FILIÈRE AUTOMOBILE & MOBILITÉS

TECHNICAL POSITION PAPER
N3

ECALL AND 2G/3G NETWORK OBSOLESCENCE

Since May 2018, the European Ecall legislation requires that all vehicles be equipped with an emergency call system – initially on new homologations, then on all vehicles.

This system is based on 2G and 3G network technology. A new Ecall regulation based on 4G, 5G IP protocol (new generation – NG) should be published in 2022 with an application date from 2024 or 2025.

Telecom operators have started to progressively plan the shutdown of their 2G and 3G networks in the world to switch to liberate frequency bands for more efficient 4G and 5G networks.

There is therefore a high risk that Ecall coverage will degrade in the short term and then disappear progressively in the medium term (2030?) – however there will still be millions of vehicles on the roads in Europe equipped with this technology.

Several scenarios are envisaged to ensure the continuity of services, which is a responsibility of the Member States of the EU:

- Extend the lifecycle of 2G or 3G network until the number of compatible vehicles on the road is sufficiently low (2035?)
- Supply an after-market solution for existing vehicles with a 4G box ensuring new generation Ecall services

In this context, the position of the automotive sector is:

- Automotive OEMs cannot take responsibility to propose add-on NG Ecall solutions
- The after-market network of the sector can carry out this replacement, conditional on financial compensation and a clear re-homologation process. One of the key stakes would be to ensure that customers comply with such an after-market campaign. Questions of cost responsibility and safety need to be treated to enable this compliance.
- Concerning vehicles produced with a 4G modem, but respecting the 2018 ecall protocol, a retrofit cannot be guaranteed by an OTA update.
- The automotive sector will offer vehicles compatible with the NG ecall text 3 years after its publication.
- The first priority concerns the publication date of the study promised by the EC in Novembre 2021 and delayed until June 2022, as well as the publication date of the new Ecall legislation. The later this is known, the higher the number of vehicles in use in the EU with the old Ecall version. Today 20 million vehicles are concerned, by 2030 this could be 50 million.
- For the telecom industry, more clarity is required concerning the lifecycle of the 2G/3G networks. We understand that they will be maintained until at least 2025, but not after 2035. The period between 2026 and 2035 needs to be clarified.
- Finally, the question not only concerns automobiles – other equipment uses the 2G/3G network, e.g. medical monitoring equipment for home-based patients. Numerous sectors are concerned and they cannot carry the cost of an anticipated or poorly-managed obsolescence of 2G/3G technology.

European law does not appear to impose the obligation to maintain an emergency call service

- There is no obligation in the law to maintain a minimum telephone service (emergency call)
- Directive 2002/22/EC 'Universal service directive' annexe 1 relative to Article 10.
- Nevertheless, car manufacturers cannot be held responsible for problems linked to the disappearance or misfunction of any systems other than their own, and in particular problems linked to cellular network (e.g. closure of 2G-3G networks)

Note that the telecom operators are within their rights to use the licensed frequencies as they wish.

Automobile manufacturers cannot accept financial obligations linked to the possible disappearance of the communication system which is imposed for the Ecall service (linked to the closure of the 2G and 3G networks after 2025 or 2030)

- Car manufacturers respected their obligations to integrate ECall in conformity with the European directive and the Ecall standard.
- The decisions to shut down the 2G/3G networks is not their responsibility.

Automobile manufacturers cannot be involved with add-on Ecall solutions and their responsibility cannot be implied to justify the update costs

Automobile manufacturers are not concerned by aftermarket solutions (smartphone, aftermarket telematics units, aftermarket dedicated Ecall systems, etc.) and cannot commit their financial responsibility. Aftermarket solutions do not respect homologation criteria.

At this time, aftermarket solutions are not considered being at the same safety level as telematics which are integrated into the vehicle (eCall certification).

The current version of the eCall standard is not conceived to be integrated in smartphone-based systems and this option cannot be considered as a workaround for vehicles which have a non-functional eCall. One important topic is to avoid false positives.

NG Ecall 2022

Over the past few years, many OEMs have started to sell vehicles equipped with a 4G Modem which is compatible with 2G and 3G eCall networks. The New Generation eCall regulation based on IP protocol applicable to 4G, 5G,… networks should be published in 2022 with an application date from 2024 according to the different vehicle types.

- Will these vehicles be compatible with NG 2022 eCall ? It remains to be demonstrated that all the 4G modems integrated into the telematic systems can be updated to NG eCall by an Over-The-Air update.
- Manufacturers request 3 years after the new regulation publication (NG eCall) to start selling the first NG-eCall vehicles.

What is the technical feasibility to update 4G modems Over The Air?

Several issues are identifed by this approach:

- VoLTE support for 4G modems
- Memory size (IMS stack?)
- Implementation of telematic audio content which has to respect NG-Ecall specifications
- Simultaneous support of Ecall and NG-Ecall to manage the transition between the two systems
- Homologation without tests (SW evolution with no incidence on the triggering strategy/frequency certification)
- Cost for the development and implementation of the system

PFA position:

- Vehicle manufacturers are not involved in the development of aftermarket solutions.
- Nevertheless, these solutions could be a compromise between ensuring continuity of service and upfront cost; this would be dependent on defining the replacement protocol, the homologation conditions, the financing of this replacement and identify who would be responsible of such an exercise.
- Concerning vehicles produced with a 4G modem but respecting the 2018 Ecall protocol, the retrofit via OTA is not feasible because the firmware of the modem is impacted, and for safety reasons, a hardware operation is necessary for updates.