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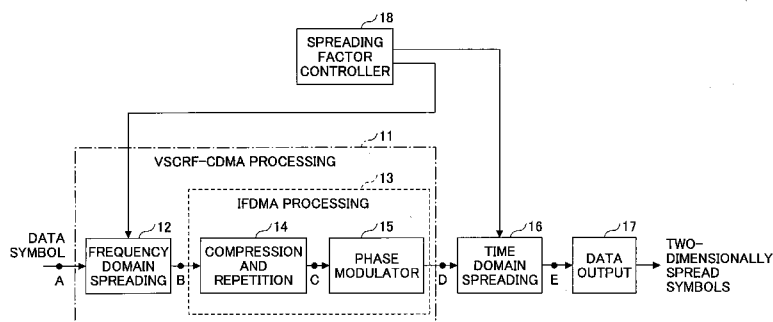
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(54) Title: TWO-DIMENSIONAL CODE SPREADING FOR INTERLEAVED FDMA SYSTEM

FIG.1



(57) Abstract: A transmitter comprises a first spreading unit configured to multiply each of multiple data symbols with a first spreading code sequence of a first spreading factor; a compression and repetition unit configured to compress output signals of the first spreading unit in time domain and repeat the compressed signal L times (where L is a natural number greater than or equal to 2); a phase modulation unit configured to multiply the compressed and repeated signal with a user dependent phase and output a data block consisting of L sub-blocks; a second spreading unit configured to replicate the data block according to a second spreading factor and multiply each set of the replicated sub-blocks with a second spreading code sequence of the second spreading factor to produce a two-dimensionally spread signal; and a wireless transmission unit configured to transmit the two-dimensionally spread signal using a single-carrier transmission scheme.