GSM 08.08 - EXT

Version: 3.0.0

Date: 25 June 1993

Key words:

European digital cellular telecommunication system (phase 1);

BSS-MSC Layer 3 Specification
Part 2

ETSI

Preface:

This specification is an addendum to GSM 08.08 version 3.10.1 and shall only be read in connection with that specification.

The page numbers used in this document is equivalent to those used in GSM 08.08 version 3.10.1 and can be seen as a page by page replacement.

Changes with GSM 08.08 version 03.10.1 as reference are marked as follows:

Double Underline   :   New added text.

Strikethrough   :   Deleted text.

Vertical Bar in margin :   Changes occur in the corresponding line.

The support of the additional functionality specified in this addendum is not mandatory, however if the functionality is supported, it shall be supported completely in accordance with this specification.

CONTENTS

Blank page

1. SCOPE

This recommendation specifies the layer 3 procedures used on the BSS to MSC interface for control of GSM services.

For the purposes of call control and mobility management, messages are not interpreted at the base station system (BSS) which acts as a relay function. These messages and procedures are documented in recommendation GSM 04.08, the only relevant issues covering these messages in this recommendation are those concerned with error conditions at the interface, and the headers that are required for the correct addressing of the messages. This is specified in more detail in recommendation GSM 08.06.

The functional split between MSC and BSS is defined in recommendation GSM 08.02 and states that the BSS is responsible for local radio resource allocation and in order to support this the required procedures between BSS and MSC are defined in detail in this recommendation.

Recommendation GSM 08.02 also states that the BSS is responsible for scheduling all CCCH/BCCH messages and therefore some procedures for providing to the BSS the necessary information to be passed on these channels for individual calls (ie paging) are defined in this recommendation, but the scheduling is not discussed.

This interface and consequently these layer 3 procedures are designed to support BSSs supporting one or more cells.

This delta recommendation only includes modified parts concerning the short term solution (phase 1) for support of an alternative ciphering algorithm (A5/2).

2. APPLICATION TO INTERFACE STRUCTURES

The underlying transport mechanism defined to carry signalling information between BSS and MSC is the message transfer part , and the signalling connection control part of signalling system No.7

The MTP and SCCP is used to support communication between the MSC and two conceptual entities within the BSS, these are:

- the BSS operation and maintenance application part (BSSOMAP).

- the BSS application part (BSSAP).

The BSS application part is split into two sub application parts, these are ; the BSS management application part (BSSMAP), and the direct transfer application part (DTAP).

Distribution of messages between the two sub application parts is described in recommendation GSM 08.06.

Figure 1 is a diagrammatical representation of these conceptual entities. It should be noted that this is not intended to imply a particular implementation and is only for the purposes of specifying the interface.

Differentiation between BSSAP and BSSOMAP is by addressing mechanisms within the SCCP, using subsystem number see recommendation GSM 08.06.

3.2.1.8. HANDOVER REQUEST

This message is sent from the MSC to the BSS to indicate that the a mobile is to be handed over to that BSS.

INFORMATION ELEMENT	REFERENCE	DIRECTION	TYPE	LEN
Message Type	3.2.2.1	MSC-BSS	M	1
Channel type	3.2.2.11	MSC-BSS	M	5
Encryption information	3.2.2.10	MSC-BSS	M	3-20
Classmark information 1 or	3.2.2.30	MSC-BSS	M#	2
Classmark information 2	3.2.2.19	MSC-BSS	M#	4-5
Cell identifier (serving)	3.2.2.17	MSC-BSS	M	5-10
Priority	3.2.2.18	MSC-BSS	O	3
Circuit identity code	3.2.2.2	MSC-BSS	O	3
Radio channel identity	3.2.2.3	MSC-BSS	O*	5-38
Downlink DTX flag	3.2.2.26	MSC-BSS	O***	2
Cell identifier (target)	3.2.2.17	MSC-BSS	O**	3-10
Interference band to be used	3.2.2.21	MSC-BSS	O	2

*   Optional inclusion for O&M purposes

**   Only required for multi cell BSSs.

***   This element is included in the case of a speech TCH where DTX is applied in the downlink direction, and only in this case.

\#   One of these two elements is sent.

3.2.1.29. CLASSMARK UPDATE

This message is sent from a BSS to an MSC via the relevant SCCP connection associated with that MS transaction. It updates the classmark parameters for the concerned MS.

INFORMATION ELEMENT	REFERENCE	DIRECTION	TYPE	LEN
Message type	3.2.2.1	BSS-MSC	M	1
Classmark information type 2	3.2.2.19	BSS-MSC	M	4-5

3.2.1.30. CIPHER MODE COMMAND

This message is sent from an MSC to an BSS via the relevant SCCP connection associated with that MS transaction. It updates the encryption parameters for the concerned MS.

INFORMATION ELEMENT	REFERENCE	DIRECTION	TYPE	LEN
Message type	3.2.2.1	MSC-BSS	M	1
Layer 3 header information	3.2.2.9	MSC-BSS	M	4
Encryption information	3.2.2.10	MSC-BSS	M	3-20

3.2.2.10. ENCRYPTION INFORMATION

This element contains the user data encryption information used to control any encryption equipment at the BSS.

It is a variable length element.

It is coded as follows:

8	7	6	5	4	3	2	1	
Element identifier								octet 1
Length								octet 2
Algorithm identifier								octet 3
Key								octet 4 - n

The length indicator (octet 2) is a binary number indicating the absolute length of the contents after the length indicator octet.

<u>The algorithm identifier indicates the ciphering algorithm the BSS shall use.</u> The algorithm identifier caters for the possible future introduction of different user data encryption algorithms. It is coded as;

```
0000 0000 .. Spare
0000 0001 .. No encryption required
0000 0010 .. GSM user data encryption version 1 (A5/1).
0000 0011 .. Reserved for future international use.
0000 0100 .. GSM A5/2.
0000 0111 .. Reserved for future international use.
1111 1111 ..
```

The key shall be an integral number of octets. Its length is given as the value of the length indicator minus 1.

3.2.2.19. CLASSMARK INFORMATION TYPE 2

The classmark information type 2 defines certain attributes of the mobile station equipment in use on a particular transaction.

It is coded as follows:

8	7	6	5	4	3	2	1	
Element identifier								octet 1
Length								octet 2
Classmark								octet 3 - 54

Octet 2 is a binary indication of the length of the remainder of the element in octets.

The classmark octets 3, and 4 and 5 are coded in the same way as the equivalent octets in the classmark 2 element of 04.08.

3.2.2.20. [Spare]