

eCall

Contribution by 4 mobile operators to the discussions

Meeting with the European Commission
September 2005

This is a contribution of 4 mobile operators to the discussions on eCall:

- It presents some preliminary views on ‘eCall requirements’ on mobile operators
- It raises some questions for clarification to the European Commission

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- Our understanding of overall eCall ‘requirements’
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MNOs and Safety, eCall

- Mobile operators contributions to improving road safety today
 - EU25 mobile phone penetration: 92.8% as of 2005
 - Adoption of E112
- Mobile operators and eCall:
 - eCall is more than just ‘building on E112’:
 - eCall extends the data transport from the MNO further forward to the IVS/mobile
 - E112 provides no data transport from the mobile – eCall does
 - E112 is more voice centric than eCall – which is essentially data based
 - E112 is triggered by the user – eCall can be automatic
 - E112 uses location data made available by the operator – eCall seems to envisage other sources of location data
 - The eCall ‘Costs & Benefits Analysis’ needs to be updating:
 - It must include the cost of purchasing the communication service from the mobile operators for the 250 million cars / IVS foreseen in 2009
 - The Liability of mobile operator must be limited to the ‘best effort’ principle
 - eCall ‘requirements’ need to be clear, detailed, justified and agreed
 - This is also a prerequisite for an efficient standardisation process

Our Understanding of Overall eCall 'Requirements'

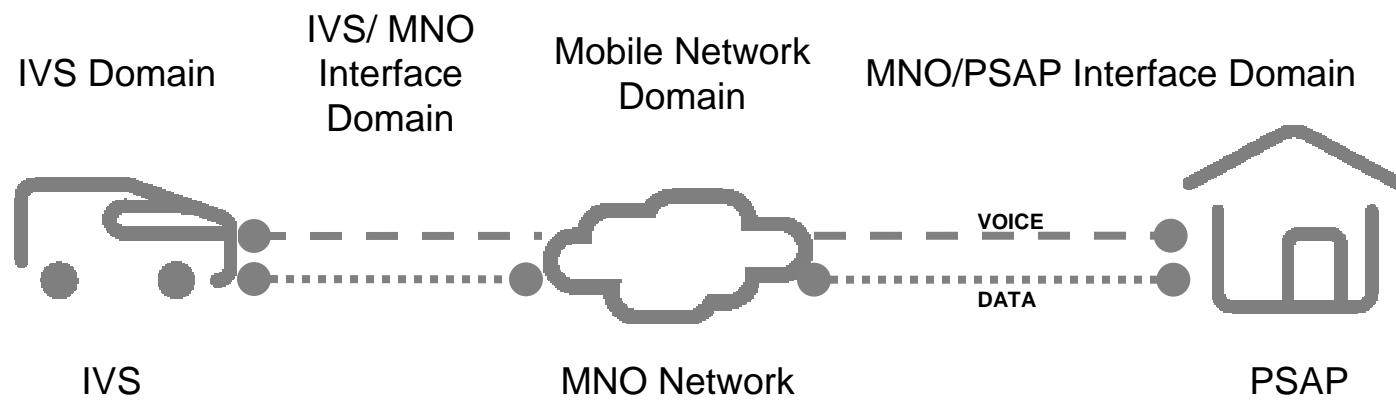
- eCall can be activated automatically or manually
- The message is sent from an In-Vehicle System (IVS)
- eCall comprises always a data part and when possible a voice part
- The data part (Minimum Set of Data - MSD) shall be available for the PSAP operator within an average of 4 seconds from sending the MSD from the IVS*
- MSD comprises of time, location, direction, vehicle information (make, colour) and several other Identifiers, e.g.
 - If eCall is activated manually or automatically
 - Additional information on service providers (ID, telephone number etc.)
- A Full Set of Data (FSD) may contain more information for VAS (Value Added Service)
- eCall is sent from the IVS via GSM/ UMTS to the Mobile Network Operator (MNO), who has to process the call:
 - Add Caller Line Information (CLI)
 - Derive location information
- MNO then relays the eCall to the PSAP level 1
- PSAP handles and coordinates all necessary rescue efforts
- The PSAP only can terminate the communication with the IVS

* (M-05-027, Evolution 21)

Open issue:

- The eCall 'requirements' are not detailed enough, not agreed and not justified.

The eCall Communication Chain



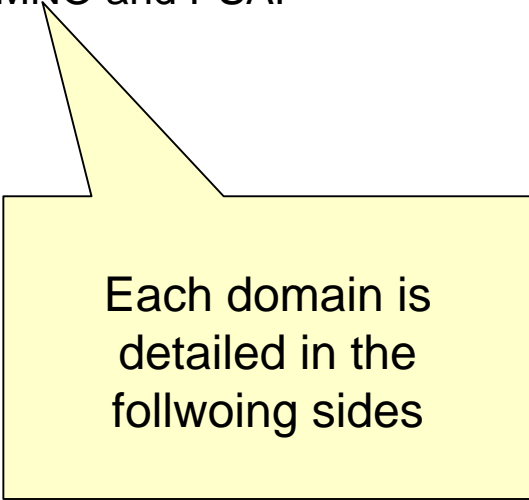
State of Play

Areas of common understanding:

- A ‘relayed solution’ IVS>MNO>PSAP is preferred to a ‘tunnelling solution’ IVS>PSAP where the access, core and transport network open a tunnel in a transparent manner (eCall functionalities reside in the IVS / PSAP)
- For a pan-European service, a ‘single’ standardised interface to PSAPs is necessary

Domains needing further analysis:

1. Requirements on possible IVS solutions
2. The bearer/protocol between the IVS and MNO
3. Impact on the mobile core network
4. The bearer/protocol between the MNO and PSAP



Each domain is detailed in the following slides

1. The IVS Domain

Three options could be envisaged, each will have different implications on the mobile communication part

1. Robust eCall device

- A device specifically designed for eCall (fixed to the vehicle and deployed for eCalls only). Any other communications via separate mobiles

2. In-car entertainment / Fleet-management system

- A system permanently fixed to the car incorporating “all infotainment means” (audio, video, navigation...) with embedded eCall functionalities
 - Such systems are handled down from premium to mass market cars

3. Nomadic device

- A nomadic mobile Device fixed to the vehicle by a docking station and deployed for eCalls as well as for common mobile applications
 - The nomadic device acts as radio modem and is connected to the vehicle’s crash sensors by suitable means; e.g. Bluetooth / USB
 - The eCall is initiated by the vehicle

Open issues:

- Are the 3 IVS options covered in the requirements? If not, which one is and why?
- Is the IVS expected to be crash proof?
- What is the envisaged cost per IVS?
- Mobile Operators must be involved in the design of the IVS

2. The IVS / MNO Interface Domain

- Currently some bearers and protocols for connecting the IVS to the MNOs core network are examined: UUS, USSD, DTMF
- None of the bearers and protocols
 1. Is a turn key solution which could be available without substantial adaptations, and
 2. Fulfils all eCall requirements without substantial amendments
- Two solutions, Inband Modem and SMS, are not considered further
 1. Inband Modem: no open standards available
 2. SMS: Not practicable due to latency risks (Store and Forward System)

Open issue:

- Mobile Operators need to participate in the definition of the IVS/MNO interface

3. The Mobile Network Operator Domain

- A mobile network must be able to control (large scale) risks of fraud and abuse – this is in the interest of PSAPs too. The device must be authenticated to the network
 - Device (IVS) Life Cycle management
 - A device may be blocked when fraudulently used or proven unreliable
 - A device may be deactivated at the end of life-cycle
- Registered devices generate frequent location updates – and so create background traffic:
 - If a device is switch on, it requires some time to register to the network.
 - If on & off several times – it requires a lot of networking and signalling capacity
- A mobile network must be constantly dimensioned to follow traffic
- The implications on the core mobile network depends heavily on the bearers / protocols between the IVS<> MNO and MNO <> PSAP

Open issues:

- Mobile Operators need to participate in the definition of the IVS/MNO interface and of the MNO/PSAP interface

4. The MNO/PSAP Interface

Assumptions:

- Voice will be handled as voice on ISDN
- MSD Bearer defined by European Commission is a fixed line ISDN
- Protocol on bearer will be TCP/IP
- There are different application level protocols to the PSAP:
 - GTP (Global Telematics Protocol)
 - XML (e.g. MLP (Mobile Location Protocol) of OMA)

Open issues:

- Identify, agree and justify the real needs of the European PSAPs
- MSD structure and format should be harmonised at pan-European level
- PSAPs protocols requirements must be clearly defined and harmonised
- Mobile Operators need to participate in the definition of the MNO/PSAP interface

Summary of open issues

- The eCall 'requirements' must be detailed, agreed and justified
- Are all 3 IVS options covered in the requirements? If not, which one is and why?
- Has a IVS to be crash proof? What is the envisaged cost per IVS?
 - Mobile operators must be involved in the design of the IVS
- Mobile operators need to participate in the definition of the IVS/MNO interface and of the MNO/PSAP interface
- The needs of European PSAPs must be identified, agreed and justified
- MSD structure and format should be harmonised at pan-European level
- PSAPs protocols requirements must be clearly defined and also harmonised

Mobile operators need guidance from the European Commission on at least these open issues to continue to assess the different possible options to contribute to eCall