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(54) **MODULATION APPARATUS/METHOD,
DEMODULATION APPARATUS/METHOD
AND PROGRAM PRESENTING MEDIUM**

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(57) **ABSTRACT**

A DSV control bit determining/inserting unit inserts DSV control bits into an input data string and outputs the string including the DSV control bits to a modulation unit which converts the string with basic data length of 2 bits into variable length code with basic code length of 3 bits in accordance with a conversion table and outputs the code resulting from the conversion to a NRZI encoding unit. The conversion table includes substitution codes for limiting the number of consecutive appearances of a minimum run and substitution codes for keeping a run length limit. The conversion table enforces a conversion rule: the remainder of division of the "1" count of an element in a data string by 2 having a value of 0 or 1 equals the remainder of division of the "1" count of an element in the code resulting from conversion of the data string by 2.

30 Claims, 7 Drawing Sheets

