

Exhibit “B”



(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**

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

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Related U.S. Application Data

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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.

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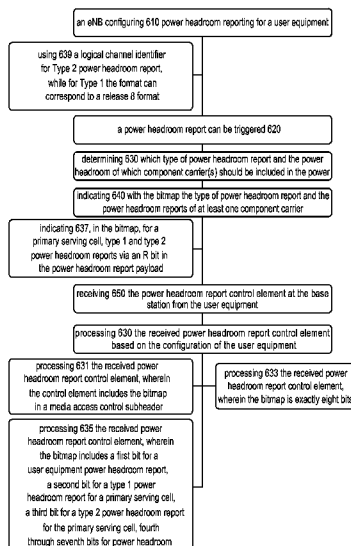
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(57) **ABSTRACT**

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.

24 Claims, 13 Drawing Sheets



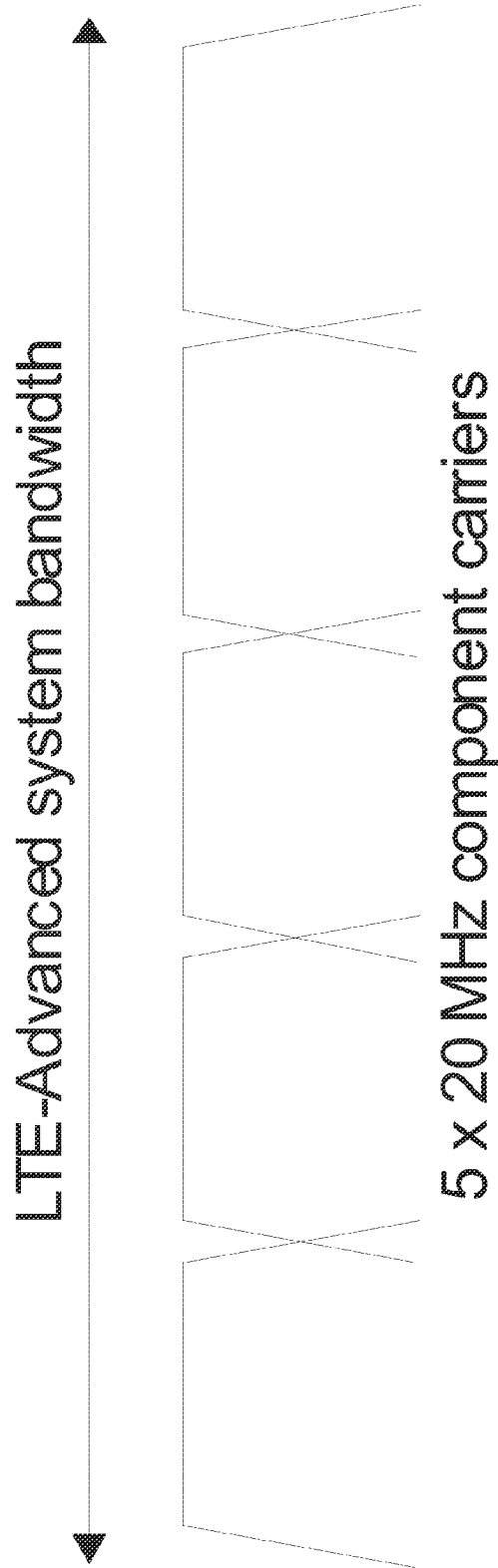
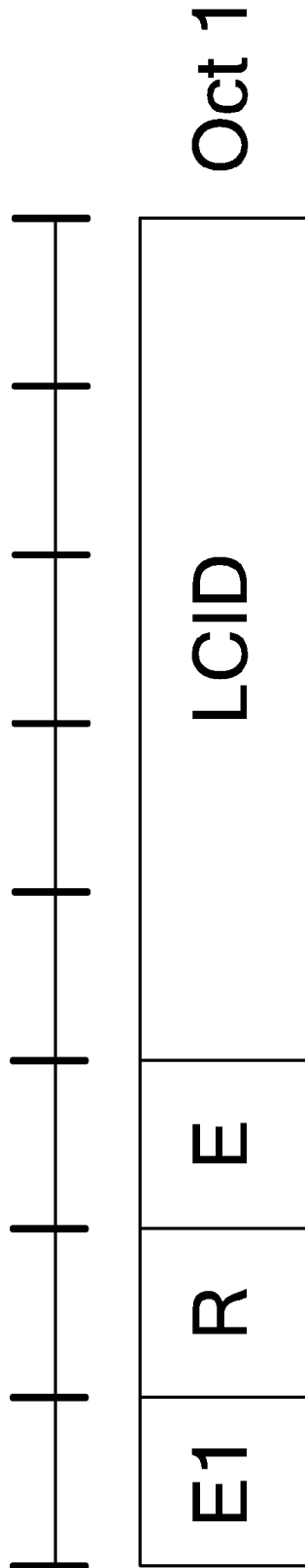
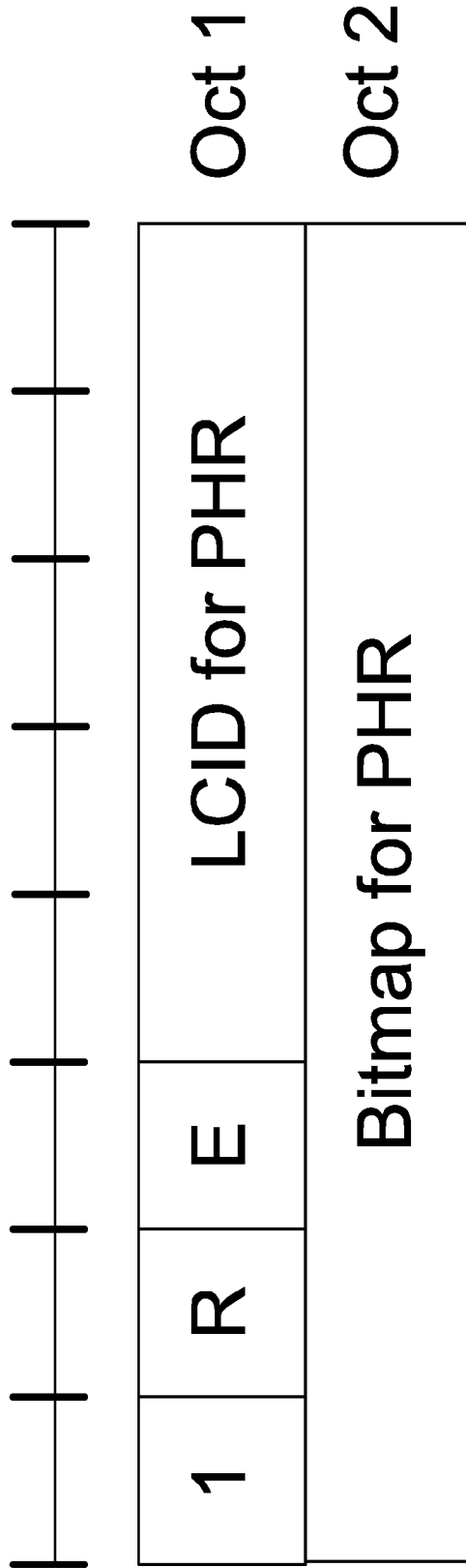


Figure 1: Basic illustration of Component Carriers to form LTE-Advanced system bandwidth



E1/R/E/LCID sub-header

Figure 2



Sub-header for PHR

Figure 3

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