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WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(54) Title: TEMPORARY FRAME IDENTIFICATION FOR ARQ IN A RESERVATION-SLOTTED-ALOHA TYPE OF PROTOCOL

(57) Abstract

Automatic repeat request (ARQ) functionality in a cellular mobile packet data communication system using a reservation slotted-ALOHA protocol is provided by assigning a temporary frame identity (TFI) to each data frame transmitted to or from a mobile station. The assigned TFI is unique among concurrent frame transfer sequences in a cell, and may be assigned based on information in a data frame sent to the mobile station or based on information in a channel reservation message that precedes the data frame sent to the mobile station. The TFI may also be assigned based on information in a channel reservation message that precedes a data frame sent from the mobile station, and the TFI assigned is unique among concurrent frame transfer sequences in a cell. The TFI is included in every block belonging to a particular frame, a block being the unit of data on which ARQ is based. A partial data frame to be retransmitted in case of a transmission error contains only the blocks determined by the ARQ protocol type (e.g., selective or Go-back-N) used, whereby a primary block need not be added to identify the mobile station. Blocks belonging to frames destined for different mobile stations can be multiplexed on the downlink based on the TFI. The mobile station may include, in its random access request, an indication that a TFI is already assigned.

1	2	3	4	5	6	7	8	OCTET
MS IDENTITY								1
								2
								3
								4
FRAME LENGTH								5
FRAME TYPE				N/S		SEQ NUM		6

1	2	3	4	5	6	7	8	OCTET
TPI								1
BLOCK SEQ NUM					TYPE		P/F	2
NUM OF TRIES				FOR FURTHER USE				3

1	2	3	4	5	6	7	8	OCTET
TF1								1
BLOCK SEQ NUM					TYPE		P/F	2

1	2	3	4	5	6	7	8	OCTET
RANDOM NUMBER					RETR	SING	PRIO	1

1	2	3	4	5	6	7	8	OCTET
ERROR BIT MAP								ACK