3GPP TSG CN Plenary Meeting #18 **NP-020619**
4th - 6th December 2002. New Orleans, USA.

Source: TSG CN WG3

Title: CRs on Rel5 Work Item SCUDIF [CR PACK2]

Agenda item: 8.7

Document for: APPROVAL

Introduction:

This document contains **4** CR on **Rel-5 WI SCUDIF**.

These CR(s) have been agreed by TSG CN WG3 and are forwarded to TSG CN Plenary meeting #18 for approval.

WG_tdoc	Title	Spec	CR	Rev	Cat	Rel	Version_old
N3-021000	Service Change Procedure	23.172	004	2	F	Rel-5	5.0.0
N3-020999	Mobile originating BC handling for	23.172	003	3	F	Rel-5	5.0.0
N3-021001	Mobile originating BC handling for	27.001	082	4	F	Rel-5	5.3.0
N3-020998	Mobile originating BC handling for	29.007	060	3	F	Rel-5	5.3.0

3GPP TSG-CN WG3 Meeting #26 ***Tdoc ⌘N3-020998***
Bangkok, Thailand, 11th - 15th November 2002.

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CHANGE REQUEST

⌘ **29.007** **CR** **060** ⌘ **rev** **3** ⌘ Current version: **5.3.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Mobile originating BC handling for SCUDIF calls
Source:	⌘	TSG_CN WG3
Work item code:	⌘	SCUDIF
Date:	⌘	18/09/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

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.

Use one 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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The case where BCs are returned in reverse order at initial call setup is not described.
Summary of change:	⌘	The description of the case where the originating MSC returns BCs in reverse order to the originating UE is added.
Consequences if not approved:	⌘	Interaction between Terminal and Core Network for this call case may not be considered, leading to possible interworking misoperations.

Clauses affected:	⌘	10.4.1.1

	Y	N			
Other specs affected:	X		Other core specifications	⌘	TS 23.172, TS 27.001
		X	Test specifications		
		X	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/specs/CR.htm. Below is a brief summary:

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

10.4.1.1 Call setup

The setup message sent by the MS contains either a multimedia BC-IE indicating a multimedia only call request (*i.e.* no fallback / service change allowed) or both a speech BC-IE and a multimedia BC-IE to indicate the support of fallback and service change (ref. to 3GPP TS 27.001 [43] and 3GPP TS 24.008 [40]).

The MSC shall not accept a requested service to which the user is not provisioned for. Provided that the user is provisioned for the BS30 bearer service – and/or speech the following applies :

- in case of a multimedia only BC-IE, the MSC shall either accept the setup as such or with modifications sent to the MS in the call proceeding message (ref. to 3GPP TS 27.001 [43]) ;
- in case of both a speech BC-IE and a multimedia BC-IE in either order, the MSC shall either accept the possibility of fallback or service change by responding with the two BC-IEs in the same order as received, in the reverse order (relayed from terminating user), or no BC-IEs, or turn the call to a speech call by sending only a speech BC-IE in the call proceeding message, or turn the call to a multimedia only call by sending only the multimedia BC-IE in the call proceeding message (ref. to 3GPP TS 27.001 [43]).
- in case of a multimedia BC-IE with FNUR = 32 kbit/s and a speech BC-IE, the MSC shall reply with only a multimedia BC-IE in the call proceeding message (ref. to 3GPP TS 23.172 [83]).

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CHANGE REQUEST

⌘ **23.172** **CR** **003** ⌘ **rev** **3** ⌘ Current version: **5.0.0** ⌘

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Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Mobile originating BC handling for SCUDIF calls
Source:	⌘	TSG_CN WG3
Work item code:	⌘	SCUDIF
Date:	⌘	18/09/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
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A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
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R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The case where BCs are returned in reverse order at initial call setup is not described for the originating side, although it is described for the terminating side
Summary of change:	⌘	The description of the case where the originating MSC returns BCs in reversed order to the originating UE due to the called user requesting a reverse of the BCs is added.
Consequences if not approved:	⌘	Interaction between Terminal and Core Network for this call case may not be considered, leading to possible interworking misoperations.

Clauses affected:	⌘	4.2.1

	Y	N			
Other specs affected:	X		Other core specifications	⌘	TS 27.001, TS 29.007
		X	Test specifications		
		X	O&M Specifications		

Other comments:	⌘	

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4.2.1 Mobile originating side - initiation of call setup

By sending a SETUP message with a Repeat Indicator set to "support of service change and fallback", a multimedia BC-IE, and a speech BC-IE (see figure 4.1), a terminal may request a call to be set with the capability to fallback to either a speech only, a multimedia only call or to use service change later during the active state of the call (the first BC-IE indicates the preferred service).

After checking the provisioning, and verifying that the functionality is supported, the MSC replies in the CALL PROCEEDING message with either the two BCs in the same order (or no BC to indicate that it accepts the proposed settings - see figure 4.2), or with a single BC (multimedia or speech - see figure 4.3) unless the CALL PROCEEDING is delayed until the response from the terminating user and then it may also be sent with the BCs in reverse order (see clause 4.2.3).

In the case the MSC ignores the SETUP message if the presence of a reserved value for the Repeat Indicator is set, it sends a STATUS message back to the UE (see figure 4.4), with the Cause Value set to #100, "Conditional IE error" (see 3GPP TS 24.008 [3], clause 8.7.2). The UE then reacts as described in 3GPP TS 24.008 [3], clause 5.5.3.2.2, and may resend a new SETUP message with a single BC, or perform any appropriate action according to its implementation. This also applies in case the MSC returns instead a RELEASE COMPLETE message.

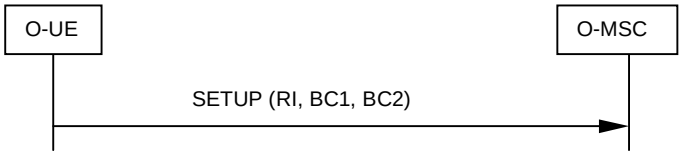
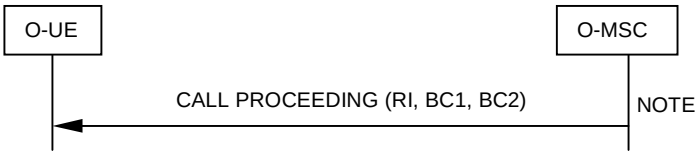


Figure 4.1: SETUP message towards the originating MSC



NOTE: The MSC may send CALL PROCEEDING without RI and BCs to indicate that it accepts the proposed settings sent in the SETUP message.

Figure 4.2: Normal case

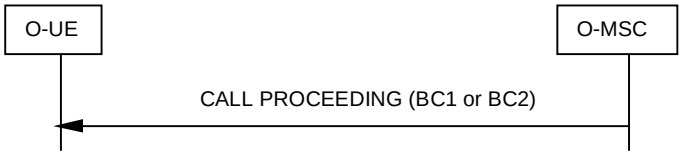
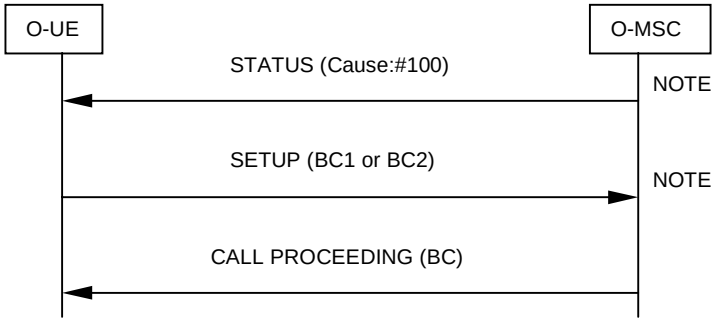


Figure 4.3: Fallback case



NOTE: The sending of the STATUS message from the MSC and the second SETUP message from the UE are implementation dependent.

Figure 4.4: MSC not supporting the RI value

****** Next Modified Section ******

4.2.3 Mobile originating side - completion of call setup

If the preferred mode, that is the first BC-IE indicated by the originating UE, was selected as the result of negotiations, the call shall be set up normally towards the originating UE.

If the negotiation resulted in a change of the selected mode, i.e. the call was set up as "multimedia first" and changed during the negotiation to a speech call, or vice-versa, because of either fallback or change of selected mode and the Call Proceeding message has been sent then, an In-Call Modification procedure (see 3GPP TS 24.008 [3], clause 5.3.4.3) shall be initiated towards the originating UE after the call control entity has entered the active state, i.e. the CONNECT message has been sent.

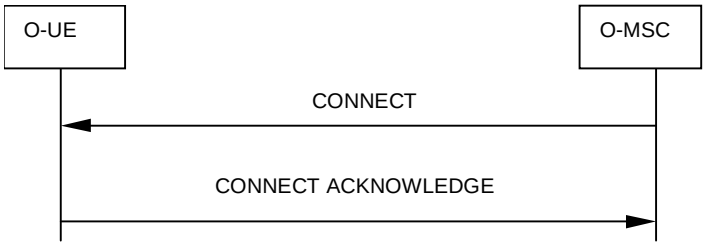


Figure 4.10: Preferred mode selected

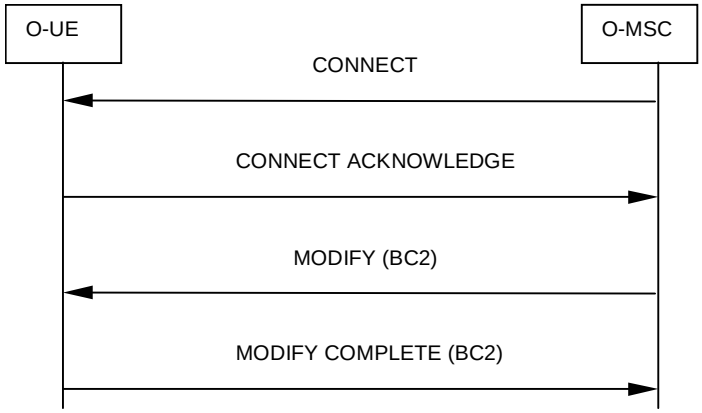


Figure 4.11: Less preferred mode selected, accepted

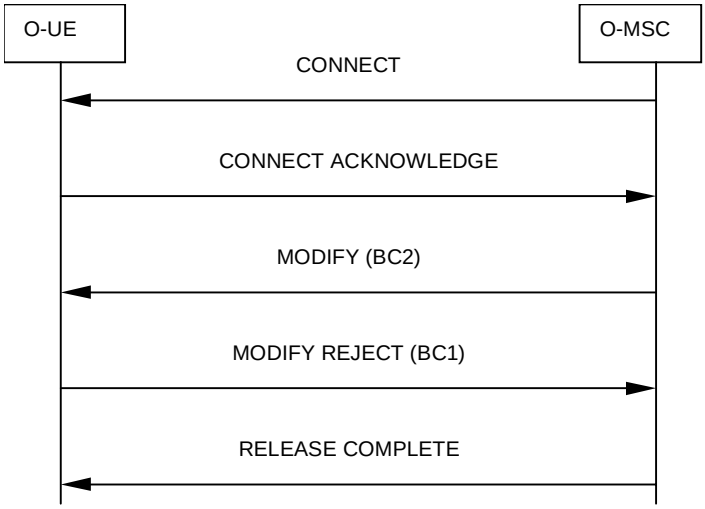


Figure 4.12: Less preferred mode selected, rejected

If the Call Proceeding message is delayed until response from the terminating side then it may include one or both BCs either in the order requested from the Originating UE or the order of the BCs may be reversed, depending on the result from the negotiation or (single BC) due to fallback. See Figure 4.12a.

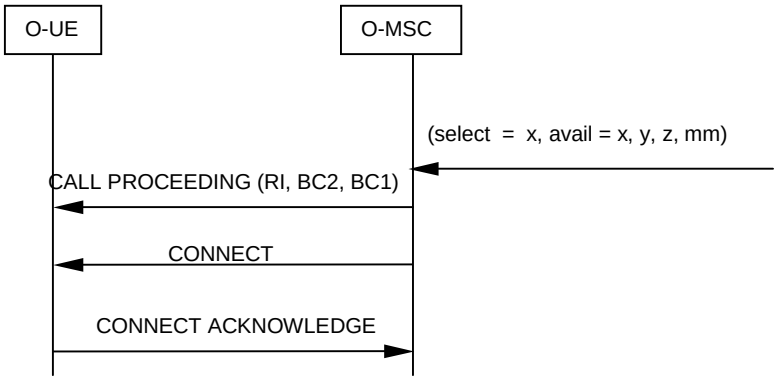


Figure 4.12a: Call Proceeding Delayed

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CHANGE REQUEST

⌘ **23.172** **CR** **004** ⌘ **rev** **2** ⌘ Current version: **5.0.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Service Change Procedure
Source:	⌘	TSG_CN WG3
Work item code:	⌘	SCUDIF
Date:	⌘	12/09/02
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
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R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Service change section does not cover enough detail for the Server to control the MGW in split atchitecture for a SCUDIF call.
Summary of change:	⌘	Detailed description added
Consequences if not approved:	⌘	Server-MGW behaviour for service change not defined – misoperation could occur.

Clauses affected:	⌘	4.3.5

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Flows for service change to be added in later CR when agreement on signalling procedures reached.

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4.3.5 Service change during the active state

Whenever an In-Call Modification procedure is invoked by a terminal, unless it is not allowed as determined at call setup, the following shall take place:

- if the current mode is the speech mode and the MODIFY message contains a multimedia BC-IE, the normal Out-of-Band Transcoder Control procedures shall be invoked in order to change the Selected Codec to the 3G-324.M codec;
- if the current mode is the multimedia mode and the MODIFY message contains a speech BC-IE, the normal Out-of-Band Transcoder Control procedures shall be invoked in order to change the Selected Codec to the preferred speech codec.

The Codec Modification procedure shall be supported for service change. The use of mid-call codec negotiation procedure is optional for service change.

When a MSC detects through an Out-of-Band Transcoder Control procedure that the selected codec has changed from a speech codec to the 3G-324.M codec, or vice-versa, it shall initiate an In-Call Modification procedure towards the UE with a MODIFY message containing the multimedia BC-IE (or the speech BC-IE), unless the new mode has been denied at call setup (see clause 4.2.4).

4.3.5.1 Mid-Call Codec Modification Procedure For Service Change

The Codec Modification procedures as defined in [2] shall be applied with the following specific additional rules for the Service Change procedure.

In order to prevent the MGW generating an error or seizing resources during the interim period when its terminations are being altered and it may have a speech codec on one side of the context and the 3G-324M codec on the other side the Server shall modify the Stream–mode of the affected terminations to inactive during the Service change and shall restore the stream mode to active – (send/receive – bothway) on completion of the service change procedure.

If the affected termination's stream mode is inactive a MGW shall not reject a "Modify Bearer Chracteristics" or -a "Reserve Bearer Characteristics" procedure because the multimedia codec and a speech codec are interconnected simultaneously in the same context.

4.3.5.2 Unsucessful Service Change

In the case the service change is denied by the UE at the terminating side, the procedures for the unsuccessful Codec Modification as defined in [2] shall be applied to revert to the old medium (speech or multimedia).

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CHANGE REQUEST

⌘ **27.001** **CR** **082** ⌘ **rev** **4** ⌘ Current version: **5.3.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Mobile originating BC handling for SCUDIF calls
Source:	⌘	TSG_CN WG3
Work item code:	⌘	SCUDIF
Date:	⌘	25/10/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
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Rel-6 (Release 6)

Reason for change:	⌘	The case where BCs are returned in reverse order at initial call setup is not described.
Summary of change:	⌘	The description of the case where the originating MSC returns BCs in reverse order to the originating UE is added.
Consequences if not approved:	⌘	Interaction between terminal and Core network for this call case may not be considered, leading to possible interworking misoperations.

Clauses affected:	⌘	8.3.3.2

	Y	N			
Other specs affected:	X		Other core specifications	⌘	TS 23.172, TS 29.007
		X	Test specifications		
		X	O&M Specifications		

Other comments: ⌘

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8.3.3.2 Indication in case of Mobile originating calls

In support of mobile originating calls the values of BC-IE parameters are requested in the set-up message from the MS. If the MS indicates the support of both transparent and non transparent connection elements the network shall return its choice in the call proceeding message. The MS is not allowed to indicate support of both transparent and non transparent, if the MS also requests out-band flow control, i.e. it does not indicate a layer 2 protocol.

Additionally the value of the parameter modem type has to be set depending on the value of the parameter connection element as described in annex B, table B.4a.

The set-up message contains a single or multiple BC-IE. In case of multiple BC-IEs one BC-IE shall indicate the information transfer capability "speech".

In case of a 3,1 kHz multimedia call the setup message contains either a multimedia BC-IE indicating a multimedia only call request (i.e. no fallback to speech allowed) or both a 3,1 kHz multimedia BC-IE and a speech BC-IE to indicate the support of a fallback to speech (ref. 3GPP TS 29.007 and 3GPP TS 24.008).

In case of a UDI/RDI multimedia call, the setup message contains either a multimedia BC-IE indicating a multimedia only call request, or both a multimedia BC-IE and a speech BC-IE (in any order) to indicate the support of service change and fallback (ref. 3GPP TS 29.007 and 3GPP TS 24.008). The latter is not applicable to multimedia calls with FNUR=32.0 kbit/s.

If the set-up message requests a "single service", the network shall not answer in the call proceeding message requesting a "dual service". Alternatively the network shall answer with a single BC-IE containing fax group 3 if a multiple BC-IE requesting speech alternate fax group 3 is received but the network does not allow the use of this alternate service. Annex B, table B.7, describes the negotiation rules.

If the MS requests a "dual service" the network is not allowed to change the sequence of the service, a change may however occur due to the called user and this may then be relayed back to the originating MS by the network.

If the setup message requests a multimedia service with fallback, the network may return both BC-IEs in the same order or no BC-IE to accept the request, both BC-IEs in the reverse order (relayed from terminating User) , or a single BC-IE if fallback, service change or one of the requested services are not allowed.

If the set-up message indicates that negotiation of intermediate rate is requested then the network shall behave as described in annex B, table B.4b.

Unless otherwise specified in annex B, if no BC-IE parameter needs negotiation it is up to the network if it sends a CALL PROC message (with or without a BC-IE) towards the MS or not.

For multislot, TCH/F14.4, and EDGE operations and in UTRAN Iu mode the MS shall include an appropriate set of the parameters 'fixed network user rate', 'other modem type', 'maximum number of TCH' and 'acceptable channel codings' in the BC-IE of the SETUP message. If EDGE channel coding(s) are included in ACC in case of transparent calls, the 'Wanted air interface user rate'-parameter shall be set to 'Air interface user rate not applicable' and the 'User initiated modification indication'-parameter to 'User initiated modification not requested'. In a non-transparent multislot operation, the MS shall also include the parameters 'wanted air interface user rate' and 'user initiated modification indication' in the BC-IE of the SETUP message. In a non-transparent TCH/F14.4 or EDGE operation or in UTRAN Iu mode the MS shall also include the parameter 'wanted air interface user rate'. In non-transparent EDGE operation the MS shall also include the parameter 'asymmetry preference indication'. It shall also set the other parameters of the BC-IE (i.e. 'user rate') to values identifying fall-back values. Depending on the network two situations can be distinguished:

a) The network supports the requested operation:

   - in this case the network shall include the parameter 'fixed network user rate', 'other modem type' and possibly 'user initiated modification' in the BC-IE(s) of the CALL PROCEEDING message, irrespective whether or not they contain modified values or just a copy of the received ones;

   - the 'acceptable channel codings' indicated by the MS in the SETUP message takes precedence over the 'negotiation of intermediate rate requested' parameter for non-transparent services. The intermediate rate per traffic channel and the user rate per traffic channel is dependent on the chosen channel coding only. The chosen channel coding is indicated to the mobile station by the network with an RR message.

b) The network does not support the requested operation:

- in this case, in A/Gb mode, the BC-IE of the CALL PROCEEDING message does not contain the parameters fixed network user rate' and 'other modem type' or no BC-IE is included in the CALL PROCEEDING message at all. The mobile station shall then discard the parameters 'fixed network user rate', 'other modem type', 'maximum number of TCH', 'acceptable channel codings' 'wanted air interface user rate' and 'user initiated modification indication' sent with the SETUP message and apply the fall-back bearer service.

In case a), a single slot configuration shall be used by the MS, in case the 'maximum number of traffic channels' is set to "1 TCH" and the 'user initiated modification indication' is set either to "user initiated modification not requested" or to "user initiated modification up to 1TCH may be requested".

In case b), The MS shall use the fall-back bearer service indicated by the remaining parameters of the BC-IE on a single slot configuration (reference 3GPP TS 44.021).

If FNUR = 33.6 kbit/s is agreed on in the setup of a 3.1 kHz multimedia call, the modems may handshake to 31.2 or 28.8 kbit/s. In this case the MS receives a MODIFY message from the MSC to indicate the new data rate, and shall respond with a MODIFY COMPLETE message (ref. to 3GPP TS 24.008), if it supports the requested modification. If the MS does not support the requested modification, it shall respond with a MODIFY REJECT message. The MT shall indicate the new data rate to the TE (e.g. using the ITU-T V.80 inband signaling) in order to cause the TE to use stuffing to adapt the 31.2 or 28.8 kbit/s data rate to the 33.6 kbit/s traffic channel between the TE and IWF.