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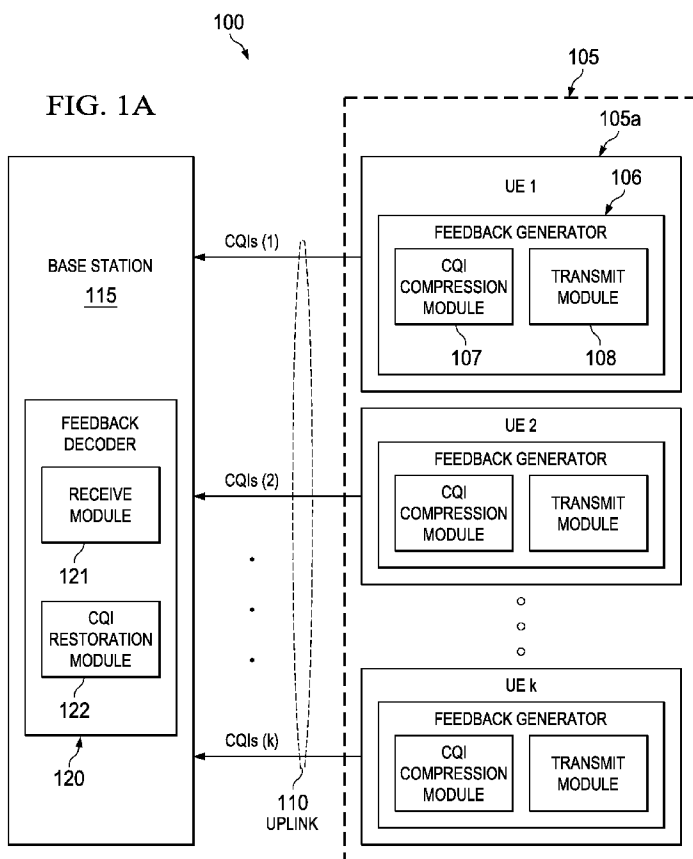
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(54) Title: CQI FEEDBACK FOR OFDMA SYSTEMS



(57) Abstract: Embodiments of a feedback generator (106) and decoder and methods of operating the feedback generator and decoder are presented. In one embodiment, the feedback generator includes a CQI compression module (107) configured to provide a compressed CQI for the user equipment corresponding to at least one sub-band, where a sub-band is composed of at least one resource block. The feedback generator also includes a transmit module (108) coupled to the CQI compression module and configured to transmit the compressed CQI to a serving base station (115). In one embodiment, the feedback decoder (120) includes a receive module (121) configured to receive a compressed CQI in the base station from user equipment corresponding to at least one sub-band. The feedback decoder also includes a CQI restoration module (122) coupled to the receive module and configured to provide a restored CQI from the compressed CQI for the at least one sub-band.

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- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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| <p><b>A. CLASSIFICATION OF SUBJECT MATTER</b><br/>                 IPC(8) - H04B 1/38 (2008.04)<br/>                 USPC - 375/221<br/>                 According to International Patent Classification (IPC) or to both national classification and IPC</p>  |   |  |   |   |                       |               |  |                                      |   |   |            |   |   |   |
|---|---|--|---|---|-----------------------|---------------|--|--------------------------------------|---|---|------------|---|---|---|
| <p><b>B. FIELDS SEARCHED</b></p> <p>Minimum documentation searched (classification system followed by classification symbols)<br/>                 IPC(8): H04B 1/38 (2008.04)<br/>                 USPC: 375/221</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched<br/>                 US: 375/221 (keyword limited - see terms below)</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)<br/>                 PubWEST(PGPB, USPT, EPAB, JPAB); Google; Search Terms: OFDMA, OFDM, channel quality, channel quality indicator, CQI, CQI compression, compression, compress, encode, transmit, feedback, base station, station, resource, block, sub-band, subband, differential, difference, joint difference, wavelet, codebook, code, index</p>   |   |  |   |   |                       |               |  |                                      |   |   |            |   |   |   |
| <p><b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Category*</th> <th style="width:70%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width:20%;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X<br/>---<br/>Y</td> <td>US 2006/0285485 A1 (AGRAWAL et al.) 21 December 2006 (21.12.2006), para. [0007], [0012], [0026], [0039]-[0040], [0045]-[0048], [0053], [0067], [0070], [0108], and [0123].</td> <td>1, 10, 16, 17<br/>-----<br/>2-9, 11-15</td> </tr> <tr> <td>Y</td> <td>US 2006/0223449 A1 (SAMPATH et al.) 05 October 2006 (05.10.2006), para. [0010], [0012], [0031]-[0032], [0036], [0039]-[0040], [0053], [0058]-[0059], [0062], [0075], [0078]-[0079], [0087], [0089], [0091], [0095], and [0108].</td> <td>2-8, 11-15</td> </tr> <tr> <td>Y</td> <td>US 6,662,339 B1 (LANEMAN et al.) 09 December 2003 (09.12.2003), col 1, ln 42, ln 54-55, ln 63-65, col 4, ln 21, ln 51, col 7, ln 1-2, ln 5-7, ln 33-35, ln 46, and col 8, ln 40-41.</td> <td>9</td> </tr> </tbody> </table>  |   |  | Category*   | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. | X<br>---<br>Y | US 2006/0285485 A1 (AGRAWAL et al.) 21 December 2006 (21.12.2006), para. [0007], [0012], [0026], [0039]-[0040], [0045]-[0048], [0053], [0067], [0070], [0108], and [0123]. | 1, 10, 16, 17<br>-----<br>2-9, 11-15 | Y | US 2006/0223449 A1 (SAMPATH et al.) 05 October 2006 (05.10.2006), para. [0010], [0012], [0031]-[0032], [0036], [0039]-[0040], [0053], [0058]-[0059], [0062], [0075], [0078]-[0079], [0087], [0089], [0091], [0095], and [0108]. | 2-8, 11-15 | Y | US 6,662,339 B1 (LANEMAN et al.) 09 December 2003 (09.12.2003), col 1, ln 42, ln 54-55, ln 63-65, col 4, ln 21, ln 51, col 7, ln 1-2, ln 5-7, ln 33-35, ln 46, and col 8, ln 40-41. | 9 |
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| <p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/></p>   |   |  |   |   |                       |               |  |                                      |   |   |            |   |   |   |
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| <p>Date of the actual completion of the international search</p> <p>12 August 2008 (12.08.2008)</p>   |   | <p>Date of mailing of the international search report</p> <p align="center"><b>18 AUG 2008</b></p>   |   |   |                       |               |  |                                      |   |   |            |   |   |   |
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