



Brussels, **XXX**  
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**COMMISSION DELEGATED REGULATION (EU) .../...**

**of **XXX****

**supplementing of Directive 2014/53/EU of the European Parliament and of the Council  
with regard to the application of the essential requirements referred to in Article 3 (3)  
(g) of that Directive in order to ensure caller location in emergency communications  
from mobile devices**

## **EXPLANATORY MEMORANDUM**

### **1. CONTEXT OF THE DELEGATED ACT**

The current practice of establishing caller location in emergency communications from mobile phones, is based on cell-ID positioning. Cell-ID location was widely deployed by mobile network operators in implementation of the Universal Services Directive<sup>1</sup>. The caller location solution is based on the identification of the coverage area of the serving cell-tower of a mobile phone, which may not necessarily be the closest cell-tower. This area is dependent on the angle of coverage and cell radius. The latter can vary from 100 meters to several kilometres<sup>2</sup>. In certain cases, notably in mountains and cities, this can lead to significant errors in positioning emergency callers.

In the meantime, advanced computing capabilities have been incorporated into mobile phones that can process the location data from Global Navigation Satellite Systems (GNSS)<sup>3</sup> and Wi-Fi information which allows for a solution which would provide more accurate caller location. A caller-location solution based on a hybrid system that continues to provide cell-ID positioning, together with the Wi-Fi and GNSS location information already available on the end-user's mobile phone, would lead to significant benefits in both indoor and outdoor emergency situations. Solutions based on GNSS positioning are already widely used in 8 EU Member States and third countries (e.g. United States<sup>4</sup>).

Use of GNSS would allow for much more accurate caller location and would facilitate faster and more effective rescue efforts, together with an optimisation of emergency resources. Field tests conducted across four EU Member States as part of an EU funded project have shown a real difference in accuracy between cell-ID location and GNSS location: cell-ID location accuracy ranged between 1.5 and 5 kilometres; while GNSS location accuracy ranged between 6 and 28 metres<sup>5</sup>. This is significant as in 2017, 301 million emergency calls were made to emergency services. A large majority (71%) of these calls were placed from mobile phones<sup>6</sup>.

Pursuant to Article 3(3)(g) of the Radio Equipment Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC, the Commission has been delegated the power to adopt delegated acts in order to ensure that radio equipment supports certain features ensuring access to emergency services.

By means of using this power, hereinafter through the Delegated Regulation, the Commission aims at specifying and clarifying the classes and categories which are concerned by that Article, to ensure that hand-held mobile telephones with advanced computing capabilities

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<sup>1</sup> Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive)

<sup>2</sup> HELP112, a European Commission funded study, available at: [https://ec.europa.eu/growth/content/help112-project\\_en](https://ec.europa.eu/growth/content/help112-project_en)

<sup>3</sup> Autonomous geo-spatial positioning with global coverage. GNSS or global navigation satellite systems allow electronic receivers to determine their location (longitude, latitude, and altitude)

<sup>4</sup> Cf. overview provided in HELP 112 study

<sup>5</sup> HELP112 study

<sup>6</sup> <https://ec.europa.eu/digital-single-market/en/news/implementation-european-emergency-number-112-results-eleventh-data-gathering-round>

(commonly known as 'smartphones', hereafter referred to as 'mobile devices') ensure access to emergency services.

This will be done by requiring mobile device producers to support technical solutions for the reception and processing of location data derived from Wi-Fi signals, and data from GNSS compatible and interoperable with at least the Galileo system referred to in Regulation (EU) No 1285/2013<sup>7</sup> for the purpose of making emergency communications more effective.

Use of multiple GNSS constellations increases the availability of high quality positioning especially in difficult environments where the radio signal does not guarantee a seamless reach, such as urban canyons. In narrow streets, for example, where buildings can obstruct the sky view and visibility of satellites, every additional satellite signal received by a device can improve positioning accuracy<sup>8</sup>.

Galileo is the only GNSS under civilian control<sup>9</sup>, and is owned by the EU. It provides continuous, precise navigation signals to EU citizens, and anyone globally, with unique features, including those used in search and rescue<sup>10</sup>, and also High Accuracy and Authentication services<sup>11</sup> for professional and specialised applications.

Galileo will enable global GNSS users to be provided with highly reliable<sup>12</sup> position, navigation and timing, not only, but especially when used in conjunction with the other GNSS. Ensuring the availability of GNSS-Galileo is pertinent to mobile phone-based positioning, given the increased robustness and accuracy that it will provide compared to other location systems<sup>13</sup> used in isolation.

Furthermore, the inclusion of Galileo in mobile devices has been identified as a priority under the EU's Space Strategy<sup>14</sup>. Measures that require compatibility with Galileo would be similar to those adopted under the eCall regulation for accessing the 112 emergency number from the eCall in-vehicle based system<sup>15</sup>.

The requirement to enable Wi-Fi signal based location would allow for a more accurate location of the end-user in cases when GNSS location data may not be available, such as for example in indoor situations<sup>16</sup>.

The requirement to make GNSS and Wi-Fi location information available for transmission

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<sup>7</sup> European GNSS systems are:

- EGNOS, an augmentation system that improves GPS accuracy and deliver information on its reliability over Europe;

- Galileo, the European global navigation satellite system, usable in combination with other GNSS and providing a highly accurate positioning service under civilian control

Both are under EU civilian control and free of charge, cf. Regulation (EU) no 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems.

<sup>8</sup> HELP112 study.

<sup>9</sup> <https://www.gsc-europa.eu/galileo-overview/what-is-galileo>

<sup>10</sup> <https://www.gsa.europa.eu/european-gnss/galileo/services/galileo-search-and-rescue-sar-service>

<sup>11</sup> Commission Implementing Decision (EU) 2018/321 of 2 March 2018 amending Implementing Decision (EU) 2017/224 setting out the technical and operational specifications allowing the commercial service offered by the system established under the Galileo programme to fulfil the function referred to in Article 2(4)(c) of Regulation (EU) No 1285/2013 of the European Parliament and of the Council

<sup>12</sup> <https://www.gsc-europa.eu/electronic-library/performance-reports>

<sup>13</sup> <https://www.gsc-europa.eu/electronic-library/performance-reports>

<sup>14</sup> COM (2016) 705 final 'A Space Strategy for Europe'

<sup>15</sup> Article 5(4), Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC

<sup>16</sup> HELP112 study

would allow for its actual implementation in emergency communications, taking into account technically feasible methods that already exist. One such technically feasible method, known as Advanced Mobile Location (AML), transmits the GNSS/Wi-Fi/ cell-ID information available on the caller's smartphone via Short Messaging Service (SMS) to the Public Safety Answering Point (PSAP). AML has already been deployed in eight EU Member States - the United Kingdom (UK), Estonia, Lithuania, Belgium, Ireland, Finland, Malta and Austria. These deployments are based on a technical report published by the European Telecommunications Standards Institute (ETSI)<sup>17</sup>. This technical report covers GPS and Galileo. The AML capability is supported by the operational systems that run on over 95% of all smartphones in Europe<sup>18</sup>.

The impact on mobile device manufacturers are expected to be minimal as they are targeted towards those mobile phones that are already GNSS-enabled. Nearly all new smartphones currently on the market have GNSS capability. The European Global Navigation Satellite Systems Agency (GSA) estimates that in 2017, 82% of mobile phones were GNSS enabled. This figure should reach up to almost 100% by 2020, before this Act becomes applicable.

Leading smartphone chipset manufacturers offer Galileo-ready chips, and smartphones using Galileo have been available on the market since 2016<sup>19</sup>. According to the HELP112 study, the cost related to the inclusion of Galileo would be negligible because it does not require a specific hardware component<sup>20</sup>. All major mobile phone producers have added Galileo in their phones (e.g. Apple, Sony, Samsung and Huawei)<sup>21</sup>.

The Delegated Regulation would therefore reinforce current market trends by adding legal certainty. Notably, Member States currently investing in making their PSAPs able to receive caller location data from mobile devices need legal certainty that mobile device manufacturers will offer and continue to offer the functionality of transmitting caller location data<sup>22</sup>.

The Delegated Regulation will contribute towards greater uniformity of access to quick and effective emergency services across all EU Member States.

Under the Directive on Privacy and Electronic Communications<sup>23</sup> Member States may adopt specific provisions to entitle providers of electronic communications services to provide access to location data to emergency services without the prior consent of the user or subscriber concerned.

This Delegated Regulation is not expected to increase the administrative burden of mobile device manufacturers, given that they have already included AML and GNSS in such devices. The GNSS feature has no impact on mobile phone operators, as the solution is smartphone driven<sup>24</sup>.

It would also have no financial consequences on the EU budget.

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<sup>17</sup> [http://www.etsi.org/deliver/etsi\\_tr/103300\\_103399/103393/01.01.01\\_60/tr\\_103393v010101p.pdf](http://www.etsi.org/deliver/etsi_tr/103300_103399/103393/01.01.01_60/tr_103393v010101p.pdf)

<sup>18</sup> Sources available at: <https://www.apple.com/newsroom/2018/03/ios-11-3-is-available-today/>;  
<https://blog.google/topics/google-europe/helping-emergency-services-find-you/>;  
[https://ec.europa.eu/growth/content/help112-project\\_en](https://ec.europa.eu/growth/content/help112-project_en)

<sup>19</sup> For an updated list of phones including Galileo, please consult: [www.usegalileo.eu](http://www.usegalileo.eu)

<sup>20</sup> See Cost Benefit Analysis in the HELP112 study

<sup>21</sup> For an updated list of phones including Galileo, please consult: [www.usegalileo.eu](http://www.usegalileo.eu)

<sup>22</sup> See Cost Benefit Analysis in the HELP112 study

<sup>23</sup> Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications)

<sup>24</sup> See Cost benefit Analysis in the HELP112 study

## 2. CONSULTATIONS PRIOR TO THE ADOPTION OF THE ACT

The Commission has addressed stakeholders on the question of ensuring compatibility of mobile phones with Galileo for the purposes of emergency calls on several occasions.

On 7 May 2014, a public hearing was held to gather insight and contributions from the stakeholders involved in providing emergency assistance in response to 112 calls with regard to the opportunity of enabling mobile phones to determine the caller location using the GNSS, and in particular Galileo and to send it to PSAPs<sup>25</sup>.

A large majority of stakeholders was in favour of measures to enhance legal certainty in order to foster GNSS caller location deployment and ensure a timely, effective and uniform service for the public. They believed that this would also guarantee EU independence; crucial in emergency situations.

A public consultation was conducted from 18 April until 12 July 2016 prior to the adoption of the Space Strategy. The consultation was addressed to stakeholders in the public and private sectors, in industry, including small and medium-sized enterprises (SMEs), research and academia in Europe, as well as to citizens who wanted to share their views on the future Space Strategy. The use of Galileo for emergency calls (E112) was perceived as very useful, with most stakeholders responding that the caller location would be more accurate if GNSS location data was used, including Galileo<sup>26</sup>.

The Delegated Regulation has not been subject to an impact assessment as it simply clarifies other pieces of legislation which were subject to impact assessments: The Universal Services Directive<sup>27</sup>, the European Electronic Communications Code<sup>28</sup>, and the Radio Equipment Directive<sup>29</sup>. In addition, Member States already have the obligation under the Universal Services Directive and in the future under the European Electronic Communication Code to ensure that location information is provided. This Delegated Regulation provides legal certainty to implement an effective caller location solution. A technical solution incorporating GNSS and Wi-Fi signal based information has already been anticipated by the market and is now available in over 95% of all smartphones. Smartphone manufacturers face negligible costs as the solution is software driven.

The Delegated Regulation was presented to Member States at the Space Policy Expert Group meetings of 14 November 2017<sup>30</sup> and 14 March 2018<sup>31</sup>. It was also presented to Member States and industry at the Telecommunication Conformity Assessment and Market Surveillance Committee (TCAM) meetings of 1 December 2017<sup>32</sup> and 16 April 2018<sup>33</sup>.

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<sup>25</sup> <https://www.gsc-europa.eu/news/how-to-enable-better-location-for-emergency-calls-galileo-and-112>

<sup>26</sup> The stakeholder consultation can be found here: [https://ec.europa.eu/growth/content/public-consultation-space-strategy-europe-0\\_en](https://ec.europa.eu/growth/content/public-consultation-space-strategy-europe-0_en)

<sup>27</sup> Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services.

<sup>28</sup> Proposal for a Directive of the European Parliament and of the Council establishing the European Electronic Communications Code (Recast) - COM(2016)590.

<sup>29</sup> Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC. The Radio Equipment Directive 2014/53/EU

<sup>30</sup> <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2486>

<sup>31</sup> <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2486>

<sup>32</sup> <https://circabc.europa.eu/w/browse/552ffe2a-3176-47d7-8725-92d4a5dd5a4f>

<sup>33</sup> [Ibid.](#)

### **3. LEGAL ELEMENTS OF THE DELEGATED ACT**

In accordance with Article 290 of the Treaty on the Functioning of the European Union (TFEU), this Commission Delegated Regulation supplements Directive 2014/53/EU, and in particular Article 3(3)(g) thereof.

Pursuant to Article 3(3) (g) of Directive 2014/53/EU, the Commission is empowered to adopt delegated acts, on categories or classes of radio equipment in order to ensure that radio equipment support certain features ensuring access to emergency services.

The purposes of the Delegated Regulation, based on Article 3(3) (g) of Directive 2014/53/EU, is to specify the features, the classes and categories which are concerned by that Article.

The Delegated Regulation will specify that hand-held mobile telephones with advanced computing capabilities ('mobile devices', commonly referred-to as 'smartphones'), are covered by Article 3 (3) (g).

The objective is to ensure that these mobile devices support technical solutions for the reception and processing of location data based on Wi-Fi signal, and data from Global Navigation Satellite Systems compatible and interoperable with at least the Galileo system referred to in Regulation (EU) No 1285/2013 for the purpose of making emergency communications more effective.

# COMMISSION DELEGATED REGULATION (EU) .../...

of **XXX**

**supplementing of Directive 2014/53/EU of the European Parliament and of the Council with regard to the application of the essential requirements referred to in Article 3 (3) (g) of that Directive in order to ensure caller location in emergency communications from mobile devices**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC<sup>1</sup> and in particular Article 3(3) thereof,

Whereas:

- (1) As stated in recital 14 of Directive 2014/53/EU, radio equipment can be instrumental in providing access to emergency services and should therefore in appropriate cases be designed to support the features required for access to those services.
- (2) The system established under the Galileo programme on the basis of Regulation (EU) No 1285/2013 of the European Parliament and of the Council<sup>2</sup> is a global navigation satellite system ('GNSS') fully owned and controlled by the Union which provides a highly accurate positioning service under civilian control. The Galileo system can be used in combination with other GNSS.
- (3) The Space Strategy for Europe<sup>3</sup>, adopted in 2016 announces measures introducing the use of Galileo positioning and navigation services in mobile phones.
- (4) In its conclusions of 5 December 2017<sup>4</sup>, the Council supports the development of a strong downstream market for space-based applications and services, and underlines that adequate measures, including regulatory ones, where appropriate, should be taken to achieve the full compatibility of devices sold in the Union with the Galileo system and to encourage the uptake of Galileo-ready devices on the global market.
- (5) Directive 2002/22/EC of the European Parliament and of the Council<sup>5</sup> provides for the deployment of the single European emergency call number ("112") throughout the

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<sup>1</sup> OJ L 153, 22.5.2014, p. 62.

<sup>2</sup> Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council (OJ L 347, 20.12.2013, p. 1).

<sup>3</sup> Communication from the Commission to the European Parliament, the Council, the European and Social Committee and the Committee of the Regions – Space Strategy for Europe (COM (2016)705 final).

<sup>4</sup> Council Conclusions of 5 December 2017 on "The Mid-term Evaluation of the Galileo and EGNOS programmes and of the performance of the European GNSS Agency", 15435/17.

<sup>5</sup> Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) (OJ L 108, 24.4.2002, p. 51).



Union and obliges Member States to ensure that undertakings providing end-users with an electronic communication service for originating calls to a number or numbers in the national numbering plan make caller location information available to authorities handling emergency calls to at least the single European emergency call number "112".

- (6) Hand-held mobile telephones with advanced computing capabilities ('mobile devices') is the category of telecommunication radio equipment that is most used in the Union to make calls to the single European emergency call number "112".
- (7) The level of accuracy regarding the location of the radio equipment accessing the emergency services plays a key role in ensuring that the required access to those services is effective. Currently, caller location in emergency communications from mobile devices is established using a cell-ID based on the coverage area of the serving cell-tower of the mobile device. The area of coverage of a cell tower varies from 100 metres to several kilometres. In certain cases, notably in mountains, cities and large buildings, this can lead to significant errors in positioning emergency callers.
- (8) A caller location identification based on a cell-ID complemented with the Wi-Fi and GNSS information allows for much more accurate caller location and permits faster and more efficient rescue efforts, as well as an optimisation of resources.
- (9) Caller-location solutions based on GNSS positioning have already been deployed in eight Member States and certain third countries.
- (10) With respect to 112-based eCall in-vehicle systems, Regulation (EU) 2015/758 of the European Parliament and of the Council<sup>6</sup> already requires that receivers in those systems be compatible with the positioning services provided by the Galileo and the EGNOS systems.
- (11) For the reasons set out, mobile devices should also fall within the category of radio equipment which supports certain features ensuring access to emergency services referred to in Article 3(3)(g) of Directive 2014/53/EU. New mobile devices should be capable of providing access to Wi-Fi and GNSS location information in emergency communications and the location positioning feature should be compatible with and interwork with the services provided by the Galileo programme.
- (12) Directive 2014/53/EU is limited to the expression of essential requirements. In order to facilitate conformity assessment with those requirements, it provides for a presumption of conformity for radio equipment which complies with voluntary harmonised standards that are adopted in accordance with Regulation (EU) No 1025/2012 of the European Parliament and of the Council<sup>7</sup> for the purpose of expressing detailed technical specifications of those requirements.
- (13) The European Committee for Electrotechnical Standardisation (CENELEC) and the European Telecommunications Standards Institute (ETSI) were requested to draft, in

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<sup>6</sup> Regulation (EU) No 2015/758 of the European Parliament and of the Council of 29 April 2015 concerning type approval requirements for the deployment of the eCall in vehicle system based on the 112 service and amending Directive 2007/46/EC (OJ L 123, 19.5.2015, p.77).

<sup>7</sup> Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council (OJ L 316, 14.11.2012, p. 12).



support of the implementation of Article 3 of Directive 2014/53/EU, harmonised standards for radio equipment (M/536)<sup>8</sup>.

- (14) Economic operators should be provided with a sufficient time period to proceed with the necessary adaptations to mobile devices they intend to put on the market. Nothing in this Regulation should be interpreted as preventing economic operators from complying with it from the date of its entry into force.
- (15) The Commission has carried out appropriate consultations, including at expert level, during the preparatory work of the measures set out in this Regulation and has consulted the Space Policy Expert Group at its meetings of 14 November 2017 and 14 March 2018,

HAS ADOPTED THIS REGULATION:

#### *Article 1*

- 1. The essential requirements set out in Article 3(3)(g) of Directive 2014/53/EU shall apply to hand-held mobile telephones with features similar to those of a computer in terms of capability to treat and store data.
- 2. Compliance with paragraph 1 shall be ensured through technical solutions for the reception and processing of Wi-Fi data, data from Global Navigation Satellite Systems compatible and interoperable with at least the Galileo system referred to in Regulation (EU) No 1285/2013, and for the making available of that data for transmission in emergency communications.

#### *Article 2*

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

It shall apply from [36 months after its entry into force].

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

*For the Commission*  
*The President*  
*Jean-Claude Juncker*

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<sup>8</sup> Commission Implementing Decision C(2015) 5376 final of 4 August 2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.