

**Source:** Ericsson  
**Title:** Types of emergency calls  
**Document for:** Discussion - decision

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## **1. Introduction**

Emergency calls are handled as a separate teleservice in GSM. The mobile phone maps the emergency numbers dialled by the subscriber into teleservice 'Emergency Call'. No number is transferred from the Mobile Station (MS) to the MSC. This has the advantage that the subscriber can always dial the numbers known from his home location but the MSC always routes the call to the nearest emergency centre.

The major drawback of this solution is the inability to distinguish between different emergency authorities, for example police, ambulance, or fire brigade. Therefore S1 requires in 22.101 that it shall be possible to route emergency calls to different emergency centres. The method discussed so far is to transfer the dialled number from the MS to the MSC.

This choice of method, however, has been challenged and need to be discussed. We therefore have tried to formulate a set of service requirements below, followed by a short discussion on possible solutions, to initiate such a discussion in S1, with the goal to agree pure service requirements to allow the best possible solution to be chosen.

A table of emergency call numbers for countries in Europe is annexed for information and reference.

## **2. Possible service requirements – for discussion**

- A. It shall be possible to initiate emergency calls to different emergency call centres, depending on the type of emergency. The following types of emergency calls shall be possible:
  - Police
  - Ambulance
  - Fire Brigade
  - Marine Guard
  - Spare, at least [xx] different types.
- B. It shall be possible to initiate emergency calls by dialling an emergency call number, e.g. 112 or any other number(s.) Other types of MMI, e.g. menus, shall be allowed.
- C. Any emergency call number shall be possible to tie to any single emergency call type or to any combination of emergency call types.

Examples:

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

- D. It shall be possible to initiate emergency calls also without a valid SIM/USIM. The following emergency numbers shall be supported: 000, 08, 112, 110, 911 and 999. (Numbers being copied from TS 22.101.)
- E. It shall be possible to initiate emergency calls also when roaming, using the same procedures or emergency call numbers as in the home area/region,
- F. It shall be possible to initiate emergency calls also when roaming, using the same procedures or emergency call numbers as in the visited area/region.

- G. There shall not be any need for different implementations of the UE because of different allocations of emergency call numbers to types of emergencies in different areas/regions.
- H. This functionality shall be included in the Release '99 standard.

### 3. Discussion on possible solutions

It is not the task of S1 to specify solutions to requirements. It can, however, be good to understand enough to ensure that the requirements are not unreasonable.

One possible method is to send the dialled emergency number to the network. This has many advantages. One drawback, however, is the difficulty to cope with one and the same emergency number meaning different things in different areas. For example,

- 100 means Police and Fire Brigade in Greek cities but Ambulance and Fire Brigade in Belgium,
- 110 means Fire Brigade in Norway but Police in Germany,
- 999 means Ambulance in Polen but Police in Ireland,
- 113 means Police in Slovenia but Ambulance in Luxemourg and Norway,
- 155 means Police in Turkey but Ambulance in the Czech Republic and Slovakia etc.

This method would thus not fulfill requirement E above.

Another method is to send an indication of the type of emergency call to the network, not the dialled number itself. This, however, has the drawbacks of

- being less flexible as the types of emergency calls have to be defined in advance and cannot easily be changed thereafter,
- This method also would imply a very large number of combinations of emergency call types according to requirement C. This, however, could be overcome by indicating each type by a separate bit in a bit map sent to the network. (E.g., Police could be indicated by "10000000", Fire Brigade by "00100000", Ambulance and Fire Brigade by "01100000" etc.)

There is one specific case worth mentioning; A subscriber roams to an area having the same emergency numbers but the meanings of those are different, e.g. number "111" means "police" in the home area but means "ambulance" in the visited area. Now, if a person from the visited area uses this MS to make an emergency call to the ambulance, she dials "111" which is converted by the MS to "emergency call type police" and therefore ends up at the police emergency centre. The personnel there would then have to understand that it was meant for the ambulance service and redirect the call accordingly. This case could be partly solved if the MS always sends both the emergency call type and the dialled number, in which case the network would know that the emergency call was meant for either ambulance or police, but calls would anyway end up in the wrong emergency center, either for visitors or natives. Emergency centres would therefore have to deal with this situation anyway, so the benefit if this combined solution can be questioned.

### 4. Conclusion

S1 is invited to discuss and agree service requirements for emergency call as above.

It seems (to the author of this contribution) that all requirements can indeed be fulfilled. It is therefore recommended that the above set of proposed service requirements are agreed and stated in TS 22.101. The choice of an appropriate solution would then be the task for other group(s). To speed up the process, it might be wise for S1 to mention the discussion above and highlight the possible solution found, as a proposal and guideline for those other groups.

Based on the above, it is proposed to recommend the solution using emergency call types.

## Annex – Emergency call numbers used in Europe

Country	Police	Ambulance	Fire Brigade
Albania	19	17	18
Austria	133	144	122
Belgium	101	100	100
Bosnia	92	94	93
Bulgaria	166	150	160
Croatia	92	94	93

Czech rep	158	155	150
Finland	10022	112	112
Germany	110	112	112
Germany 1)	110	19222	112
Greece in Cities	100	166	100
Greece	92	94	100
Hungary	107	104	105
Ireland	999	112	112
Italy	112	112	115
Latvia	02	03	01
Lithuania	02	03	01
Luxembourg	112	113	112
Macedonia	92	94	93
Moldavia	02	03	01
Norway	112	113	110
Poland	997	999	998
Portugal	112/115	112/115	112/115
Romania	055	061	Operator
Russia	02	03	01
Slovakia	158	155	150
Slovenia	113	112	112
Spain – Barcelona, Madrid	0091	0092	080
Switzerland	117 or 17	144	118
Turkey	155	112	110
Ukraine	02	03	01
Yugoslavia	92	94	93

Numbers for Police and Ambulance: Source: Deutsches Rotes Kreuz

Numbers for Fire Brigade in Germany: Source: Deutsches Rotes Kreuz

All other numbers for Fire Brigade: Source: Ericsson (Own investigations)

1) Valid in the following German Counties:

- Bavaria
- Baden Wuerttemberg
- Rheinland Pfalz
- Saarland
- Niedersachsen

# CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

22.101 CR

Current Version: 3.8.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: TSG-SA#7  
list expected approval meeting # here ↑

for approval ☒  
for information ☐

strategic ☐  
non-strategic ☒ (for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG

The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

**Proposed change affects:**  
(at least one should be marked with an X)

(U)SIM ☒ ME ☒ UTRAN / Radio ☒ Core Network ☒

**Source:** Ericsson

**Date:** 2000-02-09

**Subject:** Types of emergency calls

**Work item:**

**Category:**

(only one category shall be marked with an X)

F Correction ☒  
A Corresponds to a correction in an earlier release ☐  
B Addition of feature ☐  
C Functional modification of feature ☐  
D Editorial modification ☐

**Release:** Phase 2 ☐  
Release 96 ☐  
Release 97 ☐  
Release 98 ☐  
Release 99 ☒  
Release 00 ☐

**Reason for change:**

To ensure that the service requirements are complete without specifying a solution.

**Clauses affected:**

**Other specs affected:**

Other 3G core specifications ☒ → List of CRs:  
Other GSM core specifications ☐ → List of CRs:  
MS test specifications ☐ → List of CRs:  
BSS test specifications ☐ → List of CRs:  
O&M specifications ☐ → List of CRs:

**Other comments:**



<----- double-click here for help and instructions on how to create a CR.

错误!使用“开始”选项卡将 **ZGSM** 应用于要在拨号盘使用的“开始”选项卡将 **ZA** 应用于要在此处显示的文字。

## 8 Emergency Calls

PLMNs shall support an emergency call teleservice as defined in TS 22.003 [14] (TS12), which fulfils the following additional service requirements:

It shall be possible to establish an emergency speech call to the serving network. Emergency calls will be routed to the emergency services in accordance with national regulations. This may be based upon one or more default numbers stored in the ME. It may also be possible to establish an emergency call without the need to dial a dedicated number, such as by use of a 'red button', or a linkage to a car air bag control. This functionality shall be available without a SIM/USIM being present. No other type of calls shall be accepted without a SIM/USIM.

The Emergency call teleservice is required only if the UE supports telephony.

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

When a SIM/USIM is present, subscriber specific emergency call set-up MMI shall be provided. The operator shall specify preferred emergency call MMI(s) (e.g. 911 for US citizens or 110, 118 and 119 for Japanese citizens) for use in any (i.e. home or visited) PLMN. 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.

When a SIM/USIM containing stored emergency numbers is present, only those numbers are identified as emergency numbers, i.e. default emergency numbers stored in the ME are ignored.

The following emergency numbers shall be stored in the ME: 000, 08, 112, 110, 911 and 999.

Note: Emergency numbers stored in the ME should not overlap with existing service numbers used by any operator.

~~It shall be possible for the serving network to obtain the number, which was used to initiate the emergency call. This will allow the network the option to route the call to different emergency call centres if appropriate. If the dialled digits are not recognised as an emergency service by the serving network, the call shall be routed to the default emergency service.~~

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

- Police
- Ambulance
- Fire Brigade
- Marine Guard
- Spare, at least [xx] different types.

Any emergency call number, specified in the preferred emergency call MMI(s) above, shall be possible to tie to any single emergency call type or to any combination of emergency call types.

Examples:

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

It shall be possible to initiate emergency calls also when roaming, using the preferred emergency call MMI(s) specified for the visited area/region.

There shall not be any need for different implementations of the UE because of different allocations of preferred emergency call MMI(s) to types of emergency calls in different areas/regions.

### 8.1 Emergency Calls when Attached to a Data Only Network

错误!使用“开始”选项卡将 **ZGSM** 应用于要在错误!使用“开始”选项卡将 **ZA** 应用于要在此处显示的文字。

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

错误!使用“开始”选项卡将 **ZGSM** 应用于要在拨号时显示的文字。

## A.24 Fixed number dialling

This feature provides a mechanism so that by the use of an electronic lock it is possible to place a bar on calling any numbers other than those pre-programmed in the SIM/USIM.

Under control of PIN 2, "Fixed Dialling Mode" may be enabled or disabled. The mode selected is stored in the SIM/USIM.

Fixed Dialling Numbers (FDNs) are stored in the SIM/USIM in the Fixed Dialling Number field. FDN entries are composed of a destination address/Supplementary Service Control and a service code. Destination addresses may have the format relevant to the bearer services/teleservices defined in [21], [14] and [22] including Access Point Names for GPRS bearer services. The service codes which correspond to a type of bearer services/teleservices, are described in [6]. FDN entries may take the function of an Abbreviated Dialling Number/Supplementary Service Control (ADN/SSC), Overflow and/or sub-address. Fixed Dialling Numbers stored in the SIM/USIM may contain wild card characters.

The Fixed Dialling feature is optional, however when Fixed Dialling Mode is enabled, an ME supporting the feature shall;

- Prevent the establishment of bearer services/teleservices to destination addresses which are not in FDN entries on a per bearer service/teleservice basis. The list of bearer services/teleservices excluded from the FDN check shall be stored in the SIM/USIM. Those bearer services/teleservices are characterized by their service code as described in [6]. For instance if the GPRS bearer services are indicated in this list, a GPRS session can be set up to any destination. By default, the ME shall prevent the establishment of any bearer service/teleservice to destination addresses which are not in FDN entries.
- Only allow modification, addition or deletion of Fixed Number Dialling entries under control of PIN2.
- Allow the establishment of bearer services/teleservice to destination addresses stored in FDN entries. In case the required destination number is associated with a service code in the FDN entry, only the corresponding bearer services/teleservices shall be allowed. For SMS, the Service Center address and the end-destination address shall be checked.
- Support the reading and substitution of wildcards in any position of an FDN entry, via the ME MMI.
- Allow the user to replace each wildcard of an FDN entry by a single digit, on a per call basis without using PIN2. The digit replacing the wildcard may be used for network access or supplementary service operation.
- Only allow Supplementary Service (SS) Control (in Dedicated or Idle mode) if the SS control string is stored as an FDN entry.
- Allow the extension of an FDN entry by adding digits to the Fixed Dialling number on a per call basis.
- Allow the emergency numbers (see Section 8-4) to be called, even if it is not an FDN entry.
- Allow normal access to ADN fields (i.e. allow ADN entries to be modified, added or deleted) and the keyboard.
- Allow use of ADNs subject to the FDN filter.

When FDN is disabled, an ME supporting FDN shall;

- Allow FDN entries to be read as though they were normal ADN entries.
- Only allow modification, addition or deletion of Fixed Number Dialling entries under control of PIN2.
- Allow normal access to ADN fields and the keyboard.

If the ME does not support FDN, the UE shall not allow the making or receiving of calls when Fixed Dialling is enabled. However, emergency calls (112 and other user defined emergency numbers) shall still be possible.

NOTE: Wildcards are stored on the SIM/USIM. The wildcard coding is given in TS 31.102 [19].