TSG-RAN Meeting #7   *RP-000286*
Düsseldorf, Germany, 21 - 23 June 2000

(R3-001649, copy TSG-RAN) Response to LS (S1) on Hexadecimal IMEI format

SOURCE: RAN WG3

TITLE: Response to "Liaison statement on hexadecimal IMEI format"

TO: SA WG1

CC: SA WG5, CN WG1, CN WG4, RAN WG2, RAN WG3, GSM ASSOCIATION, SA WG2, TSG RAN

Contact: jari.isokangas@nokia.com

R3 has approved the change request (attached Tdoc R3-001513) of the RANAP IMEI coding to hexadecimal from present TBCD coding for R99. R3 would like to ask S1 to find out if this change would be appropriate already for R99 with other relevant WG's and co-ordinate the changes between those WG's.

R3 would also like to S1 to inform R3 and TSG RAN if this change is appropriate already for R99 or should this change be scheduled for R00.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.413	**CR**	**112r1**	Current Version:	**3.1.0**	

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   ↑ *CR number as allocated by MCC support team*

For submission to: **TSG RAN#8**   for approval **X**   strategic ☐   *(for SMG*
list expected approval meeting # here   For information ☐   non-strategic ☐   *Use only)*
↑

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐   ME ☐   UTRAN / Radio **X**   Core Network **X**
(at least one should be marked with an X)

Source: Nokia   **Date:**   2000-05-23

Subject: Change of the RANAP IMEI coding to hexadecimal from present TBCD

Work item:

Category: F   Correction   **Release:**   Phase 2   ☐
                A   Corresponds to a correction in an earlier release ☐   Release 96   ☐
(only one category   B   Addition of feature   ☐   Release 97   ☐
shall be marked   C   Functional modification of feature   **X**   Release 98   ☐
with an X)   D   Editorial modification   Release 99   **X**
                                                                                    Release 00   ☐

Reason for change:

The current IMEI message structure is proposed to be changed to allow use of hexadecimal coding in addition of current BCD. The change is proposed in 3GPP TSG-CN,TSG-S, TSG-T and TSG-R to allow 16.7 million mobile terminals to be produced with one Type Approval Code. The current restriction for one million units per TAC is already a problem in the GSM terminal manufacturing and can only be predicted to worsen in the future.
Change to use hexadecimal coding is most simple since it does not affect to existing message lengths in GSM air interface and network interfaces.
In case of RAN WG3, the change is only required to the CN Invoke Trace message information element 'UE Identity', IMEI is used for those UE's that have active emergency call without or with a defective USIM module. The change does not affect to message/information element length since BCD (actually TBCD in ASN.1 definition) and hexadecimal digit coding consume equal amount of bits. In the TS25.413 Iu interface RANAP protocol (and generally in MAP protocol), the only issue is to not use any 'sanity' check for this information element and allow all 4-bit binary values for all 15 digits of IMEI. The old IMEI coding in GSM system is fully backwards compatible with the changed coding for the message interface. (Depending on CN implementation it may be necessary to change the IMEI database control software. Note that in the MAP protocol the TBCD coding has been used for IMEI – in practise currently the coding is BCD, since IMEI is not using any of the special TBCD values ['*'=1010, '#'=1011, 'a'=1100, 'b'=1101, 'c'=1110])
The TBCD coding in MAP/RANAP for IMEI is technically only ruling out the use of code 'F' for the IMEI digits, this highlights further how small change in the

message interface we are actually discussing.

Clauses affected: Clauses 9.2.1.9 and corresponding ASN.1 IE definition 9.3.4

Other specs Affected:				
Other 3G core specifications	X	→ List of CRs:	25.331, 23.003, 22.016
Other GSM core specifications	X	→ List of CRs:	03.03, 04.08
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

1.1.1.1 9.2.1.9 UE Identity

This element identifies the element to be traced i.e. the subscriber or the user equipment.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
Choice **UE Identity**				
>IMSI			OCTET STRING (SIZE (3..8))	- digits 0 to 9, two digits per octet, - each digit encoded 0000 to 1001, - 1111 used as filler - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n -Number of decimal digits shall be from 6 to 15 starting with the digits from the PLMN-ID.
>IMEI			OCTET STRING (SIZE (8))	- hexadecimal digits 0 to F9, two hexadecimal digits per octet, - each hexadecimal digit encoded 0000 to 111001, - 1111 used as filler for bits 8 to 5 of last octet - bit 4 to 1 of octet n encoding digit 2n-1 - bit 8 to 5 of octet n encoding digit 2n Number of hexadecimal digits shall be 15.

******** **NEXT MODIFIED SECTION** ********

9.3.4 Information Element Definitions

```
****     LOTS OF UNAFFECTED ASN.1 DESCRIPTION FROM SECTION 9.3.4 REMOVED
****
```

```
-- I

IMEI                    ::= TBCD OCTET STRING (SIZE (8))
-- Reference: 23.003
```

```
****     LOTS OF UNAFFECTED ASN.1 DESCRIPTION FROM SECTION 9.3.4 REMOVED
****
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