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12/463,401 10 May 2009 (10.05.2009) US(71) Applicant (for all designated States except US): **QUALCOMM INCORPORATED** [US/US]; ATTN: International IP Administration, 5775 Morehouse Drive, San Diego, California 92121-1714 (US).

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Declarations under Rule 4.17:

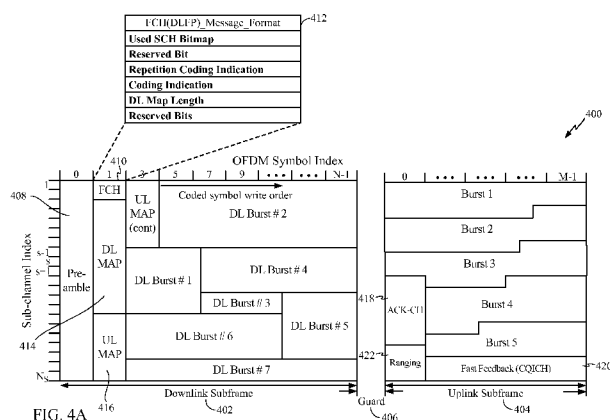
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
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Published:

- with international search report (Art. 21(3))
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(54) Title: METHODS AND SYSTEMS FOR EXTENSIBLE EXTENDED INFORMATION ELEMENT MAPPING



(57) **Abstract:** Methods and apparatus for expressing two or more extended information elements (IEs) of a MAP message using a single Extended or Extended-2 Downlink Interval Usage Code (DIUC) or Uplink Interval Usage Code (UIUC) in an orthogonal frequency-division multiplexing (OFDM) or orthogonal frequency division multiple access (OFDMA) frame are provided. This enhancement, called extensible Extended IE mapping, allows the WiMAX network to include more IEs into the DL-MAP and UL-MAP messages as the IEEE 802.16 family of standards evolves. Without this enhancement, all of the new IEs may most likely have to be included in the data bursts, and a user terminal (e.g., a mobile station) cannot decode these data-burst IEs unless the user terminal receives the Downlink Channel Descriptor (DCD) message(s).

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2009/061205

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04W72/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H04W

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007/206561 A1 (SON YEONG-MOON [KR] ET AL) 6 September 2007 (2007-09-06) the whole document	1,15,29, 43,57, 70,83,96
A	----- "IEEE Draft Standard for Local and metropolitan area networks Part 16: Air Interface for Broadband Wireless Access Systems P802.16Rev2/D4" April 2008 (2008-04), IEEE , XP002579317pages 1, 643-732, page 716 - page 717 ----- -/--	1,15,29, 43,57, 70,83,96

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JU YEOP KIM ET AL: "Piggybacking Scheme of MAP IE for Minimizing MAC Overhead in the IEEE 802.16e OFDMA Systems" VEHICULAR TECHNOLOGY CONFERENCE, 2007. VTC-2007 FALL. 2007 IEEE 66TH, IEEE, PI, 1 September 2007 (2007-09-01), pages 284-288, XP031147411 ISBN: 978-1-4244-0263-2 the whole document	1,15,29, 43,57, 70,83,96
A	EP 1 746 855 A2 (SAMSUNG ELECTRONICS CO LTD [KR]) 24 January 2007 (2007-01-24) page 2 - page 8	1,15,29, 43,57, 70,83,96

INTERNATIONAL SEARCH REPORT

Information on patent family members

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