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**Tan et al.**

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

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(51) **Int. Cl.**  
**H04B 7/216** (2006.01)

(52) **U.S. Cl.** ..... **370/335**; 455/434

(58) **Field of Classification Search** ..... 370/335;  
455/434

See application file for complete search history.

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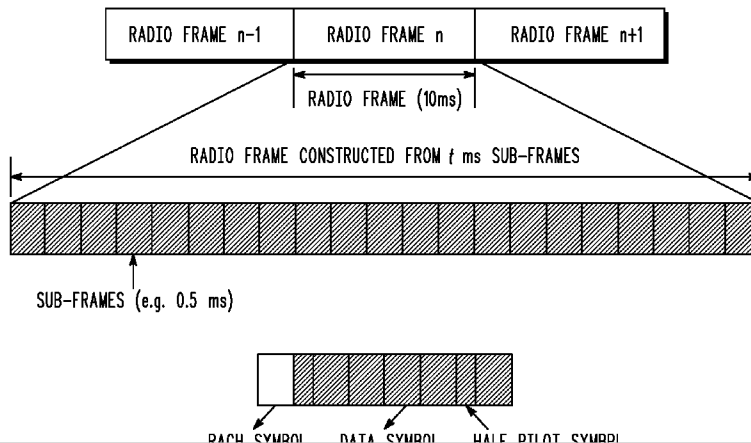
Primary Examiner — Jean Gelin

Assistant Examiner — Michael Nguyen

(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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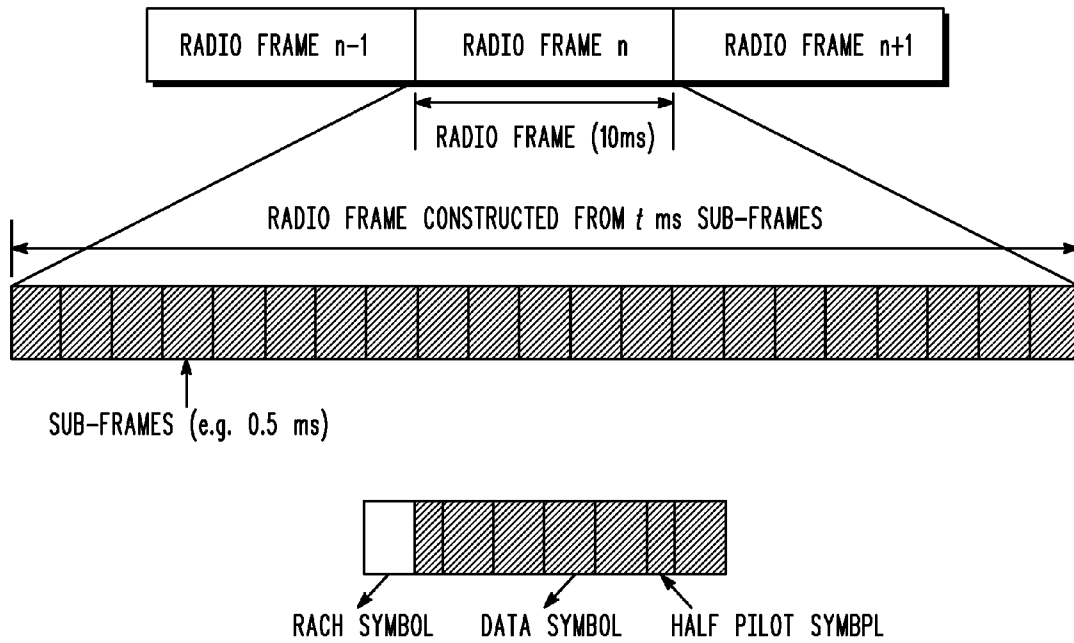
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**FIG. 1**

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*

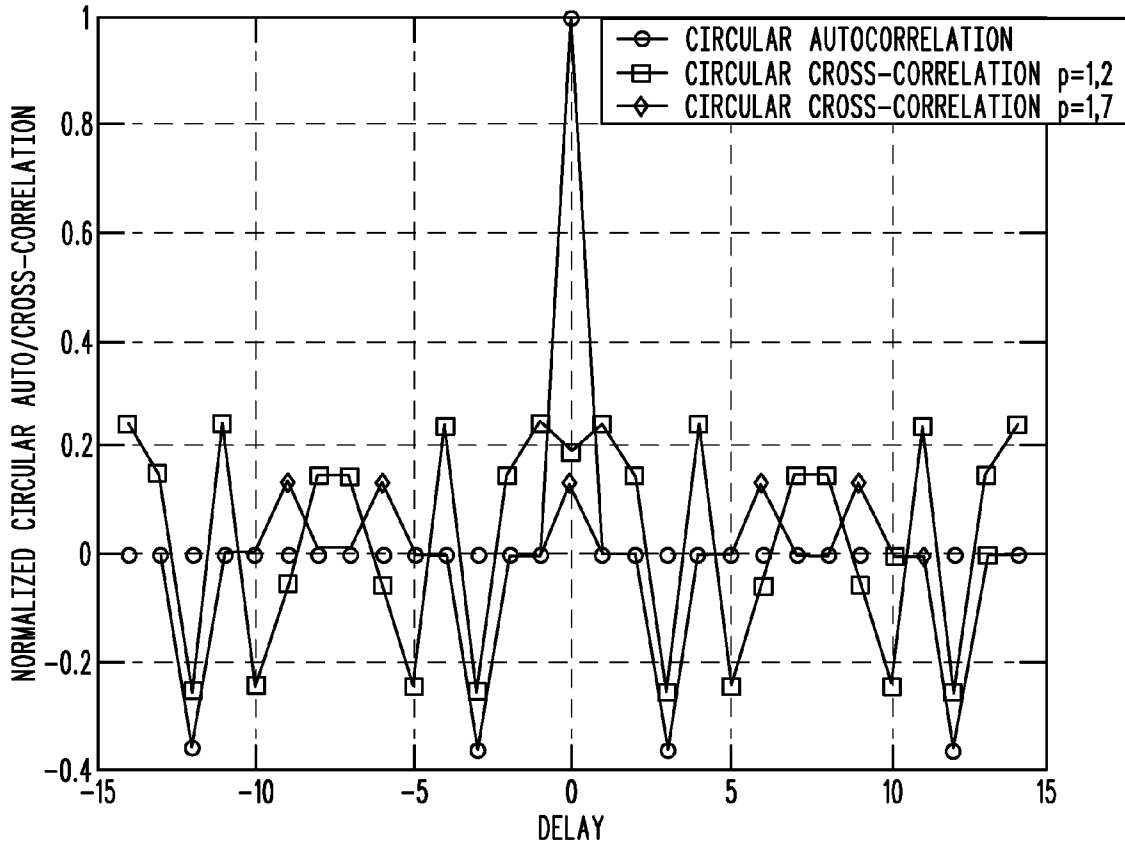


FIG. 3

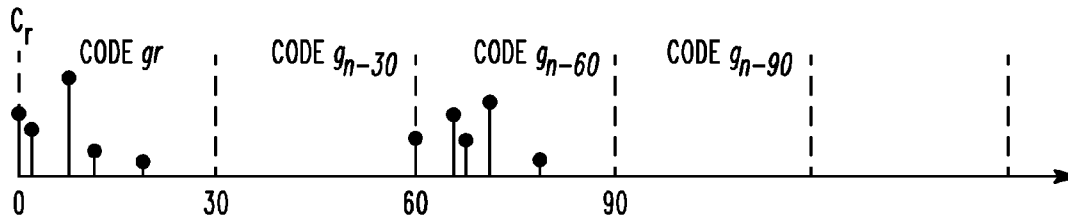


FIG. 4

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