

# Exhibit “B”



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(12) **United States Patent**  
**Wu et al.**

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(45) **Date of Patent:** **Sep. 30, 2014**

(54) **CARRIER AGGREGATION WITH POWER HEADROOM REPORT**

FOREIGN PATENT DOCUMENTS

(75) Inventors: **Chunli Wu**, Beijing (CN); **Benoist Pierre Sebire**, Tokyo (JP)

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(73) Assignee: **Cellular Communications Equipment LLC**, Plano, TX (US)

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 743 days.

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Japanese Office Action Notice of Reasons application No. 2013-515821 dated Jan. 6, 2014.

(21) Appl. No.: **13/164,266**

(22) Filed: **Jun. 20, 2011**

(65) **Prior Publication Data**

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**Related U.S. Application Data**

(60) Provisional application No. 61/356,867, filed on Jun. 21, 2010.

\* cited by examiner

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(51) **Int. Cl.**

**H04L 1/00** (2006.01)

**H04L 12/26** (2006.01)

(52) **U.S. Cl.**

USPC ..... **370/252**

(58) **Field of Classification Search**

CPC ..... H04L 47/10; H04L 43/50

USPC ..... 370/252

See application file for complete search history.

(57) **ABSTRACT**

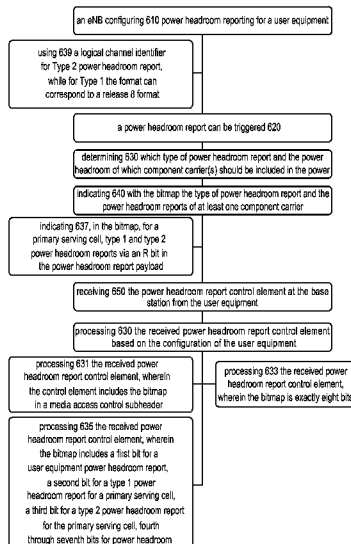
Methods, apparatuses, and software can be used for providing power headroom reporting in a telecommunication system. A method can include configuring a user equipment to send a power headroom report control element in uplink, wherein the power headroom report control element includes a bitmap indicating which power headroom reports are being reported. The method can further include receiving the power headroom report control element from the user equipment. The method additionally can include processing the received power headroom report control element based on the configuration of the user equipment.

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**24 Claims, 13 Drawing Sheets**



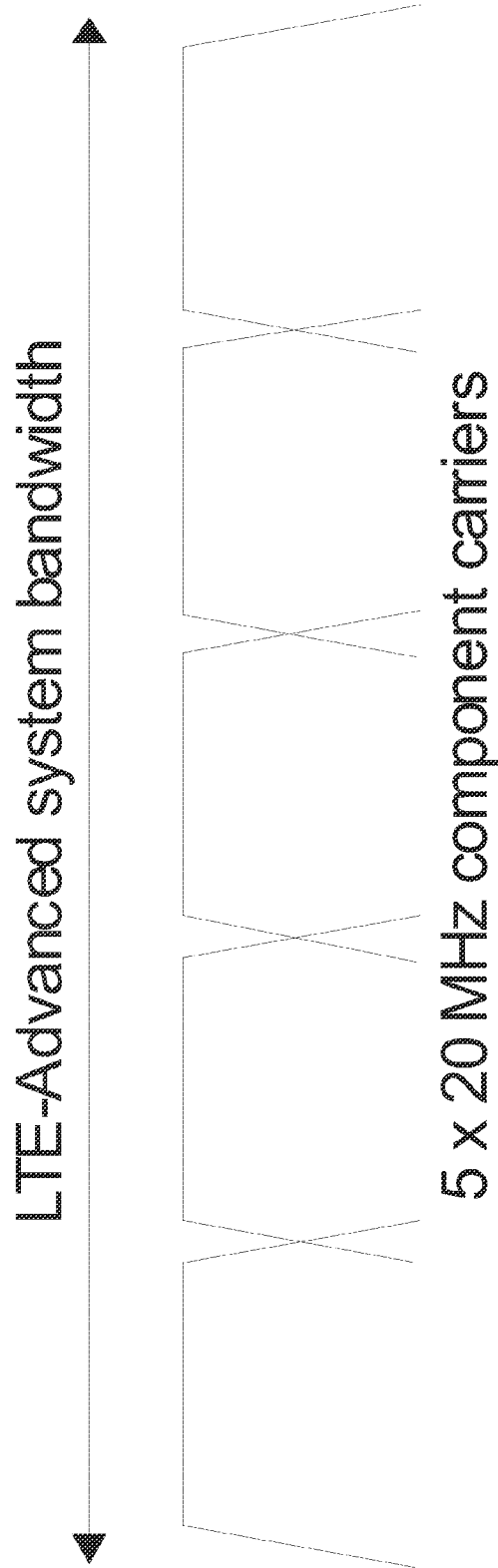


Figure 1: Basic illustration of Component Carriers to form LTE-Advanced system bandwidth

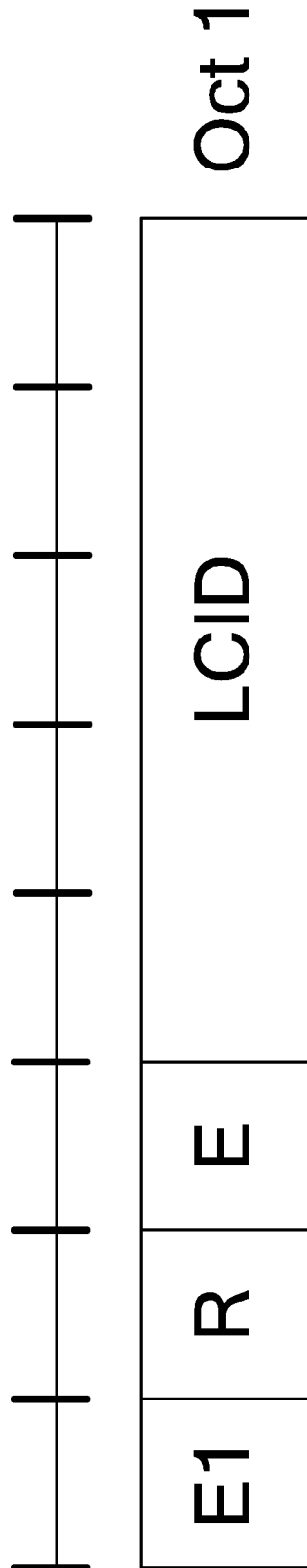
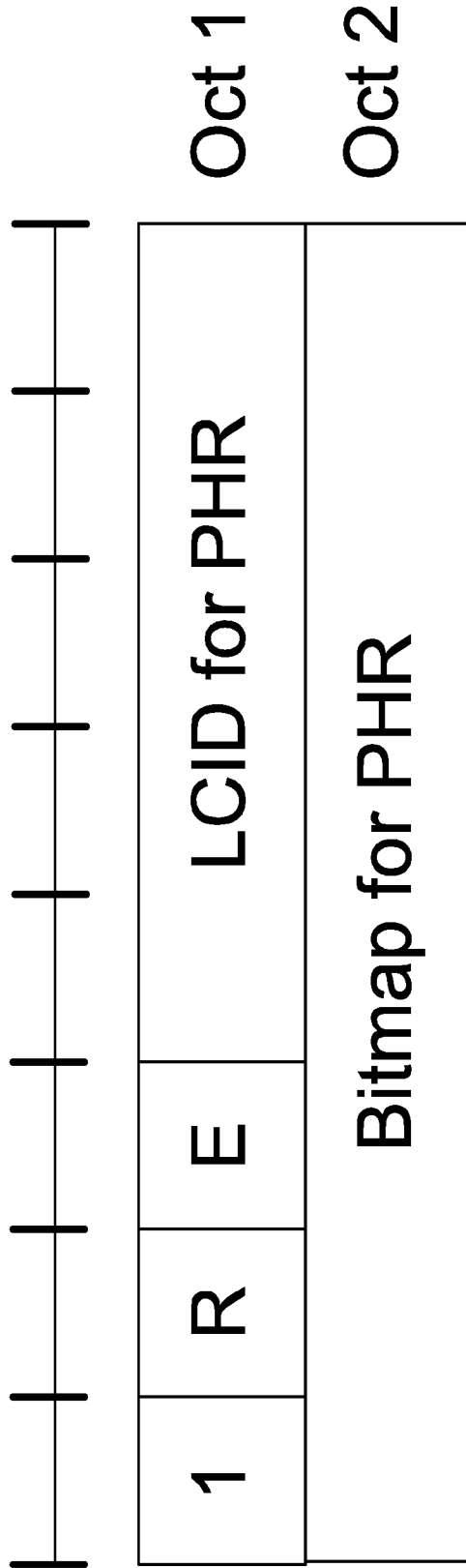


Figure 2



# Sub-header for PHR

Figure 3

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