

## (19) United States

# (12) Patent Application Publication (10) Pub. No.: US 2023/0231690 A1

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

### (54) RESOURCE ALLOCATION FOR OVER-THE-AIR MODEL AGGREGATION IN FEDERATED LEARNING

(71) Applicant: QUALCOMM INCORPORATED,

San Diego, CA (US)

Inventors: Qiaoyu LI, Beijing (CN); Yu ZHANG,

San Diego, CA (US); Hao XU, Beijing

(CN)

(21) Appl. No.: 18/002,252

(22)PCT Filed: Sep. 5, 2020

(86) PCT No.: PCT/CN2020/113635

§ 371 (c)(1),

Dec. 16, 2022 (2) Date:

#### **Publication Classification**

(51) Int. Cl. H04L 5/00 (2006.01)H04L 1/1822

H04W 72/1268

(2006.01)

(2006.01)

H04W 72/566 (2006.01)H04W 72/232 (2006.01)

U.S. Cl.

CPC ...... H04L 5/0094 (2013.01); H04L 1/1822 (2013.01); H04W 72/1268 (2013.01); H04W 72/566 (2023.01); H04W 72/232 (2023.01)

#### (57)ABSTRACT

Methods, systems, and devices for wireless communications are described. In some wireless communications systems, a user equipment (UE) may be configured to transmit data to a network device using an unencoded signal that includes parameters for updating a local data model. The UE may receive a radio network temporary identifier (RNTI) to decode a resource allocation message that schedules uplink resources for the transmission of the parameters, where the RNTI may be a dedicated RNTI that is different from other RNTIs received by the UE. The UE may identify allocated resources as scheduled by the resource allocation message, and may apply analog modulation and pre-equalization parameters to a data block to form an unencoded uplink transmission that includes the model parameters. The UE may transmit the unencoded uplink message in accordance with an over-the-air computation procedure.

