3GPP TSG CT Plenary Meeting #27 Quebec, Canada, 1st – 3rd June 2005

Title: Response to:	Reply LS on Full RANAP support of network initiated SCUDIF
Release:	Release 6
Source:	GERAN2
То:	CT, CT1, CT4
Cc:	GERAN
Contact Person: Name: Tel. Number:	Guillaume Sébire, Nokia +358 50 483 7388

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Attachments:

G2-050336, G2-050337

1. Overall Description:

GERAN2 would like to thank CT4 for their Liaison Statement on Full RANAP support of network initiated SCUDIF.

GERAN2 has reviewed the proposed solutions from CT4, and is pleased to inform that it has decided to include a new BSSAP message, in Release 6, to be used at MAP level over the E interface. The corresponding CRs (Rel-6 and Rel-7 mirror) to 3GPP TS 48.008 were agreed by GERAN2, and are attached to this Liaison Statement for information.

GERAN2 has also identified that a corresponding change is needed to 3GPP TS 49.008 (Use of BSSAP on the E-interface) which is under CT1's responsibility.

2. Actions:

To CT, CT1, CT4

ACTION:

GERAN2 kindly asks CT, CT1 and CT4 to take note of GERAN2 decision to introduce a new BSSAP message for the purpose of network-initiated service change for SCUDIF.

To CT1

ACTION:

GERAN2 kindly asks CT1 to update 3GPP TS 49.008 accordingly.

3. Dates of Next GERAN2 Meetings:

GERAN2#25	21-23 Jun 2005	Montréal
GERAN2#26	30 Aug-01 Sep 2005	Schaumburg
GERAN2#26bis	03-07 Oct 2005	TBD
GERAN2#27	08-10 Nov 2005	TBD

Quebec, Canada. 23rd - 27th May 2005.

Agenda item: 5.3.3

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Reason for chang	ye: ж∣	n cas	e of netw	vork-initiate	ed SCUDI	- suppo	ort in U	TRAN it s	hould	be possil	ole to
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	ć	an ap	propriate	message	that could	De Use	a for th	is indicati	on.		

Summary of change: # A new BSSAP message Channel Modify Request and a new Cause value Alternative Channel Configuration Requested is defined.

 Consequences if not approved:
 #
 The network-initiated SCUDIF procedures in inter-MSC scenarios are not supported.

Clauses affected:	策 1.1, 3.2, 3.2.1.75 (new), 3.2.2.1, 3.2.2.5					
Other specs affected:	ж	Y X	N X X	Other core specifications Test specifications O&M Specifications	ж	29.002, 29.010, 49.008
			X	O&M Specifications		

1.1 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] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 23.003: "Numbering, addressing and identification".
- [3] 3GPP TS 23.009: "Handover procedures".
- [3a] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".
- [4] (void)
- [5] 3GPP TS 43.059: "Functional stage 2 description of Location Services (LCS) in GERAN".
- [6] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".
- [7] (void).
- [8] (void).
- [9] (void).
- [10] (void).
- [11] (void).
- [12] (void).
- [13] (void).
- [14] (void).
- [15] (void).
- [16] 3GPP TS 48.002: "Base Station System Mobile-services Switching Centre (BSS-MSC) interface; Interface principles".
- [17] 3GPP TS 48.006: "Signalling transport mechanism specification for the Base Station System -Mobile-services Switching Centre (BSS-MSC) interface".
- [18] 3GPP TS 48.020: "Rate adaption on the Base Station System Mobile-services Switching Centre (BSS-MSC) interface".
- [18a] (void).
- [19] 3GPP TS 48.071: "Location Services (LCS); Serving Mobile Location Center Base Station System (SMLC-BSS) interface; Layer 3 specification".
- [19a] 3GPP TS 49.031: "Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)".
- [20] (void).

[21]	(void).
[22]	(void).
[23]	(void).
[24]	(void).
[25]	(void).
[26]	(void).
[27]	(void).
[28]	3GPP TS 52.021: "Network Management (NM) procedures and messages on the A-bis Interface".
[29]	(void).
[30]	(void).
[31]	3GPP TS 25.413: "UTRAN Iu Interface RANAP signalling".
[32]	3GPP TS 44.018: "Mobile radio interface layer 3 specification; Radio Resource Control Protocol".
[33]	3GPP TS 25.331: "Radio Resource Control (RRC) protocol specification".
[34]	(void).
[35]	(void).
[36]	(void).
[37]	ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
[38]	ITU-T Recommendation X.25: "Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit".
[39]	3GPP TS 43.020: "Security-related network functions".
[40]	3GPP TS 43.073: "Support of Localised Service Area (SoLSA); Stage 2".
[41]	3GPP TS 52.008: "Telecommunication management; GSM subscriber and equipment trace".
[42]	(void).
[43]	3GPP TS 45.002: "Multiplexing and multiple access on the radio path".
[44]	3GPP TS 26.103: "Speech codec list for GSM and UMTS".
[45]	3GPP TS 43.051: "GSM/EDGE Radio Access Network (GERAN) overall description; Stage 2".
[46]	3GPP TS 23.172: "Technical realization of Circuit Switched (CS) multimedia service UDI/RDI fallback and service modification; Stage 2".

3.2 Message Formats and Coding

This sub-clause defines the coding and format of the messages required for the BSSMAP.

For each message there is, in sub-clause 3.2.1, a table listing the signalling elements in their order of appearance in the transmitted message.

There is no general rule for the order of signalling elements: it happens that the same elements appear in various orders depending on the message.

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Message name	Reference
ASSIGNMENT REQUEST	3.2.1.1
ASSIGNMENT COMPLETE	3.2.1.2
ASSIGNMENT FAILURE	3.2.1.3
CHANNEL MODIFY REQUEST	<u>3.2.1.75</u>
BLOCK	3.2.1.4
BLOCKING ACKNOWLEDGE	3.2.1.5
CIRCUIT GROUP BLOCK	3.2.1.41
	3.2.1.42
	3.2.1.43
CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE	3.2.1.44 3.2.1.21
CLEAR COMMAND	3.2.1.21
CLEAR REQUEST	3.2.1.20
UNBLOCK	3.2.1.6
UNBLOCKING ACK	3.2.1.7
HANDOVER CANDIDATE ENQUIRE	3.2.1.14
HANDOVER CANDIDATE RESPONSE	3.2.1.15
HANDOVER REQUEST	3.2.1.8
HANDOVER REQUIRED	3.2.1.9
HANDOVER REQUIRED REJECT	3.2.1.37
HANDOVER REQUEST ACKNOWLEDGE	3.2.1.10
HANDOVER COMMAND	3.2.1.11
HANDOVER COMPLETE	3.2.1.12
HANDOVER SUCCEEDED	3.2.1.13
HANDOVER FAILURE	3.2.1.16
HANDOVER PERFORMED	3.2.1.25
HANDOVER DETECT	3.2.1.40
RESOURCE REQUEST	3.2.1.17
RESET	3.2.1.23
RESET ACK	3.2.1.24
RESOURCE INDICATION	3.2.1.18
PAGING	3.2.1.19
OVERLOAD	3.2.1.26
	3.2.1.27
BSS INVOKE TRACE CLASSMARK UPDATE	3.2.1.28 3.2.1.29
CLASSMARK OPDATE	3.2.1.29
CIPHER MODE COMMAND	3.2.1.30
CIPHER MODE COMPLETE	3.2.1.31
CIPHER MODE REJECT	3.2.1.48
COMPLETE LAYER 3 INFORMATION	3.2.1.32
QUEUING INDICATION	3.2.1.33
SAPI "N" REJECT	3.2.1.34
RESET CIRCUIT	3.2.1.38
RESET CIRCUIT ACKNOWLEDGE	3.2.1.39
CONFUSION	3.2.1.45
UNEQUIPPED CIRCUIT	3.2.1.47
LOAD INDICATION	3.2.1.49
VGCS/VBS SETUP	3.2.1.50
VGCS/VBS SETUP ACK	3.2.1.51
VGCS/VBS SETUP REFUSE	3.2.1.52
	3.2.1.53
VGCS/VBS ASSIGNMENT RESULT	3.2.1.54
	3.2.1.55
VGCS/VBS QUEUING INDICATION	3.2.1.56 3.2.1.57
UPLINK REQUEST UPLINK REQUEST ACKNOWLEDGE	3.2.1.57 3.2.1.58
UPLINK REQUEST ACKNOWLEDGE	3.2.1.59
UPLINK RELEASE INDICATION	3.2.1.60
UPLINK REJECT COMMAND	3.2.1.61
UPLINK RELEASE COMMAND	3.2.1.62
UPLINK SEIZED COMMAND	3.2.1.63
SUSPEND	3.2.1.64
RESUME	3.2.1.65
CHANGE CIRCUIT	3.2.1.66
CHANGE CIRCUIT ACKNOWLEDGE	3.2.1.67

Message name	Reference
COMMON ID	3.2.1.68
LSA INFORMATION	3.2.1.69
CONNECTION ORIENTED INFORMATION	3.2.1.70
PERFORM LOCATION REQUEST	3.2.1.71
PERFORM LOCATION RESPONSE	3.2.1.72
PERFORM LOCATION ABORT	3.2.1.73
CONNECTIONLESS INFORMATION	3.2.1.74

3.2.1.74 CONNECTIONLESS INFORMATION

This message is sent from the BSS to the MSC or from the MSC to the BSS. The MSC forwards the CONNECTIONLESS INFORMATION message to the BSS as to which cell is indicated in the message. The message is sent as a connectionless SCCP message.

INFORMATION E	ELEMENT	REFERENCE	DIRECTION	TYPE	LEN
Message Type		3.2.2.1	Both	М	1
Network Element Ider	ntity (source)	3.2.2.69	Both	М	3-n
Network Element Ider	ntity (target)	3.2.2.69	Both	М	3-n
APDU		3.2.2.68	Both	М	3-n
Segmentation		3.2,2,74	Both	C (note 1)	5
Return Error Request		3.2.2.72	Both	C (note 2)	3-n
Return Error Cause		3.2.2.73	Both	C (note 3)	3-n
NOTE 1: This IE is p					
	2: The IE is present when the source of a message requests for an error respons				
if the message cannot be delivered to its final destination. If this IE is present					sent,
		shall not be prese			
NOTE 3: The IE is present when an error is indicated that the message was not					
delivered to its final destination. If this IE is present, then Return Error Request					
shall not be	e present. Refe	er to 3GPP TS 49.	031 for cause value	ues	

3.2.1.75 CHANNEL MODIFY REQUEST

This message is sent from the BSS to the MSC via the relevant SCCP connection in order to request the MSC to start the assignment procedure for changing the channel configuration according to assignment procedure defined in 3GPP TS 23.172 and 3GPP TS 25.413.

INFORMATION ELEMENT	REFERENCE	DIRECTION	TYPE	LEN
Message Type	<u>3.2.2.1</u>	BSS-MSC	M	<u>1</u>
<u>Cause</u>	3.2.2.5	BSS-MSC	M	<u>3-4</u>

The following cause value is applicable to this message:

• Alternative channel configuration requested;

NOTE: In this version of the protocol this message is supported only on the MAP E-interface in case of networkinitiated SCUDIF 3GPP TS 23.172. With all other cause values the anchor MSC may ignore this message.

3.2.2.1 Message Type

Message Type uniquely identifies the message being sent. It is a single octet element, mandatory in all messages.

Bit 8 is reserved for future extension of the code set. All unassigned codes are spare.

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0000000 Reserved. ASSIGNMENT MESSAGES 0000001 ASSIGNMENT REQUEST ASSIGNMENT FAILURE 00000000 ASSIGNMENT FAILURE 00001000 CHANNEL MODIFY REQUEST MANDOVER MESSAGES 0001000 0001001 HANDOVER REQUEST 00010101 HANDOVER REQUEST 00010101 HANDOVER COMMAND 00010101 HANDOVER CANDIATE ENQUIRE 00011001 HANDOVER PERFORMED 00011001 HANDOVER REQUEST 00011001 HANDOVER REQUEST 0010000 CLEAR REQUEST 00100001 CLEAR REQUEST 00100000 SUSPEND		87654321	
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00100000 CLEAR COMMAND 00100010 CLEAR EQUEST 00100101 RESERVED 00100101 RESERVED 00100101 SAPI'N' REJECT 00100101 SUSPEND 00100101 RESURE 00100101 RESURE 00100101 RESURE 00100101 RESURE 001010101 RESURE 00101101 RESURE 00101101 RESURE 00101110 PERFORM LOCATION REQUEST 00101110 PERFORM LOCATION REQUEST 00101110 PERFORM LOCATION REQUEST 001011101 PERFORM LOCATION REQUEST 00101111 COMMON ID GENERAL MESSAGES 00101000 001110011 RESET CIRCUIT ACKNOWLEDGE 00110111		00011011	HANDOVER DETECT
00100001 CLEAR COMPLETE 00100011 CLEAR REQUEST 00100011 RESERVED 00100101 RESERVED 00100110 CONFUSION OTHER CONNECTION RELATED 0010100 MESSAGES 00101000 0010101 RESUME 00101010 SUSPEND 00101010 RESUME 00101010 RESUME 00101010 RESUME 00101010 RESUME 00101010 RESET 00101110 PERFORM LOCATION REQUEST 00101110 DERFORM LOCATION RESPONSE 00101110 PERFORM LOCATION RESPONSE 00101111 COMMON ID GENERAL MESSAGES 00110000 00110010 RESET 00110010 RESET CIRCUIT 00110010 RESET VED 00110010 RESET CIRCUIT 001110101 RESET CIRCUIT 001110110 RESET NOWLEDGE 001110101 RESET NOWLEDGE 001110101 RESET CIRCUIT 0	RELEASE MESSAGES		
00100010 CLEAR REQUEST 00100011 RESERVED 00100101 SAPI"N" REJECT 00100101 CONFUSION OTHER CONNECTION RELATED 00101010 MESSAGES 00101010 0010101 RESUME 00101010 RESUME 00101010 RESUME 00101010 RESUME 00101010 RESUME 00101010 RESUME 001010101 RESUME 00101101 LSA INFORMATION REQUEST 00101111 COMMON ID GENERAL MESSAGES 00110000 00110001 RESET 00110001 RESET CIRCUIT ACKNOWLEDGE 00110010 OVERLOAD 00110010 RESET CIRCUIT ACKNOWLEDGE 00110010 RESET CIRCUIT ACKNOWLEDGE 00110010 RESET CIRCUIT ACKNOWLEDGE 001110110 RESET CIRCUIT ACKNOWLEDGE 00111011 MSC INVOKE TRACE 00111011 BS INVOKE TRACE 001110010 UNBLOCK 01000001 BLOCKING ACKNOW			
00100011 RESERVED 00100100 RESERVED 00100100 RESERVED 00100100 SAPI"N" REJECT 00100100 SUSPEND 001010100 RESERVED 001001000 SUSPEND 00101000 RESUME 001010100 Reserved (See note) 001010100 Reserved (See note) 001010100 Reserved (See note) 00101100 LSA INFORMATION 00101110 PERFORM LOCATION REQUEST 00101110 LSA INFORMATION 00101111 COMMON ID GENERAL MESSAGES 00110000 00110000 RESET 00110010 RESET ACKNOWLEDGE 00110010 RESET CIRCUIT 00110010 RESET CIRCUIT 00110010 RESET CIRCUIT 00110101 RESET CIRCUIT 00111010 MSC INVOKE TRACE 00111010 MSC INVOKE TRACE 001110101 BLOCKING ACKNOWLEDGE 011000001 BLOCK ING ACKNOWLEDGE 010000010 UN			
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0 0 1 0 0 1 0 1 SAP! "N" REJECT 0 0 1 0 0 1 1 0 CONFUSION OTHER CONNECTION RELATED 0 0 1 0 1 0 0 0 MESSAGES 0 0 1 0 1 0 1 0 0 0 1 0 1 0 1 0 RESUME 0 0 1 0 1 0 1 0 RESUME 0 0 1 0 1 0 1 0 RESEVED (See note) 0 0 1 0 1 1 0 1 PERFORM LOCATION REQUEST 0 0 1 0 1 1 0 1 PERFORM LOCATION RESPONSE 0 0 1 0 1 1 1 0 PERFORM LOCATION RESPONSE 0 0 1 0 1 1 1 0 PERFORM LOCATION ABORT 0 0 1 0 1 1 1 1 COMMON ID GENERAL MESSAGES 0 0 1 1 0 0 0 0 0 1 1 0 0 1 RESET 0 0 1 1 0 0 1 RESET CIRCUIT ACKNOWLEDGE 0 0 1 1 0 1 0 RESET CIRCUIT ACKNOWLEDGE 0 0 1 1 0 1 0 RESET CIRCUIT ACKNOWLEDGE 0 0 1 1 0 1 0 RESET CIRCUIT ACKNOWLEDGE 0 1 1 0 0 1 0 0 MESSAGES 0 1 0 0 0 0 0 0 BLOCK 0 1 0 0 0 0 0 0 BLOCK 0 1 0 0 0 0 0 0 BLOCKING ACKNOWLEDGE 0 1 0 0 0 0 0 0 UNBLOCK 0 1 0 0 0 0 0 0 CIRCUIT GROUP BLOCKING ACKNOWLEDGE<			
OTHER CONNECTION RELATED MESSAGES 0 0 1 0 1 0 0 0 0 0 1 0 1 0 0 1 0 0 1 0 1			
MESSAGES 0 0 1 0 1 0 0 0 0 0 0 1 0 1 0 0 1 0 0 1 0 1		00100110	CONFUSION
00101000 SUSPEND 00101001 RESUME 00101010 Reserved (See note) 00101011 PERFORM LOCATION REQUEST 00101101 PERFORM LOCATION RESPONSE 00101110 PERFORM LOCATION ABORT 00101111 PERFORM LOCATION ABORT 00101111 PERFORM LOCATION ABORT 00101111 PERFORM LOCATION ABORT 001011111 RESET 00110000 RESET 00110010 RESET 00110010 RESET ACKNOWLEDGE 00110010 RESET CIRCUIT 00110101 RESET CIRCUIT 00110101 RESET CIRCUIT 0011011 RESET CIRCUIT 00110111 BSS INVOKE TRACE 001100000 BLOCK 01000000			
00101001 RESUME 00101010 Reserved (See note) 00101010 LSA INFORM LOCATION REQUEST 00101100 LSA INFORMATION 001011101 PERFORM LOCATION RESPONSE 00101110 PERFORM LOCATION ABORT 00101110 PERFORM LOCATION ABORT 00101110 PERFORM LOCATION ABORT 00101111 COMMON ID GENERAL MESSAGES 00110000 00110000 RESET 00110010 RESET 00110010 RESET 00110101 RESET CIRCUIT 00110101 RESET CIRCUIT 00110101 RESET CIRCUIT 00110101 RESET CIRCUIT ACKNOWLEDGE 00110110 MESET CIRCUIT ACKNOWLEDGE 00110111 BSS INVOKE TRACE 001100000 BLOCK 01000000 BLOCK ING ACKNOWLEDGE 01000010 UNBLOCK 01000010 UNBLOCK 01000010 UNBLOCK 01000010 CIRCUIT GROUP BLOCK 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE	MESSAGES	00101000	SUSPEND
001010101Reserved (See note)001010101PERFORM LOCATION REQUEST00101101PERFORM LOCATION RESPONSE001011101PERFORM LOCATION ABORT001011111COMMON IDGENERAL MESSAGES0011000000110101RESET00110001RESET ACKNOWLEDGE0011011RESET CIRCUIT0011011RESET CIRCUIT0011011RESET CIRCUIT0011011RESET CIRCUIT0011011RESET CIRCUIT ACKNOWLEDGE0011011RESET CIRCUIT ACKNOWLEDGE00110111BSS INVOKE TRACE00110111BSS INVOKE TRACE00111010RESET CIRCUIT ACKNOWLEDGE00110111BSS INVOKE TRACE00110111BSS INVOKE TRACE001100000BLOCK01000001BLOCKING ACKNOWLEDGE01000010UNBLOCK01000111UNBLOCKING ACKNOWLEDGE01000100CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP UNBLOCKING01000110CIRCUIT GROUP UNBLOCKING01001100CIRCUIT GROUP UNBLOCKING01001100CIRCUIT GROUP UNBLOCKING01000111CIRCUIT GROUP UNBLOCKING01000111CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING01001110CHANGE CIRCUIT01001110CHANGE CIRCUIT </td <td></td> <td></td> <td></td>			
00101011PERFORM LOCATION REQUEST 0010110000101100LSA INFORMATION PERFORM LOCATION RESPONSE 00101111000101110PERFORM LOCATION RESPONSE 001011111GENERAL MESSAGES00110000 00110001 00110001GENERAL MESSAGES00110000 00110010GENERAL MESSAGES00110000 00110011 00110010RESET 00110011 00110011 RESET ACKNOWLEDGE 00110011 00110101 00110011 RESET CIRCUIT 00110101 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 00110101 RESET CIRCUIT ACKNOWLEDGE 00110110 DONNECTIONLESS INFORMATIONTERRESTRIAL RESOURCE MESSAGES01000000 0100001 BLOCK 0100001 DIBLOCKING ACKNOWLEDGE DID00010 DINBLOCK DID00011 DID00011 DID000011 DID000011 DID000011 DID000011 DID000011 DID000011 DID000001 DID000001 DID000001 DID000001 DID000001 DID000001 DID000001 DID000001 DID000001 DID000001 DID00000000000000 DID00000000000000000000000000000000000			
00101101 00101111PERFORM LOCATION RESPONSE PERFORM LOCATION ABORT 001011111GENERAL MESSAGES00110000 00110001 00110001 RESET 00110001 00110010RESET RESET ACKNOWLEDGE 00110010 00110010 RESET CIRCUIT 00110101 RESET CIRCUIT 00110101 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 RESET CIRCUIT ACKNOWLEDGE 00110010 RESET CIRCUIT ACKNOWLEDGE 00110010000 RESET CIRCUIT ACKNOWLEDGE 01000000 RESET CIRCUIT ACKNOWLEDGE 01000000 RESET CIRCUIT GROUP BLOCK 01000101 CIRCUIT GROUP BLOCK 01000101 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 010011110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 010		00101011	
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001011111 COMMON ID GENERAL MESSAGES 00110000 RESET 00110001 RESET ACKNOWLEDGE 00110010 OVERLOAD 00110011 RESET ACKNOWLEDGE 00110010 OVERLOAD 00110011 RESET CIRCUIT 00110101 RESET CIRCUIT ACKNOWLEDGE 00110110 RESET CIRCUIT ACKNOWLEDGE 00110111 RESET CIRCUIT ACKNOWLEDGE 00111011 RESET CIRCUIT ACKNOWLEDGE 00111011 RESET CIRCUIT GOUP BLOCK 01000000 BLOCK 01000010 UNBLOCKING ACKNOWLEDGE 01000010 UNBLOCK 01000101 CIRCUIT GROUP BLOCK 01000101 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001010 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT			
GENERAL MESSAGES 0 0 1 1 0 0 0 0 0 0 1 1 0 0 0 1 0 0 1 1 0 0 0 1 0 0 1 1 0 0 10 0 0 1 1 0 1 0			
00110000 RESET 00110001 RESET ACKNOWLEDGE 00110010 OVERLOAD 00110011 RESERVED 00110101 RESET CIRCUIT 00110101 RESET CIRCUIT ACKNOWLEDGE 00110101 RESET CIRCUIT ACKNOWLEDGE 00110110 MSC INVOKE TRACE 00110111 BSS INVOKE TRACE 00111011 BSS INVOKE TRACE 00110010 CONNECTIONLESS INFORMATION	GENERAL MESSAGES	00101111	
00110010OVERLOAD00110011RESERVED00110100RESET CIRCUIT00110101RESET CIRCUIT ACKNOWLEDGE00110110MSC INVOKE TRACE00110111BSS INVOKE TRACE00111010CONNECTIONLESS INFORMATIONTERRESTRIAL RESOURCEMESSAGES010000000100000BLOCK01000010UNBLOCK01000011UNBLOCK01000011UNBLOCK01000011CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK010001111CIRCUIT GROUP UNBLOCK010001111CIRCUIT GROUP UNBLOCK010001111CIRCUIT GROUP UNBLOCK010001111CIRCUIT GROUP UNBLOCK010011110CIRCUIT GROUP UNBLOCK		00110000	RESET
00110011RESERVED00110100RESET CIRCUIT00110101RESET CIRCUIT ACKNOWLEDGE00110110MSC INVOKE TRACE00110111BSS INVOKE TRACE00111010CONNECTIONLESS INFORMATIONTERRESTRIAL RESOURCE01000000MESSAGES0100000001000001BLOCK01000010UNBLOCK01000011UNBLOCK01000011UNBLOCK01000011CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK010001111CIRCUIT GROUP UNBLOCK010001111CIRCUIT GROUP UNBLOCK01001111CIRCUIT GROUP UNBLOCK01001111CIRCUIT GROUP UNBLOCK01001111CIRCUIT GROUP UNBLOCK01001111CIRCUIT GROUP UNBLOCK01001111CIRCUIT GROUP UNBLOCK		00110001	
00110100RESET CIRCUIT00110101RESET CIRCUIT ACKNOWLEDGE00110110MSC INVOKE TRACE00110111BSS INVOKE TRACE00111010CONNECTIONLESS INFORMATIONTERRESTRIAL RESOURCE01000000MESSAGESBLOCK01000001BLOCKING ACKNOWLEDGE01000010UNBLOCK01000011UNBLOCKING ACKNOWLEDGE01000101CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01001111CIRCUIT GROUP UNBLOCK01001111CIRCUIT GROUP UNBLOCKING01001111CIRCUIT GROUP UNBLOCKING010011110CHANGE CIRCUIT			
0 0 1 1 0 1 0 1 0 0 1 1 0 1 0 1RESET CIRCUIT ACKNOWLEDGE MSC INVOKE TRACE 0 0 1 1 0 1 1 1 0 0 0 1 1 0 1 0 1TERRESTRIAL RESOURCE MESSAGES0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 1 0			
00110110MSC INVOKE TRACE00110111BSS INVOKE TRACE00111010CONNECTIONLESS INFORMATIONTERRESTRIAL RESOURCE0100000MESSAGES0100000001000001BLOCK01000010UNBLOCK01000011UNBLOCK01000101CIRCUIT GROUP BLOCK01000101CIRCUIT GROUP BLOCK010001101CIRCUIT GROUP BLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01000111CIRCUIT GROUP UNBLOCK01001110CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING010011110CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING01001110CIRCUIT GROUP UNBLOCKING010010100UNEQUIPPED CIRCUIT01001110CHANGE CIRCUIT			
0 0 1 1 0 1 1 1 0 0 1 1 1 0 1 0BSS INVOKE TRACE CONNECTIONLESS INFORMATIONTERRESTRIAL RESOURCE MESSAGES0 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0BLOCK 0 1 0 0 0 0 0 00 1 0 0 0 0 0 0 0 1 0 0 0 0 0 1BLOCKING ACKNOWLEDGE 0 1 0 0 0 0 1 0BLOCKING ACKNOWLEDGE 0 1 0 0 0 0 1 00 1 0 0 0 0 1 0 0 1 0 0 0 0 1 1UNBLOCK 0 1 0 0 0 0 1 1UNBLOCKING ACKNOWLEDGE 0 1 0 0 0 1 00 1 0 0 0 1 0 0 0 1 0 0 0 1 0 1CIRCUIT GROUP BLOCK 0 1 0 0 0 1 0 10 1 0 0 0 1 1 1CIRCUIT GROUP UNBLOCK 0 1 0 0 0 1 1 10 1 0 0 1 0 0 0 0 1 1 1CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 0 1 0 0 1 0 00 1 0 0 1 0 0 0UNEQUIPPED CIRCUIT 0 1 0 0 1 1 10 1 0 0 1 1 1 0CHANGE CIRCUIT			
00111010CONNECTIONLESS INFORMATIONTERRESTRIAL RESOURCE MESSAGES0100000BLOCK 01000000100000BLOCK 0100001BLOCKING ACKNOWLEDGE 0100001001000010UNBLOCK 01000110100011UNBLOCKING ACKNOWLEDGE 0100010001000100CIRCUIT GROUP BLOCK 0100010101000110CIRCUIT GROUP BLOCKING ACKNOWLEDGE 01000110101000111CIRCUIT GROUP UNBLOCK 01000111001001100UNEQUIPPED CIRCUIT 0100111001001110CIRCUIT CHANGE CIRCUIT			
MESSAGES 0100000 BLOCK 01000001 BLOCKING ACKNOWLEDGE 01000010 01000010 UNBLOCK 01000011 01000011 UNBLOCKING ACKNOWLEDGE 01000010 01000011 UNBLOCKING ACKNOWLEDGE 01000100 01000101 CIRCUIT GROUP BLOCK 01000101 01000110 CIRCUIT GROUP UNBLOCK 01000110 01000111 CIRCUIT GROUP UNBLOCK 01000111 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 010001110 010001110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 010001111			
0100000 BLOCK 0100001 BLOCKING ACKNOWLEDGE 01000010 UNBLOCK 01000011 UNBLOCKING ACKNOWLEDGE 01000100 CIRCUIT GROUP BLOCK 01000101 CIRCUIT GROUP BLOCK 01000101 CIRCUIT GROUP BLOCKING ACKNOWLEDGE 010001101 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE			
0100001 BLOCKING ACKNOWLEDGE 01000010 UNBLOCK 01000011 UNBLOCKING ACKNOWLEDGE 01000100 CIRCUIT GROUP BLOCK 01000101 CIRCUIT GROUP BLOCKING ACKNOWLEDGE 01000101 CIRCUIT GROUP UNBLOCK 01000110 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 0100100 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT	MESSAGES	01000000	PL OCK
01000010 UNBLOCK 01000011 UNBLOCKING ACKNOWLEDGE 01000100 CIRCUIT GROUP BLOCK 01000101 CIRCUIT GROUP BLOCKING ACKNOWLEDGE 01000110 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01000110 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001000 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT			
0100011 UNBLOCKING ACKNOWLEDGE 01000100 CIRCUIT GROUP BLOCK 01000101 CIRCUIT GROUP BLOCKING ACKNOWLEDGE 01000110 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001000 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT			
01000100 01000101 01000101 CIRCUIT GROUP BLOCK 01000110 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCK 01001111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001000 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT			
01000110 CIRCUIT GROUP UNBLOCK 01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001000 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT			CIRCUIT GROUP BLOCK
01000111 CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE 01001000 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT			
ACKNOWLEDGE 01001000 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT			
01001000 UNEQUIPPED CIRCUIT 01001110 CHANGE CIRCUIT		01000111	
01001110 CHANGE CIRCUIT		01001000	
01001111 CHANGE CIRCUIT ACKNOWLEDGE			CHANGE CIRCUIT ACKNOWLEDGE

	87654321	
RADIO RESOURCE MESSAGES		
	01010000	RESOURCE REQUEST
	01010001	RESOURCE INDICATION
	01010010	PAGING
	01010011	CIPHER MODE COMMAND
	01010100	CLASSMARK UPDATE
	01010101	CIPHER MODE COMPLETE
	01010110	QUEUING INDICATION
	01010111	COMPLETE LAYER 3 INFORMATION
	01011000	CLASSMARK REQUEST
	01011001	CIPHER MODE REJECT
	01011010	LOAD INDICATION
VGCS/VBS		
	00000100	VGCS/VBS SETUP
	00000101	VGCS/VBS SETUP ACK
	00000110	VGCS/VBS SETUP REFUSE
	00000111	VGCS/VBS ASSIGNMENT REQUEST
	00011100	VGCS/VBS ASSIGNMENT RESULT
	00011101	VGCS/VBS ASSIGNMENT FAILURE
	00011110	VGCS/VBS QUEUING INDICATION
	00011111	UPLINK REQUEST
	00100111	UPLINK REQUEST ACKNOWLEDGE
	01001001	UPLINK REQUEST CONFIRMATION
	01001010	UPLINK RELEASE INDICATION
	01001011	UPLINK REJECT COMMAND
	01001100	
	01001101	
NOTE: This value was allocated in a	n earlier phase of th	ne protocol and shall not be used in the future.

3.2.2.5 Cause

The cause element is used to indicate the reason for a particular event to have occurred and is coded as shown below.

The cause value is a single octet element if the extension bit (bit 8) is set to 0. If it is set to 1 then the cause value is a 2 octet field. If the value of the first octet of the cause field is 1XXX 0000 then the second octet is reserved for national applications (XXX will still indicate the class).

8	7	6	5	4	3	2	1			
	Element identifier									
	Length									
0/1 ext	0/1 ext Cause Value									

The length indicator is a binary representation of the length of the following element.

Cause Value:

Class (000):	Normal event
Class (001):	Normal event
Class (010):	Resource unavailable
Class (011):	Service or option not available
Class (100):	Service or option not implemented
Class (101):	invalid message (eg parameter out of range)
Class (110):	protocol error
Class (111):	interworking

In the following table, "reserved for international use" means that this codepoint should not be used until a meaning has been assigned to it following the process of international standardisation. "Reserved for national use" indicates codepoints that may be used by operators without the need for international standardization.

	Cause value		Cause						
-	las	-		Val			Number		
7		5	4		2				
0	0	0	0	0	0	0		Radio interface message failure	
0	0	0	0	0	0	1		Radio interface failure	
0	0	0	0	0	1	0		Uplink quality	
0	0	0	0	0	1	1		Uplink strength	
0	0	0	0	1	0	0		Downlink quality	
0	0	0	0	1	0	1		Downlink strength	
0	0	0	0	1	1	0		Distance	
0	0	0	0	1	1	1		O and M intervention	
0	0	0	1	0	0	0		Response to MSC invocation	
0	0	0	1	0	0	1		Call control	
0	0	0	1	0	1	0		Radio interface failure, reversion to old channel	
0	0	0	1	0	1	1		Handover successful	
0	0	0	1	1	0	0		Better Cell	
0	0	0	1	1	0	1		Directed Retry	
0	0	0	1	1	1	0		Joined group call channel	
0	0	0	1	1	1	1		Traffic	
0	0	1	0	0	0	0		Reduce load in serving cell	
0	0	1	0	0	0	1		Traffic load in target cell higher than in source cell	
0	0	1	0	0	1	0		Relocation triggered NOTE	
0	0	1	0	0	1	1		Alternative channel configuration requested NOTE	
<u>0</u>	<u>0</u>		<u>0</u>	1	<u>0</u>	<u>1</u>		}	
_	~	to 1						} Reserved for international use	
0	0			1	1	1		}	
0	0	1	1	0	0	0		}	
0	~	to 1		4	4	4		} Reserved for national use	
0	0	0	1	1 0	1 0	1 0		}	
0	1			0	0	1		Equipment failure No radio resource available	
0	1	0	0		1	0			
-		-		0	1			Requested terrestrial resource unavailable	
0	1	0	0	0		1		CCCH overload	
0	1	0	0	1 1	0 0	1		Processor overload	
0	1	0	0	1	1	0		BSS not equipped MS not equipped	
0	1	0	0	1	1	1		Invalid cell	
0	1	0	1	0	0	0		Traffic Load	
0	1	0	1	0	0	1		Preemption	
0	1	0		0	1	0			
0		t		0	1	0		Figure 1 A second se	
0	1	0	, 1	1	1	1			
0	1	1	0	0	0	0		Requested transcoding/rate adaption unavailable	
0	1	1	0	0	0	1		Circuit pool mismatch	
0	1	1	0	0	1	0		Switch circuit pool	
0	1	1	0	0	1	1		Requested speech version unavailable	
0	1	1	0	1	0	0		LSA not allowed	
0	1	1		1	0	1		}	
Ŭ	'	to		•	J	•		F Reserved for international use	
0	1	1	1	1	1	1		}	
1	0	0	0	0	0	0		Ciphering algorithm not supported	
1	0	0	0	0	0	1		GERAN lu-mode failure	
1	0	0	0	0	1	0		Incoming Relocation Not Supported Due To PUESBINE	
		-	-	-		-		Feature	
1	0	0	0	0	1	1		Access Restricted Due to Shared Networks NOTE	
1	0		0	1	0	0		}	
		to						Seserved for international use	
1	0	0	0	1	1	1		}	
1	0	0	1	0	0	0		}	
		to						Reserved for national use	
1	0	0	1	1	1	1		}	
1	0	1	0	0	0	0		Terrestrial circuit already allocated	
1	0	1	0	0	0	1		Invalid message contents	
1	0	1	0	0	1	0		Information element or field missing	
1	0	1	0	0	1	1		Incorrect value	

Cause value		Cause							
C	Class Value		Number						
1	0	1	0	1	0	0		Unknown Message type	
1	0	1	0	1	0	1		Unknown Information Element	
1	0	1	0	1	1	0		}	
		te	О					} Reserved for international use	
1	0	1	0	1	1	1		}	
1	0	1	1	0	0	0		}	
		te	С					} Reserved for national use	
1	0	1	1	1	1	1		}	
1	1	0	0	0	0	0		Protocol Error between BSS and MSC	
1	1	0	0	0	0	1		VGCS/VBS call non existent	
1	1	0	0	0	1	0		}	
		te	О					} Reserved for international use	
1	1	0	0	1	1	1		}	
1	1	0	1	0	0	0		}	
		te	О					} Reserved for national use	
1	1	0	1	1	1	1		}	
1	1	1	0	0	0	0		}	
		te	С					} Reserved for international use	
1	1	1	0	1	1	1		}	
1	1	1	1	0	0	0		}	
		te	С					} Reserved for national use	
1	1	1	1	1	1	1		}	
N	OTE		Th	is c	aus	e va	alue is only s	sent by 3G_MSC-B over the MAP/E interface.	

3GPP TSG-GERAN WG2 Meeting #24bis Quebec, Canada. 23rd - 27th May 2005. **Tdoc #G2-050337** CR-Form-v7.1 **CHANGE REQUEST** ж 2 ^{# Current version:} 7.0.0 161 48.008 CR ж жrev For <u>HELP</u> on using this form, see bottom of this page or look at the pop-up text over the **#** symbols. UICC apps # Radio Access Network Core Network X Proposed change affects: ME Title: Network-initiated SCUDIF on MAP/E-interface in case of BSSAP ж Source: ж Nokia

Work item code: ℜ	TEI-6	Date: ೫	23/05/2005
	A Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in a. B (addition of feature), C (functional modification of feature D (editorial modification) Detailed explanations of the above catego be found in 3GPP <u>TR 21.900</u> .	Ph2 n earlier release) R96 R97 e) R98 R99 Jories can Rel-4	Rel-7 the following releases: (GSM Phase 2) (Release 1996) (Release 1997) (Release 1998) (Release 1999) (Release 4) (Release 5) (Release 6) (Release 7)

Reason for change: 米	In case of network-initiated SCUDIF support in UTRAN it should be possible to send from non-anchor MSC towards anchor MSC over MAP E-interface an indication about conditions for service change becoming suitable. That indication needs to be sent also between MSCs when BSSAP is used over MAP E-interface.
	In case of RANAP this indication is sent by re-using RAB MODIFY REQUEST message with a new optional IE indicating to the MSC the existence of suitable conditions for a service change. When RANAP is used over the MAP E-interface that message is sent from the non-anchor MSC to the anchor MSC inside AN-APDU.
	On the MAP E-interface currently the AN-APDU containing an access network protocol message is mandatory. However in BSSAP there does not currently exist an appropriate message that could be used for this indication.
Summary of change: #	A new BSSAP message Channel Modify Request and a new Cause value Alternative Channel Configuration Requested are defined.
Consequences if # not approved:	The network-initiated SCUDIF procedures in inter-MSC scenarios are not supported.
Clauses affected: #	1.1, 3.2, 3.2.1.75 (new), 3.2.2.1, 3.2.2.5
	1.1, 0.2, 0.2.1.10 (HEW), 0.2.2.1, 0.2.2.0
Other specs ೫ affected:	YNXOther core specifications#X29.002, 29.010, 49.008XTest specificationsXO&M Specifications

Other comments: ೫

1.1 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] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 23.003: "Numbering, addressing and identification".
- [3] 3GPP TS 23.009: "Handover procedures".
- [3a] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".
- [4] (void)
- [5] 3GPP TS 43.059: "Functional stage 2 description of Location Services (LCS) in GERAN".
- [6] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".
- [7] (void).
- [8] (void).
- [9] (void).
- [10] (void).
- [11] (void).
- [12] (void).
- [13] (void).
- [14] (void).
- [15] (void).
- [16] 3GPP TS 48.002: "Base Station System Mobile-services Switching Centre (BSS-MSC) interface; Interface principles".
- [17] 3GPP TS 48.006: "Signalling transport mechanism specification for the Base Station System -Mobile-services Switching Centre (BSS-MSC) interface".
- [18] 3GPP TS 48.020: "Rate adaption on the Base Station System Mobile-services Switching Centre (BSS-MSC) interface".
- [18a] (void).
- [19] 3GPP TS 48.071: "Location Services (LCS); Serving Mobile Location Center Base Station System (SMLC-BSS) interface; Layer 3 specification".

[19a]	3GPP TS 49.031: "Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)".
[20]	(void).
[21]	(void).
[22]	(void).
[23]	(void).
[24]	(void).
[25]	(void).
[26]	(void).
[27]	(void).
[28]	3GPP TS 52.021: "Network Management (NM) procedures and messages on the A-bis Interface".
[29]	(void).
[30]	(void).
[31]	3GPP TS 25.413: "UTRAN Iu Interface RANAP signalling".
[32]	3GPP TS 44.018: "Mobile radio interface layer 3 specification; Radio Resource Control Protocol".
[33]	3GPP TS 25.331: "Radio Resource Control (RRC) protocol specification".
[34]	(void).
[35]	(void).
[36]	(void).
[37]	ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
[38]	ITU-T Recommendation X.25: "Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit".
[39]	3GPP TS 43.020: "Security-related network functions".
[40]	3GPP TS 43.073: "Support of Localised Service Area (SoLSA); Stage 2".
[41]	3GPP TS 52.008: "Telecommunication management; GSM subscriber and equipment trace".
[42]	(void).
[43]	3GPP TS 45.002: "Multiplexing and multiple access on the radio path".
[44]	3GPP TS 26.103: "Speech codec list for GSM and UMTS".
[45]	3GPP TS 43.051: "GSM/EDGE Radio Access Network (GERAN) overall description; Stage 2".
[46]	<u>3GPP TS 23.172: "Technical realization of Circuit Switched (CS) multimedia service UDI/RDI</u> <u>fallback and service modification; Stage 2".</u>

3.2 Message Formats and Coding

This sub-clause defines the coding and format of the messages required for the BSSMAP.

For each message there is, in sub-clause 3.2.1, a table listing the signalling elements in their order of appearance in the transmitted message.

There is no general rule for the order of signalling elements: it happens that the same elements appear in various orders depending on the message.

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All the BSSMAP messages are listed in the following table.

Message name	Reference
ASSIGNMENT REQUEST	3.2.1.1
ASSIGNMENT COMPLETE	3.2.1.2
ASSIGNMENT FAILURE	3.2.1.3
CHANNEL MODIFY REQUEST	3.2.1.75
BLOCK	3.2.1.4
BLOCKING ACKNOWLEDGE	3.2.1.5
CIRCUIT GROUP BLOCK	3.2.1.41
CIRCUIT GROUP BLOCKING ACKNOWLEDGE	3.2.1.42
CIRCUIT GROUP UNBLOCK	3.2.1.43
CIRCUIT GROUP UNBLOCKING ACKNOWLEDGE	3.2.1.44
CLEAR COMMAND	3.2.1.21
CLEAR COMPLETE	3.2.1.22
CLEAR REQUEST	3.2.1.20
UNBLOCK	3.2.1.6
	3.2.1.7
HANDOVER CANDIDATE ENQUIRE	3.2.1.14
HANDOVER CANDIDATE ENGOINE	3.2.1.15
HANDOVER REQUEST	3.2.1.8
HANDOVER REQUEST	3.2.1.9
HANDOVER REQUIRED REJECT	3.2.1.9
HANDOVER REQUIRED REJECT	3.2.1.37
	3.2.1.10
HANDOVER COMMAND HANDOVER COMPLETE	3.2.1.11
HANDOVER COMPLETE	3.2.1.12
	3.2.1.13
	3.2.1.25
	3.2.1.40
	3.2.1.17
RESET	3.2.1.23
	3.2.1.24
RESOURCE INDICATION	3.2.1.18
PAGING	3.2.1.19
	3.2.1.26
MSC INVOKE TRACE BSS INVOKE TRACE	3.2.1.27
	3.2.1.28
	3.2.1.29
	3.2.1.46
	3.2.1.30
	3.2.1.31
	3.2.1.48
	3.2.1.32
	3.2.1.33
	3.2.1.34
	3.2.1.38
	3.2.1.39
	3.2.1.45
	3.2.1.47
	3.2.1.49
	3.2.1.50
	3.2.1.51
	3.2.1.52
	3.2.1.53
	3.2.1.54
	3.2.1.55
	3.2.1.56
	3.2.1.57
	3.2.1.58
	3.2.1.59
UPLINK RELEASE INDICATION	3.2.1.60
	3.2.1.61
UPLINK RELEASE COMMAND	3.2.1.62 3.2.1.63
UPLINK SEIZED COMMAND	

Message name	Reference
SUSPEND	3.2.1.64
RESUME	3.2.1.65
CHANGE CIRCUIT	3.2.1.66
CHANGE CIRCUIT ACKNOWLEDGE	3.2.1.67
COMMON ID	3.2.1.68
LSA INFORMATION	3.2.1.69
CONNECTION ORIENTED INFORMATION	3.2.1.70
PERFORM LOCATION REQUEST	3.2.1.71
PERFORM LOCATION RESPONSE	3.2.1.72
PERFORM LOCATION ABORT	3.2.1.73
CONNECTIONLESS INFORMATION	3.2.1.74

3.2.1.74 CONNECTIONLESS INFORMATION

This message is sent from the BSS to the MSC or from the MSC to the BSS. The MSC forwards the CONNECTIONLESS INFORMATION message to the BSS as to which cell is indicated in the message. The message is sent as a connectionless SCCP message.

INFORMATION ELEMENT	REFERENCE	DIRECTION	TYPE	LEN	
Message Type	3.2.2.1	Both	М	1	
Network Element Identity (source)	3.2.2.69	Both	М	3-n	
Network Element Identity (target)	3.2.2.69	Both	М	3-n	
APDU	3.2.2.68	Both	М	3-n	
Segmentation	3.2,2,74	Both	C (note 1)	5	
Return Error Request	3.2.2.72	Both	C (note 2)	3-n	
Return Error Cause	3.2.2.73	Both	C (note 3)	3-n	
NOTE 1: This IE is present if and					
NOTE 2: The IE is present when the					
if the message cannot b			his IE is pre	sent,	
then Return Error Cause					
NOTE 3: The IE is present when a	d that the messag	e was not			
delivered to its final destination. If this IE is present, then Return Error Reque					
shall not be present. Re	fer to 3GPP TS 49.	.031 for cause val	ues		

3.2.1.75 CHANNEL MODIFY REQUEST

This message is sent from the BSS to the MSC via the relevant SCCP connection in order to request the MSC to start the assignment procedure for changing the channel configuration according to assignment procedure defined in 3GPP TS 23.172 and 3GPP TS 25.413.

INFORMATION ELEMENT	REFERENCE	DIRECTION	TYPE	LEN
Message Type	<u>3.2.2.1</u>	BSS-MSC	M	<u>1</u>
Cause	3.2.2.5	BSS-MSC	M	<u>3-4</u>

The following cause value is applicable to this message:

• Alternative channel configuration requested;

<u>NOTE:</u> In this version of the protocol this message is supported only on the MAP E-interface in case of networkinitiated SCUDIF 3GPP TS 23.172. With all other cause values the anchor MSC may ignore this message.

Error! No text of specified style in document.

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3.2.2.1 Message Type

1

Message Type uniquely identifies the message being sent. It is a single octet element, mandatory in all messages.

Bit 8 is reserved for future extension of the code set. All unassigned codes are spare.

	87654321	
	00000000	Reserved.
ASSIGNMENT MESSAGES		
	00000001	ASSIGNMENT REQUEST
	00000010 00000011	ASSIGNMENT COMPLETE ASSIGNMENT FAILURE
	00001000	CHANNEL MODIFY REQUEST
HANDOVER MESSAGES	00001000	
	00010000	HANDOVER REQUEST
	00010001	HANDOVER REQUIRED
	00010010	HANDOVER REQUEST ACKNOWLEDGE
	00010011 00010100	HANDOVER COMMAND HANDOVER COMPLETE
	00010101	HANDOVER SUCCEEDED
	00010110	HANDOVER FAILURE
	00010111	HANDOVER PERFORMED
	00011000	HANDOVER CANDIDATE ENQUIRE
	00011001	HANDOVER CANDIDATE RESPONSE
	00011010 00011011	HANDOVER REQUIRED REJECT HANDOVER DETECT
RELEASE MESSAGES	00011011	
	00100000	CLEAR COMMAND
	00100001	CLEAR COMPLETE
	00100010	CLEAR REQUEST
	00100011	RESERVED
	00100100 00100101	RESERVED SAPI "N" REJECT
	00100110	CONFUSION
OTHER CONNECTION RELATED MESSAGES		
	00101000	SUSPEND
	00101001	RESUME
	00101010 00101011	Reserved (See note) PERFORM LOCATION REQUEST
	00101100	LSA INFORMATION
	00101101	PERFORM LOCATION RESPONSE
	00101110	PERFORM LOCATION ABORT
	00101111	COMMON ID
GENERAL MESSAGES	00110000	RESET
	00110001	RESET ACKNOWLEDGE
	00110010	OVERLOAD
	00110011	RESERVED
	00110100	
	00110101 00110110	RESET CIRCUIT ACKNOWLEDGE
	00110111	BSS INVOKE TRACE
	00111010	CONNECTIONLESS INFORMATION
TERRESTRIAL RESOURCE MESSAGES		
	0100000	BLOCK
	01000001	
	01000010 01000011	UNBLOCK UNBLOCKING ACKNOWLEDGE
	01000100	CIRCUIT GROUP BLOCK
	01000101	CIRCUIT GROUP BLOCKING ACKNOWLEDGE
	01000110	CIRCUIT GROUP UNBLOCK
	01000111	CIRCUIT GROUP UNBLOCKING
	04004000	
	01001000 01001110	UNEQUIPPED CIRCUIT CHANGE CIRCUIT
	01001111	CHANGE CIRCUIT ACKNOWLEDGE

	87654321	
RADIO RESOURCE MESSAGES		
	01010000	RESOURCE REQUEST
	01010001	RESOURCE INDICATION
	01010010	PAGING
	01010011	CIPHER MODE COMMAND
	01010100	CLASSMARK UPDATE
	01010101	CIPHER MODE COMPLETE
	01010110	QUEUING INDICATION
	01010111	COMPLETE LAYER 3 INFORMATION
	01011000	CLASSMARK REQUEST
	01011001	CIPHER MODE REJECT
	01011010	LOAD INDICATION
VGCS/VBS		
	00000100	VGCS/VBS SETUP
	00000101	VGCS/VBS SETUP ACK
	00000110	VGCS/VBS SETUP REFUSE
	00000111	VGCS/VBS ASSIGNMENT REQUEST
	00011100	VGCS/VBS ASSIGNMENT RESULT
	00011101	VGCS/VBS ASSIGNMENT FAILURE
	00011110	VGCS/VBS QUEUING INDICATION
	00011111	UPLINK REQUEST
	00100111	UPLINK REQUEST ACKNOWLEDGE
	01001001	UPLINK REQUEST CONFIRMATION
	01001010	UPLINK RELEASE INDICATION
	01001011	UPLINK REJECT COMMAND
	01001100	
	01001101	UPLINK SEIZED COMMAND
NOTE: This value was allocated in ar	n earlier phase of th	ne protocol and shall not be used in the future.

3.2.2.5 Cause

The cause element is used to indicate the reason for a particular event to have occurred and is coded as shown below.

The cause value is a single octet element if the extension bit (bit 8) is set to 0. If it is set to 1 then the cause value is a 2 octet field. If the value of the first octet of the cause field is 1XXX 0000 then the second octet is reserved for national applications (XXX will still indicate the class).

8	7	7 6 5 4 3 2								
	Element identifier									
	octet 2									
0/1 ext	D/1 ext Cause Value									

The length indicator is a binary representation of the length of the following element.

Cause Value:

Class (000):	Normal event
Class (001):	Normal event
Class (010):	Resource unavailable
Class (011):	Service or option not available
Class (100):	Service or option not implemented
Class (101):	invalid message (eg parameter out of range)
Class (110):	protocol error
Class (111):	interworking

In the following table, "reserved for international use" means that this codepoint should not be used until a meaning has been assigned to it following the process of international standardisation. "Reserved for national use" indicates codepoints that may be used by operators without the need for international standardization.

	Cause value Cause				Cause			
C	Class Value		Number					
7		5	4		2			
0	0	0	0	0	0	0		Radio interface message failure
0	0	0	0	0	0	1		Radio interface failure
0	0	0	0	0	1	0		Uplink quality
0	0	0	0	0	1			Uplink strength
0	0	0	0	1	0	0		Downlink quality Downlink strength
0	0	0	0	1	1	0		Distance
0	0	0	0	1	1	1		O and M intervention
0	0	0	1	0	0	0		Response to MSC invocation
0	0	0	1	0	0	1		Call control
0	0	0	1	0	1	0		Radio interface failure, reversion to old channel
0	0	0	1	0	1	1		Handover successful
0	0	0	1	1	0	0		Better Cell
0	0	0	1	1	0	1		Directed Retry
0	0	0	1	1	1	0		Joined group call channel
0	0	0	1	1	1	1		Traffic
0	0	1	0	0	0	0		Reduce load in serving cell
0	0	1	0	0	0	1		Traffic load in target cell higher than in source cell
0	0	1	0	0	1	0		Relocation triggered NOTE
0	0	1	0	0	1	1		Alternative channel configuration requested NOTE
<u>0</u>	<u>0</u>		<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>		1
	_	t		4				} Reserved for international use
0	0		0	1	1	1		}
0	0	1	1	0	0	0		} } Reserved for national use
0	0	te 1		1	1	1		> Reserved for flational use
0	1	0	0	0	0	0		Equipment failure
0	1	0	0	0	0	1		No radio resource available
0		0	0	0	1	0		Requested terrestrial resource unavailable
0	1	0	0	0	1	1		CCCH overload
0	1	0	0	1	0	0		Processor overload
0	1	0	0	1	0	1		BSS not equipped
0	1	0	0	1	1	0		MS not equipped
0	1	0	0	1	1	1		Invalid cell
0	1	0	1	0	0	0		Traffic Load
0	1	0	1	0	0	1		Preemption
0	1	0		0	1	0		}
		t		4				} Reserved for national use
0	1	0	1	1	1	1		}
0	1	1	0	0	0	0		Requested transcoding/rate adaption unavailable Circuit pool mismatch
0	1	1	0	0	1	0		Switch circuit pool
0	1	1	0	0	1	1		Requested speech version unavailable
0	1	1	0	1	0	0		LSA not allowed
0	1	1	0	1	0	1		}
Ŭ		t		•				} Reserved for international use
0	1	1	1	1	1	1		}
1	0	0	0	0	0	0		Ciphering algorithm not supported
1	0	0	0	0	0	1		GERAN lu-mode failure
1	0	0	0	0	1	0		Incoming Relocation Not Supported Due To PUESBINE
								Feature
1	0	0	0	0	1	1		Access Restricted Due to Shared Networks NOTE
1	0	0	0	1	0	0		}
	0	t			4			} Reserved for international use
1	0	0	0	1	1 0	1		}
1	0	0		0	U	0		} } Reserved for national use
1	0	te 0	1	1	1	1		
1	0	1	0	0	0	0		Ferrestrial circuit already allocated
<u> </u>	J		U	0	J	U		ronoothar onount anoualy anouatou

	Cause value Cause				Cause			
C	las	s	Value Number		Number			
1	0	1	0	0	0	1		Invalid message contents
1	0	1	0	0	1	0		Information element or field missing
1	0	1	0	0	1	1		Incorrect value
1	0	1	0	1	0	0		Unknown Message type
1	0	1	0	1	0	1		Unknown Information Element
1	0	1	0	1	1	0		}
		te	0					} Reserved for international use
1	0	1	0	1	1	1		}
1	0	1	1	0	0	0		}
		te	0					} Reserved for national use
1	0	1	1	1	1	1		}
1	1	0	0	0	0	0		Protocol Error between BSS and MSC
1	1	0	0	0	0	1		VGCS/VBS call non existent
1	1	0	0	0	1	0		}
		te	-					} Reserved for international use
1	1	0	0	1	1	1		}
1	1	0	1	0	0	0		}
		t	-					} Reserved for national use
1	1	0	1	1	1	1		}
1	1	1	0	0	0	0		
4		t	-		4			} Reserved for international use
1	1	1	0	1	1	1		}
1	1	1	1	0	0	0		}
1	1	t t		1	1	1		} Reserved for national use
· ·	1 1 1 1 1 1 1 }							
	NOTE: This cause value is only sent by 3G_MSC-B over the MAP/E interface.							