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(54) **SINGLE-USER DECODER METRICS FOR SUBTRACTIVE INTERFERENCE CANCELLATION DETECTORS IN CODE-DIVISION MULTIPLE-ACCESS (CDMA) COMMUNICATION SYSTEMS WITH TIME DEPENDENCE VARIANCE RESIDUAL MULTIPLE-ACCESS INTERFERENCE (RMAI)**

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**H04B 1/69** (2006.01)  
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See application file for complete search history.

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(57) **ABSTRACT**

Improved branch metrics for Viterbi decoders in CDMA systems take into account the time dependency of the variance of the multiple access interference in any user’s signal after the single-user detector, and the time dependency of the residual multiple access interference in any user’s signal after subtractive interference cancellation is applied in two-stage detectors. The (residual) multiple access interference can be modeled as a Gaussian random variable with time dependent variance. Modeling the RMAI in such a way reduces the bit error rate in CDMA systems.

**36 Claims, 7 Drawing Sheets**

