Title (en)

METHOD FOR GENERATING SOFT BIT INFORMATION FROM GRAY CODED SIGNALS

Title (de)

VERFAHREN ZUR ERZEUGUNG VON SOFT-BIT-INFORMATIONEN AUS GRAY-CODIERTEN SIGNALEN

Title (fr)

PROCEDE DE PRODUCTION DE DONNEES BINAIRES SOUPLES A PARTIR DE SIGNAUX A CODAGE GRAY

Publication

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Application

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Priority

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Abstract (en)

[origin: WO0233919A2] The invention relates to a method for generating soft bit information from gray coded signals. The aim of the invention is to calculate the soft bit information while at least maintaining the same performance in terms of bit or symbol error rates, using less costly calculation and hardware systems, in order to enable corresponding implementation in real time systems with considerable time requirements. To this end, the soft bit information is generated per bit using the gray coding by simple absolute-value generation and subtraction. Before the actual soft bit calculation, the complex receiving symbols Y, with Y = S.H+N, are multiplied by the conjugated complex value H<*> of the channel transfer function H, by which means a phase rotation determined by the channel is eliminated. The complex multiplication and adoption of an ideal channel estimate results in the phase-corrected receiving symbol R = S.¦H¦<2> + NH<*>, weighted with the amplitude of the channel. The soft bit information D(R,S)i is then calculated for in-phase or quadrature components for an m-valent QAM symbol according to D(R,S)1 = Re{R} for the in-phase components and according to D(R,S)1 = Im{R} for the quadrature components and D(R,S)i = -abs(D(R,S)i-1)+Si for i>/=2, Si representing shift factors with Si = VTi¦H¦<2> and VTi representing threshold values with Vti = 2<ld(m)/2-(i-1)>.

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