

**3GPP TSG-T (Terminals) Meeting #25**  
**Palm Springs, CA, USA**  
**8 - 10 September 2004**

**TP-040205**  
*replaces part of TP-042200*  
*replaces part of TP-042171*

**Agenda Item:** 5.2.3

**Source:** TGSG T

**Title:** Change Request on SMS

**Document for:** Approval

---

Spec	CR	Rev	Rel	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
23.038	012	2	Rel-5	Message Waiting Indication – how to handle Multiple Subscriber Profiles	A	5.0.0	5.1.0		TEI5
23.038	013	2	Rel-6	Message Waiting Indication – how to handle Multiple Subscriber Profiles	F	6.0.0	6.1.0		TEI6

## CHANGE REQUEST

⌘ **23.038 CR 012** ⌘ rev **2** ⌘ Current version: **5.0.0** ⌘

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

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

<b>Title:</b>	⌘ Message Waiting Indication – how to handle Multiple Subscriber Profiles		
<b>Source:</b>	⌘ TSG T		
<b>Work item code:</b>	⌘ TEI4	<b>Date:</b>	⌘ 09/09/2004
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ 22.097 and 23.097 describe the Multiple Subscriber Profile (MSP). They explicitly state that it will not be possible to indicate the profile used for the SMS-MT case.  51.011 and 31.102 define an Elementary Field on SIM and USIM where to store the Message Waiting Indication Status (EF <sub>MWIS</sub> ). This EF may contain as many records as there are subscriber profiles.  23.038 defines a mechanism how to update the EF <sub>MWIS</sub> . However there is no means to indicate the profile, neither via SMS in general nor within the Message Waiting Indication.  Therefore an ME has no means to distinguish which record of the EF <sub>MWIS</sub> records requires an update.
<b>Summary of change:</b>	⌘ Let ME always update the first record of EF <sub>MWIS</sub> .
<b>Consequences if not approved:</b>	⌘ Indeterminacy remains. Incompatible implementations will arise.

<b>Clauses affected:</b>	⌘ 4										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="width: 20px;"><input type="checkbox"/></td> <td style="width: 20px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="width: 20px;"><input type="checkbox"/></td> <td style="width: 20px;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="width: 20px;"><input type="checkbox"/></td> <td style="width: 20px;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<b>Other comments:</b>	⌘ The opportunity has been taken to do minor editorial changes and add missing										

**How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.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.

---

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] void
- [2] 3GPP TS 22.030: "Man-Machine Interface (MMI) of the User Equipment (UE)".
- [3] 3GPP TS 23.090: "Unstructured Supplementary Service Data (USSD) - Stage 2".
- [4] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS) ".
- [5] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".
- [6] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".
- [7] 3GPP TS 24.012: "Cell Broadcast Service (CBS) support on the mobile radio interface".
- [8] 3GPP TS 27.005: "Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)".
- [10] ISO/IEC 10646: "Information technology; Universal Multiple-Octet Coded Character Set (UCS)".
- [11] 3GPP TS 24.090: "Unstructured Supplementary Service Data (USSD); Stage 3".
- [12] ISO 639: "Code for the representation of names of languages".
- [13] 3GPP TS 23.042: "Compression algorithm for text messaging services".
- [14] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [15] "Wireless Datagram Protocol Specification", Wireless Application Protocol Forum Ltd.
- [16] ISO 1073-1 and ISO 1073-2 Alphanumeric character sets for optical recognition – Parts 1 and 2: Character sets OCR-A and OCR-B, respectively - Shapes and dimensions of the printed image.
- [17] [3GPP TS 31.102: "Characteristics of the USIM application"](#)
- [18] [3GPP TS 51.011 Release 4 \(version 4.x.x\): "Specification of the Subscriber Identity Module - Mobile Equipment \(SIM - ME\) interface"](#)

## 4 SMS Data Coding Scheme

The TP-Data-Coding-Scheme field, defined in 3GPP TS 23.040 [4], indicates the data coding scheme of the TP-UD field, and may indicate a message class. Any reserved codings shall be assumed to be the GSM 7 bit default alphabet (the same as codepoint 00000000) by a receiving entity. The octet is used according to a coding group which is indicated in bits 7..4. The octet is then coded as follows:

Coding Group Bits 7..4	Use of bits 3..0																														
00xx	<p>General Data Coding indication Bits 5..0 indicate the following:</p> <p>Bit 5, if set to 0, indicates the text is uncompressed Bit 5, if set to 1, indicates the text is compressed using the compression algorithm defined in 3GPP TS 23.042 [13]</p> <p>Bit 4, if set to 0, indicates that bits 1 to 0 are reserved and have no message class meaning Bit 4, if set to 1, indicates that bits 1 to 0 have a message class meaning::</p> <table> <thead> <tr> <th>Bit 1</th> <th>Bit 0</th> <th>Message Class</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Class 0</td> </tr> <tr> <td>0</td> <td>1</td> <td>Class 1 Default meaning: ME-specific.</td> </tr> <tr> <td>1</td> <td>0</td> <td>Class 2 (U)SIM specific message</td> </tr> <tr> <td>1</td> <td>1</td> <td>Class 3 Default meaning: TE specific (see 3GPP TS 27.005 [8])</td> </tr> </tbody> </table> <p>Bits 3 and 2 indicate the character set being used, as follows :</p> <table> <thead> <tr> <th>Bit 3</th> <th>Bit2</th> <th>Character set:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>GSM 7 bit default alphabet</td> </tr> <tr> <td>0</td> <td>1</td> <td>8 bit data</td> </tr> <tr> <td>1</td> <td>0</td> <td>UCS2 (16bit) [10]</td> </tr> <tr> <td>1</td> <td>1</td> <td>Reserved</td> </tr> </tbody> </table> <p>NOTE: The special case of bits 7..0 being 0000 0000 indicates the GSM 7 bit default alphabet with no message class</p>	Bit 1	Bit 0	Message Class	0	0	Class 0	0	1	Class 1 Default meaning: ME-specific.	1	0	Class 2 (U)SIM specific message	1	1	Class 3 Default meaning: TE specific (see 3GPP TS 27.005 [8])	Bit 3	Bit2	Character set:	0	0	GSM 7 bit default alphabet	0	1	8 bit data	1	0	UCS2 (16bit) [10]	1	1	Reserved
Bit 1	Bit 0	Message Class																													
0	0	Class 0																													
0	1	Class 1 Default meaning: ME-specific.																													
1	0	Class 2 (U)SIM specific message																													
1	1	Class 3 Default meaning: TE specific (see 3GPP TS 27.005 [8])																													
Bit 3	Bit2	Character set:																													
0	0	GSM 7 bit default alphabet																													
0	1	8 bit data																													
1	0	UCS2 (16bit) [10]																													
1	1	Reserved																													
01xx	<p>Message Marked for Automatic Deletion Group</p> <p>This group can be used by the SM originator to mark the message ( stored in the ME or (U)SIM ) for deletion after reading irrespective of the message class. The way the ME will process this deletion should be manufacturer specific but shall be done without the intervention of the End User or the targeted application. The mobile manufacturer may optionally provide a means for the user to prevent this automatic deletion.</p> <p>Bit 5..0 are coded exactly the same as Group 00xx</p>																														
1000..1011	Reserved coding groups																														
1100	<p>Message Waiting Indication Group: Discard Message</p> <p>The specification for this group is exactly the same as for Group 1101, except that:</p> <ul style="list-style-type: none"> <li>- after presenting an indication and storing the status, the ME may discard the contents of the message.</li> </ul> <p>The ME shall be able to receive, process and acknowledge messages in this group, irrespective of memory availability for other types of short message.</p>																														
1101	<p>Message Waiting Indication Group: Store Message</p> <p>This Group defines an indication to be provided to the user about the status of types of message waiting on systems connected to the GSM/UMTS PLMN. The ME should present this indication as an icon on the screen, or other MMI indication. The ME shall update the contents of the Message Waiting Indication Status on the <a href="#">SIM (see 3GPP TS 51.011 [18])</a> or USIM (see 3GPP TS 31.102 [17]) when present or otherwise should store the status in the ME. <a href="#">In case there are multiple records of EF<sub>MWIS</sub> this information should be stored within the first record.</a> The contents of the Message Waiting Indication Status should control the ME indicator. For each indication supported, the mobile may provide storage for the Origination Address. The ME may take note of the Origination Address for messages in this group and group 1100.</p>																														

Coding Group Bits 7..4	Use of bits 3..0
	<p>Text included in the user data is coded in the GSM 7 bit default alphabet. Where a message is received with bits 7..4 set to 1101, the mobile shall store the text of the SMS message in addition to setting the indication. The indication setting should take place irrespective of memory availability to store the short message.</p> <p>Bits 3 indicates Indication Sense:</p> <p>Bit 3  0 Set Indication Inactive  1 Set Indication Active</p> <p>Bit 2 is reserved, and set to 0</p> <p>Bit 1 Bit 0 Indication Type:  0 0 Voicemail Message Waiting  0 1 Fax Message Waiting  1 0 Electronic Mail Message Waiting  1 1 Other Message Waiting*</p> <p>* Mobile manufacturers may implement the "Other Message Waiting" indication as an additional indication without specifying the meaning. The meaning of this indication is intended to be standardized in the future, so Operators should not make use of this indication until the standard for this indication is finalized.</p>
1110	<p>Message Waiting Indication Group: Store Message</p> <p>The coding of bits 3..0 and functionality of this feature are the same as for the Message Waiting Indication Group above, (bits 7..4 set to 1101) with the exception that the text included in the user data is coded in the uncompressed UCS2 character set.</p>
1111	<p>Data coding/message class</p> <p>Bit 3 is reserved, set to 0.</p> <p>Bit 2 Message coding:  0 GSM 7 bit default alphabet  1 8-bit data</p> <p>Bit 1 Bit 0 Message Class:  0 0 Class 0  0 1 Class 1 default meaning: ME-specific.  1 0 Class 2 (U)SIM-specific message.  1 1 Class 3 default meaning: TE specific (see 3GPP TS 27.005 [8])</p>

GSM 7 bit default alphabet indicates that the TP-UD is coded from the GSM 7 bit default alphabet given in clause 6.2.1. When this character set is used, the characters of the message are packed in octets as shown in clause 6.1.2.1.1, and the message can consist of up to 160 characters. The GSM 7 bit default alphabet shall be supported by all MSs and SCs offering the service. If the GSM 7 bit default alphabet extension mechanism is used then the number of displayable characters will reduce by one for every instance where the GSM 7 bit default alphabet extension table is used. 8-bit data indicates that the TP-UD has user-defined coding, and the message can consist of up to 140 octets.

UCS2 character set indicates that the TP-UD has a UCS2 [10] coded message, and the message can consist of up to 140 octets, i.e. up to 70 UCS2 characters. The General notes specified in clause 6.1.1 override any contrary specification in UCS2, so for example even in UCS2 a <CR> character will cause the MS to return to the beginning of the current line and overwrite any existing text with the characters which follow the <CR>.

When a message is compressed, the TP-UD consists of the GSM 7 bit default alphabet or UCS2 character set compressed message, and the compressed message itself can consist of up to 140 octets in total.

When a mobile terminated message is class 0 and the MS has the capability of displaying short messages, the MS shall display the message immediately and send an acknowledgement to the SC when the message has successfully reached the MS irrespective of whether there is memory available in the (U)SIM or ME. The message shall not be automatically stored in the (U)SIM or ME.

The ME may make provision through MMI for the user to selectively prevent the message from being displayed immediately.

If the ME is incapable of displaying short messages or if the immediate display of the message has been disabled through MMI then the ME shall treat the short message as though there was no message class, i.e. it will ignore bits 0 and 1 in the TP-DCS and normal rules for memory capacity exceeded shall apply.

When a mobile terminated message is Class 1, the MS shall send an acknowledgement to the SC when the message has successfully reached the MS and can be stored. The MS shall normally store the message in the ME by default, if that is possible, but otherwise the message may be stored elsewhere, e.g. in the (U)SIM. The user may be able to override the default meaning and select their own routing.

When a mobile terminated message is Class 2 ((U)SIM-specific), an MS shall ensure that the message has been transferred to the SMS data field in the (U)SIM before sending an acknowledgement to the SC. The MS shall return a "protocol error, unspecified" error message (see 3GPP TS 24.011 [6]) if the short message cannot be stored in the (U)SIM and there is other short message storage available at the MS. If all the short message storage at the MS is already in use, the MS shall return "memory capacity exceeded". This behaviour applies in all cases except for an MS supporting (U)SIM Application Toolkit when the Protocol Identifier (TP-PID) of the mobile terminated message is set to "(U)SIM Data download" (see 3GPP TS 23.040 [4]).

When a mobile terminated message is Class 3, the MS shall send an acknowledgement to the SC when the message has successfully reached the MS and can be stored, irrespectively of whether the MS supports an SMS interface to a TE, and without waiting for the message to be transferred to the TE. Thus the acknowledgement to the SC of a TE-specific message does not imply that the message has reached the TE. Class 3 messages shall normally be transferred to the TE when the TE requests "TE-specific" messages (see 3GPP TS 27.005 [8]). The user may be able to override the default meaning and select their own routing.

The message class codes may also be used for mobile originated messages, to provide an indication to the destination SME of how the message was handled at the MS.

The MS will not interpret reserved or unsupported values but shall store them as received. The SC may reject messages with a Data Coding Scheme containing a reserved value or one which is not supported.

## CHANGE REQUEST

⌘ **23.038 CR 013** ⌘ rev **2** ⌘ Current version: **6.0.0** ⌘

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

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

<b>Title:</b>	⌘ Message Waiting Indication – how to handle Multiple Subscriber Profiles		
<b>Source:</b>	⌘ TSG T		
<b>Work item code:</b>	⌘ TEI4, TEI6	<b>Date:</b>	⌘ 09/09/2004
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-6
	<i>Use <u>one</u> of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use <u>one</u> of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ 22.097 and 23.097 describe the Multiple Subscriber Profile (MSP). They explicitly state that it will not be possible to indicate the profile used for the SMS-MT case.  51.011 and 31.102 define an Elementary Field on SIM and USIM where to store the Message Waiting Indication Status (EF <sub>MWIS</sub> ). This EF may contain as many records as there are subscriber profiles.  23.038 defines a mechanism how to update the EF <sub>MWIS</sub> . However there is no means to indicate the profile, neither via SMS in general nor within the Message Waiting Indication.  Therefore an ME has no means to distinguish which record of the EF <sub>MWIS</sub> records requires an update.
<b>Summary of change:</b>	⌘ Let ME always update the first record of EF <sub>MWIS</sub> .
<b>Consequences if not approved:</b>	⌘ Indeterminacy remains. Incompatible implementations will arise.

<b>Clauses affected:</b>	⌘ 4										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"> </td> <td style="padding: 2px;">X</td> </tr> <tr> <td style="padding: 2px;"> </td> <td style="padding: 2px;">X</td> </tr> <tr> <td style="padding: 2px;"> </td> <td style="padding: 2px;">X</td> </tr> </table>	Y	N		X		X		X	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
	X										
	X										
	X										
<b>Other comments:</b>	⌘ The opportunity has been taken to do minor editorial changes and add missing										



**How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.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.

---

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] void
- [2] 3GPP TS 22.030: "Man-Machine Interface (MMI) of the User Equipment (UE)".
- [3] 3GPP TS 23.090: "Unstructured Supplementary Service Data (USSD) - Stage 2".
- [4] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS) ".
- [5] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".
- [6] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".
- [7] 3GPP TS 24.012: "Cell Broadcast Service (CBS) support on the mobile radio interface".
- [8] 3GPP TS 27.005: "Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)".
- [10] ISO/IEC 10646: "Information technology; Universal Multiple-Octet Coded Character Set (UCS)".
- [11] 3GPP TS 24.090: "Unstructured Supplementary Service Data (USSD); Stage 3".
- [12] ISO 639: "Code for the representation of names of languages".
- [13] 3GPP TS 23.042: "Compression algorithm for text messaging services".
- [14] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [15] "Wireless Datagram Protocol Specification", Wireless Application Protocol Forum Ltd.
- [16] ISO 1073-1 and ISO 1073-2 Alphanumeric character sets for optical recognition – Parts 1 and 2: Character sets OCR-A and OCR-B, respectively - Shapes and dimensions of the printed image.
- [17] [3GPP TS 31.102: "Characteristics of the USIM application"](#)
- [18] [3GPP TS 51.011 Release 4 \(version 4.x.x\): "Specification of the Subscriber Identity Module - Mobile Equipment \(SIM - ME\) interface"](#)

## 4 SMS Data Coding Scheme

The TP-Data-Coding-Scheme field, defined in 3GPP TS 23.040 [4], indicates the data coding scheme of the TP-UD field, and may indicate a message class. Any reserved codings shall be assumed to be the GSM 7 bit default alphabet (the same as codepoint 00000000) by a receiving entity. The octet is used according to a coding group which is indicated in bits 7..4. The octet is then coded as follows:

Coding Group Bits 7..4	Use of bits 3..0																														
00xx	<p>General Data Coding indication Bits 5..0 indicate the following:</p> <p>Bit 5, if set to 0, indicates the text is uncompressed Bit 5, if set to 1, indicates the text is compressed using the compression algorithm defined in 3GPP TS 23.042 [13]</p> <p>Bit 4, if set to 0, indicates that bits 1 to 0 are reserved and have no message class meaning Bit 4, if set to 1, indicates that bits 1 to 0 have a message class meaning::</p> <table border="1"> <thead> <tr> <th>Bit 1</th> <th>Bit 0</th> <th>Message Class</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>Class 0</td> </tr> <tr> <td>0</td> <td>1</td> <td>Class 1 Default meaning: ME-specific.</td> </tr> <tr> <td>1</td> <td>0</td> <td>Class 2 (U)SIM specific message</td> </tr> <tr> <td>1</td> <td>1</td> <td>Class 3 Default meaning: TE specific (see 3GPP TS 27.005 [8])</td> </tr> </tbody> </table> <p>Bits 3 and 2 indicate the character set being used, as follows :</p> <table border="1"> <thead> <tr> <th>Bit 3</th> <th>Bit2</th> <th>Character set:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>GSM 7 bit default alphabet</td> </tr> <tr> <td>0</td> <td>1</td> <td>8 bit data</td> </tr> <tr> <td>1</td> <td>0</td> <td>UCS2 (16bit) [10]</td> </tr> <tr> <td>1</td> <td>1</td> <td>Reserved</td> </tr> </tbody> </table> <p>NOTE: The special case of bits 7..0 being 0000 0000 indicates the GSM 7 bit default alphabet with no message class</p>	Bit 1	Bit 0	Message Class	0	0	Class 0	0	1	Class 1 Default meaning: ME-specific.	1	0	Class 2 (U)SIM specific message	1	1	Class 3 Default meaning: TE specific (see 3GPP TS 27.005 [8])	Bit 3	Bit2	Character set:	0	0	GSM 7 bit default alphabet	0	1	8 bit data	1	0	UCS2 (16bit) [10]	1	1	Reserved
Bit 1	Bit 0	Message Class																													
0	0	Class 0																													
0	1	Class 1 Default meaning: ME-specific.																													
1	0	Class 2 (U)SIM specific message																													
1	1	Class 3 Default meaning: TE specific (see 3GPP TS 27.005 [8])																													
Bit 3	Bit2	Character set:																													
0	0	GSM 7 bit default alphabet																													
0	1	8 bit data																													
1	0	UCS2 (16bit) [10]																													
1	1	Reserved																													
01xx	<p>Message Marked for Automatic Deletion Group</p> <p>This group can be used by the SM originator to mark the message ( stored in the ME or (U)SIM ) for deletion after reading irrespective of the message class. The way the ME will process this deletion should be manufacturer specific but shall be done without the intervention of the End User or the targeted application. The mobile manufacturer may optionally provide a means for the user to prevent this automatic deletion.</p> <p>Bit 5..0 are coded exactly the same as Group 00xx</p>																														
1000..1011	Reserved coding groups																														
1100	<p>Message Waiting Indication Group: Discard Message</p> <p>The specification for this group is exactly the same as for Group 1101, except that:</p> <ul style="list-style-type: none"> <li>- after presenting an indication and storing the status, the ME may discard the contents of the message.</li> </ul> <p>The ME shall be able to receive, process and acknowledge messages in this group, irrespective of memory availability for other types of short message.</p>																														
1101	<p>Message Waiting Indication Group: Store Message</p> <p>This Group defines an indication to be provided to the user about the status of types of message waiting on systems connected to the GSM/UMTS PLMN. The ME should present this indication as an icon on the screen, or other MMI indication. The ME shall update the contents of the Message Waiting Indication Status on the <a href="#">SIM (see 3GPP TS 51.011 [18])</a> or USIM (see 3GPP TS 31.102 [17]) when present or otherwise should store the status in the ME. <a href="#">In case there are multiple records of EF<sub>MWIS</sub> this information shall be stored within the first record.</a> The contents of the Message Waiting Indication Status should control the ME indicator. For each indication supported, the mobile may provide storage for the Origination Address. The ME may take note of the Origination Address for messages in this group and group 1100.</p>																														

Coding Group Bits 7..4	Use of bits 3..0
	<p>Text included in the user data is coded in the GSM 7 bit default alphabet. Where a message is received with bits 7..4 set to 1101, the mobile shall store the text of the SMS message in addition to setting the indication. The indication setting should take place irrespective of memory availability to store the short message.</p> <p>Bits 3 indicates Indication Sense:</p> <p>Bit 3  0 Set Indication Inactive  1 Set Indication Active</p> <p>Bit 2 is reserved, and set to 0</p> <p>Bit 1 Bit 0 Indication Type:  0 0 Voicemail Message Waiting  0 1 Fax Message Waiting  1 0 Electronic Mail Message Waiting  1 1 Other Message Waiting*</p> <p>* Mobile manufacturers may implement the "Other Message Waiting" indication as an additional indication without specifying the meaning.</p>
1110	<p>Message Waiting Indication Group: Store Message</p> <p>The coding of bits 3..0 and functionality of this feature are the same as for the Message Waiting Indication Group above, (bits 7..4 set to 1101) with the exception that the text included in the user data is coded in the uncompressed UCS2 character set.</p>
1111	<p>Data coding/message class</p> <p>Bit 3 is reserved, set to 0.</p> <p>Bit 2 Message coding:  0 GSM 7 bit default alphabet  1 8-bit data</p> <p>Bit 1 Bit 0 Message Class:  0 0 Class 0  0 1 Class 1 default meaning: ME-specific.  1 0 Class 2 (U)SIM-specific message.  1 1 Class 3 default meaning: TE specific (see 3GPP TS 27.005 [8])</p>

GSM 7 bit default alphabet indicates that the TP-UD is coded from the GSM 7 bit default alphabet given in clause 6.2.1. When this character set is used, the characters of the message are packed in octets as shown in clause 6.1.2.1.1, and the message can consist of up to 160 characters. The GSM 7 bit default alphabet shall be supported by all MSs and SCs offering the service. If the GSM 7 bit default alphabet extension mechanism is used then the number of displayable characters will reduce by one for every instance where the GSM 7 bit default alphabet extension table is used. 8-bit data indicates that the TP-UD has user-defined coding, and the message can consist of up to 140 octets.

UCS2 character set indicates that the TP-UD has a UCS2 [10] coded message, and the message can consist of up to 140 octets, i.e. up to 70 UCS2 characters. The General notes specified in clause 6.1.1 override any contrary specification in UCS2, so for example even in UCS2 a <CR> character will cause the MS to return to the beginning of the current line and overwrite any existing text with the characters which follow the <CR>.

When a message is compressed, the TP-UD consists of the GSM 7 bit default alphabet or UCS2 character set compressed message, and the compressed message itself can consist of up to 140 octets in total.

When a mobile terminated message is class 0 and the MS has the capability of displaying short messages, the MS shall display the message immediately and send an acknowledgement to the SC when the message has successfully reached the MS irrespective of whether there is memory available in the (U)SIM or ME. The message shall not be automatically stored in the (U)SIM or ME.

The ME may make provision through MMI for the user to selectively prevent the message from being displayed immediately.

If the ME is incapable of displaying short messages or if the immediate display of the message has been disabled through MMI then the ME shall treat the short message as though there was no message class, i.e. it will ignore bits 0 and 1 in the TP-DCS and normal rules for memory capacity exceeded shall apply.

When a mobile terminated message is Class 1, the MS shall send an acknowledgement to the SC when the message has successfully reached the MS and can be stored. The MS shall normally store the message in the ME by default, if that is possible, but otherwise the message may be stored elsewhere, e.g. in the (U)SIM. The user may be able to override the default meaning and select their own routing.

When a mobile terminated message is Class 2 ((U)SIM-specific), an MS shall ensure that the message has been transferred to the SMS data field in the (U)SIM before sending an acknowledgement to the SC. The MS shall return a "protocol error, unspecified" error message (see 3GPP TS 24.011 [6]) if the short message cannot be stored in the (U)SIM and there is other short message storage available at the MS. If all the short message storage at the MS is already in use, the MS shall return "memory capacity exceeded". This behaviour applies in all cases except for an MS supporting (U)SIM Application Toolkit when the Protocol Identifier (TP-PID) of the mobile terminated message is set to "(U)SIM Data download" (see 3GPP TS 23.040 [4]).

When a mobile terminated message is Class 3, the MS shall send an acknowledgement to the SC when the message has successfully reached the MS and can be stored, irrespectively of whether the MS supports an SMS interface to a TE, and without waiting for the message to be transferred to the TE. Thus the acknowledgement to the SC of a TE-specific message does not imply that the message has reached the TE. Class 3 messages shall normally be transferred to the TE when the TE requests "TE-specific" messages (see 3GPP TS 27.005 [8]). The user may be able to override the default meaning and select their own routing.

The message class codes may also be used for mobile originated messages, to provide an indication to the destination SME of how the message was handled at the MS.

The MS will not interpret reserved or unsupported values but shall store them as received. The SC may reject messages with a Data Coding Scheme containing a reserved value or one which is not supported.