COMMENTS ON DRAFT ECC REPORT 255 "THE USE OF ASSISTED-GLOBAL NAVIGATION SATELLITE SYSTEM (A-GNSS) CAPABILITIES TO IMPROVE CALLER LOCATION INFORMATION FOR EMERGENCY CALLS ORIGINATING ON MOBILE DEVICES"

Sources
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(1) The European Telecommunications Network Operators' Association (ETNO) represents 41 major companies, which provide electronic communications networks over fixed, mobile or personal communications systems across 35 countries. ETNO is Europe's leading trade association for telecoms. More information about ETNO can be found at: www.etno.eu

1. General Comments

ETNO welcomes the opportunity to comment on the Draft ECC Report 255 "The use of Assisted-Global Navigation Satellite System (A-GNSS) capabilities to improve caller location information for emergency calls originating on mobile devices".

1.1 ETNO's general view

In ETNO's view, the proposed evolution of techniques for the provision of improved caller location information to the PSAPs has to take into consideration the existing 112 technical solutions deployed at national level, in order to get clear requirements and impacts.

Existing 112 emergency solutions – which satisfy the requirements of the European regulatory framework – are based on location information provisions that are synchronised with 112 telephone calls to the PSAPs; the reliability and accuracy of location information is regulated nationally and in general requires that location information is provided and validated by an operator.

In general, the delivery of terminal-based satellite positioning information has to be considered transparent for network operators; that is without any responsibility for mobile operators regarding the validity of the location and its synchronised delivery to the PSAPs.

The delivery of satellite-based location information (at present GPS-based and in the future also Galileo-based) to the PSAPs should be transparent for network operators, also considering that no specific standard mechanisms have been defined to assure this delivery. A possible solution could

be for the national Administrations responsible of PSAPs to make available specific software-based applications that could be installed directly by end users on their smartphones.

It also has to be considered that GNSS-based positioning information is in principle a "best effort" location information without any guarantee regarding its availability and reliability, since it mainly depends on the terminal equipment configuration by the end user and the satellite signal visibility (for instance GNSS positioning is not available inside buildings or in covered places); this could be, in some cases, enhanced based on WiFi location information (this can be done via various solutions and it is possible also via AML solution).

In general, considering the requirements of the European regulatory framework on operators for the provision of accurate and reliable caller location information for 112 emergency calls, the network operators will continue to provide PSAPs with the existing and validated network-based location information (usually it is "cell-id" information). If the PSAPs provide to the end users appropriate applications for GNSS-based location delivery (also AML based), these applications will have to be completely transparent for the network operators. The information from the operators and the applications can be used in a complementary way by the PSAPs. It is a logical trend to use accurate satellite information available in the handsets for localisation to respond to the European regulatory requirements. The solution for accurate localisation should not come only from the mobile operators. Other complementary solutions should be considered.

However, if the EC objective is to improve the accuracy in charge of operators of reliable and validated network-provided caller location information respect to the actual "cell-id" information, only solutions that integrate terminal-based GNSS capabilities with reliable and validated information provided by mobile networks should be considered. In that case it should be analysed more in detail how operators can contribute best to this solution as the use of satellite information and the mobile handsets are outside their control.

These Assisted-GNSS solutions will require beforehand standardisation activities by ETSI/3GPP regarding the dialogue between terminal equipment and mobile networks (especially a revision of the ETSI Technical Specification 124 008).

In particular, ECC could consider the possibility of recommending specific ETSI/3GPP activities on these issues in order to develop a unique and interoperable technical solution, integrating terminal equipment with public networks capabilities.

Current analysis in the ECC document is excessively high level. A more detailed analysis could reveal benefits for each different solutions available. Also AML or other alternatives could be subject to standardisation and should be analysed more in detail.

ECC should also make clear in the Report the intrinsic "best effort" and transparent nature (with respect to public network operators) of autonomous terminal-based GNSS location delivery to PSAPs; this autonomous terminal-based GNSS location delivery to PSAPs should be considered an independent and additional location information regarding the reliable and validated network provided location information for 112 emergency calls.

1.2 ETNO's comments

In the Report there are some concepts that may generate confusion like the following ones:

- **In the Executive Summary** the A-GNSS functionalities which improve the accuracy of the reliable and validated network-provided caller location information, with respect to the actual "cell-id" information, integrating terminal-based GNSS capabilities with information provided by mobile networks, are completely ignored. These Assisted-GNSS solutions require standardisation activities beforehand by ETSI/3GPP regarding the dialogue between terminal equipment and mobile networks (especially a revision of the ETSI Technical Specification 124 008).
- In the **Executive Summary**, it appears that A-GNSS functionalities are the only functionalities that could be handled directly by the mobile handsets - either via user plane or control plane - in order to improve the accuracy of the location information that they get by their positioning systems. The summary does not underline the intrinsic "best effort" and transparent nature – with respect to public network operators - of possible autonomous terminal equipment based GNSS location delivery to PSAPs; this autonomous terminal-based GNSS location delivery to PSAPs should be considered an independent and additional location information with respect to the reliable and validated network provided location information for 112 emergency calls.

 Regarding the Questions in Clause 6 (Outlook), a set of ETNO comments follow:

"The availability and possible wider adoption of approaches such as AML could raise questions to national regulatory authorities as to how best to benefit from the opportunities that exist to the best advantage of citizens. In line with the conclusions of ECC Report 225, these questions include:"

- ▪ "*What criteria would be most appropriate given the different sources of information that may be available to a handset*?"

ETNO comment: The general ETNO's view illustrated in section 1.1 applies to this issue.

In principle, a unique European standard solution should be identified to improve mobile location accuracy, considering interoperability requirements for emergency services and location provision in European countries. Proprietary technical solutions, also regarding functionalities that should be guaranteed inside terminal equipment for emergency telephone calls should not be preferred if a Europe wide interoperable solution is considered.

When using SMS services for the delivery of GNSS positioning to PSAPs, the reliability of the SMS platform should be taken into account; in fact, usually, SMS platforms are "best effort" delivery systems and depend on the reliability of the specific network configuration between the mobile operators and the PSAPs. For specific countries that already have a best effort SMS solution for emergency services, the AML solution could be considered at national level, taking into account its intrinsic characteristics and proprietary requirements. The use of a mobile standard Assisted-GNSS solution on mobile data connection (based on OMA standards and future related ETSI/3GPP standards) guarantees an interoperable solution

for improving caller location accuracy in Europe. Network reliability and the availability of the data connection remains a point of attention in this solution. In addition, an Assisted-GNSS solution and also AML enable integrating satellite location positioning with mobile operators' location platforms, allowing to improve location accuracy also in the case of indoor calls or non satellite visibility conditions. A more detailed analysis should be made to evaluate the different solutions.

- *"Could and should the conveyance of location information from the handset to the PSAP be harmonised across Europe via*
    - *regulatory harmonization,*
    - *requirement harmonisation (interoperability), or*
    - *technical harmonisation?"*

ETNO comment: A common European approach for A-GNSS solutions should be based on standardised ETSI/3GPP solutions aimed at developing a unique and interoperable technical solution, integrating terminal equipment capabilities with public networks capabilities (see also the ETNO comment to the first question).

- "*How would the performance of such approaches be measured?"*

ETNO comment: Proprietary satellite-based solutions are in principle "best effort" solutions as regards performance. Reliability requirements can only be satisfied by standardised A-GNSS solutions.

- "*What incentives could be established to encourage wider adoption and improved performance of such approaches?"*

ETNO comment: Technical standards developed by European SDOs - like ETSI/3GPP also in collaboration with global fora - answering possible EC mandates are a general guarantee of optimal technical solutions with wide adoption.

- "*What is the level of regulatory jurisdiction necessary to ensure that capabilities are maintained over time given the number and variety of stakeholders involved in such approaches*?"

ETNO comment: When a standardised technical solution is defined at European level for improving mobile location accuracy, its integration inside the existing national emergency services platforms is in charge of national Administrations.

- "*What are the privacy concerns when comparing Control-Plane and User-Plane caller location techniques*?"

ETNO comment: When location is based on autonomous mobile handsets functionalities, for instance with applications installed autonomously by end users, there are less guarantees on the location information accuracy, the location delivery and the synchronisation with emergency services telephone calls. Only a standardised A-GNSS solution, regarding also mobile handsets functionalities for satellite location which will integrate with mobile operators' location platforms, enables caller location reliability. This is particularly true for User-Plane technics which are more viable and sustainable.

ETNO specific proposals focus on the Executive Summary. The proposed comments should be considered valid also for the body of the Report and for all the iterations of the same concepts.

2. Proposals related to the ECC Deliverables

[**Note:** proponents are invited to use the following table to provide comments. It is also possible to provide as an annex the proposals with track changes and related justifications.]

Comment number	Section number/ Clause	Paragraph Figure/ Table	Type of comment (General/ Technical/ Editorial)	COMMENTS	Proposed change
XX/1	**0** **Executive Summary**	**Paragraph 2**	**General**	The proposed comments should be considered valid also for the body of the Report and for all the iterations of the same concepts.	In particular, this report examines how assistance (known as Assisted Global Navigation Satellite System or A-GNSS) is, and potentially could be, provided to mobile phone handsets in order to ~~speed up the time taken to derive an accurate location~~ <u>improve the quality and accuracy of location information.</u> It also looks at whether harmonisation of the different approaches available could be beneficial in order to minimise costs and offer consistent capabilities. Such an examination was advocated in a previous ECC Report that examined the general area of location information provision for emergency calls (ECC Report 225).
XX/2	**0** **Executive Summary**	**Paragraph 4**	**General**	The proposed comments should be considered valid also for the body of the Report and for all the iterations of the same concepts.	As a result of the information obtained, the report goes on to examine the consequences of potential harmonised A-GNSS methods for <u>improving the quality and accuracy of location information that is provided</u> ~~onward conveyance of location information~~ to Public Safety Answering Points (PSAPs).

XX/3	0 Executive Summary	Paragraph 5	General	The proposed comments should be considered valid also for the body of the Report and for all the iterations of the same concepts.	It was found that while most modern mobile handsets are likely to be able to request and receive assistance data to help determine a position, this was generally achieved using a data connection to independent (third party) data sources. From the responses to the questions posed to industry, there appeared little evidence of adoption of Control Plane GNSS assistance (whereby the MNO provides information directly to the handset). Given that the provision of such functionality would <u>not guarantee that the mobile handsets function correctly (e.g. they could be damaged) and would</u> incur both capital and operational costs, ~~coupled with the widespread availability of independent assistance sources,~~ there appears little motivation for MNOs to provide such assistance in the future. Consequently, harmonisation of approaches appears challenging at this time, although this may change over time in light of technological evolution and hence should be subject to regular review. <u>A-GNSS functionalities that are handled directly by the mobile handsets (either via user plane or control plane), are intrinsically "best effort" and transparent for network operators, that is without any responsibility in charge of mobile operators regarding the validity of the location and its synchronised delivery to the PSAPs.</u> <u>The delivery of satellite-based location information to the PSAPs should be transparent to the network operators, also considering that no specific standard mechanism has been defined to assure this delivery. A possible solution could be for the national Administrations responsible of PSAPs to make available specific</u>

					software-based applications that could be installed directly by end users on their smartphones. It has also to be considered that GNSS-based positioning information is in principle a "best effort" location information without any guarantee regarding its availability and reliability, since it mainly depends on the terminal equipment configuration by the end user and the satellite signal visibility (for instance GNSS positioning is not available inside buildings or in covered place). In general considering the European regulatory framework requirements on operators for the provision of accurate and reliable caller location information for 112 emergency calls, the network operators will continue to provide PSAPs with the existing and validated network-based location information (usually it is "cell-id" information). If the PSAPs will provide to the end users appropriate applications for GNSS-based location delivery, these applications will have to be completely transparent to the network operators. This autonomous terminal-based GNSS location delivery to PSAPs is an independent and additional location information respect to the reliable and validated network provided location information for 112 emergency calls. In general the proposed evolution of technics for the provision of improved caller location information to the PSAPs has to take into consideration the existing 112 technical solutions deployed at national level, in order to get clear requirements and impacts.

						Existing 112 emergency solutions, satisfying the requirements of the European regulatory framework, are based on location information provision that is synchronised with 112 telephone calls to the PSAPs; the reliability and accuracy of location information is nationally regulated and in general requires that location information is provided and validated by an operator.
						In order to improve the accuracy of the reliable and validated network-provided caller location information, respect to the actual "cell-id" information, only solutions that integrate terminal-based GNSS capabilities with reliable and validated information provided by mobile networks are to be considered really effective.
						These solutions integrate terminal-based GNSS capabilities with the reliability and validation of the mobile networks to improve caller location information accuracy (also inside buildings or where the satellites are not visible to terminal handsets), minimising the impacts on existing 112 emergency calls solutions.
						These Assisted-GNSS solutions require beforehand standardisation activities by ETSI/3GPP regarding the dialogue between terminal handsets and mobile networks (especially a revision of the ETSI Technical Specification 124 008).
						ECC urges ETSI/3GPP to begin activities on these issues in order to develop a unique and interoperable technical solution, integrating terminal equipment with public networks capabilities.
XX/4	0 Executive Summary	Paragraph 6	General	The proposed comments should be considered valid also for the body of the Report and for all the iterations of the same concepts.		In the Report, ~~course of examining this subject,~~ the methods by which modern mobile handsets derive location information were investigated. These methods may acquire location data, including A-GNSS data, from a variety of sources in order for the handset to establish as accurate a location as possible (hybrid location

					method, as described in ECC Report 225). It may be therefore possible that the accuracy and reliability of location information derived and then conveyed to the emergency services could be sufficient to allow emergency services to dispatch prompt assistance, irrespective of whether or not assistance for GNSS was provided.
XX/5	**0 Executive Summary**	**Paragraph 7**	**General**	The proposed comments should be considered valid also for the body of the Report and for all the iterations of the same concepts.	This report therefore proposes that attention is turned <u>also</u> to the methods by which location information is determined in practice by modern mobile phones and to consider the implications of the adoption of these approaches, in particular how the effectiveness of these techniques could be ~~maintained~~ <u>improved</u> so as to give long-term confidence to the emergency services in the information they provide.

About ETNO

ETNO (European Telecommunications Network Operators' Association) represents Europe's telecommunications network operators and is the principal policy group for European e-communications network operators. ETNO's primary purpose is to promote a positive policy environment allowing the EU telecommunications sector to deliver best quality services to consumers and businesses.

For questions and clarifications regarding this position paper, please contact Francesco Versace, Director of Regulatory Affairs - versace@etno.eu