eCall/ERA-GLONASS

u-blox' emergency response solutions

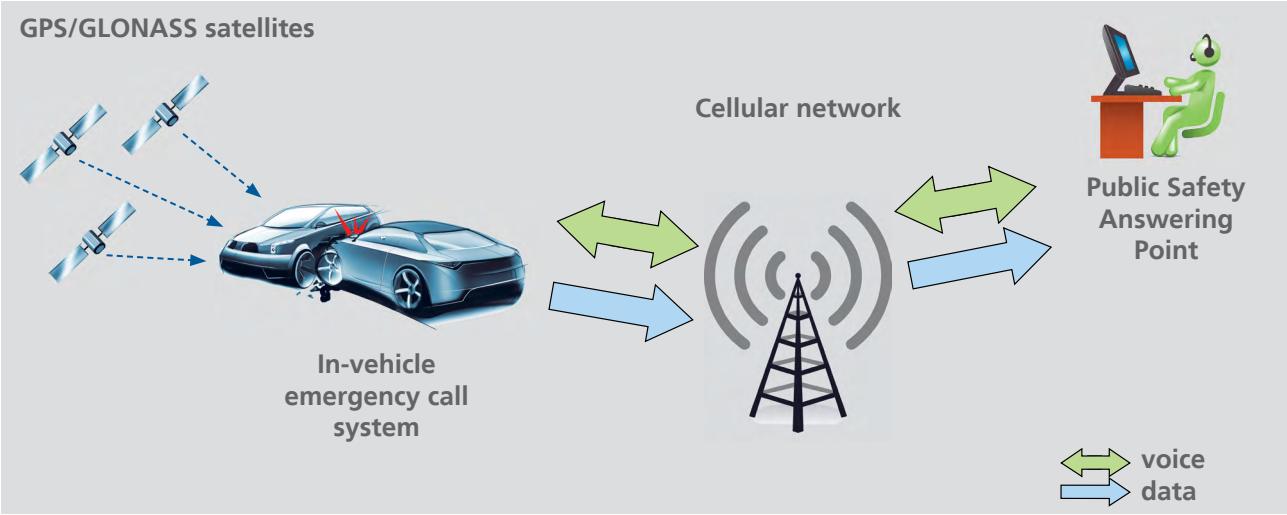
Support for rapid assistance to motorists in Europe and Russia

- Leading GPS/GLONASS and 2G/3G components
- Comprehensive test environment and kits
- Inband modem capability
- Operator approved wireless modules
- Reference designs

www.u-blox.com

eCall / ERA-GLONASS

Combining GPS/GLONASS and wireless for emergency call services



eCall (European) and ERA-GLONASS (Russian) are initiatives to use combined mobile communications and satellite positioning to provide rapid assistance to motorists in the event of a collision.

The systems are similar, with the first based on GPS the latter on GLONASS. They both monitor in-vehicle sensors, for events such as airbag deployment, to automatically transmit location details and summon assistance via emergency cellular service. The motivation for both systems is the reduction of the consequences of road accidents in Europe and Russia.

The core functionality of both systems relies on an embedded computer that continuously monitors crash sensors and the vehicle position from satellite receivers. When the computer detects an emergency condition, it initiates an automated data and full duplex voice call via a dedicated wireless modem (e.g. GSM or UMTS). In-band modem capability (the ability to transmit data over the voice channel) is a key requirement for both systems. The goal is to equip all cars in the Europe and Russia with dedicated hardware, either as firstmount units in new cars, or installed in pre-existing vehicles (after-market devices).

GPS / GLONASS chips and modules

u-blox provides stand-alone GPS and GLONASS receivers in automotive quality grade (AEC-Q100, ISO/TS 16949) that are suitable for supporting the positioning subsystem requirements of in-vehicle eCall systems. These possible u-blox solutions are:

- **UBX-G6010-SA GPS single-chip receiver** for eCall vehicle applications. The chip integrates RF and Baseband processors.
- **UBX-G6010-SA-DR GPS single-chip receiver** with Automotive Dead Reckoning for vehicle eCall applications. ADR is the ability to extrapolate vehicle location based on information provided by external heading and distance sensors. This allows navigation in shielded environments such as tunnels and parking garages; refer to the u-blox whitepaper "Automotive Dead Reckoning: An intelligent solution for modern urban navigation".
- **UBX-G6000-BA/UBX-G0010-QA GPS chipset.** Same as above but with RF and Baseband processors separated. This solution provides stand-alone GPS/GLONASS functionality on a small PCB area, either autonomously, or in conjunction with an Assisted GPS service to aid and accelerate positioning during cold-start conditions or weak GPS signal environments (refer to u blox' AssistNow A-GPS online service). For more information visit our website at www.u-blox.com.
- **u-blox GPS receiver modules**, including the **MAX-6, NEO-6** and **LEA-6** GPS module families. These are compact, standalone GPS receiver modules with high integration of passives resulting in a minimum external BOM (see www.u-blox.com/en/gps-modules.html). For ERA-GLONASS terminal designs, the **LEA-6N** is a dedicated module supporting both GPS and GLONASS satellite positioning systems.

2G/3G modules

The u-blox **LEON-G100 ECALL module** supports eCall and ERA-GLONASS over the existing 2G and 3G mobile phone networks. These modules provide an inband modem option according to the 3GPP TS 26.267 specification. They support eCall data transmission requirements over the voice channel, which is a mandatory requirement. The modules are suited for small embedded devices in vehicle environments and operate from –40 to +85° C. LEON also supports firmware update over the air (FOTA), an attractive feature due to the currently evolving eCall specifications.

With the imminent deployment of ERA-GLONASS and eCall, development of in-vehicle terminals is in full swing. The correct choice of components has a large affect on time-to-market. Important factors to consider are the supplier's know-how and ability to support design-in requirements of GPS/GLONASS and GSM/UMTS subsystems, comprehensive software support, certification of the wireless modem, forward compatibility with future technologies, as well as the ability to deliver high-quality automotive-grade components in high-volume. u-blox provides wireless and GPS/GLONASS receiver components for both eCall and ERA-GLONASS that meet these criteria. For more details about u-blox' solutions and test enviroment for eCall and ERA-GLONASS, contact u-blox.