3GPP TSG CN Plenary Meeting #23 10th – 12th March 2004 Phoenix, USA.

Source: TSG CN WG4

Title: Corrections on Handover

Agenda item: 7.5

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.010	097	1	N4-040256	R99	Correction of inter system handover cause mapping	F	3.11.0
29.010	098	1	N4-040257	Rel-4	Correction of inter system handover cause mapping	Α	4.7.0
29.010	099	1	N4-040258	Rel-5	Correction of inter system handover cause mapping	Α	5.5.0
29.010	100	1	N4-040259	Rel-6	Correction of inter system handover cause mapping	Α	6.1.0

3GPP TSG CN WG4 Meeting #22 Atlanta, USA, 16th – 20st February 2003

rttiairta, 007t,	10 = 0 1 0.0. did y = 000						
		CR-Form-v7					
CHANGE REQUEST							
¥	29.010 CR 097 #rev 1	# Current version: 3.11.0 #					
For <u>HELP</u> o	n using this form, see bottom of this page or look at	t the pop-up text over the 光 symbols.					
Proposed chang	ne affects: UICC appsЖ ME Radio	o Access Network Core Network X					
Title:	★ Correction of inter system handover cause ma	apping					
1100.	to Correction of inter system managers sadde ma	.ppiiig					
Source:	₩ CN4						
Work item code	光 Handover	Date: 第 04/02/2004					
Category:	₩ F	Release: # R99					
	Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.	Use <u>one</u> of the following releases: 2 (GSM Phase 2) ease) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)					

Reason for change: ₩

The handover/relocation cause exchanged between the source and the target radio system indicates, besides the reason for the handover/relocation, also the urgency of the handover/relocation. The UTRAN uses RANAP cause 'time critical relocation' to indicate that a relocation is needed to avoid call dropping due to bad radio conditions. The BSS uses the BSSMAP causes 'distance', 'uplink quality', 'uplink strength', 'downlink quality' or 'downlink strength' for this purpose. This allows the target radio system to handle such a handover/relocation with priority, if needed. E.g. if the target radio system is under high load, it can accept urgent handovers but refuse other handovers.

In the 29.010 cause mapping for inter system handovers some 'urgent' handover / relocation causes are mapped to 'non-urgent' causes and vice versa. Due to this mapping important information for the target radio system is suppressed.

In addition, the RANAP cause 'Resource Optimisation Relocation' may also be sent by the Source RNC for UMTS to GSM handover. The cause mapping for this cause is missing.

This is an essential correction.

Summary of change: ₩

For Inter MSC UMTS to GSM Handover the RANAP cause 'time critical relocation' is mapped to one-of-the BSSMAP causes 'uplink quality'. uplink strength', 'downlink quality' or 'downlink strength'. It is an implementation choice which of the 4 BSSMAP causes is sent to the target system.

For Inter MSC GSM to UMTS Handover only the BSSMAP causes 'distance', 'uplink quality', 'uplink strength', 'downlink quality' or 'downlink strength' are mapped to RANAP cause 'time critical relocation'.

For UMTS to GSM Handover, RANAP cause 'Resource Optimisation Relocation' is mapped to BSSMAP cause 'Traffic'

Consequences if	${\mathbb H}$	With the current cause mapping the target radio system cannot distinguish
not approved:		between urgent and non-urgent inter system handovers and this can result in an
		increased call drop rate. Especially in high-load situations this can be a
		significant problem.
		The cause mapping for the RANAP cause 'Resource Optimisation Relocation'
		remains undefined.

Clauses affected:	光 4.6.6, 4.6.7		
Other specs Affected:	Y N X Other core specifications		
Other comments:	The current 29.010 cause mapping was also seen as a problem in RAN3 (refer to the RAN3#38 report (R3-031753); discussion on Tdoc R3-031380).		

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:

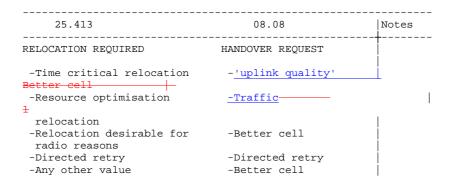
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the 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.

*** First modified section ***

4.6.6 Cause Code Mapping

When a Mobile Station is handed over between UMTS and GSM, a mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in RANAP Relocation Required and the cause codes sent in BSSMAP Handover Request is as follows:



NOTE 1: Cause code not used at inter system handover.

The mapping between the cause codes received in RANAP Relocation Cancel and the cause codes sent in BSSMAP Clear Command is as follows:

25.413	08.08	Notes
RELOCATION CANCEL	CLEAR COMMAND	
-Trelocprepexpiry	-Radio interface failure, reversion to old channel	
-Interaction with other procedure	-Radio interface failure, reversion to old channel	
-Any other value	-Radio interface failure, reversion to old channel	

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Relocation Preparation Failure is as follows:

08.08	25.413	Notes
HANDOVER FAILURE	RELOCATION PREP. FAILURE	
-Ciphering algorithm not supported	-Requested ciphering and/or integrity protection is not supported	
-Circuit pool mismatch		j 1
-Equipment failure	-Relocation failure in Target CN/RNC or target system	
-Invalid message contents -No radio resource available	- Abstract Syntax Error -Relocation failure in Target CN/RNC or target system	
-O and M intervention -Radio interface failure, reversion to old channel	-O and M intervention	 2
-Radio interface message failure	-Relocation failure in Target CN/RNC or target system	
-Requested speech version unavailable	-Relocation failure in Target CN/RNC or target system	
-Requested terrestrial resource unavailable	-Relocation failure in Target CN/RNC or target system	
-Requested transcoding/rate adaption unavailable	-Relocation failure in Target CN/RNC or target system	
-Switch circuit pool	- ·	i 1
-Terrestrial circuit already allocated	-Relocation failure in Target CN/RNC or target system	
-Any other value	-Relocation failure in Target CN/RNC or target system	

NOTE 1: Cause code not used at inter-system handover.

NOTE 2: Cause code not applicable to this traffic case.

*** Next modified section ***

4.7.6 Cause Code Mapping

When a Mobile Station is handed over between GSM and UMTS, a mapping of the cause codes used in the BSSMAP and the RANAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in BSSMAP Handover Required and the cause codes sent in RANAP Relocation Request is as follows:

08.08	25.413	Notes
HANDOVER REQUIRED	RELOCATION REQUEST	
-Better Cell	-Relocation Desirable for Radio Reasons	<u> </u>
Time critical reloc. -Directed retry -Distance -Downlink quality -Downlink strength -O and M intervention -Preemption -Response to MSC invocation Time critical reloc. -Switch circuit pool	-Directed retry -Time critical relocTime critical relocTime critical relocO and M intervention -RAB pre-empted -Network Optimisation	
-Traffic	-Resource Optimisation Relocation	
Time critical reloc. -Uplink quality -Uplink strength -Any other value	-Time critical relocTime critical relocRelocation Desirable for Radio Reasons	
Time Circical Feroc.		

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Request and the cause codes sent in RANAP Relocation Request is as follows (the mapping is only used for the MAP-E interface):

08.08	25.413	Notes
HANDOVER REQUEST	RELOCATION REQUEST	
-Better Cell	-Relocation Desirable for Radio Reasons	1
Time critical reloc. -Directed retry -Distance -Downlink quality -Downlink strength -O and M intervention -Preemption -Response to MSC invocation	- Directed retry -Time critical relocTime critical relocTime critical relocO and M intervention -RAB pre-empted -Network Optimisation	
Time critical relocSwitch circuit pool -Traffic	-Resource Optimisation Relocation	1
Time critical reloc. -Uplink quality -Uplink strength -Any other value Time critical reloc.	-Time critical relocTime critical relocRelocation Desirable for Radio Reasons	-

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Iu Release Command is as follows:

08.08	25.413	Notes
HANDOVER FAILURE	IU RELEASE COMMAND	T
-Ciphering algorithm not supported		2
-Circuit pool mismatch		1
-Equipment failure -Invalid message contents	-Relocation cancelled -Abstract Syntax Error	
-No radio resource available -O and M intervention -Radio interface failure, reversion to old channel	-O and M intervention -Relocation cancelled	2
-Radio interface message failure	-Relocation cancelled	
-Requested speech version unavailable		2
-Requested terrestrial resource unavailable		2
-Requested transcoding/rate adaption unavailable		2
-Switch circuit pool -Terrestrial circuit already allocated	-Relocation cancelled	1
-Any other value	-Relocation cancelled	İ

NOTE 1: Cause code not used at inter-system handover.

NOTE 2: Cause code not applicable to this traffic case.

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	08.08	Notes
RELOCATION FAILURE	HANDOVER FAILURE	
-Any value	-No radio resource available	

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Request Reject is as follows:

25.413	08.08	Notes
RELOCATION FAILURE	HANDOVER REQUIRED REJECT	
-Any value	-No radio resource available	

The mapping between the RANAP and the BSSMAP assignment messages is used in the MAP-E interface. RANAP RAB Assignment Response with successful result is mapped to BSSMAP Assignment Complete; RANAP RAB Assignment Response with unsuccessful result is mapped to BSSMAP Assignment Failure. The mapping between the cause codes received in RANAP RAB Assignment Response and the cause codes sent in BSSMAP Assignment Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	08.08 	Notes
RAB ASSIGNMENT RESPONSE	ASSIGNMENT FAILURE	
-Requested traffic class not available -Invalid RAB parameters value -Requested max bit rate not available -Requested max bit rate for DL not available -Requested max bit rate for UL not available -Requested guaranteed bit rate not available -Requested guaranteed bit rate for DL not available -Requested guaranteed bit rate for DL not available -Requested guaranteed bit rate for UL not available	available -Invalid msg. contents -No radio resource available	
-Requested transfer delay not achievable -Invalid RAB param. combination	-No radio resource available n-Invalid msg. contents	
-Condition violation for SDU parameters	_	
-Condition violation for traffic handling priority	-Invalid msg. contents	
-Condition violation for guaranteed bit rate	-Invalid msg. contents	
-User plane not supported	-No radio resource available	
-Iu UP failure -Tqueuing expiry	-Equipment failure -Radio interface message failure	
-Invalid RAB id -Request superseeded	-Invalid msg. contents -No radio resource available	
-Relocation triggered	-No radio resource available	
-Any other value	-Radio interface message failure	

The mapping between the cause codes received in RANAP Location Report and the cause codes sent in BSSMAP Handover Performed is as follows (this mapping is only used for the MAP-E interface):

25.413	08.08	Notes
LOCATION REPORT	HANDOVER PERFORMED	
-User restriction start indUser restriction start indRequested report type not supported	-O&M intervention -O&M intervention	1
-Any other value	-Better cell	İ

NOTE 1: In this case, no Handover Performed is sent.

3GPP TSG CN WG4 Meeting #22 Atlanta, USA, 16th – 20st February 2003

	CHANGE	REQUE	ST			CIX-I OIIII-VI
ж 2	<mark>.9.010</mark> CR <mark>098</mark>	#rev 1	₩ Curren	t version:	4.7.0	\mathfrak{H}
For <u>HELP</u> on using Proposed change affer	ng this form, see bottom of this ects: UICC apps器	_	at the pop-u		·	nbols. twork X
Title: # C	Correction of inter system hand	dover cause m	apping			
	CN4	40 VOI 04400 II	арриту			
Work item code:	Handover		Da	nte: 第 <mark>04/</mark> 0	02/2004	
De	se one of the following categories F (correction) A (corresponds to a correction B (addition of feature), C (functional modification of feature) D (editorial modification) etailed explanations of the above of found in 3GPP TR 21.900.	n in an earlier re eature)	2 RS RS RS RS RS RS	one of the fol (GSM) 96 (Relea 97 (Relea 98 (Relea 99 (Relea el-4 (Relea		ases:
Reason for change:	The handover/relocation of radio system indicates, be urgency of the handover/relocation' to indicate that bad radio conditions. The quality', 'uplink strength', 'This allows the target radio priority, if needed. E.g. if the urgent handovers but reful in the 29.010 cause mapped / relocation causes are matchis mapping important information in the source RNC for this cause is missing. This is an essential correction of the control of the cause is missing.	esides the reasive location. The a relocation is a relocation is a relocation is a relocation is a relocation is a relocation is a relocation of the target radiculate other hand bing for inter sympped to 'nonformation for the respective of UMTS to Garage in the relation of the relation is a relation for the relation of the relation is a relation in the relation is a relation in the relation is a relation in the relation in the relation is a relation in the relation in the relation in the relation is a relation in the relation in the relation in the relation is a relation in the relation in the relation in the relation is a relation in the relation in the relation is a relation in the relation in the relation is a relation in the relation in the relation is a relation in the relation in the relation in the relation is a relation in the relation in the relation in the relation is a relation in the r	son for the he UTRAN uses needed to a BSSMAP caty' or 'downling andle such a system is uovers. ystem handourgent' causine target radio	andover/reles RANAP avoid call dauses distant strength a handover/under high leavers some ses and vice lio system is an Relocation relation rel	ocation, a cause 'tim ropping do ance', 'upli ' for this prelocation oad, it car 'urgent' has suppres	Iso the see critical ue to nk ourpose. with accept andover ue to sed.
Summary of change:	# For Inter MSC UMTS to G relocation' is mapped to e strength', 'downlink quality which of the 4 BSSMAP of For Inter MSC GSM to UM	ne of the BSS y' or 'downlink causes is sent	MAP causes strength'. It to the target	s 'uplink qua is an impler system.	ality <u>.</u> ' , 'upli mentation	choice

is mapped to BSSMAP cause 'Traffic'

'uplink quality', 'uplink strength', 'downlink quality' or 'downlink strength' are mapped to RANAP cause 'time critical relocation'.

For UMTS to GSM Handover, RANAP cause 'Resource Optimisation Relocation'

Consequences if	${\mathbb H}$	With the current cause mapping the target radio system cannot distinguish
not approved:		between urgent and non-urgent inter system handovers and this can result in an
		increased call drop rate. Especially in high-load situations this can be a
		significant problem.
		The cause mapping for the RANAP cause 'Resource Optimisation Relocation'
		remains undefined.

Clauses affected:	第 4.6.6, 4.6.7
Other specs affected:	Y N X Other core specifications 第 Test specifications O&M Specifications
Other comments:	# The current 29.010 cause mapping was also seen as a problem in RAN3 (refer to the RAN3#38 report (R3-031753); discussion on Tdoc R3-031380).

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:

- 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.

*** First modified section ***

4.6.6 Cause Code Mapping

When a Mobile Station is handed over between UMTS and GSM, a mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in RANAP Relocation Required and the cause codes sent in BSSMAP Handover Request is as follows:

```
25.413
                                        48.008
                                                               Notes
RELOCATION REQUIRED
                                  HANDOVER REQUEST
 -Time critical relocation
                                   - 'uplink quality'
 -Resource optimisation
                                   -Traffic-
  relocation
 -Relocation desirable for
                                   -Better cell
 radio reasons
-Directed retry
                                   -Directed retry
 -Any other value
                                    -Better cell
```

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in RANAP Relocation Cancel and the cause codes sent in BSSMAP Clear Command is as follows:

25.413	48.008	Notes
RELOCATION CANCEL	CLEAR COMMAND	
-Trelocprepexpiry -Interaction with other procedure -Any other value	-Radio interface failure, reversion to old channel -Radio interface failure, reversion to old channel -Radio interface failure, reversion to	
	old channel	

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Relocation Preparation Failure is as follows:

48.008	25.413	Notes
HANDOVER FAILURE	RELOCATION PREP. FAILURE	
-Ciphering algorithm not supported	-Requested ciphering and/or integrity protection is not supported	-
-Circuit pool mismatch -Equipment failure	-Relocation failure in Target CN/RNC or	1
-Invalid message contents -No radio resource available	target system - Abstract Syntax Error -Relocation failure in Target CN/RNC or target system	
-O and M intervention -Radio interface failure, reversion to old channel -Radio interface message failure	-O and M intervention -Relocation failure in	2
-Requested speech version unavailable	Target CN/RNC or target system -Relocation failure in Target CN/RNC or	
-Requested terrestrial resource unavailable	target system -Relocation failure in Target CN/RNC or	
-Requested transcoding/rate adaption unavailable	target system -Relocation failure in Target CN/RNC or target system	
-Switch circuit pool -Terrestrial circuit already allocated	-Relocation failure in Target CN/RNC or target system	1
-Any other value	-Relocation failure in Target CN/RNC or target system	

NOTE 2: Cause code not applicable to this traffic case.

*** Next modified section ***

4.7.6 Cause Code Mapping

When a Mobile Station is handed over between GSM and UMTS, a mapping of the cause codes used in the BSSMAP and the RANAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in BSSMAP Handover Required and the cause codes sent in RANAP Relocation Request is as follows:

48.008	25.413	Notes
HANDOVER REQUIRED	RELOCATION REQUEST	†
-Better Cell	-Relocation Desirable For Radio Reasons	_
Time critical reloc. -Directed retry -Distance -Downlink quality -Downlink strength -O and M intervention -Preemption -Response to MSC invocation Time critical reloc. -Switch circuit pool -Traffic	-Directed retry -Time critical relocTime critical relocTime critical relocO and M intervention -RAB pre-empted -Network Optimisation -Resource Optimisation -Relocation	1
Time critical reloc. -Uplink quality -Uplink strength -Any other value Reasons Time critical reloc.	-Time critical reloc. -Time critical reloc. -Relocation Desirable F	or Radio

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Request and the cause codes sent in RANAP Relocation Request is as follows (the mapping is only used for the MAP-E interface):

48.008	25.413	Notes
HANDOVER REQUEST	RELOCATION REQUEST	T
-Better Cell	-Relocation Desirable For Radio Reasons	<u> </u>
Time critical reloc. -Directed retry -Distance -Downlink quality -Downlink strength -O and M intervention -Preemption -Response to MSC invocation Time critical reloc.	- Directed retry -Time critical relocTime critical relocTime critical relocO and M intervention -RAB pre-empted -Network Optimisation	
-Switch circuit pool -Traffic	-Resource Optimisation Relocation	+ +
Time critical reloc. -Uplink quality -Uplink strength -Any other value	-Time critical reloc. -Time critical reloc. -Relocation Desirable For Radio Reasons	
Time critical reloc.		

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Iu Release Command is as follows:

48.008	25.413	Notes
HANDOVER FAILURE	IU RELEASE COMMAND	
-Ciphering algorithm not supported		2
-Circuit pool mismatch -Equipment failure	-Relocation cancelled	1
-Invalid message contents	-Abstract Syntax Error	2
-No radio resource available -O and M intervention -Radio interface failure,	-O and M intervention -Relocation cancelled	
reversion to old channel -Radio interface message	-Relocation cancelled	
failure -Requested speech version unavailable		2
-Requested terrestrial resource unavailable		2
-Requested transcoding/rate adaption unavailable		2
-Switch circuit pool -Terrestrial circuit already	-Relocation cancelled	1
allocated -Any other value	-Relocation cancelled	

NOTE 2: Cause code not applicable to this traffic case.

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
RELOCATION FAILURE	HANDOVER FAILURE	Ţ
-Any value	-No radio resource available	

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Request Reject is as follows:

25.413	48.008	Notes
RELOCATION FAILURE	HANDOVER REQUIRED REJECT	
-Any value	-No radio resource available	

The mapping between the RANAP and the BSSMAP assignment messages is used in the MAP-E interface. RANAP RAB Assignment Response with successful result is mapped to BSSMAP Assignment Complete; RANAP RAB Assignment Response with unsuccessful result is mapped to BSSMAP Assignment Failure. The mapping between the cause codes received in RANAP RAB Assignment Response and the cause codes sent in BSSMAP Assignment Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
RAB ASSIGNMENT RESPONSE	ASSIGNMENT FAILURE	
-Requested traffic class not available -Invalid RAB parameters value -Requested max bit rate not available -Requested max bit rate for DL not available -Requested max bit rate for UL not available -Requested guaranteed bit rate not available -Requested guaranteed bit rate for DL not available -Requested guaranteed bit rate for DL not available -Requested guaranteed bit rate for UL not available -Requested transfer delay not achievable -Invalid RAB param. combination -Condition violation for SDU parameters -Condition violation for traffic handling priority -Condition violation for guaranteed bit rate -User plane not supported -Iu UP failure -Tqueuing expiry	available -Invalid msg. contents -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents	
-Invalid RAB id -Request superseeded	failure -Invalid msg. contents -No radio resource	
-Relocation triggered	available -No radio resource	
-Any other value	available -Radio interface message failure	

The mapping between the cause codes received in RANAP Location Report and the cause codes sent in BSSMAP Handover Performed is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
LOCATION REPORT	HANDOVER PERFORMED	
-User restriction start indUser restriction start indRequested report type not supported -Any other value	-O&M intervention -O&M intervention	1
-Any other value	-Better cell	1

NOTE 1: In this case, no Handover Performed is sent.

3GPP TSG CN WG4 Meeting #22 Atlanta, USA, 16th – 20st February 2003

				21144165			^				CR-Form-v7
			(CHANGE	REG	UE	SI				
*		29.010	CR	099	≋rev	1	¥	Current vers	ion: 5 .	5.0	Ж
For <u>HELP</u> or	n us	sina this for	m. see	bottom of this	s page oi	look	at the	e pop-up text	over the	± ≋ svr	nbols.
Proposed change affects: UICC apps# ME Radio Access Network Core Network X											
Title:	Ф	Correction	o of int	or avetem han	dover ee	1100 0	oonni	na			
ritie:	Ж	Correction	i oi int	er system han	idover ca	use n	іарріі	ng			
Source:	\mathfrak{H}	CN4									
Work item code:	: X	Handover						Date: ♯	04/02/	2004	
Category:		F (corn A (corn B (add C (fun D (edi	rection) respond dition of ctional torial m olanatio	ds to a correction feature), modification of a odification of the source of the shower t	on in an ea feature)		elease	R97 R98 R99 Rel-4		nase 2) e 1996) e 1997) e 1998) e 1999) e 4)	eases:

Reason for change: %

The handover/relocation cause exchanged between the source and the target radio system indicates, besides the reason for the handover/relocation, also the urgency of the handover/relocation. The UTRAN uses RANAP cause 'time critical relocation' to indicate that a relocation is needed to avoid call dropping due to bad radio conditions. The BSS uses the BSSMAP causes 'distance', 'uplink quality', 'uplink strength', 'downlink quality' or 'downlink strength' for this purpose. This allows the target radio system to handle such a handover/relocation with priority, if needed. E.g. if the target radio system is under high load, it can accept urgent handovers but refuse other handovers.

In the 29.010 cause mapping for inter system handovers some 'urgent' handover / relocation causes are mapped to 'non-urgent' causes and vice versa. Due to this mapping important information for the target radio system is suppressed.

In addition, the RANAP cause 'Resource Optimisation Relocation' may also be sent by the Source RNC for UMTS to GSM handover. The cause mapping for this cause is missing.

This is an essential correction.

Summary of change: ₩

For Inter MSC UMTS to GSM Handover the RANAP cause 'time critical relocation' is mapped to one of the BSSMAP causes 'uplink quality'. 'uplink strength', 'downlink quality' or 'downlink strength'. It is an implementation choice which of the 4 BSSMAP causes is sent to the target system.

For Inter MSC GSM to UMTS Handover only the BSSMAP causes 'distance', 'uplink quality', 'uplink strength', 'downlink quality' or 'downlink strength' are mapped to RANAP cause 'time critical relocation'.

For UMTS to GSM Handover, RANAP cause 'Resource Optimisation Relocation' is mapped to BSSMAP cause 'Traffic'

Consequences if	${\mathbb H}$	With the current cause mapping the target radio system cannot distinguish
not approved:		between urgent and non-urgent inter system handovers and this can result in an
		increased call drop rate. Especially in high-load situations this can be a
		significant problem.
		The cause mapping for the RANAP cause 'Resource Optimisation Relocation'
		remains undefined.

Clauses affected:	第 4.6.6, 4.6.7
Other specs affected:	Y N X Other core specifications 第 Test specifications O&M Specifications
Other comments:	# The current 29.010 cause mapping was also seen as a problem in RAN3 (refer to the RAN3#38 report (R3-031753); discussion on Tdoc R3-031380).

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:

- 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.

*** First modified section ***

4.6.6 Cause Code Mapping

When a Mobile Station is handed over between UMTS and GSM, a mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in RANAP Relocation Required and the cause codes sent in BSSMAP Handover Request is as follows:

```
25.413
                                        48.008
                                                              Notes
RELOCATION REQUIRED
                                  HANDOVER REQUEST
 -Time critical relocation
                                   - 'uplink quality'
 -Resource optimisation
                                   -Traffic-
  relocation
 -Relocation desirable for
                                   -Better cell
 radio reasons
-Directed retry
                                   -Directed retry
 -Any other value
                                    -Better cell
```

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in RANAP Relocation Cancel and the cause codes sent in BSSMAP Clear Command is as follows:

25.413	48.008	Notes
RELOCATION CANCEL	CLEAR COMMAND	
-Trelocprepexpiry -Interaction with other procedure	-Radio interface failure, reversion to old channel -Radio interface failure, reversion to old channel	
-Any other value	-Radio interface failure, reversion to old channel	

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Relocation Preparation Failure is as follows:

48.008	25.413	Notes
HANDOVER FAILURE	RELOCATION PREP. FAILURE	
-Ciphering algorithm not supported	-Requested ciphering and/or integrity protection is not supported	
-Circuit pool mismatch -Equipment failure	-Relocation failure in Target CN/RNC or	1
-Invalid message contents -No radio resource available	target system - Abstract Syntax Error -Relocation failure in Target CN/RNC or target system	
-O and M intervention -Radio interface failure, reversion to old channel -Radio interface message	-O and M intervention -Relocation failure in	2
failure -Requested speech version unavailable	Target CN/RNC or target system -Relocation failure in Target CN/RNC or	
-Requested terrestrial resource unavailable	target system -Relocation failure in Target CN/RNC or	
-Requested transcoding/rate adaption unavailable	target system -Relocation failure in Target CN/RNC or target system	
-Switch circuit pool -Terrestrial circuit already allocated	-Relocation failure in Target CN/RNC or	1
-Any other value	target system -Relocation failure in Target CN/RNC or target system	

NOTE 2: Cause code not applicable to this traffic case.

*** Next modified section ***

4.7.6 Cause Code Mapping

When a Mobile Station is handed over between GSM and UMTS, a mapping of the cause codes used in the BSSMAP and the RANAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in BSSMAP Handover Required and the cause codes sent in RANAP Relocation Request is as follows:

48.008	25.413	Notes
HANDOVER REQUIRED	RELOCATION REQUEST	T
-Better Cell	-Relocation Desirable For Radio Reasons	
Time critical reloc. -Directed retry -Distance -Downlink quality -Downlink strength -O and M intervention -Preemption -Response to MSC invocation Time critical reloc.	-Directed retry -Time critical relocTime critical relocTime critical relocO and M intervention -RAB pre-empted -Network Optimisation	
-Switch circuit pool -Traffic	-Resource Optimisation Relocation	<u>1</u>
Time critical reloc. -Uplink quality -Uplink strength -Any other value	-Time critical reloc. -Time critical reloc. -Relocation Desirable For Radio Reasons	_
Time critical reloc.		

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Request and the cause codes sent in RANAP Relocation Request is as follows (the mapping is only used for the MAP-E interface):

48.008	25.413	Notes
HANDOVER REQUEST	RELOCATION REQUEST	T
-Better Cell	-Relocation Desirable For Radio Reasons	<u> </u>
Time critical reloc. -Directed retry -Distance -Downlink quality -Downlink strength -O and M intervention -Preemption -Response to MSC invocation Time critical reloc.	- Directed retry -Time critical relocTime critical relocTime critical relocO and M intervention -RAB pre-empted -Network Optimisation	
-Switch circuit pool -Traffic	-Resource Optimisation Relocation	1
Time critical reloc. -Uplink quality -Uplink strength -Any other value	-Time critical reloc. -Time critical reloc. -Relocation Desirable For Radio Reasons	1
Time critical reloc.		

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Iu Release Command is as follows:

48.008	25.413	Notes
HANDOVER FAILURE	IU RELEASE COMMAND	
-Ciphering algorithm not		2
supported -Circuit pool mismatch -Equipment failure	Dologation gangelled	1
-Invalid message contents	-Relocation cancelled -Abstract Syntax Error	2
-No radio resource available -O and M intervention -Radio interface failure, reversion to old channel	-O and M intervention -Relocation cancelled	2
-Radio interface message failure	-Relocation cancelled	
-Requested speech version unavailable		2
-Requested terrestrial resource unavailable		2
-Requested transcoding/rate		2
adaption unavailable -Switch circuit pool		1
-Terrestrial circuit already allocated		
-Any other value	-Relocation cancelled	

NOTE 2: Cause code not applicable to this traffic case.

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
RELOCATION FAILURE	HANDOVER FAILURE	
-GERAN Iu-mode failure -Any other value	-GERAN Iu-mode failure -No radio resource available	

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Required Reject is as follows:

25.413	48.008	Notes
RELOCATION FAILURE	HANDOVER REQUIRED REJECT	
-GERAN Iu-mode failure -Incoming Relocation Not Supported Due To PUESBINE Feature -Any other value	-GERAN Iu-mode failure -Incoming Relocation Not Supported Due To PUESBINE Feature -No radio resource available	

The mapping between the RANAP and the BSSMAP assignment messages is used in the MAP-E interface. RANAP RAB Assignment Response with successful result is mapped to BSSMAP Assignment Complete; RANAP RAB Assignment Response with unsuccessful result is mapped to BSSMAP Assignment Failure. The mapping between the cause codes received in RANAP RAB Assignment Response and the cause codes sent in BSSMAP Assignment Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
RAB ASSIGNMENT RESPONSE	ASSIGNMENT FAILURE	
-Requested traffic class not available -Invalid RAB parameters value -Requested max bit rate not available -Requested max bit rate for DL not available -Requested max bit rate for UL not available -Requested guaranteed bit rate not available -Requested guaranteed bit rate for DL not available -Requested guaranteed bit rate for DL not available -Requested guaranteed bit rate for UL not available -Requested transfer delay not achievable -Invalid RAB param. combination -Condition violation for SDU parameters -Condition violation for traffic handling priority -Condition violation for guaranteed bit rate -User plane not supported -Iu UP failure -Tqueuing expiry -Invalid RAB id	-No radio resource available -Invalid msg. contents -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents	
	-No radio resource available	
-Relocation triggered -GERAN Iu-mode failure -Any other value	-Relocation triggered -GERAN Iu-mode failure -Radio interface message failure	

The mapping between the cause codes received in RANAP Security Mode Reject and the cause codes sent in BSSMAP Cipher Mode Reject is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
SECURITY MODE REJECT	CIPHER MODE REJECT	
-Requested ciphering and/or integrity protection	-Ciphering algorithm not supported	
algorithms not supported -Failure in the radio interface procedure -Change of ciphering and/or integrity protection is	-Radio interface message failure -Invalid msg. contents	
not supported -Relocation triggered -Any other value	-Relocation triggered -Radio interface message failure	

The mapping between the cause codes received in RANAP Location Report and the cause codes sent in BSSMAP Handover Performed is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
LOCATION REPORT	HANDOVER PERFORMED	T
-User restriction start indUser restriction start indRequested report type not supported -Any other value	-O&M intervention -O&M intervention	1
-Any other value	-Better cell	

NOTE 1: In this case, no Handover Performed is sent.

3GPP TSG CN WG4 Meeting #22 Atlanta, USA, 16th – 20st February 2003

CHANGE REQUEST			
*	29.010 CR 100 #rev 1 #	Current version: 6.1.0 **	
For <u>HELP</u> on u	sing this form, see bottom of this page or look at the	pop-up text over the 光 symbols.	
Proposed change	·· <u> </u>	cess Network Core Network X	
Title: 第	Correction of inter system handover cause mapping	ng	
Source: ೫	CN4		
Work item code: ₩	Handover	<i>Date:</i>	
	Use one of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900.	R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) Rel-4 (Release 4) Rel-5 (Release 5) Rel-6 (Release 6)	
Reason for change	The handover/relocation cause exchanged be radio system indicates, besides the reason fo urgency of the handover/relocation. The UTR relocation' to indicate that a relocation is need bad radio conditions. The BSS uses the BSSI quality', 'uplink strength', 'downlink quality' or This allows the target radio system to handle priority, if needed. E.g. if the target radio system urgent handovers but refuse other handovers In the 29.010 cause mapping for inter system / relocation causes are mapped to 'non-urgen this mapping important information for the target In addition, the RANAP cause 'Resource Opti sent by the Source RNC for UMTS to GSM has this cause is missing. This is an essential correction.	or the handover/relocation, also the AN uses RANAP cause 'time critical ded to avoid call dropping due to MAP causes 'distance', 'uplink 'downlink strength' for this purpose. such a handover/relocation with em is under high load, it can accept a handovers some 'urgent' handover at' causes and vice versa. Due to get radio system is suppressed.	
Summary of chang		causes 'uplink quality' <u>., 'uplink</u> gth'. It is an implementation choice target system.	

is mapped to BSSMAP cause 'Traffic'

'uplink quality', 'uplink strength', 'downlink quality' or 'downlink strength' are mapped to RANAP cause 'time critical relocation'.

For UMTS to GSM Handover, RANAP cause 'Resource Optimisation Relocation'

Consequences if	${\mathbb H}$	With the current cause mapping the target radio system cannot distinguish
not approved:		between urgent and non-urgent inter system handovers and this can result in an
		increased call drop rate. Especially in high-load situations this can be a
		significant problem.
		The cause mapping for the RANAP cause 'Resource Optimisation Relocation'
		remains undefined.

Clauses affected:	第 4.6.6, 4.6.7
Other specs affected:	Y N X Other core specifications 第 Test specifications O&M Specifications
Other comments:	# The current 29.010 cause mapping was also seen as a problem in RAN3 (refer to the RAN3#38 report (R3-031753); discussion on Tdoc R3-031380).

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:

- 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.

*** First modified section ***

4.6.6 Cause Code Mapping

When a Mobile Station is handed over between UMTS and GSM, a mapping of the cause codes used in the RANAP and the BSSMAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in RANAP Relocation Required and the cause codes sent in BSSMAP Handover Request is as follows:

```
25.413
                                        48.008
                                                              Notes
RELOCATION REQUIRED
                                  HANDOVER REQUEST
 -Time critical relocation
                                   - 'uplink quality'
 -Resource optimisation
                                   -Traffic-
  relocation
 -Relocation desirable for
                                   -Better cell
 radio reasons
-Directed retry
                                   -Directed retry
 -Any other value
                                    -Better cell
```

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in RANAP Relocation Cancel and the cause codes sent in BSSMAP Clear Command is as follows:

25.413	48.008	Notes
RELOCATION CANCEL	CLEAR COMMAND	
-Trelocprepexpiry -Interaction with other procedure	-Radio interface failure, reversion to old channel -Radio interface failure, reversion to old channel	
-Any other value	-Radio interface failure, reversion to old channel	

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Relocation Preparation Failure is as follows:

48.008	25.413	Notes
HANDOVER FAILURE	RELOCATION PREP. FAILURE	
-Ciphering algorithm not supported	-Requested ciphering and/or integrity protection is not supported	
-Circuit pool mismatch -Equipment failure	-Relocation failure in Target CN/RNC or	1
-Invalid message contents -No radio resource available	target system - Abstract Syntax Error -Relocation failure in Target CN/RNC or target system	
-O and M intervention -Radio interface failure, reversion to old channel -Radio interface message	-O and M intervention -Relocation failure in	2
failure -Requested speech version unavailable	Target CN/RNC or target system -Relocation failure in Target CN/RNC or	
-Requested terrestrial resource unavailable	target system -Relocation failure in Target CN/RNC or	
-Requested transcoding/rate adaption unavailable	target system -Relocation failure in Target CN/RNC or target system	
-Switch circuit pool -Terrestrial circuit already allocated	-Relocation failure in Target CN/RNC or	1
-Any other value	target system -Relocation failure in Target CN/RNC or target system	

NOTE 2: Cause code not applicable to this traffic case.

*** Next modified section ***

4.7.6 Cause Code Mapping

When a Mobile Station is handed over between GSM and UMTS, a mapping of the cause codes used in the BSSMAP and the RANAP protocols is needed. The mapping described here is applicable to the BSSMAP protocol even when used inside MAP in the E-interface.

The mapping between the cause codes received in BSSMAP Handover Required and the cause codes sent in RANAP Relocation Request is as follows:

48.008	25.413	Notes
HANDOVER REQUIRED	RELOCATION REQUEST	T
-Better Cell	-Relocation Desirable For Radio Reasons	
Time critical reloc. -Directed retry -Distance -Downlink quality -Downlink strength -O and M intervention -Preemption -Response to MSC invocation Time critical reloc.	-Directed retry -Time critical relocTime critical relocTime critical relocO and M intervention -RAB pre-empted -Network Optimisation	
-Switch circuit pool -Traffic	-Resource Optimisation Relocation	<u>1</u>
Time critical reloc. -Uplink quality -Uplink strength -Any other value	-Time critical reloc. -Time critical reloc. -Relocation Desirable For Radio Reasons	_
Time critical reloc.		

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Request and the cause codes sent in RANAP Relocation Request is as follows (the mapping is only used for the MAP-E interface):

48.008	25.413	Notes
HANDOVER REQUEST	RELOCATION REQUEST	T
-Better Cell	-Relocation Desirable For Radio Reasons	<u> </u>
Time critical reloc. -Directed retry -Distance -Downlink quality -Downlink strength -O and M intervention -Preemption -Response to MSC invocation Time critical reloc.	- Directed retry -Time critical relocTime critical relocTime critical relocO and M intervention -RAB pre-empted -Network Optimisation	
-Switch circuit pool -Traffic	-Resource Optimisation Relocation	1
Time critical reloc. -Uplink quality -Uplink strength -Any other value	-Time critical reloc. -Time critical reloc. -Relocation Desirable For Radio Reasons	1
Time critical reloc.		

NOTE 1: Cause code not used at inter-system handover.

The mapping between the cause codes received in BSSMAP Handover Failure and the cause codes sent in RANAP Iu Release Command is as follows:

48.008	25.413	Notes
HANDOVER FAILURE	IU RELEASE COMMAND	
-Ciphering algorithm not		2
supported -Circuit pool mismatch -Equipment failure	Dologation gangelled	1
-Invalid message contents	-Relocation cancelled -Abstract Syntax Error	2
-No radio resource available -O and M intervention -Radio interface failure, reversion to old channel	-O and M intervention -Relocation cancelled	2
-Radio interface message failure	-Relocation cancelled	
-Requested speech version unavailable		2
-Requested terrestrial resource unavailable		2
-Requested transcoding/rate		2
adaption unavailable -Switch circuit pool		1
-Terrestrial circuit already allocated		
-Any other value	-Relocation cancelled	

NOTE 2: Cause code not applicable to this traffic case.

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
RELOCATION FAILURE	HANDOVER FAILURE	
-GERAN Iu-mode failure -Any other value	-GERAN Iu-mode failure -No radio resource available	

The mapping between the cause codes received in RANAP Relocation Failure and the cause codes sent in BSSMAP Handover Required Reject is as follows:

25.413	48.008	Notes
RELOCATION FAILURE	HANDOVER REQUIRED REJECT	
-GERAN Iu-mode failure -Incoming Relocation Not Supported Due To PUESBINE Feature -Any other value	-GERAN Iu-mode failure -Incoming Relocation Not Supported Due To PUESBINE Feature -No radio resource available	

The mapping between the RANAP and the BSSMAP assignment messages is used in the MAP-E interface. RANAP RAB Assignment Response with successful result is mapped to BSSMAP Assignment Complete; RANAP RAB Assignment Response with unsuccessful result is mapped to BSSMAP Assignment Failure. The mapping between the cause codes received in RANAP RAB Assignment Response and the cause codes sent in BSSMAP Assignment Failure is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
RAB ASSIGNMENT RESPONSE	ASSIGNMENT FAILURE	
-Requested traffic class not available -Invalid RAB parameters value -Requested max bit rate not available -Requested max bit rate for DL not available -Requested max bit rate for UL not available -Requested guaranteed bit rate not available -Requested guaranteed bit rate for DL not available -Requested guaranteed bit rate for DL not available -Requested guaranteed bit rate for UL not available -Requested transfer delay not achievable -Invalid RAB param. combination -Condition violation for SDU parameters -Condition violation for traffic handling priority -Condition violation for guaranteed bit rate -User plane not supported -Iu UP failure -Tqueuing expiry -Invalid RAB id	-No radio resource available -Invalid msg. contents -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -No radio resource available -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents -Invalid msg. contents	
	-No radio resource available	
-Relocation triggered -GERAN Iu-mode failure -Any other value	-Relocation triggered -GERAN Iu-mode failure -Radio interface message failure	

The mapping between the cause codes received in RANAP Security Mode Reject and the cause codes sent in BSSMAP Cipher Mode Reject is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
SECURITY MODE REJECT	CIPHER MODE REJECT	
-Requested ciphering and/or integrity protection	-Ciphering algorithm not supported	
algorithms not supported -Failure in the radio interface procedure -Change of ciphering and/or integrity protection is	-Radio interface message failure -Invalid msg. contents	
not supported -Relocation triggered -Any other value	-Relocation triggered -Radio interface message failure	

The mapping between the cause codes received in RANAP Location Report and the cause codes sent in BSSMAP Handover Performed is as follows (this mapping is only used for the MAP-E interface):

25.413	48.008	Notes
LOCATION REPORT	HANDOVER PERFORMED	T
-User restriction start indUser restriction start indRequested report type not supported -Any other value	-O&M intervention -O&M intervention	1
-Any other value	-Better cell	

NOTE 1: In this case, no Handover Performed is sent.