(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 12 April 2007 (12.04.2007)

(10) International Publication Number WO 2007/041319 A3

(51) International Patent Classification: H04L 12/56 (2006.01)

(21) International Application Number:

PCT/US2006/038107

(22) International Filing Date:

29 September 2006 (29.09.2006)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/240,133 29 September 2005 (29.09.2005)

- (71) Applicant (for all designated States except US): QUAL-COMM Incorporated [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): LEE, Yen-Chi [CN/US]; 7675 Palmilla Drive, #6423, San Diego, California 92122 (US).
- (74) Agents: WADSWORTH, Philip, R. et al.; 5775 Morehouse Drive, San Diego, California 92121 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

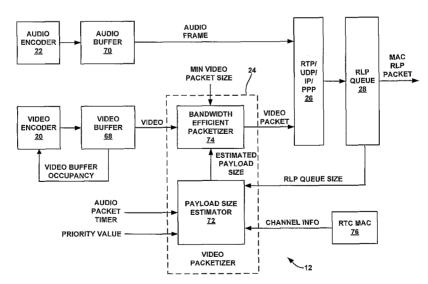
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: VIDEO PACKET SHAPING FOR VIDEO TELEPHONY



(57) Abstract: The disclosure relates to techniques for video packet shaping for video telephony (VT). The techniques can be used to prioritize audio packets to reduce audio delay. Channel conditions, excessive video content, or both can cause delays in audio transmission. When reverse link (RL) throughput is reduced, video packet size can overwhelm the RL and increase audio delay. The video packet may consume an excessive number of MAC RLP packets, resulting in delays between successive audio packets. The size of each video packet is adjusted so that audio packets are prioritized for transmission without substantial delay. The video packet size may be controlled based on channel conditions. The audio can be conveyed without substantial delay, even though the video may suffer from delay due to channel conditions. Although video may be compromised by channel conditions, video packet shaping ensures that the VT parties are able to smoothly carry on verbal conversation



(88) Date of publication of the international search report: 24 May 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No PCT/US2006/038107

| A. CLASSI INV. | FICATION OF SUBJECT MATTER H04L12/56 | | | | | | | |
|---|--|---|---|--|--|--|--|--|
| | | | | | | | | |
| According to International Patent Classification (IPC) or to both national classification and IPC | | | | | | | | |
| | SEARCHED | | | | | | | |
| | cumentation searched (classification system followed by classification ${\sf H04N}$ | on symbols) | | | | | | |
| 110-12 | | | | | | | | |
| Documental | lon searched other than minimum documentation to the extent that s | uch documents are included in the fields se | arched | | | | | |
| | | | | | | | | |
| Electronic d | ata base consulted during the international search (name of data bas | se and, where practical, search terms used) | | | | | | |
| EPO-In | ternal, WPI Data, INSPEC | | | | | | | |
| | , | | | | | | | |
| | | | | | | | | |
| C. DOCUM | ENTS CONSIDERED TO BE RELEVANT | | | | | | | |
| Category* | Citation of document, with indication, where appropriate, of the rele | evant passages | Relevant to claim No. | | | | | |
| | | | | | | | | |
| X | EP 1 372 304 A2 (MATSUSHITA ELECT CO LTD [JP]) 17 December 2003 (20 | | 1,4,5,7, 9-14, | | | | | |
| | CO EID [0/]) I/ December 2003 (20 | 003-12-17) | 17-20, | | | | | |
| | | | 22-27, | | | | | |
| | | | 30-33, 35-40,43 | | | | | |
| | figure 1 | | 33 40,43 | | | | | |
| | paragraph [0012] | | | | | | | |
| | paragraph [0015] paragraph [0020] | | | | | | | |
| | paragraph [0037] – paragraph [004 | [0] | | | | | | |
| Υ | | - | 2,8,15, | | | | | |
| | | · | 21,28, 34,41 | | | | | |
| | | | 34,41 | | | | | |
| | - | -/ | | | | | | |
| | | • | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| X Further documents are listed in the continuation of Box C. X See patent family annex. | | | | | | | | |
| * Special o | ategories of cited documents : | "T" later document published after the inter or priority date and not in conflict with | national filing date | | | | | |
| | ent defining the general state of the art which is not lered to be of particular relevance | cited to understand the principle or the invention | | | | | | |
| "E" earlier o | document but published on or after the international late | "X" document of particular relevance; the cl cannot be considered novel or cannot | | | | | | |
| which | ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another | involve an inventive step when the doc "Y" document of particular relevance; the cl | cument is taken alone | | | | | |
| "O" docum | ent referring to an oral disclosure, use, exhibition or | cannot be considered to involve an inv document is combined with one or mo | entive step when the re other such docu– | | | | | |
| other i | neans ont published prior to the international filing date but | ments, such combination being obviou in the art. | s to a person skilled | | | | | |
| | | *&" document member of the same patent f | | | | | | |
| Date of the | actual completion of the international search | Date of mailing of the international sear | cn report | | | | | |
| 1 | 9 March 2007 | 26/03/2007 | | | | | | |
| Name and r | nailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 | Authorized officer | | | | | | |
| | European Patent Onice, P.B. 5818 Patentiaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, | | | | | | | |
| | Fax: (+31–70) 340–3016 | Tous Fajardo, Juar | 1 | | | | | |

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/038107

| Continuati | on). DOCUMENTS CONSIDERED TO BE RELEVANT | T/US2006/03810/ |
|------------|---|---|
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| Y | EP 1 478 137 A (NTT DOCOMO INC [JP]) 17 November 2004 (2004-11-17) abstract paragraph [0015] paragraph [0019] paragraph [0023] - paragraph [0024] paragraph [0029] - paragraph [0030] | 3,6,16, 29,42 |
| Y | EP 1 575 225 A (ALPINE ELECTRONICS INC [JP]) 14 September 2005 (2005-09-14) abstract | 2,3,6,8, 15,16, 21,28, 29,34, 41,42 |
| | paragraph [0013] paragraph [0034] — paragraph [0037] | |
| A | US 5 541 919 A1 (YONG MEI [US] ET AL) 30 July 1996 (1996-07-30) column 3, line 27 - line 30 column 3, line 55 - line 63 column 4, line 16 - line 19 column 4, line 34 - line 38 column 6, line 15 - line 20 column 6, line 28 - line 59 column 7, line 60 - column 8, line 8 column 7, line 15 - line 22 column 7, line 4 - line 13 | 1-43 |
| 4 | US 5 341 374 A1 (LEWEN RONALD C [US] ET AL) 23 August 1994 (1994-08-23) abstract | 1-43 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2006/038107

| Patent document cited in search report | | Publication date | | Patent family member(s) | Publication date |
|---|----|---------------------|----------|-------------------------------|--------------------------|
| EP 1372304 | A2 | 17-12-2003 | DE US | 60305793 T2 2003231589 A1 | 16-11-2006 18-12-2003 |
| EP 1478137 | Α | 17-11-2004 | CN US | 1551650 A 2004228285 A1 | 01-12-2004 18-11-2004 |
| EP 1575225 | Α | 14-09-2005 | JP US | 2005236783 A 2005203746 A1 | 02-09-2005 15-09-2005 |
| US 5541919 | A1 | | NONE | | |
| US 5341374 | A1 | | NONE | | |

Form PCT/ISA/210 (patent family annex) (April 2005)