

CODED MODULATION WITH UNEQUAL ERROR PROTECTION

Abstract

Digital signals (from 101), such as digitized television signals, are subjected to a source coding step (by 104) followed by a channel mapping step (by 5 114 and 115). The source coding step causes the signal to be represented by first and second data streams (on 105, 106). The first stream carries data regarded as more important and the second carries data regarded as less important. In the channel mapping step, the mapping is such that the data elements of the various data streams have differing probabilities of being erroneously detected at the receiver. The 10 channel mapping step includes at least one multi-level coding step. The signal constellations used in the channel mapping step are partitioned into supersymbols, in which the distance between the symbols comprising at least ones of the supersymbols is less than a parameter referred to as the maximum intra-subset distance (MID). Additionally, in some constellations, the minimum distance 15 between at least ones of the symbols of at least one of the supersymbols is greater than the minimum distance between the symbols of the constellation as a whole while, again, still being less than the MID. The first data stream is used to identify a sequence of supersymbols, while the second data stream is used to select particular symbols from the identified supersymbols.

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(FIGURE 5)

This Sheet Has Been Replaced

