



An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

Emergency Caller Location Information

Response to Consultation and Decision

Response to Consultation

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Chapter 1

1 Executive Summary

- 1.1 On 19 December 2023, ComReg issued a consultation entitled “Emergency Caller Location Information - Consultation on accuracy and reliability criteria”¹ (“the Consultation”) which was carried out pursuant to Regulation 93(7)(d) of the Code Regulations² as well as Commission Delegated Regulation (EU) 2023/444 of 16 December 2022, (the “Delegated Regulation”).
- 1.2 Regulation 93(7)(d) requires ComReg to lay down criteria pertaining to the accuracy and reliability of the caller location information provided with emergency communications (112/999) to the Emergency Call Answering Service (“ECAS”), and service providers must comply with those criteria.
- 1.3 The Delegated Regulation stipulates how those accuracy and reliability criteria are expressed. In terms of accuracy, for fixed line services it is to be the physical address of the network termination point and for mobile communications the location is to be expressed within a number of metres. In both cases the reliability criterion must be expressed as the percentage of calls transmitted to the ECAS where the caller location meets the accuracy criterion. Thus, for example, EENA³ recommends that for mobile communications 80% of calls provide a location within 50 metres. These criteria must be laid down and reported to the European Commission by 5 March 2024.
- 1.4 In the Consultation, ComReg proposed that in the case of fixed emergency communications the information related to the physical address of the network termination point (“NTP”) will be the Eircode or the address geographic coordinates, if available, and the installation address if not.
- 1.5 For mobile emergency calls, ComReg proposed in the Consultation, that the Cell ID⁴ must be provided in every case and that the supporting network data be accurate and updated regularly. In addition, it was proposed that mobile service providers must ensure that their networks are configured to enable Advanced Mobile Location⁵

¹ ComReg Doc No 23/117 “Emergency Caller Location Information - Consultation on accuracy and reliability criteria”

² S.I. No. 444 of 2022 - European Union (Electronic Communications Code) Regulations 2022

³ European Emergency Number Association (“EENA”).

⁴ Each mast in a mobile network provides coverage to a number of cells which each cover a distinct geographical area. The Cell ID is a number which is used to refer to the cell from which the call was initiated.

⁵ AML is a protocol to transport data (using SMS and/or HTTPS) and an AML-enabled smartphone (all Android and iOS devices worldwide) automatically sends location information derived from the location data of the phone (GNSS, Wifi) to the PSAP.

(“AML”) and, in due course, PIDF-LO⁶. ComReg further envisaged that all necessary efforts should be made to ensure that handset-derived information (whether AML or PIDF-LO) is supplied to the most appropriate PSAP.⁷

- 1.6 ComReg understood that provision of the handset-derived mobile location data is not under the complete control of mobile service providers. ComReg’s proposals are limited to obligations placed on mobile service providers in relation to network related matters that they control.
- 1.7 In the Consultation, ComReg’s approach was to put in place measures which were intended to drive an increase in accuracy and reliability within the limits of technical feasibility. ComReg stated its intention to report on the accuracy and reliability as a feature of all calls to the ECAS within the reporting timelines required by the European Commission. Providers were to be required to report their own accuracy and reliability performance, on an individual basis, to ComReg annually.
- 1.8 ComReg proposed to review the effect of the measures, if ultimately adopted, after two years (or earlier should the need arise) and assess whether further steps were required.
- 1.9 Stakeholders were invited to comment on the proposals contained in the Consultation.
- 1.10 ComReg received six responses to the Consultation from:
- Association of Licensed Telecommunications Operators (“ALTO”)
 - Magrathea Telecommunications Ltd (“Magrathea”)
 - Sky Ireland Limited (“Sky”)
 - Three Ireland (Hutchison) Limited (“Three”)
 - Virgin Media Ireland Limited (“Virgin”)
 - Vodafone Ireland Limited (“Vodafone”)
- 1.11 ComReg thanks these respondents for their comprehensive and considered submissions.
- 1.12 The responses were broadly supportive of ComReg’s proposals although some

⁶ PIDF-LO is a highly flexible data format, able to describe the caller’s location in terms of multiple formats such as civic location format or latitude/longitude coordinates.

⁷ Public Safety Answering Point.

concerns were raised with respect to (i) reporting requirements and (ii) matters excluded from the consultation.

- 1.13 ComReg has considered the submissions and addresses them in detail in Section 3 below.
- 1.14 In summary ComReg has decided to maintain the accuracy and reliability criteria as proposed in the Consultation but to refrain from imposing reporting and measurement requirements proposed in the Consultation at this time.

Chapter 2

2 Background

2.1 Legal

New Code Regulations

- 2.1 The legal requirements underlying the Consultation are as follows.
- 2.2 Regulation 93(7)(a) provides that “A provider of the services referred to in paragraph (1) shall make caller location information available to the most appropriate PSAP without delay after the emergency communication is set up. This shall include network-based location information and, where available, handset-derived caller location information.” The services referred to in paragraph (1) are “publicly available number-based interpersonal communications services, where those services allow end-users to originate calls to a number in the national numbering plan or in an international numbering plan (including public pay telephones).”
- 2.3 Regulation 93(7)(d) further provides that “For the purpose of this paragraph, the Regulator, if necessary after consulting BEREC, and in consultation with the Minister, shall lay down criteria pertaining to the accuracy and reliability of the caller location information provided and a provider to which this paragraph applies shall comply with such criteria.”
- 2.4 In this context it is of note that the European Communities (Electronic Communications Networks and Services) (Universal Service and Users' Rights) Regulations 2011 (“the Universal Service Regulations”)⁸ provided at Regulation 20(4) that “*the Regulator shall, in consultation with the Minister, lay down criteria pertaining to the accuracy and reliability of the caller location information provided and the undertaking referred to in paragraph (3) shall comply with such criteria.*” Indeed this was the legal basis underlying ComReg’s Call for Inputs of 2014.⁹
- 2.5 The Minister was consulted regarding the publication of this Response to Consultation and Decision.

Delegated Act

- 2.6 The Delegated Regulation was published on schedule and contains requirements on the parameters according to which caller location accuracy and reliability criteria

⁸ S.I. No. 337/2011

⁹ ComReg 14/110 Emergency Calls - Caller Location Information - Setting criteria for accuracy and reliability

must be set. These requirements and the obligations flowing from them are the subject of this consultation.

- 2.7 Article 3 of the Delegated Regulation provides that regulatory authorities shall lay down criteria (for the accuracy and reliability of caller location information) taking into account the parameters specified in paragraphs 2 and 3 of that Article.
- 2.8 With respect to the fixed networks “the accuracy criterion... shall be expressed as information related to the physical address of the network termination point;” and the reliability criterion “shall be expressed as the success rate, in percentage, of the technical solution or mix of technical solutions to establish and transmit to the most appropriate PSAP a caller location information corresponding to the accuracy criterion.”
- 2.9 With respect to the mobile networks “the accuracy criterion... shall be expressed in metres. If applicable, the elevation or vertical accuracy criterion shall be expressed in metres as well”; and “the reliability criterion... shall be expressed as the success rate, in percentage, of the technical solution or mix of technical solutions to establish and transmit to the most appropriate PSAP a search area corresponding to the accuracy criterion.”
- 2.10 Article 8 of the Delegated Regulation provides that Member States shall report to the Commission no later than on 5 March 2024 the criteria for the accuracy and reliability of caller location information expressed according to the parameters referred to in Article 3.

The consultation

- 2.11 Regulation 93(7)(d) of the Code Regulations provides that “...the Regulator, if necessary after consulting BEREK, and in consultation with the Minister, shall lay down criteria pertaining to the accuracy and reliability of the caller location information provided and a provider to which this paragraph applies shall comply with such criteria.”
- 2.12 Article 3 of the Delegated Regulation provides that “When laying down criteria for the accuracy and reliability of caller location information pursuant to Article 109(6) of Directive (EU) 2018/1972, competent regulatory authorities shall ensure, within the limits of technical feasibility, that the end-user’s position is located as reliably and accurately as is necessary to enable the emergency services to come to the end-user’s assistance. Competent regulatory authorities shall lay down the criteria taking into account the parameters specified in paragraphs 2 and 3 of this Article,” i.e. Article 3. Article 109 is transposed into Irish law at Regulation 93 of the Code Regulations.

History

- 2.13 In the Consultation, ComReg reviewed the relevant history regarding ECLI referring to its previous call for inputs on the matter in October 2014¹⁰ and the views provided by Undertakings in that context.¹¹
- 2.14 ComReg noted that the AML service was launched in 2017¹² on the major mobile networks operating and that AML was standardised in ETSI TS 103 625.
- 2.15 ComReg also observed that the eCall service is now an emergency communication for the purposes of Regulation 93(1) of the Code Regulations¹³ and that it has been a mandatory component in all new car models approved since 2018.
- 2.16 In its consideration of the context of the Consultation, ComReg referred to the increasing availability of modern 4G and 5G networks and that legacy 2G and 3G networks were likely to be entering or approaching end of life.
- 2.17 Also very important was the replacement of legacy voice calling services with packet switched technologies including Session Initiation Protocol (“SIP”) and Realtime Protocol (“RTP”), known as “VoLTE” (Voice over LTE – 4G) and “VoNR” (Voice over New Radio – 5G).
- 2.18 The dependency of eCall on legacy 2G and 3G calling technology as well as the updated eCall standard for packet switched technologies was also outlined.
- 2.19 The emergence of PIDF-LO was also summarised.
- 2.20 In considering the international context of the Consultation, ComReg pointed out the importance of EENA’s ‘EENA Recommendation on emergency caller location information criteria for mobile originated emergency communications’¹⁴ (“the EENA Recommendation”), published on September 12 2023, which recommended that competent authorities should set an initial accuracy criterion of 50m for 80% of all mobile-originated emergency communications, using both network-based and

¹⁰ ComReg Document 14/110 – “Emergency Calls - Caller Location Information - Setting criteria for accuracy and reliability”

¹¹ According to SI 333/2011 “undertaking” means a person engaged or intending to engage in the provision of electronic communications networks or services or associated facilities;

¹² <https://www.irishtimes.com/news/ireland/irish-news/new-system-sends-sms-with-caller-s-position-when-emergency-call-made-1.3261937>

¹³ Regulation 93(2) of S.I. No. 444 of 2022 provides that: “The emergency communications for the purposes of paragraph (1) are voice communications services, SMS, and eCall as defined in Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015, and communications services determined under paragraph (3)(a)(i).

¹⁴ <https://eena.org/knowledge-hub/documents/eena-recommendation-on-emergency-caller-location-information-criteria-for-mobile-originated-emergency-communications/>

handset-derived location information. It also recommended setting a subsequent date for compliance with the criteria laid down, beyond the reporting deadline of 5 March 2024, and reviewing the criteria periodically.

2.21 EENA also recognised that further time may be required to reach this target, leaving room for each member state to consider an appropriate deadline.

Consultation Process

2.22 On 19 December 2023, ComReg published the Consultation.

2.23 By 6 February 2024,¹⁵ ComReg received six responses to the Consultation from:

- Association of Licensed Telecommunications Operators (“ALTO”)
- Magrathea Telecommunications Ltd (“Magrathea”)
- Sky Ireland Limited (“Sky”)
- Three Ireland (Hutchison) Limited (“Three”)
- Virgin Media Ireland Limited (“Virgin”)
- Vodafone Ireland Limited (“Vodafone”)

2.24 ComReg has reviewed these submissions and discusses them in detail in Section 3 below.

¹⁵ 5 February 2024, the due date for receipt of responses to the Consultation, was a public holiday.

Chapter 3

3 Respondents' views – summary & analysis

3.1 In the Consultation, ComReg asked the views of respondents to the following six questions:

- Q. 1 Please provide any comments you may have in relation to ComReg's proposals regarding ECLI for fixed line services. Please provide detailed reasoning and supporting materials (where appropriate) supporting your comments.
- Q. 2 Please provide any comments you may have in relation to ComReg's proposals regarding ECLI for mobile services. Please provide detailed reasoning and supporting materials (where appropriate) supporting your comments.
- Q. 3 Please provide any comments you may have in relation to ComReg's proposals regarding Measurement and Reporting requirements for ECLI. Please provide detailed reasoning and supporting materials (where appropriate) supporting your comments.
- Q. 4 Do you agree or disagree with ComReg's Draft Determination? Please explain your answer.
- Q. 5 Please provide any comments you may have regarding ComReg's Regulatory Impact Assessment and the preliminary conclusions as set out.
- Q. 6 Are there any other matters which you wish to raise as part of this consultation? Please provide detailed reasoning and accompanying calculations (where appropriate) supporting your submission.

3.2 Responses to the Consultation focused on a number of themes. These were:

- (a) ECLI for fixed line services
- (b) ECLI for fixed line services – Emerging and recently emerged VoIP call types
- (c) ECLI for mobile services
- (d) Measurement & Reporting Requirements
- (e) Miscellaneous Matters

3.2 ECLI for fixed line services

Respondents' views

- 3.3 A number of respondents (ALTO, Sky, Virgin) were broadly supportive in principle of ComReg's proposals in the conveyance of fixed line caller location.
- 3.4 A number of respondents (Magrathea, Three, Vodafone, Virgin) were broadly supportive in particular of ComReg's proposals regarding the use of Eircode, where available.
- 3.5 Virgin agreed that the use of Eircode in the conveyance of fixed line caller location would improve the quality of the location data.
- 3.6 Three noted that the use of an Eircode by end-users is not mandatory and that in this context the tiered approach to the type of location information to be provided to the ECAS operator is proportionate.
- 3.7 ALTO pointed out that many active legacy customers may not have Eircodes entered or populated onto the operator systems and suggest a grace period of a few months for operators to go through and verify/amend relevant address records.
- 3.8 Magrathea described difficulties in supporting Eircodes in their IT systems and requested consideration of a suitable timeframe for its implementation, with a minimum of 12 months suggested.
- 3.9 Magrathea also questioned the proportionality of requiring a small operator to provide either a monthly update of customer locations or a notification that there has been no change if this is the case.

ComReg's Analysis

- 3.10 ComReg welcomes the position of the respondents listed above in relation to the overall proposals on the conveyance of fixed line caller location, and the use of Eircodes for this purpose.
- 3.11 In relation to the submissions from ALTO and Magrathea regarding the challenges in gathering and storing customer Eircodes, ComReg notes that the Decision Instrument provides for situations where the provider does not possess the Eircode, and it allows for the location information to be provided as Address Coordinates or as an Installation Address. Given the optional nature of Eircode support, operators that choose to improve emergency call outcomes by using them are not bound to

any particular time frame.

- 3.12 In response to Magrathea’s submission on the proportionality of requiring a small operator to provide monthly updates on customer address locations, ComReg is of the view that it would be possible to automate such an update, at least to a significant extent, and that ultimately customers of small operators deserve the same level of support when making an emergency call.

ComReg’s Position

- 3.13 Based on the analysis above ComReg is not changing the preliminary view as outlined in the consultation.

3.3 ECLI for fixed line services – Emerging and recently emerged VoIP call types

Respondents’ views

- 3.14 A number of respondents raised concerns about caller location for emerging and recently emerged call origination types, such as
- Calls from corporate Soft-PBX/Unified Communications platforms, potentially from multi-site business
 - Some VoIP calls, nomadic or otherwise
- 3.15 The topic of location determination for calls from corporate communications platforms was raised by ALTO, Three and Vodafone who noted that this is an area of growing importance, while expressing a view that it should be in the scope of this consultation.
- 3.16 ALTO noted that the location information in the case of corporate Soft-PBX/Unified Communications platforms is not in the control of the authorised network operator. ALTO went on to suggest that the use of a particular field in the Fixed Line Information Specification be codified across industry to refer to a call of this nature.
- 3.17 Three also noted that the term “Installation Address” could be ambiguous in the situation where the service is used at a different address to the network termination point, such as in the cases referred to above.

ComReg’s Analysis

- 3.18 ComReg is aware of the business telephony evolution in recent years, with the migration to software based unified communication platforms which can ‘break out’ calls to the PSTN at multiple locations which are not necessarily tied to the caller’s

physical location.

- 3.19 The calls in question are currently blended with fixed line calls in the call statistics, and as such no figures are available regarding their prevalence. Nevertheless it should be noted that the overall proportion of emergency calls originating from fixed networks continues to diminish, comprising of 18% of the total in 2022, and decreasing further in the period Jan-September 2023.
- 3.20 The anecdotal experience of the ECAS operator suggests that callers are more likely to use their mobile phone to make an emergency call when in the office, or while working remotely, rather than using their VoIP based fixed line connection.
- 3.21 The difficulties associated with these calls was, *inter alia*, the subject of European Commission Mandate M/493 in 2011. An ETSI standard was published¹⁶ in 2014 and this contains a proposed methodology for tracing the location of VoIP calls. However, there are technical and regulatory (including enforceability) difficulties with the standard that have not been resolved in the lengthy interim. These issues are beyond the scope of the Consultation.
- 3.22 The matter has been and is likely to remain a regular topic at the ECAS forum and ComReg looks forward to continued engagement from all forum participants in seeking practical solutions to outstanding issues. In this context, mandating a solution via this consultation does not recommend itself.
- 3.23 ComReg intends to continue engaging with industry developments (e.g. the potential road-mapped inclusion of PIDF-LO in MS Teams calls) in particular via the ECAS industry forum.

ComReg's Position

- 3.24 Based on the analysis above ComReg is not changing the preliminary view as outlined in the consultation.

3.4 ECLI for mobile services

Respondents' views

- 3.25 Many respondents (ALTO, Three, Vodafone) were supportive of the proposals in the consultation regarding mobile enhanced caller location.
- 3.26 In relation to the requirement for mobile operators to make all reasonable efforts to

¹⁶ [ES 203 178 - V1.1.1 - Functional architecture to support European requirements on emergency caller location determination and transport \(etsi.org\)](https://www.etsi.org/standards-store/functional-architecture-to-support-european-requirements-on-emergency-caller-location-determination-and-transport)

keep the mobile network topology data provided to ECAS up to date and to provide accurate rather than default values for cell size and azimuth (direction), Vodafone submitted that it provides “informed default values” for cell area. Vodafone noted that this data is used to inform routing to the emergency service region.

- 3.27 Vodafone also submitted that it understands that there is no requirement for operators to keep mobile network topology up to date in near real time.
- 3.28 In relation to AML reception rate, Three noted that the provision of accurate and reliable location information via AML is dependent on handset functionality and that mobile providers have no control over this.
- 3.29 Three also highlighted the use of the word “approximate” in paragraph 5.38 of the consultation document and went on to state that it is not appropriate that ComReg imposes this as a mandatory obligation on Service Providers as a result of the figures for AML messages with an accuracy radius of 50m or less being “estimated”.
- 3.30 Sky referred to the distance related margins of error referenced in the consultation, giving an example of 150m – 1000m accuracy, and refers to the mention of MLC/GMLC in section 5.49 of the consultation document, noting that this would have the potential to introduce additional complexity for operators.
- 3.31 Sky also raised queries on how location information is handled for VoWiFi calls, in particular whether the “location unreliable” flag would be appropriate to use and on the mechanism that PIDF-LO will be delivered to ECAS.

ComReg’s Analysis

- 3.32 In relation to Vodafone’s concern, ComReg can confirm that there is no expectation that mobile network topology data would be updated on a near real time basis, and that a continuation of current daily update frequency from mobile operators would suffice regarding paragraph 5.15 of the consultation which says “mobile operators should be required to make all reasonable efforts to keep the mobile network topology data provided to ECAS up to date”.
- 3.33 In relation to the adequacy of “informed default values” for cell size as provided by Vodafone, ComReg recognises that the size of a given cell can change over time for various reasons and that a balance should be found between accuracy of ECAS data and flexibility of mobile network configuration. Nevertheless ComReg’s position is that the value provided should be at least approximately correct and that default values which (for example) are the same for all cells, would not be acceptable.
- 3.34 While it is true that in the majority of cases, the Cell ID is used only for routing to the correct emergency services region, Cell ID remains the fallback location provision

method in cases where no AML (and in the future PIDF-LO) is received.

- 3.35 Additionally, there exists a number of small cells for which the location determination via Cell ID is a viable method. In 2023 0.04% of emergency calls had no associated AML, yet had a network derived location determination based on Cell ID of 50 meters or less as stated in the consultation. While this number is currently miniscule, ComReg is aware of future plans for tiny cells in a 5G mmWave MIMO standalone network scenario which could contribute materially to caller location in the future. In such a situation, ComReg is reluctant to relax requirements regarding network data quality.
- 3.36 In relation to Three's submission on the appropriateness of ComReg setting mandatory obligations, in part due to use of the word "approximate" in paragraph 5.38 of the consultation, ComReg would note that the underlying data used to arrive at this figure is solid rather than estimated, and the use of the word "approximate" was to denote that the figure had been rounded to the nearest tenth of a percent.
- 3.37 Nevertheless, as mentioned above in section 2.1, it should be noted that according to Article 3 of the Delegated Regulation ComReg is obliged to set accuracy and reliability criteria under the delegated regulation.
- 3.38 In relation to Sky's concerns regarding the margins of error referenced in the consultation, e.g. 150m to 1000m accuracy, and how these might relate to VoWiFi calls, ComReg notes firstly that the accuracy ranges quoted were provided as an example of thresholds set in other countries, in this case Canada; and secondly, that VoWiFi calls are included in scope of the reliability and accuracy targets and would refer Sky to the Mobile Location Information Transfer¹⁷ document for details of Cell ID reserved values used for such calls.
- 3.39 In addition, it should be noted that an AML message would be expected for VoWiFi calls in an appropriately configured network.
- 3.40 Sky also expressed concerns about the reference to the installation of an MLC/GMLC in the consultation. ComReg would note that the nodes are referenced in the context that "little evidence exists that such network derived location determination could be expected to reach the accuracy and reliability targets as proposed by EENA" and concludes that "ComReg does not propose at this time to require the use of network derived location technologies, beyond the Cell ID."

¹⁷ <https://112.ie/wp-content/uploads/2022/10/ECAS-Mobile-location-information-transfer-spec-Issue-5.2.pdf>

ComReg's Position

- 3.41 Based on the analysis above ComReg does not consider a change of position set out in the Consultation to be necessary.

3.5 Measurement & Reporting Requirements

Respondents' views

- 3.42 Several respondents (ALTO, Magrathea, Sky, Three, Vodafone) raised concerns about the proposal to gather information from telecom operators on the number of emergency communications sent to ECAS where the caller location is determined by the various methods described in the consultation. The concern raised related to the level of effort and time required to develop the necessary reporting facility and the operational overhead it would bring. The respondents queried whether this information should instead come from the ECAS operator as a central point.
- 3.43 Three suggested that it would be more proportionate and realistic to report on the volumes of assigned numbers and the proportion of these for which a matching location was provided in the bulk upload.
- 3.44 Concerns were raised regarding the reporting timelines, with Magrathea & Virgin expressing concerns about the level of development required to deliver on these reports.
- 3.45 Additionally Three and Magrathea, noted that the first annual report would be required 15th April 2025 would mean that operators would need to start collecting data only a short time (a little under 4 weeks) after the effective date of the relevant decision.
- 3.46 Virgin submitted that it would welcome clarification on whether information referred to in the draft Decision Instrument section 3.7(a) refers to the number of calls end-users made to ECAS or the number of reports the provider sent to ECAS.

ComReg's Analysis

- 3.47 In relation to the measurement of the quality of fixed and mobile data underlying emergency calls, ComReg would be surprised if operators were not to monitor the quality of this data for internal purposes to ensure that the calls delivered to ECAS have the best possible location data.
- 3.48 For instance, ComReg would expect that fixed line operators would measure the

number of calls sent to the ECAS with missing or stale address data as a matter of good practice.

- 3.49 Similarly in the case of mobile calls, in 2021 an industry-wide taskforce was established to analyse the causes for AML messages not being received by the ECAS for approximately 35% of calls. This cross-operator analysis concluded that there were likely a number of reasons, some of which were unavoidable, with others potentially being a result of mobile network configuration.
- 3.50 At the conclusion of that industry-wide exercise, ComReg recommended that the mobile operators continue this work by instigating a measurement and optimisation initiative on their own networks on a periodic or ongoing basis. It would be disappointing if this were not the case and MNOs were not monitoring AML success rates already.
- 3.51 Nevertheless, having considered the specific submissions made by respondents on the issue, ComReg accepts respondents' point that the proposed reporting requirements in paragraphs 3.7 & 3.8 and 4.10 & 4.11 of the draft Decision Instrument could be more efficiently provided for by the ECAS operator and as such it has decided to revise its proposals by removing the reporting requirements, and reviewing the situation in 2 years.
- 3.52 In light of this revision, other points made regarding the level of effort to develop this reporting capability, and the initial reporting period are no longer applicable.
- 3.53 In the interests of clarity, as the point was raised by Virgin, the intention of the draft Decision Instrument section 3.7(a) in the original consultation referred to the total number of emergency communications (including calls), rather than the number of reports the provider sent to ECAS.

ComReg's Position

- 3.54 As noted, ComReg accepts respondents' point that the proposed reporting requirements in paragraphs 3.7 & 3.8 and 4.10 & 4.11 of the draft Decision Instrument could be more efficiently provided for by the ECAS operator and as such has decided to revise its proposals by removing the reporting requirements.
- 3.55 This position is subject to review after two years.
- 3.56 ComReg would note however that this data should be available to each network operator based on their own records and reserves the right to request this information directly.
- 3.57 In light of this revision, other points made regarding the level of effort to develop this

reporting capability, and the initial reporting period are no longer applicable.

3.6 Miscellaneous Matters

Respondents' views

- 3.58 ALTO made the point that "certain '*nice to have*' elements of the Consultation paper and Draft Determination may be extremely costly and burdensome for mobile service operators. ComReg should consider the position on implementation and timing of the effect of the Decision linked to network features and functionality on a per operator basis prior to implementation of the proposed measures."
- 3.59 ALTO notes that the Consultation aims to capture all combinations of access to the 999/112 ECAS or PSAP however, and suggests that "ComReg considers publishing a paper expressly dealing with number based interpersonal communications as defined under EECC and as transposed into Irish law."

ComReg's Analysis

- 3.60 In relation to ALTO's first point referred to above, it is not clear which elements of the Consultation are being referred to as '*nice to have*'. However, it should be noted that the only new aspect proposed in the consultation which might require new network features and functionality, according to ComReg's understanding, is the inclusion of PIDF-LO in VoLTE emergency calls.
- 3.61 Given that VoLTE emergency calling has not yet been activated on any mobile network the timing for its introduction is entirely a matter for the mobile network operators.
- 3.62 In relation to the second point suggesting that "ComReg considers publishing a paper expressly dealing with number based interpersonal communications", this point is unclear, although ComReg suspects that the submission intends to refer to number-independent rather than number-based interpersonal communications. Insofar as this may be the case, it should be noted that number independent communications are out of scope in this consultation which seeks to consider number-based communications only.

ComReg's Position

- 3.63 Based on the analysis above ComReg is not changing the preliminary view as outlined in the consultation.

Chapter 4

4 Decision Instrument

1 STATUTORY FUNCTIONS AND POWERS

1.1 This Decision and Decision Instrument is made by the Commission for Communications Regulation (“ComReg”) established under section 6 of the Communications Regulation Act 2002 (“the Principal Act”), and is made:

- (i) Having regard to the functions and objectives of ComReg as set out in sections 10 and 12 of the Principal Act,
- (ii) Pursuant to the functions and powers conferred upon ComReg by Regulation 93 of the European Union (Electronic Communications Code) Regulations 2022 and having consulted the Minister for the Environment, Climate and Communications as required by Regulation 93(7)(d) of those Regulations,
- (iii) Pursuant to and having regard to Directive 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications code (Recast),
- (iv) Pursuant to Commission Delegated Regulation (EU) 2023/444 of 16 December 2022 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council with measures to ensure effective access to emergency services through emergency communications to the single European emergency number ‘112’, (“the Delegated Act”),
- (v) Having regard to the provisions of the European Communities (Electronic Communications Networks and Services) (Privacy and Electronic Communications) Regulations 2011.

2 DEFINITIONS

2.1 In this Decision Instrument, terms used are as defined or employed in the European Communities (Electronic Communications Code) Regulations 2022 (S.I. No. 444 of 2022), Communications Regulation Acts 2002 to 2023, and the Delegated Act unless the context otherwise admits.

2.2 References to European legislation, primary legislation or secondary legislation shall be construed as references to that legislation as amended from time to time.

2.3 Words in the singular form shall be construed to include the plural and vice versa unless the context otherwise admits or requires.

- 2.4 A reference to a section, clause, or schedule, is a reference to a section, clause or schedule of this Decision Instrument unless the context otherwise admits or requires.
- 2.5 A reference to the “Code Regulations” is a reference to the European Communities (Electronic Communications Code) Regulations 2022, (S.I. No. 444 of 2022).
- 2.6 A reference to “the 2023 Act” is a reference to the Communications Regulation and Digital Hub Development Agency (Amendment) Act 2023.
- 2.7 A reference to “the Delegated Act” is a reference to Commission Delegated Regulation (EU) 2023/444 of 16 December 2022 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council with measures to ensure effective access to emergency services through emergency communications to the single European emergency number ‘112’.
- 2.8 “Calling Line Identity” means the telephone number of the caller usually displayed to a call recipient in advance of the call being answered.
- 2.9 “Eircode” means a postcode allocated under the national postcode system.
- 2.10 “Installation address” means the address of the location associated with a telephone number.
- 2.11 “Address Coordinates” means the grid coordinates used to reference a particular location, such as an installation address, using the WGS 84 reference system.
- 2.12 “Location Information Reference Offer” means the document or set of documents published by the ECAS Operator which specify the format for the provision of fixed line address information and mobile cell information to the ECAS Operator.
- 2.13 “Cell ID” means an identifier which is used to unambiguously refer to the access network node which is used by the caller to initiate an emergency communication.
- 2.14 “Cell area” means the size of the area of coverage for a given cell, denoted in Km².
- 2.15 “Azimuth” means the direction in which the cell is pointing, represented as the number of degrees relative to north, in a clockwise direction.
- 2.16 “AML” means the advanced mobile location service as described in ETSI TS 103 625.
- 2.17 “PIDF-LO” means “Presence Information Data Format – Location Object”, which is a data format for conveying a location according to rules defined in RFC4119.
- 2.18 “Provider” means a provider of publicly available number-based interpersonal communications services, where those services allow end-users to originate calls to

a number in the national numbering plan or in an international numbering plan (including public pay telephones).

SCOPE AND APPLICATION

3 Caller Location Information Requirements for Fixed Network Providers

The provisions of section 3.1 – 3.6 address the minimum accuracy and reliability criteria taking account of the parameters specified in Article 3(2) of the Delegated Act. They specify the information to be provided by providers of fixed line services to the ECAS Operator relating to the physical address of the network termination point (“the information”). Providers of fixed line services shall comply with these provisions to ensure a 99% success rate in establishing and transmitting the information to the ECAS Operator.

- 3.1 A provider of fixed line services shall provide the ECAS Operator with the Eircode linked to the fixed line number for each end-user of its services in the format and manner specified by the ECAS Operator.
- 3.2 Where a provider of fixed line services does not possess the Eircode for an end-user of its services but does possess the Address Coordinates for that end-user, it shall provide the ECAS Operator with the Address Coordinates linked to the fixed line number for the end-user in the format and manner specified by the ECAS Operator.
- 3.3 Where a provider of fixed line services does not possess the Eircode or the Address Coordinates for an end-user of its services, it shall provide the ECAS Operator with the Installation Address linked to the fixed line number for the end-user in the format and manner specified by the ECAS Operator.
- 3.4 A provider of fixed line services shall provide the ECAS Operator with the information referred to in section 3.1 – 3.3, as applicable, on or before the 28th day of the month following the month in which this Decision comes into effect.
- 3.5 A provider of fixed line services shall ensure that the information to be provided to the ECAS Operator in accordance with this section is kept updated and shall provide updated information to the ECAS Operator not less than once every calendar month. Where there is no change to the information provided to the ECAS Operator since the last update, a provider of fixed line services shall notify the ECAS Operator to that effect.
- 3.6 A provider of fixed line services shall make the calling line identity (“CLI”) available for all calls to the ECAS, irrespective of the caller’s CLI restriction status.

4 Caller Location Information Requirements for Mobile Network Providers

The provisions of sections 4.1 – 4.9 address the accuracy and reliability criteria taking account of the parameters specified in Article 3(3) of the Delegated Act. Caller location information shall be accurate to a distance of 50 metres or less. Providers of mobile services shall comply with these provisions, so that they may achieve an 80% success rate in establishing and transmitting accurate caller location information to the ECAS Operator. Where, for permitted reasons of technical infeasibility under section 4.6, a provider cannot comply in full with the provisions of this section, the provider shall ensure a minimum 54.5% success rate in establishing and transmitting accurate caller location information to the ECAS Operator is achieved.

- 4.1 A provider of mobile services shall provide the ECAS Operator with caller location information of an end-user making an emergency communication in accordance with this section without delay after the emergency communication is set up.
- 4.2 A provider of mobile services shall provide the ECAS Operator with the Cell ID, Cell area and Azimuth used by the end-user to originate an emergency voice communication in the format and manner specified by the ECAS Operator.
- 4.3 A provider of mobile services shall ensure that the network it uses for the provision of the services is capable of providing caller location information to the ECAS Operator using AML.
- 4.4 A provider of mobile services shall take all reasonable steps to ensure that where the handset of an end-user who initiates an emergency communication identifies and transmits the location of the end-user using AML, the network used by the mobile service provider enables and facilitates the provision of that information to the ECAS Operator.
- 4.5 Where the handset of an end-user who initiates an emergency communication identifies the location of the end-user using AML, a provider of mobile services on a network to which the location information is transmitted by the handset shall provide the location information to the ECAS Operator.
- 4.6 A provider of mobile services shall ensure that the network it uses for the provision of the services is capable of providing caller location information to the ECAS Operator using PIDF-LO where this is technically feasible.
- 4.7 Without prejudice to section 4.6, a provider of mobile services shall take all reasonable steps to ensure that where the handset of an end-user who initiates a packet switched emergency communication identifies the location of the end-user and is capable of communicating this using PIDF-LO as part of the call set-up signalling, the network used by the mobile service provider enables and facilitates the provision of that information to the ECAS Operator.

- 4.8 Where the handset of an end-user who initiates a packet switched emergency communication identifies the location of the end-user and is capable of communicating this using PIDF-LO as part of the call set-up signalling, a provider of mobile services on a network to which the location information is transmitted by the handset shall provide the location information to the ECAS Operator.

A provider of mobile services shall make the calling line identity available for all calls to the ECAS, irrespective of the caller's CLI restriction status.

5 STATUTORY POWERS NOT AFFECTED

- 5.1 Nothing in this Decision Instrument shall operate to limit ComReg in the exercise and performance of its statutory powers or duties conferred on it under any primary or secondary legislation (in force prior to or after the Effective Date of this Decision Instrument) from time to time.

6 MAINTENANCE OF OBLIGATIONS

- 6.1 If any section or clause contained in this Decision Instrument is found to be invalid or prohibited by the Constitution, by any other law or judged by a court to be unlawful, void or unenforceable, that section or clause shall, to the extent required, be severed from this Decision Instrument and rendered ineffective as far as possible without modifying the remaining section(s) or clause(s) of this Decision Instrument and shall not in any way affect the validity or enforcement of this Decision Instrument.

7 EFFECTIVE DATE AND DURATION

- 7.1 This Decision and Decision Instrument is fully effective from 5 March 2024, unless otherwise amended by ComReg.

Chapter 5

5 RIA

- 5.1 A number of submissions related to the RIA.
- 5.2 ALTO suggested that ComReg “considers publishing a paper expressly dealing with number based interpersonal communications as defined under EECC and as transposed into Irish law.” It further states that ComReg should have dealt with location issues in the case of VOIP calls and calls originating from private networks.
- 5.3 ALTO’s points in this regard are discussed at Section 3.3 above.
- 5.4 Three stated that “proposal to formalise measures already being taken by mobile operators in order to, within the limits of technical feasibility, maximise the accuracy and reliability of the ECLI supplied is appropriate and proportionate.”
- 5.5 However, with respect to the proposed reporting obligations, Three submitted that “[i]n terms of the proportionality and necessity to impose additional reporting obligations on individual operators Three believes that the RIA does not set out a justification for imposing these individual obligations in circumstances where it is likely that the information can be obtained centrally from a single source, the ECAS Operator.”
- 5.6 Virgin, Vodafone and Sky stated they had no comments on the RIA; while Magrathea did not answer Question 5.
- 5.7 ComReg has decided to remove the obligations pertaining to measurement and reporting from the Decision Instrument.
- 5.8 The following sets out our final RIA in relation to the need for (ECLI) and the specific obligations which may be imposed. It revises the draft RIA contained in the Extant Consultation (ref) and aims to identify preferred options relevant to the various aspects of the (ECLI related obligations).
- 5.9 ComReg’s aim in conducting a RIA is to ensure that any specific obligations regarding ECLI are appropriate, proportionate and justified in light of the analysis conducted, having regard to our functions and objectives under the Communications Regulation Act 2002 (as amended).
- 5.10 The purpose of a RIA is to establish whether regulation is actually necessary, identify any positive or negative effects that might result from a regulatory measure being introduced, and identify and assess any regulatory measures.

5.11 Consistent with the RIA Guidelines¹⁸, ComReg’s RIA considers the effect on stakeholders of the proposal to impose specific obligations on providers of fixed and mobile services when making caller location information available to the most appropriate PSAP. It also considers the scope of the options open to ComReg when imposing these obligations.

5.12 This draft RIA followed the five steps set out in the RIA Guidelines, with each policy decision from this consultation considered separately under each step.

5.13 These are:

Step 1: Describe the policy issue and identify the objectives.

Step 2: Identify and describe the regulatory options.

Step 3: Determine the impacts on stakeholders.

Step 4: Determine the impacts on competition.

Step 5: Assess the impacts and choose the best option.

Step 1: Describe the policy issues and identify the objectives

5.14 The policy issues were discussed in detail in Chapters 1-5 of the Consultation and in Section 3 of this Response to Consultation. In summary, ComReg as a “competent regulatory authority” within the meaning of the Delegated Regulation is required to lay down criteria for the accuracy and reliability of caller location information. Therefore the question at 5.10 above as to “whether regulation is actually necessary” is answered affirmatively. ComReg is required to lay down criteria. Furthermore Articles 3(3) and 3(4) of the Delegated Regulation are prescriptive as to how the accuracy and reliability criteria are to be defined and expressed.

5.15 Recital 7 of the Delegated Regulation observes that “competent regulatory authorities are to cooperate among each other when laying down the criteria for the accuracy and reliability of the caller location information by consulting the Body of European Regulators for Electronic Communications (BEREC) or other relevant fora competent to provide guidance in this regard, in order to ensure the full effectiveness of Article 109(6) of Directive (EU) 2018/1972.” While BEREC has been, at least thus far, silent on the issue, a recommendation has been produced by EENA.¹⁹

5.16 EENA’s recommendations, which are confined to mobile emergency calls only, in

¹⁸ ComReg (2007), Guidelines on ComReg’s Approach to Regulatory Impact Assessment. Accessed [online](#).

¹⁹ EENA Recommendation on emergency caller location information criteria for mobile-originated emergency communications – September 2023, available [here](#)

summary are as follows:

5.17 Member States should:

- Lay down an initial set of criteria for the accuracy and reliability of caller location information that requires a horizontal accuracy estimate of 50m for 80% of all mobile-originated emergency communications. These criteria should be met through the combined use of network-based and handset-derived caller location information technologies in line with the provisions of Directive (EU) 2018/1972 as supplemented by Commission Delegated Regulation (EU) 2023/444.
- Set a subsequent date, beyond the reporting deadline of 5 March 2024, to allow stakeholders an appropriate timeframe to achieve compliance.
- Review the criteria on a periodic basis taking into account ongoing developments in technology.

5.18 ComReg's objective is to lay down accuracy and reliability criteria, as it is required to do in accordance with the applicable legislation and relevant guidance.

Step 2: Identify and describe the regulatory options

5.19 ComReg is of the view that in considering its objective a number of other factors need to be taken in to account. With respect to mobile service providers these are:

- a. Handset-derived location information is not solely the responsibility of mobile service providers. Handset manufacturers and suppliers of handset operating systems also have a critical role. Therefore it may not be reasonable to place an obligation, or obligations, regarding the aggregated success of such solutions (even where coupled with network-based data) solely on mobile service providers.
- b. Voice communications are migrating to VoLTE solutions at the time of writing and PIDF-LO will be available to provide location information when this happens. Deployment of VoLTE solutions will take time. Therefore the impact of these developments on the provision of ECLI will take time to emerge.
- c. Support for roamers using AML on the Three and Vodafone networks has been in place for some time and it is expected to be deployed by Eircom in due course. The introduction of this service has led to a modest increase in the number of AML-identified calls and it is reasonable to expect that this will increase further over time.

- d. ComReg is not satisfied, at this time, that network-based technologies (other than Cell ID, which service providers already supply) currently available in the market are likely to make a major contribution to the overall accuracy and reliability of ECLI.

- 5.20 ComReg's approach is to ensure that additional obligations placed on mobile service providers are sufficient, within the limits of technical feasibility, to ensure the accuracy and reliability of ECLI derived from that source. Any such obligations must be within the service provider's control in order that they are in a position to deliver them, and that, if they do not deliver them, ComReg is in a position to enforce the obligations.
- 5.21 ComReg considers that it is reasonable to require mobile network providers to ensure that correct Cell ID information is provided with all emergency communications to the most appropriate PSAP. This is because this data is already being supplied by mobile network providers.
- 5.22 ComReg considers that it is reasonable to require mobile network providers to ensure that their networks are properly configured to support the transport of both AML, and PIDF-LO where technically feasible. Networks already support AML and ComReg is of the view that the configuration required to support PIDF-LO for packet switched calls is not onerous.
- 5.23 Finally, in this context, and for similar reasons, ComReg has decided that it is reasonable to require mobile service providers to convey any handset derived location information from the handset to the most appropriate PSAP. However, it considers that obligations related to the quality or accuracy of handset-derived information would not be a matter solely for mobile service providers.
- 5.24 In line with the EENA Recommendation, ComReg intends, by latest March 2026, to review progress against the targets of "a horizontal accuracy estimate of 50m for 80% of all mobile-originated emergency communications" and decide at that time if any further regulatory intervention is required in this area. In particular, further intervention may include the measurement and reporting obligations that ComReg is not requiring at this time.
- 5.25 With respect to fixed service providers, ComReg has decided that fixed line operators should provide address data in Eircode or Address coordinate format, or if not available in address format (e.g. House number, street name etc.) to the ECAS on a timely basis.

Step 3: Determine the impacts on stakeholders

- 5.26 Pursuant to Regulation 93(1) of the Code Regulations, the obligations will apply to all providers of "publicly available number-based interpersonal communications

services, where those services allow end-users to originate calls to a number in the national numbering plan or in an international numbering plan (including public pay telephones).”

5.27 In terms of the overall approach to implementing ECLI, three options were identified:

- **Option 1:** Do nothing (i.e. maintain the status quo),
- **Option 2:** Introduce accuracy and reliability targets and place an obligation on fixed and mobile service providers to achieve them, and
- **Option 3:** Introduce a range of measures which will ensure, within the limits of technical feasibility that ECLI is as accurate and reliable as possible. Report annually on the aggregate accuracy and reliability.

5.28 Under **option 1**, there would be no change to the status quo, and ComReg would not seek to implement any new measures in pursuit of improved accuracy and reliability of ECLI.

5.29 Under **option 2**, service providers would be required to ensure that the ECLI they provide to the most appropriate PSAP is within 50 metres of the caller’s location, 80% of the time.

5.30 Under **option 3**, ComReg would, in most cases, formalise measures already being taken by operators in order to, within the limits of technical feasibility, maximise the accuracy and reliability of the ECLI supplied. ComReg would also adopt a forward-looking approach anticipating that improvements in location technology will lead to the desired outcome organically. ComReg would collect ECLI data and calculate the aggregate accuracy and reliability. The effect of the measures imposed on service providers under this option would be reviewed at an appropriate point to determine if they were sufficient. Additional measures might be considered were they not. ComReg is now of the view that a reporting requirement on providers, as proposed in the Consultation, is not required (subject to review) to underpin and complement the analysis carried out by ComReg.

Option 1

5.31 Under **option 1**, providers would continue to operate as at present. This means that pursuant to the Regulation 93(7)(a) of the Code Regulations “A *provider of the services referred to in paragraph (1) shall make caller location information available to the most appropriate PSAP without delay after the emergency communication is set up. This shall include network-based location information and, where available, handset-derived caller location information.*”

- 5.32 In practice this means that for emergency communications originating on fixed networks the installation address is provided pursuant to the ECAS' Location Information Reference Offer (LIRO).²⁰
- 5.33 For emergency communications originating on mobile network, the Cell ID is provided pursuant to the LIRO and, in addition, AML location is provided from the handset where available.
- 5.34 ComReg is of the view that the current arrangement does not require Eircodes to be provided (although some fixed providers do supply them). While AML is supported by all three mobile networks, this is done on a "voluntary" basis and, looking forward, it might be expected that mobile service providers would also support PIDF-LO as part of the migration to VoLTE/VoNR on 4G/5G networks.
- 5.35 ComReg considers that while there is little doubt that operators would continue to enhance ECLI on a voluntary basis, this approach is unlikely to deliver the significant improvement in accuracy and reliability rates envisioned by the European Commission.
- 5.36 The current situation also carries a number of legal uncertainties which are sub-optimal for service providers and end-users albeit in different ways. ComReg is of the view that the clarification of the obligations on service providers, pursuant to Regulation 93(7) of the Code Regulations, and of the features that end-users may expect, would contribute to legal certainty for both sets of stakeholders.

Option 2

- 5.37 Under **Option 2**, providers would be required to achieve accuracy and reliability "targets" through a "technical solution or mix of technical solutions."²¹ This option would place the obligation to achieve that target solely on fixed and mobile service providers.
- 5.38 ComReg understands that in the case of mobile service providers the "supply chain" for handset data is not completely under the control of the provider. Therefore, it is ComReg's preliminary view that it would not be reasonable to place an obligation on a provider which they cannot deliver. ComReg observes in this context that the EENA Recommendation is silent on the matter of enforcement.
- 5.39 As mobile services account for approximately 82% of calls to the ECAS, and this number continues to increase, ComReg is of the view that the complexities regarding handset data prevent it from the superficially attractive option of simply placing the

²⁰ https://112.ie/wp-content/uploads/2021/12/RIOLIROMainBodyExecutionVersionGenericV3_2.pdf

²¹ Article 3 of the Delegated Act.

accuracy and reliability obligations on the service providers.

- 5.40 Lastly on this point, the proposed obligations on fixed providers merely require the optimisation of, within the limits of technical feasibility, practices already in place. While it may be anticipated that ECLI for fixed services could approach 100% their diminishing volumes are a further reason for resisting the imposition of aggregate criteria solely on service providers.

Option 3

- 5.41 Under **Option 3**, ComReg would formalise requirements, many of which are already being delivered by service providers.
- 5.42 The arguments against Options 1 and 2 mean that Option 3 appears the most favourable.
- 5.43 As has been discussed previously, ComReg must impose regulations with respect to ECLI. In this context, ComReg has decided that Option 3 is the most appropriate one to pursue.

Step 4: Determine the impact on competition

- 5.44 The obligations adopted by ComReg will apply to all fixed and mobile service providers.
- 5.45 It is possible that new regulatory obligations act unevenly in the market and may impact smaller providers and market entrants to a disproportionate extent. ComReg does not have discretion to apply these obligations selectively on operators. Even if it did, ComReg is of the view that end-users on small or emerging services are entitled to expect the same protections as those on larger or more established ones.
- 5.46 Therefore, while some impact on competition is conceivable and even likely as result of these measures, ComReg has decided that this is not a reason to disapply or vary the measures for providers who may be disproportionately impacted.

Step 5: Assess the impacts and choose the best option

Overall approach

- 5.47 ComReg has decided that formalisation of current practices, including ensuring the use of PIDF-LO in due course, regarding the provision of ECLI to the most appropriate PSAP is required to ensure, within the limits of technical feasibility, the accuracy and reliability of that information.
- 5.48 The other options considered in the Consultation would either, in the case of Option 1, not contribute to a significant increase in accuracy and reliability; or, in the case of

Option 2, would place an unreasonable, and possibly unenforceable, regulatory burden upon providers.

- 5.49 In choosing between options 2 and 3, ComReg has weighed up the reasonableness of the obligations.
- 5.50 Option 3 ensures that the specific obligations regarding ECLI are appropriate, proportionate and justified in light of the analysis conducted, having regard to our functions and objectives under the Communications Regulation Act 2002 (as amended).