**3GPP TSG- Meeting #**

**E-Meeting, - (rev of C1-225101)**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | , TEI17 | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change 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](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | For work item NRslice, it is necessary to add a new type 6 IE, NSAG information, to the Registration Accept message in TS 24.501. But the 12 IEI values that are available for optional type 6 IEs have already been used in this message for other purposes. The remaining 4 IEI values are currently defined to indicate that an IE is 'comprehension required'.  It is proposed to modify the definition of the 'comprehension required' IEIs to enable the use of IEI values 7C and 7D for non-comprehension required optional IEs. As the use of IEIs 7C and 7D towards a receiver implementing Rel-16 or an earlier version of TS 24.501, TS 24.301 or TS 24.008 will trigger an 'invalid mandatory information' error, a note is added that  "Therefore, IEIs 7C and 7D can be used for type 6 IEs only if the sender of the message knows that the receiver does not treat these IEs as unknown 'comprehension required' IEs."  This condition is fulfilled, for example, when the receiver has indicated in an earlier message that it supports the feature for which the type 6 IE is required. | | | | | | | | |
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| ***Summary of change:*** | | The definition of the 'comprehension required' IEIs is modified to enable the use of IEI values 7C and 7D for non-comprehension required optional IEs.  **Backwards compatibility:** This CR is **not** backwards compatible, because a receiver implemented according to Rel-16 or an earlier version of TS 24.501, TS 24.301 or TS 24.008 will trigger an 'invalid mandatory information' error when it receives IEI 7C or 7D.  Therefore, IEIs 7C and 7D need to be handled with care, i.e., the protocol specification need to ensure that these IEIs are not sent to entities implementing Rel-16 or earlier version. A corresponding note is added to subclause 11.2.5. | | | | | | | | |
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| ***Consequences if not approved:*** | | Work item NR slice cannot be implemented, because it is not possible to add the necessary type 6 IE NSAG to the Registration Accept message in TS 24.501.  (For Rel-18 a more future-proof solution is intended for which the other new IEI value (7D) can be used.) | | | | | | | | |
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| ***Clauses affected:*** | | 11.2.5 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

### 11.2.5 Presence requirements of information elements

The relevant protocol specification may define three different presence requirements (M, C, or O) for a standard IE within a given standard L3 message:

- M ("Mandatory") means that the IE shall be included by the sending side, and that the receiver diagnoses a "missing mandatory IE" error when detecting that the IE is not present. An IE belonging to the imperative part of a message has presence requirement M. An IE belonging to the non-imperative part of a message may have presence requirement M;

- C ("Conditional") means:

\* that inclusion of the IE by the sender depends on conditions specified in the relevant protocol specification;

\* that there are conditions for the receiver to expect that the IE is present and/or conditions for the receiver to expect that the IE is not present in a received message of a given PD, SAP and message type; these conditions depend only on the content of the message itself, and not for instance on the state in which the message was received, or on the receiver characteristics; they are known as static conditions;

\* that the receiver detecting that the IE is not present when sufficient static conditions are fulfilled for its presence, shall diagnose a "missing conditional IE" error;

\* that the receiver detecting that the IE is present when sufficient static conditions are fulfilled for its non-presence, shall diagnose an "unexpected conditional IE" error.

- Only IEs belonging to the non-imperative part of a message may have presence requirement C;

- O ("Optional") means that the receiver shall never diagnose a "missing mandatory IE" error, a "missing conditional IE" error, or an "unexpected conditional IE" error because it detects that the IE is present or that the IE is not present. (There may however be conditions depending on the states, resources, etc. of the receiver to diagnose other errors.) Only IEs belonging to the non-imperative part of a message may have presence requirement O.

Unless otherwise specified the presence of a IE of unknown IEI or of an out of sequence IE shall not lead by itself to an error. An alternative specification is the 'comprehension required' scheme. A type 4 IE is encoded as 'comprehension required' if bits 5, 6, 7 and 8 of its IEI are set to zero. A type 6 IE is encoded as 'comprehension required' if bit 8 is set to zero and bits 2, 3, 4, 5, 6, and 7 of its IEI are set to one.

NOTE: In earlier versions of this specification, type 6 IEs with IEI values 7C and 7D were defined as 'comprehension required'. I.e., dependent on the protocol, receipt of such an IE by a UE or network implemented according to an earlier version of this specification can result in detection of an "invalid mandatory information" error. Therefore, IEIs 7C and 7D can be used for type 6 IEs only if the sender of the message knows that the receiver does not treat these IEs as unknown 'comprehension required' IEs.

The 'comprehension required' scheme is to be applied if explicitly indicated in the protocol specification. The reaction on the reception of an unknown or out of sequence IE coded as 'comprehension required' is specified in the relevant protocol specification.