US 20240214165A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0214165 A1**

**MERLIN et al.** (43) **Pub. Date: Jun. 27, 2024**

(54) **CHANNEL STATE INFORMATION (CSI) REPORTING FOR RADIO FREQUENCY (RF) SENSING**

(71) Applicant: **QUALCOMM INCORPORATED**, San Diego, CA (US)

(72) Inventors: **Simone MERLIN**, San Diego, CA (US); **Vikram KANDUKURI**, Bangalore (IN); **Xiaoxin ZHANG**, Sunnyvale, CA (US); **Shwetha Goravanahalli KEMPARAJU**, Bangalore (IN)

(21) Appl. No.: **18/559,771**

(22) PCT Filed: **Jun. 3, 2022**

(86) PCT No.: **PCT/US2022/032244**

§ 371 (c)(1),
(2) Date: **Nov. 8, 2023**

(30) **Foreign Application Priority Data**

Jul. 16, 2021 (IN) ..... 202141032188

**Publication Classification**

(51) **Int. Cl.**
***H04L 5/00*** (2006.01)
***H04L 25/02*** (2006.01)

(52) **U.S. Cl.**
CPC ..... ***H04L 5/0057*** (2013.01); ***H04L 5/005*** (2013.01); ***H04L 25/022*** (2013.01); ***H04L 25/0224*** (2013.01)

(57) **ABSTRACT**

This disclosure provides systems, methods and apparatus, including computer programs encoded on computer storage media, for reporting channel state information (CSI). In some implementations, a receiving device may acquire a set of channel frequency response (CFR) values associated with one or more sounding packets that are received from a transmitting device and may group the set of CFR values into multiple subsets according to a number of transmit antennas of the transmitting device, a number of receive antennas of the receiving device, or a number of tones spanning a bandwidth of the wireless channel. In such implementations, the receiving device may transmit one or more CSI report frames each carrying a respective subset of the CFR values. In some other implementations, a receiving device may acquire multiple CSI associated with respective sounding packets and may transmit a single CSI report frame carrying the CSI for each of the wireless channels.