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(54) **PREAMBLE SEQUENCING FOR RANDOM ACCESS CHANNEL IN A COMMUNICATION SYSTEM**

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See application file for complete search history.

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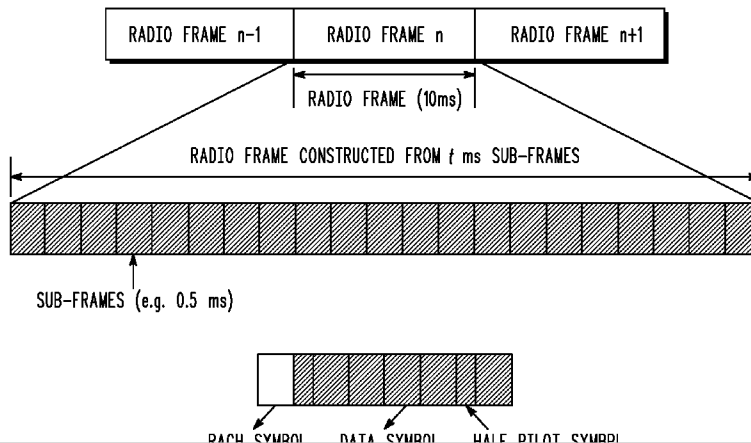
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(57)   **ABSTRACT**

A system and method for initializing a system communication without previous reservations for random access channel (RACH) access includes a first step of defining at least one spread sequence derived from at least one constant amplitude zero autocorrelation sequence. A next step includes combining the spread sequence with a Walsh code to form an extended spread sequence. A next step includes using the extended spread sequence in a preamble for a RACH. A next step includes sending the preamble to a BTS for acquisition. A next step includes monitoring for a positive acquisition indicator from the BTS. A next step includes scheduling the sending of a RACH message. A next step includes sending the RACH message.

13 Claims, 13 Drawing Sheets

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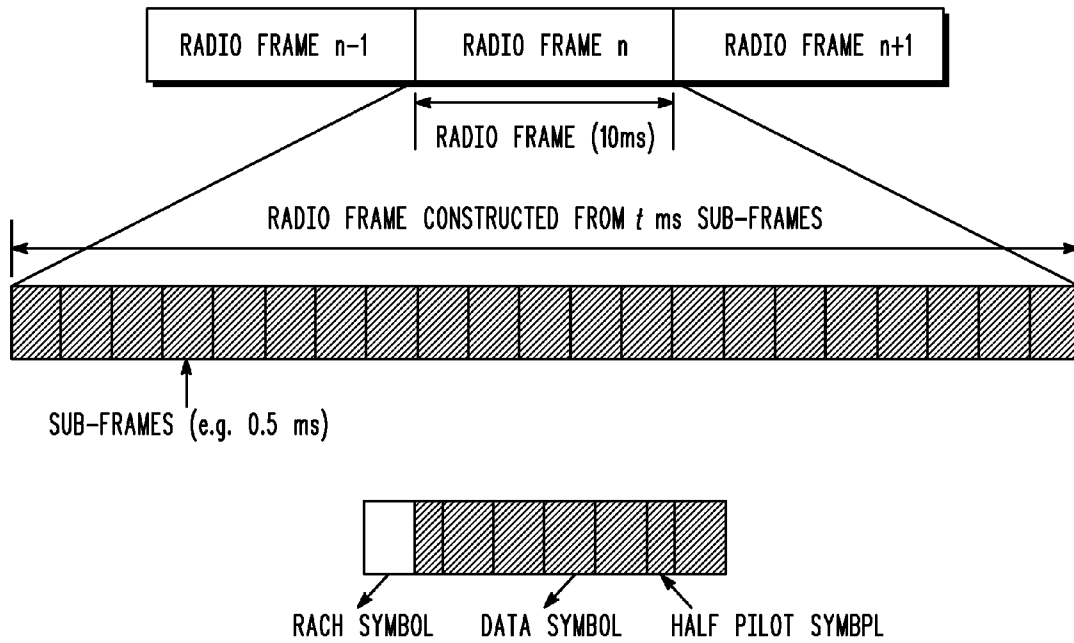
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RADIO FRAME n−1	RADIO FRAME n	RADIO FRAME n+1

RADIO FRAME (10ms)

RADIO FRAME CONSTRUCTED FROM *t* ms SUB−FRAMES

SUB−FRAMES (e.g. 0.5 ms)

RACH SYMBOL   DATA SYMBOL   HALF PILOT SYMBPL

FIG. 1

RACH PARAMETERS FOR THE TDM/FDM STRUCTURE

RACH PARAMETERS IN LOCALIZED MODE	BANDWIDTH					
	1.25 MHz	2.5 MHz	5.0 MHz	10.0 MHz	15.0 MHz	20.0 MHz
min. RB BW	225	225	225	225	225	225
# RB (N_{RB})	5	10	20	40	60	80
# OF OCCUPIED SUBCARRIERS	15	15	15	15	15	15
# OF SEQUENCES (FOR ALL SECTORS/CELLS) (N_S)	8	8	8	8	8	8
# OF CYCLIC SHIFTED VERSION OF EACH SEQUENCE (N_{SH})	1	1	1	1	1	1
# RACH OPPORTUNITIES	40	80	160	320	480	640

FIG. 2

FIG. 3

FIG. 4

DOCKET ALARM
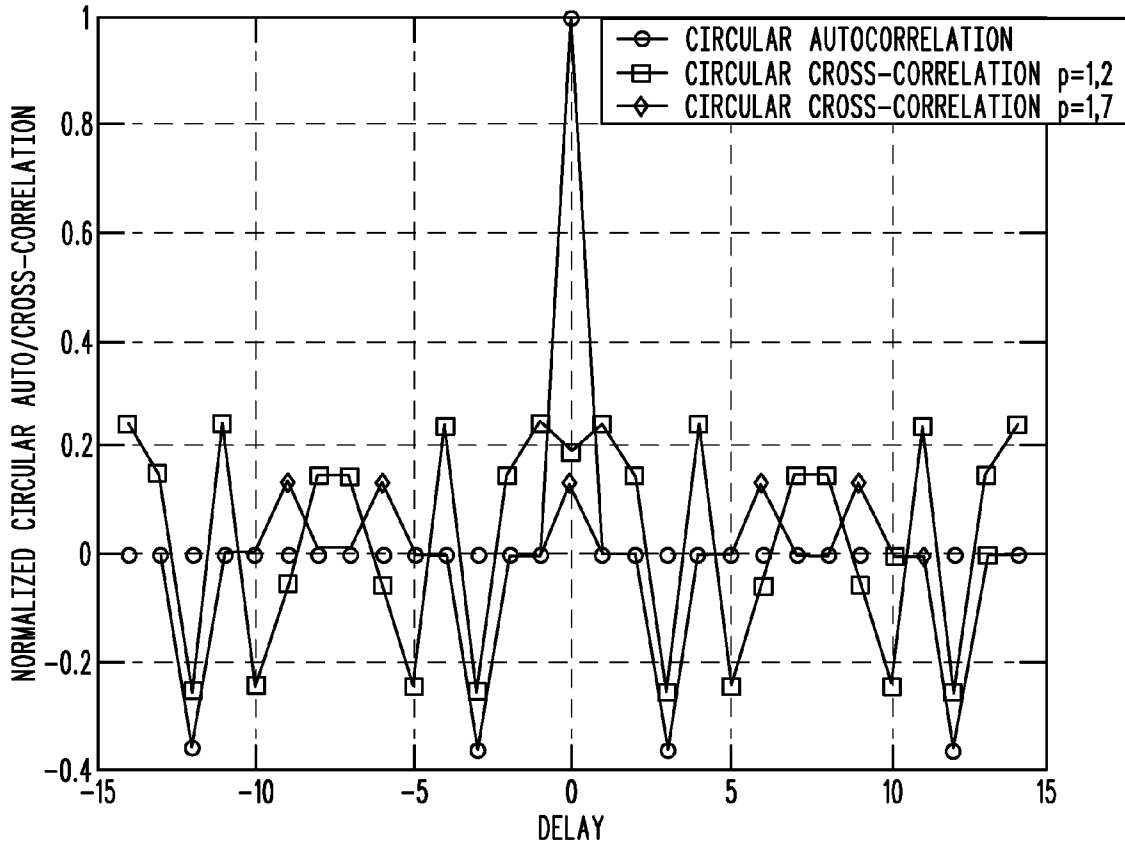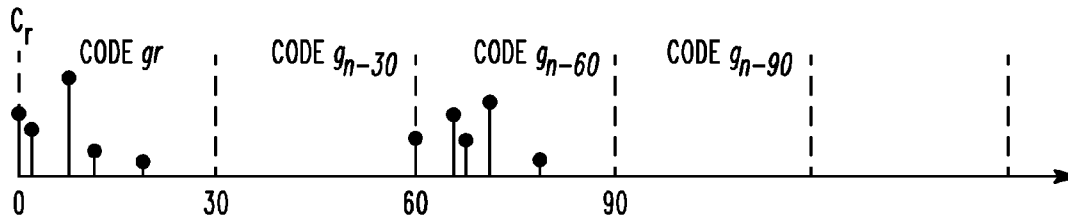
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