences, and the encoding table on the right is derived from {

}. (*Id.*) Therefore, argues Samsung,

{ }. (*Id.* at 28-29 (citing Tr. at 549-550 (Min)).)

Samsung argues that the {

}. (*Id.* (citing Tr. (Min) at 553-555).) The function

{ }

according to Samsung. (*Id.* (citing CX-0013C at 593DOC002793-94).) Samsung says this

{

}. (*Id.* (citing JX-0063 at 85-86, 93 (Schiele Dep.)).) {

}. (*Id.* (citing Tr. at 553-555 (Min)).) Samsung says the function

{

}. (*Id.* (citing Tr. at 557-558 (Min)).)

Apple argues that all of the functionality Samsung accuses of infringing the '348 patent is contained {

}. (RBr. at 38 (citing JX-0063 at 42 (Schiele Dep.)).) According to Apple, Dr. Davis's unchallenged testimony reflects that none of the source code files Samsung identified engages in "puncturing" the 32-bit codeword { }. (*Id.* (citing Tr. at 2054-55 (Davis)).) Instead, argues Apple, the four files identified by Dr. Min,

{

}. (*Id.* at 38-39 (citing Tr. at 2047-53 (Davis)).)

Apple says Dr. Davis explained that {

}. (*Id.* at 39 (citing Tr. at 2047-48(Davis)).) Apple says that {

}. (*Id.* (citing Tr. at 2048-49 (Davis)).) According to Apple, {

}. (*Id.* (citing Tr. (Davis) at 2049).)

{

}. (*Id.* (citing Tr. (Davis) at 2051-53).) Apple argues that there is no piece of software that, under any plain meaning of the term "puncturing," punctures bits from that codeword. (*Id.* at 39-40 (citing Order No. 63 at 33 ("The noun 'puncture' generally means a perforation or hole in an object that has been pierced.")).) Apple argues that all of the bits of the original 32-bit codeword remain useful and effective at all times. (*Id.* at 40.)

Apple argues that Dr. Min's testimony, that the source code in Intel's baseband processors shows a puncturer for puncturing, was conclusory and does not establish that the Intel chips contain software that punctures two bits from the 32-bit codeword as required by claim 82. (*Id.*) According to Apple, Dr. Min's testimony failed to address the unchallenged testimony of Dr. Davis, {

}. (*Id.*) Dr. Min, according to Apple, also failed to explain how any piece of firmware in the Intel baseband processor products performs an act of "puncturing" the 32-bit codeword; he simply testified that {

}. (*Id.* (citing Tr. at 557-558 (Min)).) Apple says that outcome is merely a consequence of the fact that { }, and is not a function of software that "punctures" two bits from the 32-bit codeword. (*Id.*)

Apple says that, in response to that testimony of Dr. Min, Dr. Davis explained the actual operation of the source code files identified by Dr. Min and testified that the Intel baseband processor products do not contain any hardware or software for puncturing. (*Id.* (citing Tr. at 2054-55 (Davis)).) According to Apple, Samsung did not even attempt to discredit that testimony on cross-examination, choosing instead to simply have Dr. Davis confirm that the Accused Products operate consistently with Section 4.3.5 of the ETSI standard. (*Id.* (citing Tr. at 2086 (Davis)).) Apple argues that this section of the standard rejects Samsung's proposal calling for puncturing and Dr. Davis's testimony was consistent with that of Intel's corporate representative, who testified that {

}.

(*Id.* at 40-41 (citing JX-0063C (Schiele Dep.) at 52-53).)

Apple says that, just as he did not address Dr. Davis's explanation of how the source code in the Intel baseband processors functions, Dr. Min failed to address this clear testimony from the only fact witness knowledgeable about the operation of Intel's baseband processors. (*Id.* at 41.) Thus, says Apple, the evidence from Intel by way of its source code, documents, and

corporate representative, belie Dr. Min's conclusory opinion that the Intel baseband chips contain a puncturer for puncturing two bits from the 32-bit codeword. (*Id.*)

1. Infringement of Claim 82[5]

Claim 82 reads as follows:

> **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 apunctured at a predetermined position, and outputting a 30 bit codeword that is equivalent to the 32 bit codeword output by the controller.

(JXM-1 at 46:40-53.)

a) The "Controller" Limitation of Claim 82

(1) *"a controller for outputting a 32 bit codeword...that corresponds to a 10 bit TFCI information input to the controller"*

Samsung alleges that the Accused Products infringe claim 82 because they are required to adhere to TS 25.211 and TS.25.212 and because Intel source for its baseband processors included in the Accused Products demonstrate that they practice this claim. (CBr. at 29 (citing Tr. at 489 (Min)).) Samsung starts out by saying that Apple admits all of the limitations of claim 82 except one: that the Accused Products contain a "puncturer for puncturing two bits from the 32-bit codeword output by the controller." (*Id.*) Samsung contends that Apple's only argument that the Accused Products do not infringe hinges on Apple's construction of "puncturing" and "puncture." (*Id.* at 29-30.) According to Samsung, when Dr. Davis relied solely on Apple's

[5] Samsung starts its infringement analysis of the '348 patent with claim 82.

constructions for these terms, which limited them to "removing" or "deleting bits," he failed to put forth any non-infringement opinion based on either Samsung's or Staff's constructions, both of which allowed for ignoring, skipping, or not processing bits. (*Id.* at 30 (citing Order No. 63).) Samsung argues that under the final constructions of the terms "puncturing" and "puncture" Apple failed to put forth any expert opinion that this aspect of claim 82 was not infringed. (*Id.*)

Samsung contends that Mr. Davis, Apple's infringement expert, agrees with Dr. Min, Samsung's opposing expert, that the Accused Products include the controller limitation of claim 82. (*Id.* (citing Tr. at 2079-2111 (Davis)).) Samsung says that Section 4.3.3 of TS 25.212 discloses the claimed controller and that the Accused Products must comply with TS 25.212. (*Id.* (citing Tr. at 509-510 (Min)).) According to Samsung, TS 25.212 requires an encoder that takes a 10-bit TFCI information input ($a_9, a_8 \ldots, a_0$) to the controller and encodes this into a 32-bit TFCI codeword ($b_0, b_1, \ldots, b_{31}$). (*Id.* (citing Tr. at 505-506 (Min), 2070-71 (Davis)).) Samsung says that each of these 10-bit TFCI information inputs necessarily corresponds to a 32-bit TFCI codeword, because the encoding Table 8 generates a unique 32-bit codeword for each 10-bit TFCI information input to the controller. (*Id.* at 30-31 (citing Tr. at 2082 (Davis)).) Therefore, reasons Samsung, the standard demonstrates that the Accused Products infringe this element of claim 82. (*Id.* at 31.)

Samsung argues that the Intel source code conforms to the standard in precisely the same manner as Section 4.3.3 (*id.* (citing Tr. at 536 (Min))); Samsung says that the claimed controller is { }. (*Id.* (citing Tr. at 542-544 (Min)).) According to Samsung, Dr. Davis admitted that {

}. (*Id.* (citing Tr. at 2116-17 (Davis), 547-548 (Min)).) Samsung says that {

}. (*Id.* (citing Tr. at 548-552 (Min)).)

Samsung says that Dr. Davis agrees with Dr. Min on this point, and Samsung cites the following testimony in support of this assertion:

{

}

(*Id.* at 31-32.)

Apple does not specifically refute this allegation and therefore the Administrative Law Judge concludes, on the basis of the evidence cited by Samsung that the Accused Products meet this element of claim 82.

(2) *"a 10 bit TFCI information input to the controller from a plurality of possible 10 bit TFCI information"*

Samsung maintains that Dr. Davis agrees with Dr. Min and Samsung that the Accused Products infringe "a 10 bit TFCI information input to the controller from a plurality of possible 10 bit TFCI information." (*Id.* at 32 (citing Tr. at 2085 (Davis)).) According to Samsung, Figure

9 of Section 4.3.3 in TS 25.212 shows that the encoder receives a 10-bit TFCI information input represented by $a_{0...}$ a_9 and since each of $a_{0...}$ a_9 is a binary digit they can each have one of two values, 0 or 1. (*Id.* (citing Tr. at 518-520 (Min)).) Therefore, according to Samsung, with ten bits, the TFCI information input can have a value that lies within the range of 2 to the 10^{th} power, or 1024 ($2^{10} = 1024$), a fact that Samsung says Dr. Davis confirmed:

> Q. Sir, you don't dispute that whatever this is, this TFCI information, that there is a plurality of possibilities going in because you have two possible states for each of the 10 bits, ones or zeros, correct?
>
> A. That is correct.

(*Id.* at 32 (citing Tr. at 2085 (Davis)).) Similarly, argues Samsung, {

}. (*Id.* (citing Tr. at 552 (Min)).)

Apple does not specifically refute this allegation (*see* RBr. at 38) and therefore waives opposition under Ground Rule 10.1. The Administrative Law Judge concludes, on the basis of the evidence cited by Samsung that the Accused Products meet this element of claim 82.

> (3) *"a 32 bit codeword from among a plurality of 32 bit codewords"*

Samsung says that the Accused Products, {

}. (*Id.* (citing Tr. at 522 (Min)).) Samsung says this fact is confirmed by Dr. Davis, as follows:

> Q. Well, all I am asking is yes or no, {

}.

(*Id.* at 32-33 (citing Tr. at 2083-84 (Davis)).) Also, argues Samsung, {

}. (*Id.* (citing Tr. at 557 (Min)).)

With respect to each of the foregoing elements of claim 82, Staff agrees with Samsung. Staff says the Accused Products satisfy those elements of claim 82 that call for 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. (SBr. at 37.) Staff says the evidence shows that when encoding TFCI information, {

}. (*Id.* at 38 (citing Tr. at 546-547 (Min), 2117-18 (Davis)).) Staff says that in the process of forming {

}. (*Id.* (citing Tr. at 551(Min)).) Therefore, in Staff's view

the TFCI controller in the Accused Products selects from a plurality of 32-bit codewords that correspond to a 10-bit input, selected from a plurality of possible 10-bit inputs and outputs a 32-bit codeword, thus satisfying this limitation. (*Id.*)

Apple does not specifically refute this allegation (*see* RBr. at 38) and therefore waives opposition under Ground Rule 10.1. The Administrative Law Judge concludes, on the basis of the evidence cited by Samsung that the Accused Products meet this element of claim 82.

b) The "Puncturer" Limitation of Claim 82

(1) *"a puncturer for puncturing two bits from the 32 bit codeword output by the controller"*

Samsung alleges that the Accused Products have "a puncturer for puncturing two bits from the 32 bit codeword output by the controller." (CBr. at 33 (citing Tr. at 527, 556-557 (Min)).) Samsung says that, according to Section 4.3.5 of TS 25.212, after a 32-bit codeword is generated, the 32-bit TFCI codeword is mapped to a transmission frame, but since there are only 15 slots, each of which holds two TFCI codeword bits, only 30 bits (15 slots x 2 TFCI codeword bits = 30) out of the 32-bit codeword are transmitted. (*Id.* (citing JX-0063C at 73 (Schiele Dep.)).) Samsung says Section 4.3.5 demonstrates that the first 30 bits, b_0 to b_{29} are output to the base station but the last two bits, b_{30} and b_{31}, are not transmitted. (*Id.* (citing Tr. at 527-528 (Min)).) These two bits are ignored during this mapping process, according to Samsung, and therefore applying the construction of "puncturing" set forth in Order No. 63, the standard reveals that the compliant Accused Products puncture two bits from a 32-bit codeword. (*Id.* at 33-34.)

Likewise, according to Samsung, the Intel source code confirms {

}. (*Id.* (citing Tr. at 556-558 (Min)).)

Samsung says that Intel's representative, Bernd Schiele, {

}. (*Id.* (citing JX-0063C at 53, 87 (Schiele Dep.)).)

Therefore, argues Samsung, under the construction of "puncturing" set forth in Order No. 63, which includes ignoring bits, the Accused Products using { } puncture two bits from a 32-bit codeword output by the controller. (*Id.*)

Samsung argues that Apple's expert Dr. Davis did not apply the construction of "puncturing" established in Order No. 63, and his opinion of non-infringement is based on an incorrect claim construction of "puncturing" and "puncture." (*Id.* at 34-35.) Samsung says that Dr. Davis's opinion was based on Apple's proposed constructions, which were rejected, but Dr. Davis nevertheless adhered to his understanding that "puncturing" meant "deleting" or "removing" bits from a codeword:

> Q. You did not use the construction of puncture that would include activities such as disregarding, ignoring, or simply not generating bits, did you, sir?
>
> A. That was not the construction that I had available to me, so I did not.
>
> Q. Okay. And isn't it true, sir, that your opinions in your report with respect to infringement or non-infringement of the puncture or puncturing limitations were based on your believe that the word puncturers require deleting or removing bits?
>
> A. It was based on the constructions I had available, which is what you just described.

(*Id.* at 36 (citing Tr. (Davis) at 2105-06).)

Samsung contends that Apple attempted on redirect examination to elicit testimony that Dr. Davis had applied the constructions set forth in Order No. 63 but Apple's effort does not

demonstrate that Dr. Davis provided and opinion on the puncturer limitation based on anything other than "deleting" or "removing" bits. (*Id.* at 37.) Samsung argues that Apple should therefore be precluded from relying on any of Dr. Davis's hearing testimony as it relates to puncturing that was not within the four corners of his expert reports or depositions to show that his opinion is based on a construction he had not previously expressed. (*Id.* (citing Ground Rules 5 and 9.5.6).) Samsung maintains that it preserved its objections to any such argument based on an opinion of puncturing outside Dr. Davis's expert report. (*Id.* (citing Tr. (Davis) at 2055).)

Staff argues that this element, as well as the remaining elements of claim 82, is satisfied by the Accused Products. (SBr. at 39-41.) Staff says that, according to Order No. 63, the puncturing element should be understood to mean "[hardware or software for puncturing] two bits from the 32-bit [coded information] output by the controller[.]" (*Id.* at 39 (citing Order No. 63 at 20, 28, 30, 33).) Staff says the evidence demonstrates that the Accused Products contain a "puncturer" within the meaning of claim 82 and Dr. Min testified that the puncturer in the Accused Products {

}. (*Id.*

(citing Tr. (Min) 553-558).)

Staff says {

}. (*Id.*)

{

}. Staff quotes the following testimony from Dr. Davis on this point:

{

}.

(*Id.* (citing Tr. (Davis) at 2048-49).) Staff says the {

}. (*Id.*)

Lastly, Staff says the evidence show that {

} that is "equivalent to the 32 bit codeword output by the controller." (*Id.* at 40-41 (citing JXM-1 at 46:51-52).) Staff says that Dr. Min testified that, {

}. Therefore, Staff concludes that the Accused Products meet each limitation of claim 82. (*Id.*)

Apple disputes that the Accused Products satisfy the "puncturer for puncturing two bits from the 32-bit codeword" limitation of claim 82. (RBr. at 38; RRBr. at 5-6.) Apple argues that this limitation is not met because there is no firmware in the Accused Products that "punctures"

{ }. (RRBr. at 6.) According to Apple, "puncturer" was construed to "require hardware or software for puncturing." (RBr. at 38 (citing Order No. 63 at 33).) Apple further argues that the term "puncturing" was construed according to its plain meaning and Order 63 noted that "puncture" generally means a perforation or hole in an object that has been pierced." (*Id.*) Apple says that, at the hearing, Samsung relied on two types of evidence in an attempt to show that this limitation in claim 82 is met: Intel source code and Section 4.3.5 of the ETSI[6] standard. Apple asserts that this evidence actually demonstrates that the Accused Products do not have a "puncturer for puncturing two bits from the 32-bit codeword." (*Id.*)

Apple says that Order No. 63 does not, as Samsung and Staff maintain, hold that "puncturing" means something other than its plain and ordinary meaning, such as "ignoring." (RRBr. at 6.) According to Apple, neither Samsung nor Staff ever proposed that "puncturing" be construed as anything other than its plain meaning of perforating, both choosing instead to seek "plain and ordinary meaning." (*Id.* at 6-7 (citing Updated Joint List of Proposed Constructions (Jan. 17, 2012)).) Also, argues Apple, Samsung was barred by Order No. 41 from asserting that the "plain meaning" of "puncturer for puncturing" is anything other than "hardware and/or software for removing of bits." (*Id.* at 7-8.) According to Apple, Samsung did not attempt in its post-hearing brief to argue that the "puncturer for puncturing" limitation is met under Samsung's "plain meaning" construction and, therefore, failed to prove that this limitation is met under any argument that Samsung is permitted to advocate in light of Order No. 41.

Apple says that Dr. Davis's unchallenged testimony reflects that none of the source code files Samsung identified engages in "puncturing" the 32-bit codeword generated by the

[6] European Telecommunications Standards Institute. (*See* Order No. 82 at 1-2.)

{ }. (RBr. at 38 (citing Tr. (Davis) at 2054-55).) Instead, argues Apple, the four files identified by Dr. Min, {

}. (*Id.* at 38-39 (citing Tr. (Davis) at 2047-53).)

Apple says Dr. Davis explained that {

}. (*Id.* (citing Tr. (Davis) at 2051-53).) Apple argues that there is no piece of software that, under any plain meaning of the term "puncturing," punctures bits from that codeword. (*Id.* at 39-40 (citing Order No. 63 at 33 ("The noun 'puncture' generally means a perforation or hole in an object that has been pierced.")).) Apple argues that all of the bits of the original 32-bit codeword remain useful and effective at all times. (*Id.* at 40.)

As for Samsung's argument that Dr. Davis's opinions on puncturing should be excluded because Dr. Davis did not apply the claim constructions for "puncturer" and "puncturing"

established in Order No. 63, Apple says there are three reasons why that claim of Samsung is invalid. (RRBr. at 11.)

First, Samsung is bound to its construction of "puncturing" as "removal of bits." Order No. 41 at 3-4. (*Id.*) Therefore, according to Apple, Samsung has no argument that Apple failed to apply "Samsung's construction," because Samsung does not dispute that Dr. Davis offered the opinion that the Apple accused products do not remove bits. (*Id.* (citing CBr. at 36).)

Second, argues Apple, neither Samsung nor Staff ever proposed a construction for "puncturing" other than "plain meaning." Thus, the only construction of this term available to Dr. Davis at the time he submitted his report were "puncturing," "removing," or "deleting." (*Id.* (citing Davis Reb. Rep. at ¶ 36).) Apple notes that Dr. Davis clearly offered the opinion in his report that the "puncturer for puncturing" limitation was not met under any of these proposed constructions. (*Id.* (citing Davis Reb. Rep. at ¶ 191 ("The accused products do not meet this limitation for additional reasons as well. Unlike claim 75, claim 82 contains a separate structural requirement of a 'puncturer.' Dr. Min has not identified (and cannot identify) any hardware or software in the accused products that punctures, deletes, or removes two bits from a 32-bit codeword.")).) Apple says Dr. Davis's hearing testimony is entirely consistent with this statement. (*Id.*) Apple points out that the only meanings of "puncturing" that had been proposed were (1) puncturing (plain and ordinary meaning without further specificity) and (2) deleting or removing. (*Id.*) Apple argues that Dr. Davis testified that those were the meanings he considered. (*Id.* at 11-12 (citing Tr. at 2105-06 (Davis)).)

Third, Apple says that for Samsung to argue that Order No. 63 concluded that "puncturing" meant "ignoring" is wrong. (*Id.* at 12.) Apple points out that Samsung acknowledged that Samsung agreed that Order No. 63 did not adopt any claim construction that

had not already been proposed by a party and therefore Samsung did not intend to submit a supplemental report by Min about that patent. (*Id.* (citing CXM-5 (email from Mr. Becher to Mr. Lantier)).) Apple notes that the only constructions that had been proposed by any party were the two constructions mentioned in the preceding paragraph. (*Id.*) Apple argues that Samsung belatedly is attempting to suggest a different construction than what was specified in Order No. 63. (*Id.*)

Samsung argues that Apple misconstrues what the plain meaning of "puncturing" is and says Apple errors in concluding that it means "perforation." (CRBr. at 14-15.) Samsung argues that Apple's use of the word "perforation" renders Order No. 63 meaningless by simply equating plain and ordinary meaning to "deleting or removing." (*Id.* at 15.) Samsung argues that Dr. Davis's hearing testimony regarding "puncturing" should be stricken because it ignores Order No. 63 in that it goes beyond equating that term with "deleting" or "removing" as he asserted in his expert report. (*Id.* at 17 (citing RBr., Ex. 2 at ¶¶ 122, 124, 128, 152, 191).) Samsung argues that these paragraphs demonstrate that Dr. Davis chose to only rely on Apple's construction and since puncturing extends beyond "deleting" or "removing" it is outside the scope of Dr. Davis's expert reports and should be stricken. (*Id.* at 17-18.)

Apple disputes that the Accused Products satisfy the "puncturer for puncturing two bits from the 32-bit codeword" limitation of claim 82. (RBr. at 38; RRBr. at 5-6.) Apple argues that this limitation is not met because {

}. (RRBr. at 6.) According to Apple, "puncturer" was construed to "require hardware or software for puncturing." (RBr. at 38 (citing Order No. 63 at 33).) Apple further argues that the term "puncturing" was construed according to its plain meaning and Order 63 noted that "puncture" "generally means a

perforation or hole in an object that has been pierced." (*Id.*) Apple says that, at the hearing, Samsung relied on two types of evidence in an attempt to show that this limitation in claim 82 is met: Intel source code and Section 4.3.5 of the ETSI standard. Apple asserts that this evidence actually demonstrates that the Accused Products do not have a "puncturer for puncturing two bits from the 32-bit codeword." (*Id.*)

Apple says that Samsung and Staff contend that {

}. (*Id.* (citing SBr. at 40; CBr. at 34).) Apple says this argument cannot be the basis for a finding of violation, for five [sic, six] reasons. (*Id.*)

First, argues Apple, Order No. 63, at page 33, provides as follows:

> The Administrative Law Judge concludes that a person of ordinary skill would have understood "puncturing" according to its plain and ordinary meaning. The noun "puncture" generally means a perforation or hole in an object that has been pierced.

(*Id.*) Apple says Order No. 63 does not, as Samsung and Staff assert, construe "puncturing" to mean "ignoring." (*Id.*) Apple argues that neither Staff nor Samsung ever proposed that "puncturing" be construed as anything other than its plain meaning of perforating, choosing instead to seek "plain and ordinary meaning." (*Id.* at 6-7 (citing Updated Joint List of Proposed Constructions (Jan. 17, 2012)).)

Second, argues Apple, Samsung was barred by Order No. 41 from asserting that the "plain meaning" of "puncturer for puncturing" is anything other than "hardware and/or software for removing of bits." (*Id.* at 7 (citing Order No. 41 at 3-4).)[7]

[7] Apple points out that Samsung and Apple had initially agreed that "puncturer for puncturing" meant "hardware and/or software for removing bits" but Samsung changed course on November 29, 2011, six weeks after the deadline for disclosing claim construction and six days before the *Markman* briefs were due and asserted that the construction of "puncturer for puncturing" was simply plain meaning. Apple said it repeatedly asked Samsung to explain what it meant by "plain meaning" but Samsung did not. (RRBr. at 7, n. 4.)

Apple also says that it is also too late for Staff to argue that the "plain meaning" of "puncturing" is something specialized and contrary to normal English usage, such as "ignoring" or "transmitting a partial copy of." (*Id.*) Apple says that under its ordinary plain meaning "puncturing" does not include {

}. (*Id.* at 8-9.) Apple says that, with Intel's baseband processors, {

}. (*Id.* at 9.) Apple notes that Order No. 41 held that Samsung was bound by the position it took on October 21, 2011, when it declared that the term "puncturer for puncturing" meant "hardware and/or software for removing of bits." (*Id.*) However, Apple says that Samsung in its post-hearing brief does not even attempt to argue that the "puncturer for puncturing" limitation is met under its October 21, 2011 "plain meaning" proposed construction. (*Id.* at 8.)

Third, Apple argues that Staff cannot argue that the "plain meaning" of puncturing is something specialized and contrary to normal English usage, such as "ignoring" or "transmitting a partial copy of." (*Id.*) Apple contends that "plain meaning" is not argot and therefore does not have a specialized meaning. (*Id.*)

Fourth, Apple argues that according to its plain meaning, "puncturing" does not include {

}. (*Id.* at 8-9.) In the Intel processors, {

}, says Apple; it is never pierced, perforated, or "punctured" under any ordinary or conventional meaning of the word, according to Apple. (*Id.* at 9.) Apple says that {

}. (*Id.*) According to Apple, {

} is not "puncturing" under the plain meaning of the word.[8] Apple says that {

} cannot be considered as "punctured" under any variation of the plain meaning of that word. (*Id.*) Apple says that "mapping" was well known and recognized at the time of the '348 invention and there is no mention or suggestion in the patent or anywhere else that "puncturing" includes "mapping." (*Id.*)

Apple says "puncturing" is akin to "perforating," "piercing," or "rendering useless or ineffective [in an object that has been punctured]." (*Id.* (citing Order No. 63 at 33).) For example, argues Apple, if a roll of film contained 12 images, one or more of those images could be "punctured" by piercing or perforating the roll of film, but if instead of that, prints of 7 of the 12 images were made, nobody would say that was an act of "puncturing" the other 5 images from the roll. (*Id.*) Apple argues that the same plain meaning of "puncturing," when applied to the technology at issue, refutes the positions of Samsung and Staff because "puncturing" according to its plain meaning does not describe {

}. (*Id.* at 10.)

Fifth, according to Apple the record demonstrates that every person of skill in the art that has looked at Intel's baseband processors or at Section 4.3.5 of ETSI standard, other than Dr. Min, has concluded that those processors do not involve "puncturing." (*Id.*) Apple notes that Intel's corporate witness, Bernd Schiele, who works in the industry and helped design Intel's

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[8] Apple says Staff's description of what occurs in the Intel baseband processors is erroneous because no one testified, and the source code does not show, that {
} Apple also says that Staff's assertion that {
} is unsupported and contradicted by the evidentiary record because no part of the 32-bit codeword output from the controller is ever discarded; instead, at {

}. (*Id.* at n. 6.)

baseband processors, testified that { } (*id.* (citing RX-0063 (Schiele Dep.) at 53)) and Dr. Davis reached the same conclusion. (*Id.* (citing Tr. (Davis) at 2051).)

Sixth, Apple says the best evidence of the way puncturing was understood at the relevant time is that Siemens et al did not use the terms "puncture" or "puncturing" in their December 2, 1999 Change Request to the ETSI standard that created current Section 4.3.5. (*Id.* (citing RX-0073 at APL79400000028825).) Instead, argues Apple, their Change Request regarding Section 4.3.5 states: "Note that this means that bits b_{30} and b_{31} are not transmitted." (*Id.* (citing CX-1099 at 1099.0049).) Apple argues that Siemens et al., by this Change Request, were revising Samsung's prior proposal, which referred to puncturing throughout. (*Id.*) Apple argues that if these third parties thought their proposal involved puncturing, they would have used the word "punctured" instead of the phrase "not transmitted." (*Id.*) However, according to Apple, these industry participants, who had no knowledge of Samsung's undisclosed patent application, did not do that. (*Id.*) Instead, argues Apple, these companies deleted all five uses of "puncturing" and "punctured" from the standard. (*Id.* (citing RX-0073 at 28821,-23,-25).) When the full ETSI standards body adopted the proposal of Siemens et al., it did not refer to the mapping process as "puncturing" either, notes Apple. (*Id.*) Apple says that other than Samsung's expert, nobody of skill in the art appears to have ever said that what Intel or Section 4.3.5 of the ETSI standard do amounts to puncturing. (*Id.*)

The Administrative Law Judge finds that Dr. Davis's testimony is consistent with his reports and therefore denies Samsung's request to strike. Samsung in its proposed claim constructions defined the plain and ordinary meaning of the term "puncturer" as expressed in claim 82 in these words: "Hardware and/or software for removing bits" and defined the plain and

ordinary meaning of the term "puncturing" as expressed in claim 82 in these words: "removing bits." (Updated Joint List of Proposed Constructions (Jan. 17, 2012).) Order No. 41 states that "Complainants are bound by what they disclosed on October 21, 2011."

Staff's constructions for the two puncturing terms were simply "plain meaning." (*Id.*) Order No. 63 concluded that "a person of ordinary skill would have understood the word 'puncturing' according to its plain and ordinary meaning." Insofar as Order No. 63 discusses the positions of the parties and the reasoning leading up to that claim construction, they were not intended to, and do not, alter the construction so determined. In light of that fact, Dr. Davis's opinions, both in his reports and at the hearing, are not objectionable. Samsung seizes upon statements in Order No. 63 that "puncturing" is not limited to "removing" or "deleting"; however, that does not give license to Samsung to disregard Order No. 41.

The word "puncturing" is the present participial form of the verb "puncture," which is generally defined: "to pierce with or as if with a pointed instrument or object" and "to make useless or ineffective as if by a puncture" (*Merriam-Webster's Collegiate Dictionary* 11th Ed.) or "to pierce with a pointed object"; "to make (a hole) by piercing"; "to deprecate or deflate" (*The American Heritage Dictionary of the English Language* 5th Ed.). The use of the terms "puncturer" and "puncturing" in the '382 patent is consistent with common usage of the root word "puncture" as defined in these dictionaries. The '382 invention concerns encoding and decoding for a mobile communication system. Claim 82 discloses, among other things, "a controller for outputting a 32-bit codeword" and a "puncturer for puncturing two bits from the 32-bit codeword." (*Id.*; JXM-1 at 46:43-49.)

Dr. Davis testified that the Intel source code that Samsung relies on for infringement of claim 82 does not show that the Intel baseband processors in the Accused Products "puncture"

any of the encoded bits. Dr. Davis testified that the four files identified by Dr. Min, {

}. (*Id.* (citing Tr. (Davis) at 2048-49).)

Dr. Min did not explain how any piece of firmware in the Intel baseband processor products performs an act of "puncturing" the 32-bit codeword. What he testified was that there are { }. (Tr. (Min) at 557-558).) But as Apple points out, that outcome is {

}, and this is not a function of software that "punctures" two bits from the 32-bit codeword. Dr. Davis's testimony on this point is supported by Intel's representative corporate witness, Bernd Schiele. (JX-0063C (Schiele Dep.) at 52-53.)

Samsung and Staff contend that {

}, relying on the testimony of Dr. Min. However, Dr. Min did not explain how he arrived at the conclusion that, {

}, it follows that two of the encoded TFCI bits are punctured.

In contrast, Dr. Davis, in his hearing testimony, detailed that {

}. (Tr. (Davis) at 2051-53.) He concluded that nowhere in the course of these actions is puncturing performed. Dr. Davis's testimony in that respect is consistent with the plain meaning of "puncturing." At its core, Dr. Davis's expert testimony concludes that the source code that Dr. Min relies on does not disclose that, under the plain meaning of the word, any puncturing occurs by virtue of the operation of the Intel baseband processors in the Accused Products.

Dr. Min, in contrast, rests his infringement conclusion on the fact that not all of the 32-bit codeword is transmitted: ergo, puncturing occurs. However, that does not suffice; it is incumbent upon Samsung, as the complaining party, to demonstrate, by a preponderance of the evidence, that the Accused Products infringe each and every limitation of the asserted claims. Dr. Min's testimony with respect to the "puncturing" element does not, technologically, overcome the equally, if not more, persuasive opposing testimony of Dr. Davis and does not provide sufficient details showing that "puncturing," as understood by persons of ordinary skill in the art, is demonstrated in the source code or ETSI standard relied on by Dr. Min.[9] Dr. Min's

[9] The fact that, following the Change Request of Siemens et al., TS.25.212 was modified by striking the TFCI

testimony does not demonstrate that the subject source code shows that the Intel baseband processors perform the "puncturing" limitation of claim 82, or how they do. Puncturing, in the context of claim 82, is a purposive act and not a collateral consequence of some other action, as evidenced by the word "predetermined." The absence of the surfeit of encoded bits to be output, because of the constraints of a radio frame, does not, by itself, demonstrate puncturing.

For these reasons, the Administrative Law Judge concludes that the evidence relied on by Samsung and Staff does not demonstrate to a preponderate degree that the Accused Products meet the "puncturing" limitation of claim 82.

(2) *"outputting a 30-bit codeword"*

Samsung contends that the Accused Products "map 30 bits out of the 32-bit codeword into a transmission frame and output 30 coded TFCI bits to the base station." (CBr. at 37 (citing Tr. (Min) at 527-528, 553-555).) According to Samsung, Dr. Davis agrees that the Accused Products { }. (*Id.* (citing Tr. (Davis) at 2095).) When the Accused Products {

}, says Samsung:

> Q. So you agree with me the iPhone 4 operating on AT&T { }, correct?
>
> A. { }.

(*Id.* (citing Tr. (Davis) at 2095).)

Samsung says that even in the face of this agreement, Dr. Davis's non-infringement argument does not prevent the Accused Products from infringing this claim limitation. (*Id.*) The only argument Dr. Davis makes in support of his position, according to Samsung, is that {

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puncturing provision, while concomitantly noting that bits b_{30} and b_{31} are not transmitted, does not accord with the conclusion that, to persons of ordinary skill in the art, not transmitting two of the bits of the codeword means puncturing them.

}. (*Id.* at 38.)

Samsung says Dr. Davis violated one of the basic canons of patent law with respect to his assertions about whether the Accused Products practice the limitation "outputting a 30-bit codeword" when he testified as follows:

> Q. So {
> }, you are saying that automatically takes you out of infringement? Is that a yes or no?
>
> A. That's a yes.

(*Id.* (citing Tr. (Davis) at 2093).) Samsung argues that it is black letter law that when a preamble includes the word "comprising" as does claim 82, the claim is open-ended and is not limited to the components defined in the claim. (*Id.* (citing *CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1361 (Fed. Cir. 2007)).) Samsung argues that this is true even if the accused product includes components in addition to those required by the asserted claim. (*Id.* (citing *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997)).) Samsung says the Accused Products output a 30-bit codeword, as Dr. Davis admitted, but his basis for non-infringement is that other bits are also output. (*Id.* (citing Tr. (Davis) at 2092-93).) These other bits, according to Samsung, are unrelated to the TFCI bits and therefore Dr. Davis's argument is erroneous under applicable law. (*Id.* (citing *Genentech*, 112 F.3d at 501).)

Apple does not specifically refute this allegation (*see* RBr. at 38) and therefore waives opposition under Ground Rule 10.1. The Administrative Law Judge concludes, on the basis of the evidence cited by Samsung that the Accused Products meet this element of claim 82.

(3) *"each of the two bits being punctured at a predetermined position"*

Samsung contends that each of the Accused Products infringes this element and that neither Apple nor Dr. Davis provided an opinion at the hearing in dispute thereof. (CBr. at 39.)