



US 20230231691A1

(19) **United States**(12) **Patent Application Publication**  
**GOTO et al.**(10) **Pub. No.: US 2023/0231691 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **WIRELESS COMMUNICATION SYSTEM,  
RELAY DEVICE, AND CHANNEL SETTING  
METHOD***H04W 72/0453* (2006.01)*H04W 72/541* (2006.01)(52) **U.S. Cl.**CPC ..... *H04L 5/0096* (2013.01); *H04W 16/10*  
(2013.01); *H04W 36/30* (2013.01); *H04W*  
*72/0453* (2013.01); *H04W 72/541* (2023.01);  
*H04W 84/06* (2013.01)(71) Applicant: **Nippon Telegraph and Telephone  
Corporation, Tokyo (JP)**(72) Inventors: **Daisuke GOTO**, Musashino-shi, Tokyo  
(JP); **Kiyohiko ITOKAWA**,  
Musashino-shi, Tokyo (JP); **Yasuyoshi**  
**KOJIMA**, Musashino-shi, Tokyo (JP);  
**Fumihito YAMASHITA**,  
Musashino-shi, Tokyo (JP)(21) Appl. No.: **17/926,880**(22) PCT Filed: **Jun. 5, 2020**(86) PCT No.: **PCT/JP2020/022228**

§ 371 (c)(1),

(2) Date: **Nov. 21, 2022****Publication Classification**(51) **Int. Cl.***H04L 5/00* (2006.01)*H04W 16/10* (2006.01)*H04W 36/30* (2006.01)(57) **ABSTRACT**

A wireless communication system includes one or more communications apparatuses, and a relay device, which is mobile, wherein the relay device includes a transmission unit adapted to transmit a channel change signal to the one or more communications apparatuses, the channel change signal containing channel information that indicates results corresponding to interference levels of a plurality of channels in a frequency band available for use in uplink transmission from the one or more communications apparatuses to the relay device and specifying information used to specify a communications apparatus subject to channel change, and the one or more communications apparatuses include a channel set unit adapted to set a channel having an interference level lower than a threshold as a channel to be used for communications with the relay device when the specifying information contained in the channel change signal is applicable.

