

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

(10) **Patent No.:** **US 10,044,613 B2**
 (45) **Date of Patent:** **Aug. 7, 2018**

(54) **MULTIPLE RADIO LINK CONTROL (RLC) GROUPS**

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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 195 days.

(21) Appl. No.: **14/785,116**

(22) PCT Filed: **Dec. 13, 2013**

(86) PCT No.: **PCT/US2013/074861**

§ 371 (c)(1),

(2) Date: **Oct. 16, 2015**

(87) PCT Pub. No.: **WO2014/185953**

PCT Pub. Date: **Nov. 20, 2014**

(65) **Prior Publication Data**

US 2016/0094446 A1 Mar. 31, 2016

Related U.S. Application Data

(60) Provisional application No. 61/824,338, filed on May 16, 2013.

(51) **Int. Cl.**

H04L 12/741 (2013.01)

H04W 72/04 (2009.01)

(Continued)

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

CPC **H04L 45/74** (2013.01); **G01C 21/005** (2013.01); **G01S 19/12** (2013.01);

(Continued)

(58) **Field of Classification Search**

CPC H04L 45/74; H04L 12/6418; H04W 28/0252; H04W 72/0433; H04W 4/02; (Continued)

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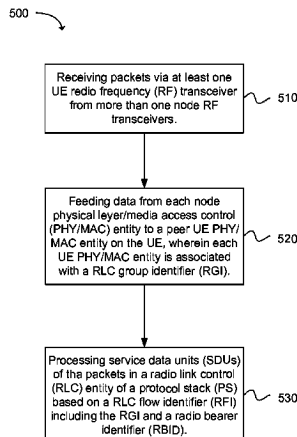
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(57) **ABSTRACT**

Technology to process radio link control (RLC) groups is disclosed. In an example, a carrier aggregation (CA) capable user equipment (UE) operable process radio link control (RLC) groups can include a UE radio frequency (RF) transceiver and a processor. The UE RF transceiver can be configured to receive packets from more than one cell via a sending node RF transceiver. The processor can be configured to process service data units (SDU) of the packets in a radio link control (RLC) entity of a protocol stack (PS). Each SDU can be associated with an RLC flow identifier (RFI). The RFI can comprise an RLC group identifier (RGI) indicating the sending node RF transceiver, and a radio bearer identifier (RBID).

28 Claims, 15 Drawing Sheets



- (51) **Int. Cl.**
H04W 4/02 (2018.01)
H04L 12/64 (2006.01)
G01C 21/00 (2006.01)
G01S 19/12 (2010.01)
H04W 28/02 (2009.01)
H04W 84/12 (2009.01)
H04W 88/06 (2009.01)
H04W 16/18 (2009.01)

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- (52) **U.S. Cl.**
 CPC *H04L 12/6418* (2013.01); *H04W 4/02*
 (2013.01); *H04W 28/0252* (2013.01); *H04W*
72/0433 (2013.01); *H04W 72/0453* (2013.01);
H04W 16/18 (2013.01); *H04W 84/12*
 (2013.01); *H04W 88/06* (2013.01)

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- (58) **Field of Classification Search**
 CPC ... H04W 72/0453; G01C 21/005; G01S 19/12
 See application file for complete search history.

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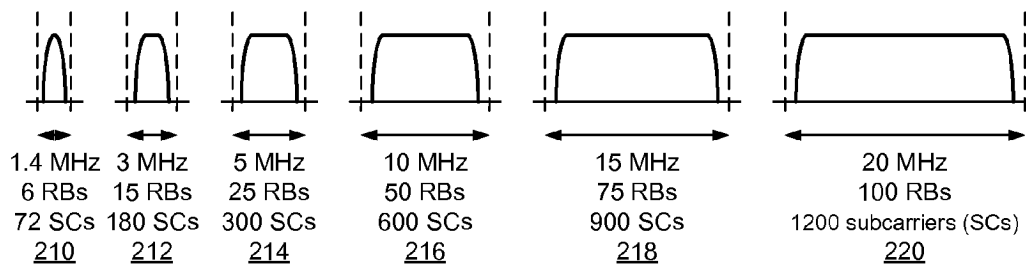


FIG. 1

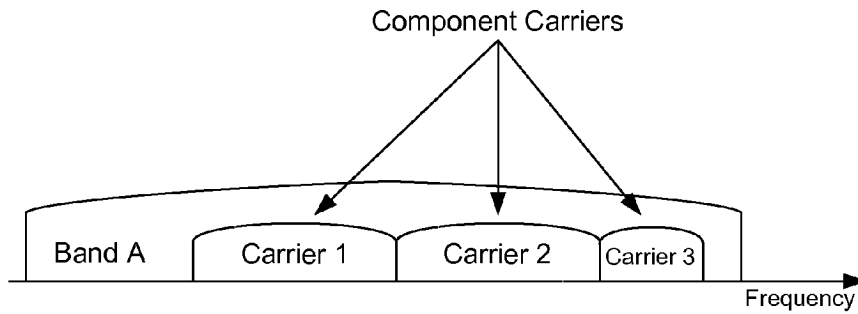


FIG. 2A

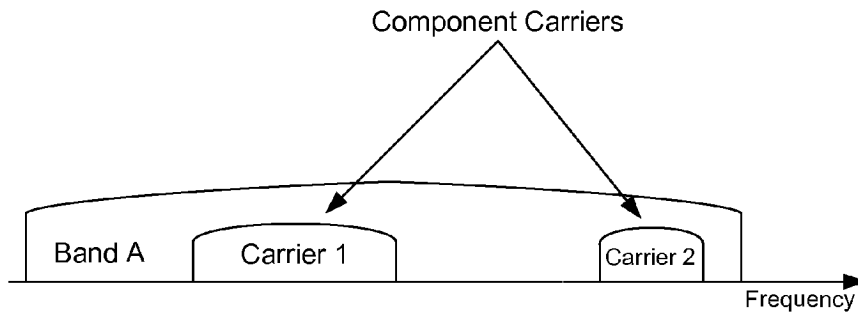


FIG. 2B

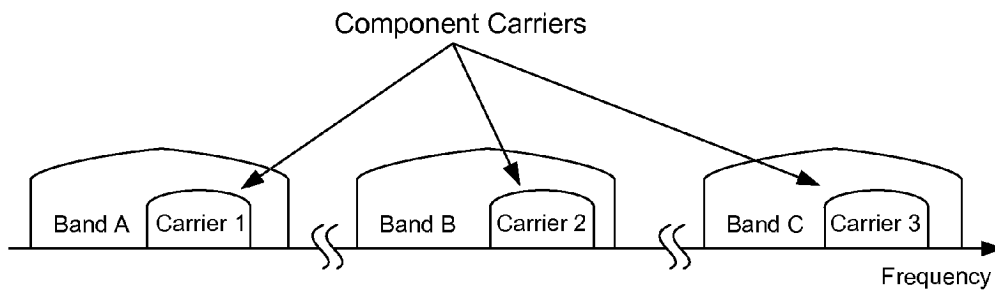


FIG. 2C

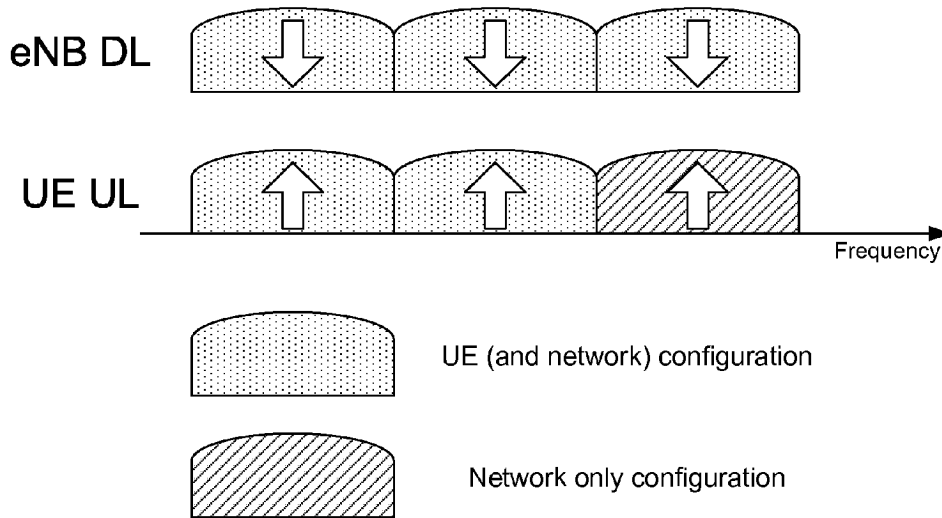


FIG. 3A

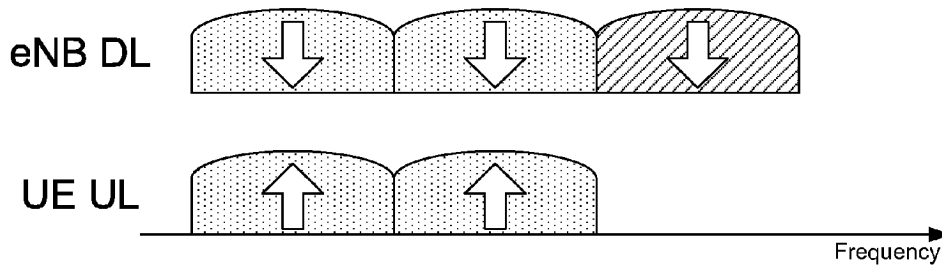


FIG. 3B

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