



US 20240214105A1

(19) **United States**(12) **Patent Application Publication**  
**SUZUKI et al.**(10) **Pub. No.: US 2024/0214105 A1**(43) **Pub. Date: Jun. 27, 2024**(54) **RECEIVING APPARATUS AND RECEIVING METHOD**(52) **U.S. Cl.**CPC ..... **H04J 14/06** (2013.01); **H04B 10/614** (2013.01)(71) Applicant: **NIPPON TELEGRAPH AND TELEPHONE CORPORATION**,  
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**ABSTRACT**(72) Inventors: **Takahiro SUZUKI**, Musashino-shi (JP); **Sang-Yuep KIM**, Musashino-shi (JP)(73) Assignee: **NIPPON TELEGRAPH AND TELEPHONE CORPORATION**,  
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A reception device includes: a polarization separating unit configured to perform polarization-separation on reception signals respectively corresponding to an X-polarized wave and the Y-polarized wave, output from a receiving unit; a first signal decoding unit configured to decode a single-sequence transmission signal from the given reception signals; a second signal decoding unit configured to decode a two-sequence transmission signal from the given reception signals; and a reception signal comparison unit configured to determine whether change patterns in the reception signals respectively corresponding to the X-polarized wave and the Y-polarized wave separated by the polarization separating unit are similar to each other, output the reception signals obtained by polarization-separation by the polarization separating unit to the first signal decoding unit in a case where the change patterns are similar to each other, and output the reception signals obtained by polarization-separation by the polarization separating unit to the second signal decoding unit in a case where the change patterns are not similar to each other.

(21) Appl. No.: **18/288,113**(22) PCT Filed: **May 27, 2021**(86) PCT No.: **PCT/JP2021/020237**

§ 371 (c)(1),

(2) Date: **Oct. 24, 2023****Publication Classification**(51) **Int. Cl.****H04J 14/06** (2006.01)**H04B 10/61** (2006.01)