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Wallén et al.

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(54) **REFERENCE SIGNAL COUPLING IN A WIRELESS NETWORK**

(58) **Field of Classification Search**
CPC . H04L 4/0023; H04L 4/0048; H04W 72/0446
(Continued)

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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.

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(2) Date: **Mar. 27, 2015**

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(57) **ABSTRACT**

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According to some embodiments, a method of coupling reference signals of a wireless network comprises establishing a wireless connection with a wireless device. The wireless connection comprises a first reference signal and a second reference signal and both the first and second reference signals are associated with one or more antenna ports. The method further comprises determining a mapping between the one or more antenna ports associated with the first reference signal and the one or more antenna ports associated with the second reference signal; communicating the mapping of antenna ports to the wireless device; and transmitting the first reference signal and the second reference signal to the wireless device according to the communicated mapping.

(65) **Prior Publication Data**

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Related U.S. Application Data

(60) Provisional application No. 61/937,932, filed on Feb. 10, 2014.

(51) **Int. Cl.**

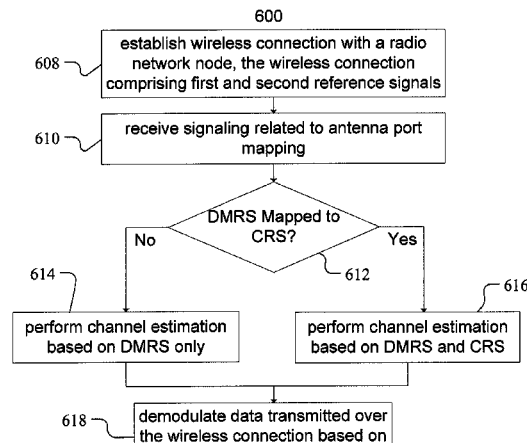
H04L 5/00 (2006.01)

H04W 72/04 (2009.01)

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

CPC **H04L 5/0023** (2013.01); **H04L 5/0048** (2013.01); **H04W 72/0446** (2013.01)

16 Claims, 5 Drawing Sheets



(58) **Field of Classification Search**

USPC 370/329
See application file for complete search history.

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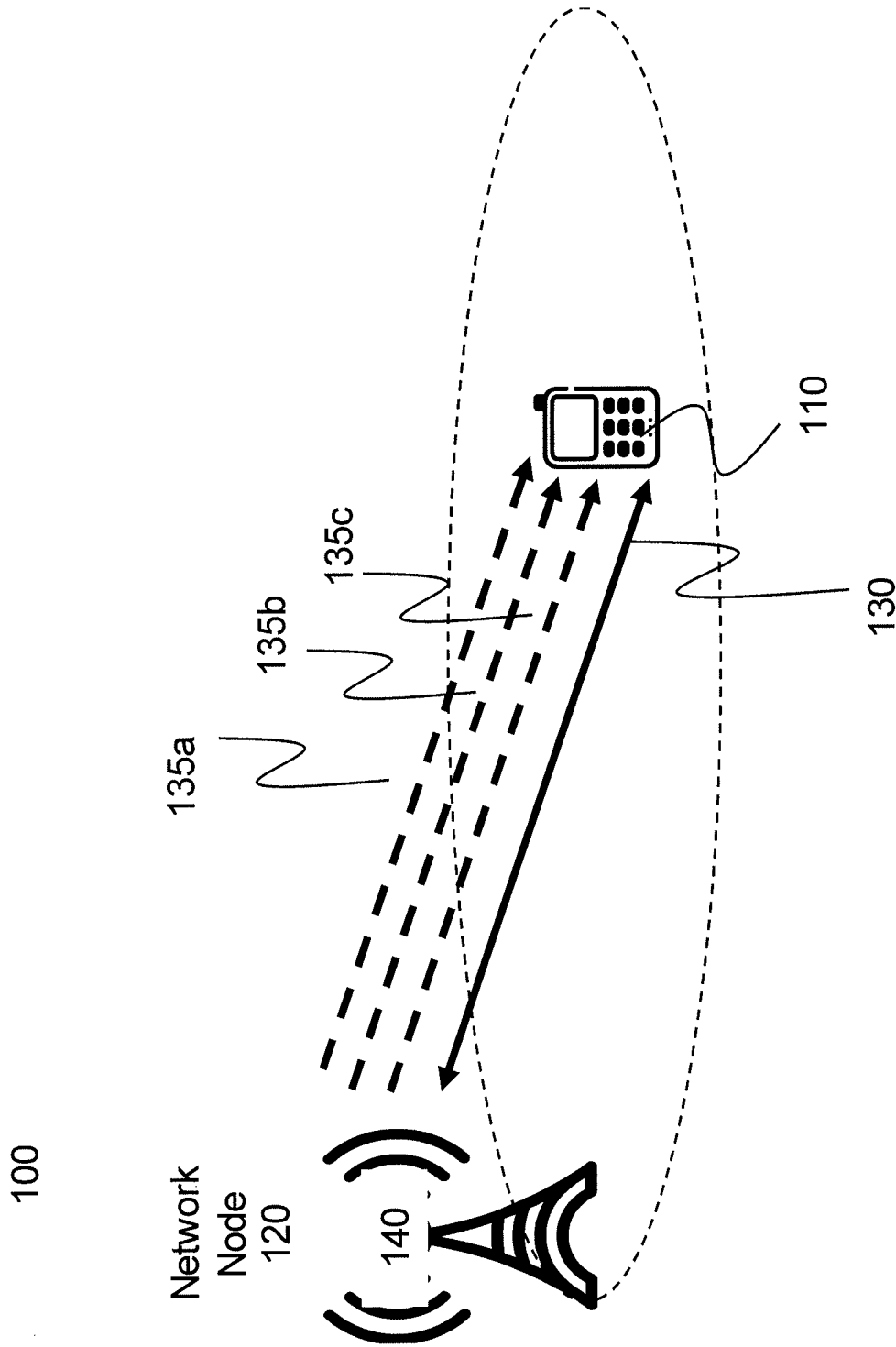


FIG. 1

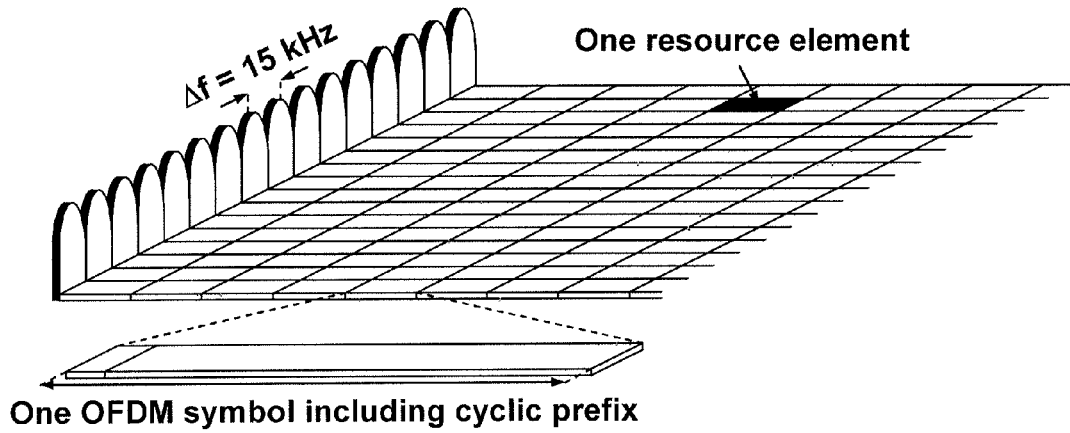


FIG. 2

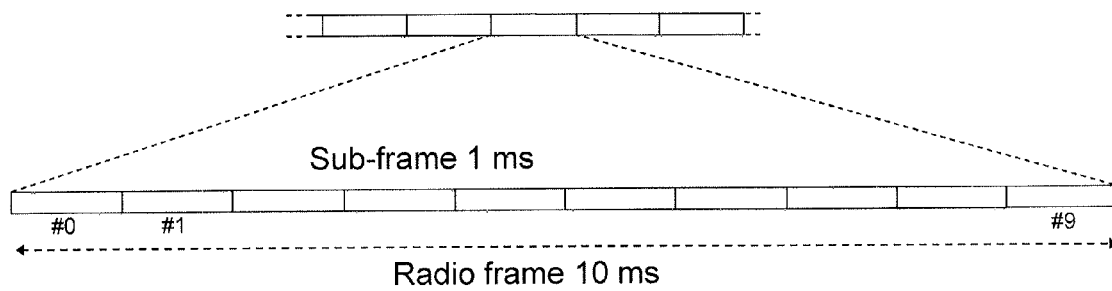


FIG. 3

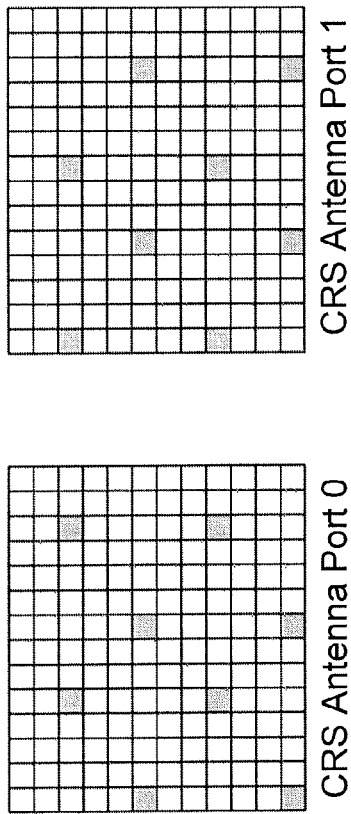


FIG. 4A

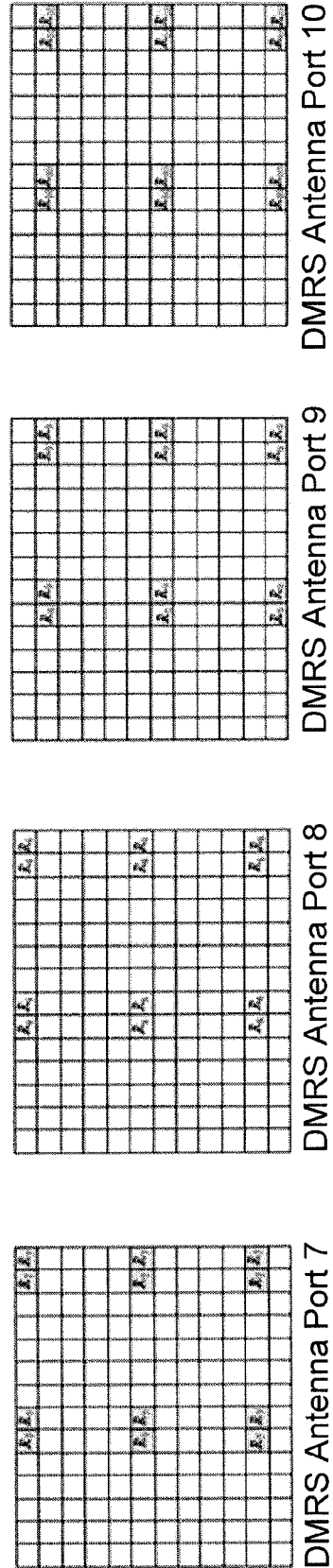


FIG. 4B

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