

Source: TSG CN WG 1
Title: CRs to R97 and R99 (with mirror CRs) on Work Item GPRS towards 04.64 and 24.008
Agenda item: 7.12
Document for: APPROVAL

Introduction:

This document contains 7 CRs on **R97 and R99 (with mirror CRs)** to Work Item "GPRS", that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #14 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-level
04.64	A154	1	R97	IOV reset Conditions	F	6.9.0	6.10.0	N1-011969
04.64	A155		R98	IOV reset Conditions	A	7.4.0	7.5.0	N1-011847
04.64	A156		R99	IOV reset Conditions	A	8.6.0	8.7.0	N1-011848
24.008	477	1	R99	Correction of the criteria for the usage of combined RAU	F	3.9.0	3.10.0	N1-011607
24.008	478	1	Rel-4	Correction of the criteria for the usage of combined RAU	A	4.4.0	4.5.0	N1-011608
24.008	479	1	Rel-5	Correction of the criteria for the usage of combined RAU	A	5.1.0	5.2.0	N1-011609
44.064	004		Rel-4	IOV reset Conditions	A	4.1.0	4.2.0	N1-011849

Cancun, Mexico, 26 – 30 November 2001

CR-Form-v4

CHANGE REQUEST

⌘ **04.64 CR** ⌘ **A154** ⌘ ev **1** ⌘ Current version: **6.9.0** ⌘

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

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

Title:	⌘ Conditions for IOV reset		
Source:	⌘ Siemens AG		
Work item code:	⌘ GPRS	Date:	⌘ 29.11.01
Category:	⌘ F	Release:	⌘ R97
	<i>Use one of the following categories:</i> 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.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ IOT tests showed, that the term "change of Kc" was interpreted different by some manufactures, in case the same triplet were used twice subsequently by the network.
Summary of change:	⌘ It is clarified that the conditions to reset the IOV value to is set to default is only applicable, if the value of the Kc is different.
Consequences if not approved:	⌘ Different MS and SGSN implementation with the consequence that the ciphered data could not be de-ciphered by the receiver.

Clauses affected:	⌘ 8.9.2		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

8.9.2 Input Offset Value (IOV)

The Input Offset Value (IOV) is an LLC layer parameter used for ciphering. IOV is a random 32 bit value, generated by the SGSN. See also annex A.

The value for IOV can be different for I frames and UI frames. IOV-UI is IOV for UI frames. IOV-I is IOV for I frames.

The default values of IOV are given in Table 9. The following rules apply to default IOV values:

- After a change of Kc to a different value, negotiation of IOV-I may be omitted and the default value applied. If ABM is re-established for an LLE, and Kc is not changed to a different value since ABM was last (re-)established for this LLE, then a random IOV-I value shall be negotiated.
- After a change of Kc to a different value, negotiation of IOV-UI may be omitted and the default value applied. If the unconfirmed send state variable V(U) is reset for an LLE, and Kc is not changed to a different value since V(U) was last reset for this LLE, then a random IOV-UI value shall be negotiated.

Cancun, Mexico, 26 – 30 November 2001

CR-Form-v4

CHANGE REQUEST⌘ **04.64 CR** ⌘ **A155** ⌘ ev ⌘ ⌘ Current version: **7.4.0** ⌘For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Conditions for IOV reset		
Source:	⌘ Siemens AG		
Work item code:	⌘ GPRS	Date:	⌘ 29.11.01
Category:	⌘ A	Release:	⌘ R98
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	R96 (Release 1996)	2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R97 (Release 1997)	R96 (Release 1996)
	B (addition of feature),	R98 (Release 1998)	R97 (Release 1997)
	C (functional modification of feature)	R99 (Release 1999)	R98 (Release 1998)
	D (editorial modification)	REL-4 (Release 4)	R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	REL-5 (Release 5)	

Reason for change:	⌘ IOT tests showed, that the term "change of Kc" was interpreted different by some manufactures, in case the same triplet were used twice subsequently by the network.
Summary of change:	⌘ It is clarified that the conditions to reset the IOV value to is set to default is only applicable, if the value of the Kc is different.
Consequences if not approved:	⌘ Different MS and SGSN implementation with the consequence that the ciphered data could not be de-ciphered by the receiver.

Clauses affected:	⌘ 8.9.2
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/>
	<input type="checkbox"/> Test specifications
	<input type="checkbox"/> O&M Specifications
Other comments:	⌘

8.9.2 Input Offset Value (IOV)

The Input Offset Value (IOV) is an LLC layer parameter used for ciphering. IOV is a random 32 bit value, generated by the SGSN. See also annex A.

The value for IOV can be different for I frames and UI frames. IOV-UI is IOV for UI frames. IOV-I is IOV for I frames.

The default values of IOV are given in **Error! Reference source not found.**. The following rules apply to default IOV values:

- After a change of Kc to a different value, negotiation of IOV-I may be omitted and the default value applied. If ABM is re-established for an LLE, and Kc is not changed to a different value since ABM was last (re-)established for this LLE, then a random IOV-I value shall be negotiated.
- After a change of Kc to a different value, negotiation of IOV-UI may be omitted and the default value applied. If the unconfirmed send state variable V(U) is reset for an LLE, and Kc is not changed to a different value since V(U) was last reset for this LLE, then a random IOV-UI value shall be negotiated.

Cancun, Mexico, 26 – 30 November 2001

CR-Form-v4	
CHANGE REQUEST	
⌘ 04.64 CR ⌘ A156 ⌘ ev ⌘	Current version: 8.6.0 ⌘

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

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

Title:	⌘ Conditions for IOV reset ⌘		
Source:	⌘ Siemens AG ⌘		
Work item code:	⌘ GPRS ⌘	Date:	⌘ 29.11.01 ⌘
Category:	⌘ A ⌘	Release:	⌘ R99 ⌘
	Use <u>one</u> 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.		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ IOT tests showed, that the term "change of Kc" was interpreted different by some manufactures, in case the same triplet were used twice subsequently by the network. ⌘
Summary of change:	⌘ It is clarified that the conditions to reset the IOV value to is set to default is only applicable, if the value of the Kc is different. ⌘
Consequences if not approved:	⌘ Different MS and SGSN implementation with the consequence that the ciphered data could not be de-ciphered by the receiver. ⌘

Clauses affected:	⌘ 8.9.2 ⌘		
Other specs affected:	<input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications ⌘ <input type="checkbox"/> O&M Specifications ⌘		
Other comments:	⌘		

8.9.2 Input Offset Value (IOV)

The Input Offset Value (IOV) is an LLC layer parameter used for ciphering. IOV is a random 32 bit value, generated by the SGSN. See also annex A.

The value for IOV can be different for I frames and UI frames. IOV-UI is IOV for UI frames. IOV-I is IOV for I frames.

The default values of IOV are given in **Error! Reference source not found.**. The following rules apply to default IOV values:

- After a change of Kc to a different value, negotiation of IOV-I may be omitted and the default value applied. If ABM is re-established for an LLE, and Kc is not changed to a different value since ABM was last (re-)established for this LLE, then a random IOV-I value shall be negotiated.
- After a change of Kc to a different value, negotiation of IOV-UI may be omitted and the default value applied. If the unconfirmed send state variable V(U) is reset for an LLE, and Kc is not changed to a different value since V(U) was last reset for this LLE, then a random IOV-UI value shall be negotiated.

CHANGE REQUEST

⌘ **24.008 CR 477** ⌘ ev **1** ⌘ Current version: **3.9.0** ⌘

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

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

Title:	⌘	Correction of the criteria for the usage of combined RAU
Source:	⌘	Siemens AG
Work item code:	⌘	GPRS
		Date: ⌘ 27.09.01
Category:	⌘	F
		<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following categories:</i></p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p> </div> <div style="width: 45%;"> <p><i>Use <u>one</u> of the following releases:</i></p> <p>2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>REL-4 (Release 4)</p> <p>REL-5 (Release 5)</p> </div> </div>

Reason for change:	⌘	<p>1) According to subclause 4.7.5.2.1, after termination of a non-GPRS service via non-GPRS channels an MS in state GMM-REGISTERED shall perform a combined routing area update "to update the association if the MS has changed the Location Area during that non-GPRS service transaction."</p> <p>The correct condition is that a combined RAU has to be performed if the MS has changed the Routing Area (see TS 23.060, subclause 6.3.1), because:</p> <p>a) if the MS is operating in MS operation mode A, it performed a non-combined routing area update when it changed the routing area while the non-GPRS service transaction was ongoing. Therefore, the Gs association in the SGSN is broken. If the association is not re-established immediately after termination of the non-GPRS service, because the MS has only changed the RA but not the LA, the MS cannot be paged for CS services if a PCCCH is allocated in the cell.</p> <p>b) if the MS is operating in MS operation mode B, the routing area update was postponed until the non-GPRS service transaction was terminated. In this case the MS has to perform a combined routing area update.</p> <p>2) Furthermore, it is specified that a combined routing area update is used to update the network with the new MS Radio Access Capability, and for signalling connection re-establishment in certain UMTS scenarios. It needs to be clarified that in both cases the combined procedure shall only be used if the MS is in state MM-IDLE.</p> <p>Otherwise, if the MS has an CS connection active and has performed an inter-MSC handover, the SGSN will perform the BSSAP+-Location-Update procedure towards the new MSC/VLR. When the new MSC/VLR retrieves the subscriber data from the HLR, the subscriber data at the old MSC/VLR are purged and any ongoing CS transaction will be released by the old MSC/VLR.</p>
Summary of change:	⌘	The wrong condition is corrected (1), and the missing condition is added (2).
Consequences if	⌘	In case 1 the MS cannot be paged for CS services. In case 2 an ongoing CS

not approved: transaction may be aborted by the network.

Clauses affected:	⌘	4.7.5.2.1	
Other specs affected:	⌘	<input type="checkbox"/> Other core specifications	⌘
		<input type="checkbox"/> Test specifications	
		<input type="checkbox"/> O&M Specifications	
Other comments:	⌘		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.7.5.2.1 Combined routing area updating procedure initiation

The combined routing area updating procedure is initiated only by a GPRS MS operating in MS operation modes A or B, if the MS is in state GMM-REGISTERED and MM-IDLE and if the network operates in network operation mode I:

- when a GPRS MS that is IMSI attached for GPRS and non-GPRS services detects a change of the routing area in state GMM-REGISTERED and MM-IDLE;
- when a GPRS MS that is IMSI attached for GPRS services wants to perform an IMSI attach for non-GPRS services;
- after termination of a non-GPRS service via non-GPRS channels to update the association if the MS has changed the ~~RA/LA~~ during that non-GPRS service transaction;
- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see clause 4.5.1.1); in ~~this~~which case the update type IE shall be set to "Combined RA/LA updating with IMSI attach";
- when a GPRS MS needs to update the network with the new MS Radio Access Capability IE; or
- in UMTS, to re-synchronize the PMM mode of MS and network after RRC connection release with cause "Directed signalling connection re-establishment", see Clause 4.7.2.5.

In GSM, the routing and location area identification are broadcast on the broadcast channel(s). A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures shall be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first message sent from the MS in the new routing area after routing area change.

In UMTS, the routing and location area identification are broadcast on the broadcast channel(s) or sent to the MS via the PS signaling connection. A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures may be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first GMM message sent from the MS in the new routing area after routing area change.

To initiate a combined routing area updating procedure the MS sends the message ROUTING AREA UPDATE REQUEST to the network, starts timer T3330 and changes to state GMM-ROUTING-UPDATING-INITIATED and MM LOCATION UPDATING PENDING. The value of the update type IE in the message shall indicate "combined RA/LA updating". If for the last attempt to update the registration of the location area a MM specific procedure was performed, the value of the update type IE in the ROUTING AREA UPDATE REQUEST message shall indicate "combined RA/LA updating with IMSI attach". Furthermore the MS shall include the TMSI status IE if no valid TMSI is available.

A GPRS MS in MS operation modes A or B that is in an ongoing circuit-switched transaction, shall initiate the combined routing area updating procedure after the circuit-switched transaction has been released, if the MS has changed the RA during the circuit-switched transaction and if the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall initiate the combined routing area updating procedure with IMSI attach after the circuit-switched transaction has been released if a GPRS attach was performed during the circuit-switched transaction and provided that the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall perform the normal routing area update procedure during an ongoing circuit-switched transaction.

In UMTS, if the MS wishes to prolong the established PS signalling connection after the normal routing area updating procedure when it is served under UMTS area, it may set a follow-on request pending indicator on.

In UMTS, when a ROUTING AREA UPDATE REQUEST is received by the SGSN over a new PS signalling connection while there is an ongoing PS signalling connection (network is already in mode PMM-CONNECTED) for this UE, the network shall progress the routing area update procedure as normal and release the previous PS signalling connection when the routing area update procedure has been accepted by the network .

NOTE: The re-establishment of the radio bearers of active PDP contexts is done as described in clause "Service Request procedure".

CHANGE REQUEST

⌘ **24.008 CR 478** ⌘ ev **1** ⌘ Current version: **4.4.0** ⌘

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

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

Title:	⌘ Correction of the criteria for the usage of combined RAU		
Source:	⌘ Siemens AG		
Work item code:	⌘ GPRS	Date:	⌘ 27.09.01
Category:	⌘ A	Release:	⌘ Rel-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ 1) According to subclause 4.7.5.2.1, after termination of a non-GPRS service via non-GPRS channels an MS in state GMM-REGISTERED shall perform a combined routing area update "to update the association if the MS has changed the Location Area during that non-GPRS service transaction." The correct condition is that a combined RAU has to be performed if the MS has changed the Routing Area (see TS 23.060, subclause 6.3.1), because: <ul style="list-style-type: none"> a) if the MS is operating in MS operation mode A, it performed a non-combined routing area update when it changed the routing area while the non-GPRS service transaction was ongoing. Therefore, the Gs association in the SGSN is broken. If the association is not re-established immediately after termination of the non-GPRS service, because the MS has only changed the RA but not the LA, the MS cannot be paged for CS services if a PCCCH is allocated in the cell. b) if the MS is operating in MS operation mode B, the routing area update was postponed until the non-GPRS service transaction was terminated. In this case the MS has to perform a combined routing area update. <p>2) Furthermore, it is specified that a combined routing area update is used to update the network with the new MS Radio Access Capability, and for signalling connection re-establishment in certain UMTS scenarios. It needs to be clarified that in both cases the combined procedure shall only be used if the MS is in state MM-IDLE.</p> <p>Otherwise, if the MS has an CS connection active and has performed an inter-MSC handover, the SGSN will perform the BSSAP+-Location-Update procedure towards the new MSC/VLR. When the new MSC/VLR retrieves the subscriber data from the HLR, the subscriber data at the old MSC/VLR are purged and any ongoing CS transaction will be released by the old MSC/VLR.</p>
Summary of change:	⌘ The wrong condition is corrected (1), and the missing condition is added (2).
Consequences if	⌘ In case 1 the MS cannot be paged for CS services. In case 2 an ongoing CS

not approved: transaction may be aborted by the network.

Clauses affected:	⌘	4.7.5.2.1	
Other specs affected:	⌘	<input type="checkbox"/> Other core specifications	⌘
		<input type="checkbox"/> Test specifications	
		<input type="checkbox"/> O&M Specifications	
Other comments:	⌘		

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.7.5.2.1 Combined routing area updating procedure initiation

The combined routing area updating procedure is initiated only by a GPRS MS operating in MS operation modes A or B, if the MS is in state GMM-REGISTERED and MM-IDLE and if the network operates in network operation mode I:

- when a GPRS MS that is IMSI attached for GPRS and non-GPRS services detects a change of the routing area in state GMM-REGISTERED and MM-IDLE;
- when a GPRS MS that is IMSI attached for GPRS services wants to perform an IMSI attach for non-GPRS services;
- after termination of a non-GPRS service via non-GPRS channels to update the association if the MS has changed the ~~RA/LA~~ during that non-GPRS service transaction;
- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see section 4.5.1.1); in ~~this~~which case the update type IE shall be set to "Combined RA/LA updating with IMSI attach";
- when a GPRS MS needs to update the network with the new MS Radio Access Capability IE; or
- in UMTS, to re-synchronize the PMM mode of MS and network after RRC connection release with cause "Directed signalling connection re-establishment", see Section 4.7.2.5.

In GSM, the routing and location area identification are broadcast on the broadcast channel(s). A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures shall be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first message sent from the MS in the new routing area after routing area change.

In UMTS, the routing and location area identification are broadcast on the broadcast channel(s) or sent to the MS via the PS signaling connection. A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures may be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first GMM message sent from the MS in the new routing area after routing area change.

To initiate a combined routing area updating procedure the MS sends the message ROUTING AREA UPDATE REQUEST to the network, starts timer T3330 and changes to state GMM-ROUTING-UPDATING-INITIATED and MM LOCATION UPDATING PENDING. The value of the update type IE in the message shall indicate "combined RA/LA updating". If for the last attempt to update the registration of the location area a MM specific procedure was performed, the value of the update type IE in the ROUTING AREA UPDATE REQUEST message shall indicate "combined RA/LA updating with IMSI attach". Furthermore the MS shall include the TMSI status IE if no valid TMSI is available.

A GPRS MS in MS operation modes A or B that is in an ongoing circuit-switched transaction, shall initiate the combined routing area updating procedure after the circuit-switched transaction has been released, if the MS has changed the RA during the circuit-switched transaction and if the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall initiate the combined routing area updating procedure with IMSI attach after the circuit-switched transaction has been released if a GPRS attach was performed during the circuit-switched transaction and provided that the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall perform the normal routing area update procedure during an ongoing circuit-switched transaction.

In UMTS, if the MS wishes to prolong the established PS signalling connection after the normal routing area updating procedure when it is served under UMTS area, it may set a follow-on request pending indicator on.

In UMTS, when a ROUTING AREA UPDATE REQUEST is received by the SGSN over a new PS signalling connection while there is an ongoing PS signalling connection (network is already in mode PMM-CONNECTED) for this UE, the network shall progress the routing area update procedure as normal and release the previous PS signalling connection when the routing area update procedure has been accepted by the network .

Note: The re-establishment of the radio bearers of active PDP contexts is done as described in section "Service Request procedure".

CHANGE REQUEST

⌘ **24.008 CR 479** ⌘ ev **1** ⌘ Current version: **5.1.0** ⌘

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

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

Title:	⌘ Correction of the criteria for the usage of combined RAU		
Source:	⌘ Siemens AG		
Work item code:	⌘ GPRS	Date:	⌘ 27.09.01
Category:	⌘ A	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change: ⌘ 1) According to subclause 4.7.5.2.1, after termination of a non-GPRS service via non-GPRS channels an MS in state GMM-REGISTERED shall perform a combined routing area update "to update the association if the MS has changed the **Location Area** during that non-GPRS service transaction."
The correct condition is that a combined RAU has to be performed if the MS has changed the **Routing Area** (see TS 23.060, subclause 6.3.1), because:

a) if the MS is operating in MS operation mode A, it performed a non-combined routing area update when it changed the routing area while the non-GPRS service transaction was ongoing. Therefore, the Gs association in the SGSN is broken. If the association is not re-established immediately after termination of the non-GPRS service, because the MS has only changed the RA but not the LA, the MS cannot be paged for CS services if a PCCCH is allocated in the cell.

b) if the MS is operating in MS operation mode B, the routing area update was postponed until the non-GPRS service transaction was terminated. In this case the MS has to perform a combined routing area update.

2) Furthermore, it is specified that a combined routing area update is used to update the network with the new MS Radio Access Capability, and for signalling connection re-establishment in certain UMTS scenarios. It needs to be clarified that in both cases the combined procedure shall only be used if the MS is in state MM-IDLE.

Otherwise, if the MS has an CS connection active and has performed an inter-MS handover, the SGSN will perform the BSSAP+-Location-Update procedure towards the new MSC/VLR. When the new MSC/VLR retrieves the subscriber data from the HLR, the subscriber data at the old MSC/VLR are purged and any ongoing CS transaction will be released by the old MSC/VLR.

Summary of change: ⌘ The wrong condition is corrected (1), and the missing condition is added (2).

Consequences if ⌘ In case 1 the MS cannot be paged for CS services. In case 2 an ongoing CS

not approved: transaction may be aborted by the network.

Clauses affected:	⌘	4.7.5.2.1	
Other specs affected:	⌘	<input type="checkbox"/> Other core specifications	⌘
		<input type="checkbox"/> Test specifications	
		<input type="checkbox"/> O&M Specifications	
Other comments:	⌘		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.7.5.2.1 Combined routing area updating procedure initiation

The combined routing area updating procedure is initiated only by a GPRS MS operating in MS operation modes A or B, if the MS is in state GMM-REGISTERED [and MM-IDLE](#) and if the network operates in network operation mode I:

- when a GPRS MS that is IMSI attached for GPRS and non-GPRS services detects a change of the routing area in state GMM-REGISTERED and MM-IDLE;
- when a GPRS MS that is IMSI attached for GPRS services wants to perform an IMSI attach for non-GPRS services;
- after termination of a non-GPRS service via non-GPRS channels to update the association if the MS has changed the [RA/LA](#) during that non-GPRS service transaction;
- after a CM SERVICE REJECT message with cause value #4 is received by the mobile station (see section 4.5.1.1); in [this](#) ~~which~~ case the update type IE shall be set to "Combined RA/LA updating with IMSI attach";
- when a GPRS MS needs to update the network with the new MS Radio Access Capability IE; or
- in UMTS, to re-synchronize the PMM mode of MS and network after RRC connection release with cause "Directed signalling connection re-establishment", see Section 4.7.2.5.

In GSM, the routing and location area identification are broadcast on the broadcast channel(s). A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures shall be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first message sent from the MS in the new routing area after routing area change.

In UMTS, the routing and location area identification are broadcast on the broadcast channel(s) or sent to the MS via the PS signaling connection. A combined routing area updating procedure shall abort any ongoing GMM procedure. Aborted GMM procedures may be repeated after the combined routing area updating procedure has been successfully performed. The ROUTING AREA UPDATE REQUEST message shall always be the first GMM message sent from the MS in the new routing area after routing area change.

To initiate a combined routing area updating procedure the MS sends the message ROUTING AREA UPDATE REQUEST to the network, starts timer T3330 and changes to state GMM-ROUTING-UPDATING-INITIATED and MM LOCATION UPDATING PENDING. The value of the update type IE in the message shall indicate "combined RA/LA updating". If for the last attempt to update the registration of the location area a MM specific procedure was performed, the value of the update type IE in the ROUTING AREA UPDATE REQUEST message shall indicate "combined RA/LA updating with IMSI attach". Furthermore the MS shall include the TMSI status IE if no valid TMSI is available.

A GPRS MS in MS operation modes A or B that is in an ongoing circuit-switched transaction, shall initiate the combined routing area updating procedure after the circuit-switched transaction has been released, if the MS has changed the RA during the circuit-switched transaction and if the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall initiate the combined routing area updating procedure with IMSI attach after the circuit-switched transaction has been released if a GPRS attach was performed during the circuit-switched transaction and provided that the network operates in network operation mode I.

A GPRS MS in MS operation mode A shall perform the normal routing area update procedure during an ongoing circuit-switched transaction.

In UMTS, if the MS wishes to prolong the established PS signalling connection after the normal routing area updating procedure when it is served under UMTS area, it may set a follow-on request pending indicator on.

In UMTS, when a ROUTING AREA UPDATE REQUEST is received by the SGSN over a new PS signalling connection while there is an ongoing PS signalling connection (network is already in mode PMM-CONNECTED) for this UE, the network shall progress the routing area update procedure as normal and release the previous PS signalling connection when the routing area update procedure has been accepted by the network .

Note: The re-establishment of the radio bearers of active PDP contexts is done as described in section "Service Request procedure".

Cancun, Mexico, 26 – 30 November 2001

CR-Form-v4	
CHANGE REQUEST	
⌘ 44.064 CR ⌘ 004 ⌘ ev ⌘	Current version: 4.1.0 ⌘

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

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

Title:	⌘ Conditions for IOV reset		
Source:	⌘ Siemens AG		
Work item code:	⌘ GPRS	Date:	⌘ 29.11.01
Category:	⌘ A	Release:	⌘ REL-4
	<i>Use one of the following categories:</i> 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.		<i>Use one of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ IOT tests showed, that the term "change of Kc" was interpreted different by some manufactures, in case the same triplet were used twice subsequently by the network.
Summary of change:	⌘ It is clarified that the conditions to reset the IOV value to is set to default is only applicable, if the value of the Kc is different.
Consequences if not approved:	⌘ Different MS and SGSN implementation with the consequence that the ciphered data could not be de-ciphered by the receiver.

Clauses affected:	⌘ 8.9.2	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	
Other comments:	⌘	

8.9.2 Input Offset Value (IOV)

The Input Offset Value (IOV) is an LLC layer parameter used for ciphering. IOV is a random 32 bit value, generated by the SGSN. See also annex A.

The value for IOV can be different for I frames and UI frames. IOV-UI is IOV for UI frames. IOV-I is IOV for I frames.

The default values of IOV are given in **Error! Reference source not found.**. The following rules apply to default IOV values:

- After a change of Kc to a different value, negotiation of IOV-I may be omitted and the default value applied. If ABM is re-established for an LLE, and Kc is not changed to a different value since ABM was last (re-)established for this LLE, then a random IOV-I value shall be negotiated.
- After a change of Kc to a different value, negotiation of IOV-UI may be omitted and the default value applied. If the unconfirmed send state variable V(U) is reset for an LLE, and Kc is not changed to a different value since V(U) was last reset for this LLE, then a random IOV-UI value shall be negotiated.