UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* MIN-GOO KIM, SANG-HYUCK HA,
and JAE-SUNG JANG

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Appeal 2008-0946
Application 11/102,253
Technology Center 2100

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Decided: March 31, 2008

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Before HOWARD B. BLANKENSHIP, JEAN R. HOMERE, and
ST. JOHN COURTENAY III, *Administrative Patent Judges*.

BLANKENSHIP, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 9-11, 13, and 14. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellants claim methods of generating sub-codes, and transmitting symbols using sub-codes, of two dimensional QCTCs (Quasi Complementary Turbo Codes). The term "Quasi Complementary Turbo Codes" does not appear to be defined in the instant Specification. However, the Specification refers to a Korea Patent Application (No. P2000-62151) for details of earlier proposed QCTCs. (Spec. 3: 19-21.) Claim 9 is illustrative.

9. A method of generating sub-codes of two-dimensional QCTCs (Quasi Complementary Turbo Codes), comprising the steps of:

generating sub-codes of a QCTC with the highest code rate among QCTCs with code rates in an integer-multiple relation and setting the QCTC with the highest code rate as a primitive code;

determining a number of sub-codes to be grouped in the primitive code to generate each of the other QCTCs; and

generating sub-codes of the other QCTCs by grouping the sub-codes of the primitive code according to grouping numbers, and transmitting symbols using the generated sub-codes.

The Examiner relies on the following references as evidence of unpatentability.

Kallel, Complementary punctured convolution (CPC) codes and their applications, IEEE Transaction on Communications, vol. 43, No. 6, 2005-2009, (1995).

Softest Hand-over with Rate Matching, LG Information & Communications, Ltd, 3GPP TSG RAN WG1 #15 TSG R1-00-1024, Berlin, Germany (22th - 25th Aug., 2000) ("Citation#1").

Claims 9-11, 13, and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kallel and Citation#1.

Claim 12 stands allowed. Claims 1-8 and 15-20 have been canceled.

Appellants contend that the applied references do not teach or suggest Quasi Complementary Turbo Codes as claimed. Appellants acknowledge that the instant specification does not provide a definition of "QCTC" codes. Appellants offer a definition at page 8 of the Appeal Brief, but do not reveal the definition source, aside from referring to an after-final "Response of November 17, 2007" [sic; Nov. 20, 2006; Certificate of Mailing dated Nov. 17, 2006] -- a paper that also offers the definition without identifying any particular source -- and to the Abstract of U.S. Patent 6,877,130, which does not use the term Quasi Complementary Turbo Codes, nor its acronym.

However, the Examiner (Ans. 5) and Appellants (Reply Br. 3) seem to agree that U.S. Patent 7,093,185, which was assigned to the same entity to which the instant application is assigned, provides a suitable definition.

> The present invention provides a QCTC generating method for a system using channel interleaving and a method of generating QCTCs in a predetermined way irrespective of a variable code length in a system requiring QCTCs with a variety of code rates. A QCTC is defined as a complementary code generated using a turbo code. The QCTC is not a perfect complementary code as noted from the term "quasi" because a sub-code includes repeated symbols and has a different characteristic such as error correcting capability from another sub-code.

'185 Patent, col. 3, ll. 30-39.[1]

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[1] U.S. Patent 7,093,185 issued on August 15, 2006, with its application being published (pursuant to 35 U.S.C. § 122(b)) on September 12, 2002. The effective filing date (under 35 U.S.C. § 120) of the instant application is February 6, 2002.

The Examiner finds that, consistent with the quoted definition, Kallel describes generating sub-codes of a "quasi" complementary code, although not generated using a turbo code. The Examiner further finds that the codes described in Kallel are complementary codes designed for convolutional codes such as turbo codes, and that Citation#1 teaches the use of complementary codes for a turbo code. The Examiner concludes that it would have been obvious to use turbo codes as taught by Citation#1 because of known performance enhancements in providing optimal communication bandwidth and bit error rate (Ans. 5-6, 17), and further because using a turbo encoder would have provided a means for rate matching (*id.* at 6).

Appellants in response (Reply Br. 4) allege a "lack of understanding" by the Examiner and point to Figure 2 of the instant specification, neither of which demonstrate that the claims distinguish over the prior art. The *claims* measure the invention. *See SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). Our reviewing court has repeatedly warned against confining the claims to specific embodiments described in the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc).

Appellants also respond that Kallel teaches "perfect" complementary codes, with maintaining the complementary nature of the punctured convolutional codes an essential and central element of the reference. (Reply Br. 3-4.)

Kallel does not refer to the complementary punctured convolutional (CPC) codes as "quasi" complementary codes. Neither, however, does Kallel refer to the CPC codes as "perfect" complementary codes. The

Examiner has set forth findings (e.g., Ans. 5) with respect to how the codes described by Kallel are "quasi" complementary *in accordance with the asserted meaning* of "quasi" codes, even if the reference does not use the express term. For example, Kallel refers to matrix (6) as "complementary" because it contains no zero elements. Yet, the matrix indicates repetition elements ("2"), consistent with a "quasi" code distinguished from a "perfect" complementary code, due to a sub-code that includes repeated symbols.

What a reference teaches is a question of fact. *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994); *In re Beattie*, 974 F.2d 1309, 1311, 24 USPQ2d 1040, 1041 (Fed. Cir. 1992). We are not persuaded of error in the Examiner's findings with respect to what Kallel teaches.

Appellants also contest the Examiner's findings in regard to what § D (beginning at col. 2, page 2006) of Kallel conveys to the skilled artisan. The findings appear to be reasonable in relating generation of the family of codes in § D with the requirements of the earlier sections. (Ans. 4.) Appellants point out that Kallel discloses selecting a perforation pattern based on maximal free distance and minimal number of incorrect paths (§ D (1)), obtaining equivalent perforation patterns (§ D (2)), and selecting a number of equivalent codes from the obtained equivalent codes that satisfy the complementary criterion (§ D (3)). (Reply Br. 4-5.) Appellants are correct in their observation; those steps are apparent from a casual reading of the reference.

Appellants fail to demonstrate, however, that the reference does not support the Examiner's findings -- that the Examiner's interpretation is inconsistent with the method described by Kallel. Showing that Kallel's

method meets criteria not claimed does not show that the method *only* meets criteria not claimed. Alleging that Kallel "only" selects codes that satisfy the complementary criterion (Reply Br. 6) does not show that other (i.e., the material) criteria are not met. Further, Appellants have not demonstrated that the claim language "integer-multiple relation" (Reply Br. 5) distinguishes over the relation of elements identified in Kallel.

We rely on the Examiner's position set out in the Answer, and need not repeat it here. We find that the Examiner has provided a reasonable response to each of Appellants' concerns presented in the Appeal Brief.[2]

Appellants have not sustained their burden on appeal in providing arguments or evidence persuasive of error in the rejection. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

We thus sustain the Examiner's rejection of claims 9-11, 13, and 14 under 35 U.S.C. § 103(a) as being unpatentable over Kallel and Citation#1.

## CONCLUSION

The rejection of claims 9-11, 13, and 14 is affirmed.

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[2] Appellants complain (App. Br. 6; Reply Br. 1-2) of a misstatement of fact by the Examiner in an Advisory Action, which forms no part of the Answer.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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