



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

(10) **Patent No.:** **US 10,484,915 B2**
(45) **Date of Patent:** **Nov. 19, 2019**

(54) **IDENTIFYING A BEAM FOR ACCESSING A TARGET CELL OF A WIRELESS HANDOVER**

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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 0 days.

(21) Appl. No.: **16/211,399**

(22) Filed: **Dec. 6, 2018**

(65) **Prior Publication Data**

US 2019/0110234 A1 Apr. 11, 2019

Related U.S. Application Data

(63) Continuation of application No. PCT/IB2017/056880, filed on Nov. 3, 2017.
(Continued)

(51) **Int. Cl.**
H04L 12/24 (2006.01)
H04W 36/00 (2009.01)
(Continued)

(52) **U.S. Cl.**
CPC ... **H04W 36/0072** (2013.01); **H04W 36/0077** (2013.01); **H04W 36/08** (2013.01); **H04W 74/0833** (2013.01)

(58) **Field of Classification Search**
CPC H04W 36/0072; H04W 36/077; H04W 36/08; H04W 74/0833
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2011/0310845 A1* 12/2011 Jung H04W 36/385 370/331
2012/0122459 A1* 5/2012 Wu H04W 36/0022 455/437

(Continued)

FOREIGN PATENT DOCUMENTS

WO 2016043502 A1 3/2016

OTHER PUBLICATIONS

3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 14), 3GPP TS 36.331 V14.0.0 (Sep. 2016).

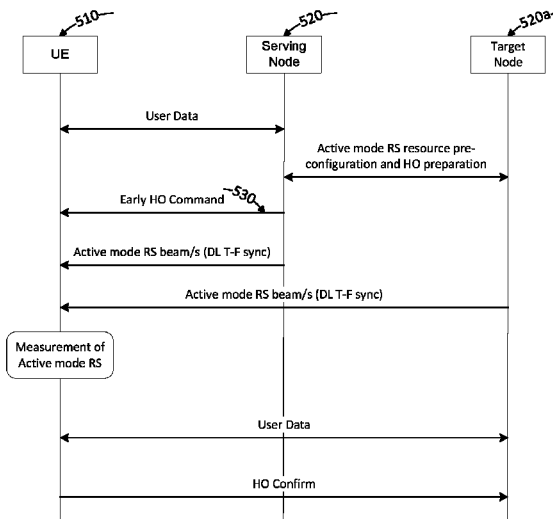
(Continued)

Primary Examiner — Jay P Patel

(57) **ABSTRACT**

In accordance with particular embodiments, there is disclosed herein a method performed by a wireless device for handover. The method comprises receiving a first handover message from a source network node associated with a source cell. The first handover message comprises an identification of a target cell and access information associated with the target cell. The target cell is different than the source cell and comprises one or more beams. The method also includes identifying at least one beam from among the one or more beams of the target cell. The at least one beam is identified based on the identification of the target cell and the access information from the first handover message. The method further includes accessing the target cell using the identified at least one beam.

15 Claims, 7 Drawing Sheets



Related U.S. Application Data

				2016/0381699	A1 *	12/2016	Rubin	H04L 67/2809 370/329
(60)	Provisional application No. 62/417,714, filed on Nov. 4, 2016.			2017/0257780	A1 *	9/2017	Ryoo	H04W 16/28
				2017/0331577	A1 *	11/2017	Parkvall	H04J 11/0079
				2017/0331670	A1 *	11/2017	Parkvall	H04W 52/0274
				2018/0034515	A1 *	2/2018	Guo	H04B 7/043
(51)	Int. Cl.			2018/0035470	A1 *	2/2018	Chen	H04W 48/16
	<i>H04W 36/08</i>		(2009.01)	2018/0359785	A1 *	12/2018	Chen	H04W 48/16
	<i>H04W 74/08</i>		(2009.01)					

OTHER PUBLICATIONS

(56) **References Cited**

U.S. PATENT DOCUMENTS

2014/0228032	A1 *	8/2014	Jung	H04W 8/02 455/436
2015/0071250	A1 *	3/2015	Dai	H04W 36/38 370/331
2015/0079945	A1 *	3/2015	Rubin	H04W 12/08 455/411

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 14), 3GPP TS 36.300 V14.0.0 (Sep. 2016).
Ericsson, Inter-cell Handover in NR, R2-168730, 3GPP TSG-RAN WG2 Meeting #96, Reno, Nevada, USA, Nov. 14-18, 2016.

* cited by examiner

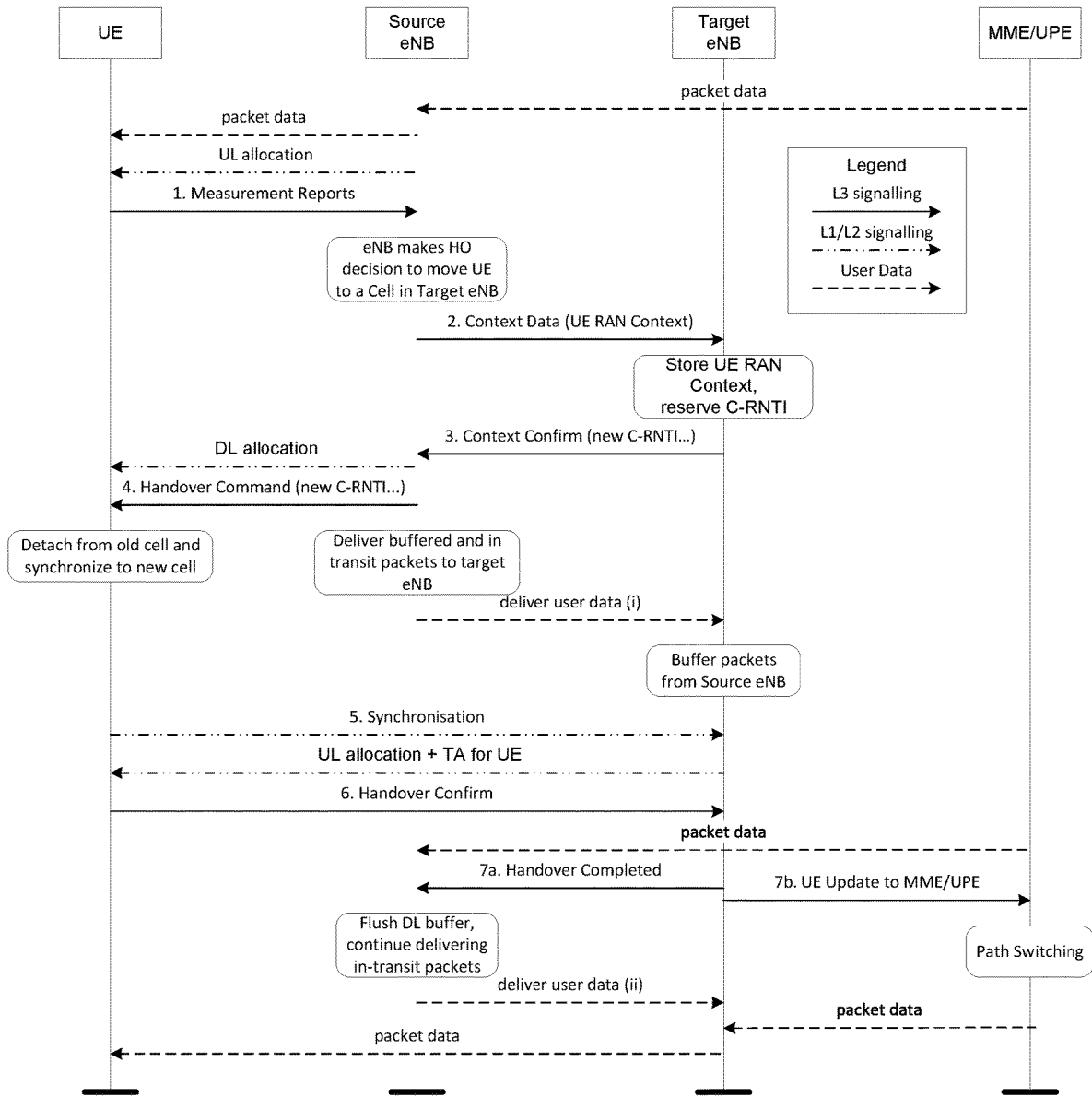


Figure 1
(prior art)

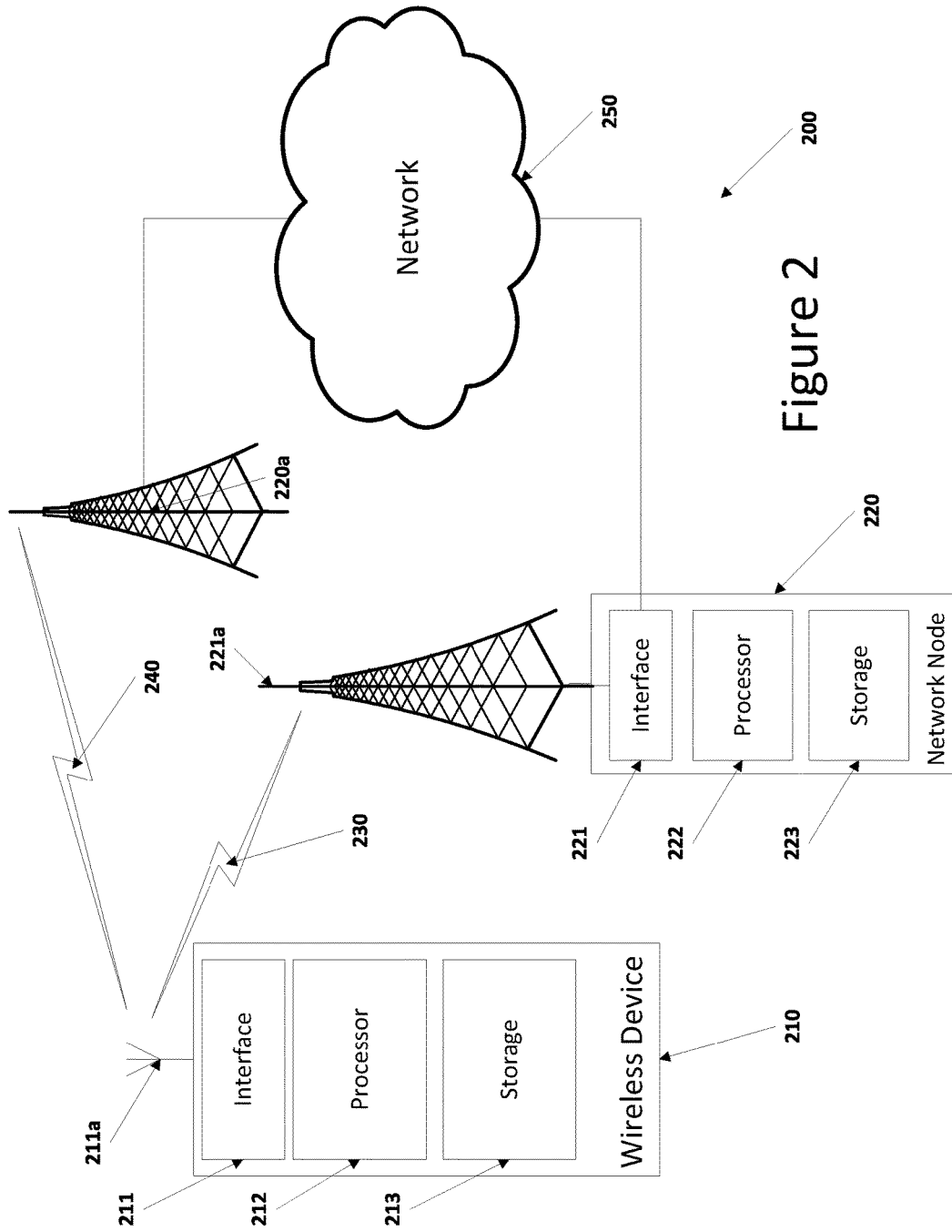


Figure 2

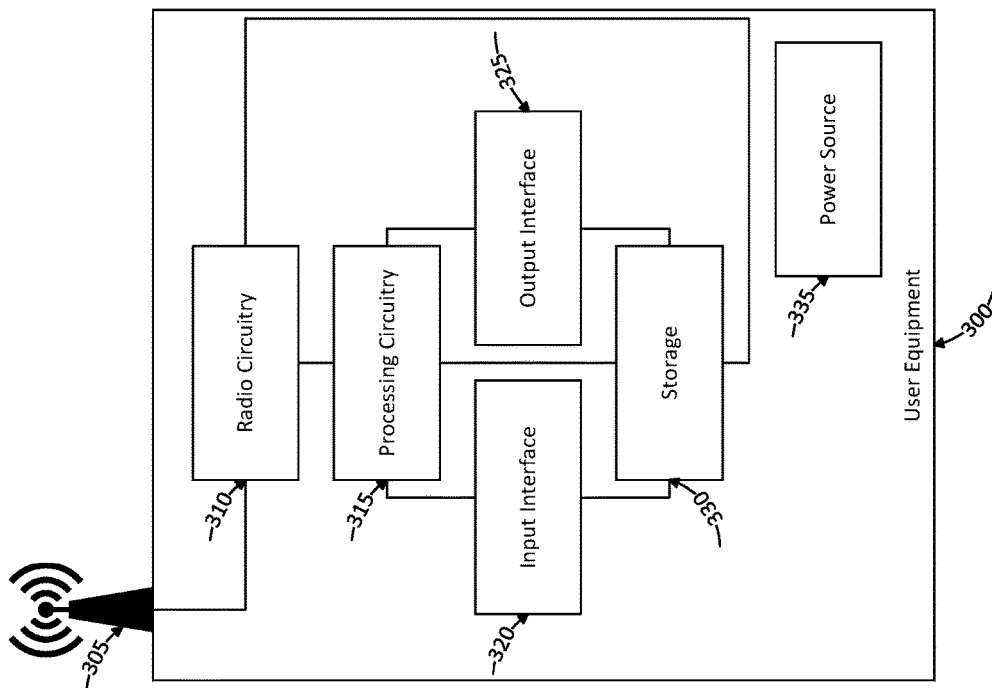


Figure 3

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