3GPP TSG-RAN1 Meeting #20
Busan, Korea, May 21st –25th, 2001

Tdoc R1-01-0482

CR-Form-v4

CHANGE REQUEST

⌘ **25.214** **CR** **172** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 25.214: Removal of Delta P1 parameter from CPCH access procedure
Source:	⌘	Golden Bridge Technology
Work item code:	⌘	***Date:*** ⌘ May 15, 2001
Category:	⌘ **F**	***Release:*** ⌘ R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	The parameter Delta P1 has been deleted from higher layer specifications TS25.331 and TS25.302. CPCH ramp-up procedure was decided to be the same as that of RACH. The Delta P1 parameter has been deleted from the RACH access procedure, but has not been deleted from the CPCH access procedure.
Summary of change:	⌘	Delete parameter Delta P1 from the CPCH access procedure.
Consequences if not approved:	⌘	Inconsistency between the parameters defined in Layer 1 and Layer2 specifications.

Clauses affected:	⌘	6.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest

version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

The following physical layer parameters are received from the RRC layer:

1) N_AP_retrans_max = Maximum Number of allowed consecutive access attempts (retransmitted preambles) if there is no AICH response. This is a CPCH parameter and is equivalent to Preamble Retrans Max in RACH.

2) $P_{RACH} = P_{CPCH}$ = Initial open loop power level for the first CPCH access preamble sent by the UE.

   - [RACH/CPCH parameter].

3) ΔP_0 = Power step size for each successive CPCH access preamble.

   - [RACH/CPCH parameter].

~~4) ΔP_1 = Power step size for each successive RACH/CPCH access preamble in case of negative AICH. A timer is set upon receipt of a negative AICH. This timer is used to determine the period after receipt of a negative AICH when ΔP_1 is used in place of ΔP_0.~~

~~- [RACH/CPCH parameter].~~

45) $\Delta P_{p\text{-}m} = P_{message\text{-}control} - P_{cd}$, measured in dB. This is the power offset between the transmit power of the CD preamble and the initial transmit power of the CPCH power control preamble (or the control part of the CPCH message part if the power control preamble length is 0 slots).

[CPCH parameter]

56) T_{cpch} = CPCH transmission timing parameter: This parameter is identical to PRACH/AICH transmission timing parameter.

   - [RACH/CPCH parameter].

67) $L_{pc\text{-}preamble}$ = Length of power control preamble (0 or 8 slots).

   - [CPCH parameter].

78) $N_{Start\_Message}$ = Number of frames for the transmission of Start of Message Indicator in DL-DPCCH for CPCH.

89) The set of Transport Format parameters. This includes a Transport Format to PCPCH mapping table.

L1 shall receive the following information from MAC prior to packet transmission:

1) Transport Format of the message part.

2) The data to be transmitted is delivered to L1 once every TTI until the data buffer is empty.

The overall CPCH -access procedure consists of two parts:

1) Upon receipt of a Status-REQ message from the MAC layer, the UE shall start monitoring the CSICH to determine the availability of the transport formats in the transport format subset included in the Status-REQ message. UTRAN transmits availability of each PCPCH or maximum available data rate with availability of each PCPCH over the CSICH in case CA is active. Upper layers will supply the UE with information to map the transport formats to the PCPCHs. The UE shall send a Status-CNF message to the MAC layer containing the transport format subset listing the transport formats of the requested subset which are currently indicated as "available".

The actual access procedure is then:

2) Upon receipt of the Access-REQ message from the MAC layer, which contains an identified transport format from the available ones ,the following sequence of events occur. The use of step 2a or 2b depends on whether availability of each PCPCH or the Maximum available data rate along with the availability of each PCPCH is transmitted over CSICH. Note that in the first case, each access resource combination (AP signatures and access subchannel group) maps to each PCPCH resource and in the second case each access resource combination maps to each data rate.

2a) (In case CA is not Active) The UE shall test the value(s) of the most recent transmission of the CSICH Status Indicator(s) corresponding to the PCPCH channel(s) for the identified transport format included in the Access-REQ message. If this indicates that no channel is 'available' the UE shall abort the access attempt and send a failure message to the MAC layer. The UE shall also retain the availability status of the each PCPCH for further verification in a later phase.

2b) (In case CA is active) The CSICH Status Indicators indicate the maximum available data rate along with individual PCPCH availability. The UE shall test the value of the most recent transmission of the Status Indicator(s). If this indicates that the maximum available data rate is less than the requested data rate, the UE shall abort the access attempt and send a failure message to the MAC layer. The PHY provides the availability information to the MAC. The UE shall also retain the availability status of the each PCPCH for further channel assignment message verification in a later phase in case of success.

3) The UE sets the preamble transmit power to the value $P_{CPCH\_}$ which is supplied by the MAC layer for initial power level for this CPCH access attempt.

4) The UE sets the AP Retransmission Counter to N_AP_Retrans_Max.

5a) In the case CA is not active, the uplink access slot and signature to be used for the CPCH-AP transmission are selected in the following steps:

   a) The UE selects randomly one PCPCH from the set of available PCPCH channel(s) as indicated on the CSICH and supporting the identified transport format included in the Access-REQ message. The random function shall be such that each of the allowed selections is chosen with equal probability.

   b) The UE randomly selects a CPCH-AP signature from the set of available signatures in the access resource combination corresponding to the selected PCPCH in step a). The random function shall be such that each of the allowed selections is chosen with equal probability.

   c) Using the AP access slot sub-channel group of the access resource combination corresponding to selected PCPCH in step a), the UE derives the available CPCH-AP access slots with the help of subclauses 6.1.1. and 6.1.2. The UE randomly selects one uplink access slot from the derived available CPCH-AP access slots. If there is no access slot available in the selected set, the UE randomly selects one uplink access slot corresponding to the selected CPCH sub-channel group from the next access slot set. The random function shall be such that each of the allowed selections is chosen with equal probability.

5b) In the case CA is active, the uplink access slot and signature to be used for the CPCH-AP transmission are selected in the following steps:

a) The UE randomly selects a CPCH-AP signature from the set of available signatures in the access resource combination corresponding to the transport format identified in the Access-REQ message. The random function shall be such that each of the allowed selections is chosen with equal probability.

b) Using the AP access slot sub-channel group of the access resource combination corresponding to the transport format identified in the Access-REQ message, the UE derives the available CPCH-AP access slots with the help of subclauses 6.1.1 and 6.1.2. The UE randomly selects one uplink access slot from the derived available CPCH-AP access slots. If there is no access slot available in the selected set, the UE randomly selects one uplink access slot corresponding to the selected CPCH sub-channel group from the next access slot set. The random function shall be such that each of the allowed selections is chosen with equal probability.

6) The UE transmits the AP using the selected uplink access slot and signature, and MAC supplied initial preamble transmission power. The following sequence of events occur based on whether availability of each PCPCH or the Maximum available data rate along with the availability of each PCPCH is transmitted over CSICH.

6a) (In case CA is not Active) The UE shall test the value of the most recent transmission of the Status Indicator corresponding to the identified CPCH transport channel immediately before AP transmission. If this indicates that the channel is 'not available' the UE shall abort the access attempt and send a failure message to the MAC layer. Otherwise the UE transmits the AP using the UE selected uplink signature and access slot, and the initial preamble transmission power from step 3, above.

6b) (In case CA is active) The Status Indicator indicates the maximum available data rate as well as the availability of each PCPCH. The UE shall test the value of the Status Indicator. If this indicates that the maximum available data rate is less than the requested data rate, the UE shall abort the access attempt and send a failure message to the MAC layer. Otherwise the UE shall transmit the AP using the UE selected uplink access slot, the MAC supplied signature and initial preamble transmission power from step 3, above.

7) If the UE does not detect the positive or negative acquisition indicator corresponding to the selected signature in the downlink access slot corresponding to the selected uplink access slot, the UE shall test the value of the most recent transmission of the Status Indicator corresponding to the selected PCPCH immediately before AP transmission. If this indicates that the PCPCH is 'not available' the UE shall abort the access attempt and send a failure message to the MAC layer. Otherwise the following steps shall be executed:

a) Select the next available access slot in the sub-channel group used. There must be a minimum distance of three or four (per Tcpch parameter) access slots from the uplink access slot in which the last preamble was transmitted depending on the CPCH/AICH transmission timing parameter.

b) Increases the preamble transmission power with the specified offset ΔP. Power offset ΔP_0 s is used. ~~unless the negative AICH timer is running, in which case ΔP_1 is used instead.~~

c) Decrease the AP Retransmission Counter by one.

d) If the AP Retransmission Counter < 0, the UE aborts the access attempt and sends a failure message to the MAC layer.

8) If the UE detects the AP-AICH_nak (negative acquisition indicator) corresponding to the selected signature in the downlink access slot corresponding to the selected uplink access slot, the UE aborts the access attempt and sends a failure message to the MAC layer. ~~The UE sets the negative AICH timer to indicate use of ΔP_1 use as the preamble power offset until timer expiry.~~

9) Upon reception of AP-AICH_ack with matching signature, the access segment ends and the contention resolution segment begins. In this segment, the UE randomly selects a CD signature from the CD signature set and also selects one CD access slot sub-channel from the CD sub-channel group supported in the cell and transmits a CD Preamble at the same power as the last AP, then waits for a CD/CA-ICH and the channel assignment (CA) (in case CA is active) message from the Node B. The slot selection procedure is as follows:

   a) The next available slot when the PRACH and PCPCH scrambling code are not shared. Furthermore, the PCPCH AP preamble scrambling code and CD Preamble scrambling codes are different.

   b) When the PRACH and PCPCH AP preamble scrambling code and CD preamble scrambling code are shared, the UE randomly selects one of the available access slots in the next 12 access slots. Number of CD sub-channels will be greater than 2.

10) If the UE does not receive a CD/CA-ICH in the designated slot, the UE aborts the access attempt and sends a failure message to the MAC layer.

11) If the UE receives a CD/CA-ICH in the designated slot with a signature that does not match the signature used in the CD Preamble, the UE aborts the access attempt and sends a failure message to the MAC layer.

12a) (In case CA is not Active) If the UE receives a CDI from the CD/CA-ICH with a matching signature, the UE transmits the power control preamble $\tau_{cd\text{-}p\text{-}pc\text{-}p}$ ms later as measured from initiation of the CD Preamble. The initial transmission power of the power control preamble shall be $\Delta P_{p\text{-}m}$ [dB] higher than the power of the CD preamble. The inner loop power control in the power control preamble is described in sub clause 5.1.3.3. The transmission of the message portion of the burst starts immediately after the power control preamble. Power control in the message part is described in sub clause 5.1.3.2.

12b) (In case CA is active) If the UE receives a CDI from the CD/CA-ICH with a matching signature and CA message that points out to one of the PCPCH's (mapping rule is in [5]) that were indicated to be free by the last received CSICH broadcast, the UE transmits the power control preamble $\tau_{cd\text{-}p\text{-}pc\text{-}p}$ ms later as measured from initiation of the CD Preamble. The initial transmission power of the power control preamble shall be $\Delta P_{p\text{-}m}$ [dB] higher than the power of the CD preamble. The inner loop power control in the power control preamble is described in sub clause 5.1.3.3. The transmission of the message portion of the burst starts immediately after the power control preamble. Power control in the message part is described in sub clause 5.1.3.2. If the CA message received points out the channel that was indicated to be busy on the last status information transmission received on the CSICH, the UE shall abort the access attempt and send a failure message to the MAC layer.

NOTE: If the $L_{pc\text{-}preamble}$ parameter indicates a zero length preamble, then there is no power control preamble and the message portion of the burst starts $\tau_{cd\text{-}p\text{-}pc\text{-}p}$ ms after the initiation of the CD Preamble. In this case the initial transmission power of the control part of the message part shall be $\Delta P_{p\text{-}m}$ [dB] higher than the power of the CD preamble. Power control in the message part is described in sub clause 5.1.3.2

13) The UE shall test the value of Start of Message Indicator received from DL-DPCCH for CPCH during the first $N_{Start\_Message}$ frames after Power Control preamble. Start of Message Indicator is a known sequence repeated on a frame by frame basis. The value of $N_{Start\_Message}$ shall be provided by the higher layers.

14) If the UE does not detect Start of Message Indicator in the first $N_{Start\_Message}$ frames of DL-DPCCH for CPCH after Power Control preamble, the UE aborts the access attempt and sends a failure message to the MAC layer. Otherwise, UE continuously transmits the packet data.

15) During CPCH Packet Data transmission, the UE and UTRAN perform inner-loop power control on both the CPCH UL and the DPCCH DL, as described in sub clause 5.1.3.

16) After the first $N_{Start\_Message}$ frames after Power Control preamble, upon the detection of an Emergency Stop command sent by UTRAN, the UE halts CPCH UL transmission, aborts the access attempt and sends a failure message to the MAC layer.

17) If the UE detects loss of DPCCH DL during transmission of the power control preamble or the packet data, the UE halts CPCH UL transmission, aborts the access attempt and sends a failure message to the MAC layer.

18) The UE may send empty frames after the end of the packet to indicate the end of transmission. The number of the empty frames is set by higher layers.