

**3GPP TSG CN Plenary  
Meeting #11, Palm Springs, U.S.A  
14<sup>th</sup> - 16<sup>th</sup> March 2001**

**Tdoc NP-010128**

**Source:** TSG CN WG1  
**Title:** CR to Rel-4 on Work Item LCS  
**Agenda item:** 8.12  
**Document for:** APPROVAL

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**Introduction:**

This document contains 1 CR on **Rel-4** Work Item "**LCS**", that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #11 for approval.

<b>Spec</b>	<b>CR</b>	<b>Rev</b>	<b>Doc-2nd-Level</b>	<b>Phase</b>	<b>Subject</b>	<b>Cat</b>	<b>Ver_C</b>
24.008	345	1	N4-010185	Rel-4	Update of MS classmark 2 and MS Network Capability to support LCS	B	4.1.1

CR-Form-v3

## CHANGE REQUEST

⌘ **24.008 CR 345** ⌘ rev **1** ⌘ Current version: **4.1.1** ⌘

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  Radio Access Network  Core Network

<b>Title:</b>	⌘ Update of MS classmark 2 and MS Network Capability to support LCS		
<b>Source:</b>	⌘ Fujitsu		
<b>Work item code:</b>	⌘ LCS1-PS	<b>Date:</b>	⌘ 18/Jan/2001
<b>Category:</b>	⌘ <b>B</b> Critical correction	<b>Release:</b>	⌘ REL-4
	<p>Use <u>one</u> of the following categories:</p> <p><b>F</b> (essential correction)</p> <p><b>A</b> (corresponds to a correction in an earlier release)</p> <p><b>B</b> (Addition of feature),</p> <p><b>C</b> (Functional modification of feature)</p> <p><b>D</b> (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p><b>2</b> (GSM Phase 2)</p> <p><b>R96</b> (Release 1996)</p> <p><b>R97</b> (Release 1997)</p> <p><b>R98</b> (Release 1998)</p> <p><b>R99</b> (Release 1999)</p> <p><b>REL-4</b> (Release 4)</p> <p><b>REL-5</b> (Release 5)</p>

<b>Reason for change:</b>	⌘	<ol style="list-style-type: none"> <li>1. Privacy verification/notification procedure is applied irrelevant to the radio access system used (i.e., UTRAN, GERAN, ...).</li> <li>2. LCS Privacy verification/notification procedure supporting information is necessary also to PS domain.</li> </ol>
<b>Summary of change:</b>	⌘	<ol style="list-style-type: none"> <li>1. LCS VA capability field in MS Classmark 2 IE becomes applicable to UMTS.</li> <li>2. LCS VA capability field is added to MS Network Capability IE.</li> </ol>
<b>Consequences if not approved:</b>	⌘	

<b>Clauses affected:</b>	⌘	10.5.1.6, 10.5.5.12
<b>Other specs affected:</b>	⌘	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
<b>Other comments:</b>	⌘	

### 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](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://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

### 10.5.1.6 Mobile Station Classmark 2

The purpose of the *Mobile Station Classmark 2* information element is to provide the network with information concerning aspects of both high and low priority of the mobile station equipment. This affects the manner in which the network handles the operation of the mobile station. The Mobile Station Classmark information indicates general mobile station characteristics and it shall therefore, except for fields explicitly indicated, be independent of the frequency band of the channel it is sent on.

The *Mobile Station Classmark 2* information element is coded as shown in figure 10.5.6/TS 24.008, table 10.5.6a/TS 24.008 and table 10.5.6b/TS 24.008.

The *Mobile Station Classmark 2* is a type 4 information element with 5 octets length.

	8	7	6	5	4	3	2	1	
	Mobile station classmark 2 IEI								octet 1
	Length of mobile station classmark 2 contents								octet 2
0 spare	Revision level		ES IND	A5/1	RF power capability				octet 3
0 spare	PS capa.	SS Screen. Indicator		SM capa.	VBS	VGCS	FC		octet 4
CM3	0 spare	LCSVA CAP	UCS2	SoLSA	CMSP	A5/3	A5/2		octet 5

NOTE: Owing to backward compatibility problems, bit 8 of octet 4 should not be used unless it is also checked that the bits 8, 7 and 6 of octet 3 are not "0 0 0".

**Figure 10.5.6/TS 24.008 Mobile Station Classmark 2 information element**

<b>Table 10.5.6a/TS 24.008: Mobile Station Classmark 2 information element</b>	
Revision level (octet 3) Required for MS supporting GSM and UMTS.	
Bits	
<b>7</b>	<b>6</b>
0 0	Reserved for GSM phase 1
0 1	Used by GSM phase 2 mobile stations
1 0	Used by mobile stations supporting this version of the protocol
1 1	Reserved for future use
ES IND (octet 3, bit 5) "Controlled Early Classmark Sending" option implementation Required for MS supporting GSM.	
0	"Controlled Early Classmark Sending" option is not implemented in the MS
1	"Controlled Early Classmark Sending" option is implemented in the MS
NOTE: The value of the ES IND gives the implementation in the MS. It's value is <b>not</b> dependent on the broadcast SI 3 Rest Octet <Early Classmark Sending Control> value	

**Table 10.5.6a/TS 24.008: Mobile Station Classmark 2 information element**

A5/1 algorithm supported (octet 3, bit 4)

Required for MS supporting GSM.

- 0 encryption algorithm A5/1 available
- 1 encryption algorithm A5/1 not available

RF Power Capability (Octet 3)

Required for MS supporting GSM.

When GSM 450, GSM 480, GSM 850, GSM 900 P, E [or R] band is used (for exceptions see GSM 04.18):

Bits

- |          |          |          |         |
|----------|----------|----------|---------|
| <b>3</b> | <b>2</b> | <b>1</b> |         |
| 0        | 0        | 0        | class 1 |
| 0        | 0        | 1        | class 2 |
| 0        | 1        | 0        | class 3 |
| 0        | 1        | 1        | class 4 |
| 1        | 0        | 0        | class 5 |

All other values are reserved.

When the DCS 1800 or PCS 1900 band is used (for exceptions see 3):

Bits

- |          |          |          |         |
|----------|----------|----------|---------|
| <b>3</b> | <b>2</b> | <b>1</b> |         |
| 0        | 0        | 0        | class 1 |
| 0        | 0        | 1        | class 2 |
| 0        | 1        | 0        | class 3 |

All other values are reserved.

PS capability (pseudo-synchronization capability) (octet 4)

Required for MS supporting GSM

Bit 7

- 0 PS capability not present
- 1 PS capability present

SS Screening Indicator (octet 4)

Required for MS supporting GSM and UMTS

Bits

- |          |          |                      |
|----------|----------|----------------------|
| <b>6</b> | <b>5</b> |                      |
| 0        | 0        | defined in TS 24.080 |
| 0        | 1        | defined in TS 24.080 |
| 1        | 0        | defined in TS 24.080 |
| 1        | 1        | defined in TS 24.080 |

SM capability (MT SMS pt to pt capability) (octet 4)

Required for MS supporting GSM.

Bit 4

- 0 Mobile station does not support mobile terminated point to point SMS
- 1 Mobile station supports mobile terminated point to point SMS

Table 10.5.6a/TS 24.008: Mobile Station Classmark 2 information element

VBS notification reception (octet 4)

Required for MS supporting GSM.

Bit 3

- 0 no VBS capability or no notifications wanted
- 1 VBS capability and notifications wanted

**Table 10.5.6a/TS 24.008: Mobile Station Classmark 2 information element**

VGCS notification reception (octet 4)

Required for MS supporting GSM.

Bit 2

- 0 no VGCS capability or no notifications wanted
- 1 VGCS capability and notifications wanted

FC Frequency Capability (octet 4)

Required for MS supporting GSM.

When GSM 400 band is used (for exceptions see GSM 04.18):

Bit 1

- 0 Reserved for future use (for definition of frequency bands see GSM 05.05)

Note: This bit conveys no information about support or non support of the E-GSM or R-GSM band when transmitted on a GSM 400 channel.

When GSM 850 band is used (for exceptions see GSM 04.18):

Bit 1

- 0 Reserved for future use (for definition of frequency bands see GSM 05.05)

Note: This bit conveys no information about support or non support of the E-GSM or R-GSM band when transmitted on a GSM 850 channel.

When a GSM 900 band is used (for exceptions see GSM 04.18):

Bit 1

- 0 The MS does not support the E-GSM or R-GSM band (For definition of frequency bands see GSM 05.05)
- 1 The MS does support the E-GSM or R-GSM (For definition of frequency bands see GSM 05.05)

Note: For mobile station supporting the R-GSM band further information can be found in MS Classmark 3.

When the DCS 1800 band is used (for exceptions see GSM 04.18):

Bit 1

- 0 Reserved for future use (for definition of frequency bands see GSM 05.05)

Note: This bit conveys no information about support or non support of the E-GSM or R-GSM band when transmitted on a DCS 1800 channel.

When the PCS 1900 band is used (for exceptions see GSM 04.18):

Bit 1

- 0 Reserved for future use (for definition of frequency bands see GSM 05.05)

Note: This bit conveys no information about support or non support of the E-GSM or R-GSM band when transmitted on a PCS 1900 channel.

CM3 (octet 5, bit 8)

Required for MS supporting GSM.

- 0 The MS does not support any options that are indicated in CM3
- 1 The MS supports options that are indicated in classmark 3 IE

LCS VA capability (LCS value added location request notification capability) (octet 5, bit 6)

Required for MS supporting GSM and UMTS.

- 0 LCS value added location request notification capability not supported
- 1 LCS value added location request notification capability supported

UCS2 treatment (octet 5, bit 5)

Required for MS supporting UMTS.

This information field indicates the likely treatment by the mobile station of UCS2 encoded character strings. If not included, the value 0 shall be assumed by the receiver.

- 0 the ME has a preference for the default alphabet (defined in GSM 03.38) over UCS2.
- 1 the ME has no preference between the use of the default alphabet and the use of UCS2.

<b>Table 10.5.6a/TS 24.008: Mobile Station Classmark 2 information element</b>	
SoLSA (octet 5, bit 4)	
Required for MS supporting GSM.	
0	The ME does not support SoLSA.
1	The ME supports SoLSA.
CMSP: CM Service Prompt (octet 5, bit 3) \$(CCBS)\$	
Required for MS supporting GSM and UMTS.	
0	"Network initiated MO CM connection request" not supported.
1	"Network initiated MO CM connection request" supported for at least one CM protocol.
A5/3 algorithm supported (octet 5, bit 2)	
Required for MS supporting GSM.	
0	encryption algorithm A5/3 not available
1	encryption algorithm A5/3 available
A5/2 algorithm supported (octet 5, bit 1)	
Required for MS supporting GSM.	
0	encryption algorithm A5/2 not available
1	encryption algorithm A5/2 available

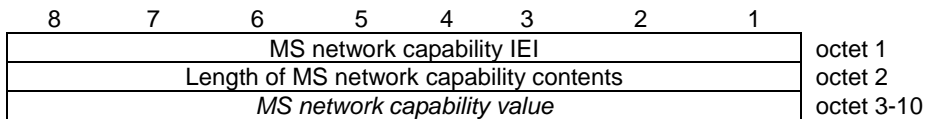
A MS supporting GSM shall always encode all fields relevant for GSM radio access technology, even when accessing UMTS radio access technology. A UMTS MS which does not support GSM shall encode fields relevant only for GSM radio access technology using any value which has been defined for this version of the protocol and is not reserved.

NOTE: Additional mobile station capability information might be obtained by invoking the classmark interrogation procedure when the mobile station is accessing the GSM radio access technology.

#### 10.5.5.12 MS network capability

The purpose of the *MS network capability* information element is to provide the network with information concerning aspects of the mobile station related to GPRS. The contents might affect the manner in which the network handles the operation of the mobile station. The *MS network capability* information indicates general mobile station characteristics and it shall therefore, except for fields explicitly indicated, be independent of the frequency band of the channel it is sent on.

The *MS network capability* is a type 4 information element with a maximum of 10 octets length. The value part of a *MS network capability* information element is coded as shown in figure 10.5.128/TS 24.008 and table 10.5.145/TS 24.008.



**Figure 10.5.128/TS 24.008 MS network capability information element**

Table 10.5.145/TS 24.008 *MS network capability* information element

**<MS network capability value part> ::=**

**<GEA1 bits>**

**<SM capabilities via dedicated channels: bit>**

**<SM capabilities via GPRS channels: bit>**

**<UCS2 support: bit>**

**<SS Screening Indicator: bit string(2)>**

**<SoLSA Capability : bit>**

**<Revision level indicator: bit>**

**<PFC feature mode: bit>**

**<Extended GEA bits>**

**<LCS VA capability: bit >**

**<Spare bits>;**

**<GEA1 bits> ::= < GEA/1 :bit>;**

**<Extended GEA bits> ::= <GEA/2:bit><GEA/3:bit>< GEA/4:bit >< GEA/5:bit >< GEA/6:bit ><GEA/7:bit>;**

**<Spare bits> ::= null | {<spare bit> < Spare bits >};**

**SS Screening Indicator**

0 0 defined in TS 24.080

0 1 defined in TS 24.080

1 0 defined in TS 24.080

1 1 defined in TS 24.080

**SM capabilities via dedicated channels**

0 Mobile station does not support mobile terminated point to point SMS via dedicated signalling channels

1 Mobile station supports mobile terminated point to point SMS via dedicated signalling channels

**SM capabilities via GPRS channels**

0 Mobile station does not support mobile terminated point to point SMS via GPRS packet data channels

1 Mobile station supports mobile terminated point to point SMS via GPRS packet data channels

**UCS2 support**

This information field indicates the likely treatment by the mobile station of UCS2 encoded character strings.

0 the ME has a preference for the default alphabet (defined in GSM 03.38) over UCS2.

1 the ME has no preference between the use of the default alphabet and the use of UCS2.

**GPRS Encryption Algorithm GEA/1**

0 encryption algorithm **GEA/1** not available

1 encryption algorithm **GEA/1** available

**SoLSA Capability**

0 The ME does not support SoLSA.

1 The ME supports SoLSA.

**Revision level indicator**

0 used by a mobile station supporting earlier versions of the protocol

1 used by a mobile station supporting this version of the protocol

**PFC feature mode**

0 Mobile station does not support BSS packet flow procedures

1 Mobile station does support BSS packet flow procedures

**GEA/2**

0 encryption algorithm **GEA/2** not available

1 encryption algorithm **GEA/2** available



**GEA/3**

- 0 encryption algorithm GEA/3 not available
- 1 encryption algorithm GEA/3 available

**GEA/4**

- 0 encryption algorithm GEA/4 not available
- 1 encryption algorithm GEA/4 available

**GEA/5**

- 0 encryption algorithm GEA/5 not available
- 1 encryption algorithm GEA/5 available

**GEA/6**

- 0 encryption algorithm GEA/6 not available
- 1 encryption algorithm GEA/6 available

**GEA/7**

- 0 encryption algorithm GEA/7 not available
- 1 encryption algorithm GEA/7 available

**LCS VA capability (LCS value added location request notification capability)**

- 0 LCS value added location request notification capability not supported
- 1 LCS value added location request notification capability supported