



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

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(54) **CODEBOOK SUBSET RESTRICTION SIGNALING**

(52) **U.S. Cl.**
CPC **H04B 7/0469** (2013.01); **H03M 7/3068** (2013.01); **H04B 7/0456** (2013.01);
(Continued)

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

(58) **Field of Classification Search**
CPC .. H04B 7/0469; H04B 7/0478; H04B 7/0639; H03M 7/3068; H03M 7/3082
See application file for complete search history.

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

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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 224 days.

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(57) **ABSTRACT**

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A network node (10) signals to a wireless communication device (14) which precoders in a codebook are restricted from being used. The network node (10) in this regard generates codebook subset restriction signaling that, for each of one or more groups of precoders, jointly restricts the precoders in the group by restricting a certain component (e.g., a certain beam precoder) that the precoders in the group have in common. This signaling may be for instance rank-agnostic signaling that jointly restricts the precoders in a group without regard to the precoders' transmission rank. Regardless, the network node (10) sends the generated signaling to the wireless communication device (14).

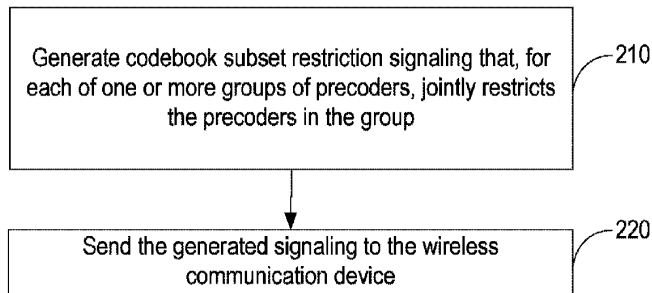
Related U.S. Application Data

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28 Claims, 14 Drawing Sheets

(51) **Int. Cl.**
H04B 7/04 (2017.01)
H03M 7/30 (2006.01)

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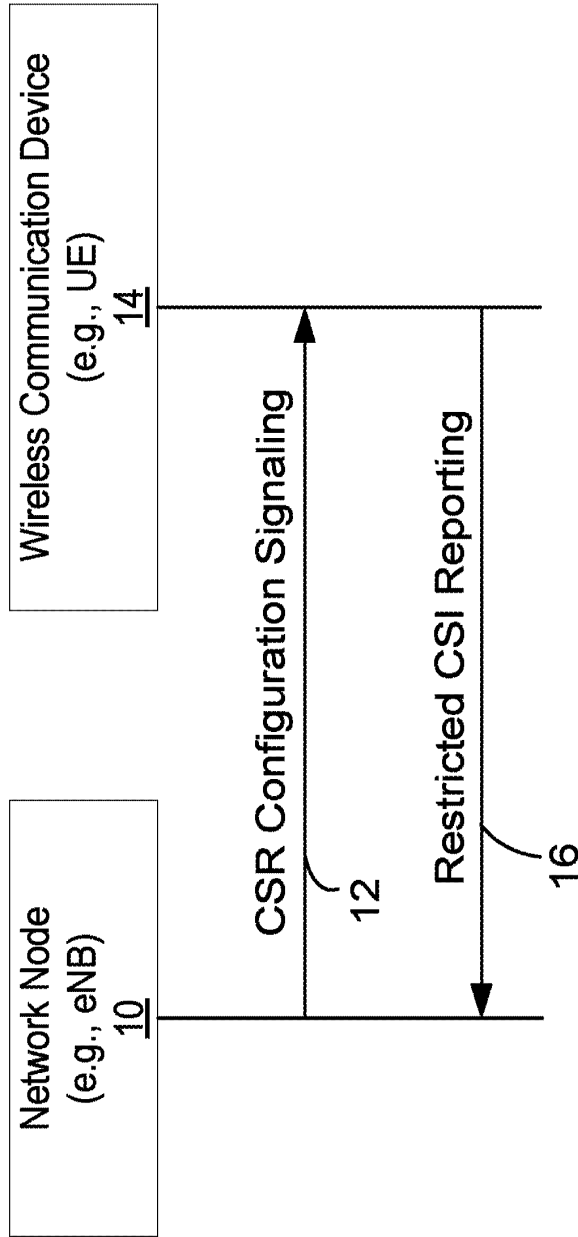


Figure 1

IPR2022-00464

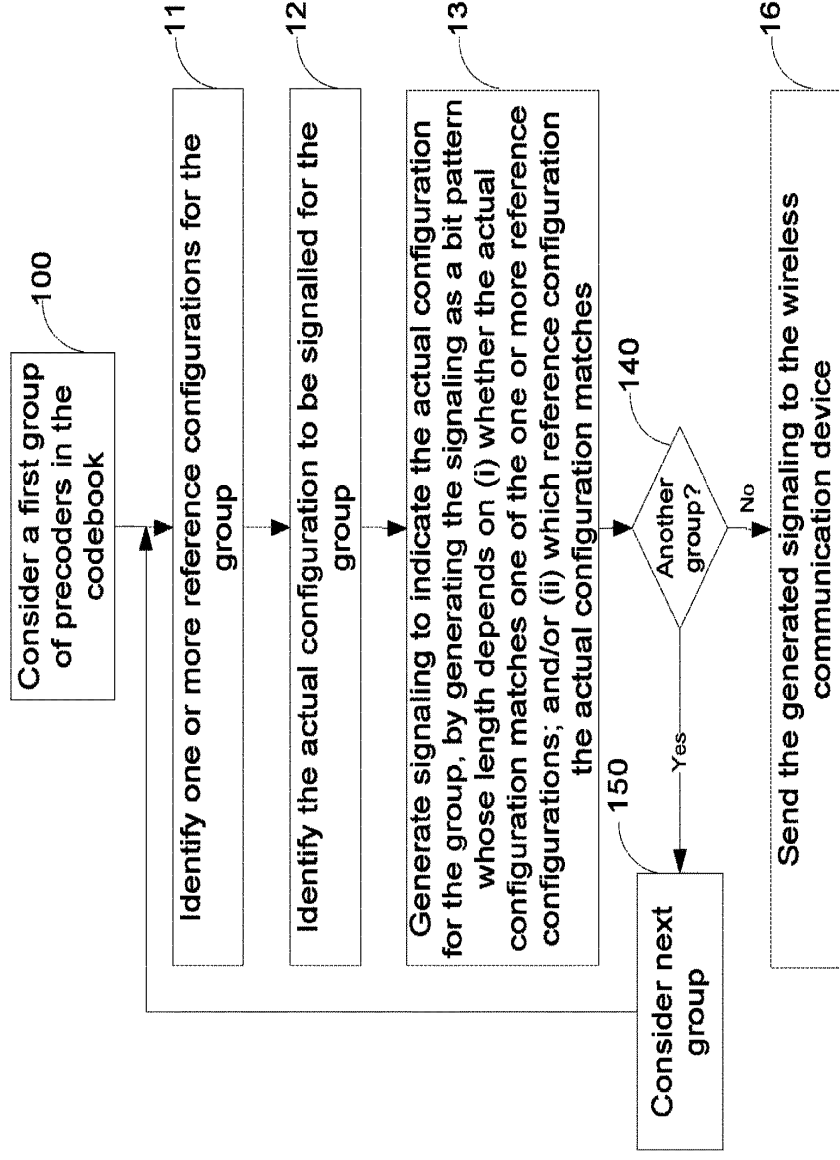


Figure 2

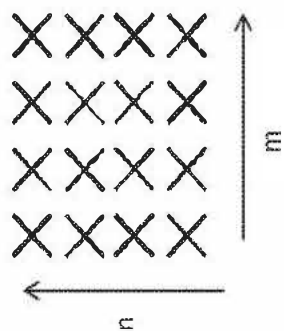


Figure 3

IPR2022-00464

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