Samsung says that Section 4.3.5 of TS 25.212 demonstrates that bits at positions 30 and 31 are not mapped to the transmission frame and are not transmitted. (*Id.* at 39 (citing CX-1099 at 1099.0049).) Similarly, according to Samsung, the Intel source code {

}. (*Id.*)

Apple denies that the preponderate evidence demonstrates that the Accused Products satisfy the "puncturing" limitation of claim 82 and, insofar as this claim element depends on a puncturer that punctures, disputes that this element is infringed.

The Administrative Law Judge concludes, solely for the reasons previously discussed in regard to the "puncturing" limitation, that the preponderate evidence does not demonstrate that the Accused Products satisfy this limitation of claim 82.

(4) *"a 30 bit codeword that is equivalent to the 32 bit codeword output by the controller"*

Samsung says that Dr. Davis agrees with Dr. Min and Samsung that the Accused Products infringe this element because Table 8, which is {

}, generates codewords with a minimum distance of 12. (*Id.* at 39 (citing Tr. (Min) at 532-533).) Samsung says that there are a total of 1024 possible 32-bit codewords each of which differs in at least 12 bit positions, because the minimum distance is 12. (*Id.* (citing Tr. (Min) at 532-533).) Therefore, eliminating two bits still results in 1024 unique codewords, as confirmed by Dr. Davis:

> Q. So you are no longer disputing that this phrase "that is equivalent to the 32-bit codeword output by the controller" is found in the accused products?
>
> A. I am not, yeah. That's the minimum distance, at least 3, that I talked about in the direct testimony.

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

(*Id.* at 39-40 (citing Tr. (Davis) at 2110-11).)

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.

For the foregoing reasons, the Administrative Law Judge concludes that the Accused Products do not meet all of the limitations of claim 82 and therefore do not infringe.

2. Infringement of Claim 83

Claim 83 reads as follows:

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

(JXM-1 at 46:53-58.)

Samsung says that all of the Accused Products infringe claim 83 for the reasons set forth in Samsung's arguments concerning alleged infringement of claim 82, and for additional reasons specifically pertaining to the additional elements of claim 83. (CBr. at 40.) Samsung says the

{

}. (*Id.* (citing Tr. (Davis) at 2082).)

Samsung says the '348 patent discloses five basis orthogonal sequences, W1, W2, W4, W8, and W16; four basis mask sequences, M1, M2, M, and M8; and an all "1" sequence to encode the TFCI. (*Id.* (citing JXM-1 at 11:1-23).)

Samsung says that Table 8 in Section 4.3.3 of TS 25.212 contains the same sequences as are disclosed in the '348 patent, with the design implementation of moving bits at positions 0 and 16 to the bottom of the encoding table. (*Id.* (citing Tr. (Min) at 516-518).) Samsung notes that the first five columns of Table 8 (Mi,0 to Mi,4) contain the five basis orthogonal sequences. (*Id.* (citing Tr. (Min) at 568-570).) Columns Mi,6 to Mi,9 of Table 8 contain the four basis mask sequences. (*Id.* (citing Tr. (Min) at 568-570.) Finally, argues Samsung, Mi,5 of Table 8 contains the all "1" sequences. (*Id.* (citing Tr. (Min) 568-571).)

Samsung says the {

} (*Id.*)

According to Samsung, both the standard and the Intel source code show that the Accused Products infringe claim 83. (*Id.*)

Apple's arguments with respect to claim 82 apply to claim 83 as well. (RBr. at 37-44.) In its reply brief, Apple argues that the Accused Products do not meet two separate requirements of claim 83, as well as claims 82, and 84: (1) they do not contain a "puncturer for puncturing" two bits from the 32-bit codeword, and (2) they do not contain a puncturer for…outputting a 30 bit codeword." (RRBr. at 5-14.) Apple says that in arguing that the first of these limitations is met, Samsung and Staff apply an understanding of "puncturing" that is far removed from the word's plain meaning, far removed from the manner in which it was understood when the "puncturing" requirement was deleted from TS 25.212, and far removed from what was barred by Order No. 41. (*Id.* at 5.)

Staff concludes that the evidence demonstrates that the Accused Products infringe claim 83 because {

}, the Accused Products infringe claim 83. (*Id.* at 44.)

The Administrative Law Judge concludes, for the reasons previously discussed regarding claim 82, that there is a lack of preponderate evidence that the Accused Products infringe dependent claim 83.

3. Infringement of Claim 84

Claim 84 reads as follows:

> **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" sequences are identical to a number of bits of each TFCI information.

(JXM-1 at 46:60-63).)

Samsung contends that all of the Accused Products infringe claim 84 for the reasons previously argued Samsung regarding alleged infringement of claims 82 and 83. (CBr. at 41.) Samsung says that Section 4.3.3 of TS 25.212 demonstrates that there are 10-bits of TFCI information (*id.* (citing CX-1099 at 1099.0047), and Samsung argues that the code { }. (*Id.* (citing CX-005C at 593DOC000124).) Therefore, according to Samsung, both TS 25.212 and

the Intel source code show that Accused Products satisfy claim 84 because {

}. (*Id.* (citing Tr. (Min) at 580-583).)

Staff concludes that the Accused Products infringe claim 84 for basically the same reasons as Samsung does. (SBr. at 44-45.)

The Administrative Law Judge concludes, for the reasons previously discussed regarding claims 82 and 83, that there is a lack of preponderate evidence that the Accused Products infringe dependent claim 84.

4. Infringement of Claim 75

Claim 75 reads as follows:

> **75**. A Transport Format Combination Indicator (TFCI) encoding apparatus in a COMA 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.

(JXM-1 at 45:51-61.)

Samsung says that claim 75 differs from claim 82 in that the controller recited as the first limitation generates a 30-bit codeword instead of a 32-bit codeword. (CBr. at 42 (citing Tr. (Min) at 584).) Samsung alleges that the claimed controller in the Accused Products {

}. (*Id.* (citing Tr. (Min) at 584).) Samsung argues that with respect to claim 82, the controller and puncturer are considered as two separate components within the DSP; however, for claim 75, the

{

}. (*Id.*)

a) The Controller Limitation of Claim 75

(1) *"a controller for outputting a 30 bit codeword...that corresponds to a 10 bit TFCI information input to the controller"*

Samsung argues that for the same reasons it set forth in its accusation that the Accused Products satisfy the limitation "a controller for outputting a 30 bit codeword...that corresponds to a 10 bit TFCI information input to the controller[,]" with respect to claim 82, those products likewise satisfy this limitation of claim 75. (*Id.*) Samsung argues that the standard includes the functionality described in Section 4.3.3 and 4.3.5 of TS 25.212. (*Id.* (citing CX-1099 at 1099.0047-49).) Samsung says the 10-bit TFCI information input is fed into the encoder, which outputs a 32-big TFCI codeword. (*Id.* (citing Tr. (Min) at 588-589).) This codeword is then mapped to the 15 slots of the transmission frame, each of which holds two coded TFCI bits. (*Id.* at 42-43 (citing CX-1099 at 1099.0049; Tr. (Min) at 588-589).) Samsung says that only 30 bits out of the 32-bit codeword are mapped to the transmission frame. (*Id.* at 43.)

Similarly, argues Samsung, the Intel source code confirms that the Accused Products conform to TS 25.212. (*Id.* (citing Tr. (Min) at 590).) {

}, according to Samsung. (*Id.* (citing Tr. (Min) at 556-558). Thus, argues Samsung, the Intel source code demonstrates that the controller takes a 10-bit TFCI information input and outputs a 30-bit TFCI codeword. (*Id.*) {

}. (*Id.*)

Apple says the Accused Products do not meet this limitation because they contain {

}. (RBr. at 34.) Apple says the "controller" in claim 75 must "output[] 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 10 bit TFCI information." Apple says that claim 82 has the same limitation except that the "controller" in that claim must output a 32-bit codeword. Even though the word "controller" in each of these claims is identical, Apple says that Samsung contends that the definition of the term is actually different with respect to the two claims. (*Id.*) Moreover, argues Apple, within the same Intel baseband processor implicated under both claims, Samsung identifies different components as being the "controller." (*Id.*) Apple argues that in the case of claim 82 Samsung argues that only Section 4.3.3 of TS 25.212 and only { } are identified as the controller, while in claim 75 both Sections 4.3.3 and 4.3.5 of TS 25.212 and {

}. (*Id.* at 35.) Apple argues that this was illustrated during cross-examination of Dr. Min, through the use of RPDX-1, which contained an image of the broken red line "box" Dr. Min drew for the "controller" in claim 75, and a black circle around the "controller" for claim 82, as depicted here: {

}

(*Id.* at 35.) Apple says that, as a matter of law, the same language cannot have different meanings in different claims. (*Id.* (citing *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001) ("a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent.")).)

Apple argues that, as set forth in the asserted claims, the "controller" is the apparatus that receives 10 input bits and outputs a codeword corresponding to those bits. (*Id.*) In the Accused Products that is {

}, which precludes a finding of infringement with respect to claim 75. (*Id.*) Apple argues that Dr. Min redefined "controller" to include {

} only with respect to claim 75 and not claim 82. (*Id.* at 35-36.) Apple argues that these files are not part of the "controller" required by the claims of the '382 patent for several reasons.

First, argues Apple, {

} that Dr. Min accuses of meeting the "puncturer for puncturing" limitation of independent claim 82. (*Id.* (citing Tr. (Davis) at 2044-45).)

Second, {

} receives a "10 bit TFCI information input" as the claims require of the controller. (*Id.* (citing Tr. (Davis) at 2047-53).) Instead, argues Apple, {

}. (*Id.*)

Third, none of the four recited functions outputs a 30-bit codeword "from among a plurality of 30 bit codewords" as required by claim 75; {

}. (*Id.* (citing Tr. (Davis) at 2051-53).)

Fourth, {

}. (*Id.* (citing Tr. (Min) at 1184-85).) Thus, argues Apple, the "controller" is that portion of the Intel baseband processor that outputs a codeword based on 10 bits of TFCI information, { }, and not the other software files that Dr. Min includes in his infringement contention. (*Id.*)

Apple says that Section 4.3.3 of TS 25.212 does not call for creation of a 30-bit codeword and only describes encoding input information into a 32-bit codeword. (*Id.* (citing CX-1099 at 0047 ("The TFCI is encoded using a (32, 10) sub-code of the second order Reed Muller code....The length of the TFCI codewords is 32 bits.")).) Apple says that this requirement of the

standard is not the same as Samsung's proposal for TFCI encoding, which called for the encoder to output a 30-bit codeword. (*Id.* at 36-37 (citing Tr. (Min) at 1224).) Apple says that in the December 2, 1999 Change Request, Siemens et al proposed changing the standard so that it did not adopt Samsung's proposal for outputting a 30-bit codeword. (*Id.* (citing Tr. (Min) at 1127-29; RX-73 (Change Request) at APL-A0000028821).)

Apple says the source code for the Intel baseband processors confirms that there is no controller for outputting a 30-bit codeword. (*Id.* at 37.) Apple argues that {

}. (*Id.* (citing Tr. (Davis) at 2045).) Apple says that Dr. Min admitted that the Intel baseband processor chips in the Accused Products contain {

}. (*Id.* (citing Tr. (Min) at 1206).) Therefore, the source code demonstrates that the "controller" in the Intel baseband processor chips in the Accused Products {

}. (*Id.*) Apple notes that Samsung offered no evidence under the doctrine of equivalents. (*Id.*)

Staff says the TS 25.212 standard calls for a controller that accepts an input of 10 bits of TFCI information and because each of those 10 bits is either "0" or "1" there are 2^{10}, or 1024 possible TFCI inputs. (SBr. at 34-35 (citing Tr. (Min) at 520).) According to Staff, if the TFCI information is less than 10 bits, the standard states that the TFCI will be padded with zeros in order to sum to 10 bits, by setting the most significant bits to zero. (*Id.* at 35 (citing CX-1099, Section 4.3.3).) Thus any CDMA device that follows the standard will employ a 10-bit TFCI information input to the controller from a plurality of possible 10-bit TFCI information. (*Id.* (citing JXM-1 at 45:56-58).)

Staff says the parties do not dispute that the Accused Products comply with the standard in this respect. (*Id.*) Staff says that the firmware responsible for encoding TFCI information in the Accused Products resides in three source code files: {

}. (*Id.* (citing Tr. (Davis) at 2117-18).)

Staff says that claim 75 deviates from TS 25.212 because claim 75 discloses a controller that outputs a 30-bit codeword, instead of the 32-bit codeword called for by the standard. (*Id.* (citing CX-1099 at Section 4.3.3 ("The TFCI is encoded using a (32, 10) sub-code of the second order Reed-Muller code.")).) Staff notes that the Accused Products comply with the standard in this respect as well and, therefore, in Staff's view, the Accused Products are outside the scope of claim 75. (*Id.* at 35-36.) Specifically, in the firmware in the Accused Products the function {

}. (*Id.* at 36, n. 10 (citing Tr. at 547).) In Staff's view, the TFCI encoding process in the Accused Products satisfies the portion of the limitation calling for selecting from a plurality of codewords that correspond to a 10-bit input selected from a plurality of possible 10-bit inputs but does not select from "a plurality of 30 bit codewords," and therefore does not meet this claim limitation. (*Id.* at 36.)

Samsung responds that Apple and Staff fail to appreciate that the controllers identified in claims 75 and 82 are different terms and must be treated separately; therefore the case law cited by Apple and Staff is inapplicable. (CRBr. at 8.) A "controller," argues Samsung, is defined by its features and can have a different meaning based on the requirements set for the controller.

(*Id.*) Claim 7 requires "a controller for outputting a 30 bit codeword and claim 82 requires "a controller for outputting a 32 bit codeword." (*Id.* (citing JXM-1 at claims 75 and 82).) These two controllers are different because they each have different features: one outputs a 30-bit codeword and the other outputs a 32-bit codeword, argues Samsung. (*Id.*) According to Samsung, a controller cannot be analyzed on its own without a review of the controller's features and since each controller is responsible for a different function, it is improper to equate the controller of claim 75 with the controller in claim 82. (*Id.*) Samsung argues that the Federal Circuit has recognized that in certain situations the same term, used in two different claims, can have different meanings. (*Id.* at 9 (citing *Yingbin-Nature (Guandong) v. Int'l Trade Comm'n,* 553 F.3d at 1322, 1334-39 (Fed. Cir. 2008)).)

Samsung argues that Apple and Staff arbitrarily draw a box around the (32, 10) encoder, { }, in the Accused Products in the Intel source code and Section 4.3.3 in TS 25.212 and make the unsupported statement that the controller must be limited to just an encoder and to single software function. (*Id.* at 10.) Samsung argues that Order No. 63 does not limit a "controller" to an encoder and that the intrinsic evidence shows otherwise. (*Id.*) For example, argues Samsung, the specification describes another "controller" in the prior art as a controller for dividing the TFCI bits into two words, Word 1 and Word 2. (*Id.* (citing JXM-1 at Fig. 5, 3:60-4:36).) In this example, argues Samsung, the controller is responsible for dividing the TFCI into two words before encoding and is not responsible for encoding the TFCI. (*Id.*) Samsung says that limiting the term "controller" to only one encoder improperly limits the term where such a limitation is unsupported. (*Id.* (citing *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 950-951 (Fed. Cir. 1993)).)

Samsung argues that Apple's four reasons for why files other than { } cannot be part of the "controller" fail for the reasons already given. (*Id.* (citing RBr. at 35-36).) First, Order No. 63 and the intrinsic evidence do not limit the number of source code files that can make up the controller. (*Id.*) Firmware that is responsible for "puncturing" in claim 85 can be part of the same firmware to show the "controller" limitation of claim 75. (*Id.* (citing Tr. (Min) at 584-585).) Second, Apple fails to appreciate that one of ordinary skill in the art would understand source code files work together and do not work in a vacuum. (*Id.* at 10-11.) {

}. (*Id.* (citing CBr. at 42-43).) Third, TS 25.212 does not limit a designer from utilizing a controller that performs Sections 4.3.3 and 4.3.5 in a single "controller." (*Id.* (citing CX-1099 at 1099.0047-49).) Therefore, argues Samsung, Apple's and Staff's arguments are misplaced; the controller in claim 75 is different from the controller set forth in claim 82. (*Id.*)

The Administrative Law Judge finds that Samsung's protean description of "controller," morphing from one claim to another, is not supported by the evidence. The claims do not define the characteristics of the accused devices; the characteristics of the accused devices are what they have been fashioned to be. Staff's discussion of this issue in its reply brief is apropos. Staff says that in the context of claims 82-84 Samsung claims that {

}.

(SRBr. at 2-3 (citing Tr. (Min) at 1264-65).) In the context of claims 75-76, Samsung claims that {

}. (*Id.* at 3.) Staff notes that Dr. Min explained the difference between Samsung's two definitions of the "controller" in the Accused Products with the aid of demonstrative exhibit CDX-1.80C which is shown here: {

}(*Id.* (citing Tr. (Min) at 1262-65).) Staff says that Dr. Min testified that for claims 75-76 the left and right columns in CDX-1.80 together form a "controller" with a 30-bit output, and there is no "puncturer" shown. (*Id.* at 3-4 (citing Tr. (Min) at 1263).) For claims 82-84, he testified that the "controller" is formed by the left column only and outputs a 32-bit codeword, while the right column represents the "puncturer" required by claim 82. (*Id.* (citing Tr. (Min) at 1263-64).)

Staff argues that there is nothing in the specification or claim language of the '348 patent to suggest that the word "controller" was intended to have more than one meaning, and Staff argues that identical words in claims within the same patent should be given the same meaning

unless the patent clearly indicates otherwise. (*Id.* (citing *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001)).) Staff argues that the term "controller" cannot refer to two separate structures within the same accused product. (*Id.*) A claim term must be interpreted consistently across each of the asserted claims. (*Id.*) Staff says that it and Apple agree with Samsung's second definition of the term (*see* RBr. at 35-36 and RRBr. at 3-4), in which the "controller" consists of the left column in CDX-1.80 only, and outputs a 32-bit codeword. (SRBr. at 4.)

For these reasons and the arguments and evidence pointed to by Apple and Staff, the Administrative Law Judge concludes that the preponderate evidence does not demonstrate that the Accused Products infringe the "controller" element of claim 75.

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

Samsung says that for the same reasons set forth in its infringement argument with respect to the corresponding limitation of claim 82, the Accused Products likewise satisfy this limitation of claim 75. (CBr. at 43.)

The findings and conclusions discussed above with respect to the controller element apply to this element as well.

(3) *"a 30 bit codeword from among a plurality of 30 bit codewords"*

Samsung says that for the same reasons set forth in its infringement argument with respect to the corresponding limitation of claim 82, the Accused Products likewise satisfy this limitation of claim 75. (*Id.* at 43.) Samsung says that Table 8, {

}. (*Id.* at 43-44 (citing Tr. (Min) at 532-533).) According to Samsung,

{

}. (*Id.*)

The findings and conclusions discussed above with respect to the controller element apply to this element as well.

> (4) *"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"*

Samsung says that, for the reasons set forth in its arguments regarding infringement of the last element of claim 82, the Accused Products likewise infringe this limitation of claim 75. (*Id.* (citing Tr. (Min) at 590-591).)

The findings and conclusions discussed above with respect to the controller element apply to this element as well.

For the reasons recited with respect to the controller element, the Administrative Law Judge concludes that the preponderate evidence does not demonstrate that Accused Products infringe claim 75.

5. Infringement of Claim 76

Claim 76 reads as follows:

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

(JXM-1 at 45:62-46:3.)

Samsung says the Accused Products infringe claim 76 for the reasons provided by Samsung with respect to its allegations that those products infringe claims 75, 82, and 83 and for the following additional reasons. (CBr. at 44.)

Similar to claim 83, claim 76 provides additional details for how to encode the 10-bit TFCI information input into a 30-bit codeword. (*Id.* (citing Tr. (Min) at 592).) Samsung says that the difference between claim 83 and claim 76 is that claim 76 also includes the puncturing steps to obtain a 30-bit codeword. (*Id.* (citing Tr. (Min) at 592).) According to Samsung, claim 76 requires the basis orthogonal sequences and basis mask sequences to be "punctured equivalents" of the basis orthogonal sequences and basis mask sequences corresponding to the equivalent 32-bit codeword and this means that if the last two rows of the encoding table in Table 8 {

}. (*Id.* at 44-45.) Therefore, reasons Samsung, both the standard and the Intel source code demonstrate that the Accused Products infringe claim 76. (*Id.* at 45.)

Apple maintains that the Accused Products do not infringe claim 76 because they do not contain a puncturer for puncturing and, in addition, do not utilize basis sequences that are "two bit punctured equivalents" of 32-bit basis sequences as required by the claim. (RBr. at 37.) Apple notes that Dr. Davis explained that {

}.)

Apple argues that while Samsung correctly states that claim 76's requirement means that "you remove the last two rows of the encoding table in Table 8" (RRBr. at 7 (citing CBr. at 37)), Samsung never tries to prove that the Accused Products remove those rows, because they do not: { }. (*Id.*)

Apple says that Staff, without explanation, asserts that claim 76 is infringed for the same reasons as claims 83 and 84, but this argument appears to reflect confusion about the meaning of "basis sequences." (*Id.* at 4-5 (citing SBr. at 37).) Apple says basis sequences are sequences used within the controller to construct a codeword, not the codeword itself. (*Id.* at 5 (citing Tr. (Davis) at 1949-50).) Apple argues that claim 76 requires that each of the basis sequences be a 30-bit length "two-bit punctured equivalent" of a corresponding 32-bit long basis sequence. (*Id.* (citing JXM-1 at 45:66-46:3).) Apple says that both Samsung and Staff have acknowledged that { }. (*Id.* (citing CBr. at 25; SBr. at 36).) Thus, argues Apple, claim 76 is not infringed for the additional reason that the Accused Products do not contain 30-bit basis sequences that are "two-bit punctured equivalents" of 32-bit basis sequences. (*Id.*)

Staff says claim 76 depends from claim 75, which Staff submits is not infringed, for reasons expressed in the discussion of that claim. (SBr. at 37.) Accordingly, argues Staff, there can be no infringement of dependent claim 76 because the Accused Products do not have a "controller for outputting a 30 bit codeword." (*Id.*; SRBr. at 1 (citing JXM-1 at 45:54)).)

The Administrative Law Judge concludes, for the reasons already discussed regarding claims 82 and 75, that the preponderate evidence does not demonstrate that the Accused Products

have a controller for outputting a 30 bit codeword or a puncturer for puncturing or that they remove the last two rows of the encoding table in Table 8.

For the several reasons discussed above with respect to each of the asserted claims, 75, 76, 82, 83, and 84, the Administrative Law finds that the preponderate evidence does not demonstrate that the Accused Products infringe the asserted claims of the '348 patent.

C. Analysis of the Accused Products with Respect to the '644 Patent

Samsung accuses all Apple devices with HSUPA capabilities of infringing the asserted claims of the '644 patent. (CBr. at 82.) Samsung says that all of the Accused Products include a baseband processor and related hardware and software that perform the steps of claims 9-12 and include components of claims 13-16. (*Id.*) According to Samsung, the iPhone 4S contains a Qualcomm MSM6610 baseband processor. (*Id.* (citing Tr. (Min) at 828-829).) Samsung says the iPhone 4 (AT&T) and iPad 2 (AT&T) contain an Intel PMB9801. (*Id.* (citing Tr. (Min) at 747, 968).) Samsung alleges that the Accused Products infringe because they must comply with the HSUPA ("High Speed Uplink Packet Access") industry standard. (*Id.* (citing Tr. (Min) at 686).) Also, according to Samsung, the source code and other supporting documentation verify that the products infringe the patent. (*Id.*)

Samsung says the '644 patent involves the transmission and reception of control information over a wireless network and that the asserted claims are directed to the receipt of this control information. (*Id.* (citing Tr. (Min) at 308-309, 665; JXM-3 at 27:31-28:43).) According to Samsung, the asserted claims read on the receipt of the Absolute Grant (AG) over the Enhanced Absolute Grant Channel (E-AGCH). (*Id.* (citing Tr. (Min) at 650-652; JXM-3 at 27:31-28:43).) The E-AGCH is a downlink channel, and that means that it is transmitted from a base station to the user equipment (UE), and all of the Accused Products are UE's. (*Id.* (citing

Tr. (Min) at 648, 652).) Samsung says the AG tells the UE the maximum data rate the UE can use to transmit on the Enhanced Dedicated Channel (E-DCH) in the uplink direction. (*Id.* (citing Tr. (Min) at 649).) All of these channels and the control information are part of the HSUPA enhancement to UMTS[10]. (*Id.* at 82-83 citing Tr. (Min) at 673).) HSUPA lets mobile devices communicate faster than UMTS. (*Id.* (citing Tr. (Min) at 647-648).)

Samsung says HSUPA is described in the 3GPP[11] standards, and in order to operate on a HSUPA-compliant network, the devices must adhere to this standard. (*Id.* (citing Tr. (Min) at 673-674).) The standard, according to Samsung, is written primarily for the base stations, because the mobile devices must be able to understand signals sent to and from base stations in line with the standard. (*Id.* (citing Tr. (Min) at 645-646).) One of the standards which describe the coding of each E-AGCH, is Section 4.10 of TS 25.212. (*Id.* (citing Tr. (Min) at 718).) Samsung argues that where the standard describes the process that the base station uses to code the AG for transmission on the E-AGCH, a person of ordinary skill in the art knows that the UE must reverse the coding chain in order to decode the data. (*Id.* (citing Tr. (Min) at 683-684).) Samsung says that Figure 24 of TS 25.212 describes the steps of the asserted claims as adhered to by the base station in order to transmit the AG on the E-AGCH. (*Id.* (citing Tr. (Min) at 674-676).) Therefore, according to Samsung, mobile devices (UE) must perform these steps in reverse in order to extract and decode the AG from the E-AGCH:

---

[10] Universal Mobile Telecommunication Service. (JXM-3 at 1:38.)
[11] 3rd Generation Partnership Project, a standards setting organization for mobile communication.

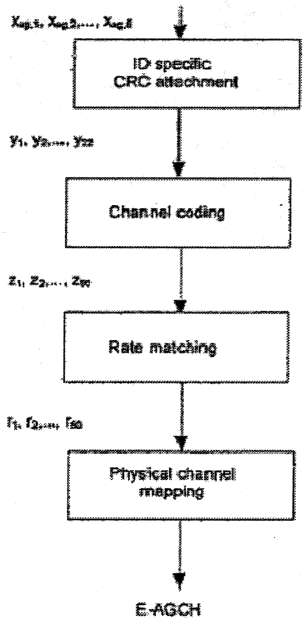

Figure 24: Coding for E-AGCH

(*Id.* at 84 (citing Tr. (Min) at 683-684).) The first step the base station takes is to assemble a six-bit AG and a 16-bit UE-ID[12] specific CRC[13]. (*Id.* (citing Tr. (Min) at 674-676).) Samsung says this can be seen in the first box of Figure 24. (*Id.*) According to Samsung, the base station then adds eight "tail bits" to those 22 bits (6 + 16) and codes the block at a coding rate of 1/3, or one to three. (*Id.* (citing Tr. (Min) at 676).) The result is a coded block of 90 bits (30 x 3) that is output from the "Channel coding" box. (*Id.* (citing Tr. (Min) at 669).) Since the base station can only transmit at a rate of 60 bits per two milliseconds (2 ms) on the E-AGCH, the base station "rate-matches" the 90 bit coded block to be compliant. (*Id.* at 84-85 Tr. (Min) at 669-670).)

Samsung says the base station accomplishes the rate matching by puncturing 30 bits at specific locations, as shown in the "rate matching" block of Figure 24 ("$r_1, r_2, \ldots, r_{60}$") and as recited in Section 4.10.4 of the TS 25.212 standard. (*Id.* at 85 (citing Tr. (Min) at 670).) Finally, argues Samsung, the Node B transmits the 60-bit rate-matched block on the physical channel, as

[12] User Equipment Identifier. (JXM-3 at 3:34-35.)
[13] Cyclic Redundancy Check. (*Id.* at Abstract (Samsung-AppleITC000047).)

shown in Figure 24 and described in Section 4.10.5 of TS 25.212. (*Id.* (citing Tr. (Min) at 670).) Since no new data can be created during transmission, the UE will receive the block that was transmitted by the base station; and to extract the AG data sent, the UE must decode the block in the precise way that the base station encoded it. (*Id.* (citing Tr. (Min) at 670).)

Apple provides a description of how the Accused Products operate with respect to the alleged infringement issues concerning the '644 patent, i.e., the iPhone 4S (AT&T), iPhone 4 (AT&T) and iPad 2 (3G) (AT&T), which Apple says are accused because they receive an HSUPA signal. (RBr. at 85.) Apple notes that HSUPA signals are processed by the baseband processors incorporated in the Accused Products; namely, the Qualcomm MDM6610 in the iPhone 4S (AT&T) and the Intel PMB9801 in the iPhone 4 (AT&T) and iPad 2 (3G) (AT&T). (*Id.* (citing Tr. at 2280, 2292).)

According to Apple, HSUPA base stations transmit E-AGCH signals in QPSK[14] format, which send "symbols" that use carrier wave modulation. (*Id.* (citing Tr. (Min) at 1018-19).) Each symbol has two components, an "in-phase," or "I," component, and a "quadrature," or "Q," component. (*Id.* (citing Tr. (Min) at 1041).) Based on this, each component may be modulated as a +1 or -1 signal value, allowing for four possible combinations of I and Q for each symbol. (*Id.* (citing Tr. (Min) at 1122).) Therefore, each symbol can convey two bits of information, and when an Accused Product receives an E-AGCH signal, {

}. (*Id.* (citing Tr. (Min) at 1037-38).) Because of interference, the received symbols will tend to differ, often considerably, from the transmitted signals. (*Id.*)

{

}. (*Id.* at 85-86 (citing Tr. (Min) at 1040).)

[14] Quadrature Phase Shift Keying. (JXM-3 at 5:48.)

{

}." (*Id.* at 86 (citing RX-1299C at Q1ITC794SC0001545 (MDM6610); CX-16 at 593DOC0000112-13 (PMB9801)).) Apple says LLR is the ratio of the probability that the transmitted signal component was a +1 to the probability that it was a -1. (*Id.*) By way of example, Apple says that if a received signal component has a value of 0.25, there is some probability that it was caused by a transmitted +1 and there is also some probability, lesser, but not insignificant, that it was caused by a -1. (*Id.*) The LLR represents the ratio of these probabilities as a logarithm. (*Id.*) According to Apple, there is a range of signal values, with 0 being the epitome, whereby it is equally likely that the transmitted signal was either a +1 or a -1, in which case the LLR is 0 because the ratio of 50 percent to 50 percent (50% / 50%), the quotient of which is 1, and therefore, the logarithm of 1 is 0. (*Id.* (citing JX-59C (Hillebrand Dep.) at 119).) Apple says an LLR of 0 represents an indeterminate transmitted signal. (*Id.*)

{

}, instead of binary digits, works in a substantially different way, with substantially different results, than the "extracting" decoder of the '644 patent. (*Id.* (citing Tr. (Min) at 1111, 1114, 1117-18, 1120-21).) The '644 receiver "extracts," or makes a final decision about, bits from the Node B signal on a bit-by-bit basis to reconstitute a version of the rate-matched block that was originally formed at the transmitter. (*Id.* at 88-89 (citing Tr. at 1114, 1117 (Min)).)

Apple argues that this "extracting" decision making is done no matter how weak or strong the signal is. (*Id.* at 89.) For example, a received signal that was +0.01 in strength would be extracted as a binary digit value of 1, while a received signal value of -0.01 would be extracted as a binary digit value of 0, even though the values are separated by a mere 0.02. (*Id.* (citing Tr. at 1123-24 (Min)).) Apple contends that the "extracting" type of decoding taught by the '644 patent fails to recognize that signals such as these are actually indeterminate. (*Id.*)

Thus, says Apple, the information bit "0" might be encoded by Node B as "0, 0, 0" and transmitted after modulation as -1, -1, -1, but actually received, due to interference, as +5, +0.5, -3.0. (*Id.* (citing Tr. at 1121-22 (Min)).) Apple says that, in the '644 receiver, "extracting" logic would deem these signal samples to be the coded bit sequence, 1, 1, 0. (*Id.* (citing Tr. at 1122-23 (Min)).) According to Apple, "extracted" bits are decoded using a technique, called Hamming distance, which determines the least number of different values between the extracted bit pattern (1, 1, 0) and two ideal bit patterns (1, 1, 1 and 0, 0, 0). (*Id.* (citing Tr. at 1117 (Min)).) Using Hamming distance, the '644 decoder would incorrectly decode this sequence as 1, Apple says. (*Id.* (citing Tr. at 1124 (Min)).)

Apple says the { } of the Accused Products work differently. (*Id.* (citing Tr. at 1124 (Min)).) {

}. (*Id.* (citing Tr. at 1125 (Min)).) Thus, using the example described in the preceding paragraph, the {

}. (*Id.*

at 89-90.) Therefore, in contrast to an "extracting" decoder, the {

}.

(*Id.* at 90.)

Second, argues Apple, because the {

}. (*Id.* (citing Tr. at 1125, 1127 (Min)).) In support of this statement, Apple cites the following testimony of Dr. Min:

{

}.

(*Id.* at 90-91 (citing Tr. at 1128 (Min)).)

Third, argues Apple, because the {

}, and not at the 1/3 rate. (*Id.*) And in

{ },

also not at a 1/3 rate. (*Id.* (citing Tr. at 1087 (Min)).)

Lastly, Apple says {

}. (*Id.*) Apple says that none of the Accused Products performs a check of the 16-bit UE-ID specific CRC. (*Id.*) Instead, in all of these products, {

}. (*Id.* (citing Tr. at 1140-41 (Min)).)

1. Direct Infringement of Claims 9 and 13 of the '644 patent

Claims 9 and 13 read as follows:

> **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-dematching the rate-matched block according to a rate matching pattern representing positions of bits to be depunctured;
>
> 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

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}.

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}.

(JXM-3 at 27:31-28:3 and at 28:15-32.)

a) "Element 9/13[A]"—"An apparatus for [a method of] receiving control information associated with uplink packet data transmission in a mobile communication system"

Samsung says that the Accused Products[15] infringe this element of the '644 patent because they receive control information associated with uplink packet data transmission in a mobile communication system. (CBr. at 85 (citing Tr. (Min) at 697-698, 702-703).) The Accused Products receive { }. (*Id.* (citing Tr. at 673-674, 697-698 (Min)).) {

[15] The term "Accused Products" as used in this section refers to the Accused '644 Products, as defined in Section I.E. above.

}. (*Id.* at 86 (citing Tr. at 673-674, 696-698 (Min)).)

Samsung argues that the documentation and source code for the iPhone 4 and the iPad 2 confirm that the Accused Products receive {

}. (*Id.* (citing Tr. (Min) at 808).)

Neither Apple nor Staff specifically dispute this allegation in their post-hearing briefs and therefore have waived the issue by reason of Ground Rule 10.1. Based on the evidence cited by Samsung, the Administrative Law Judge concludes that the Accused Products do satisfy this limitation.

b) "Element 9/13[B]"—"[a physical channel demapper for] extracting a 60 bit rate-matched block from a signal received from a Node B"

Samsung says that the Accused Products infringe element 9/13[B] because they comprise a physical channel demapper for extracting a 60-bit rate-matched block from a signal received

[16] Enhanced Uplink Dedicated Channel. (JXM-3 at 1:47-48.)

from a Node B. (*Id.* (citing Tr. at 774, 808 (Min)).) Samsung says the Accused Products extract

{

}" (*Id.*

(citing Tr. at 707 (Min)).) According to Samsung, the standard requires the Node B to channel code bits in Section 4.10.3, where it states: "Rate 1/3 convolutional coding, as described in Section 4.2.3.1 is applied to the sequence of bits $y_1, y_2 \ldots y_{22}$, resulting in the sequence of bits $z_1, z_2 \ldots z_{90}$." (*Id.*) Samsung says that because only 60 bits can be transmitted on the physical channel, Section 4.10.4 of the 3GPP standard requires the base station to puncture at predetermined positions: "From the input sequence $z_1, z_2, \ldots, z_{90}$ the bits $z_1, z_2, z_3, z_6, z_7, z_{11}, z_{12}, z_{14}, z_{15}, z_{17}, z_{23}, z_{24}, z_{31}, z_{37}, z_{44}, z_{47}, z_{61}, z_{63}, z_{64}, z_{71}, z_{72}, z_{75}, z_{77}, z_{80}, z_{83}, z_{84}, z_{85}, z_{87}, z_{88}, z_{90}$ are punctured to obtain the output sequence $r_1, r_2, \ldots r_{60}$." (*Id.* (citing Tr. at 718 (Min); CX-1748 at S-ITC-003895059).) After the block is rate-matched according to this section of the standard,

the rate-matched block is transmitted on the physical channel to be received and extracted by the Accused Products, according to Samsung. (*Id.* (citing Tr. at 720-721 (Min)).)

Samsung argues that {

} (*Id.* at 89 (citing Tr. at 769-770 (Min); CX-001C at 593DOC000092-103).) The relevant source code is contained in the file {

}, says Samsung. (*Id.* (citing Tr. (Min) at 772; CX-0014C at 799).) According to Samsung, the code shows the {

}. (*Id.* (citing Tr. (Min) at 772).) That page shows that where the {

}. (*Id.* (citing Tr. (Min) at 772-773).)

Samsung argues that the Qualcomm code also shows that {

} (*Id.* (citing Tr. (Min) at 807).) This code, says Samsung, is {

}. (*Id.* at 91 (citing Tr. (Min) at 805-807).)

Samsung argues that there is no dispute that the Accused Products {

}. (*Id.*)

Samsung argues that, to the extent Apple contends that Samsung has not shown that the entire block is extracted, such that the bits in the block are contiguous, the argument is irrelevant and improper because Order No. 63 found that the bits in the rate-matched block do not have to be contiguous. (*Id.*)

Samsung says that, to the extent that Apple argues that the Accused Products do not infringe because { }, this argument is flawed. (*Id.* at 92.) First, because Order No. 86 says that Apple cannot rely on any expert testimony to support this position. (*Id.*) According to Samsung, Dr. Min testified that {

}. (*Id.* (citing Tr. (Min) at 1271-75, 1279-81).) Other than the 60-bit rate-matched block, Samsung says there are no additional bits that are transmitted. (*Id.* (citing Tr. (Min) at 1274, 1279-80).) {

}. (*Id.* (citing Tr. (Min) at 1274-75, 1279-81).) Samsung argues that there is no restriction in the claims concerning the use of { } and a person of ordinary skill in the art would know that { } do not matter to the function of the claims. (*Id.* (citing Tr. (Min) at 1276, 1279-81).) Thus, argues Samsung, this claim element is literally infringed through the use of { }. (*Id.*)

To this portion of Samsung's argument, Apple responds that it is a deviation from the position espoused by Dr. Min in his expert report, where he contended {

}" (RRBr. at 45 (citing the Expert Report of Dr. Min at 59).) Apple says Samsung repeated this contention in its opening brief, arguing that a "{ }." (*Id.* (citing Samsung's Prehearing Brief at 51, 54).)

Apple says that this argument proved false at the hearing because the term "bit" means "a binary digit" and the term "rate-matched block" means "a block of channel-coded bits that have been matched to transmittable bits on a physical channel by puncturing bits at predetermined positions." (*Id.* (citing the parties' agreed claim construction of the term "bit"; Order No. 63

with respect to the term "rate-matched block").) Apple says Dr. Min conceded at the hearing that {

}, not the "60-bit rate-matched block" the '644 claims require. (*Id.*)

Apple says that, faced with the collapse of its pre-hearing argument, Samsung now invents a brand new theory, and several "facts," to wit: that each accused chip {

}." (*Id.* (citing CBr. at 92).) According to Apple, under Samsung's new theory, {

}. (*Id.*) Apple argues that Samsung is incorrect and its new argument should be rejected for multiple reasons. (*Id.*)

Apple contends that Ground Rule 7.2 bars Samsung's new argument that the "{

}. (*Id.* at 46.) According to Apple, not only does Samsung's pre-hearing brief fail to make this argument, it actually argues the opposite: "{

}." (*Id.* (citing Samsung's pre-hearing brief at 50).) Apple quotes Samsung as having argued in its pre-hearing brief that "{

}." (*Id.*) Apple says that Samsung, having argued at length in its pre-hearing brief that the {

}," Samsung's directly contrary argument in its post-hearing brief—{

} that supposedly shows infringement—is barred by Ground Rule 7.2. (*Id.* (citing CBr. at 92).)

Apple argues further that Samsung's new argument that the accused chips {

}" is also contrary to Dr. Min's testimony. (*Id.* (citing CBr. at 92).) Apple says that Dr. Min testified that {

}. (*Id.* (citing Tr. at 1065-66 (Min)).) Contrary to Samsung's argument, says Apple, Dr. Min conceded on cross-examination that {

}. (*Id.* (citing Tr. at 1301-02 (Min)).) In fact, argues Apple, when asked to identify "{

}" (*Id.* (citing Tr. at 1302 (Min)).)

Samsung says any argument of Apple that {

} would be misplaced because that argument rests on the assumption that {

}, but there is nothing in the claims, the specification, or the file history that requires that all 60 bits be extracted at the same time. (CBr. at 92-93 (citing Tr. at 1302 (Min)).)

Moreover, argues Samsung, this limitation is infringed under the doctrine of equivalents because the use of { } is substantially similar to the use of hard bits and therefore the

Accused Products perform the same function as recited in the claim. (*Id.* at 93.) Both {

} extract a 60-bit rate-matched block received from Node B and this is performed in the same way because in the Accused Products the {

}. (*Id.*) If anything, argues Samsung, the { } are an additional step that is not precluded from the claims and the result is the same: the 60-bit rate-matched block is extracted so that it can be decoded by the Accused Products. (*Id.*)

Apple contends that the undisputed evidence shows that none of the Accused Products {

}" (RBr. at 91 (citing Tr. (Min) at 1128).) According to Apple, { } works in a substantially different way than decoding a { }, and this difference allows Apple to achieve substantially better performance than the '644 "extracting" decoder. (*Id.* (citing Tr. (Min) at 1129-30 ({

}.) Apple says the two approaches are so different that, to distinguish the prior art reference of "Lobinger" (RX-450) in this Investigation, Samsung said "{

}." (*Id.*)[17] Apple argues that because the Accused Products { }, they perform none of the "extracting," generating," "decoding," or "checking" limitations of the asserted '644 claims and never extract 60 bits, generate 90 coded bits, or decode at a rate of 1/3. (*Id.* at 91-92.)

[17] Apple cites RX-29C, App. L at 9; however, that exhibit was withdrawn and therefore cannot be considered.

Apple says the undisputed facts show that the Qualcomm and Intel chips do not extract a 60-bit rate-matched block, because they { }; do not generate 90 coded bits, because they { }; do not decode at a rate of 1/3, because they { }; and do not check a 16-bit CRC masked with a 16-bit UE-ID, because { }. (*Id.* at 92.)

Apple points out that Samsung makes two arguments for its claim of literal infringement: the first, made at the hearing, is that the Accused Products have to infringe simply because they are HSUPA capable and, therefore, must precisely reverse the steps of the transmission method defined in TS 25.212, Section 4.10. (*Id.*) Second, Samsung argues that the operation of the Qualcomm and Intel baseband processors in the Accused Products demonstrates that they infringe. Apple claims that both of these contentions were shown by the evidence at the hearing to be fatally flawed. (*Id.*)

Samsung's assertion that compliance with TS 25.212 is proof of infringement

According to Apple, the '644 patent has two categories of claims. Claims 1and 5 are directed to a *transmitter* for "transmitting control information," but those claims are not asserted in this Investigation. (*Id.*) In contrast, asserted claims 9 and 13, as well as the claims that depend therefrom, are directed to a *receiver* for "receiving control information." (*Id.* (citing JXM-3 at 27:31-28-3 and at 28:15-32).) Apple points out that only this second category of claims is being asserted in this Investigation. (*Id.*) Apple says that Samsung bases its infringement analysis for the asserted receiver claims on the fact that the Accused Products comply with the 3GPP standard TS 25.212, Section 4.10. (*Id.* (citing CX-1748 at 72-73).) Apple says that it was undisputed at the hearing that Section 4.10 does not specify a decoding

chain for a *receiver*. (*Id.* at 92-93 (citing Tr. at 883-884, 888-889, 1016 (Min), 2276-77 (Stark)).)

Apple refers to testimony of Dr. Stark who said that TS 25.212 does not specify what a receiver must do in order to receive a signal and, therefore, baseband processor chip manufacturers are free to design their receivers in different ways that do not have to practice the asserted '644 claims. (*Id.* (citing Tr. at 2276-77 (Stark), 1016-21 (Min)).) Apple says receivers can receive HSUPA signals without "extracting a 60-bit rate-matched block" or without "generating 90 coded bits" or without "decoding the coded bits at a rate of 1/3" or without checking the UE-ID specific CRC. (*Id.* (citing Tr. at 2278 (Stark); JXM-3, claims 9, 13).) Moreover, argues Apple, an HSUPA-capable receiver does not need to use the rate matching pattern claimed in the '644 patent in order to receive an HSUPA signal. (*Id.* (citing Tr. at 2278 (Stark), 1030-33 (Min)).)

Because TS 25.212, Section 4.10 does not define any requirements for a receiver, Apple says Samsung's reliance on this standard to establish that claims 9 and 13 and the asserted claims depending therefrom are practiced by Apple fails, citing *Fujitsu Ltd. v. Netgear, Inc.*, 620 F.3d 1321, 1327-28 (Fed. Cir. 2010) ("it is not sufficient for the patent owner to establish infringement by arguing that the product admittedly practices the standard, therefore it infringes."). (*Id.*)

The Administrative Law Judge concludes that the preponderate evidence does not demonstrate that the Accused Products comply with this standard. According to the evidence, Section 4.10 does not specify a decoding chain for a *receiver*. (*Id.* at 92-93 (citing Tr. at 883-884, 888-889, 1016 (Min), 2276-77 (Stark)).) The evidence discloses that TS 25.212 does not specify what a receiver must do in order to receive a signal and, therefore, baseband processor

chip manufacturers are free to design their receivers in different ways that do not have to practice the asserted '644 claims. (Tr. at 2276-77 (Stark), 1016-21 (Min).) The evidence also indicates that receivers can receive HSUPA signals without "extracting a 60-bit rate-matched block," without "generating 90 coded bits," without "decoding the coded bits at a rate of 1/3," and without checking the UE-ID specific CRC. (Tr. at 2278 (Stark); JXM-3, claims 9, 13.) An HSUPA-capable receiver does not need to use the rate matching pattern claimed in the '644 patent in order to receive an HSUPA signal. (RBr. at 93 (citing Tr. at 2278 (Stark), 1030-33 (Min)).)

Samsung's assertion that the source codes for the Qualcomm and Intel baseband processors prove infringement

Apple says that Dr. Min was forced to concede during cross-examination that the actual source code defining the operations of the Qualcomm and Intel baseband processors demonstrates that they do not practice any of the asserted '644 claims as demonstrated by the following. (*Id.*)

"Extracting" limitation

Apple says that all of the asserted '644 claims recite "extracting a 60-bit rate-matched block from a signal received from a Node B." (*Id.*) Apple notes that the term "bit" has been construed to mean "a binary digit" by agreement of the parties. (*Id.*) Although claim construction is a question of law, the Administrative Law Judge agrees with the parties' joint construction because it is consistent with the plain and ordinary meaning of the word. (*See Merriam-Webster's Ninth New Collegiate Dictionary* (1985): "[*bi*nary digi*t*] **1**: "a unit of computer information equivalent to the result of a choice between two alternatives (as yes or no, on or off) **2**: the physical representation (as in a computer tape or memory) of a bit by an electrical pulse, a magnetized spot, or a hole whose presence or absence indicates data").) Apple

also notes that "rate-matched block" has been construed as "a block of channel-coded bits that have been matched to transmittable bits on a physical channel by puncturing bits at predetermined positions." (RBr. at 93 (citing Order No. 63 at 48).) With this background, Apple argues that none of the Accused Products practices this limitation for at least two reasons.

First, none of the Accused Products, according to Apple, performs the "extracting" of "bits." (*Id.* at 94 (citing Tr. at 2294-2303 (Stark)).) In order to "extract" a binary digit from a sample of a received signal, a receiver would have to make a final decision about whether it had received a 0 or a 1; however, none of the Accused Products does this, as discussed above in the description of the operations of the Intel and Qualcomm baseband processors. Instead, argues Apple, the Intel and Qualcomm baseband processors in the Accused Products {

}. (*Id.*) Apple contends that an {

}.

(*Id.* (citing JX-54C (Hillebrand Dep.) at 119.) Apple argues that a {

} is not a bit. (*Id.*)

Nor, says Apple, is a "{

}. (*Id.* (citing Tr. (Min) at 1045.) Apple contends that Dr. Min concedes that {

}.

(*Id.* (citing Tr. (Min) at 1046.)

Second, argues Apple, none of the Accused Products extracts a "60-bit" block from a Node B signal. (*Id.* at 94.) Apple says the "extracting" limitation requires extracting exactly 60 binary digits, or bits, as a block. (*Id.* at 95 (citing JX-18C (Kim Dep.) at 38 ("that 60-bit block can be composed of 60 ones or zeros.")).) Apple says its products do not do this; instead, they {

}. (*Id.*) Apple cites Dr. Stark's testimony noting that Dr. Min never explained his reason for concluding that {

} could possibly amount to practicing the extracting a 60-bit rate-matched block limitation of the '644 claims. (*Id.*)

Staff concludes that none of the Accused Products infringes the asserted claims of the '644 patent, because the patent claims a type of hard decision coding, while the Accused Products use { }. (SBr. at 75-76 (citing Tr. at 1127-28 (Min)).) Staff says the evidence shows that the Accused Products do not infringe either the method claim 9 or the apparatus claim 13. (*Id.* at 76.) Staff says it is undisputed that the Accused Products are mobile communication systems capable of receiving HSUPA control information associated with uplink packet data transmission from a base station. (*Id.* (citing Tr. at 691-692, 802 (Min)).)

{

}. (*Id.* (citing Tr. at 1045, 1049, 1052 (Min)).)

With respect to the "extracting" limitations of claims 9 and 13, Staff says the parties have agreed that the term "bit" should be given its plain meaning, which is a binary digit and Dr. Min agreed as well. (*Id.* at 76-77 (citing Tr. at 1044-45 (Min)).) Staff reasons that, given this undisputed construction of the claim language, none of the Accused Products extracts a "60-bit rate-matched block" from a Node B signal. Rather, argues Staff, the Accused Products {

}. (*Id.* at 77-78 (citing Tr. at 1057, 1062-63 (Min); JX-59C at 35 (Hillebrand Dep.)).)

In reply, Samsung says Apple's non-infringement defenses hinge on complex, irrelevant, technical issues that were stricken from its expert report in Order No. 86. (CRBr. at 40.) Therefore, according to Samsung, the entirety of the defense is explained solely through attorney argument. (*Id.*) Citing statements made in other investigations, Samsung says attorney argument is not evidence. (*Id.* at 40-41 (citations omitted).) Samsung says that Staff's infringement analysis is similarly flawed. (*Id.* at 41.) Samsung argues that the Staff maintained its pre-hearing position that was based on stricken evidence from Dr. Stark's expert report. (*Id.*) Samsung argues that, "[f]aced with a lack of evidence to support her position, the Staff also resorts to attorney argument." (*Id.* (citing SBr. at 75, n. 24).) Moreover argues Samsung, both Apple and Staff's briefs are inherently self-contradictory because whereas both rely on purely attorney argument for their non-infringement positions, they both take the position that Samsung cannot make the doctrine of equivalents argument because there was no expert testimony on the subject. (*Id.*) Samsung says these arguments should be stricken from Apple's post-hearing briefing because Apple exploited the allowance give to it at the evidentiary hearing and avoided

the ruling in Order No. 86. (*Id.*) Samsung says that at the evidentiary hearing it was established that, pursuant to Order No. 86, that Apple could not propound any argument regarding its stricken non-infringement defenses { } because it did not timely disclose the contentions during discovery. (*Id.*) Samsung cites the following colloquy from the transcript:

> JUDGE GILDEA: So to a certain extent, you can't be absolute in addressing these things. The thrust of this is that contentions – anything that was outside the statement of contentions is out of bounds.

(*Id.* citing (Tr. at 834:16-20 (Min)).)

> MR. VERHOEVEN: I want to make sure I understand what you just said and I am fine if Mr. Lee wants to say something. And I may have misunderstood Your Honor. But I think what I heard was if they didn't do it in their contentions, it is out of bounds in terms of arguments, contentions, at a later date.
> And that the other concern you have is that having granted, in part, the motion on those additional contentions, that this process shouldn't be a vehicle for the manufacture of those same contentions through cross-examination, is that what you are saying, Your Honor?
>
> JUDGE GILDEA: Yes. What I am saying is that what Dr. Stark wasn't permitted to do in terms of his expert report was because there was nondisclosure of certain things.
>
> Now, that – having made that ruling, then the same thing applies to Dr. Min in terms of – well, I want to hear Mr. Lee's position on this, but to answer your question, yes, you stated it accurately.

(*Id.* (citing Tr. at 835:16-836:13).) Samsung says that Apple was permitted to cross-examine Dr. Min regarding only the opinions he expressed during his direct examination. (*Id.* (citing Tr. at 834-835, 843).) Samsung argues that did not open the door to any of the stricken subject matter on direct examination, and then cites this colloquy from the transcript:

> JUDGE GILDEA: Well, you can see that part of this is anticipatory. And that leaves me in a predicament here as to try to respond to that. What I am saying is the parties have to act in good faith. There could be something in the dynamics of the cross-examination, as you know, the cross-examiner is somewhat in the dark

> even though they have had deposition discovery and so forth, but they are still somewhat in the dark, and so they are at a disadvantage.
> So there is going to be some probing going on here. I have to gauge whether or not the cross-examination process is an attempt to evade my order or is a legitimate attempt to ascertain facts that are within the realm of the issues in this case.
>
> MR. VERHOEVEN: I understand, Your Honor.
>
> JUDGE GILDEA: So, therefore, I can't make – I can't give you a preview any more than that, except to say that if I discern that Mr. Lee is exploiting the situation and evading the rule, then of course I will stand by my order.

(*Id.* at 42-43 (citing Tr. at 837-838).) According to Samsung, Apple's post-hearing brief is evidence that Apple's intent, whether or not apparent at the hearing, was to evade Order No. 86 and was not in good faith. Samsung cites the following from the transcript to support its request to strike:

> MR. VERHOEVEN: Yes, Your Honor. And I'm assuming that we will still have an opportunity in post-trial briefing to raise this whole failure to allege this in contentions and seek relief in that respect.
>
> JUDGE GILDEA: Well, yes, yes.

(*Id.* at 43 (citing Tr. at 1299-1300).)

To this Apple responds that Samsung seeks to have the Commission ignore the mountain of evidence introduced at the hearing about how the Qualcomm and Intel baseband processor chips used in the Accused Products actually operate, including voluminous testimony from Samsung's own witness, Dr. Min. (RRBr. at 40.) Apple says that Samsung, in its attempt to have evidence not considered, misrepresents both Order No. 86 and the discussion at the hearing. (*Id.*) Apple points out the following statement from Order No. 86:

> Dr. Stark is permitted to testify at the hearing regarding his opinion that he disagrees with Dr. Min's opinions – without elaborating beyond what remains in the Stark Rebuttal. Furthermore, it is noted that the underlying evidence is not stricken, and Respondent is free to explore this evidence with Dr. Min on cross-examination.

(*Id.* (citing Order No. 86 at 22).) Apple says that Order No. 86 is clear and although Dr. Stark was precluded from giving certain opinions, Order No. 86 said "that Complaints seek to strike more than is necessary to remedy the situation." (*Id.* (citing Order No. 86 at 4).) Apple notes that no underlying evidence was stricken, and Apple was expressly permitted to explore Qualcomm's and Intel's evidence with Dr. Min through cross-examination and that is what Apple did. (*Id.*) Apple says that Samsung even misstates the events of the hearing by providing incomplete quotations and, contrary to Order No. 86 itself, incorrectly suggests that the order excludes certain post-hearing argument. (*Id.* at 41-42.)

Apple says this is not what occurred, but rather the opposite. (*Id.* at 42.) Apple cites this statement: "No, it is not intending to exclude[,]" (*id.* (citing Tr. at 839-840)) and argues that it was explained when the issue occurred at the hearing that Order No. 86 pertains solely to Dr. Stark's testimony and did not exclude anything beyond that. (*Id.* (citing Tr. at 842-844).) Apple says that because Samsung affirmatively put the operation of Qualcomm's and Intel's { } in issue during Dr. Min's direct examination, it was ruled that Apple would have "full latitude" to pursue what the evidence actually demonstrates about the accused chips' operations:

> JUDGE GILDEA: I'm well aware of the respective parties' burdens of proof on these issues. And insofar as an issue has been presented and it is required to be presented by one side or the other, the other side is fully entitled to explore and to delve into that without limitation. So, yes, my ruling in Order 86 only pertained to Dr. Stark and only pertained to those portions that were not originally in Apple's contentions, as we understood them.
>
> Obviously you might disagree with it, but that's how the ruling came down. But insofar as anything that Dr. Min testified to on direct examination, as I said before, I will allow full latitude about that.
>
> And insofar as just the preliminary remarks Mr. Lee has raised, of course he is entitled to go into the source code.
>
> MR. VERHOEVEN: Right.

> JUDGE GILDEA: Because that's what Mr. Min presented in quite explicit detail. So I have to allow him to that opportunity and I have to allow the Staff the opportunity to address their issues. If the parties can satisfy me that this is only pertaining to Dr. Min's reports and Dr. Min's testimony, then I think that they are entitled to the full scope of that.

(*Id.* (citing Tr. at 842-844).)

Apple argues that Samsung, which bore the burden of proof that the Accused Products infringe, opened the door to how the accused chips { } by affirmatively presenting evidence through Dr. Min on these issues "in quite explicit detail" on direct examination. (*Id.*) Having chosen to pursue evidence having to do with Qualcomm and Intel source code to prove its allegations of infringement, Samsung, argues Apple, should not be permitted to claim prejudice because Apple pursued the same subject matter in the course of its examination of Dr. Min. (*Id.*)

Apple says that Samsung was not surprised by Apple's contentions respecting the evidence regarding Intel's and Qualcomm's features, which Apple inquired about in its cross-examination of Dr. Min, since Samsung had questioned representatives of both Intel and Qualcomm on these topics. (*Id.* (citing Tr. (Min) at 1058-59; JX-0059C (Hillebrand Dep.) at 33-37, 39-40, 41-49, 70-77; JX-0060C (Kuo Dep.) at 150-154).) Apple says that Samsung presented Dr. Min to address the Qualcomm and Intel { } and elicited testimony from him on { } at the hearing. (*Id.* at 42-43 (citing Tr. (Min) at 752-753, 790-791, 1271-83).) Apple says its pre-hearing brief detailed Apple's positions and the evidence Apple introduced at the hearing through Dr. Min, Dr. Hillebrand, and Mr. Kuo, plus the documents of Qualcomm and Intel, demonstrated that the accused chips operate exactly as Apple's pre-hearing brief said they do, and thus do not infringe. (*Id.*) Apple says, despite its pre-hearing brief, at trial, Samsung heard Dr. Stark's testimony on why the

Qualcomm and Intel chips do not practice the '644 claims, yet chose not to ask him any questions on the topic. (*Id.*) Apple argues that Samsung's own pre-hearing brief addressed { }, demonstrating that Samsung knew these issues would be front and center at the hearing. (*Id.* (citing Samsung's Pre-Hearing Brief at 50-51).)

Apple says that the undisputed facts remain that the Qualcomm and Intel chips { }, not 90 coded bits; and these chips' { }, not "a coding rate that outputs one bit for every three input bits." (*Id.*) These facts alone, argues Apple, prove non-infringement. (*Id.*)

The Administrative Law Judge denies Samsung's request to strike evidence. Apple was prohibited from introducing testimony from Dr. Stark that had not been timely disclosed. Apple was not allowed to, and did not, introduce any such testimony from Dr. Stark. However, beyond that limitation, Apple was not prohibited from exercising its right of full cross-examination to the same extent as Samsung was permitted to do so and was also allowed to elicit testimony from Dr. Stark included in the portions of his reports that were not stricken.[18] Samsung relied substantially on Intel and Qualcomm source code to establish its case, and that source code was critical evidence relating to how the Qualcomm and Intel baseband processors operated. Dr. Min discussed the source code in detail and used it in laying out his bases for his infringement opinions. However, depending on how the questions were framed and how the claims are interpreted, it is apparent that the same evidence that Dr. Min relied on for his infringement conclusions equally applies to and can be used to argue Apple's and Staff's theories of non-

[18] 5 U.S.C.A. § 556 (d) provides, in part: "A party is entitled to present his case or defense by oral or documentary evidence, to submit rebuttal evidence and to conduct such cross-examination as may be required for a full and true disclosure of the facts."

infringement. The fact that it is testimony of Dr. Min elicited during cross-examination that Apple and Staff primarily rely on for their non-infringement contentions does not make his statements and the inferences derived therefrom unsupported attorney argument, as Samsung characterizes it. Samsung refers to portions of Dr. Min's testimony as supporting Samsung's contentions and Apple argues other portions of Dr. Min's testimony that it believes supports its position, and likewise with Staff. In each instance, it is evidence, primarily Dr. Min's testimony, that is being relied on to sustain a specific infringement or non-infringement argument. Samsung's complaint that Apple and Staff are simply relying on attorney argument is too broad and general and does not give particulars to enable an informed determination about specific statements that are outside the evidence. Dr. Min's testimony along with Dr. Stark's and the Intel and Qualcomm source code and documentation were sufficient to support Apple's and Staff's arguments.

Samsung argues that Apple's extensive discussion of { } and the UE-ID specific CRC is nothing but a red herring and assumes that no other steps can be performed by the receiver, which flies in the face of black letter patent law that does not look favorably on negative limitations unless there is a clear disavowal of these additional steps. (CRBr. at 45 (citing *Beachcombers Int'l., Inc. v. Wildwood Creative Products Inc.*, 31 F.3d 1154, 1158 (Fed. Cir. 1994)).) Samsung says there is no disavowal of { } in the patent. (*Id.* at 46 (citing JXM-3; JXM-4).) Samsung says there is no mention of either { } in the patent specification. (*Id.* (citing JXM-3).) According to Samsung, the specification and claims are agnostic as to the { } that can be performed and there is nothing in the file history that restricts the { } that can be performed. (*Id.* (citing JXM-4).) Samsung argues that the only evidence that indicates one

way or the other what { } should be performed is the evidence of the inventors' simulations, shown below: {

} (*Id.* (citing RX-880C at S-794-ITC-005511814).) Samsung argues that this evidence shows that the inventors used { } that led to the '644 invention, just like Apple and Samsung. (*Id.* (citing Tr. at 288 (Kim)).)

Samsung says the record evidence explains what { } is, and because the {

}, argues Samsung. (*Id.*) Samsung says the claims use the term "comprising," and there is nothing in the claims, the specification, or the file history that does not allow for the use of these { } in the receiver for other purposes. (*Id.* (citing *Mars Inc. v. H.J. Heinz Co.,* 377 F.3d 1369, 1376 (Fed. Cir. 2004); *Invitrogen Corp. v. Biocrest Mfg. LLP,* 327 F.3d 1364, 1368 (Fed. Cir. 2003)).)

Samsung says Apple extensively describes how the Accused Products receive 60 bits transmitted by the Node B but never states that the Node B does not transmit or that the Accused Devices do not { }, because they { } from the signal transmitted by the Node B. (*Id.* (citing Tr. (Min) at 1274-75, 1279-81).) Samsung argues that, employing pure attorney argument, Apple describes how the Accused Products { }. (*Id.* (citing RBr. at 86-87).) Samsung says that Apple's entire description is inaccurate and misleading, and Apple failed to describe the technology as it is in the record. (*Id.*) According to Samsung, Apple describes { }. (*Id.* (citing RBr. at 86-87).) Samsung argues that this is true only if you look at { }, this is inaccurate and misleading. (*Id.*) Samsung says that Dr. Min testified that { }. (*Id.* at 48 (citing Tr. (Min) at 1277-78).)

Samsung argues that Apple then includes extensive attorney argument discussion about { } based on what Dr. Stark would have testified had his report not been stricken. (*Id.* (citing RBr. at 87-88).) Samsung says that Apple's description of what an { } is, is not only incorrect but also misrepresents Dr. Min's testimony. (*Id.*) According to Samsung, { }. (*Id.* (citing Tr. at 1082 (Min)).) Samsung argues that Dr. Min accurately described the { }. (*Id.* (citing Tr. at 1082 (Min)).) This is because { },

as Dr. Min so testified. (*Id.*) Samsung argues that what Dr. Min never said was that {

}" as Apple has falsely argued. (*Id.*)

Samsung says that Apple does not explain why Dr. Min's testimony that {

}" (*Id.*)

According to Samsung, Apple's argument on this point is just a last-ditch effort to avoid infringement where it is clear. (*Id.*) Samsung says that Apple's simultaneous position is that an { }. (*Id.*) These two positions, argues Samsung, are wholly contradictory. (*Id.*) Samsung says that both of Apple's positions are wrong and not supported by any expert testimony in the record, and Apple has admitted that a { }. (*Id.* (citing RBr. at 87-88; Tr. at 1082 (Min)).)

Samsung argues that there is no evidence in the record to support Apple's argument that { }. (*Id.* (citing RBr. at 88-91).) Instead, argues Samsung, Dr. Min testified that {

} is doing precisely what the claims require, which is decoding the coded bytes at a rate of 1/3. (*Id.* (citing Tr. (Min) at 721).)

The Administrative Law Judge concludes that the Accused Products do not meet "Element 9/13[B]"—*"[a physical channel demapper for] extracting a 60 bit rate-matched block from a signal received from a Node B,"* for the reasons put forward by Apple and Staff and discussed above. The Intel and Qualcomm baseband processors neither extract 60 bits nor generate 90 coded bits, as the asserted claims specify. "Extract" is defined as: "to select (excerpts) and copy out or cite." (*Merriam-Webster's Ninth New Collegiate Dictionary* (1985).) The Intel and Qualcomm baseband processors in the Accused Products {

}. (JX-54C (Hillebrand Dep.) at 119.)

The Intel and Qualcomm baseband processors {

}. (Tr. (Min) at 1045.)

Samsung and Dr. Min interchange "{

}.")

Their shifting positions with respect to what constitutes a "bit," as that term applies in the case of the application {

}, ultimately fails to demonstrate that this claim element is practiced by the Accused Products. Samsung's position ignores the parties' agreement that a "bit" is a binary digit which can have one of two values, a 0 or a 1. { }" are not bits as the term has been defined, and ignoring that fact runs counter to the parties' accepted construction.

c) "Element 9/13[C]"—"[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"

Samsung says the Accused Products comprise a rate dematcher for generating 90 coded bits by rate-dematching the rate-matched block according to a rate matching pattern representing positions to be depunctured. (CBr. at 93-94 (citing Tr. (Min) at 716-717).) According to Samsung, the Accused Products {

}, as is required by the standard as shown in the "rate matching" block of Figure 240 and Section 4.10.4:

4.10.4 Rate Matching for E-AGCH

From the input sequence $z_1, z_2, \ldots, z_{90}$ the bits $z_1, z_2, z_3, z_6, z_7, z_{11}, z_{12}, z_{14}, z_{15}, z_{17}, z_{23}, z_{24}, z_{31}, z_{37}, z_{44}, z_{47}, z_{61}, z_{63}, z_{64}, z_{71}, z_{72}, z_{75}, z_{77}, z_{80}, z_{83}, z_{84}, z_{85}, z_{87}, z_{88}, z_{90}$ are punctured to obtain the output sequence $r_1, r_2, \ldots r_{60}$.

(*Id.* (citing Tr. (Min) at 715-716; CX-1748 at S-ITC-003895058-59).) {

}. (*Id.* (citing Tr. (Min) at 716).)

Samsung argues that the Intel documentation and source code confirms and demonstrates that the iPhone 4 and iPad 2 { }, according to this limitation. (*Id.* (citing Tr. (Min) at 777-778; CX-0014C; CX-0001C).) Samsung says the {

}. (*Id.* (citing Tr.

(Min) at 775).) Samsung says when the {

}." (*Id.* (citing Tr. (Min) at 775).) The source code for this is {

}." (*Id.* (citing Tr. (Min) at 776).) The code shows {

}, says Samsung. (*Id.* (citing Tr. (Min) at 775).)

Samsung says the Qualcomm code also demonstrates that the iPhone 4S {

}. (*Id.* (citing Tr. (Min) at 809-812).) According to Samsung, the iPhone 4S {

}. (*Id.* (citing Tr. (Min) at 809-812).) Specifically, says Samsung, the following code { }, as claimed in the '644 patent: {

} (*Id.* at 95-96 (citing Tr. (Min) at 809-812; CX-0472C at Q1ITC494SC0000211, lines 353-385).) Samsung argues that, as it previously explained in their discussion of the "extracting" element, {

}. (*Id.* (citing Tr. (Min) at 811).)

Samsung says that, to the extent that Apple argues that it does not infringe this element because { }, it is wrong because, as seen by the source code and documentation, the Accused Products {

}. (*Id.* (citing Tr. (Min) at 1274-75, 1279-81).) Samsung says that nothing in the claims, the specification, or the prosecution history precludes these { } from being included, and nothing in the intrinsic record precludes the use of { }. (*Id.* (citing Tr. (Min) at 1275, 1279-81).) According to Samsung, the Accused Products {

}. (*Id.* (citing Tr. (Min) at 1287-88).)

Samsung says the Accused Products infringe as well under the doctrine of equivalents because they operate in a substantially similar manner. They perform the same function of { }. (*Id.*

at 98.) Samsung argues that they perform this function in the same way, {

}. (*Id.*) According to Samsung, the result is the same and {

}. (*Id.*)

Apple says that all asserted claims of the '644 patent require "generating 90 coded bits by rate-dematching the rate-matched block according to a rate matching pattern representing positions of bits to be depunctured." (RBr. at 95 (citing JXM-3 at claims 9 and 13).) Apple says that none of the Accused Products generates "90 coded bits" or "rate dematch[es] the rate-matched block" or "rate-dematch[es]…according to a rate matching pattern representing positions of bits to be depunctured." (*Id.*)

First, argues Apple, the element that recites "generating 90 coded bits" requires a receiver that generates exactly 90 "coded bits" (i.e. binary digits, 0 or 1). Apple says none of the Accused Products does this. (*Id.* at 95-96 (citing Tr. (Stark) at 2304-05).) All the Accused Products { }. (*Id.* at 96.) Apple says Samsung's infringement allegations fail on this basis alone. (*Id.*)

Second, argues Apple, the Accused Products do not generate any "coded bits," because instead, { }. (*Id.*) These {

}. (*Id.* (citing Tr. (Min) at 1045).) Apple argues that the { } are not "coded bits," because each { }. (*Id.*)

Third, Apple says that none of the Accused Products generates "90 coded bits" that are input to a decoder, because, instead, they use "{

}, as the '644 claims require: "A rate dematcher **406** recovers (that is depunctures) the bits punctured by the rate matcher **310** for the rate-matched block by filling 0s at the punctured bit positions according to the rate matching pattern used in the rate matcher **310** of the Node B." (*Id.* (citing JXM-3 at 7:61-66).)

Apple says that because the Accused Products do not "extract[]a 60-bit rate-matched block," as previously discussed, they consequently cannot "rate dematch[] the rate-matched block." (*Id.*) Apple argues that "rate-dematching" requires "inserting a bit at each punctured bit location according to a rate matching pattern." (*Id.*) According to Apple, "depunctured" requires "inserting a bit to replace bits removed during rate matching and "rate dematching...according to a rate matching pattern representing positions of bits to be depunctured" requires inserting a binary digit at each punctured binary digit location according to a rate matching pattern representing the positions of binary digits that Node B removed during rate matching. (*Id.*)

Apple says the Accused Products do not perform these actions, for reasons previously discussed in Apple's description of how the Qualcomm and Intel baseband processors in the

Accused Products function. In the iPhone 4S (AT&T), the {

}. (*Id.* at 97-98 (citing Tr. (Min) at 1069-72).)

Similarly, says Apple, in the iPhone 4 (AT&T) and iPad 2 (3G) (AT&T), the {

{

}. (*Id.*)

Apple argues that it was undisputed at trial that what the Accused Products insert during depuncturing is {

}. (*Id.* (citing Tr. (Min) at 1071-72).) Apple says that it was also undisputed that {

}. (*Id.* (citing Tr. (Min) at 1082).) Therefore, argues Apple, the Accused Products satisfy none of the "rate-dematching," "depunctured," or "bit" limitations. (*Id.*)

With respect to the question of infringement under the doctrine of equivalents, Apple says Samsung waived that contention by failing to present any testimony on the subject during the hearing. (*Id.* at 101.) Apple says that proof of infringement under the doctrine of equivalents requires particularized testimony and linking argument for each limitation asserted by equivalents. (Id. at 100-101 (citing *American Calcar, Inc. v. American Honda Motor Co., Inc.,*

651 F.3d 1318, 1338-39 (Fed. Cir 2011) ("a patentee must...provide particularized testimony and linking argument as to the 'substantiality of the differences' between the claimed invention and the accused device or process...to support a finding of infringement under the doctrine of equivalents. Such evidence must be presented on a limitation-by-limitation basis.")).) Apple notes that Dr. Min denied having given any testimony under the doctrine of equivalents on either the '644 or the '348 patents. (*Id.* at 101 (citing Tr. (Min) at 846).) Therefore, argues Apple, Samsung has waived any argument that the Accused Products infringe under the doctrine of equivalents. (*Id.*)

Staff says the evidence shows that the Accused Products do not generate 90 coded binary digits, because they {

}. (SBr. at 78 (citing JX-59C (Hillebrand Dep.) at 36).) According to Staff, while the {

}. (*Id.* (citing Tr. (Min) at 1087-88).) Thus, according to Staff, the Accused Products do not "decod[e] the coded bits at a coding rate of 1/3[.]" (*Id.* (citing JXM-3 at 27).) Staff also contends that Samsung neither alleged nor proved that the Accused Products infringe under the doctrine of equivalents. (*Id.* at 80 (citing Tr. at 846 (Min)).)

The Administrative Law Judge concludes that the preponderate evidence does not demonstrate that any of the Accused Products infringe "Element 9/13[C]"—"[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." Because the Accused Products do not "extract[]a 60-bit rate-matched block," as discussed in respect to the previous claim element, they consequently cannot "rate dematch[] the rate-matched block." The Accused Products do not generate "90 coded bits" or "rate-dematch…according to a rate matching pattern representing positions of bits to be depunctured. (Tr. (Stark) at 2304-05.)

The Accused Products do not generate "coded bits," but, rather, {

}. (Tr. (Min) at 1045.) Nor do the Accused Products generate {

}. (Tr. (Min) at 1078.)

For these reasons, as well as the additional reasons argued by Apple and Staff, as discussed above, the Administrative Law Judge concludes that the Accused Products do not infringe this element of the asserted claims. The Administrative Law Judge further finds that Samsung's infringement argument under the doctrine of equivalents was not properly disclosed or demonstrated by the evidence.

> *d) "Element 9/13[D]"—"[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"*

Samsung says the Accused Products include 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. (CBr. at 98 (citing Tr. at 721

(Min)).) According to Samsung, the 3GPP standard describes the channel coding in Figure 24 and Section 4.10.3:

> **4.10.3 Channel coding for E-AGCH**
> "Rate 1/3 convolutional coding, as described in Section 4.2.3.1 is applied to the sequence of bits $y_1, y_2, \ldots, y_{22}$, resulting in the sequence of bits $z_1, z_2, \ldots, z_{90}$.

(*Id.* (citing Tr. at 717-718 (Min); CX-1748 at S-ITC-003895002, 5059).) Because Node B encodes the bits at a coding rate of 1/3, the Accused Products must decode the bits encoded at this rate. (*Id.* (citing Tr. at 720-721 (Min)).) Samsung argues that, since Node B encodes the bits at a coding rate of 1/3, the Accused Products must decode those bits that prior to decoding were encoded at a coding rate of 1/3. (*Id.* (citing Tr. at 779-780 (Min)).)

According to Samsung, once the 90 bits are decoded, the result is that the receiver has the originally encoded information, a 6-bit AG and a 16-bit UE-ID specific CRC. (*Id.* at 99 (citing Tr. at 719-721 (Min)).) Samsung says the standard defines this information in Sections 4.10 and 4.10.2:

> **4.10 Coding for E-AGCH**
> The absolute grant $x_{ag,1}$, $x_{ag,2}, \ldots, x_{ag,6}$ is transmitted by means of the absolute grant channel (E-AGCH.)
> **4.10.2 CRC attachment for E-AGCH**
> The E-RNTI is the E-DCH Radio Network Identifier defined in [13]. It is mapped such that $x_{id,1}$ corresponds to the MSB.
> From the sequence of bits $x_{ag,1}, x_{ag,2}, \ldots, x_{ag,6}$, a 16 bit CRC is calculated according to section 4.2.1.1. That gives the sequence of bits $c_1, c_2, \ldots, c_{16}$ where
>
> $C_k = p_{im(17-k)}$ k=1,2,…,16
>
> This sequence of bits is then masked with $x_{id,1}, x_{id,2}, \ldots, x_{id,16}$ and appended to the sequence of bits $x_{ag,1}, x_{ag,2}, \ldots, x_{ag,6}$ to form the sequence of bits $y_1, y_2, \ldots y_{22}$ where
>
> Y1=xag,i i=1,2,…,6
> Y1=(ci-6+xid,i-6)mod 2 i=7,…,22

(*Id.* (citing Tr. at 719, 721 (Min); CX-1748 at S-ITC003895058).) Samsung says that after the

{ }. (*Id.* (citing Tr. at 719-

721 (Min)).) {

}, there is no requirement that the Accused Products decode exactly 30 bits. (*Id.* (citing Tr. at 719-721(Min); Order No. 63 at 59-60).)

Samsung says the Intel code confirms and demonstrates that the iPhone 4 and iPad 2 { } according to this claim limitation. (*Id.* at 100 (citing Tr. at 784-785 (Min)).) Samsung says the {

}. (*Id.* (citing Tr. at 778-780 (Min); CX-0014C at 799).)

{

} (*Id.* (citing Tr. at 778-780 (Min); CX-0014C at 799).) Samsung argues that, as shown, the { }. (*Id.* (citing Tr. at 778-780 (Min); CX-0014C at 799).) Samsung says that because {

} (*Id.* (citing Tr. at 783 (Min); CX-0014C at 800).)

Samsung says the Intel source code also proves that the Accused Products infringe this limitation. (*Id.* at 101.) {

}, says Samsung. (*Id.* (citing Tr. at 780-781 (Min)).) {

}. (*Id.* (citing Tr. at 781 (Min); CX-001C at 593DOC000101,-104).) The source code file "{

}, Samsung says. (*Id.* (citing Tr. at 781 (Min); CX-0001C at 593DOC0000104).)

The source code also shows the {

}, says Samsung. (*Id.* (citing Tr. at 784 (Min)).)

Samsung says the Qualcomm code also demonstrates that the iPhone 4S {

} (*Id.* at 101-102 (citing Tr. at 813-814 (Min); CX-0472 C at Q1ITC794SC0000209, line 292).)

{ }, according to Samsung. (*Id.* at 102 (citing Tr. at 819 (Min)).) Samsung says that, {

}. (*Id.*)

Samsung says that to the extent that Apple argues that the Accused Products do not infringe this element because they use { }, Apple is misrepresenting the technology. (*Id.*) Samsung says that, after the {

}. (*Id.*) Thus, this element is infringed, even though the Accused Products use { }, argues Samsung. (*Id.* (citing Tr. at 1281-82 (Min)).)

Samsung says the Accused Products also infringe under the doctrine of equivalents because they are substantially similar to the claim element and perform the same function in that they { } at a rate of 1/3. (*Id.* at 104.) Specifically, argues Samsung, the Accused Products use { } and perform the function in the same way by using a { }. (*Id.*) Samsung argues that the result is the same because the {

}. (*Id.*)

Apple says that this limitation requires "decoding bits that were encoded according to a coding rate that outputs one bit for every three input bits." (RBr. at 98-99 (citing Order No. 67).) Apple argues that it does not practice this limitation, for several reasons.

First, the antecedent basis for "decoding the coded bits" is "generating 90 coded bits. Apple says that because the Accused Products do not perform the "generating 90 coded bits" limitation, for reasons already discussed, they consequently do not perform the limitation that is the subject of this section either. (*Id.* at 99.)

Second, Apple says it was not disputed at the hearing that {

}. (*Id.* (citing Tr. at 1085 (Min)).) Because {

} in the Accused Products, Apple argues that none of these products inputs "90 coded bits" into a decoder, as the claim limitations call for. (*Id.*)

Third, Apple argues that it was undisputed at the hearing that {

}. (*Id.* (citing Tr. at 1085-88 (Min)).)

Fourth, Apple says the {

}." (*Id.* (citing JX-59C at 119 (Hillebrand Dep.); Tr. at 1069-72, 1077 (Min)).)

Fifth, Apple says that any argument that this element is met by merely being HSUPA-capable is wrong because TS 25.212, Section 4.10, defines how an AG "is transmitted," not how and AG is received. (*Id.* at 99-100.)

The Administrative Law Judge concludes that the evidence does not demonstrate to a preponderate degree that the Accused Products infringe "Element 9/13[D]"—"[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." Because the Accused Products do not perform the "generating 90 coded bits" limitation, for reasons already discussed, they do not perform the limitation that is the subject of this section, either. The evidence shows that {

} as the claim limitations call for. Neither the {

}. (Tr. at 1085-88 (Min).)

e) "Element 9/13[E]"—"[a CRC checker for] outputting the control information by checking the UE-ID specific CRC"

Samsung says the Accused Products comprise a CRC checker for outputting the control information by checking the UE-ID specific CRC. (CBr. at 104 (citing Tr. at 724-725 (Min)).) According to Samsung, {

}. (*Id.* (citing Tr. at 722, 724 (Min)).) Samsung says that Figure 24 of TS 25.212 and Section 4.10.2 describe the generation of the CRC that is attached to the 6-bit AG:

> 4.10.2 CRC attachment for E-AGCH
> The E-RNTI is the E-DCH Radio Network Identifier defined in [13]. It is mapped such that xid,1 corresponds to the MSB.
> From the sequence of bits xag,1, xag,2,…,xag,6, a 16 bit CRC is calculated according to section 4.2.1.1. That gives the sequence of bits c1,c2,…,c16 where
>
> Ck=pim(17-k) k=1,2,…,16
> This sequence of bits is then masked with xid,1, xid,2,…,xid,16 and appended to the sequence of bits xag,1, xag,2,…,xag,6 to form the sequence of bits
>
> y1,y2,…y22 where
> Y1=xag,i i=1,2,…,6
> Y1=(ci-6+xid,i-6)mod 2 i=7,…,22

(*Id.* at 104-105 (citing Tr. at 722-723 (Min); CX-1748 at S-ITC-003895058).) According to Samsung, the Accused Products {

}. (*Id.*)

Samsung says the Intel code confirms and demonstrates that the iPhone 4 and iPad 2 {

} according to this limitation. (*Id.* (citing Tr. at 791-792 (Min)).) {

}. (*Id.*)

Samsung says the { } source code also shows this limitation. (*Id.* at 106 (citing Tr. at 787-792(Min); CX-001C).) {

} according to Samsung. (*Id.* (citing Tr. at 787 (Min)).) The code relating to {

}. (*Id.* (citing Tr. at 790-791 (Min)).)

Samsung says the Qualcomm code demonstrates that the iPhone 4S { } according to this limitation { }. (*Id.* (citing Tr. (Min) at 820-821).) {

}

(*Id.* (citing Tr. (Min) at 822 and CX-0467C at Q1ITC794SC0000145, lines 2266-2279).) {

}.

(*Id.*)

Samsung says that Apple was precluded from presenting evidence relating to its non-infringement argument that the "checking the UE-ID specific CRC" element by Order No. 86. (*Id.* at 107.) Samsung says Apple should be entirely precluded from arguing its non-infringement positions and to the extent that it is permitted to argue that it does not infringe because the Accused Products { }, Apple is wrong for two reasons, owing to the fact that Apple is basing its argument on the parties' agreed construction that "UE-ID specific CRC" is a "CRC masked with a UE-ID." (*Id.*) First, according to Samsung, Apple misinterprets the claim language and the agreed construction because a person of ordinary skill in the art would recognize that a CRC check to verify data must be { }. (*Id.*) Samsung argues that Apple's interpretation of this limitation forecloses this additional, unclaimed and non-precluded step that is inhering in the step being performed. (*Id.*) Samsung says the fact that the CRC is modified with "UE-ID specific" in this instance provides antecedent basis to show that the same CRC that was transmitted by Node B is used to check the data. (*Id.* at 107-108.) Samsung says there is nothing in the claim that precludes the { } from occurring. (*Id.* at 108.) Second, says Samsung, Apple's argument ignores the fact that there are two different things occurring: (1) {

}. Therefore, this check limitation must be performed with the UE-ID specific CRC, as opposed to just any CRC. (*Id.*)

Apple points out that the asserted '644 claims require "outputting the control information by checking the UE-ID specific CRC." (RBr. at 100 (citing JXM-3 at claims 9, 13).) According to Apple, "UE-ID specific CRC" means "a 16-bit CRC masked with a 16-bit UE-ID," and therefore the claims require outputting the control information by checking a 16-bit CRC masked with a 16-bit UE-ID. (*Id.*) Apple says none of the Accused Products does this. (*Id.* (citing Tr. at 2309-11 (Stark)).)

Apple says Dr. Min's expert report failed to identify anything in the iPhone 4S (AT&T) that he contended performed the "checking the UE-ID specific CRC" limitation. (*Id.* (citing Tr. at 1134-38 (Min)).) Apple says that Dr. Min's new opinion, offered for the first time at the hearing, purporting to compare the { } to this "checking" limitation, is barred by Ground Rule 9.5.6. (*Id.*) Apple says that Samsung's iPhone 4S (AT&T) allegations thus fail. (*Id.* (citing *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1535 (Fed. Cir. 1991) ("failure to meet a single limitation is sufficient to negate infringement of the claim.")).) More fundamentally, argues Apple, none of the Accused Products outputs control information by checking a 16-bit CRC masked with a 16-bit UE-ID. (*Id.*) {

}. (*Id.* at 100-101 (citing Tr. at 1141 (Min)).) Thus, reasons Apple, the Accused Products { }. (*Id.* at 101 (citing Tr. at 1142 (Min), 2262, 2309-11 (Stark)).)

Staff says the parties have agreed that the term "UE-ID specific CRC" means "a 16-bit CRC masked with a 16-bit UE-ID." (SBr. at 79.) Claim construction is a matter of law for the administrative law judge. The Administrative Law Judge concludes that the parties' agreed construction is fully in accord with the law with respect to this term as it appears in the asserted claims. The specification teaches that "[t]he UE-ID and the CRC each have 16 bits and are modulo-2 operated on a bit basis. They are included together with the AG in control information delivered on the E-AGCH, in the form of a 16-bit CRC masked with a UE-ID." (JXM-3 at 5:13-17.)

Staff says that, in the Accused Products, {

}. (*Id.* (citing JX-59C at 39, 49 (Hillebrand Dep.)).) In the Intel PMB9801, firmware {

}. (*Id.* at 80 (citing Tr. at 1140-42 (Min)).) Staff says that in his expert report, Dr. Min did not give an opinion as to whether {

}. (*Id.* (citing Tr. at 1134-40 (Min)).)

For these reasons, Staff concludes that the Accused Products have not been shown to "check[] the UE-ID specific CRC."

Staff argues that because the Accused Products do not read on any element of claims 9 or 13 they do not literally infringe either claim. (*Id.*) Moreover, argues Staff, Samsung has neither alleged nor proven that the Accused Products infringe under the doctrine of equivalents. (*Id.* (citing Tr. at 846 (Min)).)

Staff disagrees with Samsung's contention that it {

}. (SRBr. at 11 (citing CBr. at 92).) Staff says that Samsung's argument is based on the following testimony of Dr. Min:

{

}

(*Id.* (citing Tr. at 1272-73 (Min)).) Staff says that Dr. Min also explained that {

}, do not literally infringe the asserted claims, for the reasons argued in Staff's opening brief, at pp. 75-80, which are discussed above. (*Id.* at 11-12.)

Staff says that Samsung alleges for the first time, in its post-hearing brief, that products that use {

}, practice claims 9 and 13 under the doctrine of equivalents. (*Id.* at 12 (citing CBr. at 93, 98, 104).) However, argues Staff, Samsung presented no evidence in support of this theory at the hearing, as shown here:

> Q. Dr. Min, I want to be clear on one thing. You gave no opinions under the doctrine of equivalents on either the '644 or the '348 patent in the last nine hours, correct?
> A. Not during direct testimony, yes.
> Q. So I am not going to ask you about those, because you gave not direct testimony, correct?
> A. That is correct.

(*Id.* (citing Tr. (Min) at 846).) Therefore, Staff says it agrees with Apple that Samsung cannot meet its burden to provide particularized evidence showing that the Accused Products and process infringe under the doctrine of equivalents. (*Id.* (citing RBr. at 101-102).) In fact, according to Staff, the evidence suggests the opposite {

}

(*Id.* (citing Tr. (Min) at 1128).) Because {

}, Staff says that Samsung cannot rely on the doctrine of equivalents to establish either infringement or the existence of a domestic industry. (*Id.*)

The Administrative Law Judge concludes that the evidence does not demonstrate to a preponderate degree that the Accused Products infringe "Element 9/13[E]"—"[a CRC checker for] outputting the control information by checking the UE-ID specific CRC." Further, the Administrative Law Judge disagrees with Samsung that Apple and Staff were precluded from disputing or offering evidence regarding the issues concerning whether the Accused Products infringe this limitation. The claims require outputting the control information by checking a 16-bit CRC masked with a 16-bit UE-ID. None of the Accused Products outputs control information by checking a 16-bit CRC masked with a 16-bit UE-ID. (Tr. at 2309-11 (Stark).) {

}. (Tr. at 1142 (Min), 2262, 2309-11 (Stark).)

f) "Element 9/13[F]"—"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}"

Samsung says the Accused Products use the rate matching pattern {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}. (CBr. at 108 (citing Tr. at 727-728 (Min)).) Samsung says the standard, at Section 4.10.4, indicates that this rate matching pattern is used:

4.10.4 Rate matching for E-AGCH

From the input sequence $z_1, z_2, \ldots, z_{90}$ the bits $z_1, z_2, z_5, z_6, z_7, z_{11}, z_{12}, z_{14}, z_{15}, z_{17}, z_{23}, z_{24}, z_{31}, z_{37}, z_{44}, z_{47}, z_{61}, z_{63}, z_{64}, z_{71}, z_{72}, z_{75}, z_{77}, z_{80}, z_{83}, z_{84}, z_{85}, z_{87}, z_{88}, z_{90}$ are punctured to obtain the output sequence $r_1, r_2, \ldots, r_{60}$.

(*Id.* (citing Tr. at 726 (Min)).) The bit positions in Section 4.10.4 are identical to the bit positions in this element of claims 9 and 13, according to Samsung. (*Id.*) In order to properly decode the data, the Accused Products must use the same rate-matching pattern during the rate-dematching step. (*Id.* (citing Tr. at 726-728 (Min)).)

Samsung says the Intel code demonstrates that the iPhone 4 and iPad 2 {

} according to this limitation. (*Id.* (citing Tr. at 792-793 (Min)).) According to Samsung, {

}. (*Id.* (citing Tr. at 793 (Min); CX-0001C at 593DOC000100).)

Samsung says the Qualcomm code demonstrates that the iPhone 4S {

} according to this limitation. (*Id.* at 109 (citing Tr. at 827-828 (Min)).) The file

{

}

(*Id.* (citing Tr. at 825, 827 (Min)).)

Neither Apple nor Staff specifically address this element; however, the "wherein" limitation relates to the antecedent rate matching limitation, the evidence in support of which was found insufficient to demonstrate infringement and therefore the Administrative Law Judge concludes for the reasons previously discussed that the evidence does not demonstrate to a preponderate degree that the Accused Products infringe "Element 9/13[F]—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}."

2. Direct Infringement of Claims 10 and 14

Claims 10 and 14 recite as follows:

> **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.
>
> **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.

(JXM-3 at 28:4-6 and 28:33-35.)

Samsung contends that the Accused Products receive control information that indicates an allowed maximum data rate for transmission of uplink packet data. (CBr. at 109 (citing Tr. at 735-737 (Min)).) Samsung says TS.125.321 of the 3GPP standard describes the AG value thusly:

> This field indicates the maximum E-DCH traffic to pilot ration (E-DCDCH/DPCCH) that the UE is allowed to use in the next transmission. The length of the Absolute Grant Value field is [5] bits.

(*Id.* (citing CX-1504 at 48).)

> At each TTI boundary, UEs in CELL_DCH state with an E-DCH transport channel configured shall determine the state of each E-TFC for every MAC-d flow configured based on its required transmit power versus the maximum UE transmit power (see [7] and [12]). The UE shall consider that E-TFCs included in the minimum set of E-TFCs are always in supported state (see [7]).

(*Id.* (citing CX-1504 at 71).)

According to Samsung, ETSI 125.321, and also 3GPP TS 25.321, describe the AG. (*Id.* (citing Tr. at 732 (Min)).) The AG is the maximum traffic to pilot ratio, which is the power ratio. (*Id.* (citing CX-1504 at 48).) That power ratio, argues Samsung, corresponds to the maximum data rate that can be used by the Accused Products. (*Id.* (citing Tr. at 735-736 (Min)).)

Apple responds that non-infringement of claims 9 and 13 disposes of dependent claims 10 and 14. (RRBr. at 60.) Staff agrees that the Accused Products do not infringe dependent claims 10 and 14 because they do not infringe independent claims 9 and 13.

The Administrative Law Judge concludes that dependent claims 10 and 14 are not infringed for the same reasons the claims 9 and 13 are not infringed, as previously discussed.

3. Direct Infringement of Claims 11 and 15

Claims 11 and 15 read as follows:

> **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.
>
> **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

(JXM-3 at 28:7-11 and 28:36-40.)

Samsung alleges that the Accused Products comprise control information wherein the control information includes a 5-bit power offset equivalent to the allowed maximum data rate and a 1-bit validity process indicator of whether the control information is valid for an entire hybrid automatic repeat request (HARQ) process. (*Id.* (citing Tr. at 741-742 (Min)).) According to Samsung, the ETSI TS 125.321 standard indicates that the AG comprises the following value and scope:

> The absolute grant message itself includes multiple fields that are multiplexed together into [10] bits inside the MAC-e of the Node B and then submitted to the physical layer for transmission on the E-AGCH. These fields are:
>
> - Absolute Grant Value:

> This field indicates the maximum E-DCH traffic to pilot ratio (E-DPDCH/DPCCH) that the UE is allowed to use in the next transmission. The length of the Absolute Grant Value field is [5] bits.
>
> - Absolute Grant Scope:
>
> This field indicates the applicability of the Absolute Grant. It can take two different values, "Per HARQ process" or "All HARG processes", allowing to indicate whether the HARQ process activation/de-activation will affect one or all processes. The Absolute Grant Scope is encoded in 1 bit. When the E-DCH is configured with 10ms TTI, only the value "All HARQ process" is valid (see subclause 10).

(*Id.* at 110-111 (citing CX-1504 at 48).) Samsung argues that, as it previously explained, there is a 5-bit power offset that is equivalent to the allowed maximum data rate. (*Id.* (citing Tr. at 740 (Min)).) Samsung says the Absolute Grant Scope is a 1-bit indicator that is either for one HARQ or All HARQ processes. (*Id.* (citing Tr. at 740-741 (Min)).)

Apple responds that non-infringement of claims 9 and 13 disposes of dependent claims 11 and 15. (RRBr. at 60.) Staff agrees that the Accused Products do not infringe dependent claims 11 and 15 because they do not infringe independent claims 9 and 13. (SBr. at 80.)

The Administrative Law Judge concludes that dependent claims 11 and 15 are not infringed for the same reasons the claims 10 and 14 are not infringed, as previously discussed.

4. Direct Infringement of Claims 12 and 16

Claims 12 and 16 recite as follows:

> **12**. The method of claim **9**, wherein the UE-ID specific CRC is generated by a modulo-2 operating a 16-bit CRC with a 16-bit UE-ID.
>
> **16**. The apparatus of claim **13**, wherein the UE-ID specific CRC is generated by module-2 operating a 16-bit CRC with a 16-bit UE-ID.

(JXM-3 at 28:12-14 and 28:41-43.)

Samsung argues that the UE-ID specific CRC received by the Accused Products is generated by modulo-2 operating a 16-bit CRC with a 16-bit UE-ID. (CBr. at 111 (citing Tr. at 745 (Min)).) Samsung says Section 4.10.2 of the 3GPP standard shows that the Node B performs a modulo-2 addition to combine the 16-bit CRC with the 16-bit UE-ID. (*Id.*) This UE-ID specific CRC is subsequently encoded and transmitted to the Accused Products and decoded according to the process described in claims 9 and 12, Samsung argues. (*Id.* (citing Tr. at 742-743 (Min)).)

Samsung says there is no dispute that the UE-ID specific CRC is generated by the Node B as described in claims 12 and 16. (*Id.*) Samsung says Apple's argument that the Accused Products do not generate the UE-ID specific CRE ignores the language of the claims. (*Id.*) According to Samsung, the "wherein" clause of claims 12 and 16 describes the UE-ID specific CRC that is part of the rate-matched block that is extracted from the signal received on the physical channel. (*Id.*) The UE-ID specific CRC is already generated when it is received by the Accused Products, argues Samsung, and claims 12 and 16 describe the process by which the UE-ID specific CRC is generated before it is received. (*Id.*) Samsung argues that nothing in the claim language indicates or requires that the UE-ID specific CRC be generated by mobile device. (*Id.* at 112-112 (citing JXM-3 at 28:12-14, 28:41-43).) Samsung contends that Apple's argument rewrites the claim to state "generating the UE-ID specific CRC by…" (*Id.* at 112.) Samsung says this is not the claim language which states that the UE-ID specific CRC is generated. (*Id.* (citing JXM-3 at 28:13, 28:42).) Samsung argues that there is no dispute that the received CRC is generated as the claim language dictates. (*Id.*)

Apple argues that non-infringement of claims 9 and 13 also disposes of their dependent claims 12 and 16. (RBr. at 60.) Apple says that it is undisputed that none of the Accused

Products performs the "UE-ID specific CRC" generating step that is required. (*Id.* at 60-61.) Instead, argues Apple, the UE-ID specific CRC is generated by HSUPA Node Bs (i.e., base stations) owned and operated at arm's length by third parties such as AT&T. (*Id.* at 61.) Apple argues that, because it is undisputed that this additional limitation is performed by third parties who are not acting under Apple's control, and not Apple, the Accused Products do not infringe. (*Id.*)

Staff contends that the evidence does not demonstrate that the Accused Products infringe dependent claims 12 and 16 for the same reasons that Staff argued that those products do not infringe claims 9 and 13. (SBr. at 80.)

The Administrative Law Judge concludes that dependent claims 12 and 16 are not infringed for the same reasons the claims 9 and 13 are not infringed, as previously discussed.

5. Indirect Infringement of Claims 9-13

Samsung contends that Apple directly infringes claims 9-13 when it tests its products to ensure that they operate correctly and to ensure HSUPA capabilities. (CBr. at 116 (citing Tr. at 1266 (Min)).) According to Samsung, Apple also indirectly infringes claims 9-13 because Apple's customers directly infringe these claims when they make phone calls on HSUPA networks and when they use the data transfer functionalities of HSUPA capable devices. (*Id.*) Samsung argues that all HSUPA capable devices must receive the E-AGCH in the manner previously described by Samsung for operation of the network. (*Id.* (citing Tr. at 649 (Min)).) Therefore, argues Samsung, every time an Apple customer uses an Accused Product, on an HUSPA-compliant network, the customer directly infringes the claims. (*Id.*)

Samsung contends that Apple has been aware of its infringement of the '644 patent since as early as {

}. (*Id.* (citing CX-0390.0015C).) Samsung says that despite being made aware of its infringement, Apple continues to induce its customers to use the HUSPA capabilities of its networks with the specific intent and willful blindness that such use will infringe the '644 patent. (*Id.* at 116-117).) Samsung says that Apple instructs its users to use the HSUPA capabilities by making calls and using data services on HSUPA networks. (*Id.* (citing Tr. at 1266 (Min)).) According to Samsung, a user of the Accused Products cannot operate on an HSUPA network without practicing every element of the claims. (*Id.* (citing Tr. at 649-650 (Min)).) Samsung contends that there are no substantial non-infringing uses since normal operation of the devices on the HSUPA network must infringe. (*Id.* (citing Tr. at 686, 737, 745 (Min)).)

Apple argues that in order to demonstrate indirect infringement, Samsung must prove that Apple directly infringes claims 9-13. (RBr. at 102 (citing *DSU,* 471 F.3d at 1303).) According to Apple, Samsung's indirect infringement theories fail because (1) the Accused Products do not directly infringe, for the reasons discussed above, and (2) Samsung names no third party direct infringer. (*Id.*) Moreover, argues Apple, it has never held "an affirmative intent to cause direct infringement." (*Id.*) According to Apple, merely being HSUPA capable says nothing at all about whether the asserted claims are practiced. (*Id.*) Further, Apple says that discovery from Qualcomm and Intel have revealed that the baseband processors in the Accused Products do not practice any of the '644 patent's "extracting," "generating," "decoding," or "checking" limitations. (*Id.*) Apple says that it is undisputed the Accused Products use a form of decoding