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Dahlman et al.

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(54) **TRANSMISSION OF SYSTEM INFORMATION ON A DOWNLINK SHARED CHANNEL**

(58) **Field of Classification Search**
USPC 370/311, 328-334, 468; 455/422.1
See application file for complete search history.

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(56) **References Cited**

(73) Assignee: **Telefonaktiebolaget LM Ericsson (publ)**, Stockholm (SE)

U.S. PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 337 days.

7,675,852 B1 * 3/2010 Arundale et al. 370/229
7,680,507 B2 * 3/2010 Cheng et al. 455/522
2004/0219917 A1 * 11/2004 Love et al. 455/436

(Continued)

(21) Appl. No.: **12/664,347**

FOREIGN PATENT DOCUMENTS

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EP 1799003 A1 6/2007
WO 2007/052917 A1 5/2007

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OTHER PUBLICATIONS

§ 371 (c)(1),
(2), (4) Date: **Dec. 11, 2009**

3rd Generation Partnership Project. "System Information Scheduling and Change Notification." 3GPP TSG-RAN2 Meeting #58, Tdoc R2-071912, Kobe, Japan, May 7-11, 2007.

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(Continued)

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Primary Examiner — Un C Cho

(65) **Prior Publication Data**

Assistant Examiner — Siming Liu

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Related U.S. Application Data

(57) **ABSTRACT**

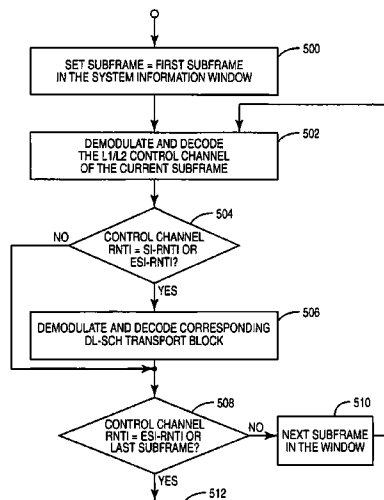
(60) Provisional application No. 60/944,628, filed on Jun. 18, 2007.

In one embodiment, a method of transmitting system information on a down link shared channel structured as successive subframes includes transmitting (400-416) system information in regularly occurring time windows, each time window spanning some number of successive subframes. The method further includes indicating (406/408) to receiving user equipment (120) which subframes within a given time window carry system information. The method and variations of it are applied, for example, to the transmission of dynamic system information on the down link shared channel or other down link channel in a 3GPP E-UTRA wireless communication network (100).

(51) **Int. Cl.**
H04W 4/00 (2009.01)
H04L 1/08 (2006.01)
H04L 1/00 (2006.01)

(52) **U.S. Cl.**
CPC **H04L 1/08** (2013.01); **H04L 2001/0093** (2013.01)
USPC **370/329**; 370/311; 370/330; 370/332; 370/334; 370/469; 455/422.1

24 Claims, 6 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2006/0034245	A1 *	2/2006	Nguyen	370/345
2007/0217362	A1 *	9/2007	Kashima et al.	370/330
2008/0225765	A1 *	9/2008	Marinier et al.	370/310
2008/0225823	A1 *	9/2008	Tenny	370/345
2009/0131057	A1 *	5/2009	Dimou	455/436
2009/0303939	A1 *	12/2009	Umesh et al.	370/329

OTHER PUBLICATIONS

3rd Generation Partnership Project. "Draft Text Proposal Capturing Agreements on System Information." 3GPP TSG-RAN2 Meeting #58, Tdoc R2-072205, Kobe, Japan, May 7-11, 2007.

3rd Generation Partnership Project. "Transmission of Dynamic System Information." 3GPP TSG-RAN2 Meeting #58bis, R2-072543, Orlando, FL, US, Jun. 25-29, 2007.

3rd Generation Partnership Project. "Transmission of Dynamic System Information." 3GPP TSG-RAN2 Ad-hoc Meeting, Tdoc R2-075559, Vienna, Austria, Dec. 13-14, 2007.

3rd Generation Partnership Project. 3GPP TS 36.300 V8.0.0 (Mar. 2007). 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-Utra) and Evolved Universal Terrestrial Radio Access network (E-UTAN); Overall description; Stage 2 (Release 8).

* cited by examiner

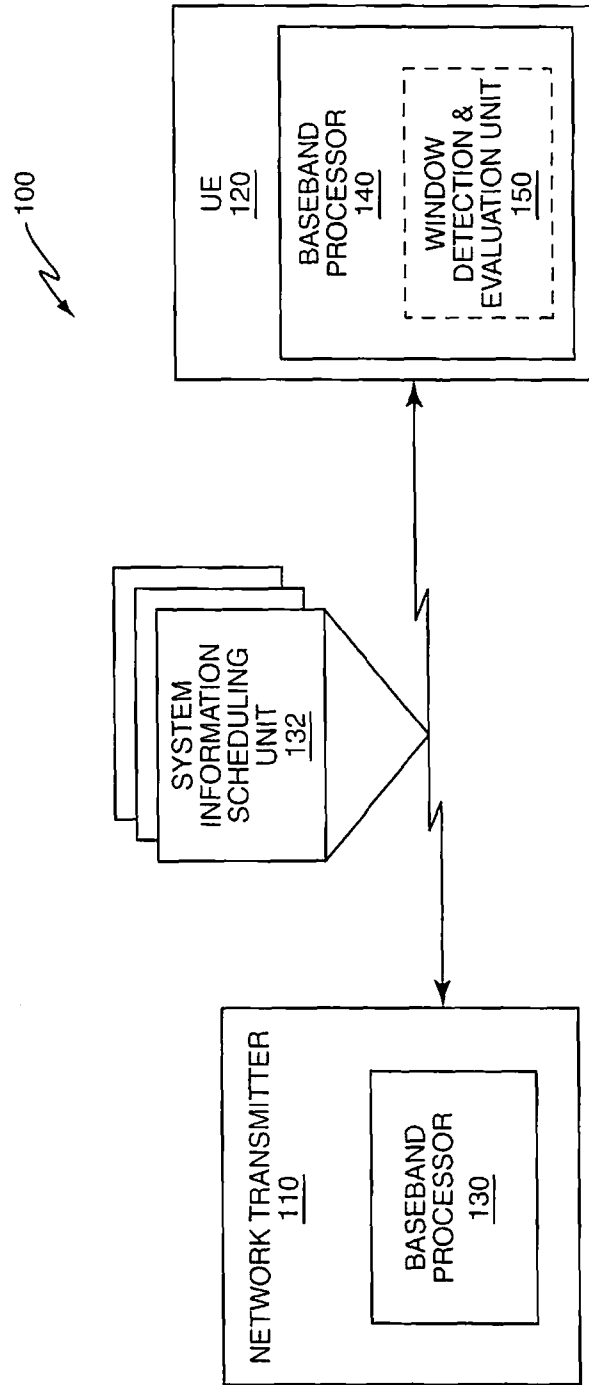


FIG. 1

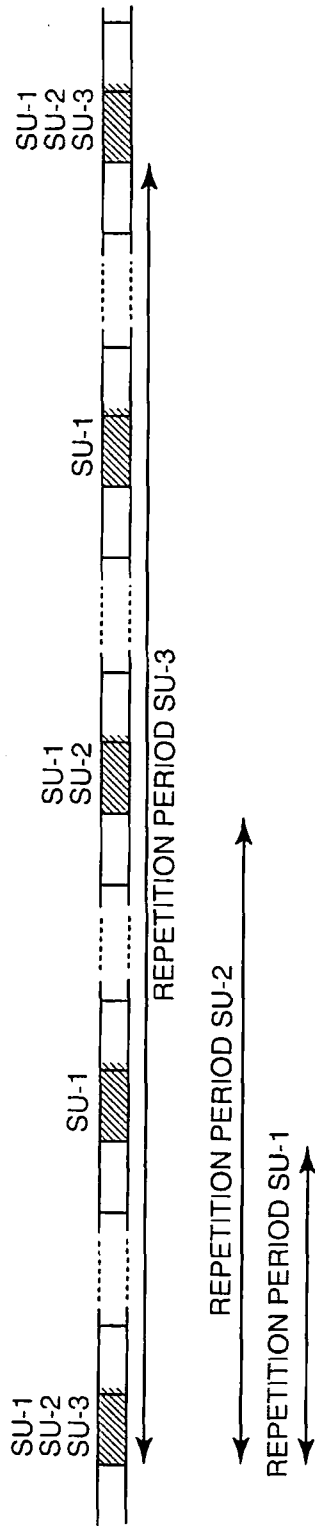


FIG. 2

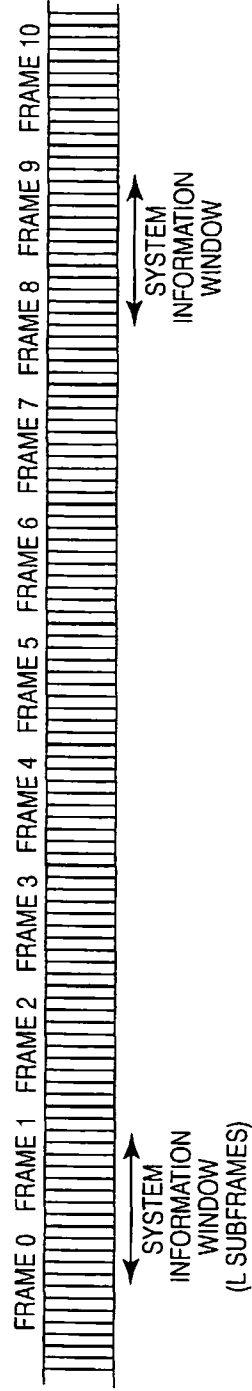


FIG. 3

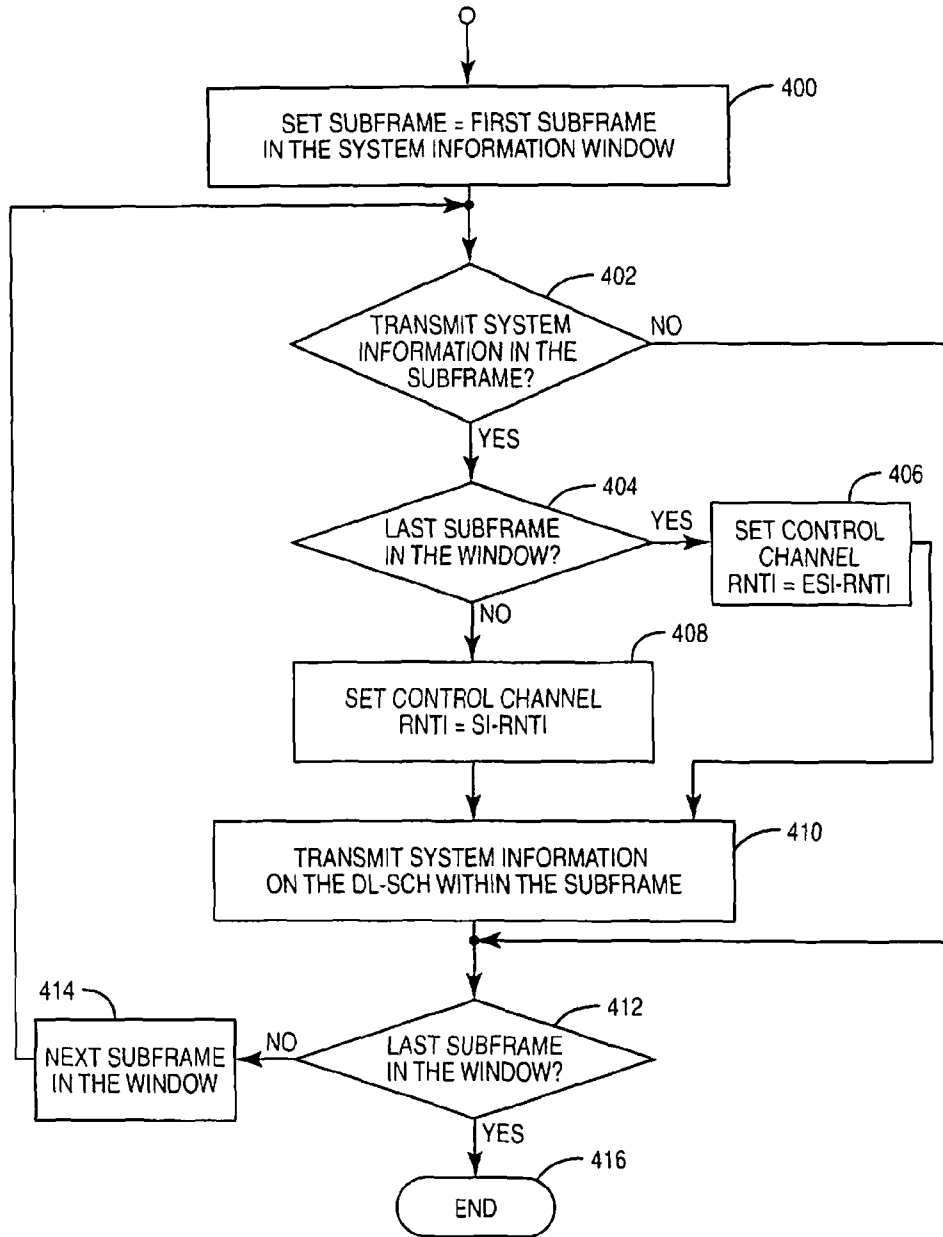


FIG. 4

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