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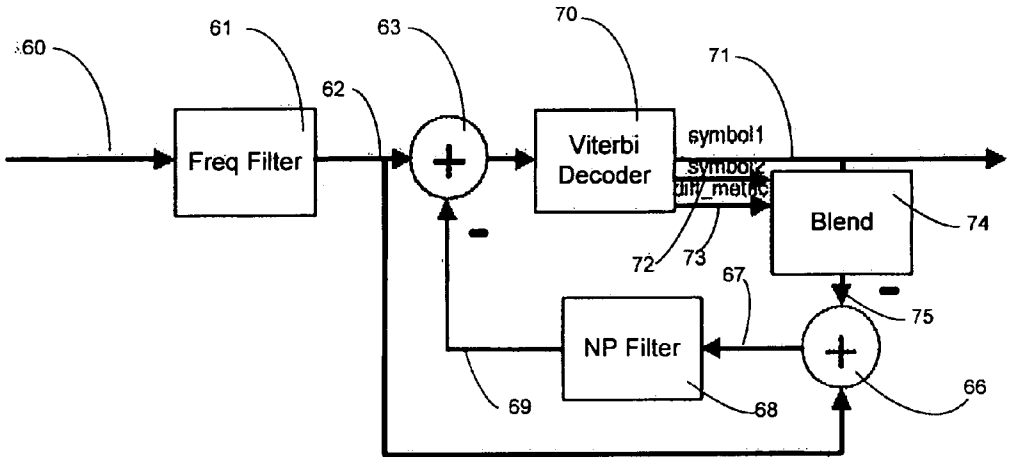
(54) Title: REDUCING EQUALIZER ERROR PROPAGATION WITH A LOW COMPLEXITY SOFT OUTPUT VITERBI DECODER



(57) Abstract: Novel systems and methods are described in which performance of equalizers can be improved by reducing the effects of error propagation in equalizers that use a Viterbi Decoder (70). Systems and methods of symbol correction in prediction decision feedback equalization architectures are described including systems and methods that include an enhanced Viterbi decoder (70) and novel methods of symbol correction to obtain better system performance. The use of a blending algorithm (74) is described to reduce errors in symbol decoding. Histories of deep trace back depth symbols can be maintained to enable more accurate decisions. Systems and methods described can provide advantage in the feedback path of adaptive equalizers in trellis decoders. The invention provides novel techniques for improving the performance of equalizers by reducing the effects of error propagation in equalizers that use a Viterbi Decoder (70).

WO 2007/123862 A3

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: **H03H 7/30**(2006.01);**H03D 1/00**(2006.01)

USPC: 375/229-230,233,262,285,340-341;714/794-795

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 375/229-230,233,262,285,340-341;714/794-795

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST DATABASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,757,855 A (STROLLE et al.) 26 May 1998 (26.05.1998), column 5 lines 35-60, column 7 lines 55-67, column 8 lines 15-40.	1-6,9-11 and 13-21
Y	US 6,651,215 B2 (MIYAUCHI et al.) 18 November 2003 (18.11.2003), column 2, lines.35-45.	6,11 and 13
Y	US 6,052,821 A (CHOU et al.) 18 April 2000 (18.04.2000), column 11, lines 25-45	14
Y	US 4,833,693 A (EYUBOGLU) 23 May 1989 (23.05.1989), column 2, lines 15-35.	16 & 22

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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