US 20230232363A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2023/0232363 A1**

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

(54) **METHODS AND APPARATUS FOR POSITIONING BASED ON MOTION OF MOBILE ANCHOR NODES**

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

(72) Inventors: **Wooseok NAM**, San Diego, CA (US); **Sony AKKARAKARAN**, Poway, CA (US); **Tao LUO**, San Diego, CA (US); **Jingchao BAO**, San Diego, CA (US); **Yucheng DAI**, San Diego, CA (US); **Peter GAAL**, San Diego, CA (US); **Junyi LI**, Fairless Hills, PA (US)

(21) Appl. No.: **17/580,527**

(22) Filed: **Jan. 20, 2022**

Publication Classification

(51) **Int. Cl.**

H04W 64/00	(2006.01)
H04W 24/10	(2006.01)
H04W 48/04	(2006.01)

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

CPC ***H04W 64/003*** (2013.01); ***H04W 24/10*** (2013.01); ***H04W 48/04*** (2013.01)

(57) **ABSTRACT**

Positioning of a target user equipment (UE) using a mobile anchor node is supported by providing motion information for the mobile anchor node and/or measurement restrictions. The target UE receives motion information for the mobile anchor node, which may be an ordered list of points or, e.g., a motion path. The target UE may generate positioning measurements using the motion information for the mobile anchor node to determine the position of the mobile anchor node when it transmits positioning reference signals (PRS). The target UE may receive an indication of position measurement restriction if the mobile anchor node is moving. The target UE may receive PRS over a plurality of PRS occasions. The target UE may restrict measurement to only one PRS occasion, may generate and separately report measurements for each PRS occasions or may combine a plurality of measurements using filter coefficients provided by a location server.