METHOD AND APPRATUS FOR DETERMINING THE DATA RATE OF A RECEIVED SIGNAL

ABSTRACT

A system for determining the rate at which data has been encoded in the receiver (12) of a variable-rate communications system. The data is received in symbols that are grouped in frames. When data is transmitted at full rate, the frame is filled with symbols. When the data is transmitted at less than full rate, symbols are repeated within a frame until the frame is full or the symbols are spaced apart within a frame. At an encoding rate of one fourth the full rate, for example, each symbol in the frame is repeated four times or data is transmitted one quarter of the time. The incoming frames are decoded, for example by decoder (48), and re-encoded, for example by encoder (76), at each possible data rate. A comparator, for example comparator (84), compares the re-encoded symbols with the originally received symbols and a counter, for example counter (100), counts the number of symbol errors. Each decoding process produces an indication of the quality of the decoding process which may include Cyclic Redundancy Check (CRC) results, for example CRC (120), or Yamamoto Quality Metrics. The counted errors and the quality indication comprise an error metric which is passed to a processor, for example microprocessor (56). The processor analyzes the error metric for each data rate and determines the most probable rate at which the incoming symbols were encoded.

Figure 2