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OCG EMTEL #4
Sophia Antipolis, France, 1st - 2nd September 2003

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Agenda Item:

Title: Liaison Statement on EC Requirements on Emergency Telecommunications

Source: OCG EMTEL
To: All ETSI TBs, relevant WGs, EPPs 3GPP SA, MESA SSG SA
Cc: 3GPP2, TIA TR 45, GSC (for information)

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Attachments: COMMISSION RECOMMENDATION of 25/07/2003, Draft SR 002 180

OCG EMTEL has been collecting requirements for the support of Emergency Telecommunications across ETSI and is co-ordinating work across ETSI bodies and partnership projects. The current working draft of the Special Report SR 002 180 has been produced as a reference document to stimulate the work of the Technical Bodies in their respective areas of technical competencies.

Recently the EC (European Commission) published the attached Recommendation on the processing of caller location information. This Recommendation was published after consultation with, and the support of the EU member states, it contains specific recommendations on the subjects to be transposed as regulations by NRAs (National Regulatory Authorities). As the Recommendation was adopted under Article 19 of the EU Framework Directive, Member states shall ensure that NRAs take the utmost account of those recommendations. Any NRA shall inform the European Commission if it chooses not to follow a recommendation, giving their reasons. The EC are expecting standardised solutions by April 2004. This includes a common open interface specification to the entry point into the Public Safety World (PSAP).

ACTION: You are kindly invited, within your area of expertise and recognised responsibility, with the utmost urgency to:

1. Familiarise the TB or WG with the requirements from the COMMISSION RECOMMENDATION of the 25/07/2003 C(2003) 2657 and SR 002 180.
2. Identify areas where your TB or WG is or expects to be active; and initiate the corresponding activities and Work-items.
3. Define functional requirements and collaborate with other TBs, in their defined areas of responsibility, to work on the high priority items.
4. Specify solutions for the existing, new and evolving technologies.
5. Keep OCG EMTEL informed about your existing and expected activities and their status.
6. Provide feedback to the OCG EMTEL in time for their next meeting.

Dates of Next OCG EMTEL Meetings:

EMTEL#05	6 – 7 November 2003,	Sophia Antipolis, France
EMTEL#06	12 - 13 February 2004	Sophia Antipolis, France

COMMISSION RECOMMENDATION

of 25 July 2003

on the processing of caller location information in electronic communication networks for the purpose of location-enhanced emergency call services

(notified under document number C(2003) 2657)

(Text with EEA relevance)

(2003/558/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Directive 2002/21/EC on a common regulatory framework for electronic communications and services (the 'Framework Directive') ([1]), and in particular Article 19 thereof,

Whereas:

(1) Decision 91/396/EEC on the introduction of a single European emergency call number ([2]) required Member States to ensure that the number 112 was introduced in public telephone networks as the single European emergency call number by 31 December 1992, with under certain conditions, a possibility for derogation until 31 December 1996.

(2) Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services (the 'Universal Service Directive') ([3]), requires public telephone network operators (hereafter 'operators') to make caller location information available to authorities handling emergencies, to the extent technically feasible, for all calls made to the single European emergency call number 112. Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector (the 'Directive on privacy and electronic communications') ([4]) establishes that providers of public communications networks and services may override the elimination of the presentation of calling line identification and the temporary denial or absence of consent of a subscriber or user for the processing of location data, on a per-line basis for organisations dealing with emergency calls and recognised as such by a Member State, including law enforcement agencies, ambulance services and fire brigades, for the purpose of responding to such calls.

(3) Although this Recommendation is concerned with location-enhanced 112, it is understood that parallel national emergency call numbers will be enhanced with the same functionality and following the same principles. Organisations operating private telecommunication installations are not affected by this Recommendation.

(4) For the successful implementation of E112 services throughout the Community, implementation issues must be addressed and timescales for the introduction of new systems coordinated. The Coordination Group on Access to Location Information by Emergency Services (CGALIES) established by the Commission in May 2000 as a partnership of public service and private sector players has allowed players of different sectors to discuss and find agreement on the principles for harmonised and timely implementation.

(5) Following on from the recommendation by CGALIES, providers of the public telephone network or service should use their best effort to determine and forward the most reliable caller location information available for all calls to the single European emergency call number 112.

(6) During the introductory phase of E112 services, application of the best efforts principle is considered preferable to mandating specific performance characteristics for location determination. However, as public safety answering points and emergency services gain practical experiences with location information, their requirements will become more defined. Moreover, location technology will continue to evolve, both within mobile cellular networks and satellite location systems. Therefore, the best effort approach will need to be reviewed after the initial phase.

(7) It is important for all Member States to develop common technical solutions and practices for the provision of E112. The elaboration of common technical solutions should be pursued through the European standardisation organisations, in order to facilitate the introduction of E112, create interoperable solutions and decrease the costs of implementation to the European Union.

([1]) OJ L 108, 24.4.2002, p. 33.
([2]) OJ L 217, 6.8.1991, p. 31.
([3]) OJ L 108, 24.4.2002, p. 31.
([4]) OJ L 201, 31.7.2002, p. 37.

(8) A harmonised solution across Europe would serve interoperability for advanced safety applications, such as calls which can be originated manually or automatically by an in-vehicle telematics terminal. These calls can provide additional information, for instance on the number of passengers in a car or bus, on compass-direction, on crash-sensor indicators, on the type of load of dangerous goods or on health records of drivers and passengers. With the high volume of cross-border traffic in Europe, there is a growing need for a common data transfer protocol for passing such information to public safety answering points and emergency services in order to avoid the risk of confusion or a wrong interpretation of data passed.

(9) The arrangements for forwarding location information by operators to public safety answering points should be established in a transparent and non-discriminatory way including, where appropriate, any cost aspects.

(10) The effective implementation of location-enhanced emergency call services requires that the caller's location as determined by the provider of the public telephone network or service is transmitted automatically to any appropriate public safety answering point that can receive and use the location data provided.

(11) Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector (the 'Directive on privacy and electronic communications') generally requires that privacy and data protection rights of individuals should be fully respected and adequate technical and organisational security measures should be implemented for that purpose. However, it allows the use of location data by emergency services without consent of the user concerned. In particular, Member States should ensure that there are transparent procedures governing the way in which a provider of a public telecommunications network and/or service may override the temporary denial or absence of consent of a user for the processing of location data, on a per-line basis for organisations dealing with emergency calls and that are recognised as such by a Member State.

(12) Actions conducted in the context of the Community action programme in the field of Civil Protection (hereinafter 'Civil Protection Action Programme') ([1]) should aim to contribute to the integration of civil protection objectives in other Community policies and actions as well as to the consistency of the programme with other Community actions. This entitles the Commission to implement actions aiming at increasing the degree of preparedness of organisations involved in civil protection in the Member States, by enhancing their ability to respond to emergencies and improving the techniques and methods of response and immediate aftercare. This may include the handling and use of location information associated to E112 emergency calls by public safety answering points and emergency services.

(13) To achieve the objectives of this Recommendation, the need for a continued dialogue between public network operators and service providers and public authorities including emergency services becomes even stronger.

(14) When reporting on the situation of E112 implementation, national authorities should address any relevant technical feasibility issue that hinders the introduction of E112 for specific categories of end-users, as well as the technical requirements for handling emergency calls that may originate from SMS and telematic data services.

(15) The measures set out in this Recommendation are in accordance with the advisory opinion of the Communications Committee set up by Article 22 of Directive 2002/21/EC,

HEREBY RECOMMENDS THAT:

1. Member States should apply the following harmonised conditions and principles to the provision of caller location information to emergency services for all calls to the single European emergency call number 112.

2. For the purposes of this Recommendation, the following definitions should apply:

   (a) 'emergency service' means a service, recognised as such by the Member State, that provides immediate and rapid assistance in situations where there is a direct risk to life or limb, individual or public health or safety, to private or public property, or the environment but not necessarily limited to these situations.

   (b) 'location information' means in a public mobile network the data processed indicating the geographic position of a user's mobile terminal and in a public fixed network the data about the physical address of the termination point.

   (c) 'E112' means an emergency communications service using the single European emergency call number, 112, which is enhanced with location information of the calling user.

   (d) 'public safety answering point' means a physical location where emergency calls are received under the responsibility of a public authority.

([1]) OJ L 327, 21.12.1999, p. 53.

3. Member States should draw up detailed rules for public network operators, to include, *inter alia*, the provisions in points 4 to 9 below.

4. For every emergency call made to the European emergency call number 112, public telephone network operators should, initiated by the network, forward (push) to public safety answering points the best information available as to the location of the caller, to the extent technically feasible. For the intermediate period up to the conclusion of the review as referred to in point 13 below, it is acceptable that operators make available location information on request only (pull).

5. Fixed public telephone network operators should make available the installation address of the line from which the emergency call is made.

6. Public telephone network operators should provide location information in a non-discriminatory way, and in particular should not discriminate between the quality of information provided concerning their own subscribers and other users. In the case of the fixed networks, other users include users of public pay phones; in the case of mobile networks or mobility applications, other users include roamers or visiting users, or, where appropriate, users of mobile terminals which can not be identified by the subscriber or user number.

7. All location information provided should be accompanied by an identification of the network on which the call originates.

8. Public telephone network operators should keep sources of location information, including address information, accurate and up-to-date.

9. For each emergency call for which the subscriber or user number has been identified, public telephone network operators should provide the capability to public safety answering points and emergency services of renewing the location information through a call back functionality (pulling) for the purpose of handling the emergency.

10. In order to facilitate data transfer between operators and public safety answering points, Member States should encourage the use of a common open interface standard, and in particular for a common data transfer protocol, adopted by the European Telecommunications Standards Institute (ETSI), where available. Such a standard should include the necessary flexibility to accommodate future requirements as they may arise, for instance from in-vehicle telematics terminals. Member States should ensure that the interface is best suited to the effective handling of emergencies.

11. In the context of the obligation for E112 services prescribed by the Universal Service Directive, Member States should provide adequate information to their citizens about the existence, use and benefits of E112 services. Citizens should be informed that 112 connects them to emergency services all across the European Union and that their location will be forwarded. They should also be informed about the identity of the emergency services that will receive their location information and of other necessary details to guarantee fair processing of their personal data.

12. In the context of the continuous evolution of concepts and technologies, Member States are encouraged to foster and support the development of services for emergency assistance, for instance to tourists and travellers and for the transport of dangerous goods by road or rail, including handling procedures for forwarding location and other emergency or accident related information to public safety answering points; to support the development and implementation of common interface specifications in ensuring Europe-wide interoperability of such services; and to encourage the use of location technologies with high precision such as third generation cellular network location technologies and Global Navigation Satellite Systems.

13. Member States should require their national authorities to report to the Commission on the situation of E112 implementation by the end of 2004 so that the Commission can undertake a review taking into account the emerging requirements from public safety answering points and emergency services and the evolutions and availability of technological capabilities for location determination.

14. This Recommendation is addressed to the Member States.

Done at Brussels, 25 July 2003.

For the Commission

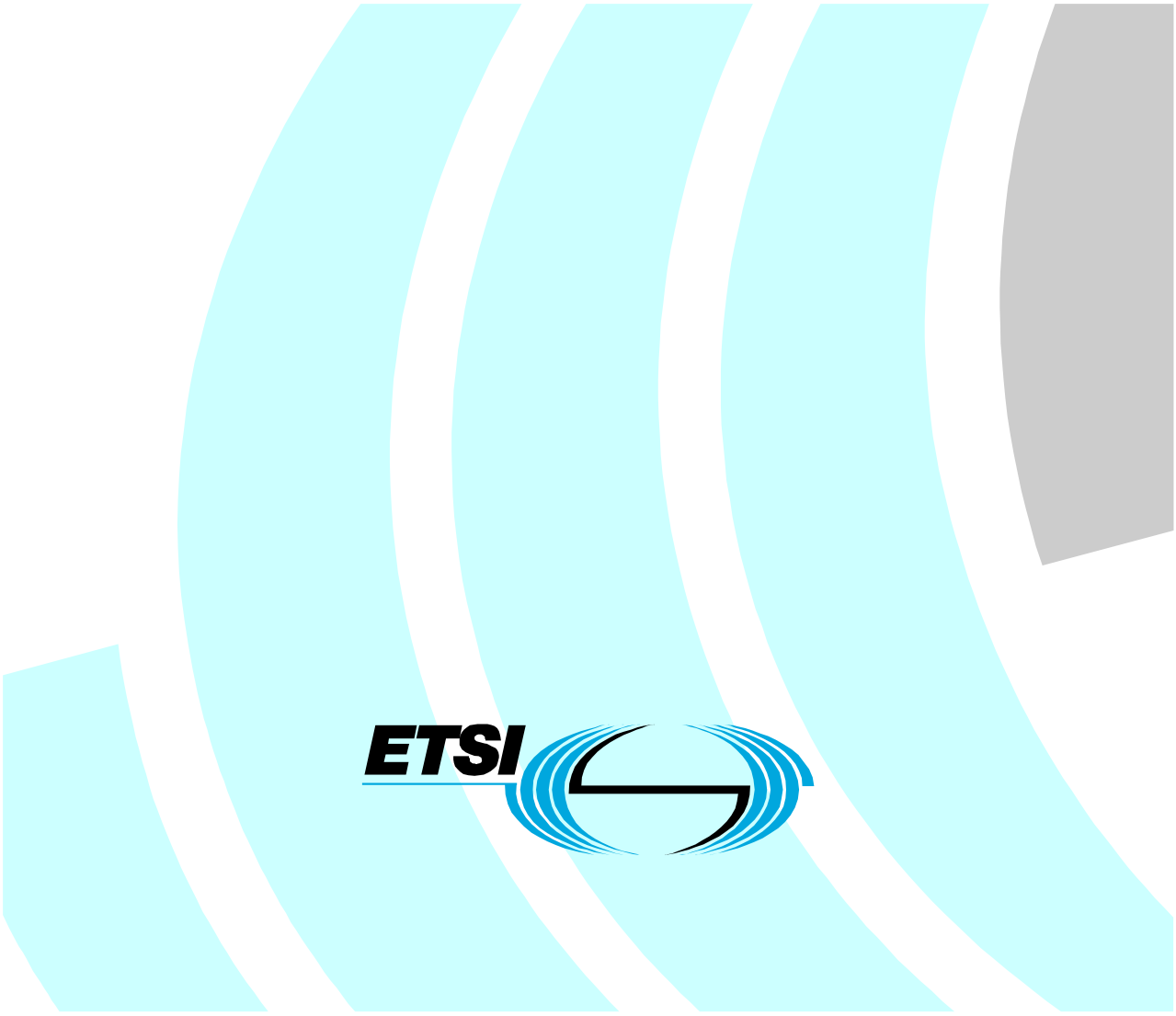
Erkki LIIKANEN

Member of the Commission

DRAFT ETSI SR 002 180 V0.3.2 (2003-09)

Special Report

Requirements for communication of citizens with authorities/organisations in case of distress (emergency call handling)



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Contents

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All published ETSI deliverables shall include information which directs the reader to the above source of information.

Foreword

This Special Report (SR) has been produced by Advisory Committee Operational Co-ordination Group (OCG).

The present document is the first of a set of deliverables covering the communication needs of citizens and authorities in emergency situations, as identified below:

SR 002 180: "Requirements for communication of citizens with authorities/organisations in case of distress (emergency call handling)";

SR 002 181 "Requirements for communication between authorities/organisations during emergencies";

SR 002 182: "Requirements for communications from authorities/organisations to the citizens during emergencies".

Introduction

To provide Emergency Telecommunications is one of the most important duties of a public authority towards its citizens. Citizens, Authorities and Emergency response teams therefore have a need for dedicated, high quality communication systems operating at all times.

In the past this area of communications has been developed, provided and organized by the national telecommunications operators and the national safety and security agencies / organizations. In today's deregulated and liberalized telecommunications market, operators of public telephone networks have the obligation to provide this type of communication under their licences on a European and national basis.

As a consequence of the harmonization of the European emergency call number (112), its enhancement by caller location information and ongoing harmonization (E112) in the police-, fire-fighter- and disaster response area, ETSI has taken over the initiative to collect requirements for Emergency Telecommunications from all parties involved and to issue them as Special Reports. Following their adoption, the relevant ETSI Technical Bodies shall be requested to take these requirements into account when amending existing, or drafting new deliverables for services and systems.

The implementation issues related to access to location information by emergency services (E112) in the European Union have been analyzed by CGALIES (the Coordination Group on Access to Location Information by Emergency Services), established by the Commission Services as a partnership between public service and private sectors to find harmonised, timely and financially sound solutions. The results of those studies are not binding proposals, they were offered to the European Commission, the European Union and its Member States, including the public and the private sector for broad consideration. They serve as a base of an EC-Recommendation. See: http://www.telematica.de/cgalies/

Both the EU Directive 2002/21/EC [4], and the COMMISSION RECOMMENDATION C(2003)2657 of 25/07/2003 on the processing of caller location information in electronic communication networks for the purpose of location enhanced emergency call services, each set out recommendations and requirements which network operators, equipment manufacturers and emergency centres must address.

1 Scope

The present document gives an overview of the requirements for communication from citizens to authorities and organizations in all types of emergencies. It collects operational and organizational requirements as a basis for a common 112 service, including caller location information (E112). Although many of the requirements collected from network operators, service providers (e.g. emergency response organizations) and users relate to national public policies and regulation, there are a number of service and technical aspects which are better dealt with on the European level to ensure harmonized access and services over Europe and effectiveness by user increased awareness by using standardized solutions.

The present document also collects already established requirements for EMTEL and gives guidance on how to find the standardisation work published or ongoing. The document identifies also the areas needing particular attention from the experts and refers to identified documents in preparation in SDO"s.

The present document itself does not impose any technical, operational, organizational or regulatory requirement; it is a collection of requirements and recommendations.

The present document is applicable to ETSI technical bodies for the defining of services and specifying technical solutions.

Requirements for emergency calls of a private nature (e.g. vehicle / road assistance) and directed to an emergency service provider not being an emergency service provider recognised by a government are not covered by this document. Such calls shall not intervene with E112 calls.

2 References

For the purposes of this Special Report (SR) the following references apply:

[1] ETSI TS 102 164: "Services and Protocols for Advanced Networks (SPAN); Emergency Location Protocols".

[2] ETSI TS 101 109 (V7.1.0): "Digital cellular telecommunications system (Phase 2+); Universal Geographical Area Description (GAD) (3GPP TS 03.32 version 7.2.0 Release 1998)".

[3] C(2003)2657: "COMMISSION RECOMMENDATION of 25th July 2003 on the processing of caller location information in electronic communication networks for the purpose of location-enhanced emergency call services".

[4] Directive 2002/21/EC on a common regulatory framework for electronic communications and services (the Framework Directive)

[5] Directive 2002/22/EC on universal service and users rights relating to electronic communications networks and services (the 'Universal Service Directive')

[6] ETSI EG 202 116: "Human Factors (HF); Guidelines for ICT products and services; "Design for All".

[7] ETSI ETR 333: "Human Factors (HF); Text Telephony; Basic user requirements and recommendations".".

[8] ITU-T Recommendation V.18: " Operational and interworking requirements for DCEs operating in the text telephone mode".

[9] ETSI ETS 300 381: "Telephony for hearing impaired people; Inductive coupling of telephone earphones to hearing aids".

[10] ETSI ETS 300 488: "Terminal Equipment (TE); Telephony for hearing impaired people; Characteristics of telephone sets that provide additional receiving amplification for the benefit of the hearing impaired".

[11] ETSI TR 102 133: "Human Factors (HF); Access to ICT by young people: issues and guidelines".

[12] ITU-T Recommendation E.115: " Computerized directory assistance".

[13] ETSI TS 123 271: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Location Services (LCS); Functional description; Stage 2 (3GPP TS 23.271 version 5.7.0 Release 5)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

access network: is the portion of the Telecommunications Network that provides access to the switching function, and terminates the User Access signalling, in a PLMN this is a radio access via a Base Station, c.f […Q.931, EN 300 403, 3GPP 24.008].

Enhanced 112 (E112): emergency communications service using the single European emergency call number, 112, which is enhanced with location information of the calling user

emergency call: call from a user to an emergency control centre

Emergency call facilities: emergency telephone stanchions/boxes, fire alarms, etc.

NOTE: These facilities are either publicly accessible, or located within private premises

emergency caller: user who calls an emergency service via an emergency call

Emergency Control Centre: facilities used by emergency organizations to accept and handle emergency calls.

NOTE: A PSAP forwards Emergency Calls to the Emergency Control Centres

Emergency Number: special short code(s) or number(s) which is used to contact the PSAP to provide Emergency services

NOTE: The emergency number, is used by the emergency caller to request assistance from the Emergency services. There exist two different types of Emergency numbers in Europe:

1) **European emergency number, 112:** unique emergency number for pan-European & GSM Emergency services and used, for example, in EU member-states, Switzerland and other European countries.

2) **National Emergency numbers:** each country may also have a specific set of emergency numbers.

Emergency response organization: e.g. the police, fire service and emergency medical services.

emergency service: service, recognised as such by the Member State, that provides immediate and rapid assistance in situations where there is a direct risk to life or limb, individual or public health or safety, to private or public property, or the environment but not necessarily limited to these situations

location information: data processed in a public mobile network indicating the geographic position of a user's mobile terminal, and data in a public fixed network indicating the physical address of the termination point

originating network: access network from which the emergency call was originated.

Public Safety Answering Point (PSAP): physical location where emergency calls are received under the responsibility of a public authority

user access: point of access to a telecommunication network where an emergency call can be requested. This includes public telephones and 'emergency call facilities'.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CLI	Calling Line Identification
GNSS	Global Navigation Satellite System
GSM	Global System for Mobile Telecommunications
IMEI	International Mobile Equipment Identifier
LCS	Location Services
LMU	Location Measurement Unit
MSC	Mobile Switching Centre
PABX	private automatic branch exchange
PLMN	Public Land Mobile Network
PSAP	Public Safety Answering Point
SIM	Subscriber Identification Module
SMS	Short Message Service
XDSL	(generic) Digital Subscriber Line

4 Description of the emergency call service

4.1 General description/provisions

Directive 2002/22/EC [5] requires that in addition to any other national emergency call number specified by the national authorities all end users of publicly available telephone services have the possibility to call the emergency services free of charge by using the single European emergency call number "112".

To facilitate these requirements, details are provided in the following clauses.

4.1.1 User expectations on Voice Networks for Emergency Calls

Users expect to be able to make voice emergency calls on any available terminal. (see Annex C for HF requirements)

4.1.1.1 Public Network Access Points

All telephony terminal equipment shall have the ability to fulfil the user's need for an emergency call once it is positioned to access a public telecom network (of a compatible design).

Additionally, the network access point shall enable the emergency call, even when :

- normal Originating Telecommunications Services have been barred (e.g. because of non-payment of bills),
- the equipment (e.g. SIM card in a mobile phone) is protected by an identification/authentication procedure, unknown to the user in advance.
- the emergency caller using a mobile phone is outside the coverage area of his home network, provided that the area is covered by another mobile network operator and that the mobile phone is technically compatible with the alternate network.
- the emergency caller using a cordless phone is outside the coverage area of his home base station, provided that the area is covered by another base station belonging to the same or to a different network operator and that the cordless phone is technically compatible with the alternate base station.

All cases of national roaming scenarios are covered by national regulatory requirements and legislation.

4.1.1.2 Public pay telephones

Directive 2002/22/EC [5] requires that it be possible to make emergency calls from public pay telephones using the single European emergency call number "112' and other national emergency numbers, all free of charge and without having to use any means of payment.

4.1.1.3 Public telephones

From public telephones, it should be possible to make emergency calls at any time without the assistance of an operator.

4.1.1.4 Dedicated Emergency call posts with voice application

Only emergency call facilities with voice application connected directly to a public network or a PSAP are covered by the present document. It shall be possible to make an emergency call from an emergency call post or facility free of charge and without knowing the emergency call numbers. Emergency call posts or facilities shall be easy to use and not require specific language knowledge.

4.1.1.5 Private coin and card payphones

Private coin and card payphones in restaurants, bars, etc. should allow emergency calls to be made free of charge and without having to use any means of payment.

4.1.1.6 Private Networks

Emergency calls from private networks can be routed to the public network.

When external assistance is required an emergency call should be forwarded to the PSAP or the corresponding emergency control centre.

This includes phones in public places where users require to be able to make emergency calls, free of charge and without having to use any means of payment.

Location information within a private network should be made available when possible and comply with the requirements of the corresponding emergency authorities in the area.

4.1.1.7 Multipurpose facilities

For multipurpose call facilities (e.g. customer assistance for vehicles and accidents) functionality shall, as far as possible, separate the operation modes in order to avoid unjustified calls to public emergency services.

4.1.2 Requirements applicable to the emergency call functionality of terminal equipment

Voice communication terminal equipment shall be designed in such a way that emergency calls shall be possible even if the terminal is PIN-coded. No terminal equipment feature should prevent an emergency call from being made. It is recommended to consider the operation of terminals connected to the fixed network in the case of mains power failures.

Provision of a user record allowing for precise location identification by terminals connected to a fixed-line network similar to those available in a mobile terminal SIM card should be considered.

4.1.3 Speech quality of emergency calls

The speech quality of emergency calls should correspond to the defined quality of the public telephone service.

4.1.4 Charge exemption for emergency calls

Emergency call services shall be free of charge and possible without the calling party using any means of payment.

4.1.5 Ensuring emergency call conveyance

Network operators shall make every reasonable effort to ensure the answering, inter-network forwarding and termination of emergency calls, including in exceptional circumstances such as insolvency, crises, catastrophes, etc.

4.1.6 Assignment of emergency calls to the appropriate emergency control centre

Nominated Emergency Control Centres of the emergency organisations deal with emergency calls from defined geographic areas. Emergency calls should be routed to, and handled within, the appropriate emergency control centre.

There should be an unambiguous mapping between the location of the caller and the emergency control centre responsible for the appropriate area.

More informational material can be found in CGALIES: http://www.telematica.de/cgalies/

4.1.7 Preventing effects of discrepancies in coverage

4.1.7.1 Radio Coverage Limit cases between mobile networks

Due to physical uncertainty and variations of radio coverage limits there are border effects where an emergency call can not be routed to the geographically assigned centre. Attention shall be given to all parties involved, and more specifically operators, when designing the network to limit the occurrence of such cases. Where this case occurs, cooperation of emergency control centres shall be applied and organised as appropriate.

4.1.7.2 International cooperation

A situation similar to that described in clause 4.1.7.1 may appear near country borders: Cross-border emergency call handling requires international cooperation between the European emergency organisations between neighbouring countries.

4.1.7.3 Cordless technologies

Situation similar to those described in clauses 4.1.7.1 and 4.1.7.2 may be applicable as well to cordless technologies that use fixed-line networks.

4.2 Recognition and treatment of emergency calls by the originating network

Each originating network shall be able to recognise emergency calls by means of the emergency call number 112 in addition to the local national emergency numbers valid in the originating network.

4.2.1 Emergency call-related information

The originating network should generate the following emergency call-related information and transmit this information to the emergency control centre. The information may either arrive at the emergency control centre at the same time as the emergency call or be available for retrieval on demand from the emergency control centre during the call. The generation and transmission of the information shall not delay the answering of the emergency call. Transit networks over which an emergency call is routed to an emergency control centre shall forward this information in a transparent mode.

The "Commission Recommendation on the processing of caller location information in electronic communication networks for the purpose of location-enhanced emergency call services" recommends that the originating network should generate the following emergency call-related information and transmit this information together with the single European emergency call number "112' and other national emergency numbers, all free of charge and without having to use any means of payment.

Recommendations 4 and 9, are quoted below:

4. For every emergency call made to the European emergency call number 112, public telephone network operators should, initiated by the network, forward (push) to public safety answering points the best information available as to the location of the caller, to the extent technically feasible. For the intermediate

period up to the conclusion of the review as referred to in point 13 below, it is acceptable that operators make available location information on request only (pull).

9. For each emergency call for which the subscriber or user number has been identified, public telephone network operators should provide the capability to public safety answering points and emergency services of renewing the location information through a call back functionality (pulling) for the purpose of handling the emergency.

More informational material can be found in CGALIES http://www.telematica.de/cgalies/ (e.g. in clause 5 "Requirements")

4.2.1.1 Calling line number of the access at which the emergency call is made

The originating network should transmit the calling line number of the access (CLI) at which the emergency call is made to the PSAP together with the emergency call. The Emergency Control Centre should be able to return a call to the number in the CLI.

If the access at which an emergency call is made has the feature to transmit a number specified by the user in addition to the user access number (Two Number Delivery Option, e.g. in the case of PABXs). The originating network should transmit both call numbers to the PSAP and these numbers should not be changed by any transiting network.

In cases where emergency calls are made from mobile phones operated without a SIM card the CLI cannot be determined and transmitted to the PSAP by the originating network. In this scenario the originating network should provide alternative information to the PSAP. (see clause 4.2.1.3).

4.2.1.2 Indication of the emergency caller's location

Each emergency call should be accompanied with information that enables the emergency control centre to determine the caller's location at the time of calling. This information may be a geographical address or a set of geographical co-ordinates. The information should be accessible by the emergency control centre via a standardised interface after the initial contact is made. Location information should be accessible for as long as the emergency lasts.

Typically, location information is based on the CLI received with the call for wireline networks, and on the geographical co-ordinates of the caller for wireless networks. For roaming cordless terminals due to emergency provision of the home base station CLI may be desirable

Recommendation 4 and 9 of the COMMISSION RECOMMENDATION are quoted below:

4 "For every emergency call made to the European emergency call number 112, public telephone network operators should, initiated by the network, forward (push) to public safety answering points the best information available as to the location of the caller, to the extent technically feasible. [..]"

9 "For each emergency call for which the subscriber or user number has been identified, public telephone network operators should provide the capability to public safety answering points and emergency services of renewing the location information through a call back functionality (pulling)for the purpose of handling the emergency."

4.2.1.2.1 Emergency caller using a fixed line access

For determining the location of an emergency caller using a fixed line access the site code of the access (e.g. geographical address of the access) can be used which is stored in the network operator's customer database. Specifications should exist for both:

- a push scheme, the address is automatically pushed with the initial call to the emergency centre together with the CLI,
- a pull scheme, the emergency call centre shall be able to access during the call a database using the CLI and preferably the protocol defined in TS 102 164 [1] or the ITU-T Recommendation E.115 [12] query.

Cordless terminals roaming for emergency call form their Home base station to a Visited base station when the home base station is not operational due to the emergency event should provide their home base station's CLI. Provision of two clearly distinguished sets of CLI+address should be considered. For the PUSH scheme provision of information by the terminal originating the call may be considered.

4.2.1.2.2 Emergency caller using a mobile phone

For determining the location of an emergency caller using a mobile phone the location information should be specified for both:

- a push scheme, where the location information is automatically pushed with the initial call to the emergency centre together with the information contained in the CLI field,
- a pull scheme, the emergency call centre shall be able to access the relevant data during the call a database using the CLI and preferably the protocol defined in TS 102 164 [1] or the TS 123 271 [13] query.

In cases where emergency calls are made from mobile phones operated without a SIM card the originating network should provide an alternative unique identifier in the CLI field together with the location information In the case of the pull service this identifier should enable the request of the location information.

4.2.1.2.3 Indication of location in private networks.

Emergency calls from private networks can be routed to the public network.

When external assistance is required an emergency call should be forwarded to the PSAP or the corresponding emergency control centre.

Location information within a private network should be made available when possible and comply with the requirements of the corresponding emergency authorities in the area.

4.2.1.3 Identification of the mobile terminal equipment

When emergency calls are made from mobile phones operated without a SIM card a CLI cannot be determined by the originating network. In this situation as an alternative, the equipment identity number (e.g. IMEI) may be transmitted by the originating network, subject to national legislative requirements.

This is conducive to misuse of the PSAP.

4.2.2 Network identification

All networks should transmit their network identification to the emergency control centre in a standardized way.

Recommendation 7 of the COMMISSION RECOMMENDATION is quoted below:

7. "All location information provided should be accompanied by an identification of the network on which the call originates."

4.2.3 Minimum power supply for user accesses

If feasible, fixed network operators should provide a minimum power supply at their network termination points. This minimum power supply should enable telephone terminal equipment connected to the network termination point to be operational in the case of a local power failure for the placing of an emergency call.

4.2.4 Over dialling

Within Europe there are opposing national regulations, different numbering plans and switching equipment. It is therefore not possible to provide a general requirement.

4.2.5 Suppression of carrier selection/carrier preselection codes

Carrier selection and carrier preselection codes transmitted in conjunction with emergency call numbers shall not be taken into account. The emergency call has to be routed to the responsible emergency call centre for the caller's location in all cases.

4.2.6 Emergency calls from other countries

112 and other emergency calls received from fixed networks of other countries shall be terminated in the country of origin unless the calling terminal has indicated that it is a case of roaming cordless handset which base home station (non operational due to the emergency event) is connected to a foreign country wireline network.

4.3 Handling of emergency calls between networks (Optional)

If the originating network is not connected directly to the PSAP, a transit network is used between the two. To route the call towards the termination network a specific routing number(s) is used. This number identifies the responsible emergency service for a specific area.

In case of the transfer of the emergency call from the originating network towards another network (transit, termination) this number has to be inserted by the originating network as a destination number.

The transit network should forward/transfer the emergency call received from the originating network together with the call-related additional information (except location information see clause 4.2.1, retrieval/pull mode) immediately and without modification to the PSAP.

4.4 Providing termination of emergency calls to the PSAP

Any network to which a PSAP is directly connected shall deliver the emergency call to the PSAP together with any related data, without undue delay or modification.

If the appropriate PSAP is not reachable, the call must be forwarded to the alternative PSAP.

PSAPs/Terminating networks must meet the following functional requirements:

4.4.1 Features of the emergency control centres

PSAPs and Emergency control centres shall be provided with access to all of the CLI related information.

More informational material can be found in CGALIES http://www.telematica.de/cgalies/ (e.g. in clause 5 'Requirements')

4.4.2 Release of the emergency call

It should be possible for only the PSAP/Emergency control centre to release an emergency call relationship in the network.

4.4.3 Temporary Blocking of Emergency Calls from a particular source

The PSAP must have the possibility to deliberately release/block repeated nuisance call attempts to the emergency telephone service from a particular source, see clause 4.1.1.1. This request may be relayed to the network where the nuisance call attempts to the emergency telephone service originate.

4.5 Emergency call-specific functions for all involved networks

4.5.1 Priority of emergency calls

All network operators should accord emergency calls priority over all other calls. This priority should be accorded across public telecommunications networks.

In case of fixed-line networks priority should be accorded from the network access point from which the emergency call is made to the network termination point / PSAP to which the appropriate Emergency Control Centre is connected.

In case of emergency call facilities and publicly available telephones, priority should be accorded from the terminal equipment from which the emergency call is made to the network termination point / PSAP to which the appropriate Emergency Control Centre is connected.

In case of mobile networks priority should be accorded from the MSC to the network termination point / PSAP to which the appropriate Emergency Control Centre is connected. This includes the air interface.

Private networks should also give priority to emergency calls.

4.6 Network Management support functions for delivery of Emergency calls to PSAPs

4.6.1 Monitoring of the lines and availability of the PSAPs

Transmission lines over which emergency telephone services are connected shall be available without restriction. The terminating network and the PSAP permanently monitors the functionality and transmission quality of the transmission lines. Technical modifications and maintenance should not impair emergency telephone lines to the PSAP. If the quality falls below a minimum standard the network and PSAP shall deactivate the access and check the availability and quality of the connection.

4.6.2 Diversion of emergency calls

If a network access to a PSAP or a PSAP is out of order the network must be able to divert incoming emergency calls to back-up/alternate equipment, lines, network access or PSAPs. The network management organisation must inform the PSAP operations staff of these back-up facilities and any modifications made.

4.6.3 Permanent availability

Network operators should maintain reserved capacity to ensure termination of emergency calls to PSAPs and emergency control centres, including in situations where the standard capacity is fully utilised, subject to the nationally agreed Service Level Agreements.

4.6.4 Security provisions at access to PSAPs

The network operator should make reasonable provisions to mitigate against the impact of attack, either deliberate or accidental, to the access and core networks to which PSAPs are connected.

5 European-wide interface between operators and public safety answering points

Europe would benefit from a common interface between public operators and the entry point of the public safety organisation (PSAP). This would cost down on implementation cost and speed implementation. But perhaps more importantly, this would ensure a common data format is used across Europe for E112 including requirements related to future advanced applications

The main requirements for such interface are as follows:

- Automatic terminal/network initiated real time location push to PSAP when 112 emergency call is made
- Possibility for location pull / information pull by PSAP/emergency service (e.g. of street address from operators' active database)
- Adequate level of privacy protection (override of user setting by authorised emergency authorities only and for as long as the emergency lasts)

- Flexibility for upgrade / able to include future (yet unforeseen) requirements (e.g. from roadside telematic applications as they may emerge)
- Build-in assurance that commonality at 'information passing level' is perpetual
- No reliance on the home network when roaming internationally and in cases where national roaming is possible
- Based on future proof technology (e.g. Internet TCP/IP / XML for connecting to standard PC based product at PSAP level)

More informational material can be found in CGALIES http://www.telematica.de/cgalies/ (e.g. in clause 5 'Requirements')

6 Special requirements when making emergency calls by disabled, elderly and young users

6.1 General

It is important that all users are able to make calls to the European emergency services with equal ease of access.

For this to be achieved it is likely that people with disabilities, older people and children will need special requirements for emergency call handling. Some special considerations applicable to these users are discussed in Annex C. In order to make an emergency call service available to the widest population possible the practice of Design for All as described in ETSI Guide EG 202 116 [6] should be applied to the design of any emergency call system or terminal. Any standards for equipment or facilities used for an emergency call service should take into account the requirements set out in CEN/CENELEC Guide 6 and those of ISO/IEC Guide 50.

6.2 Emergency control centres

All emergency control centres should be equipped to deal with incoming calls from users with special communications difficulties. Operators should be specially trained to handle calls from users with poor speech or with intellectual or mental impairments.

All emergency control centres should be able to handle calls incoming from any text terminal. As a minimum, equipment compliant with ETR 333 [7] and with ITU-T Recommendation V.18 [8] should automatically be available for such an incoming call. Call progress information should be available in ITU-T Recommendation V.18 [8] compliant form on all calls.

Priority should be given to any text message addressed to the single European emergency call number or any national equivalent. Where appropriate, videophone facilities should be made available at emergency call centres.

6.3 Public telephones

Special attention should be paid to make all public telephones wheelchair accessible and arrangements should be made to make their position identifiable to blind users. All public telephones should be provided with inductive coupling in accordance with ETS 300 381 [9] and should provide additional receiving amplification compliant with ETS 300 488 [10]. A reasonable proportion of public telephones should be provided with text phone facilities.

7 Special requirements for emergency calls in a foreign language

Emergency organisations should take appropriate steps to ensure that emergency calls can be translated from a foreign language (e.g. by means of a conference call).

8 Data protection

Emergency Control Centres must adhere to the relevant data protection provisions.

In the case of an emergency, the emergency centre may override the settings of the user as regards the processing of his or her location. The technical means shall be provided for such override.

Furthermore, in addition to organisational measures, the necessary technical safeguards will be introduced to secure that a location pull can only be carried out in relation to an emergency (e.g. CLI-based), and only for as long as the emergency lasts.

As allowed by Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data (Date protection Directive) and COM(2000)0385 (the EC proposal to the EU parliament. CE187or P5_TA(2002)0261: "Processing of personal data and the protection of privacy in the electronic communications sector ***II")

9 Future and other networks

Networks and technologies not covered to date by the present document should be assessed as to their emergency call potential. This covers, *inter alia*,

- satellite networks
- IP managed network that supports VoIP
- Cable TV
- XDSL
- emergency calls via SMS or e-mail?

Annex A:
Basic Architecture

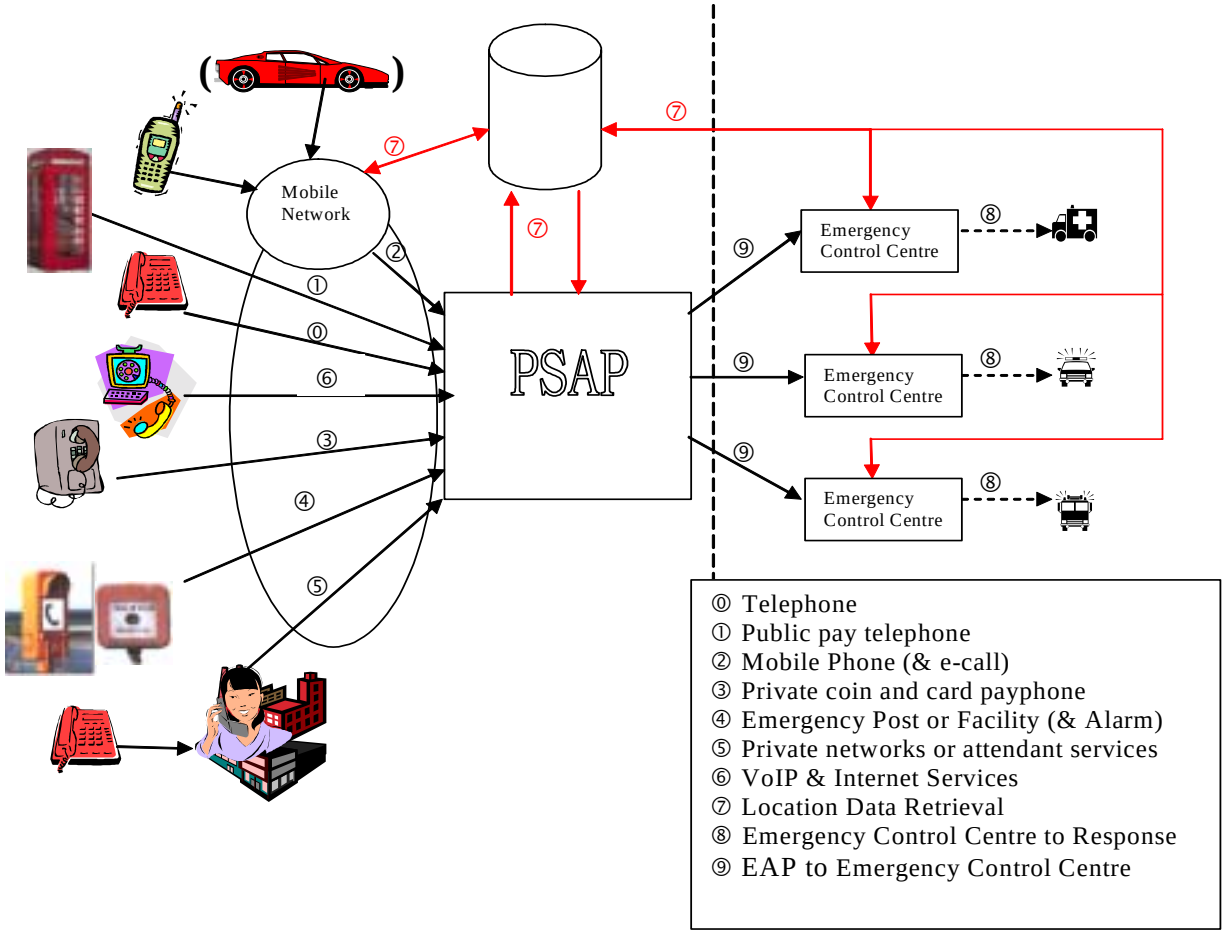

Figure A.1: Functional Architecture

The following two Diagrams illustrate that the Functional Architecture can be mapped into two very different physical scenarios. The First showing a case where the PSAP and the Emergency Control Centre functionality is considered integrated into the same physical entity. The Second where the PSAP functionality is widely distributed from the Emergency Control Centre functionality, and sits at the edge of the public network. In this case the network between the PSAP and the Emergency Control Centre is shown as a dedicated priority network, though physically there are today many ways that this could be achieved; e.g. by Leased Lines or Secure VPNs .

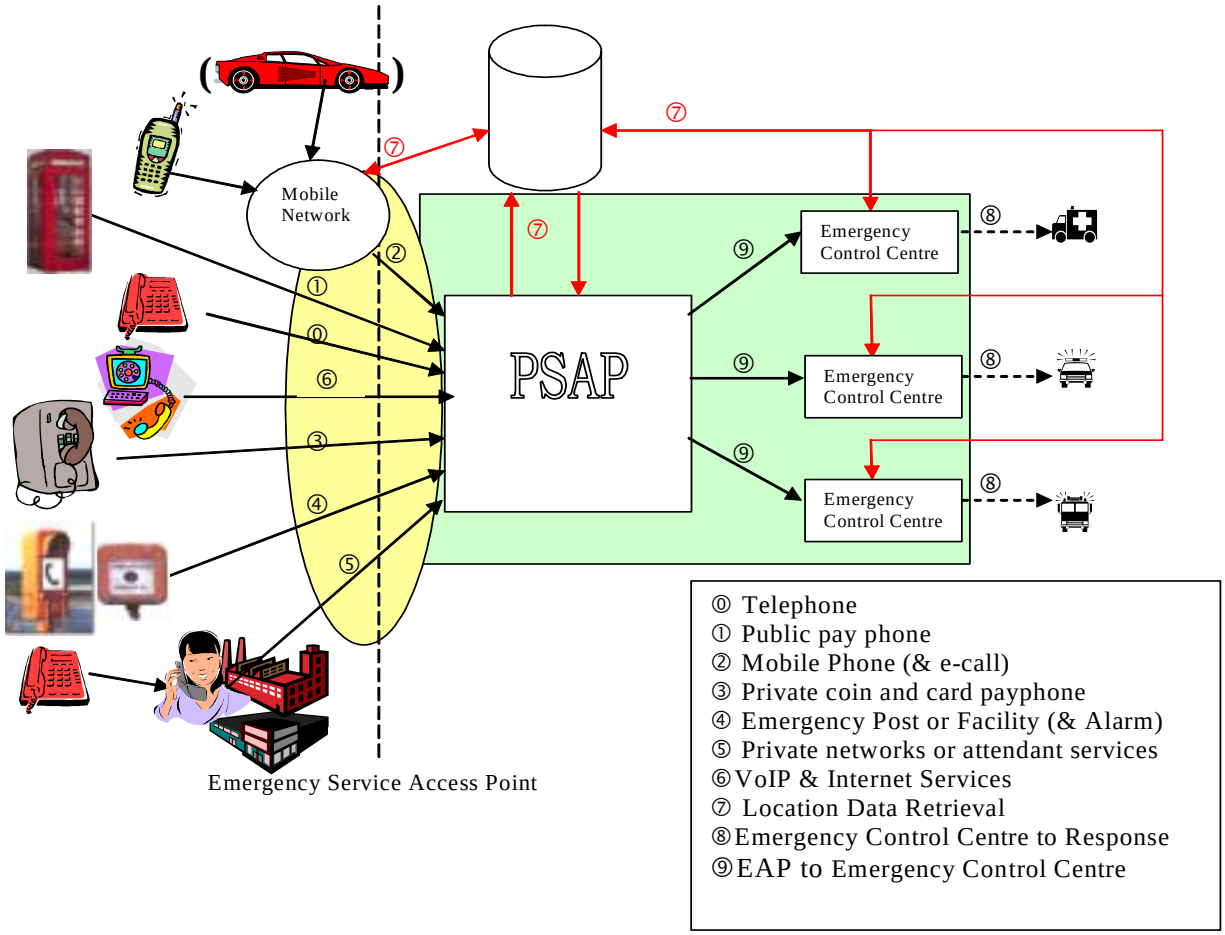

Figure A.2: Integrated PSAP and Emergency Control Centre

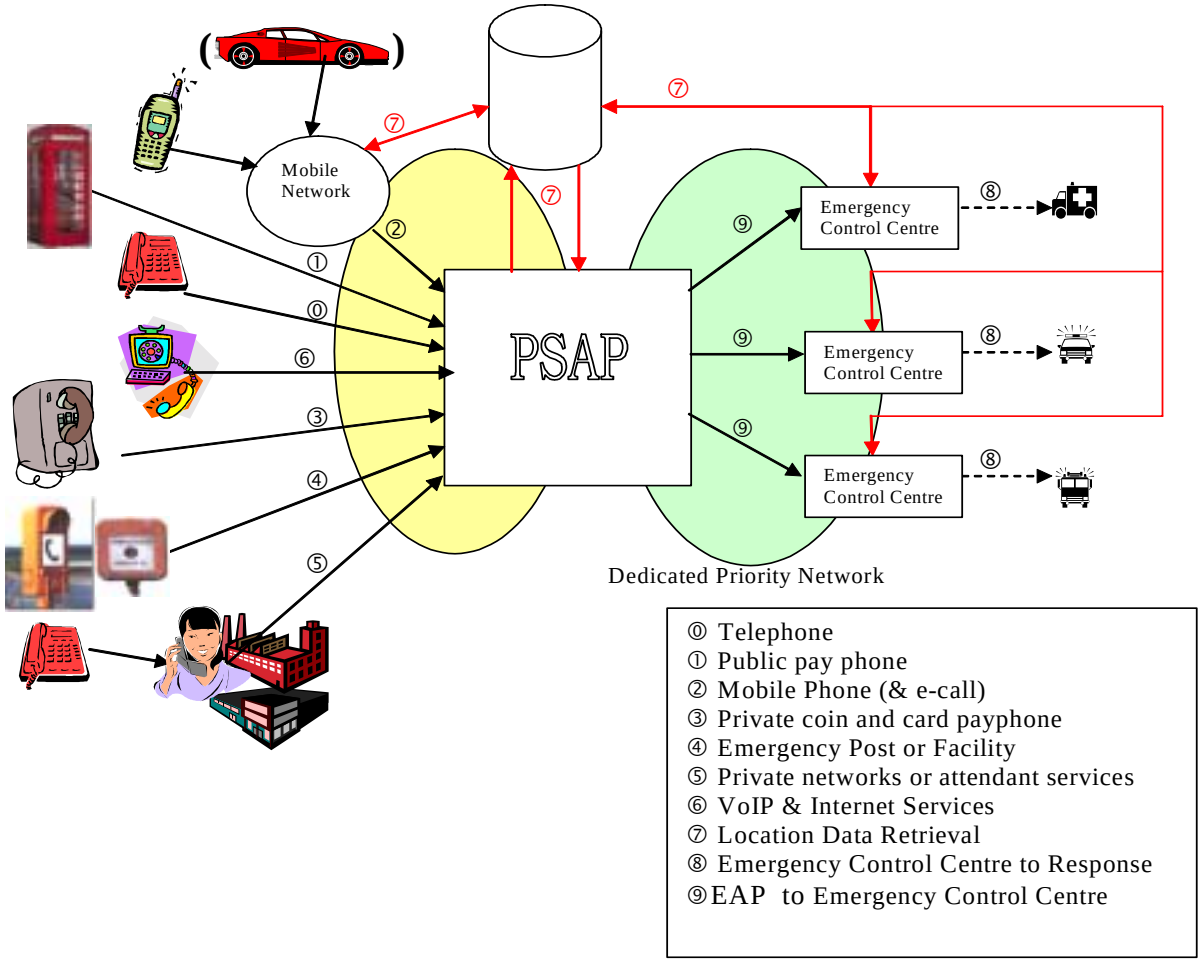

Figure A.3: PSAP on edge of the Public Network

Annex B: Legal framework

B.1 Extract from DIRECTIVE 2002/22/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (Universal Service Directive)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Directive 2002/21/EC on a common regulatory framework for electronic communications and services (the 'Framework Directive'), and in particular Article 19, thereof,
Whereas:

(12) For the citizen, it is important for there to be adequate provision of public pay telephones, and for users to be able to call emergency telephone numbers and, in particular, the single European emergency call number ("112') free of charge from any telephone, including public pay telephones, without the use of any means of payment. Insufficient information about the existence of "112' deprives citizens of the additional safety ensured by the existence of this number at European level especially during their travel in other Member States.

(13) Member States should take suitable measures in order to guarantee access to and affordability of all publicly available telephone services at a fixed location for disabled users and users with special social needs. Specific measures for disabled users could include, as appropriate, making available accessible public telephones, public text telephones or equivalent measures for deaf or speech-impaired people, providing services such as directory enquiry services or equivalent measures free of charge for blind or partially sighted people, and providing itemised bills in alternative format on request for blind or partially sighted people. Specific measures may also need to be taken to enable disabled users and users with special social needs to access emergency services "112' and to give them a similar possibility to choose between different operators or service providers as other consumers. The provider of universal service should not take measures to prevent users from benefiting fully from services offered by different operators or service providers, in combination with its own services offered as part of universal service.[..]

(36) It is important that users should be able to call the single European emergency number "112', and any other national emergency telephone numbers, free of charge, from any telephone, including public pay telephones, without the use of any means of payment. Member States should have already made the necessary organisational arrangements best suited to the national organisation of the emergency systems, in order to ensure that calls to this number are adequately answered and handled. Caller location information, to be made available to the emergency services, will improve the level of protection and the security of users of "112' services and assist the emergency services, to the extent technically feasible, in the discharge of their duties, provided that the transfer of calls and associated data to the emergency services concerned is guaranteed. The reception and use of such information should comply with relevant Community law on the processing of personal data. Steady information technology improvements will progressively support the simultaneous handling of several languages over the networks at a reasonable cost. This in turn will ensure additional safety for European citizens using the "112' emergency call number.

Article 2

c) "Publicly available telephone service' means a service available to the public for originating and receiving national and international calls and access to emergency services through a number or numbers in a national or international telephone numbering plan, and in addition may, where relevant, include one or more of the following services: the provision of operator assistance, directory enquiry services, directories, provision of public pay phones, provision of service under special terms, provision of special facilities for customers with disabilities or with special social needs and/or the provision of non-geographic services.

Article 6

(3) Member States shall ensure that it is possible to make emergency calls from public pay telephones using the single European emergency call number "112' and other national emergency numbers, all free of charge and without having to use any means of payment.

Article 7

(1) Member States shall, where appropriate, take specific measures for disabled end-users in order to ensure access to and affordability of publicly available telephone services, including access to emergency services, directory enquiry services and directories, equivalent to that enjoyed by other end-users.

Article 26

Single European emergency call number

(1) Member States shall ensure that, in addition to any other national emergency call numbers specified by the national regulatory authorities, all end-users of publicly available telephone services, including users of public pay telephones, are able to call the emergency services free of charge, by using the single European emergency call number "112'.

(2) Member States shall ensure that calls to the single European emergency call number "112' are appropriately answered and handled in a manner best suited to the national organisation of emergency systems and within the technological possibilities of the networks.

(3) Member States shall ensure that undertakings which operate public telephone networks make caller location information available to authorities handling emergencies, to the extent technically feasible, for all calls to the single European emergency call number "112'.

(4) Member States shall ensure that citizens are adequately informed about the existence and use of the single European emergency call number "112'.

ANNEX I of 2002/22

DESCRIPTION OF FACILITIES AND SERVICES REFERRED TO IN ARTICLE 10 (CONTROL OF EXPENDITURE) AND

ARTICLE 29 (ADDITIONAL FACILITIES)

Part A

Facilities and services referred to in Article 10:

[…]

a) Itemised billing

Calls which are free of charge to the calling subscriber, including calls to helplines, are not to be identified in the calling subscriber's itemised bill.

e) Non-payment of bills

... Member States may allow a period of limited service prior to complete disconnection, during which only calls that do not incur a charge to the subscriber (e.g. "112' calls) are permitted.

ANNEX IV of 2002/22

CALCULATING THE NET COST, IF ANY, OF UNIVERSAL SERVICE OBLIGATIONS AND ESTABLISHING ANY RECOVERY OR SHARING MECHANISM IN ACCORDANCE WITH ARTICLES 12 AND 13

Part A: Calculation of net cost

[…]

The calculation is to be based at the costs attributable to:

(i) elements of the identified services which can only be provided at a loss or provided under cost conditions falling outside normal commercial standards.

This category may include service elements such as access to emergency telephone services, provision of certain public pay telephones, provision of certain services or equipment for disabled people, etc.

B.2 Extract from DIRECTIVE 2002/21/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (Framework Directive)

Article19

Harmonisation procedures

1. *Where the Commission, acting in accordance with the procedure referred to in Article 22(2), issues recommendations to Member States on the harmonised application of the provisions in this Directive and the Specific Directives in order to further the achievement of the objectives set out in Article 8, Member States shall ensure that national regulatory authorities take the utmost account of those recommendations in carrying out their tasks. Where a national regulatory authority chooses not to follow a recommendation, it shall inform the Commission giving the reasoning for its position.*

2. *Where the Commission finds that divergence at national level in regulations aimed at implementing Article 10(4) creates a barrier to the single market, the Commission may, acting in accordance with the procedure referred to in Article 22(3), take the appropriate technical implementing measures.*

B.3 COMMISSION RECOMMENDATION of 25th July 2003 on the processing of caller location information in electronic communication networks for the purpose of location-enhanced emergency call services C(2003)2657

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Directive 2002/21/EC on a common regulatory framework for electronic communications and services (the 'Framework Directive'), and in particular Article 19, thereof,

Whereas:

(1) Decision 91/396/EEC on the introduction of a single European emergency call number[1] required Member States to ensure that the number 112 was introduced in public telephone networks as the single European emergency call number by 31 December 1992, with under certain conditions, a possibility for derogation until 31 December 1996.

(2) Directive 2002/22/EC on universal service and users" rights relating to electronic communications networks and services (the 'Universal Service Directive')[2], requires public telephone network operators (hereafter 'operators') to make caller location information available to authorities handling emergencies, to the extent technically feasible, for all calls made to the single European emergency call number 112. Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector (the 'Directive on privacy and electronic communications")[3] establishes that providers of public communications networks and services may override the elimination of the presentation of calling line identification and the temporary denial or absence of consent of a subscriber or user for the processing of location data, on a per-line basis for organisations dealing with emergency calls and recognised as such by a Member State, including law enforcement agencies, ambulance services and fire brigades, for the purpose of responding to such calls.

(3) Although this Recommendation is concerned with location-enhanced 112, it is understood that parallel national emergency call numbers will be enhanced with the same functionality and following the same principles. Organisations operating private telecommunication installations are not affected by this Recommendation.

(4) For the successful implementation of E112 services throughout the Community, implementation issues must be addressed and time scales for the introduction of new systems co-ordinated. The Co-ordination Group on Access to Location Information by Emergency Services (CGALIES) established by the Commission in May 2000 as a partnership of public service and private sector players has allowed players of different sectors to discuss and find agreement on the principles for harmonised and timely implementation.

(5) Following on from the recommendation by CGALIES, providers of the public telephone network or service should use their best effort to determine and forward the most reliable caller location information available for all calls to the single European emergency call number 112.

(6) During the introductory phase of E112 services, application of the best efforts principle is considered preferable to mandating specific performance characteristics for location determination. However, as public safety answering points and emergency services gain practical experiences with location information, their requirements will become more defined. Moreover, location technology will continue to evolve, both within

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1 OJ L 217, 6.8.1991, p. 31.

2 OJ L 108, 24.4.2002, p. 51.

3 Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002, OJ L 201, 31.7.2002, p. 37.

mobile cellular networks and satellite location systems. Therefore, the best effort approach will need to be reviewed after the initial phase.

(7) It is important for all Member States to develop common technical solutions and practices for the provision of E112. The elaboration of common technical solutions should be pursued through the European standardisation organisations, in order to facilitate the introduction of E112, create interoperable solutions and decrease the costs of implementation to the European Union.

(8) A harmonised solution across Europe would serve interoperability for advanced safety applications, such as calls which can be originated manually or automatically by an in-vehicle telematics terminal. These calls can provide additional information, for instance on the number of passengers in a car or bus, on compass-direction, on crash-sensor indicators, on the type of load of dangerous goods or on health records of drivers and passengers. With the high volume of cross-border traffic in Europe, there is a growing need for a common data transfer protocol for passing such information to public safety answering points and emergency services in order to avoid the risk of confusion or a wrong interpretation of data passed.

(9) The arrangements for forwarding location information by operators to public safety answering points should be established in a transparent and non-discriminatory way including, where appropriate, any cost aspects.

(10) The effective implementation of location enhanced emergency call services requires that the caller's location as determined by the provider of the public telephone network or service is transmitted automatically to any appropriate public safety answering point that can receive and use the location data provided.

(11) Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector (the 'Directive on privacy and electronic communications")[4] generally requires that privacy and data protection rights of individuals should be fully respected and adequate technical and organisational security measures should be implemented for that purpose. However, it allows the use of location data by emergency services without consent of the user concerned. In particular, Member States should ensure that there are transparent procedures governing the way in which a provider of a public telecommunications network and/or service may override the temporary denial or absence of consent of a user for the processing of location data, on a per-line basis for organisations dealing with emergency calls and that are recognised as such by a Member State.

(12) Actions conducted in the context of the Community action programme in the field of Civil Protection (hereinafter 'Civil Protection Action Programme')[5] should aim to contribute to the integration of civil protection objectives in other Community policies and actions as well as to the consistency of the programme with other Community actions. This entitles the Commission to implement actions aiming at increasing the degree of preparedness of organisations involved in civil protection in the Member States, by enhancing their ability to respond to emergencies and improving the techniques and methods of response and immediate aftercare. This may include the handling and use of location information associated to E112 emergency calls by public safety answering points and emergency services.

(13) To achieve the objectives of this Recommendation, the need for a continued dialogue between public network operators and service providers and public authorities including emergency services becomes even stronger.

(14) When reporting on the situation of E112 implementation, national authorities should address any relevant technical feasibility issue that hinders the introduction of E112 for specific categories of end-users, as well as the technical requirements for handling emergency calls that may originate from SMS and telematic data services.

(15) The measures set out in this Recommendation are in accordance with the advisory opinion of the Communications Committee set up by Article 22 of Directive 2002/21/EC.

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4 OJ L 201, 31.7.2002, p. 37.

5 OJ L 327, 21.12.1999, p. 53.

HEREBY RECOMMENDS THAT:

1. Member States should apply the following harmonised conditions and principles to the provision of caller location information to emergency services for all calls to the single European emergency call number 112.

2. For the purposes of this Recommendation, the following definitions should apply:

   a) "**emergency service**" means a service, recognised as such by the Member State, that provides immediate and rapid assistance in situations where there is a direct risk to life or limb, individual or public health or safety, to private or public property, or the environment but not necessarily limited to these situations.

   b) "**location information**" means in a public mobile network the data processed indicating the geographic position of a user's mobile terminal and in a public fixed network the data about the physical address of the termination point.

   c) "**E112**" means an emergency communications service using the single European emergency call number, 112, which is enhanced with location information of the calling user.

   d) "**public safety answering point**" means a physical location where emergency calls are received under the responsibility of a public authority.

3. Member States should draw up detailed rules for public network operators, to include, *inter alia*, the provisions in points 4-9 below.

4. For every emergency call made to the European emergency call number 112, public telephone network operators should, initiated by the network, forward (push) to public safety answering points the best information available as to the location of the caller, to the extent technically feasible. For the intermediate period up to the conclusion of the review as referred to in point 13 below, it is acceptable that operators make available location information on request only (pull).

5. Fixed public telephone network operators should make available the installation address of the line from which the emergency call is made.

6. Public telephone network operators should provide location information in a non-discriminatory way, and in particular should not discriminate between the quality of information provided concerning their own subscribers and other users. In the case of the fixed networks, other users include users of public pay phones; in the case of mobile networks or mobility applications, other users include roamers or visiting users, or, where appropriate, users of mobile terminals which can not be identified by the subscriber or user number.

7. All location information provided should be accompanied by an identification of the network on which the call originates.

8. Public telephone network operators should keep sources of location information, including address information, accurate and up-to-date.

9. For each emergency call for which the subscriber or user number has been identified, public telephone network operators should provide the capability to public safety answering points and emergency services of renewing the location information through a call back functionality (pulling) for the purpose of handling the emergency.

10. In order to facilitate data transfer between operators and public safety answering points, Member States should encourage the use of a common open interface standard, and in particular for a common data transfer protocol, adopted by the European Telecommunications Standards Institute (ETSI), where available. Such a standard should include the necessary flexibility to accommodate future requirements as they may arise, for instance from in-vehicle telematics terminals. Member States should ensure that the interface is best suited to the effective handling of emergencies.

11. In the context of the obligation for E112 services prescribed by the Universal Service Directive, Member States should provide adequate information to their citizens about the existence, use and benefits of E112 services. Citizens should be informed that 112 connects them to emergency services all across the European Union and that their location will be forwarded. They should also be informed about the identity of the emergency services that will receive their location information and of other necessary details to guarantee fair processing of their personal data.

12. In the context of the continuous evolution of concepts and technologies, Member States are encouraged to foster and support the development of services for emergency assistance, for instance to tourists and travellers and for the transport of dangerous goods by road or rail, including handling procedures for forwarding location and other emergency or accident related information to public safety answering points; to support the development and implementation of common interface specifications in ensuring Europe-wide interoperability of such services; and to encourage the use of location technologies with high precision such as third generation cellular network location technologies and Global Navigation Satellite Systems.

13. Member States should require their national authorities to report to the Commission on the situation of E112 implementation by the end of 2004 so that the Commission can undertake a review taking into account the emerging requirements from public safety answering points and emergency services and the evolutions and availability of technological capabilities for location determination.

14. This Recommendation is addressed to the Member States.

Annex C:
Disabled, elderly and young users

C.1 General

As noted in clause 5.1, there are some user groups who are likely to need special requirements for emergency call handling. These are very diverse and have very different requirements. They may be divided into three main categories, though these will often overlap:

- **People with disabilities**
- **Senior citizens**
- **Young people (children)**

Each of these categories may again be divided into sub-groups, all of which have very different requirements.

C.2 People with disabilities

Disabilities fall into three basic categories, which can be further sub-divided

- ***Sensory*** impairments (sight, hearing, touch, taste/smell, balance).
- ***Physical*** impairments (speech, dexterity, manipulation, mobility, strength/endurance,).
- ***Cognitive*** impairments (intellect, memory, language/literacy).

Characteristics of these disabilities and their relationship with ICT products and services are described in ETSI Guide EG 202 116 [6].

C.3 Elderly users

Elderly users (senior citizens) can be divided into age groups with very different requirements (these age groups are very general as there are people aged 80 who function as well as most 60 year olds, and vice versa):

- ***"Younger"*** senior citizens (55–65 years).
- ***"Middle-age"*** senior citizens (65–80 years).
- ***"Older"*** senior citizens (80+ years).

"Normal" changes related to ageing are not usually regarded as disabilities, even though the impairments incurred by ageing may be indistinguishable from those of younger disabled people. The effects of ageing are described in CEN/CENELEC Guide 6.

In the grouping shown, it may be assumed that the "younger" group is exhibiting the onset of ageing effects, probably without significant impairments. In the "middle age" the impairments progress and develop and become more significant. The "older" group can be assumed to be so impaired as to need regular assistance and protection.

C.4 Young users

Young people (children): This group may be even more diverse than other groups (the capabilities of a three-year old are clearly very different from an eight-year old or a twelve-year old, but also in this group there are very large individual variations). The 0–2 -year olds will not be considered here:

- ***Pre-school*** children (3–5 years).

- ***School age*** children (6–12 years).
- ***Teen-agers*** (13–18 years).

Issues and guidelines related to young users of ICT equipment can be found in TR 102 133 [11]. A very young pre-school child or baby may not be aware that they are in an emergency situation, but it can reasonably be assumed that they normally have available assistance from a protective third party.

C.5 Special considerations

It is likely that it will not be possible to create technical solutions that will allow any person in the above categories to successfully make an emergency call from any terminal without assistance from a third party. The creation of such all-embracing solutions are, in some instances, likely to be logically impossible and not just technically challenging. For example, if a public telephone was designed to allow the shortest three-year old child to physically initiate an emergency call, a tall blind user would find such a low mounted terminal impossible to use to make an emergency call.

In practice, many of the people who would have the most difficulty with independently making emergency calls would have the constant support of another person who would be able to make an emergency call on their behalf. People with very severe cognitive impairments or very young children are likely to have a full-time care worker or a parent that could make emergency calls for them. Such realities will make it reasonable to assume that some combinations of user and terminal can be seen as outside the scope of the general requirements of clause 4.1. However, blanket exclusion of classes of user should never be accepted.

Whenever users have people to "permanently" assist them, they could at some time lose their assistant and need to make an emergency calls whilst alone. If a three-year child is alone with a parent and the parent dies the child should be able to make an emergency call. However, if the child's parent died whilst out of the house in a public place with a public payphone there is likelihood that there would be some other adult that could make an emergency call on the child's behalf. Therefore it might be considered reasonable that a three-year old child should be able to make an emergency call from their home telephone but unreasonable that all public terminals should be designed so that the same child could make an emergency call from such a terminal.

What the above examples indicate is that, whilst the aim should always be to allow all people, no matter what their age or disability to be able to make an emergency call from any terminal, there is scope to define circumstances where it is not reasonable to require that a person of a certain age or certain degrees of disability should be able to make an emergency call from a certain type of terminal. Attempts to create technical solutions that make it possible for anyone to make an emergency call from any terminal will lead to combinations of terminal, network and user that may seem to be technically extremely challenging. The technical difficulty of a solution should not, in itself be a justification for not providing a satiable solution. However these challenging combinations are ones which should be examined to see if the circumstances that cause these challenges are circumstances where it is seen as reasonable to require an emergency call to be made. The decision of when these special cases need not be addressed with technical solutions should not be made on technical grounds but on the grounds of whether there is a real need for the identified users to be able to make an emergency call in the specific circumstances. Such decisions should be made on grounds of social acceptability and should be political and not technical decisions.

Annex D:
Allocation to TBs

All ETSI Technical Bodies should carefully consider the content of the present document. The following table shows the primary recommendations for action within the TBs from OCG EMTEL:

Clause	Title	TB(s), other B(s) & rapporteurs
1	Scope	All
2	References	All
3	Definitions and abbreviations	All
3.1	Definitions	All
3.2	Abbreviations	All
4	Description of the emergency call service	TISPAN/ 3G (all)
4.1	General description/provisions	TISPAN
4.1.1	User expectations on Voice Networks for Emergency Calls	AT/ MSG
4.1.1.1	Public Network Access points	TISPAN/AT
4.1.1.2	Public Pay telephones	AT
4.1.1.3	Public Telephones	AT
4.1.1.4	Dedicated Emergency call posts with voice application	TISPAN/ AT
4.1.1.5	Private coin and card payphones	AT/ SCP/ MSG
4.1.1.6	Private Networks	AT / ECMA 32
4.1.1.7	Multipurpose facilities	MSG/ 3GPP
4.1.2	Requirements applicable to the emergency call functionality of terminal equipment	AT
4.1.3	Speech quality of emergency calls	TISPAN/ STQ
4.1.4	Charge exemption for emergency calls	TISPAN/ 3GPP
4.1.5	Ensuring emergency call conveyance	TISPAN/ 3GPP
4.1.6	Assignment of emergency calls to the appropriate emergency control centre	TISPAN/ 3GPP
4.1.7	Preventing effects of discrepancies in coverage	TISPAN/ 3GPP
4.1.7.1	Radio Coverage Limit cases between mobile networks	TISPAN/ 3GPP
4.1.7.2	International cooperation	TISPAN/ 3GPP
4.1.7.3	Cordless technologies	DECT
4.2	Recognition and treatment of emergency calls by the originating network	TISPAN/ 3GPP
4.2.1	Emergency call-related information	TISPAN/ 3GPP
4.2.1.1	Calling line number of the access at which the emergency call is made	TISPAN/ 3GPP / AT
4.2.1.2	Indication of the emergency caller's location	TISPAN/ 3GPP
4.2.1.2.1	Emergency caller using a fixed line access	TISPAN/ AT
4.2.1.2.2	Emergency caller using a mobile phone	MSG/ 3GPP
4.2.1.2.3	Indication of location in private networks.	AT/ ECMA 32
4.2.1.3	Identification of the mobile terminal equipment	MSG/ 3GPP
4.2.2	Network identification	TISPAN/ 3GPP
4.2.3	Minimum power supply for user accesses	AT/ Safety/ EE
4.2.4	Over dialling	TISPAN/ 3GPP
4.2.5	Suppression of carrier selection /carrier preselection codes	TISPAN/ 3GPP
4.2.6	Emergency calls from other countries	TISPAN/ 3GPP
4.3new	Interconnect emergency calls	TISPAN/ 3GPP
4.3	Handling of emergency calls between networks	TISPAN/ 3GPP
4.4	Providing termination of emergency calls to the PSAP	TISPAN/ 3GPP
4.4.1	Features of emergency control centres	TISPAN/ 3GPP/ AT
4.4.2	Release of the emergency call.	TISPAN/ 3GPP
4.4.3	Temporary Blocking of Emergency Calls from a particular source	TISPAN/ 3GPP
4.5	Emergency call-specific functions for all	TISPAN/ 3GPP (all)

	involved networks	
4.5.1	Priority of emergency calls	TISPAN/ 3GPP
4.6	Network Management support functions for delivery of Emergency calls to PSAPs	TISPAN/ 3GPP
4.6.1	Monitoring of the lines and availability of the PSAP	TISPAN/ 3GPP
4.6.2	Diversion of emergency calls	TISPAN/ 3GPP
4.6.3	Permanent availability	EE/ TISPAN/ 3GPP (all)
4.6.4	Security provisions at access to PSAPs	TISPAN/ 3GPP / all
5	European-wide interface between operators and PSAPs	TISPAN/ 3GPP
6	Special requirements when making emergency calls by disabled, elderly and young users	HF/ AT/USER
7	Special requirements for emergency calls in a foreign language	TISPAN/ 3GPP (all)
8	Data protection	OCG_security/ESI
9.	Future and other networks	TISPAN/ 3GPP (all)
Annex A:	Basic Architecture	TISPAN/ 3GPP
Annex B:	Legal framework	OCG EMTEL
Annex C	Disabled, elderly and young users	HF
TISPAN:	This is the working name of the new TB resulting from the merger of EP TIPHON and TC SPAN	

History

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