Source: **SA1**

Title: **CRs to 22.001, 22.105 and 22.129 on Removal of features due to deletion of the workitem on "Bearer modification without pre-notification" from Rel-4**

Document for: **Approval**

Agenda Item: **7.1.3**

Spec	CR	Rev	Phase	Cat	Subject	Version-Current	Version-New	Doc-2nd-Level
22.001	006		Rel-4	F	Removal Bearer modification without pre-modification from 22.001	4.1.1	4.2.0	S1-010540
22.105	031		Rel-4	F	Removal of features due to deletion of the workitem on "Bearer modification without pre-notification".	4.1.0	4.2.0	S1-010560
22.129	018		Rel-4	F	Bearer modification without pre-modification	4.2.0	4.3.0	S1-010553

CR-Form-v3

CHANGE REQUEST

⌘ **22. 001** CR **006** ⌘ rev **-** ⌘ Current version: **4.1.1** ⌘

*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 **X** Radio Access Network **X** Core Network **X**

Title: ⌘	Removal of features due to deletion of the workitem on "Bearer modification without pre-notification".	
Source: ⌘	SIEMENS AG.	
Work item code: ⌘	BMWPN	**Date:** ⌘ 11 May– 2001
Category: ⌘	**F**	**Release:** ⌘ REL-4

Use <u>one</u> of the following categories:
F *(essential 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: ⌘	As a SA decision the workitem on "Bearer modification without pre-notification" was deleted. SA has asked to reflect this decision in the relevant specifications.
Summary of change: ⌘	Removal of requirements originally approved in CR to 22.001 in S1-000642
Consequences if not approved: ⌘	Misalignment of 22.001

Clauses affected: ⌘	5.1
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments: ⌘	

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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.

4.1 Subscription checking for Basic Services

General

Subscription checking is the function/process to ascertaining whether a subscriber has the authorization to use the particular Basic Service deduced from the call set-up ~~or service modification~~ parameters. It is the responsibility of the HPLMN to transfer, to the VPLMN, only the subscription data corresponding to those services a given subscriber is entitled to use in that VPLMN.

For mobile originated calls, subscription checking is performed in the VLR, whilst for mobile terminated calls it is performed in either the HLR or the VLR (determined as described below). The prerequisite for executing the subscription check is a successful deduction of a Basic Service from the Compatibility Information contained in the call set up ~~or service modification~~, i.e. Bearer Capability Information Element and, in some cases, also the Low Layer and High Layer Compatibility Information elements.

For mobile originated calls an UE shall indicate the requested service by appropriate compatibility information elements according to GSM 27.001 [8]. This information is mapped to an individual Basic Service code (i.e. the MAP representation) by the MSC in order to be compared with the subscriber data available in the VLR.

An equivalent process is required in the HLR for mobile terminated calls, where the caller's requested service is indicated to the HLR (by the ISDN) by exhaustive compatibility information consisting of ISDN Bearer Capability Information Elements and in some cases - depending on the service requested - also of Low Layer and High layer Compatibility information elements. In case the compatibility information is not exhaustive, e.g. when the call is originated/transited by a PSTN, no Basic Service can be deduced and subscription checking cannot be performed in the "normal" way. Instead, rules for the Single and Multi Numbering Schemes apply.

In the Multi Numbering Scheme the Basic Service can be deduced by information stored in the HLR against the called number and hence an implicit subscription check is performed. In the Single Numbering Scheme, the Basic Service cannot be deduced until the UE has responded to the set up and therefore the HLR cannot perform subscription check. Instead, the VLR/MSC will perform the subscription check or calls are passed "unfiltered" (as regards subscription check), at the network operators' discretion.

~~The subscription checking shall be performed when service modification is performed. If the subscriber checking is negative, it shall be able to return to current TS or BS.~~

Bearer Services

GSM 02.02 lists the Bearer Services, each of them with a specific "BS number". Single services defined independent of the fixed network user rate are called General Bearer Services. These distinct [numbered] services may individually be provided to a subscriber.Whichever the subscription arrangements are, all PLMNs (MSCs, VLRs and HLRs) shall be able to allow - as regards subscription checking - the use of individually subscribed-to Basic Services, within the range of services supported by the PLMN. That is, whenever it is possible to deduce the Basic Service from a call set up ~~or service modification~~, subscription check shall be performed at the granularity of that particular Basic Service or the group to which it belongs.

TeleServices

TS 22.003 [6] lists the TeleServices, each of them with a specific "TS number". These may be provided to subscribers individually or combined, to the operators' discretion, however TS 12 (Emergency calls) and TS 23 (CBS) are not subscribable. But, as for Bearer Services, networks shall be able to handle subscription checking at the granularity of individual TeleServices.

Table 2 summarizes the basis on which a successful subscription checking will result. It also describes on which basis Supplementary Service handling for a given call set-up should be performed.

Table 2

Set Up	Subscription Check	SS handling
BS 20	BS 20	BS Group 2x
BS 30	BS 30	BS Group 3x
TS 11	TS 11, TS Group 1x or TS Group All	TS Group 1x
TS 12	N.A.	
TS 21	TS 21, TS Group 2x or TS Group All	TS Group 2x
TS 22	TS 22, TS Group 2x or TS Group All	TS Group 2x
TS 23	N.A.	
TS 61	TS 61, TS Group 6x or TS Group All	TS Group 6x
TS 62	TS 61, 62, Group 6x or TS Group All	TS Group 6x
TS 91	TS 91, TS Group 9x or TS Group All	TS Group 9x
TS 92	TS 92, TS Group 9x or TS Group All	TS Group 9x
Legend:		

Legend:
- set-up: The Basic Service which is set up for the call;
- subscription check: Required VLR or HLR data for successful subscription check;
- SS handling: Against which VLR or HLR data SS handling should be performed. For example; a call set-up indicating BS61 and Asynchronous mode should be treated for SS purposes in accordance with the SS-data stored against BS group 2x.

When TS61 is requested in a call set-up and the subscription check for TS61 is negative, but a subscription check for TS62 is positive, then the call shall proceed according to the TS 22.003 [6]and TS 27.001 [8]. If a subscription check for both TS61 and TS62 is negative, then the call shall be released.

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CHANGE REQUEST

⌘ **22. 105** CR **031** ⌘ rev **-** ⌘ 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 **X** Radio Access Network **X** Core Network **X**

Title: ⌘	Removal of features due to deletion of the workitem on "Bearer modification without pre-notification".	
Source: ⌘	SA1	
Work item code: ⌘	BMWPN	**Date:** ⌘ May– 2001
Category: ⌘	F	**Release:** ⌘ REL-4

<table>
<tr><td colspan="2"><i>Use <u>one</u> of the following categories:</i>
F (essential correction)
A (corresponds to a correction in an earlier release)
B (Addition of feature),
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be found in 3GPP TR 21.900.</td><td><i>Use <u>one</u> 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)</td></tr>
</table>

Reason for change: ⌘	As a SA decision the workitem on "Bearer modification without pre-notification" was deleted. SA has asked to reflect this decision in the relevant specifications.
Summary of change: ⌘	Removal of requirements originally approved in CR to 22.101 in S1-000641
Consequences if not approved: ⌘	Misalignment of 22.101

Clauses affected: ⌘	5.2
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments: ⌘	

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5.2 Description of bearer services

Bearer services are characterised by a set of end-to-end characteristics with requirements on QoS. The characteristics and requirements shall cover major network scenarios, i.e. the cases when the terminating network is PSTN, ISDN, GSM, IP networks/LANs, X.25 and a PLMN.

Quality of Service is the quality of a requested service (Teleservice or Bearer Service or any other service, e.g. customer care) as perceived by the customer (ITU-T M.xxxx). QoS is always meant end-to-end. Network Performance of several network elements of the originating and terminating network(s) contribute to the QoS as perceived by the customer including terminals and terminal attachments. In order to offer the customer a certain QoS the serving network need to take into account network performance components of their network, reflect the performance of the terminal and ad sufficient margin for the terminating networks in case network performance requirements cannot be negotiated.

As far as the QoS to the subscriber is concerned network elements have to provide sufficient performance (reflecting possible performance constraints in terminating networks) so that the PLMN cannot be considered as a bottleneck.

This section outlines the requirements on bearer services in two main groups;

- Requirements on information transfer, which characterise the networks transfer capabilities for transferring user data between two or more access points.

- Information quality characteristics, which describe the quality of the user information transferred between two or more access points.

It shall be possible to negotiate / re negotiate the characteristics of a bearer service at session / connection establishment and during an on going session / connection.

The re-negotiation of bearer/QoS is used for modifying its capability during CS calls or PS sessions. This functionality may be initiated by an application, the user via an application or a change in the radio conditions (handover, cell load modification etc.) It may be initiated by mobile station or network. There is a requirement to provide the flexibility within the existing technical solutions utilized, allowing the end users to flexibly change type of bearer and /or QoS parameters within a call as easily as possible. Subscription check shall be performed when re-negotiation is invoked. It may not be necessary in case of the single numbering scheme is used. It shall be possible to have the capability to charge for each bearer respectively.

Re-negotiation of the bearer characteristics during a session / connection (bearer modification without pre-notification) is required for:

1 Modification between speech and fax

2 Modification between speech and modem

3 Fallback multimedia to speech (Fallback is the modification at the call set phase)

4 Modification between speech and 3.1kHz/UDI multimedia

5 Modification bearer/QoS

Note: Above requirements from 1) to 4) are applied to CS domain only.

5.2.1 Information transfer

Connection oriented / connectionless services

Both Connection oriented and connectionless services shall be supported.

Traffic type: It is required that the bearer service provides one of the following:

- guaranteed/constant bit rate,

- non-guaranteed/dynamically variable bit rate, and

- real time dynamically variable bit rate with a minimum guaranteed bit rate..

Real time and non real time applications shall be supported.

- Real time video, audio and speech shall be supported. This implies the:

- ability to provide a real time stream of guaranteed bit rate, end to end delay and delay variation.

- ability to provide a real time conversational service of guaranteed bit rate, end to end delay and delay variation.

- Non real time interactive and file transfer service shall be supported. This implies the:

- ability to support message transport with differentiation as regards QoS between different users.

- Multimedia applications shall be supported. This implies the:

- ability to support several user flows to/from one user having different traffic types (e.g. real time, non real time)

Traffic characteristics

It shall be possible for an application to specify its traffic requirements to the network by requesting a bearer service with one of the following configurations

1) Point-to-Point

- Uni-Directional

- Bi-Directional

- Symmetric

- Asymmetric

2) Uni-Directional Point-to-Multipoint

- Multicast

- Broadcast

A multicast topology is one in which sink parties are specified before the connection is established, or by subsequent operations to add or remove parties from the connection. The source of the connection shall always be aware of all parties to which the connection travels.

A broadcast topology is one in which the sink parties are not always known to the source. The connection to individual sink parties is not under the control of the source, but is by request of each sink party.

NOTE: Point-to-multipoint services are not supported by release 99 specifications.

In the case of a mobile termination with several active bearer services simultaneously, it shall be possible for each bearer service to have independent configurations and source/sink parties.

5.2.2 Information Quality

Information quality a characterises the bit integrity and delay requirements of the applications.

Other parameters may be needed.

Maximum transfer delay

Transfer delay is the time between the request to transfer the information at one access point to its delivery at the other access point. In clause 5.5 requirements on maximum transfer delay is defined.

Delay variation

The delay variation of the information received information over the bearer has to be controlled to support real-time

services. The possible values for delay variation are not a limited set, but a continuous range of values.

Bit error ratio

The ratio between incorrect and total transferred information bits. The possible values for Bit error ratio are not a limited set, but a continuous range of values.

Data rate

The data rate is the amount of data transferred between the two access points in a given period of time.

CR-Form-v3

CHANGE REQUEST

| ⌘ | **22. 129** CR | **018** | ⌘ rev | **-** | ⌘ | Current version: | **4.2.0** | ⌘ |

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Reason for change: ⌘	As a SA decision the workitem on "Bearer modification without pre-notification" was deleted. SA has asked to reflect this decision in the relevant specifications.
Summary of change: ⌘	Removal of requirements originally approved in CR to 22.129 in S1-000613
Consequences if not approved: ⌘	Misalignment of 22.129

Clauses affected: ⌘	5.1
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments: ⌘	

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5.1 Handover due to UE Movement

It should be possible to provide a technical implementation of handover such that there is no measurable impact on the quality of any service when handover due to UE movement occurs. This does not imply that all handovers will achieve this ideal. However, the specifications shall define at least one UTRA radio access mode in which this is possible given the following:

- UE speed stays within limits for given service;

- UE stays constantly within UTRA coverage of a single UTRAN.

When there is handover to a new cell with different radio conditions and , one of the following processes may be implemented;

- If a Multimedia call is unable to maintain the required QoS, the call may fallback to a lower bit rate Multimedia call or speech and continue communication.

iIf a PS sessions is unable to maintain the required quality of service, the QoS of the sessions may be modified to lower quality to continue communication.