

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2023/0231663 A1

Jul. 20, 2023 (43) **Pub. Date:**

(54) METHOD FOR SCHEDULING RETRANSMISSIONS FOR CONFIGURED GRANTS IN NR-UNLICENSED

(71) Applicant: Nokia Technologies Oy, Espoo (FI)

(72) Inventors: Timo Lunttila, Espoo (FI); Karol Schober, Helsinki (FI); Claudio Rosa, Randers NV (DK)

(21) Appl. No.: 17/894,573

(22) Filed: Aug. 24, 2022

Related U.S. Application Data

(63) Continuation of application No. 16/940,683, filed on Jul. 28, 2020, now Pat. No. 11,463,206.

Publication Classification

(51) Int. Cl. H04L 1/1867 (2006.01)H04W 28/04 (2006.01)H04W 72/1268 (2006.01)H04W 72/23 (2006.01) (52) U.S. Cl. CPC H04L 1/1887 (2013.01); H04W 28/04 (2013.01); H04W 72/1268 (2013.01); H04W 72/23 (2023.01)

(57)**ABSTRACT**

In accordance with example embodiments of the invention there is at least a method and apparatus to perform receiving, by a network device, information comprising a multiple transmission time interval uplink grant with cyclic redundancy check bits scrambled by a radio network temporary identifier; determining, by the network device of a communication network, a subset of data transmissions of a previous burst of data transmissions to be retransmitted by the network device; and performing by the network device retransmission of the subset of data transmissions using scheduled resources of the uplink grant. In addition, to perform determining, by a network node of a communication network, information comprising a multiple transmission time interval uplink grant with cyclic redundancy check bits scrambled by a radio network temporary identifier to identify a subset of data transmissions of a previous burst of data transmissions to be retransmitted by a network device; and sending the information towards the network device for use in retransmission of the subset of data transmissions using scheduled resources of the uplink grant.

RECEIVING, BY A NETWORK DEVICE OF A COMMUNICATION NETWORK, INFORMATION COMPRISING A MULTIPLE TRANSMISSION TIME INTERVAL UPLINK GRANT WITH CYCLIC REDUNDANCY CHECK BITS SCRAMBLED BY A RADIO NETWORK TEMPORARY IDENTIFIER

-810

BASED ON THE INFORMATION, DETERMINING, BY THE NETWORK DEVICE, A SUBSET OF DATA TRANSMISSIONS OF A PREVIOUS BURST OF DATA TRANSMISSIONS TO BE RETRANSMITTED BY THE NETWORK DEVICE

820

BASED ON THE DETERMINING, PERFORMING BY THE NETWORK DEVICE RETRANSMISSION OF THE SUBSET OF DATA TRANSMISSIONS USING SCHEDULED RESOURCES OF THE UPLINK GRANT

-830