

in view of Kumar (US 2001/0050926). The Applicants respectfully traverse these rejections based on the following points.

The Applicants respectfully submit that the applied references, considered alone or together, fail to teach or suggest the feature recited in claim 23 of converting information to a code word having a code-word minimum distance that is proportional to the measured quality of a downlink channel. The Final Rejection acknowledges that Tong does not disclose this feature, but proposes that Kumar discloses it in paragraph 82 (Final Rejection paragraph bring pages 3 and 4). The Applicants respectfully disagree and submit that this reference in no way discloses this subject matter.

Kumar discloses, in paragraph 82, a receiver that receives two code words that were identical when transmitted, but degraded by the effects of a propagation channel (see Kumar abstract, lines 7-12). The receiver decodes, presumably using error correction decoding, both of the received code words and then re-encodes estimates of the two decoded words to regenerate the expected pair of error-correction-coded (ECC) code words sent by the transmitter (§82, lines 1-9). Thereafter, the receiver determines the Hamming distance between each of the regenerated ECC code words and the corresponding received code word. The determined Hamming distance is approximately proportional to the

bit error rate (BER) for the received code word (¶82, lines 9-13). When the determined BER estimates for the two code words are substantially different, the receiver system selects the code word from the pair with the lower BER (i.e., smaller Hamming distance) for use in regenerating the communicated information (¶82, lines 14-18). Otherwise, the receiver may combine the two code words for use in regenerating the communicated information (¶82, lines 18-24).

In summary, the only conversion of information to a code word disclosed by Kumar is the conversion of previously decoded information back to coded information by an encoding operation. Presumably, the decoding operation is performed on the received code word to eliminate the detectable and correctable errors in the decoded information. Thereafter, the information obtained through decoding is re-encoded so as to regenerate the code word the receiver expects was transmitted by its communicating partner. This regenerated code word is compared to the received code word to determine the Hamming distance (i.e., bit position differences) between the two code words, which provides an indication of the expected BER for the communication.

However, Kumar's receiver does not make a determination about the communication channel quality until the expected code word is regenerated and compared to the received code word. As a

result, it necessarily follows that Kumar cannot disclose regenerating the expected code word to have a Hamming distance proportional to the measured channel quality because the channel quality is not determined until after the expected code word is regenerated and compared to the received code word.

Moreover, the receiver must regenerate the code word using the same code used by the transmitter. Since the receiver cannot determine the channel quality until after the code word is regenerated, it necessarily follows that both the transmitter and receiver must use a fixed code having a Hamming distance that is invariant to the measured channel quality.

Accordingly, the Applicants respectfully submit that the applied references, considered singly or in combination, do not teach or suggest the subject matter defined by claim 23. More specifically, the applied references do not suggest a transmitter that converts information to a code word, having a code-word minimum distance that is proportional to the measured quality of a downlink channel, and then transmits the code word. Therefore, allowance of claim 23 is warranted.

Claim 25 recites the feature of converting each of a plurality of digits of information related to channel quality to a code word having a length proportional to the digit's degree of significance within the information. The Final Rejection

acknowledges that Tong does not disclose this feature, but proposes that Kumar does in paragraph 82 (Final Rejection page 4, sixth paragraph). The Applicants respectfully disagree and submit that the reference in no way discloses such subject matter.

An examination of Kumar's paragraph 82 reveals that Kumar discloses nothing similar to generating multiple code words having variable lengths. As a result it necessarily follows that Kumar cannot disclose generating each of multiple code words having a length proportional to a digit's degree of significance in a value represented by multiple digits. Kumar also does not disclose anything similar to a digit's degree of significance.

Moreover, as discussed in connection with claim 23, Kumar's receiver does not make a determination about the communication channel quality until an expected code word is regenerated and compared to a received code word. As a result, it necessarily follows that Kumar cannot disclose regenerating expected code words representing information based on a measured channel quality because Kumar's receiver must regenerate the expected code words before the channel quality measurement can be made.

Claim 28 distinguishes over the applied references for reasons analogous to those provided for distinguishing claim 25. More specifically, Kumar discloses nothing in the cited

paragraph, ¶82, that is similar to coding a most significant bit of information so that it is less susceptible to error, when transmitted through a propagation path, than other bits of the information. Also, claim 28 recites that the information indicates the measured reception quality of a pilot signal. Since Kumar's receiver cannot measure the quality of a received signal until an expected code word of the received signal is regenerated, it necessarily follows that Kumar cannot disclose generating an expected code word representing the measured quality of the received signal. The Final Rejection acknowledges that Tong does not supplement the teachings of Kumar in this regard (see Final Rejection page 5, last paragraph).

Accordingly, the Applicants respectfully submit that the applied references, taken alone or together, do not disclose or suggest the subject matter defined by claims 25 and 28. Therefore, allowance of claims 25 and 28 is warranted.

Claim 26 recites transmitting each of a plurality of informational digits using a transmission power proportionate to the digit's degree of significance in the information. The Final Rejection does not propose that either Tong or Kumar teach this feature. Instead, the Final Rejection parses the words of the claimed feature and proposes that: (1) Tong discloses in ¶¶37-38 a transmitter that reports measured channel quality indications

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