



Commission for
Communications Regulation

Emergency Calls - Caller Location Information

Setting criteria for accuracy and reliability

Preliminary Consultation

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An Coimisiún um Rialáil Cumarsáide
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1 Introduction

- 1 ComReg is publishing this Preliminary Consultation to seek the views of Undertakings and other stakeholders on all matters relevant to the setting of criteria for accuracy and reliability of emergency caller location information (ECLI), that is, information on the location of the caller supplied to the Emergency Caller Answering Service (ECAS) in conjunction with the request for an Emergency Service.
- 2 Regulation 20(4) of the Universal Service Regulations¹ requires ComReg "in consultation with the Minister" to "lay down criteria pertaining to the accuracy and reliability of the caller location information provided" while Regulation 20(3) provides that caller location information (ECLI) must be supplied by undertakings and that "[T]his obligation shall apply to all calls to the single European emergency call number "112" and any national emergency call number that may be specified by the Regulator."
- 3 As discussed in the document, ComReg's preliminary consultation takes place in the context of a number of European initiatives in this area, particularly in relation to information supplied with mobile calls. Approaching 80% of calls to the ECAS in Ireland are from mobile phones. Other relevant factors are the imminent introduction of postcodes in Ireland, the increasing utilisation of VOIP services as well as the forthcoming agreement of an ETSI standard for ECLI to accompany emergency calls using VOIP.
- 4 This preliminary consultation by ComReg is focused on providers of electronic communications services. It is being undertaken in conjunction with a parallel exercise by the Department of Communications, Energy and Natural Resources (DCENR) to determine the precise requirements of the Emergency Services in this context.
- 5 ComReg welcomes submissions on the matters discussed from all stakeholders and, in particular, from undertakings supplying electronic communications services. ComReg will analyse and review all information provided by respondents to this consultation. ComReg may issue a further consultation which may contain draft proposals on accuracy and reliability criteria as appropriate. Any decision by ComReg on this matter would be pursuant to that further consultation and ComReg's consideration of the responses thereto.

¹ S.I. No. 337 of 2011: European Communities (Electronic Communications Networks And Services) (Universal Service And Users Rights) Regulations 2011

2 Background and context

- 6 This section is intended to provide a brief overview of the background to this preliminary consultation and some information on developments at a domestic and European level in this area.
- 7 Regulation 20(3) of the Universal Service Regulations requires that ECLI is supplied with all calls to the national emergency call numbers: 112 and 999. Accuracy and reliability must therefore be regarded as properties of the ECLI supplied with every call. The accuracy is the degree of precision (within an objective range) with which the location is identified and reliability is a measure of the frequency with which the accuracy falls within the defined range.
- 8 Many interested parties in Ireland recently replied to a survey from CEPT²/ECC³ on matters related to improvements in ECLI. In April 2013, the body created a project team to prepare a report which was to include recommendations on “how the provisions regarding the accuracy and reliability of caller location information for support of emergency services of different networks and telephone services (mobile, nomadic VoIP) as contained in the EU regulatory framework, should be applied in the different countries.”⁴ This was to be a technical report examining implementation options from both technical and cost-benefit perspectives, and the data gathered as part of the survey will inform the work.
- 9 A draft report⁵ was published by CEPT in August 2014 and further input to CEPT’s consideration of the issue was sought through a consultative process that ran until 24 September 2014.
- 10 The draft CEPT report on ECLI states that accuracy “represents the difference between the true value (of the real position supposed to be exactly known) and the value of the best estimated position obtained during a set of measurements, the estimation of which is usually represented by the “mean” value.”
- 11 On the subject of reliability the draft CEPT report refers to ETSI TS 122 071 V11.0.0 (2012-10)⁶ and states that “the reliability of a location estimate is a measure of how often positioning requests that satisfy the established requirements (e.g. accuracy, response time) are successful.”

² European Conference of Postal and Telecommunications Administrations

³ Electronic Communications Committee

⁴ <http://www.cept.org/ecc/groups/ecc/wg-nan/pt-tris/page/wg-nan-gives-green-light-to-new-project-team-emergency-services>

⁵ Draft ECC Report 225 – “Establishing Criteria for the Accuracy and Reliability of the Caller Location Information in support of Emergency Services” published 6 August 2014 available at www.cept.org

⁶ Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Location Services (LCS); Service description; Stage 1 (3GPP TS 22.071 version 11.0.0 Release 11) available [here](#)

- 12 TTFF or Time to First Fix is the time taken to calculate (or “fix”) the position of the caller, in particular for solutions employing GNSS. It is also a key consideration in how quickly accurate and reliable ECLI is transferred to the ECAS, and ultimately a factor in how quickly the Emergency Service reaches the citizen. ComReg is of the view that the TTFF (and subsequent transmission) required by the Regulations is very short given that ECLI of the required accuracy and reliability must be supplied to “the authority handling emergency calls” (i.e., in Ireland, the ECAS), “as soon as the call reaches that authority”.
- 13 Given the nature of the regulations, stakeholders have an interest in understanding how accuracy and reliability might be measured and how compliance might be assessed if criteria were to be laid down by ComReg. For the Emergency Services and for citizens needing those services, compliance with such criteria would affect the speed at which the Emergency Services reach the citizen in need. While anxious to ensure the safety and quality of service available to subscribers to their services, an additional concern of Undertakings would be to attain a degree of regulatory certainty that the solutions it put in place to facilitate attainment of the standards were both fit for purpose and likely to meet the requirements of any new compliance regime.
- 14 ComReg is of the view that assessment of aggregate data, compiled for the purposes of measuring compliance, should not conceal geographic or social anomalies in location data accuracy. For example a high degree of data accuracy in urban areas might mask corresponding difficulties in rural areas if all location data (i.e. both urban and rural) was processed together for the purposes of determining an aggregate accuracy figure.
- 15 While the European Commission, has indicated⁷ that it is prepared to await the outcome of the CEPT work in this area, it is also keen to see the issue adopted by BEREC.⁸ Indeed, BEREC in its *Work Programme 2014*⁹ acknowledged the work of CEPT on the issue and stated that “it is important that competent authorities in the EU Member States (mostly NRAs) lay down effective criteria for the accuracy and reliability of caller location” and that “BEREC will discuss with the European Commission how BEREC could contribute to improved guidance where the work of CEPT is incorporated.”

⁷ http://ec.europa.eu/commission_2010-2014/kroes/en/content/what-eu-can-and-cant-do-about-112-emergency-services

⁸ Ibid

⁹ Work Programme 2014 – BEREC Board of Regulators. Document BoR (13)196

- 16 In a press release¹⁰ issued on 11 February 2014, “112 Day”, the Commission stated that Vice President Neelie Kroes had written to “all national governments...to urge them to improve caller location” amongst other things. In its latest report on the implementation of 112¹¹ the Commission noted that “no improvement is noticed on the implementation of more accurate caller location in Europe” and that “Cell ID/Sector ID is a standard location requirement in Europe for mobile networks delivering accuracy between 30 meters and tens of kilometres.”
- 17 From 22 April 2013 to 14 July 2013, the Commission (in this case the Enterprise and Industry Directorate-General) held an on-line consultation on possible measures to maximise the socio-economic benefits of Galileo and EGNOS.¹²
- 18 On 2 April 2014, the Commission announced¹³ a “Public hearing on mobile phone-based satellite navigation positioning for 112 emergency calls” to take place in Brussels on 7 May 2014. The associated consultation document¹⁴ observed that the purpose of the consultation was “to gather insights 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 Global Navigation Satellite System (GNSS), and in particular the European GNSS systems, and to send it to public-safety answering points (PSAP).”
- 19 The consultation document explains that under the auspices of the “Directive on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment” (COM(2012)0584 - C7-0333/2012 - 2012/0283(COD)), radio equipment shall be so constructed that it “can be connected to interfaces of the appropriate type throughout the Union” and “supports certain features ensuring access to emergency services”.
- 20 A “delegated act” under the Directive would, the Commission states, be an appropriate instrument to set out measures to introduce GNSS capability, and in particular European GNSS capability, in mobile phones so that they are enabled support the transfer of caller location in case of 112 Emergency Calls.” The consultation observes that this delegated act, if adopted, “should enter into force two years after the adoption of the Directive, possibly in mid-2016.”

¹⁰ http://europa.eu/rapid/press-release_MEMO-14-97_en.htm

¹¹ Implementation of the European emergency number 112 – Results of the seventh data-gathering round; accessed at <http://ec.europa.eu/digital-agenda/en/news/implementation-european-emergency-number-112-%E2%80%93-results-seventh-data-gathering-round>

¹² http://ec.europa.eu/enterprise/policies/satnav/old-pubconsult/index_en.htm

¹³

http://ec.europa.eu/enterprise/newsroom/cf/itemdetail.cfm?item_id=7404&lang=en&title=Public%2Dhearing%2Don%2Dmobile%2Dphone%2Dbased%2Dsatellite%2Dnavigation%2Dpositioning%2Dfor%2D112%2Demergency%2Dcalls

¹⁴ http://ec.europa.eu/enterprise/policies/satnav/files/hearing-document-mobile-112-v1_en.pdf.pdf

- 21 There have also been developments in other EU member states in relation to ECLI. For example, in the UK, in October 2013, Ofcom issued a Call for Input¹⁵ on ECLI for mobile phones. Ofcom identified three key issues: identification of concerns with respect to the accuracy and reliability of ECLI for mobile calls; identification of technologies which might potentially address those concerns; and the potential for Ofcom to revise criteria for accuracy and reliability of ECLI in order to take account of such new technologies.
- 22 Ofcom has also, in recent years, commissioned two reports¹⁶ from the consultants Mott McDonald in preparation for the exercise. The purpose of Ofcom's Call for Input was "to seek the views and experience of stakeholders in relation to the matters set out" in order "to help inform Ofcom's policy view as to whether or not further regulatory steps should be taken."
- 23 Most recently, in August 2014, Ofcom issued a statement¹⁷ noting that since the Call for Input "the UK mobile industry has concluded trials of a new approach to providing location information" and that this "is now beginning to be implemented by operators and mobile handset manufacturers." Welcoming the industry initiative, Ofcom stated its intention "to monitor how it develops" and proposed to take no further formal action on ECLI at this stage.
- 24 The most recent Commission implementation report¹⁸ references a handset solution deployed in Denmark which the Commission describes as "a 112 App which is reported to provide accuracy of location between 10 to 60 meters."
- 25 A discussion document produced by EENA¹⁹ observes that handset or App solutions, with a range of functionality, have also been deployed to some extent in Iceland, Italy, Spain and the Netherlands.
- 26 In producing this Preliminary Consultation, ComReg is mindful of these initiatives as well as ongoing developments in the United States of America concerning the enhancements and enforcement of E911 and the introduction of NG911. See, for example, "Next Generation 911 (NG911) Standards Identification and Review"²⁰

¹⁵ Ofcom: "Location information for emergency calls from mobile phones" 14 October 2013

¹⁶ Mott McDonald for Ofcom – Assessment of Mobile Location Technology, Final Report (2010) & Mott McDonald for Ofcom – Assessment of Mobile Location Technology – Update, Final Report (2012)

¹⁷ Ofcom: "Location information for emergency calls from mobile phones" 13 August 2014

¹⁸ "Implementation of the European emergency number 112 – Results of the seventh data-gathering round" published 11 February 2014 available here:

http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=4447

¹⁹ EENA Operations Document: 112 Smartphones Apps; accessed at

http://www.eena.org/ressource/static/files/2014_02_25_apps_v1.0_final.pdf

²⁰ Available at: <http://www.911.gov/pdf/NG911-StandardsIdentificationAnalysis-jan2014.pdf>

2.1 Questions

Q. 1 In light of the background and context set out, ComReg invites respondents to provide comments on all general aspects of the setting of criteria for accuracy, reliability and TTF and the definition and measurement of these features of ECLI.

Q. 2 ComReg invites any additional information on other developments and matters affecting the context in which ECLI obligations might be set; as well as any information with regards to the plans or policy developments being undertaken by respondents in that regard.

3 Fixed Services

3.1 Current Requirements

- 27 The obligation to supply ECLI to the ECAS rests with the undertaking providing end-users with an electronic communications service. Regulation 20(3) of the Universal Service Regulations provides:

An undertaking providing end-users with an electronic communications service for originating national calls to a number or numbers in the national telephone numbering plan (including public pay telephones) shall make caller location information available free of charge to the authority handling emergency calls as soon as the call reaches that authority. This obligation shall apply to all calls to the single European emergency call number “112” and any national emergency call number that may be specified by the Regulator.

- 28 In the Location Information Reference Offer²¹ (LIRO), the current specification for fixed line location information states that the ECAS will accept installation or billing records “conforming to the data, file format, and field value requirements detailed in “ECAS Fixed Line Location Information Specification”.²²
- 29 At present delivery of the CLI (Calling Line Identity) as well as the data conforming to the “ECAS Fixed Line Location Information Specification” is carried out by the principal fixed line providers for retail voice services offered by them on their own networks.
- 30 In addition for its SB-WLR wholesale products, ComReg understands that Eircom supplies this data as part of the wholesale offering used by OAOs in the supply of retail ECS to end-users.
- 31 The existing standard, to which Undertakings commit through the signing of the Location Information Reference Offer (LIRO) with the ECAS Provider, currently BT Ireland, defines Fixed Line Location Information as “information containing the billing and installation records of a fixed line used by ECAS to determine the actual location of a Calling Party based on the CLI”.²³

²¹ Available here:

http://www.btirelandwholesale.com/pdf/RIOLIROMainBodyExecutionVersionGenericV3_2.pdf

²² See Schedule 4:

<http://www.btirelandwholesale.com/pdf/ECASRIOSchedule4ExecutionVersion%20Genericv32.pdf>

²³ Emergency Call Answering Service (ECAS) Reference Interconnect Offer (RIO) Including the Location Information Reference Offer (LIRO); available here:

http://www.btirelandwholesale.com/pdf/RIOLIROMainBodyExecutionVersionGenericV3_2.pdf

- 32 For billing and network purposes, the location and identity of the subscriber of every fixed telephone connection (PSTN or ISDN) would be expected to be known by the telephone service provider. This installation address location is linked with CLI - Calling Line Identity – and provides a straightforward but also, at least in principle, very reliable method for static location determination; and this information can be easily passed to the ECAS and beyond.
- 33 Most issues with such a system would be based on the accuracy of the data stored by the telephone provider or the frequency with which this data is updated to take account of intervening changes.

3.2 Setting ECLI criteria for fixed calls

- 34 The Irish postcode system, Eircode, is “launching in Spring 2015.”²⁴ The Eircode website states that when it is rolled out, there will be “a unique Eircode for every home and business” and amongst the explicit benefits stated for this is that it will “allow emergency services reach you quickly.”²⁵
- 35 ComReg considers that enhancing the quality of data supplied to the ECAS may not be the primary driver for the inclusion of Eircodes within the subscriber databases of ECS providers; and that other commercial benefits of improvements in the quality of subscriber addresses may be sufficient to drive take-up and implementation. While the transfer of such enhanced data onwards to the ECAS would entail some cost, ComReg understands that this would be an incremental cost; and that the principal cost drivers would be implementation and testing of changes in interfaces and databases.
- 36 ComReg is interested in the views of stakeholders on this point and keen to understand if there are major technical hurdles in the transfer of enhanced addresses for fixed lines to the ECAS. ComReg is also keen to understand if there are significant cost drivers it should be made aware of in this context.
- 37 Verification of the quality of ECLI supplied to the ECAS would evaluate the accuracy, reliability and TTFF of the information supplied. This could take place by a variety of methods involving, either individually or in combination: sampling, testing or verification systems. It might also be possible to use event-based feedback from the Emergency Services whereby the actual location of the emergency caller as determined by the relevant Emergency Service when assistance is delivered could be checked against the location supplied to the ECAS.

²⁴ <http://www.eircode.ie>, retrieved September 2014

²⁵ Ibid

- 38 ComReg is of the preliminary view that the provision of the subscriber's address based on installation and billing data, supplemented by a postcode (Eircode), where available, should be mandated under Regulation 20(4) of the Universal Service Regulations.

3.3 Questions

Q. 3 ComReg is of the preliminary view that there are few problems with ECLI based on installation or billing information, other than those where inaccuracy or infrequent update of databases may be an issue. Do you agree or disagree with this view? Please provide reasons for your answer.

Q. 4 ComReg is of the preliminary view that there are likely to be sufficient commercial drivers to incentivise the implementation of postcodes by ECS providers. Do you agree or disagree with this view? Please provide reasons for your answer.

Q. 5 ComReg is of the preliminary view that, pursuant to Regulation 20(4) of the Universal Service Regulations, the mandated supply of installation or billing address supplemented by postcode (Eircode), where available, would not appreciably increase the regulatory burden associated with providing ECLI for fixed services. Do you agree or disagree with this view? Please provide reasons for your answer informed, where relevant, by details of any proposed adoption by you of the new postcode system.

Q. 6 ComReg would welcome respondents' views on the compliance aspect of any laying down of accuracy and reliability criteria for fixed services and the ways in which compliance could be measured and enforced.

Q. 7 Please provide ComReg with any other information you believe may be relevant to the provision of ECLI for fixed services.

4 Mobile Services

4.1 Current Requirements

- 39 The current solution used to supply ECLI to the ECAS in Ireland is based on Cell ID. As stated Location Information Reference Offer²⁶ (LIRO), the cell identity supplied with the emergency call is looked up in the mobile location information conversion database which is used to convert that cell identity into a geographic location. The lookup database utilises reference data supplied by undertakings in files conforming to the data, file format, and field value requirements detailed in the “ECAS Mobile Location Conversion Specification”²⁷
- 40 Mobile location conversion cell global identifiers are used as a reference to the CGI (Cell Global Identity – or Cell Identity) received as part of the mobile location information transfer. The ECAS System accepts this information in files conforming to the data, file format, and field value requirements detailed in the “ECAS Mobile Location Conversion Specification”. Crucially for ECAS the CGI file shall include the Cell site location and optionally the approximate area and direction of coverage and this is used to determine Calling Party location.
- 41 A commonly cited issue with Cell ID is the variance in the radius which may apply around a particular network mast. The Mott Report (2012) observes that this could be “between 200 metres and 1 kilometre for dense urban areas and up to 35-100 km for remote rural areas.” Furthermore: “Accuracy can occasionally fall further when a handset connects to a more distant base station for reasons of signal strength or congestion.”
- 42 ComReg also observes that from time to time, there have been difficulties with the update and maintenance of look-up tables. As a result of this there have been difficulties in converting Cell IDs into actual locations. This can occur in particular where a provider is rolling out new infrastructure or addressing short term requirements at special events.

²⁶ Available here:

http://www.btirelandwholesale.com/pdf/RIOLIROMainBodyExecutionVersionGenericV3_2.pdf

²⁷

<http://www.btirelandwholesale.com/pdf/ECAS%20Mobile%20Location%20Conversion%20Specification%20Issue%204.1.pdf>

4.2 Setting ECLI criteria for mobile calls

- 43 According to EENA,²⁸ no EU Member State has imposed stricter caller location criteria for mobile calls than Cell or Sector ID. EENA asserts that technical solutions currently available allow for a much better degree of accuracy.
- 44 In the USA, the key driver of ever more specific requirements relating to ECLI for mobile phones was the increasing proportion of calls being placed from mobile or wireless handsets as opposed to wireline or fixed access. A Guide on the FCC website states that “about 70 percent of 911 calls are placed from wireless phones, and that that percentage is growing.”²⁹ In Ireland the mobile/fixed proportion is approximately 80/20.
- 45 ComReg is of the preliminary view that regardless of any enhancement of the data to be supplied with mobile calls, Cell ID would continue to be used as a means of determining the appropriate mast from which a call emanates, and understands that there is no reason why this could not continue to be the case. ComReg is interested in the views of stakeholders on this point.
- 46 Ofcom has published two reports carried out by Mott McDonald looking at the range of technologies which support the provision of ECLI. ComReg understands from this, the CEPT report, and other sources, that the most viable technologies consist of:
- GNSS
 - A-GNSS
 - Cell ID
 - Enhanced Cell ID
 - Observed Time Difference of Arrival
 - RF Pattern Matching
 - WiFi access point location
 - Bluetooth wireless beacons
 - Femtocell network location
 - Hybrid solutions based on combinations of these technologies

²⁸ EENA: “Implementation and functioning of caller location in Europe” (2013)

²⁹ <http://www.fcc.gov/guides/wireless-911-services>

ComReg is interested in the views of respondents on the feasibility and usefulness of these technologies in an Irish context.

- 47 Examples of hybrid solutions currently deployed would include Location Based Services (LBS) now implemented by a range of providers for use on smartphones and tablets. These will typically employ a combination of Cell ID and GNSS supported, where information is available, by WiFi access point data, Bluetooth and Femtocell data. Each of these will enhance the accuracy of the location fixed by the LBS.
- 48 LBS are used by many applications developed for mobile platforms, for example iOS and Android, such as social media, coupon and review sites, taxi booking and so forth. The tailoring of information and services based on the location of the user accessing a service is increasingly common
- 49 As noted above, a trial of a method to deliver enhanced ECLI for mobile services is underway in the UK. At the 2014 EENA Conference, BT UK provided an update on this initiative.³⁰ The solution software is embedded in the smartphone operating system (OS) and continues to facilitate the existing caller location solution (based on Cell ID). A smartphone with relevant code in its OS recognises an emergency call is being made and activates GPS & WiFi facilities on the phone to enhance the available location information.
- 50 This ECLI is then sent by zero-rated SMS to 999/112 in a manner which is not visible on the smartphone. BT claim that minimum battery level is required to allow this enhanced service. Upon receipt at the PSAP, BT matches the SMS to the emergency (voice) call, verifies GPS/Wifi location is plausible using cell location; and makes the enhanced location information available to the required Emergency Service.
- 51 As noted above, Ofcom is awaiting the outcome of this trial before determining its next steps in relation to ECLI policy for mobile phones.

³⁰ <http://www.eena.org/ressource/static/files/location-for-999---ee-and-bt-latest-.pdf>

- 52 While the development of such solutions, whether App-based or embedded in the OS, is evidence of a desire to improve ECLI for European citizens, there is a risk that such developments, in the absence of a pan-European standard, may not be optimal. Assuming that a de facto standard does emerge, late adoption in certain Member States may mean that such countries must simply adopt solutions developed in other territories which are not domestically ideal. Alternatively, different standards may obtain in different countries, which would create problems for EU citizens travelling between Member States. ComReg is interested in the views of stakeholders on this point; and in particular the views of undertakings with pan-European presence who may have particular insight into the issues and emerging solutions in different European territories.
- 53 ComReg is also concerned that a focus on smartphone solutions may lead to social exclusion regarding the quality of ECLI accompanying calls by citizens to the ECAS. In particular, it could mean that citizens with older or less feature-rich handsets would not be able to access the enhancements to ECLI and would be excluded from the consequent benefits. This concern is clearly a function of a range of factors including the demographics of smartphone ownership, smartphone penetration and smartphone renewal or replacement. ComReg is interested in the views of stakeholders on this point; and in particular views of mobile ECS providers who might be expected to have relevant information on these aspects of the handset population.
- 54 A related point is the degree to which a mobile ECS provider has control over the OS installed on phones connected to its network. ComReg is aware that “jailbreaking” and “rooting” of phones is not uncommon and that smartphones may run custom OSs of uncertain origin and variable functionality. In addition the supply of “SIM only” packages by ECS providers is an indication that handsets may be sourced from multiple vendors and that they may not be susceptible to control by ECS providers. Again, ComReg is interested in the views of stakeholders on this point.
- 55 More generally, ComReg is of the view that at least two approaches may be identified to the implementation of regulated criteria for the accuracy and reliability of ECLI in the mobile case.
- 56 In the first approach, a required standard may be defined, together with the manner in which compliance with that standard would be assessed by the Regulator. It is then up to Undertakings to determine how best to implement the standard. The benefit of this approach is that proprietary efficiencies in the implementation of a suitable solution redound to the Undertaking. Such an approach duly acknowledges the expertise of Undertakings and facilitates further benefits to be delivered by commercial and technological process over time. The manner in which compliance will be assessed, on an ongoing basis, is likely to be a key concern.

- 57 An alternative approach might be for the Regulator, through the consultative process, and perhaps informed by third-party expertise, to decide on an appropriate ECLI methodology to be used by Undertakings and to issue a Decision requiring compliance with that methodology within a reasonable timeframe. ComReg is interested in the views of stakeholders on the overall approach they would favour if ComReg were to proceed with the setting of criteria as required by legislation.
- 58 Verification of the quality of ECLI supplied to the ECAS would evaluate the accuracy, reliability and TTF of the information supplied. This could take place by a variety of methods involving, either individually or in combination: sampling, testing or verification systems. It might also be possible to use event-based feedback from the Emergency Services whereby the actual location of the emergency caller as determined by the relevant Emergency Service when assistance is delivered could be checked against the location supplied to the ECAS. In the context of mobile services, ComReg has also considered drive testing,³¹ but its view is that this is not a feasible option for this purpose.

4.3 Questions

Q. 8 ComReg would welcome the views of mobile ECS providers in relation to the technologies listed in paragraph 46 and their suitability and feasibility in an Irish context.

Q. 9 ComReg is interested in the views of respondents on the technical and regulatory aspects of the current mobile ECLI trial being carried out in the UK, as discussed at paragraphs 49 to 51. Also of interest would be the preliminary views of respondents on the suitability and feasibility of this approach in Ireland.

Q. 10 ComReg would welcome respondents' views on possible compliance mechanisms associated with any laying down of accuracy and reliability criteria for mobile services and the ways in which compliance would be measured and enforced. Views on the compliance issue in the context of industry-agreed ECLI solutions are also welcome.

³¹ The Provision of Bi-Annual Drive Testing Services on Mobile Networks in Ireland; available here <http://www.comreg.ie/fileupload/publications/ComReg1486a.pdf>

Q. 11 Please provide ComReg with any other information you believe may be relevant to the provision of ECLI for mobile services.

5 VOIP Services

5.1 Current Requirements

- 59 VOIP services facilitate telephony to traditional phone numbers using an internet connection using a traditional phone connected via adaptor to the internet or using a VoIP phone connected directly to a computer or directly to the internet.
- 60 ComReg has previously discussed these in its 2005 guidance³² albeit that this became obsolete with the transposition of the 2009 Regulatory Framework. ComReg discussed the issue further in a paper of 2010.³³
- 61 For VOIP services using geographic numbers, existing fixed-line requirements may satisfy ECLI requirements based on the accuracy of the subscriber data associated with the geographic number. Problems arise for nomadic VOIP services, and also for fixed services, where, for example, subscriber data associated with a geographic number may be inaccurate. The latter can occur, for example, where a dial plan is inaccurate, or not properly implemented.
- 62 More generally, with nomadic VoIP it may be difficult to locate the caller accurately because there is no fixed relationship between the CLI used by the caller and his physical location at any point in time.
- 63 In the UK the Network Interoperability Consultative Committee (NICC) has developed a UK national standard architecture. At a broader European level, ETSI,³⁴ at the request of the European Commission³⁵ has been working on a VOIP protocol for caller location information. Its working group on the issue (ETSI M493) completed the final draft of ES 203 178 early in March 2014³⁶ and it is at present in the General Membership approval phase.

³² ComReg Document 05/50 - "Guidelines for VoIP Service Providers on the treatment of consumers"

³³ ComReg Document 10/91 – "Regulatory Framework for Next Generation Voice Services, including VoIP"

³⁴ European Telecom Standards Institute

³⁵ <http://www.etsi.org/images/files/ECMandates/m493.pdf>

³⁶ Functional architecture to support European requirements on emergency caller location determination and transport - ETSI ES 203 178; V1.0.0 (2014-04), available at

http://www.etsi.org/deliver/etsi_es/203100_203199/203178/01.00.00_50/es_203178v010000m.pdf

- 64 The ETSI work is intended³⁷ to address caller location in emergency calls by providing a standard to extend the support of caller location to users of IP voice services. The solution must be immediately deployable and must work with the existing PSAP and emergency service implementations. It was also a requirement of the EC mandate that the service must be accessible to persons with a disability.
- 65 It is expected the protocol will be finalised in the first half of 2015.

5.2 Setting ECLI criteria for VOIP

- 66 ComReg is of the preliminary view that laying down of accuracy and reliability criteria for VOIP services, beyond those necessarily arising from the use of geographic numbers, should await the finalisation of the ETSI protocol.
- 67 Nevertheless, given the amount of information already published concerning this protocol, ComReg is of the view that the laying down of criteria would not lag the establishment of the protocol to any significant extent.

5.3 Questions

Q. 12 ComReg would welcome views and information from VOIP ECS providers (fixed and nomadic) on regulatory and technical matters related to the laying down of reliability and accuracy criteria for VOIP service in Ireland.

Q. 13 Please provide ComReg with any other information you believe may be relevant to the provision of ECLI for VOIP services, fixed and nomadic.

³⁷ This summary is based on a presentation by Luca Pesando (Telecom Italia) to the EENA Conference, Warsaw in April 2014. The full presentation is available [here](#) (accessed September 2014).

6 Submitting views

- 68 All responses to this Preliminary Consultation are welcome and must be received by **5pm on Friday 19 December 2014**.
- 69 Comments should be submitted to Joan Killeen using retailconsult@comreg.ie
- 70 Please set out your reasoning and supporting information for any views expressed. So as to promote openness and transparency of the consultation process, ComReg will publish all respondents' submissions, subject to the provisions of ComReg's Guidelines on the Treatment of Confidential Information.³⁸.
- 71 ComReg appreciates that in response to issues raised in this paper some respondents may wish to provide confidential information in addition to other comments. As it is ComReg's policy to make all responses available on its web-site and for inspection generally, respondents are requested to clearly identify confidential material and place confidential material in a separate annex to their response. Such information will be treated in accordance with the provisions of ComReg's confidentiality guidelines referred to above.
- 72 ComReg may conduct further communications where it considers it appropriate and/or necessary to do so.

³⁸ ComReg document 05/24. Response to Consultation - Guidelines on the treatment of confidential information - March 2005

7 List of Questions

- Q. 1** In light of the background and context set out, ComReg invites respondents to provide comments on all general aspects of the setting of criteria for accuracy, reliability and TTF and the definition and measurement of these features of ECLI.
- Q. 2** ComReg invites any additional information on other developments and matters affecting the context in which ECLI obligations might be set; as well as any information with regards to the plans or policy developments being undertaken by respondents in that regard.
- Q. 3** ComReg is of the preliminary view that there are few problems with ECLI based on installation or billing information, other than those where inaccuracy or infrequent update of databases may be an issue. Do you agree or disagree with this view? Please provide reasons for your answer.
- Q. 4** ComReg is of the preliminary view that there are likely to be sufficient commercial drivers to incentivise the implementation of postcodes by ECS providers. Do you agree or disagree with this view? Please provide reasons for your answer.
- Q. 5** ComReg is of the preliminary view that, pursuant to Regulation 20(4) of the Universal Service Regulations, the mandated supply of installation or billing address supplemented by postcode (Eircode), where available, would not appreciably increase the regulatory burden associated with providing ECLI for fixed services. Do you agree or disagree with this view? Please provide reasons for your answer informed, where relevant, by details of any proposed adoption by you of the new postcode system.
- Q. 6** ComReg would welcome respondents' views on the compliance aspect of any laying down of accuracy and reliability criteria for fixed services and the ways in which compliance could be measured and enforced.
- Q. 7** Please provide ComReg with any other information you believe may be relevant to the provision of ECLI for fixed services.
- Q. 8** ComReg would welcome the views of mobile ECS providers in relation to the technologies listed in paragraph 46 and their suitability and feasibility in an Irish context.

- Q. 9 ComReg is interested in the views of respondents on the technical and regulatory aspects of the current mobile ECLI trial being carried out in the UK, as discussed at paragraphs 49 to 51. Also of interest would be the preliminary views of respondents on the suitability and feasibility of this approach in Ireland.**
- Q. 10 ComReg would welcome respondents' views on possible compliance mechanisms associated with any laying down of accuracy and reliability criteria for mobile services and the ways in which compliance would be measured and enforced. Views on the compliance issue in the context of industry-agreed ECLI solutions are also welcome.**
- Q. 11 Please provide ComReg with any other information you believe may be relevant to the provision of ECLI for mobile services.**
- Q. 12 ComReg would welcome views and information from VOIP ECS providers (fixed and nomadic) on regulatory and technical matters related to the laying down of reliability and accuracy criteria for VOIP service in Ireland.**
- Q. 13 Please provide ComReg with any other information you believe may be relevant to the provision of ECLI for VOIP services, fixed and nomadic.**

8 Glossary of Terms

A-GNSS	Assisted Global Navigation Satellite System
BEREC	Board of European Regulators for Electronic Communications
CEPT	European Conference of Postal and Telecommunications Administrations
CGI	Cell Global Identity
CLI	Calling Line Identity
DCENR	Department of Communications, Energy and Natural Resources
ECAS	Emergency Call Answering Service
ECC	Electronic Communications Committee
ECLI	Emergency Caller Location Information
ECS	Electronic Communications Service
EENA	European Emergency Number Association
EGNOS	European Geostationary Navigation Overlay Service
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
ISDN	Integrated Services Digital Network
LBS	Location Based Services
LIRO	Location Information Reference Offer
OAO	Other Authorised Operator
OS	Operating System
PSAP	Public Safety Answering Point
PSTN	Public Switched Telephone Network
SB-WLR	Single Billing - Wholesale Line Rental
SMS	Short Message Service
TTF	Time To First Fix
VOIP	Voice Over Internet Protocol