



US009532355B2

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

(10) **Patent No.:** **US 9,532,355 B2**
(45) **Date of Patent:** ***Dec. 27, 2016**

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

(56) **References Cited**

(71) Applicant: **Telefonaktiebolaget LM Ericsson (PUBL)**, Stockholm (SE)

7,675,852 B1 * 3/2010 Arundale H04B 7/18506 370/229

(72) Inventors: **Erik Dahlman**, Bromma (SE); **Vera Vukajlovic Kenehan**, Stockholm (SE)

7,680,507 B2 3/2010 Cheng et al.
(Continued)

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

FOREIGN PATENT DOCUMENTS
EP 1799003 A1 6/2007
JP 2006136023 A 5/2006
(Continued)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

OTHER PUBLICATIONS

Samsung. "Draft text proposal capturing agreements on system information." 3GPP TSG-RAN2 Meeting #58, Tdoc R2-072205, Kobe, Japan, May 7-11, 2007, pp. 1-8.*

(Continued)

(21) Appl. No.: **14/639,287**

(22) Filed: **Mar. 5, 2015**

(65) **Prior Publication Data**

US 2015/0181600 A1 Jun. 25, 2015

Related U.S. Application Data

(63) Continuation of application No. 12/664,347, filed as application No. PCT/SE2008/050407 on Apr. 10, 2008, now Pat. No. 8,995,357.

(Continued)

(51) **Int. Cl.**

H04W 72/04 (2009.01)

H04W 48/12 (2009.01)

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

CPC **H04W 72/0446** (2013.01); **H04W 48/12** (2013.01)

(58) **Field of Classification Search**

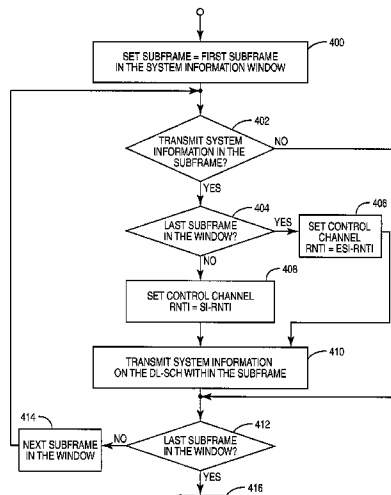
CPC ... H04L 1/08; H04L 2001/0093; H04W 48/12; H04W 72/0446

See application file for complete search history.

(57) **ABSTRACT**

In one embodiment, a method of transmitting system information on a downlink 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 downlink shared channel or other downlink channel in a 3GPP E-UTRA wireless communication network (100).

36 Claims, 6 Drawing Sheets



Related U.S. Application Data

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

FOREIGN PATENT DOCUMENTS

JP	2009512391	A	3/2009
WO	2007052917	A1	5/2007
WO	2007073079	A1	6/2007

(56)

References Cited

U.S. PATENT DOCUMENTS

8,995,357	B2*	3/2015	Dahlman	.....	H04L 1/08	370/311
2003/0133431	A1	7/2003	Rudolf			
2004/0219917	A1*	11/2004	Love	.....	H04L 1/1671	455/436
2006/0034245	A1	2/2006	Nguyen			
2007/0217362	A1*	9/2007	Kashima	.....	H04W 72/04	370/330
2008/0225765	A1*	9/2008	Marinier	.....	H04L 1/1841	370/310
2008/0225823	A1	9/2008	Tenny			
2009/0131057	A1*	5/2009	Dimou	.....	H04W 16/02	455/436
2009/0303939	A1	12/2009	Umesh et al.			
2010/0167750	A1	7/2010	Lee et al.			

OTHER PUBLICATIONS

Samsung. "System information scheduling and change notification." 3GPP TSG-RAN2 Meeting #58, Tdoc R2-071912, Kobe, Japan, May 7-11, 2007, pp. 1-6.*

Ericsson. "Transmission of dynamic system information." TSG-RAN2 #58bis, R2-072543, Orlando, FL, US, Jun. 25-29, 2007, pp. 1-4.

Ericsson. "Transmission of dynamic system information." 3GPP TSG-RAN2 Ad-hoc Meeting, Tdoc R2-075559, Vienna, Austria, Dec. 13-14, 2007, pp. 1-4.

3rd Generation Partnership Project. "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-UTRAN); Overall description; Stage 2 (Release 8)." 3GPP TS 36.300, V8.0.0, Mar. 2007, Sophia Antipolis Valbonne, France, pp. 1-82.

* cited by examiner

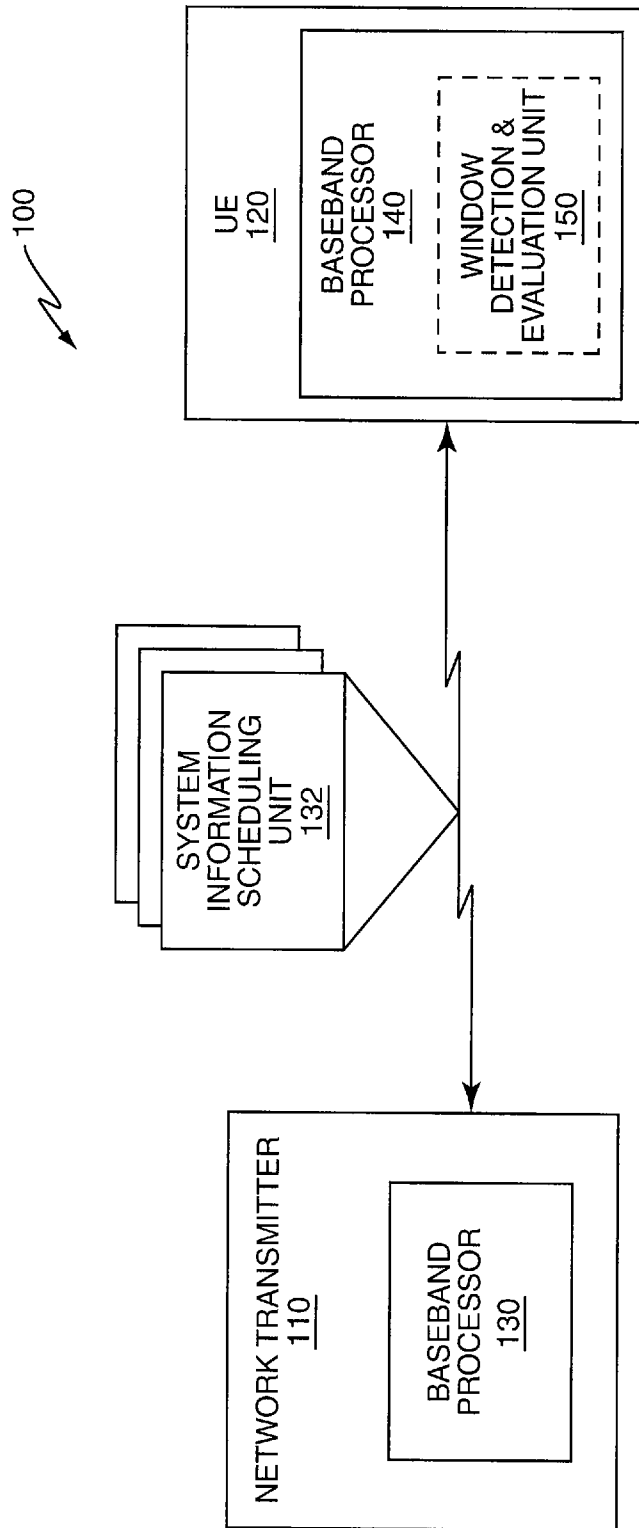


FIG. 1

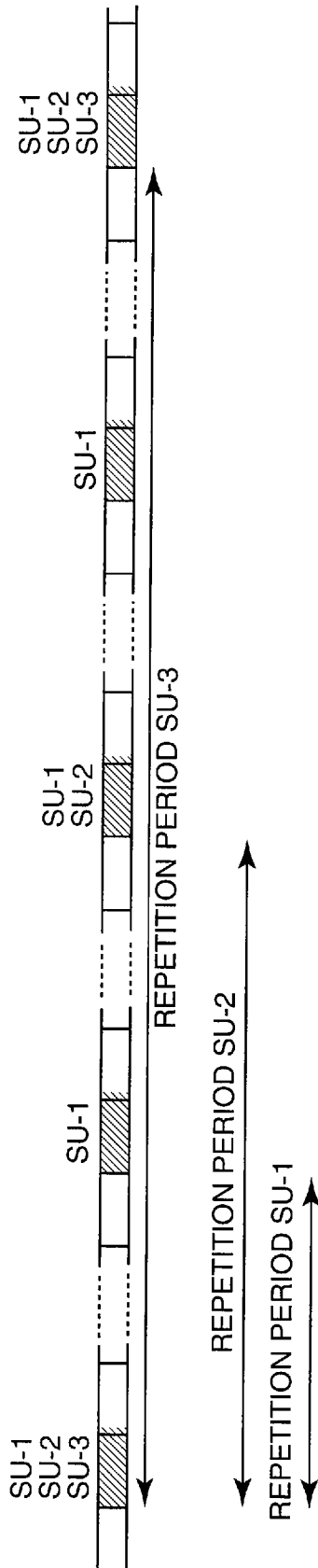


FIG. 2



FIG. 3

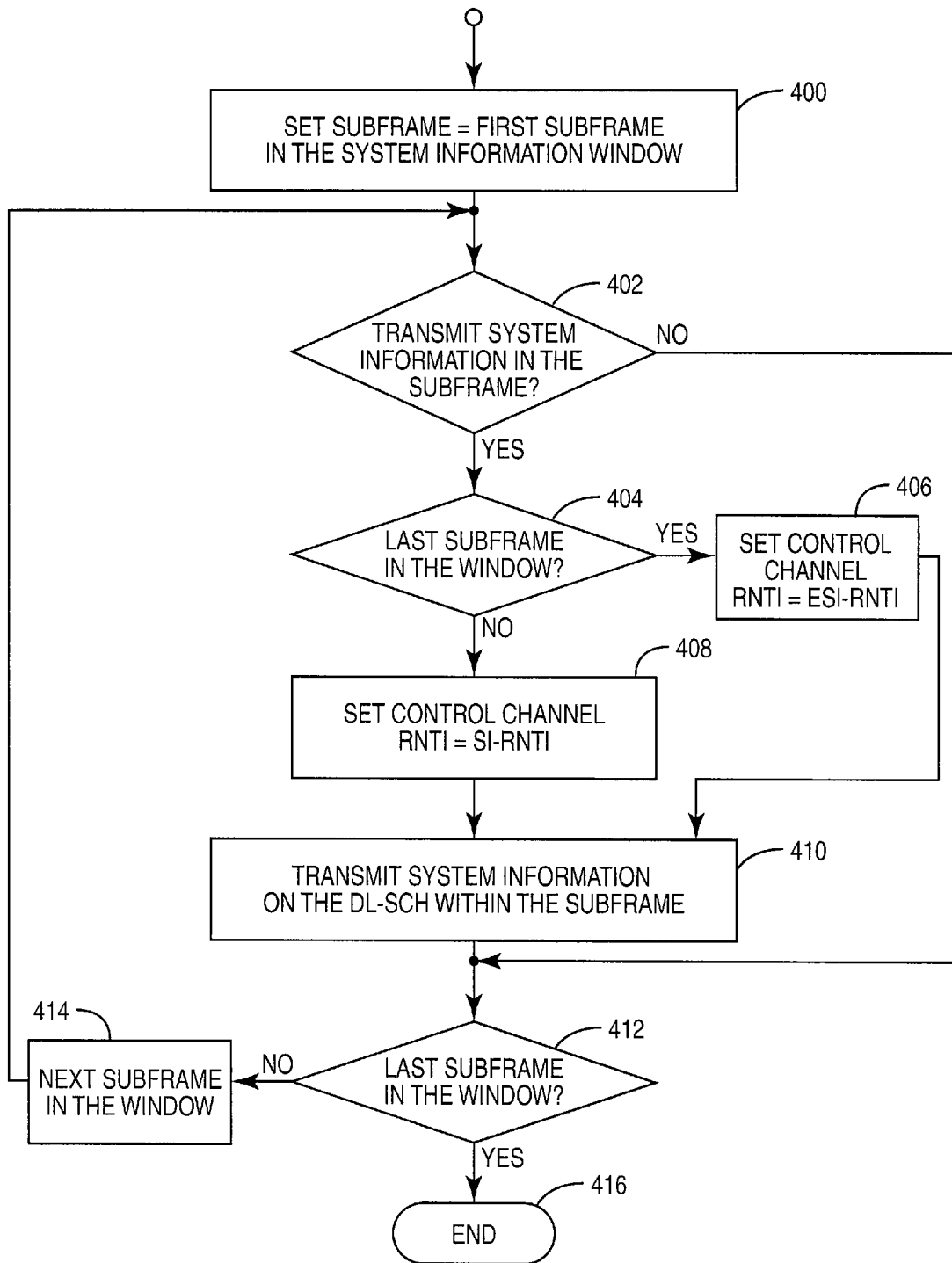


FIG. 4

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.