TSGS#22(03) 0700

Source: **SA1**

Title: **CRs to 22.101 on Automatic Device Detection and Correction of Core Network emergency call requirements (Rel-6)**

Document for: **Approval**

Agenda Item: **7.1.3**

Meet	Doc. No.	Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	Doc. SA1
SP-22	SP-030700	22.101	135	-	Rel-6	B	Automatic Device Detection	6.5.0	6.6.0	S1-031339
SP-22	SP-030700	22.101	136	-	Rel-6	C	Correction of Core Network emergency call requirements	6.5.0	6.6.0	S1-031342

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CHANGE REQUEST

⌘ **22.101** **CR** **135** ⌘ **rev** **-** ⌘ Current version: **6.5.0** ⌘

*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⌘ [X] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Automatic Device Detection
Source:	⌘	SA1 (Ericsson)
Work item code:	⌘	TEI
Date:	⌘	31/10/2003
Category:	⌘	**B**
Release:	⌘	Rel-6

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:	⌘	Automatic Device Configuration (ADC) is believed to be an important feature to increase the possibility for take-off of new services. This would be triggered by an Automatic Device Detection (ADD) functionality, notifying the home environment that a user has changed terminal. This would enable out-of-the-box operation for all terminals by avoiding the need for end users to ask for a configuration, by avoiding the need to rely on factory-configuration settings only and by the ability to handle both old and new terminals.
Summary of change:	⌘	Addition of a new requirement for Automatic Device Detection (ADD) to automatically notify the home environment that a user has changed terminal.
Consequences if not approved:	⌘	Possibly slower take-off of new services as end users in some cases would need to actively configure their terminals.

Clauses affected:	⌘	New section 7.4.

		Y	N		
Other specs affected:	⌘	Y		Other core specifications	⌘
			N	Test specifications	
			N	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:

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.

7 Principles for new service capabilities

7.1 General

3GPP specifications shall enable the user of a single terminal to establish and maintain several connections simultaneously. It shall efficiently cater for applications which have variable requirements relating to specific QoS parameters (e.g. throughput) whilst meeting other QoS targets. It shall also cater for applications which are able to take adapt to a range of variations in QoS.

7.2 Multimedia

3GPP specifications shall support development of multimedia services and provide the necessary capabilities.

Multimedia services combine two or more media components (e.g. voice, audio, data, video, pictures) within one call. A multimedia service may involve several parties and connections (different parties may provide different media components) and therefore flexibility is required in order to add and delete both resources and parties.

Multimedia services are typically classified as interactive or distribution services.

Interactive services are typically subdivided into conversational, messaging and retrieval services:

Conversational services are real time (no store and forward), usually bi-directional where low end to end delays (< 100 ms) and a high degree of synchronisation between media components (implying low delay variation) are required. Video telephony and video conferencing are typical conversational services."

Messaging services offer user to user communication via store and forward units (mailbox or message handling devices). Messaging services might typically provide combined voice and text, audio and high-resolution images.

Retrieval services enable a user to retrieve information stored in one or many information centres. The start at which an information sequence is sent by an information centre to the user is under control of the user. Each information centre accessed may provide a different media component, e.g. high resolution images, audio and general archival information.

Distribution services are typically subdivided into those providing user presentation control and those without user presentation control.

Distribution services without user control are broadcast services where information is supplied by a central source and where the user can access the flow of information without any ability to control the start or order of presentation e.g. television or audio broadcast services.

Distribution services with user control are broadcast services where information is broadcast as a repetitive sequence and the ability to access sequence numbering allocated to frames of information enables the user (or the user's terminal) to control the start and order of presentation of information.

7.2.1 Circuit Switched (CS) multimedia calls

The following basic requirements are be supported for CS multimedia [24]:

- CS multimedia shall be based on a 3GPP specific subset of H.324M.
- All call scenarios shall be supported, i.e. Mobile Originating and Mobile Terminating call against Mobile, ISDN and PSTN call party.
- Single and multiple numbering schemes shall be supported.
- Fallback to speech (TS 11 [14]) shall be supported from 3.1kHz Ext. PLMN multimedia bearer, i.e. if setup of the multimedia call fails the call will be set up as a speech call.

- Service change and fallback shall be supported for UDI/RDI multimedia bearer and speech, to allow fallback to a less preferred service if the preferred service is unsupported, and to change the service between speech and multimedia during the call.
- CS Multimedia call is a Bearer Service, which utilises Synchronous Transparent Data service.
- Different bitrates as specified at 3GPP TS 22.002 [21] shall be supported.
- Supplementary services apply to multimedia calls as for Synchronous Transparent Data service according to 3GPP TS 22.004[5].
- When accepting a multimedia call with service change, the user shall be able to request a service change to speech before the call is answered, such that the multimedia path is never actually connected through to the user's phone.
- The user shall be able to deny a service change to multimedia during the call.

7.2.2 IP multimedia (IM) sessions

IP multimedia services are not the evolution of the circuit switched services but represent a new category of services, mobile terminals, services capabilities, and user expectations. Any new multimedia service, which may have a similar name or functionality to a comparable standardised service, does not necessarily have to have the same look and feel from the user's perspective of the standardised service. Voice communications (IP telephony) is one example of real-time service that would be provided as an IP multimedia application.

The following basic requirements are be supported for IP multimedia [27]:

- IP multimedia session control shall be based on SIP [28].
- All session scenarios shall be supported; i.e. Mobile Originating and Mobile Terminating sessions against Internet/Intranet, CS or IM Mobile, ISDN, PSTN call party.
- MSISDN and SIP URL numbering and addressing schemes shall be supported.
- IP multimedia applications shall as a principle, not be standardised, allowing service provider specific variations.

7.2.3 Multimedia Messaging Service (MMS)

The following basic requirements are be supported for MMS:

- Store-and-forward multimedia messaging service with mobile and non-mobile users [25].
- MMS shall be capable of supporting integration of different types of messaging (e.g. fax, SMS, Multimedia, voicemail, e-mail etc.) in a consistent manner.
- Streamed and batch delivery for both message download from the network to the terminal, and messages upload from the terminal to the network.

7.2.4 Text Conversation

Global Text Telephony (GTT) is a feature that enables real-time text conversation [28].

- GTT enables real time, character by character, text conversation to be included in any conversational service, Circuit Switched as well as IP based.
- It is possible to use the text component in a session together with other media components, especially video and voice.
- Interworking with existing text telephony in PSTN as well as emerging forms of standardised text

conversation in all networks is within the scope of this feature.

- The text media component can be included initially in the session, or added at any stage during the session.
- The text component is intended for human input and reading, and therefore supports human capabilities in text input speed. The character set support is suitable for the languages the users communicate in.
- GTT specifies limited interoperation with Multimedia Messaging Services including a possibility to divert to messaging in case of call failure and sharing user interface equipment and external UE interfaces.

7.2.5 Packet Switched Streaming Service

The following basic requirements are to be supported for streaming :

- The streaming service uses a client / server model which is transparent to the PLMN. The client controls the initiation and execution of the service.
- The streaming service [29] shall use existing standards (codecs and protocols [30]) where these are available.
- The streaming service utilises the PS Domain with the QoS requirements as specified in 3GPP TS 22.105 [1].

7.3 Service Management Requirements

3GPP specifications shall include standardised protocols enabling service management. It shall enable control, creation and subscription of service capabilities and services, and the management of user profiles.

7.4 Automatic Device Detection

The home environment should be automatically notified when a user, identified by a SIM/USIM, has changed ME and should be informed of the identity of the new ME. This should be applicable to any ME. It should also be possible to achieve Automatic Device Detection for users using any SIM/USIM.

Note: The purpose of this is to enable an automatic configuration of terminals by the operator for specific applications/services if so needed. The procedure for such an automatic configuration need not to be standardized by 3GPP.

The notification that a user has changed ME shall be given as early as possible.

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CHANGE REQUEST

⌘ **22.101** **CR** **136** ⌘ **rev** **-** ⌘ Current version: **6.5.0** ⌘

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

Title:	⌘	Correction of Core Network emergency call requirements
Source:	⌘	SA1
Work item code:	⌘	EMC1
Date:	⌘	29/10/2003
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
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Use one of the following releases:

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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 current specification does not correctly describe the Emergency call requirements to be fulfilled by the Core Network (CN).
Summary of change:	⌘	Correction of the Emergency call requirements to be fulfilled by the CN.
Consequences if not approved:	⌘	Incorrect requirements for CN behaviour of emergency call attempts. Other 3GPP groups working on emergency calls may make invalid assumptions about required CN behaviour.

Clauses affected:	⌘	10.2, 10.3, 10.4

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	TS 23.228
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

2.1 Normative references

[1] 3GPP TS 22.105 “Services and Service Capabilities”

[2] 3GPP TS 22.121: "Virtual Home Environment (VHE), Stage 1"

[3] 3GPP TS 22.038: "SIM application toolkit, stage 1"

[4] 3GPP TS 22.001: " Principles of Circuit telecommunication services supported by a Public Land Mobile Network (PLMN)".

[5] 3GPP TS 22.004: General on supplementary services"

[6] 3GPP TS 22.030: "Man-Machine Interface (MMI) of the User Equipment (UE)"

[7] 3GPP TS 22.066: "Support of Mobile Number Portability (MNP); Service description; Stage 1"

[8] 3GPP TS 22.079: " Support of Optimal Routing; Stage 1"

[9] 3GPP TS 22.129: "Handover Requirements between UTRAN and GERAN or other Radio Systems"

[10] 3GPP TS 33.102: "Security Architecture"

[11] 3GPP TS 22.011: "Service Accessibility"

[12] 3GPP TS 22.016: "International mobile Station Equipment Identities (IMEI)"

[13] 3GPP TS 24.008: " Mobile Radio Interface Layer 3 Specification"

[14] 3GPP TS 22.003: "Circuit Teleservices supported by a Public Land Mobile Network (PLMN)"

[15] 3GPP TS 21.133: "Security Threats and Requirements"

[16] 3GPP TS 33.120: "Security Principles"

[17] 3GPP TS 22.042: "Network Identity and Time Zone, Service Description, Stage 1"

[18] 3GPP TS 42.009: " Security Aspects"

[19] 3GPP TS 31.102: "USIM Application Characteristics"

[20] 3GPP TS 23.221 “Architectural Requirements”

[21] 3GPP TS 22.002: “Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)”

[22] 3GPP TS 22.060: “General Packet Radio Service (GPRS)”

[23] 3GPP TS 29.002: “Mobile Application Part (MAP) specification ”

[24] 3GPP TR 23.972: "Circuit Switched Multimedia Telephony".

[25] 3GPP TS 22.140: "Multimedia messaging service; Stage 1".

[26] 3GPP TS 22.226: “Global Text Telephony, Stage 1.”

[27] 3GPP TS 22.228: "IP multimedia (IM) CN subsystem, stage 1"

[28] RFC 3261: "SIP: Session Initiation Protocol"

[29] 3GPP TR 21.905: “ Vocabulary for 3GPP Specifications”

[30] 3GPP TS 26.233: "Packet Switched Streaming Service (PSS) ; General Description"

[31] 3GPP TS 26.234: "Packet Switched Streaming Service (PSS) ; Protocols and Codecs"

[32] 3GPP TR 22.934: "Feasibility study on 3GPP system to Wireless LAN interworking"

[33] RFC 2486: "The Network Access Identifier"

[34] TS 51.011: "Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface", Release 4

10 Emergency Calls

10.1 General requirements

It shall be possible to establish an emergency speech call. Emergency calls will be routed to the emergency services in accordance with national regulations for where the subscriber is located. This may be based upon one or more default numbers stored in the ME. It shall be allowed to establish an emergency call without the need to dial a dedicated number to avoid the mis-connection in roaming case, such as menu, by use of a 'red button', or a linkage to a car air bag control. Emergency Calls shall be supported by the UE without a SIM/USIM being present. No other type than Emergency calls shall be accepted without a SIM/USIM.

The Emergency service is required only if the UE supports voice.

Note: It will be left to the national authorities to decide whether the network should accept emergency calls without the SIM/USIM.

It shall be possible to initiate emergency calls to different emergency call centers, depending on the type of emergency. The following types of emergency calls shall be possible:

- Police
- Ambulance
- Fire Brigade
- Marine Guard
- Mountain Rescue
- Spare, at least [three] different types

When a SIM/USIM is present, subscriber specific emergency call set-up MMI shall be provided. The Home Environment operator shall specify preferred emergency call MMI(s) (e.g. 911 for US citizens or 110, 118 and 119 for Japanese citizens). This shall be stored in the SIM/USIM and the ME shall read this and use any entry of these digits to set up an emergency call. It shall be possible to store more than one instance of this field.

Note: Release '98 and earlier SIM cards have the capability to store additional emergency call set-up MMI. However in many cases this has not been used.

It shall be possible to tie any emergency call number, specified in the preferred emergency call MMI(s) above, to any single emergency call type or to any combination of emergency types. The association between emergency numbers and emergency call type shall be able to be programmed by the Home Environment operator into the SIM/USIM.

Example:

19	Police (Albania)
100	Police and Fire Brigade (Greek cities)
100	Ambulance and Fire Brigade (Belgium)
112	Police and Ambulance (Italy)
112	General emergency call, all categories (Sweden)
115	Fire Brigade (Italy)
114	Ambulance (Austria)

Note: if the UE does not recognise the emergency call MMI(s) (i.e. the dialled number is not stored in SIM/USIM) but the serving network recognises the dialled number as an emergency call number used in the country, a normal call set up takes place over the radio interface and after the serving network has recognised the emergency number the call is routed as an emergency call.

The user friendly MMI that specifies the type of emergency directly (e.g. menu) should be supported for use in any (i.e. home or visited) PLMN to avoid the mis-connection in roaming case. This shall be allowed both with and without SIM/USIM being present.

The serving network may download additional emergency numbers to the UE in order to ensure that local emergency numbers are known to the UE. The UE shall regard these emergency numbers as valid in that country only (as identified by the MCC) and shall discard them when a new country is entered.

10.1.1 Identification of emergency numbers

The ME shall identify a number dialled by the end user as a valid emergency number if it occurs under one or more of the following conditions.

a) 112 and 911 shall always be available. These numbers shall be stored on the ME.

b) Any emergency number stored on a SIM/USIM when the SIM/USIM is present.

c) 000, 08, 110, 999 when a SIM/USIM is present but no emergency numbers are stored on the SIM/USIM. These numbers shall be stored on the ME.

Note: These emergency numbers should not overlap with existing service numbers used by any operator.

d) 000, 08, 110, 999, 118 and 119 when a SIM/USIM is not present. These numbers shall be stored on the ME.

e) Additional emergency numbers that may have been downloaded by the serving network when the SIM/USIM is present.

10.2 Emergency calls in the ~~when attached to a~~ CS CN Domain

~~PLMNs~~A CS CN Domain shall support ~~an~~the emergency call teleservice as defined in 3GPP TS 22.003 [14] (TS12).

If a UE supports TS11(Telephony)[14], then it shall also support TS12(Emergency Calls)[14].

10.3 Emergency Calls in the PS CN Domain~~when Attached to a Data Only Network~~

Without the IM CN subsystem, emergency calls are not supported in the PS CN domain.

~~If an UE with voice capability attempts to make an emergency call while camping on a PLMN that does not support voice service to the UE, a new PLMN selection shall immediately take place, and the UE shall select the first available PLMN that supports emergency calls to the UE.~~

10.4 Emergency calls in the ~~when attached to an~~ IM CN subsystem

It shall be possible for the IM CN subsystem to support IMS emergency calls.

~~Emergency calls shall be supported when attached to an IM CN subsystem as specified in subclause 10.1.~~

If UE is attached simultaneously to both CS domain and IM CN subsystem, the operator shall be able to specify, which domain is used by default for emergency calls.

For further information see 3GPP TS 22.228 [27].

It shall be possible to enable compliance with regional regulatory requirements related to emergency calls.

Note: Other forms than speech for emergency services are for further study.

10.5 Emergency Calls when Attached via an ~~Interworking~~ I-WLAN

Any attempt to make an emergency call shall be handled as defined for a ~~Data Only~~PS CN domain network in section 10.3.