

3GPP TSG-RAN2 Meeting #63
 Jeju, South Korea, 18-22 August, 2008

R2-084388

CR-Form-v9.4

CHANGE REQUEST

36.321 CR rev - Current version: 8.2.0

For **HELP** on using this form look at the pop-up text over the symbols. Comprehensive instructions on how to use this form can be found at <http://www.3gpp.org/specs/CR.htm>.

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title: Handling of Received UL Grant in RA procedure

Source to WG: LG Electronics Inc.

Source to TSG: R2

Work item code: LTE-L23 **Date:** 07/08/2008

Category: F **Release:** Rel-8

Use one of the following categories:

F (correction)	R99 (Release 1999)
A (corresponds to a correction in an earlier release)	Rel-4 (Release 4)
B (addition of feature),	Rel-5 (Release 5)
C (functional modification of feature)	Rel-6 (Release 6)
D (editorial modification)	Rel-7 (Release 7)
	Rel-8 (Release 8)
	Rel-9 (Release 9)

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Reason for change:

- Once the MAC PDU for message 3 is built and stored in the [Message 3] buffer, when the UE has both a grant for a C-RNTI and a grant for a RA-RNTI, it is not feasible to follow the grant for C-RNTI.
- Once there is a MAC PDU in the [Message 3] buffer, when a grant for a C-RNTI is received, it is also not feasible to handle the MAC PDU in the [Message 3] buffer with the received grant for the C-RNTI.
- Once there is a MAC PDU in the [Message 3] buffer, when a grant for a C-RNTI that is not intended for the contention resolution is received, it would be difficult to take both UL HARQ and a RA procedure in parallel.

Summary of change:

- It is proposed to modify the note like "if the UE receives both a grant for its RA-RNTI and a grant for its C-RNTI, and [Message 3] buffer is empty, the UE may choose to continue with either the grant for its RA-RNTI or the grant for its C-RNTI".
- It is also proposed that only when an UL grant is indicated in a Random Access Response, the HARQ entity instructs the HARQ process to store a MAC PDU stored in [Message 3] buffer in HARQ buffer.
- It is proposed that if there is an ongoing RA procedure, there is a MAC PDU in [Message 3 buffer] and the Contention Resolution Timer is not running, when receiving a grant for its C-RNTI, the UE ignores the received UL grant for its C-RNTI.

Consequences if not approved:

- The MAC PDU that was already made could be handled with a newly received grant.
- The UE HARQ and RA preamble may be collided.

Clauses affected: 5.4.1

	Y	N
Other specs affected:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other core specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Test specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>
O&M Specifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Other comments:

Comment [H1]: Document numbers are allocated by the Working Group Secretary. Use the format of document number specified by the 3GPP Working Procedures.

Comment [H2]: Enter the specification number in this box. For example, 04.08 or 31.102. Do not prefix the number with anything . i.e. do not use "TS", "GSM" or "3GPP" etc.

Comment [H3]: Enter the CR number here. This number is allocated by the 3GPP support team. It consists of at least four digits, padded with leading zeros if necessary.

Comment [H4]: Enter the revision number of the CR here. If it is the first version, use a ".".

Comment [H5]: Enter the version of the specification here. This number is the version of the specification to which the CR was written and (normally) to which it will be applied if it is approved. Make sure that the latest version of the specification (of the relevant release) is used when creating the CR. If unsure what the latest version is, go to <http://www.3gpp.org/specs/specs.htm>.

Comment [H6]: For help on how to fill out a field, place the mouse pointer over the special symbol closest to the field in question.

Comment [H7]: Mark one or more of the boxes with an X.

Comment [H8]: SIM / USIM / ISIM applications.

Comment [H9]: Enter a concise description of the subject matter of the CR. It should be no longer than one line, but if this is not possible, do not enter hard new-line characters. Do not use redundant information such as "Change Request number xxx to 3GPP TS xx.xxx".

Comment [H10]: One or more organizations (3GPP Individual Members) which drafted the CR and are presenting it to the Working Group.

Comment [H11]: For CRs agreed at Working Group level, the identity of the WG. Use the format "xn" where ... [1]

Comment [H12]: Enter the acronym for the work item which is applicable to the change. ... [2]

Comment [H13]: Enter the date on which the CR was last revised. Format to be interpreted ... [3]

Comment [H14]: Enter a single letter corresponding to the most appropriate category ... [4]

Comment [H15]: Enter a single release code from the list below.

Comment [H16]: Enter text which explains why the change is necessary.

Comment [H17]: Enter text which describes the most important components of the change. i.e. ... [5]

Comment [H18]: Enter here the consequences if this CR were to be rejected. It is mandatory ... [6]

Comment [H19]: Enter the number of each clause which contains changes. Be as spec ... [7]

Comment [H20]: Tick "yes" box if any other specifications are affected by this change. E ... [8]

Comment [H21]: List here the specifications which are affected or the CRs which are linked.

Comment [H22]: Enter any other information which may be needed by the group being req ... [9]

5.4.1 UL Grant reception

When the UE has a C-RNTI, Semi-Persistent Scheduling C-RNTI, or Temporary C-RNTI, the UE shall for each TTI:

- if an uplink grant for this TTI has been received on the PDCCH for the UE's C-RNTI or Temporary C-RNTI; or
- if an uplink grant for this TTI has been received in a Random Access Response:
 - indicate a valid uplink grant and the associated HARQ information to the HARQ entity for this TTI.
- else, if an uplink grant for this TTI has been configured:
 - indicate an uplink grant, valid for new transmission, and the associated HARQ information to the HARQ entity for this TTI.

NOTE: The period of configured uplink grants is expressed in TTIs.

NOTE: If the UE receives both a grant for its RA-RNTI and a grant for its C-RNTI, and [Message 3] buffer is empty, the UE may choose to continue with either the grant for its RA-RNTI or the grant for its C-RNTI.

During a Random Access procedure, when an uplink grant is received and addressed to a C-RNTI, the UE shall:

- if there is a MAC PDU in the [Message 3] buffer; and
- if the Contention Resolution Timer is not running as described in section 5.1.5:
 - ignore the received uplink grant.

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5.4.2.1 HARQ entity

There is one HARQ entity at the UE. A number of parallel HARQ processes are used in the UE to support the HARQ entity, allowing transmissions to take place continuously while waiting for the feedback on the successful or unsuccessful reception of previous transmissions.

At a given TTI, if an uplink grant is indicated for the TTI, the HARQ entity identifies the HARQ process for which a transmission should take place. It also routes the receiver feedback (ACK/NACK information), MCS and resource, relayed by the physical layer, to the appropriate HARQ process.

If TTI bundling is configured, the parameter TTI_BUNDLE_SIZE provides the number of TTIs of a TTI bundle. If a transmission is indicated for the TTI, the HARQ entity identifies the HARQ process for which a transmission should take place. The next TTI_BUNDLE_SIZE uplink TTIs are subsequently used for transmissions for the identified HARQ process. HARQ retransmissions within a bundle shall be performed without waiting for feedback from previous transmissions according to TTI_BUNDLE_SIZE. The UE expects feedback only for the last transmission of a bundle.

For transmission of an uplink message containing the C-RNTI MAC control element or an uplink message including a CCCH SDU during Random Access (see section 5.1.5) TTI bundling does not apply.

The number of HARQ processes is equal to [X] [FFS]. Each process is associated with a number from 0 to [X-1].

At the given TTI, the HARQ entity shall:

- if an uplink grant indicating that the NDI has been incremented compared to the value in the previous transmission of this HARQ process is indicated for this TTI or if this is the very first transmission for this HARQ process (i.e. a new transmission takes place for this HARQ process):
- if an uplink grant for this TTI has been received in a Random Access Response~~there is an ongoing Random Access procedure~~ and there is a MAC PDU in the [Message3] buffer:
 - obtain the MAC PDU to transmit from the [Message3] buffer.
- else, if the "uplink prioritisation" entity indicates the need for a new transmission:
 - obtain the MAC PDU to transmit from the "Multiplexing and assembly" entity;

- instruct the HARQ process corresponding to this TTI to trigger a new transmission using the identified parameters.
- else:
 - flush the HARQ buffer.
- else, if an uplink grant, indicating that the NDI is identical to the value in the previous transmission of this HARQ process (i.e. a retransmission takes place for this HARQ process), is indicated for this TTI:
 - instruct the HARQ process to generate an adaptive retransmission.
- else, if the HARQ buffer of the HARQ process corresponding to this TTI is not empty:
 - instruct the HARQ process to generate a non-adaptive retransmission.

NOTE: A retransmission triggered by the HARQ entity should be cancelled by the corresponding HARQ process if it collides with a measurement gap or if a non-adaptive retransmission is not allowed.

Page 1: [1] Comment [H11]	Explanation of field	8/7/2008 11:00:00 AM
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For CRs agreed at Working Group level, the identity of the WG. Use the format "xn" where
x = "C" for TSG CT, "R" for TSG RAN, "S" for TSG SA, "G" for TSG GERAN;
n = digit identifying the Working Group; for CRs drafted during the TSG meeting itself, use "P".
Examples: "C4", "R5", "G3new", "SP".

Page 1: [2] Comment [H12]	Explanation of field	8/7/2008 11:00:00 AM
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Enter the acronym for the work item which is applicable to the change. This field is mandatory for category F, A, B & C CRs for Release 4 and later. A list of work item acronyms can be found in the 3GPP work plan. See <http://www.3gpp.org/ftp/Specs/html-info/WI-List.htm>.

Page 1: [3] Comment [H13]	Explanation of field	8/7/2008 11:00:00 AM
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Enter the date on which the CR was last revised. Format to be interpretable by English version of MS Windows ® applications, e.g. 19/02/2006.

Page 1: [4] Comment [H14]	Explanation of field	8/7/2008 11:00:00 AM
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Enter a single letter corresponding to the most appropriate category listed. For more detailed help on interpreting these categories, see Technical Report [21.900](#) "TSG working methods".

Page 1: [5] Comment [H17]	Explanation of field	8/7/2008 11:00:00 AM
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Enter text which describes the most important components of the change. i.e. How the change is made.

Page 1: [6] Comment [H18]	Explanation of field	8/7/2008 11:00:00 AM
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Enter here the consequences if this CR were to be rejected. It is mandatory to complete this section only if the CR is of category "F" (i.e. correction), though it may well be useful for other categories.

Page 1: [7] Comment [H19]	Explanation of field	8/7/2008 11:00:00 AM
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Enter the number of each clause which contains changes. Be as specific as possible (ie list each subclause, not just the umbrella clause).

Page 1: [8] Comment [H20]	Explanation of field	8/7/2008 11:00:00 AM
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Tick "yes" box if any other specifications are affected by this change. Else tick "no". You MUST fill in one or the other.

Page 1: [9] Comment [H22]	Explanation of field	8/7/2008 11:00:00 AM
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Enter any other information which may be needed by the group being requested to approve the CR. This could include special conditions for it's approval which are not listed anywhere else above.