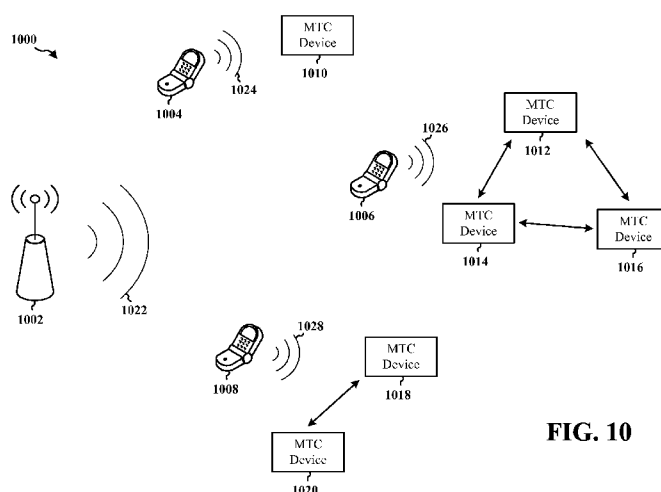




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- (81) **Designated States** (*unless otherwise indicated, for every
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KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG,
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- Declarations under Rule 4.17:**
— as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))

[Continued on next page]

(54) **Title:** CONGESTION CONTROL SCHEME**FIG. 10**

(57) **Abstract:** A method, an apparatus, and a computer program product for congestion control are provided. The apparatus measures respective signal qualities in at least two regions of a resource block, compares the respective signal qualities to each other, and determines a network congestion level based on the comparison. In an aspect, the apparatus may further decide whether to use resources respectively included in the at least two regions based on the network congestion level. Alternatively, the apparatus may further identify at least one MTC device or UE to refrain from using resources respectively included in the at least two regions when the network congestion level is above a threshold, and transmit a congestion control signal to the at least one identified MTC device or identified UE when the network congestion level is above the threshold.



- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))* — *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) H04L		
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 practicable, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 246 415 A2 (AT & T CORP [US]) 2 October 2002 (2002-10-02) figures 1, 3-10 page 2, paragraph 4 page 3, paragraph 9 page 4, paragraph 18 page 5, paragraph 25 - paragraph 28 page 6, paragraphs 28, 29	1-14, 18-23
A	WO 2007/010408 A2 (LGA PARTNERSHIP [FR]; RIBERA PATRICK [FR]) 25 January 2007 (2007-01-25) figures 1B, 7A page 5, line 1 - line 19 page 10, line 18 - line 28 page 11, line 1 - line 18 ----- -/--	1-14, 18-23
<div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex. </div>		
<div style="display: flex;"> <div style="flex: 1;"> <p>* Special categories of cited documents :</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="flex: 1;"> <p>"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</p> <p>"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</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search <div style="text-align: center; font-size: 1.2em;">1 December 2015</div>		Date of mailing of the international search report <div style="text-align: center; font-size: 1.2em;">08/12/2015</div>
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer <div style="text-align: center; font-size: 1.2em;">Mircescu, Alexander</div>

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International application No
PCT/US2015/018863

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2012/252458 A1 (OHNISHI MASATO [JP]) 4 October 2012 (2012-10-04) figures 1, 5, 6 page 3, paragraph 48 page 5, paragraph 99 page 6, paragraph 113 -----	1-14, 18-23
A	US 2012/120818 A1 (LIENTZ ANDREW [US] ET AL) 17 May 2012 (2012-05-17) figures 1, 3, 10, 14 page 1, paragraph 7 page 3, paragraph 35 page 4, paragraph 49 -----	1-14, 18-23
X	US 2012/051216 A1 (ZHANG YING [US] ET AL) 1 March 2012 (2012-03-01) figures 1, 3, 4, 6, 8 page 1, paragraph 7 page 2, paragraph 10 page 3, paragraph 26 page 4, paragraphs 31, 32 page 5, paragraph 41 - paragraph 48 -----	15-17
A	US 2013/225122 A1 (KAHN COLIN [US] ET AL) 29 August 2013 (2013-08-29) figure 5 page 1, paragraph 6 page 4, paragraph 52 page 5, paragraphs 69, 70 -----	15-17
A	US 2014/022904 A1 (AHMAD SAAD [CA] ET AL) 23 January 2014 (2014-01-23) figures 1A, 1C, 2, 3 page 1, paragraph 6 page 4, paragraphs 46, 47 page 5, paragraph 53 -----	15-17
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2015/018863

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14, 18-23

Method for diverting traffic away from congested spots.

2. claims: 15-17

Method for congestion identification by a received packet.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2015/018863

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