

**Source:** TSG CN WG 1

**Title:** CR to R99 (with mirror CRs) on Work Item EDGE towards 24.008

**Agenda item:** 7.5

**Document for:** APPROVAL

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**Introduction:**

This document contains 3 CRs on R99 (2 are mirror CRs) to Work Item "EDGE", that have been agreed by TSG CN WG1, and are forwarded to TSG CN Plenary meeting #13 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Version-Current	Workitem
24.008	463		N1-011254	R99	Clarification of 8-PSK power class coding	F	3.8.0	EDGE
24.008	464		N1-011255	Rel-4	Clarification of 8-PSK power class coding	A	4.3.0	EDGE
24.008	465		N1-011272	Rel-5	Clarification of 8-PSK power class coding	A	5.0.0	EDGE

CR-Form-v4

## CHANGE REQUEST

⌘ **24.008** **CR 463** ⌘ ev **-** ⌘ Current version: **3.8.0** ⌘

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

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⌘ Clarification of 8-PSK power class coding		
<b>Source:</b>	⌘ Ericsson L.M.		
<b>Work item code:</b>	⌘ EDGE	<b>Date:</b>	⌘ 2001-08-28
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>R96</b> (Release 1996)	<b>2</b> (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R97</b> (Release 1997)	
	<b>B</b> (addition of feature),	<b>R98</b> (Release 1998)	
	<b>C</b> (functional modification of feature)	<b>R99</b> (Release 1999)	
	<b>D</b> (editorial modification)	<b>REL-4</b> (Release 4)	
	Detailed explanations of the above categories can be found in 3GPP <a href="http://www.3gpp.org/Specs/3GPP21900">TR 21.900</a> .	<b>REL-5</b> (Release 5)	

<b>Reason for change:</b>	The coding of 8-PSK modulation power classes is ambiguous. The power classes (3GPP TS 05.05) are labelled: E1, E2 and E3. The encoding of the <i>enumerated</i> type is not defined.
<b>Summary of change:</b>	Definitions of the encoding are included in the <i>MS classmark 3</i> and the <i>MS Radio Access Capability</i> information elements. Editorial alignments of the definitions of the relevant parameters.
<b>Consequences if not approved:</b>	There is a risk of incompatible encoding of the 8-PSK modulation power classes between different vendors.

<b>Clauses affected:</b>	10.5.1.7 and 10.5.5.12a		
<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>	⌘ <del>Note that two separate power class parameters are used in the <i>MS Classmark 3</i> information element, one for the group of {GSM400, GSM850, GSM900} and the other one for the group of {GSM1800, GSM1900} frequency bands. In the <i>MS Radio Access Capability</i> information element, a single parameter is used for all frequency bands. This does not seem consistent. If a differentiation of the power classes is possible for ECSD, the same should be possible for EGPRS.</del>		

### 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://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.

-- Skip to Table 10.5.1.7/3GPP TS 24.008 (continued) --

**Table 10.5.1.7/3GPP TS 24.008 (continued): MS Classmark 3 information element**

MS based E-OTD

Bit 4  
 0 MS based E-OTD not supported  
 1 MS based E-OTD supported

MS assisted GPS

Bit 3  
 0 MS assisted GPS not supported  
 1 MS assisted GPS supported

MS based GPS

Bit 2  
 0 MS based GPS not supported  
 1 MS based GPS supported

MS conventional GPS

Bit 1  
 0 conventional GPS not supported  
 1 conventional GPS supported

**EDGE Multi Slot class** (5 bit field)

In case the EDGE MS supports the use of multiple timeslots and the number of supported time slots is different from number of time slots supported for GMSK then the EDGE Multi Slot class field is included and is coded as the binary representation of the multislot class defined in 3GPP TS GSM 05.02.

**Modulation Capability**

Modulation Capability field indicates the supported modulation scheme by MS in addition to GMSK

Bit 1  
 0 8-PSK supported for downlink reception only  
 1 8-PSK supported for uplink transmission and downlink reception

**EDGE RF Power Capability 1** (2 bit field)

If 8-PSK modulation is supported for both uplink and downlink, the **EDGE RF Power Capability 1** field indicates the radio capability for 8-PSK modulation in GSM400, GSM850 or GSM900.

~~The radio capability contains the binary coding of the EDGE power class (see GSM 05.05).~~

**EDGE RF Power Capability 2** (2 bit field)

If 8-PSK modulation is supported for both uplink and downlink, the **EDGE RF Power Capability 2** field indicates the radio capability for 8-PSK modulation in DCS1800 or PCS1900 if supported, and is not included otherwise.

The ~~radio capability~~ respective EDGE RF Power Capability 1 and EDGE RF Power Capability 2 fields contains the following binary coding of the EDGE 8-PSK modulation power class (see GSM-3GPP TS 05.05):

Bits	2 1
0 0	Reserved
0 1	Power class E1
1 0	Power class E2
1 1	Power class E3

-- Next modified section --

## 10.5.5.12a MS Radio Access capability

-- Skip to Table 10.5.146/3GPP TS 24.008 (continued) --

**Table 10.5.146/3GPP TS 24.008 (continued): Mobile Station Radio Access Capability Information Element**

<p>&lt; Multislot capability struct &gt; ::=</p> <pre> { 0   1 &lt; HSCSD multislot class : bit (5) &gt; } { 0   1 &lt; GPRS multislot class : bit (5) &gt; &lt; GPRS Extended Dynamic Allocation Capability : bit &gt; } { 0   1 &lt; SMS_VALUE : bit (4) &gt; &lt; SM_VALUE : bit (4) &gt; } { 0   1 &lt; ECSD multislot class : bit (5) &gt; } { 0   1 &lt; EGPRS multislot class : bit (5) &gt; &lt; EGPRS Extended Dynamic Allocation Capability : bit &gt; } { 0   1 &lt; DTM GPRS Multi Slot Sub-Class: bit(2)&gt;     &lt;MAC Mode Support : bit&gt;     { 0   1 &lt; DTM EGPRS Multi Slot Sub-Class : bit(2)&gt; } } ; </pre> <p>&lt;A5 bits&gt; ::= &lt; A5/1 : bit&gt; &lt;A5/2 : bit&gt; &lt;A5/3 : bit&gt; &lt;A5/4 : bit&gt; &lt;A5/5 : bit&gt; &lt;A5/6 : bit&gt; &lt;A5/7 : bit&gt;; -- bits for circuit mode ciphering algorithms</p> <p><b>Access Technology Type</b> This field indicates the access technology type to be associated with the following access capabilities.</p> <p>Bits</p> <table border="0"> <tr><td>4 3 2 1</td><td></td></tr> <tr><td>0 0 0 0</td><td>GSM P</td></tr> <tr><td>0 0 0 1</td><td>GSM E --note that GSM E covers GSM P</td></tr> <tr><td>0 0 1 0</td><td>GSM R --note that GSM R covers GSM E and GSM P</td></tr> <tr><td>0 0 1 1</td><td>GSM 1800</td></tr> <tr><td>0 1 0 0</td><td>GSM 1900</td></tr> <tr><td>0 1 0 1</td><td>GSM 450</td></tr> <tr><td>0 1 1 0</td><td>GSM 480</td></tr> <tr><td>0 1 1 1</td><td>GSM 850</td></tr> </table> <p>All other values are treated as unknown by the receiver.</p> <p><b>RF Power Capability</b> This field is coded as radio capability in Classmark 3 for the indicated band: it contains the binary coding of the power class associated (see GSM 05.05 paragraph 4.1 output power and paragraph 4.1.1 Mobile Station).</p> <p><b>8PSK Power Capability</b> <del>This field is coded according to the definition in GSM 05.05. The presence of this field indicates also 8PSK modulation capability in uplink.</del> If 8-PSK modulation is supported for uplink, this field indicates the radio capability for 8-PSK modulation. The following coding is used (see 3GPP TS 05.05):</p> <table border="1"> <tr><td>Bits</td><td>2 1</td></tr> <tr><td>0 0</td><td>Reserved</td></tr> <tr><td>0 1</td><td>Power class E1</td></tr> <tr><td>1 0</td><td>Power class E2</td></tr> <tr><td>1 1</td><td>Power class E3</td></tr> </table> <p><b>A5/1</b> 0 encryption algorithm A5/1 not available 1 encryption algorithm A5/1 available</p> <p><b>A5/2</b> 0 encryption algorithm A5/2 not available 1 encryption algorithm A5/2 available</p> <p><b>A5/3</b> 0 encryption algorithm A5/3 not available 1 encryption algorithm A5/3 available</p> <p><b>A5/4</b> 0 encryption algorithm A5/4 not available 1 encryption algorithm A5/4 available</p> <p><b>A5/5</b> 0 encryption algorithm A5/5 not available</p>	4 3 2 1		0 0 0 0	GSM P	0 0 0 1	GSM E --note that GSM E covers GSM P	0 0 1 0	GSM R --note that GSM R covers GSM E and GSM P	0 0 1 1	GSM 1800	0 1 0 0	GSM 1900	0 1 0 1	GSM 450	0 1 1 0	GSM 480	0 1 1 1	GSM 850	Bits	2 1	0 0	Reserved	0 1	Power class E1	1 0	Power class E2	1 1	Power class E3
4 3 2 1																												
0 0 0 0	GSM P																											
0 0 0 1	GSM E --note that GSM E covers GSM P																											
0 0 1 0	GSM R --note that GSM R covers GSM E and GSM P																											
0 0 1 1	GSM 1800																											
0 1 0 0	GSM 1900																											
0 1 0 1	GSM 450																											
0 1 1 0	GSM 480																											
0 1 1 1	GSM 850																											
Bits	2 1																											
0 0	Reserved																											
0 1	Power class E1																											
1 0	Power class E2																											
1 1	Power class E3																											

1 encryption algorithm A5/5 available

**A5/6**

0 encryption algorithm A5/6 not available

1 encryption algorithm A5/6 available

**A5/7**

0 encryption algorithm A5/7 not available

1 encryption algorithm A5/7 available

**ES IND** – (Controlled early Classmark Sending)

0 "controlled early Classmark Sending" option is not implemented

1 "controlled early Classmark Sending" option is implemented

-- **End of CR** --

CR-Form-v4	
<b>CHANGE REQUEST</b>	
⌘ <b>24.008</b> <b>CR 464</b> ⌘ ev <b>-</b> ⌘	Current version: <b>4.3.0</b> ⌘

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>	⌘ Clarification of 8-PSK power class coding		
<b>Source:</b>	⌘ Ericsson L.M.		
<b>Work item code:</b>	⌘ EDGE	<b>Date:</b>	⌘ 2001-08-28
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ REL-4
	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)

<b>Reason for change:</b>	The coding of 8-PSK modulation power classes is ambiguous. The power classes (3GPP TS 05.05) are labelled: E1, E2 and E3. The encoding of the <i>enumerated</i> type is not defined.
<b>Summary of change:</b>	Definitions of the encoding are included in the <i>MS classmark 3</i> and the <i>MS Radio Access Capability</i> information elements. Editorial alignments of the definitions of the relevant parameters.
<b>Consequences if not approved:</b>	There is a risk of incompatible encoding of the 8-PSK modulation power classes between different vendors.

<b>Clauses affected:</b>	10.5.1.7 and 10.5.5.12a		
<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>	⌘		

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- 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.

## 10.5.1.7 Mobile Station Classmark 3

-- Skip to Table 10.5.1.7/3GPP TS 24.008 (continued) --

Table 10.5.1.7/3GPP TS 24.008 (continued): MS Classmark 3 information element

### MS based E-OTD

Bit 4  
0 MS based E-OTD not supported  
1 MS based E-OTD supported

### MS assisted GPS

Bit 3  
0 MS assisted GPS not supported  
1 MS assisted GPS supported

### MS based GPS

Bit 2  
0 MS based GPS not supported  
1 MS based GPS supported

### MS conventional GPS

Bit 1  
0 conventional GPS not supported  
1 conventional GPS supported

### **EDGE Multi Slot class (5 bit field)**

In case the EDGE MS supports the use of multiple timeslots and the number of supported time slots is different from number of time slots supported for GMSK then the EDGE Multi Slot class field is included and is coded as the binary representation of the multislot class defined in [3GPP TS GSM-05.02](#).

### **Modulation Capability**

Modulation Capability field indicates the supported modulation scheme by MS in addition to GMSK

Bit 1  
0 8-PSK supported for downlink reception only  
1 8-PSK supported for uplink transmission and downlink reception

### **EDGE RF Power Capability 1 (2 bit field)**

If 8-PSK modulation is supported for both uplink and downlink, the **EDGE RF Power Capability 1** field indicates the radio capability for 8-PSK modulation in [GSM 400](#), GSM700, GSM850 or GSM900.

~~The radio capability contains the binary coding of the EDGE power class (see GSM05.05).~~

### **EDGE RF Power Capability 2 (2 bit field)**

If 8-PSK modulation is supported for both uplink and downlink, the **EDGE RF Power Capability 2** field indicates the radio capability for 8-PSK modulation in DCS1800 or PCS1900 if supported, and is not included otherwise.

The ~~radio capability~~ respective **EDGE RF Power Capability 1** and **EDGE RF Power Capability 2** fields contains the following ~~binary~~ coding of the ~~EDGE~~ 8-PSK modulation power class (see 3GPP TS 05.05):-

Bits 2 1  
0 0 Reserved  
0 1 Power class E1  
1 0 Power class E2  
1 1 Power class E3

-- Next modified section --



10.5.5.12a MS Radio Access capability

-- *Skip to Table 10.5.1.146/3GPP TS 24.008 (continued)* --

**Table 10.5.146/3GPP TS 24.008 (continued): Mobile Station Radio Access Capability Information Element**

```

< Multislot capability struct > ::=
  { 0 | 1 < HSCSD multislot class : bit (5) > }
  { 0 | 1 < GPRS multislot class : bit (5) > < GPRS Extended Dynamic Allocation Capability : bit > }
  { 0 | 1 < SMS_VALUE : bit (4) > < SM_VALUE : bit (4) > }
-- Additions in release 99
  { 0 | 1 < ECSD multislot class : bit (5) > }
  { 0 | 1 < EGPRS multislot class : bit (5) > < EGPRS Extended Dynamic Allocation Capability : bit > }
  { 0 | 1 < DTM GPRS Multi Slot Sub-Class: bit(2)>
    <MAC Mode Support : bit>
    { 0 | 1 <DTM EGPRS Multi Slot Sub-Class : bit(2)> } } ;
-- error: struct too short, assume features do not exist

<A5 bits> ::= < A5/1 : bit> <A5/2 : bit> <A5/3 : bit> <A5/4 : bit> <A5/5 : bit> <A5/6 : bit> <A5/7 : bit>; -- bits for circuit
mode ciphering algorithms

Access Technology Type
This field indicates the access technology type to be associated with the following access capabilities.

Bits
4 3 2 1
0 0 0 0 GSM P
0 0 0 1 GSM E --note that GSM E covers GSM P
0 0 1 0 GSM R --note that GSM R covers GSM E and GSM P
0 0 1 1 GSM 1800
0 1 0 0 GSM 1900
0 1 0 1 GSM 450
0 1 1 0 GSM 480
0 1 1 1 GSM 850
1 0 0 0 GSM 700
All other values are treated as unknown by the receiver.

RF Power Capability
This field is coded as radio capability in Classmark 3 for the indicated band: it contains the binary coding of the power
class associated (see 3GPP TS 05.05 paragraph 4.1 output power and paragraph 4.1.1 Mobile Station).

8PSK Power Capability
This field is coded according to the definition in 3GPP TS 05.05. The presence of this field indicates also 8PSK
modulation capability in uplink.
If 8-PSK modulation is supported for uplink, this field indicates the radio capability for 8-PSK modulation. The
following coding is used (see 3GPP TS 05.05):
Bits 2 1
0 0 Reserved
0 1 Power class E1
1 0 Power class E2
1 1 Power class E3

A5/1
0 encryption algorithm A5/1 not available
1 encryption algorithm A5/1 available
A5/2
0 encryption algorithm A5/2 not available
1 encryption algorithm A5/2 available
A5/3
0 encryption algorithm A5/3 not available
1 encryption algorithm A5/3 available
A5/4
0 encryption algorithm A5/4 not available
1 encryption algorithm A5/4 available
A5/5
0 encryption algorithm A5/5 not available
1 encryption algorithm A5/5 available
A5/6
0 encryption algorithm A5/6 not available

```

1 encryption algorithm A5/6 available

**A5/7**

0 encryption algorithm A5/7 not available

1 encryption algorithm A5/7 available

**ES IND** – (Controlled early Classmark Sending)

0 "controlled early Classmark Sending" option is not implemented

1 "controlled early Classmark Sending" option is implemented

-- *End of CR* --

CR-Form-v4	
<b>CHANGE REQUEST</b>	
⌘ <b>24.008</b> <b>CR 465</b> ⌘ ev <b>-</b> ⌘	Current version: <b>5.0.0</b> ⌘

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<b>Title:</b>	⌘ Clarification of 8-PSK power class coding		
<b>Source:</b>	⌘ Ericsson L.M.		
<b>Work item code:</b>	⌘ EDGE	<b>Date:</b>	⌘ 2001-08-28
<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:
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	<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		REL-4 (Release 4)
	be found in 3GPP <a href="#">TR 21.900</a> .		REL-5 (Release 5)

<b>Reason for change:</b>	The coding of 8-PSK modulation power classes is ambiguous. The power classes (3GPP TS 05.05) are labelled: E1, E2 and E3. The encoding of the <i>enumerated</i> type is not defined.
<b>Summary of change:</b>	Definitions of the encoding are included in the <i>MS classmark 3</i> and the <i>MS Radio Access Capability</i> information elements. Editorial alignments of the definitions of the relevant parameters.
<b>Consequences if not approved:</b>	There is a risk of incompatible encoding of the 8-PSK modulation power classes between different vendors.

<b>Clauses affected:</b>	10.5.1.7 and 10.5.5.12a		
<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>	⌘		

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## 10.5.1.7 Mobile Station Classmark 3

-- Skip to Table 10.5.1.7/3GPP TS 24.008 (continued) --

Table 10.5.1.7/3GPP TS 24.008 (continued): MS Classmark 3 information element

### MS based E-OTD

Bit 4  
0 MS based E-OTD not supported  
1 MS based E-OTD supported

### MS assisted GPS

Bit 3  
0 MS assisted GPS not supported  
1 MS assisted GPS supported

### MS based GPS

Bit 2  
0 MS based GPS not supported  
1 MS based GPS supported

### MS conventional GPS

Bit 1  
0 conventional GPS not supported  
1 conventional GPS supported

### **EDGE Multi Slot class** (5 bit field)

In case the EDGE MS supports the use of multiple timeslots and the number of supported time slots is different from number of time slots supported for GMSK then the EDGE Multi Slot class field is included and is coded as the binary representation of the multislot class defined in [3GPP TS GSM 05.02](#).

### **Modulation Capability**

Modulation Capability field indicates the supported modulation scheme by MS in addition to GMSK

Bit 1  
0 8-PSK supported for downlink reception only  
1 8-PSK supported for uplink transmission and downlink reception

### **EDGE RF Power Capability 1** (2 bit field)

If 8-PSK modulation is supported for both uplink and downlink, the **EDGE RF Power Capability 1** field indicates the radio capability for 8-PSK modulation in [GSM 400](#), GSM700, GSM850 or GSM900.

~~The radio capability contains the binary coding of the EDGE power class (see GSM 05.05).~~

### **EDGE RF Power Capability 2** (2 bit field)

If 8-PSK modulation is supported for both uplink and downlink, the **EDGE RF Power Capability 2** field indicates the radio capability for 8-PSK modulation in DCS1800 or PCS1900 if supported, and is not included otherwise.

The ~~radio capability~~ respective **EDGE RF Power Capability 1** and **EDGE RF Power Capability 2** fields contains the following ~~binary~~ coding of the ~~EDGE~~ 8-PSK modulation power class (see 3GPP TS 05.05):-

Bits 2 1  
0 0 Reserved  
0 1 Power class E1  
1 0 Power class E2  
1 1 Power class E3

-- Next modified section --

10.5.5.12a MS Radio Access capability

-- *Skip to Table 10.5.1.146/3GPP TS 24.008 (continued)* --

**Table 10.5.146/3GPP TS 24.008 (continued): Mobile Station Radio Access Capability Information Element**

```

< Multislot capability struct > ::=
  { 0 | 1 < HSCSD multislot class : bit (5) > }
  { 0 | 1 < GPRS multislot class : bit (5) > < GPRS Extended Dynamic Allocation Capability : bit > }
  { 0 | 1 < SMS_VALUE : bit (4) > < SM_VALUE : bit (4) > }
-- Additions in release 99
  { 0 | 1 < ECSD multislot class : bit (5) > }
  { 0 | 1 < EGPRS multislot class : bit (5) > < EGPRS Extended Dynamic Allocation Capability : bit > }
  { 0 | 1 < DTM GPRS Multi Slot Sub-Class: bit(2)>
    <MAC Mode Support : bit>
    { 0 | 1 <DTM EGPRS Multi Slot Sub-Class : bit(2)> } } ;
-- error: struct too short, assume features do not exist

<A5 bits> ::= < A5/1 : bit> <A5/2 : bit> <A5/3 : bit> <A5/4 : bit> <A5/5 : bit> <A5/6 : bit> <A5/7 : bit>; -- bits for circuit
mode ciphering algorithms

Access Technology Type
This field indicates the access technology type to be associated with the following access capabilities.

Bits
4 3 2 1
0 0 0 0 GSM P
0 0 0 1 GSM E --note that GSM E covers GSM P
0 0 1 0 GSM R --note that GSM R covers GSM E and GSM P
0 0 1 1 GSM 1800
0 1 0 0 GSM 1900
0 1 0 1 GSM 450
0 1 1 0 GSM 480
0 1 1 1 GSM 850
1 0 0 0 GSM 700
All other values are treated as unknown by the receiver.

RF Power Capability
This field is coded as radio capability in Classmark 3 for the indicated band: it contains the binary coding of the power
class associated (see 3GPP TS 05.05 paragraph 4.1 output power and paragraph 4.1.1 Mobile Station).

8PSK Power Capability
This field is coded according to the definition in 3GPP TS 05.05. The presence of this field indicates also 8PSK
modulation capability in uplink.
If 8-PSK modulation is supported for uplink, this field indicates the radio capability for 8-PSK modulation. The
following coding is used (see 3GPP TS 05.05):
Bits 2 1
0 0 Reserved
0 1 Power class E1
1 0 Power class E2
1 1 Power class E3

A5/1
0 encryption algorithm A5/1 not available
1 encryption algorithm A5/1 available
A5/2
0 encryption algorithm A5/2 not available
1 encryption algorithm A5/2 available
A5/3
0 encryption algorithm A5/3 not available
1 encryption algorithm A5/3 available
A5/4
0 encryption algorithm A5/4 not available
1 encryption algorithm A5/4 available
A5/5
0 encryption algorithm A5/5 not available
1 encryption algorithm A5/5 available
A5/6
0 encryption algorithm A5/6 not available

```

1 encryption algorithm A5/6 available

**A5/7**

0 encryption algorithm A5/7 not available

1 encryption algorithm A5/7 available

**ES IND** – (Controlled early Classmark Sending)

0 "controlled early Classmark Sending" option is not implemented

1 "controlled early Classmark Sending" option is implemented

-- **End of CR** --