



Commission for  
**Communications Regulation**

# **Emergency Calls - Caller Location Information**

Setting criteria for accuracy and reliability

Submissions to Preliminary Consultation Document No. 14/110

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**An Coimisiún um Rialáil Cumarsáide**  
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## BT ECAS Response to ComReg Consultation:

### Emergency Calls – Caller Location Information Setting Criteria for Accuracy and Reliability

ComReg Reference: 14/110

Issue 1 – 19<sup>th</sup> December 2014

#### Introduction

BT ECAS welcomes the opportunity to provide input to ComReg's consultation on Setting Criteria for Accuracy and Reliability of Emergency Caller Location information.

Having built and operated the ECAS - the national Stage 1 filtering PSAP instance for the past 4 years and working closely with all of the Emergency services during that time, we have gained first-hand experience of the problems associated with lack of quality caller location information for the public and Emergency Services alike.

While the ultimate goal for the public must be universally available and highly accurate caller location for all types and call scenarios we recognise that a process of incremental improvements is required to get us there. We can only achieve this goal and realise the initial improvements in the available services by actually starting the process of improvement and this first step in the process is very welcome indeed.

There have been many cases reported in the past years where lives have been put at risk, and injured or distressed people have had to endure lengthy delays in getting help due to difficulties encountered by the Emergency services in locating them or indeed reaching them. While there are usually a number of factors that contribute to these incidents, lack of usable and accurate caller location information (for both fixed line and mobile callers) has been cited again and again by the Emergency services as a significant problem that needs to be addressed.

It is our hope that working together as an industry we can begin the process and realise the improvements that the public both deserve and expect. We look forward to working constructively with all of the stakeholders including, the ECS Providers, ComReg, the Emergency Services etc. in order to realise the maximum benefit for and provide the best possible service to the ECS provider's customers.

#### Response to Consultation 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.***

As outlined in 2.7 ECLI must be supplied with all calls to the Emergency Number and indeed 2.7 correctly states that Criteria for Accuracy and Reliability are properties of ECLI without which ECLI is

not defined. There is however no current legal or regulatory definition for ECLI and associated accuracy and reliability in Ireland although the provision of CellID and rough or inaccurate Cell Coordinated has become the de-facto standard.

DIRECTIVE 2009/136/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL states that: “Competent regulatory authorities shall lay down criteria for the accuracy and reliability of the caller location information provided”.

It cannot be considered that a CellID based approach for Mobile caller location provides ECLI. Using the CellID method alone it is not actually possible for the emergency services responding to the Emergency Call to actually *locate* the caller.

This presents a significant and worsening problem for the Emergency Services and indeed the public or callers in need of their services. Analysis of industry trends and indeed Emergency Call volumes indicates a distinct and continuous shift from use of fixed lines to mobile subscriptions. Many homes no longer maintain a fixed line phone and so the majority of Emergency calls are placed from mobile phones. The emergency services in an effort to achieve cost savings and consistent standards are moving to centralised call centre and dispatch functions. This means that “local knowledge” in Emergency Service control centres cannot and should no longer be relied upon to “work around” the complete lack of mobile caller location information. Emergency Services dispatchers require an accurate location to be provided to them automatically in order to assist people in the many situations where the caller is unable to provide an accurate street address.

Until such time as some or any criteria for accuracy and reliability (or indeed usability) of caller location are set, no criteria can or will be met.

It is acknowledged that there are a variety of challenges to the provision of accurate and usable caller location most notably the common application of technologies and standards across the whole of the EU. These challenges however do not prevent us from setting initial criteria and indeed the criteria can and will be reviewed on an ongoing basis to ensure that they are fit for purpose so that an appropriate level of service is provided to the public. We need to start *somewhere* with initial criteria, and as an industry we should review and revise the criteria on an ongoing basis.

An approach similar to that adopted in the US by the FCC may be considered where the Location accuracy requirements for wireline and wireless 911 (E911) have been revised in phases (currently phase 2 and proposing phase 3). The FCC set initial criteria as far back as 2005. In consultation with the Emergency Services and telecommunications industry, they are currently discussing a third revision to the criteria for accuracy and reliability of ECLI.

We have an opportunity in Ireland however to take a more agile approach to that used in the US with initial basic criteria being set and then reviewed and revised regularly (possibly annually), in order to achieve the goal of universal availability of usable caller location in an appropriate timeframe which will allow the emergency services to locate people in need of assistance quickly and consistently.

***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.***

The telecommunications landscape is changing rapidly, most notably in the area of convergence. Where once there was a clear distinction between fixed line and mobile type services, with the growing adoption of VoIP and IP in the form of LTE for mobile users and universal broadband availability as the primary method or type of connectivity for many homes and businesses, the distinction between fixed and mobile services will be removed and indeed the service characteristics will become more and more universal and blurred. E.g. there are few technical restrictions on maintaining a single voice service number and subscription to be used at home via a VoIP handset and also whilst on the move via VoLTE or traditional 2/3g. The CLI for this universal Voice service will be largely irrelevant and the characteristics of the Call and indeed assumptions on the part of the Emergency services about the callers situation and location based on CLI (08x v 01) will no longer be valid.

The Criteria for accuracy and reliability of ECLI must take this convergence into account and it should consider setting the same criteria for ECLI regardless of the type of connection being used to initiate the call. While this may appear to be a challenge from a technical perspective, it is a challenge that the Telecoms service providers can meet (as they do currently in the US and elsewhere) and technology and standards currently exist to allow caller location to be determined in real-time and queried directly and automatically by the PSAPs and Emergency Services. It is acknowledged that a universal solution for VoIP service providers has yet to be fully defined but this work is in progress and for in-country voice service providers these challenges may not be significant issue as the service provider is likely to control or have visibility of both the Voice service and Access network components for the majority of calls.

***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.***

Disagree. Addressing in Ireland presents a significant challenge to locating Callers based on their fixed line address. The Eircode initiative has studied the problems associated with addressing in Ireland and describes some of these issues in their ECAD product guide as follows:

*“Ireland has a number of unique challenges when it comes to addressing. Firstly, people in the same street, townland, apartment building, etc. may write their addresses in very different ways. This arises for reasons of; local common naming conventions, historical reasons, variations in spelling (notably anglicised versions of Gaelic names) and vanity addressing. “*

***And***

*“Ireland has a very high level of non-unique addresses (NUA), i.e. the address does not contain a unique building number or name. Approximately 35% of all Irish addresses are non-unique which equates to 600,000 addresses.*

*The typical example of NUA addressing is where every address in a townland is the same. The way that post is delivered is by local knowledge of postal delivery personnel of which addressee lives in which house.”*

These difficulties are represented in the available fixed line information used to supply caller location to the Emergency Services today. Review of available fixed line information undertaken in the course of investigating issues raised by the Emergency Services has confirmed that in the majority of cases the available fixed line information does not enable the Emergency services to identify the caller’s location without supplementary information and directions from the caller.

It is also worth noting that the Fire services maintain tactical information on a vast number of premises countrywide. Accurate and distinct address correlation between the information available with a fixed line call and the information available to the Fire Service is crucial to the response to an incident. Similarly the Ambulance Services and Gardai need to be able to pinpoint a caller's location in order to correctly and quickly dispatch the most appropriate response.

***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.***

Disagree.

It is expected that there will be significant cost and effort required on the part of ECS providers to implement or 'retrofit' Eircodes to their existing subscriber and installation databases. Unless the use and supply of Eircodes is mandatory then indications are that it is unlikely that ECS providers will supply Eircodes for any or many of their fixed line installations.

***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.***

Compliance with accuracy and reliability criteria for fixed line services can be measured directly by the ECAS and/or the Emergency Services using a variety of metrics including:

- Availability of Fixed line location information for each fixed line CLI from live emergency call data. This can be easily measured and reported.
- Ability to resolve the fixed line CLI to a distinct point i.e. coordinates either by means of a supplied Eircode or directly supplied coordinates. This can be measured directly either for the complete subscriber installation based supplied by the ECS or on a call by call basis for those CLIs which originate an emergency call.
- Call observation and sampling of Emergency Calls at the ECAS to determine the usability of the supplied fixed location information.
- Call handling metrics directly supplied by any emergency services which record the timestamps of relevant events in their case management systems (e.g. time call presented to call handler and time location confirmed for dispatch.)

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

Fixed services are for the most part located in a defined premises and if a caller is using a so-called fixed line to make an emergency call, there is currently a high likelihood that they can be located by the Emergency Services at that premises.

It is reasonable to expect that if an emergency call is known to originate from a building that it should be possible for the Emergency services to easily and quickly identify that building and the caller's location without requiring further and detailed information from the caller. Due to the addressing related challenges in Ireland however, this means that it is not currently possible to identify a building location from an address alone in many cases.

Whichever criteria are specified for Fixed line information the objective should be to uniquely identify the location of the caller from information readily available to the ECAS and Emergency services. This can be by means of provision of an Eircode or Geographic coordinates for the CLI in question but it should be recognised that a text based address alone is not sufficient in many cases and that the means of accurately identifying the fixed line caller's location should be consistent and reliable for all CLIs.

The issue of Nomadic and mobile VoIP services utilising number ranges traditionally assigned to fixed line services also needs to be carefully considered. The current approach to dealing with this type of installation or service is that Fixed ECS providers indicate on a per CLI basis if the given CLI *may* be a potentially Nomadic or mobile VoIP service. It is expected that this type of service or configuration will become more and more prevalent as ECS providers seek to provide flexible and universal voice services. This presents an increasing challenge for Caller Location on fixed line style services. The potential should be explored for Fixed/VoIP ECS providers to provide dynamic caller location servers/services with the capability of providing in real-time an accurate premises location where available or alternatively an indication that the caller is at an unknown location.

***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.***

While not responding as an ECS provider, we would ask that the following observations be considered.

It is widely recognised that GNSS/A-GNSS has the potential to provide the most accurate location information however there are certain limitations in particular with regard to indoor locations, TTFF and the processing load placed on the user's device (and indeed its impact on available battery capacity). As a result Hybrid and Multi layered solution comprising a number of the technologies listed should be considered by ECS providers such that an immediate location can be provided to the Emergency Services and subsequently refined/updated in-call which would alleviate the issues associated with A-GNSS TTFF.

Where possible, A-GNSS solutions which offload the GNSS processing and calculations to a network based location server should be utilised in order to minimise the processing requirements and resultant battery drain on the user's device.

Control and communication of Location information supplied by a user's device should use "Control-Plane" methods where possible in order to minimise the potential for misconfiguration or other issues (e.g. data subscription misconfiguration or subscription/plan issues).



The Location technologies and services deployed should cater for the vast majority of network users including devices not originally supplied or managed by the ECS provider (i.e. purchased SIM and subscription free) and indeed International roaming visitors to the network.

The Location technologies chosen should cater (to the greatest extent possible) for national roaming emergency calls i.e. the best possible location should be available from a Network Operator for callers using their network to make an emergency call who are not subscribers of that network or not normally allowed to roam onto that network.

The current Cell-ID based approach will need to be maintained by all mobile network operators in order to provide the initial and coarse location required for emergency call routing purposes and as a fall-back when other location methods are unavailable.

The choice of the Technologies deployed to achieve the required Caller should be at the discretion of the ECS provider subject to the general requirements and accuracy and reliability criteria to be defined.

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***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.***

Whilst the Solution currently being trialled in the UK is huge step forward compared to the capabilities currently available in Ireland there are a some limitations to the approach which need to be recognised and are expected to present more of an obstacle in the Irish context than they would in the UK. While it is noted that Ofcom may have chosen to delay further decisions in this regard pending the outcome of this trial ComReg should be mindful that the solution being trialled does not represent a universally available solution for mobile caller location.

A 112 'App' based approach would offer similar functionality and has the potential to be more widely available (more smartphones, networks, and visitors) although an app based approach requires prior preparation on the part of the user and this is a barrier to widespread availability. An approach comprising a publicly available App which was pre-installed or part of the base smartphone build for new devices deployed by all operators may be worth considering as an additional component of the final caller location solution. An App or non-network based solution such as this may well form a part of the eventual solution and is a useful interim step but does not represent a universally available solution.

***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.***

Compliance with accuracy and reliability criteria for mobile services presents additional challenges to those associated with measurement of compliance for fixed line services. When using a fixed line service, the caller (in most cases) can be assumed to be in or associated with a premises and the

relevant premises is a fixed point which can be referenced. When using a mobile service however the callers actual location can literally be anywhere within the coverage area of the mobile Cell site in use. There are however a variety of mechanisms which can be used to measure the compliance with criteria for accuracy and reliability of ECLI for mobile services. This could be measured directly by the ECAS and/or the Emergency Services and indeed third parties in cooperation with the ECAS and Emergency services. While the precise approach will require detailed consideration some methods and metrics which should be considered are as follows:

- Availability of Mobile ECLI and the associated accuracy indicators for each mobile call from live emergency call data. This can be easily measured and reported.
- Call observation and sampling of Emergency Calls at the ECAS to determine the usability of the supplied mobile ECLI.
- Call handling metrics directly supplied by any emergency service which record the timestamps of relevant events in their case management systems (e.g. time call presented to call handler and time location confirmed for dispatch.)
- In order to fully and accurately measure the accuracy and reliability of Mobile ECLI provided by the mobile network operators it may be necessary to carry out “drive testing”. A proposed “drive testing” approach would incorporate a vehicle or number of vehicles equipped with accurate GNSS positioning which would automatically generate “test” emergency calls and record the actual location and time for each test call. The actual locations could then be compared with the mobile network derived/provided locations available to the ECAS and this would produce a realistic measure of the quality of the location information available at various locations (and types of locations – Urban/rural/remote) throughout the country. It is noted that ComReg have recently tendered for drive testing services which “will encompass measurements, on behalf of the Commission, on mobile telephony networks operating on (inclusive). all of the relevant licensed frequency bands<sup>2</sup> within the State”. Mobile ECLI accuracy measurement could be considered by the Commission as an additional feature of the proposed drive testing services.

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

The perceived complexity associated with the variety of technologies and approaches for determining a mobile caller’s location should not be considered a barrier to the provision of improved mobile ECLI. The specific technologies and approaches for the most part are considerations for, and the responsibility of the ECS providers. The basic requirement for the provision of ECLI, with its associated accuracy and reliability are the underlying requirement which must be met.

Standard protocols (MLP/LIF) exist for the transfer of mobile ECLI derived by mobile network operators to the Emergency services in a secure and controlled manner on a call by call basis. The use of standard protocols and interfaces which include accuracy indicators allow the ECS providers (both fixed and mobile) to implement the most appropriate technologies and approaches for their networks which will meet the required accuracy and reliability criteria.

***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.***

## **2 Eircom Limited**

**eircom Ltd.**

**Response to ComReg Consultation**

**Emergency Calls –  
Caller Location Information**

**Setting criteria for accuracy and  
reliability**



19 December 2014

## **DOCUMENT CONTROL**

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The comments submitted to this consultation are those of eircom Ltd (eircom) and Meteor Mobile Communications Ltd. (MMC), collectively referred to as eircom Group.

## Executive Summary

eircom welcomes this preliminary consultation seeking the views of stakeholders in relation to the future of emergency caller location information (ECLI) and recognises the importance of providing accurate location information which is as precise as is technically and economically feasible.

We also welcome the apparent coordination that is taking place between ComReg and the Department of Communications, Energy and Natural Resources (DCENR). We would urge this to be applied also to policy development. ComReg and the DCENR should be cognisant of the fact that decisions in respect of ECLI improvements could have competitive implications for the electronic communications sector in Ireland which in turn impacts Ireland's competitiveness. Irish ECS providers are already at a disadvantage relative to our European counterparts due to the imposition of ECAS funding. This would be compounded if investment is required in ECAS to achieve ECLI improvements, whereas this could be seen as an opportunity to consider the funding of ECAS from central taxation, thereby addressing the competitive imbalance that the Irish ECS sector currently faces.

We understand that both ComReg and DCENR are working in tandem to determine the precise requirements of the Emergency Services with regard to improvements to ECLI. In this context we stress the importance of ensuring that any enhancement to ECLI is developed with full consideration of the end to end implications, with respect to both the technical aspects and the timing of their introduction. Such timing should be determined by a coordinated delivery of any enhanced capabilities on devices, across electronic communications networks (ECNs), via the emergency call answering service (ECAS) as applicable and ultimately to the emergency services. There is no merit in enforcing new device standards or new obligations for ECNs in the absence of such end to end coordination. This is consistent with the views expressed in the draft CEPT report which seeks close collaboration, on an on-going basis, between PSAPs and emergency services organisations, service providers and the competent national authorities<sup>1</sup>.

We note that the CEPT/ECC report on matters related to improvements in ECLI will be focused on technical and cost-benefit perspectives. eircom understands that this preliminary consultation focuses on the exploration of the various technical options that are presented to it. Nonetheless we would also expect any subsequent consultation to fully assess and compare the merits of these various feasible options in the context of a thorough cost benefit analysis.

eircom agrees with ComReg's view that the current systems for providing fixed line ECLI through the provision of the subscriber's address and billing data is an effective and reliable solution. With regard to the planned introduction of the new Eircode post code system, eircom has yet to determine whether the Eircode system delivers sufficient commercial benefits to justify its immediate adoption. It would be premature for ComReg to mandate the implementation of Eircode at this point given that stakeholders have not yet been informed of the detailed workings of the new Eircode system.

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<sup>1</sup> [Draft ECC Report 225 – “Establishing Criteria for the Accuracy and Reliability of the Caller Location Information in support of Emergency Services”](#)

As regards the risk of geographic or social exclusion, ComReg refers to the risk of anomalies between urban and rural ECLI accuracy in a mobile context. A divide between urban and rural areas may be inevitable, simply because the range of options for delivering ECLI will likely be broader in urban areas and diminish across the spectrum of urban, suburban and rural areas, just as we see a decrease in the level of accuracy of contemporary cell based ECLI today. With regard to the suggestion that social exclusion might arise in respect of smart phone dependencies, eircom does not consider that a focus on smart phones as a means of delivering hybrid solutions would give rise to social exclusion, given the high penetration and the rapid rate of adoption of smartphones which is being driven by ever decreasing smartphone prices.

ComReg must also be mindful of the fact that Ireland has topographical and urban landscapes that are distinct to it. In light of this, it should not be assumed that the breath of solutions that may be deemed appropriate in other European countries would automatically be necessary in an Irish context. In particular, Ireland's urban landscape constitutes primarily low rise developments which present lesser challenges to Global Navigation Satellite System (GNSS). This in turn may result in a few if any complementary solutions such as network based or Wifi based solutions, given the absence of urban canyons.

ComReg presents two possible approaches to regulating for the accuracy and reliability of ECLI in paragraphs 56 and 57 of the consultation document. While the latter refers to third-party expertise which might suggest the adoption of international standards, neither gives comfort that ComReg favours common international standards in achieving mobile ECLI improvements. Such an approach would reduce the need for or extent of any specific national obligations. Furthermore, these options are presented in a general context. eircom understands that these should be considered specifically in the limited context of any network level supports for mobile ECLI improvements given the limited control that undertakings have in respect of end user devices operating on their networks.

It is likely that devices will play a pivotal role in delivering more precise mobile ECLI. ComReg outlines in paragraph 18 that the European Commission is already exploring solutions for mobile phone-based satellite navigation positioning for emergency calls 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"<sup>2</sup>. ComReg also refers to the BEREC work programme for 2014<sup>3</sup> which makes a brief reference to the activities of CEPT in this area while stating that it is important that NRAs lay down effective criteria for accuracy and reliability. eircom considers the latter statement to conflict with the recommendations contained in the draft CEPT document that was subsequently published during 2014. Through the BEREC work programme NRA's set an almost impossible task for themselves by seeking to establish accuracy and reliability criteria in advance of identifying the means by which accuracy improvements will be achieved. The draft CEPT report recognises that criteria cannot be established in a vacuum. eircom would urge ComReg to await the final CEPT report and full details of the aforementioned harmonisation Directive before attempting to set accuracy and reliability criteria.

As regards any future terminal equipment standards, eircom has consistently ensured compliance with European standards in respect of terminal equipment that it supplies.

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<sup>2</sup> COM(2012)0584-C7-0333/2012- 2021/0283 (COD)

<sup>3</sup> [Work Programme 2014 BEREC Board of Regulators BOR \(13\) 196](#)



However, as observed by ComReg in the consultation document, this would be the limit of any influence the ECS providers could have in respect of equipment that is used in the market. Many other sources of supply of end user terminal equipment exist. Therefore any compliance activity in this area may need to be more focused on manufacturers and “grey” routes of supply of such equipment into Ireland.

On the matter the current cell based systems that support mobile ECLI, eircom agrees that the current cell based systems for the provision of ECLI should be maintained until the European Commission has completed its work in this area in respect of the proposed delegated act that is planned for mid-2016.

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.

The draft ECC report considers various approaches to setting the criteria for accuracy and reliability but ultimately concludes that the choice of technological solution should be informed by the current requirements of the emergency services and statistics on the level of accuracy that is currently being achieved. It also suggests that criteria for accuracy and reliability with respect to the levels that should be achieved should only be established following the introduction of any new solutions for delivering emergency caller location information (ECLI). eircom concurs with this proposed approach.

Also in light of the above, we agree with ComReg's view that drive testing is not a feasible option for measuring the accuracy of mobile based ECLI. Drive testing would involve significant cost while delivering a myopic view. It would not provide a holistic measure of the end to end performance of the various contributors to the ECLI that is available to emergency services.

As regards the reliability of mobile network information that is currently provided, while Irish mobile operators are acutely aware of their regulatory mandate in this respect, even absent of this, they would be strongly motivated to ensure that location information in respect of base stations is accurate, as this is essential for network management.

With regard to the provision of ECLI in respect of roamers making emergency calls on Irish networks, the ECC report appears to suggest that this ECLI may not be provided in respect of roamers in Ireland. eircom is not aware of any such limitations, given that Irish mobile operators conform to the ECAS providers specifications<sup>4</sup> for data transfer which in turn comply with ETSI standards in respect of the Cell Global Identification (CGI). ECLI is derived from the CGI and this does not discriminate between roaming and native subscriptions.

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.

With regard to policy development, ComReg and the DCENR should be cognisant of the fact that decisions in respect of ECLI improvements could have competitive implications for the electronic communications sector in Ireland, which in turn impacts Ireland's competitiveness. Irish ECS providers are already at a disadvantage relative to our European counterparts due to the imposition of ECAS funding. In other jurisdictions the ECAS function is funded from central taxation. This would be compounded if investment is required in ECAS to achieve ECLI improvements.

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<http://www.btwholesale.ie/pdf/ECAS%20Mobile%20location%20information%20transfer%20specification%20Issue%204.1.pdf>

When considering policy in this area, this could be seen as an opportunity to consider the funding of ECAS, addressing the competitive imbalance that the Irish ECS sector currently faces.

In addition, eircom has previously highlighted the need for investment in the emergency services call handling centres with respect to efficiency in handing over calls from ECAS. The emergency services would likely have to invest in handling new ECLI capabilities such investment must be co-ordinated with any developments undertaken in respect of ECAS, network and device capabilities.

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.

eircom agrees with ComReg's view that the current systems for providing fixed line ECLI through the provision of the subscriber's address and billing data to be an effective and reliable solution.

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.

With regard to the introduction of the new Eircode post code system, eircom has yet to determine whether the Eircode system delivers sufficient commercial benefits to justify its immediate adoption once launched. It is not possible for stakeholders to assess the merits of the new Eircode system in the absence of information about the detailed workings of the new system.

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.

It would be premature for ComReg to mandate the implementation of Eircode at this point, given that stakeholders have not yet been informed of the detailed workings of the new system. Further consultation will be necessary following the publication of the workings of the Eircode 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.

eircom expects that a gradual migration to the Eircode system is likely whereby the new post codes (where available to it from its systems, for a particular address) would complement the current address information. This would minimise the risk of the emergency services being incorrectly routed as a result of an inaccurate Eircode being provided at any stage in emergency call handling. Once Eircodes are fully adopted, we would also expect traditional address information to be used in

conjunction with Eircodes for the foreseeable future. In light of this likely approach to their adoption, eircom considers it inappropriate to attempt to establish compliance criteria at this stage. Furthermore, any future consideration of compliance criteria should be preceded by analysis of the accuracy of ECLI in the context of the use of Eircodes.

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

eircom has no further input in respect of ECLI for fixed services at this time.

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. Emergency Calls – Caller Location Information ComReg 14/110

eircom's preliminary view is User Plane based GNSS appears to offer the greatest potential for improved location accuracy in an Irish context. Network control plane methods such as OTDOA have not been deployed widely and this is also true in the Irish market.

Whilst a user plane based GNSS solution will require sizeable investment to implement, its implementation is less onerous than the network control plane methods. User plane based GNSS also provides the greatest level of accuracy. It may also offers better future proofing as the greater reliance on the mobile terminal may facilitate enhancements that can be delivered organically as devices evolve. This may prove less costly than a reliance on network enhancements. A number of implementations are potentially feasible e.g. GNSS SUPL; A-GNSS SUPL or SMS based GNSS implementations, however, eircom believes that any solution that may be developed should be consistent with EU wide standards to ensure handset support.

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.

eircom agrees that the current cell based systems for the provision of ECLI should be maintained until the European Commission has completed its work in this area in 2016 (should the Commission ultimately address this through a delegated act as expected by mid-2016). Given the timeframe, it is unlikely that a similar trial could be completed before the European standards are adopted. There is also a significant risk that investments in a trial would become stranded, given the likelihood of the trial differing from the final European solution.

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.

ComReg presents two possible approaches to regulating for the accuracy and reliability of ECLI in paragraphs 56 and 57 of the consultation document. The first appears to be a more light touch approach whereby a standard would be defined and ComReg's assessment criteria established. Thereafter it would appear that each undertaking would be free to implement a solution appropriate to it. The second option is presented as a more structured approach informed by third-party expertise. While the reference to third-party expertise might suggest the adoption of international standards, neither gives comfort that ComReg favours common international standards for in achieving mobile ECLI improvements. Eircom urges ComReg to adhere to common international standards. Such an approach may remove the need to rely on any specific national obligations.

Furthermore, these options are presented in a general context. eircom believes that these should be considered specifically in the limited context of any network level supports for mobile ECLI improvements due to the limited control that undertakings have in respect of devices used on their networks. For reasons set out in this response, eircom favours user plane based GNSS solutions, in which case mobile devices will play a pivotal role in delivering more precise ECLI. ComReg outlines in paragraph 18 that the European Commission is already exploring solutions for mobile phone-based satellite navigation positioning for emergency calls 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"<sup>5</sup>. eircom has consistently ensured compliance with European standards in respect of terminal equipment that it supplies. However, as observed by ComReg in the consultation document, this would be the limit of any influence the ECS providers could have in respect of equipment that is used in the market. Many other sources of supply of end user terminal equipment exist. Therefore any compliance activity in this area may need to be more focused on manufacturers and "grey" routes of supply of such equipment into Ireland.

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

As outlined in the introduction to this response, ComReg must be mindful of the fact that Ireland has topographical and urban landscapes that are distinct to it. It should not be assumed that the breath of solutions that may be deemed appropriate in other European countries would automatically be necessary in an Irish context. In particular, Ireland's urban landscape constitutes primarily low rise developments which present lesser challenges to Global Navigation Satellite System (GNSS). This in turn may result in the need for few if any complementary solutions such as mobile network ECLI enhancements or Wifi based solutions, given the absence of urban canyons.

<sup>5</sup> COM(2012)0584-C7-0333/2012- 2021/0283 (COD)

Consideration also needs to be given to the probability that in urban areas there is a greater chance of the caller providing the location by relaying street names and other signage. Similarly, the likelihood of PSTN calls about any particular incident will be higher in urban areas thereby assisting in establishing a more precise fix on location even if mobile devices at or close to the scene cannot.

We refer in the introduction to this document to ComReg's suggestion that the increasing focus on smart phones as a means of delivering improvements to ECLI might give rise to social exclusion. eircom does not believe that this is a valid concern, given the high penetration and the rapid rate of adoption of smartphones, driven by ever decreasing smartphone prices. In response to ComReg's recent consultation on the ECAS call handling fee<sup>6</sup>, eircom set out numerous indicators suggesting that the penetration of smart phones among Irish mobile subscribers will be in excess of 70% by the end of 2014. This will continue to grow in advance of the introduction of enhanced ECLI solutions.

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.

eircom agrees with ComReg 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.

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.

eircom does not have any other information to hand to contribute at this time.

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<sup>6</sup> [http://www.comreg.ie/publications/emergency\\_call\\_answering\\_service\\_-\\_call\\_handling\\_fee\\_review.673.104709.p.html](http://www.comreg.ie/publications/emergency_call_answering_service_-_call_handling_fee_review.673.104709.p.html)

# **3 European Emergency Number Association (EENA)**



## **EENA Response to ComReg 14/110 Emergency Calls - Caller Location Information**

*Setting criteria for accuracy and reliability*

**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.**

EENA welcomes this first step by ComReg towards the setting of accuracy and reliability targets for emergency calls in Ireland. It is also encouraging to see that, as the "competent authority" on this topic, ComReg is leading the discussions which will hopefully manifest itself in a better quality of service for Irish citizens and visitors alike. EENA believes as the competent authority, ComReg has no discretion in setting these targets and therefore it should proceed accordingly.

It is worth remembering why ECLI is necessary; in the first instance it used to route the emergency call to the most appropriate PSAP and it is then used to ensure that the most expeditious intervention is executed by the emergency service. Thus, without knowing where to send the response vehicle and crew, the dispatcher is making decisions that are based on incomplete or erroneous information. This is particularly the case when the caller is distressed and/or unsure of their location.

The current provision of mobile ECLI allows for just cell-id. As a result the variables are too wide leaving the emergency service without an accurate address. This increases the address verification process time and results in a longer intervention time. The consequences of such incomplete information could be fatal for the caller. Knowing the location of the emergency can reduce radically the time of the intervention and medical research indicates that one minute reduction in response time improves the odds of survival by 24%<sup>1</sup>.

With respect to the definitions of accuracy and reliability, EENA believes this wording should be something within the gift of ComReg and should be robust, relevant and legally enforceable.

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<sup>1</sup> See Colin O'Keeffe, Jon Nicholl, Janette Turner, Steve Goodacre, "Role of ambulance response times in the survival of patients with out-of-hospital cardiac arrest" *Emerg Med J* doi:10.1136/emj.2009.086363 (available at [emj.bmj.com/content/early/2010/08/25/emj.2009.086363.abstract](http://emj.bmj.com/content/early/2010/08/25/emj.2009.086363.abstract))





**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.**

Apart from the documents referred to from the ECC, Ofcom etc, EENA would also point out to its own publication(s) on the issue and the relevant documents available on its website<sup>2</sup>.

ComReg should also be aware of the work going on with eCall and align any policy decisions associated with this Consultation with the work going on there, especially at a European level.

At a national level, EENA has noted with interest the recent report<sup>3</sup> by HIQA on the performance of the National Ambulance Services (NAS) and specifically the reference to the poor response times for high-risk calls and the time taken to reliably obtain the location of the incident. ComReg should also take note of this report and play its role in supporting the NAS (and the other emergency services).

In general, EENA believes ComReg should not specify the location technology that should be used but rather set the accuracy and reliability targets and allow the obligated undertaking to meet these targets according to its network type etc. The ECC recommended the use of GNSS as an overlay on the existing location information and EENA supports this view also.

A glide path for improving these targets should also be set along with the most expeditious timeframe possible.

**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.**

ComReg should be aware of the issue of location information from private networks or campus networks where the location address of the company PBX is provided to the emergency services, and not the branch address where the incident has occurred. This can result in the wrong address being presented to the emergency services and the resource being sent to the wrong destination. EENA believes that ComReg should also address this situation at the same time. Whilst the volume of such campus/private networks-originating emergency calls is unclear, in the US it is estimated to be approximately 14%.

On the same point, it is also often the case that the caller has to push another digit before 112 to access an outside line and to reach the emergency services e.g. 9-112. In this

<sup>2</sup> [http://www.eena.org/uploads/gallery/files/pdf/2014\\_11\\_21\\_EENA\\_2\\_2\\_2\\_v2\\_0\\_FINAL.pdf](http://www.eena.org/uploads/gallery/files/pdf/2014_11_21_EENA_2_2_2_v2_0_FINAL.pdf)

<sup>3</sup> <http://www.hiqa.ie/press-release/2014-12-02-hiqa-publishes-review-pre-hospital-emergency-care-services>



case, the caller could reach room 9112 or extension 9112 and not the emergency services. ComReg should also address how PBX vendors and ECN providers set-up campus networks and provide uninterrupted access to 112.

**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.**

Commercial location based services or commercial drivers to implement postcodes are the imprimatur of the ECS providers and whether they are revenue generating or otherwise is up to each carrier. Their commercial viability has no bearing on the obligation for location information to be provided by the presenting ECS provider.

**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.**

EENA has no view on the pending decision regarding postcodes in Ireland. However it would point out that postcodes have been existence for a long time in other parts of Europe and their introduction in Ireland should be seen as a positive move and not an impediment to progress.

**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.**

EENA refers to the USO data provided by the incumbent provider on its QoS performance as a methodology which could be used by each provider to self-declare its performance within a specific timeframe. ComReg could choose to audit these returns or have them audited independently. Regardless, ComReg should ensure above all that any non-conformance against the set targets are enforced appropriately.

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

Please note the comment above regarding campus/business networks in Q3. EENA also would point out to the issue of uninterrupted access where in some business networks (e.g. hotels) an additional digit to establish a dialling tone is often needed i.e. 9-112. In such a scenario, the additional number can place obstacles for accessing the emergency services and this should be considered accordingly.



**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. Emergency Calls – Caller Location Information ComReg 14/110**

It is EENA's view that handset-based location information using GNSS supported by cell-id information should be used. If there is other location information available from wifi points or other public information, it should also be used. Technology is not an impediment to obtaining the most accurate information available.

**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.**

EENA is aware of the trial referred to above and has studied the trial in some detail. EENA believes that ComReg should satisfy itself that this type of approach is sustainable in the long-term and would be legally robust and enforceable particularly if a similar solution was to fail in any way.

**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.**

As stated in response to Q6, EENA believes the approach taken to monitor the QoS performance of the USP by the USP and independently verified would also work. The performance should be fully transparent and regularly reported to ComReg and the Minister for Communications.

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

Historically mobile phone operators declared that the capex required to provide caller location information would be substantial but information presented to the European Commission previously, and more recently to the ECC, has showed that such costs are in fact not prohibitive. Technology has advanced in recent years in terms of reducing costs, providing more choice and better quality and therefore the argument about prohibitive investment needed to provide enhanced caller location information is null and void.

Citizens believe that when they make an emergency call, the emergency services know where they are calling from precisely. This is not the case. There have been many tragic cases where the outcome for the caller would have been better if enhanced caller location information was provided.



**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.**

EENA is following the ETSI Working Group M493, which is looking at a technical standard to resolve this issue. The various contributions and status of its work is available. It may be advisable to wait until this work is complete before addressing this item.

**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.**

Please see answer above.

ENDS

European Emergency Number Association ([www.eena.org](http://www.eena.org))  
Brussels, Belgium  
17/Dec/2014

## **4 Global Position Intelligence**

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**From:** Gary Delaney <g1@gpint.net>  
**Sent:** 19 December 2014 16:41  
**To:** retailconsult  
**Subject:** Emergency Calls - Caller Location Information

Dear Sir/Madam,

I have just become aware of the Preliminary Consultation document and therefore do not have a chance to compile a full considered reply.

However I would like to respond with the following quick thoughts:

1. In considering the sources of caller Locations, I would strongly recommend that the manner in which the Location information is shared across technologies and agencies must also be considered carefully and some standard applied. Globally, location information is defined in multiple potentially confusing formats leaving information open to miscommunication and misinterpretation when humans have to be involved in the loop. In the complete emergency management scenario, automated transfer of information is not always possible and therefore the means by which information, including location information in this case, is managed must be carefully specified and standardised. In my own long experience in the positioning industry, I have seen many mistakes in the misinterpretation of position information by humans even when sourced from technological solutions. Few applications are life critical except when it comes to e-services so it is all the more important that this be considered fully.
2. TTFF is critical in this case. It is all the more important because of the increasing privacy awareness associated with communications devices and a growing trend for phone users to switch off GPS services when not required not only for battery saving but also to prevent access to location information by 3<sup>rd</sup> parties. When switched off GPS/GNSS, if not assisted, can take several minutes to be useful after switch on (assuming remote switch on is possible). It is also worth noting that the first fix may be in error for numerous reasons. Nowadays, also the implications of growing use of Jammers must also be taken into account;- GPS/GNSS Jammers as well as GSM/GPRS Jammers may prevent the determination of location information.
3. With respect to Precision and Accuracy – these are well defined in the world of positioning and precision is only relevant in that it indicates the type of resolution to which the position is expressed – it is not indicator of position accuracy. Position accuracy is normally statistically expressed in the form of CEP, 2dRMS and 2dRMS 50%, 68% and 95% probability and in terms of circular error (Range) or 3D error in some cases. Whilst reliability is also a consideration it would normally be considered in terms of “availability” coupled with the idea of “integrity” and the possibility of RAIM – remote Autonomous Integrity Monitoring may also be a consideration, which in the GPS/GNSS/eLoran world can be done using Differential GPS. In the sphere of caller Location, a National authority may chose to establish reference stations to monitor integrity of Cell ID and other non satellite based location sources to assist.
4. I did a study (for a state agency) on GSM/GPRS availability in coastal areas a few years back and identified its unsuitability at the time for safety critical communications. This may well have improved at this point but it is well documented that these technologies used for communications and Cell ID lack availability and integrity for safety critical applications. They may also vary in capability in relation to weather conditions, time of year, emergency and other events.
5. Whilst mention of Eircode is made in the Consultation document, this postcode solution, if implemented, will have many limitations especially for emergency management. Eircodes will be restricted to properties

that receive mail only and will only be determinable by access to a database. They will not be calculable from coordinates unless by interrogation of a database and then only if privacy restrictions permit. Location Codes such as Loc8 may prove more useful for emergency use and are already in use for Major Emergency Plans and on signs associated with public safety infrastructure such as on Ringbuoys by water courses.

6. National caller Location Information policy must also consider how Location information can be identified without technology. Loc8 has shown a lead in this by simply printing Location Codes on Public safety infrastructure in such a way as it is easy for a caller to read out the code as they see it – no technology needed to determine location whatsoever. For this reason coordination with Local Authorities, Irish Water Safety, HSE, NRA, HSA and many others is required in order to formulate a considered and comprehensive national policy. Integration with National emergency communications networks such as TETRA must also be considered.
7. In addition to GPS/GNSS/Cell ID and Physical Location Coding, other technologies must also be considered. eLoran will form an associate part of the GNSS technology suite into the future. Furthermore, solutions which determine location information from smartphone tethered links (wifi is one example only) are likely to form the basis of location identification in the short to medium term future also.

For your consideration

**Gary Delaney**

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## **5 Hutchison 3G Ireland Limited**



# **Emergency Calls**

Caller Location

## **Response from Three**

ComReg Document 14/110



**Three.ie**

## Introduction

Three welcomes the approach ComReg is taking in this review of caller location for emergency calls. We think in this case it will be useful to obtain the initial views of all interested parties before making any firm proposals. If any improvements are to be made to the current arrangements, then it is the case that all operators, the ECAS service provider, and the emergency responders will need to work together to make sure that all involved are working to the same standards and procedures.

At this time, it is not known what improvements could be implemented by either the network operators (fixed or mobile), the ECAS, or the emergency responders (Gardaí, Fire, Ambulance, Coast Guard). It would be useful for ComReg to arrange a workshop involving all of the above, soon after publishing the responses to this consultation. As mentioned below, it would also be useful to invite some participants from the UK trial to also join that workshop to share information on the trial and also plans for subsequent roll-out.

Three will participate in any broad initiative to review the provision of caller location for emergency calls.

## Setting the Context

The requirements for provision of location information for emergency calls is set out in the Universal Service Regulations<sup>1</sup> which transpose the relevant Articles from the Universal Service Directive<sup>2</sup>. The salient requirements are given in Regulation 20 (3) and 20 (4):

(3) 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.

(4) For the purpose of paragraph (3), 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.

In determining how these obligations should be interpreted, it is useful to also refer to recitals 39 and 40 of the Directive:

### Recital 39

In order to respond to technological developments, including those leading to increasingly accurate caller location information, the Commission should be empowered to adopt technical implementing measures to ensure effective access to ‘112’ services in the Community for the

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<sup>1</sup> S.I. 337 of 2011

<sup>2</sup> 2009/136/EC

benefit of citizens. Such measures should be without prejudice to the organisation of emergency services of Member States

Recital 40

For network-independent undertakings, caller location information may not always be technically feasible. Once internationally-recognised standards ensuring accurate and reliable routing and connection to the emergency services are in place, network-independent undertakings should also fulfil the obligations related to caller location information at a level comparable to that required of other undertakings.

Clearly, there is an obligation on network operators and service providers to provide caller location information to the emergency services, however the specification of precisely how that should be done has not been included in the legislation. Instead, ComReg has a function to lay down the criteria that should apply, in consultation with the Minister. This allows ComReg to take a practical approach, and to also take account of developments in the technologies used by callers, network operators, and the emergency responders. The criteria laid down by ComReg can be varied from time to time to take account of the technological context.

There is of the view that whatever process is in operation at any time should be the one that delivers the most practical benefit, while being proportional. For example there would be no point in network operators implementing a very precise solution that could not be used by the emergency responders.

The first step in considering how caller location should be delivered should review how location is used by the emergency responders, and where an improvement could deliver the greatest benefit. Among other things, this would answer the following questions:

- For what number or percentage of calls is location used by emergency responders at the moment?
- Is location used for finding the caller, or just for routing calls to the correct call centre?
- Is the current location information sufficient to identify the correct location where there are duplicate location names? e.g. there are several townlands in Ireland with the name, like Newtown or Cashel.
- Is the current solution reliable, even if not as precise as might be desirable?
- What technology do the emergency responders have or plan to deploy to use location information, and can ECAS support this?
- Which is more important, speed or accuracy? Or is it the case that a longer time for first fix is acceptable in cases where a precise location is needed, but a more general location delivered quickly is more useful for most calls?
- Does the solution need to work indoors, or outdoors only?

Three would welcome the opportunity to discuss the above considerations with ComReg, the Department, ECAS, and the emergency responders, and we believe some form of workshop would be the best way to proceed.

We note the requirement in Regulation 20(3) that caller location should be provided “as the call reached that authority”. We think it would be a mistake to take too literal an interpretation of what this means for the practical delivery of location for live calls. We should not rule-out the provision of more precise location information if that was beneficial, but could not be delivered on call initiation.

This consultation presents an interesting dilemma – should we take advantage of developments in technology that can enhance the provision of location information, even if it is not useable by 100% of callers? Three is of the view that we should, so long as it would be expected to be of benefit to most callers within a reasonable timeframe. In practice it will never be possible to deliver a precise location for 100% of calls, even with the most basic solution and we should accept that the maximum overall benefit will be gained by using technology where it is available, rather than holding every call down to the “lowest common denominator”.

The recent trial by mobile operators in the UK looks very interesting, and Three understands that this is now progressing to implementation. We accept that there may be some uncertainties regarding whether this will become a standardised European solution, however we believe this should be given consideration in Ireland. Three recommends that participants from the UK should be invited to present information on the solution either to the ECAS forum, or to the workshop referred to above.

Finally, Three would caution that the current solutions in place for both fixed and mobile seems to work reliably and provide location quickly. Even if we are to consider enhancements, we should be careful not to do anything that would take away from the current solution. We recognise that the current solution for mobile depends on cell size, and that a typical cell in a rural location will have a greater coverage area (in square metres). We would also point out that it would seem necessary to have greater precision in urban than in rural areas (it could be as difficult to identify a premises within 1 square kilometre in Dublin as within 10 square kilometres in a rural area).

## **Response to Specific 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.

As stated above, this can only be decided upon following discussion with the emergency responders. We need to understand in what circumstances location is used, what proportion of calls need a precise location, and if there are typical circumstances or types of call where it is more important. The emergency responders also need to explain the trade-off between TTF and precision.

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.

Three believes the recent trial in the UK should be investigated to see if it is appropriate for adoption in Ireland.

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.

Three does not have any information regarding how well the current information meets the requirements of the emergency responders in practice. It will be interesting to have this clarified as part of ComReg's review process.

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.

Yes, Three believes service providers will migrate to use of postcodes as standard. There may be some delays in commencement as IT systems are modified to accommodate the new code. We also believe there will be a gradual increase in the proportion of installations that have a postcode, as this will be built up through contact with the customer.

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.

Yes, Three agrees. We believe it is important to emphasise "where available" and do not believe there should be a requirement to force operators to try to acquire postcodes or to automatically apply postcodes to existing databases, as this could lead to errors being recorded.

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.

We note ComReg's proposal regarding event-based testing, but would have doubts as to how useful this would be in practice. Given that it would require an extra task to be carried out by the emergency responder, it might be undesirable.

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

Three believes it would be useful to know what volume or proportion of calls to the emergency services are originated from VoIP based services, and whether the absence of location has been an issue.

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.

There are strengths and weaknesses associated with each of the technologies listed. In the first place, Three believes the current Enhanced Cell ID solution is reliable and fast, and almost universally available, although may not provide a very precise location. We should be careful not to harm this functioning solution in an attempt to improve accuracy. Three also believes it would be disproportionate to require operators to undertake major network modifications in an attempt to improve accuracy, unless it is shown that this would be used and be beneficial. Considering the technologies listed:

- GNSS can provide an accurate location, however there can be a delay in the time to first fix. This wouldn't necessarily be a problem if it was possible for the emergency responders to query the location either during or after the call rather than having it available on initiation. It seems any issues regarding battery life have been adequately considered already in the UK. The final drawback is that not every mobile handset will be GNSS enabled, though the majority will.
- Cell ID is fast and reliable, though not very precise. If location is simply used to disambiguate between multiple occurrences of the same place name, then Cell ID is sufficient.
- WiFi access point and Femtocell location can give a precise location, though there may be some dependence on the end user having installed the router at the stated location.

- Bluetooth wireless beacons would seem to be of very limited benefit, and we remain to be convinced that they should be considered further.

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.

As previously stated, Three views this as an interesting initiative that should be examined further. Three is willing to participate in any similar trial or evaluation 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.

Three believes the requirement to provide location information must take into consideration the network and technology in use by each network operator and service provider. It would not be appropriate to attempt to measure the accuracy or reliability of information provided on a statistical basis, however where ComReg is notified that any service provider may have a general or systemic issue that means location information is not satisfactorily provided, then ComReg should investigate and take enforcement action as appropriate given the context.

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

No further comment.

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.

It would be useful to know what volume or proportion of emergency calls originate from these services.

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

No further comment.

End.



## **6 Telecommunications and Internet Federation (TIF)**

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**From:** emer.condon@ibec.ie  
**Sent:** 17 December 2014 15:12  
**To:** retailconsult  
**Subject:** TIF response to ComReg Document 14/110

Dear sir/madam,

I refer to the preliminary ComReg consultation 14/110 on Emergency Calls - Caller Location Information. The members of the Telecommunications and Internet Federation (TIF) are happy to respond and facilitate the consultation process response in any way it can.

However, TIF members believe that this is a topic where operators will need to work together and ensure that all operators adopt the same solution.

Therefore, before making any decisions, TIF requests that a workshop with the operators, ComReg, DCENR, and the Emergency Responders in attendance be organised to discuss the issues at hand before responding to this consultation.

We look forward to hearing from you.

Kind regards,  
Emer

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## **7 Vodafone Limited**



**Vodafone Response to ComReg Document 14/110: Emergency Calls – Caller Location Information. Setting criteria for accuracy and reliability.**



## Introduction

Vodafone welcomes the opportunity to give its preliminary views on matters relevant to the setting of criteria for accuracy and reliability of emergency call location information (ECLI). Vodafone recognises that this preliminary consultation takes place at a time when there are a number of European initiatives in this area and 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 the context of caller location.

Vodafone's preliminary position in relation to the specific issues raised in the consultation document is set out in full in response to the consultation questions below. Given the formative stage of the wider process Vodafone's response is of necessity at a high level. In addition Vodafone would welcome the opportunity to have a bi-lateral in depth conversation with ComReg on the issues raised.

Vodafone confirms that it is fully committed to working with all stakeholders to achieve the best outcome for society in general and it is fully aware of the very important societal impact of this consultation.



## Responses to individual questions

- 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.**

Vodafone agrees that a definition of “accuracy” and “reliability” will be required but we consider that ComReg should be guided by the outcome of the CEPT work in this area and any guidance that is forthcoming from BEREC. Vodafone thinks that any such criteria will have technical and cost-benefit aspects to it and should be examined in full detail before ComReg lays down any specific criteria. Similarly Vodafone is of the view that it is too early to comment on how compliance might be assessed considering that the actual criteria has yet to be agreed. Vodafone has no substantive issue with the definition of TTF set out at paragraph 12 of the consultation however Vodafone would like more detail as to why ComReg considers that TTF required by the Regulations is very short.

- 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.**

Vodafone is of the opinion that it delivers accurate and reliable information for locating the user calling to the emergency centre. Vodafone is not considering new changes on its system, however if following consultations ComReg lays down specific criteria relating to ECLI obligations, then Vodafone will develop the changes which should be proportionate, rational and implemented at a European level.



**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.**

Vodafone agrees with ComReg's preliminary view that there are currently no material issues relating to ECLI installation information. Clearly for multi-site accounts the billing and installation information may be different and so ECLI based on billing information may not be as reliable as that based on installation information.

**4. In respect of the frequency of database updates this will only cause issues in two scenarios. 1) where there is a new installation: in this case the scale of the risk relates to the probability that there will be an emergency services call between the line activation date and the database update date. Provided that this is of limited duration the probability appears to be low and a view must be taken of the practicality of (near) real time updating of information 2) where the customer moves premises retaining their telephone number. The risk here is similar in nature and scope to scenario 1. 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.**

In general Vodafone agrees that there may be commercial drivers to incentivise the implementation of eircodes by ECS providers however Vodafone re-iterates that the requirement is not mandatory but that Vodafone would where possible use them for ECLI.

We would note that in a recent presentation by the eircode concession operator to Industry (hosted by ComReg) the non-mandatory use of the eircode by end-users was reiterated. Therefore undue reliance should not be placed on its availability for use by emergency services.



**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.**

Vodafone agrees that where eircodes are available in operators' customer databases then they should be provided for ECLI purposes and we would not see that as an increased regulatory burden. However there may be some IT development required both by Undertakings and ECAS and Vodafone would suggest that there should be a transition period that ECS continue to use standard address until eircodes are ready to be fully implemented.

**6. ComReg would welcome any 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.**

As stated previously Vodafone cannot comment on the compliance aspect of the accuracy and reliability criteria for fixed services until such criteria is defined. Vodafone reiterates that any improvement of existing processes should be proportionate and rational.

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

With the increase in the prevalence of OTT VOIP providers, consideration should be given to the proportionality of any obligations so that providers of the access layer do not carry a disproportionate share of the burden of providing location information. For example services, such as Skype, bypass allow bypass of traditional voice revenues for network operators. However these network operators become the carrier of last resort for emergency services calls bearing the costs of this without being able to recover these costs from the wider pool of retail call revenue.





**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.**

Vodafone has submitted the list of technologies to our technology team to examine in further detail. As all ECS providers will have to work with this solution Vodafone would be open to a technical workshop with all relevant stakeholders to discuss the technologies and their suitability and feasibility in an Irish context.

**9. ComReg is interested in the views of respondents on the technical and regulatory aspects of the current 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.**

Vodafone would prefer to see the outcome of the trial before commenting in any detail on the technical and regulatory aspects.

**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.**

As stated previously Vodafone thinks that any compliance mechanisms should be fair and reasonable. Vodafone considers that possible compliance mechanisms will be dictated to by the actual criteria that is set.

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



Vodafone notes that many of the suggestions for the provision of improved accuracy from mobile callers are dependent on factors outside of the control of mobile operators including terminal capability (GPS) and external networks such as WiFi. In this context the extent of an Undertaking's obligations can only relate to the faithful forwarding of externally generated location data. There may also be issues relating to the time it takes for these external facilities to generate the location data and this must also be factored into any considerations on whether these mechanisms can be reliably used by ECAS.

**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.**

The provision of location information by VOIP providers who tie the VOIP service to a particular NTP should be not different to the provision of location information by traditional PSTN providers i.e. the originating CLI will be related to the installation address of the NTP.

In respect of VOIP providers which have a nomadic capability some flag will be required indicating that location information based on geographic CLI is not a reliable indicator of location for these end users.

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

With the increase in the prevalence of OTT VOIP providers, consideration should be given to the proportionality of any obligations so that providers of the access layer do not carry a disproportionate share of the burden of providing location information. For example services, such as Viber, bypass allow bypass of traditional voice revenues for network operators. However these network operators become the carrier of last resort for emergency services calls bearing the costs of this without being able to recover these costs from the wider pool of retail call revenue.