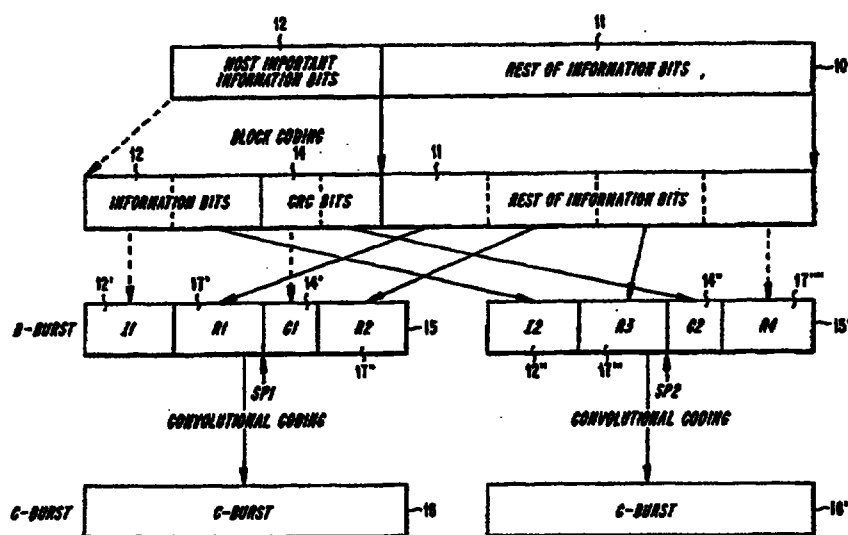




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(21) International Application Number: PCT/US97/15637 (22) International Filing Date: 15 September 1997 (15.09.97) (30) Priority Data: 08/718,259 20 September 1996 (20.09.96) US (71) Applicant: ERICSSON INC. [US/US]; 7001 Development Drive, P.O. Box 13969, Research Triangle Park, NC 27709 (US). (72) Inventors: WAN, Yongbing; 106 Olympic Drive, Cary, NC 27513 (US). ASOKAN, Ram; 401-F Parkton Court, Cary, NC 27511 (US). REINHOLD, Stan; 1119 Tanglewood Drive, Cary, NC 27511 (US). (74) Agents: GRUDZIECKI, Ronald, L. et al.; Burns, Doane, Swecker & Mathis, L.L.P., P.O. Box 1404, Alexandria, VA 22313-1404 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: **CONVOLUTIONAL DECODING WITH THE ENDING STATE DECIDED BY CRC BITS PLACED INSIDE MULTIPLE CODING BURSTS**



(57) Abstract

An improved coding and decoding process is disclosed to determine the ending state of a convolutional decoding using Viterbi algorithm without the use of tail bits. The most important information bits (12) are first coded with a block code (14). The block code word (14) and the rest of the information bits (11) are then split into several bursts (B-Burst). Each burst is coded with a convolutional code. The most important information bit part of the block code word is then placed in the beginning of the code burst for the convolutional encoder. The parity bit part can be placed between the end of the most important information bit part and the end of the code burst. In the convolutional decoding process for each burst, the ending state is determined by detected valid block code word after combining the convolutional decoding processes for all the bursts. The performances of average BER and missed detection rate can be optimized by moving the placement of the parity bit in each message code burst.