

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2016/108152

## A. CLASSIFICATION OF SUBJECT MATTER

H04W 40/10 (2009.01) i; H04W 40/02 (2009.01) i; H04W 84/20 (2009.01) i

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)

H04L; 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 practicable, search terms used)

CNABS; CNTXT; VEN; USTXT; CNKI; IEEE: 网络, 节点, 簇头, 簇首, 选, 确定, 剩余, 能量, 功率, 不, 广播, 发送, 小于, 低于, 大于, 高于, 延时, 延后, 延迟, 推后, 推迟, 门限, 阈值, network, node, cluster head, select+, determin+, residual, energy, power, not, broadcast+, sent, send+, less, lower, more, higher, delay, threshold

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|-----------|--|-----------------------|
| X         | CN 103269485 A (BEIHANG UNIVERSITY) 28 August 2013 (28.08.2013), see description, paragraphs [0038]-[0055]   | 1-3, 5-13, 15-18      |
| Y         | CN 103269485 A (BEIHANG UNIVERSITY) 28 August 2013 (28.08.2013), see description, paragraphs [0038]-[0055]   | 4, 14                 |
| Y         | CN 103945484 A (BEIJING RESEARCH CENTER FOR INFORMATION TECHNOLOGY IN AGRICULTURE) 23 July 2014 (23.07.2014) see description, paragraphs [0121]-[0124] | 4, 14                 |
| A         | CN 103298054 A (SICHUAN UNIVERSITY) 11 September 2013 (11.09.2013), see entire document  | 1-18                  |

Further documents are listed in the continuation of Box C.

See patent family annex.

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| <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> | <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>“&amp;”document member of the same patent family</p> |
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| Date of the actual completion of the international search<br>15 August 2017 | Date of mailing of the international search report<br>21 August 2017 |
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| <p>Name and mailing address of the ISA<br/>State Intellectual Property Office of the P. R. China<br/>No. 6, Xitucheng Road, Jimenqiao<br/>Haidian District, Beijing 100088, China<br/>Facsimile No. (86-10) 62019451</p> | <p>Authorized officer<br/><br/>JIA, Yu<br/><br/>Telephone No. (86-10) 62411258</p> |
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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         | CN 103237334 A (TAIYUAN UNIVERSITY OF TECHNOLOGY) 07 August 2013 (07.08.2013), see entire document | 1-18                  |
| A         | KR 20100073826 A (KT CORPORATION) 01 July 2010 (01.07.2010), see entire document                   | 1-18                  |

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
PCT/CN2016/108152

| Patent Documents referred in the Report | Publication Date  | Patent Family  | Publication Date |
|---|-------------------|----------------|------------------|
| CN 103269485 A                          | 28 August 2013    | None           |                  |
| CN 103945484 A                          | 23 July 2014      | CN 103945484 B | 30 June 2017     |
| CN 103298054 A                          | 11 September 2013 | None           |                  |
| CN 103237334 A                          | 07 August 2013    | CN 103237334 B | 28 October 2015  |
| KR 20100073826 A                        | 01 July 2010      | None           |                  |