

**Department of Communications
Energy and Natural Resources**

**Mobile Location
Information**

**Provided in association
with
an Emergency Call**

Part I – Transfer

Issue Ver 4.1

Document No.

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V2.1	Updated Value to be used where LAC is not available	BT	5 June 2009
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Draft 4.0	Incorporate LTE CGI format in existing 2/3G specification	BT	16 April 2014
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1 Purpose of this Specification

This document describes the method of transferring mobile location information from a mobile network to the Emergency Call Answering Service (ECAS) in Ireland, for the purpose of handling an Emergency Call.

Where appropriate, mobile location information may be further transferred from the ECAS to the Emergency Services in association with an Emergency Call.

The mobile location information transferred is the Cell Global Identification for both 2/3G and LTE mobile Cells.

Part 2 of this specification addresses the information required for the conversion of Cell Global Identification (CGI) to geo-coordinates.

2 Scope of this Specification

As the network identification elements of the Cell Global Identification may also be used by a transit operator (eg. eircom) for the identification of the network originating an Emergency Call, these elements will replace the current network suffixes specified in eircom's Reference Interconnect Offer¹. See Section 5.

This specification shall cover all Emergency Calls from mobile networks.

Mobile operators shall implement this specification whether or not they provide mobile caller location information.

3 Cell Global Identification

3.1 Cell Global Identification standard

The Cell Global Identification shall comply with appropriate ETSI standards.

3.2 Cell Global Identification structure

3.2.1 2/3G Mobile Cells

The 2/3G Mobile location information structure is as follows:

MCC-MNC-LAC-CI where:

MCC is the Mobile Country Code (272 for Ireland)

MNC is the Mobile Network Code

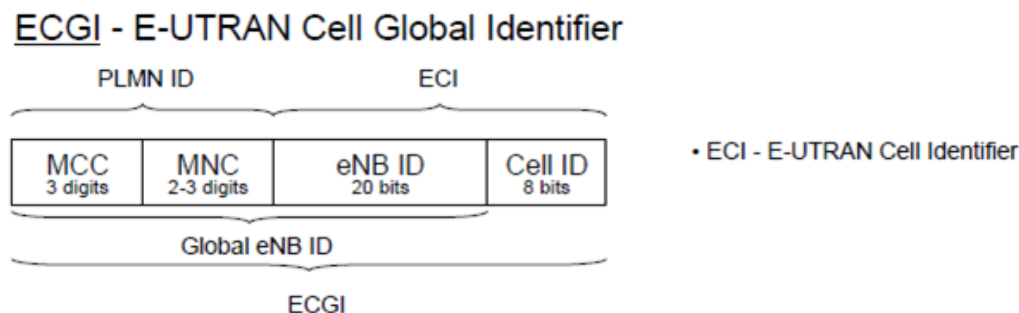
LAC is the Location Area Code

¹ See Section 5.3 of Eircom – OAO Interconnect Network Plan

CI is the Cell Identity

3.2.2 LTE Mobile Cells and CGI

The LTE Cell Global Identifier (CGI) is shown in the following diagram



MCC – As for 2/3G networks and is expected to have the value ‘272’ for all Irish mobile network operators

MNC – 2 digits to be used and should be consistent with the 2/3G mobile network code used by each operator.

eNB ID – 7 Digits

Cell ID – 3 Digits

4 Coding of Mobile Location Information in the B Number

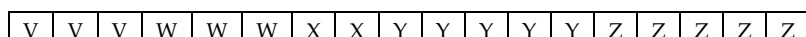
When connecting an Emergency Call to the ECAS, Cell ID must be supplied with the call by means of appending the Cell ID and LAC digits to the B-Number or called number of the Emergency Call.

In appending the Cell ID information to the B-Number for the Emergency call, operators should ensure that the required digits are appended to the number *directly following* the 112 or 999 shortcode.

Any extra digits dialled by the caller following the 112 or 999 shortcode should be stripped from the B-Number by the mobile network operator prior to appending the Cell ID digits. This means that B-Number for all Emergency calls presented to the ECAS should be exactly 18 digits as described in this specification.

4.1 Digits sent where mobile location information is available from a 2/3G Cell

The following B-number shall be sent from a mobile network to the ECAS when an Emergency Call is being made using a 2/3G Cell and location information is available:



Where the digits have the following meaning:

	Meaning	Digits	Coding	Value	Notes
VVV	Emergency Number	3	decimal	112	Fixed
WWW	Mobile Country Code	3	decimal	272	Fixed
XX	Mobile Network Code	2	decimal	01 - Vodafone, 02 - O2 03 - Meteor 05 - H3GI	Or other values assigned by ComReg.
YYYYY	Location Area Code	5	decimal	1 to 65532 Set by mobile operator	
ZZZZZ	Cell Identity	5	decimal	1 to 65533 Set by mobile operator	
	Total	18			

Note 1: Decimal fields should be padded with zeros from the left, if necessary.

Table 1: B-Number where mobile location information is available from 2/3G Cell

Example

112 272 01 03011 32400 (spaces are included for clarity)

4.2 Digits sent where mobile location information is available from an LTE Cell

The following B-number shall be sent from a mobile network to the ECAS when an Emergency Call is being made using an LTE Cell and location information is available:

V	V	V	W	W	W	X	X	Y	Y	Y	Y	Y	Y	Y	Z	Z	Z
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Where the digits have the following meaning:

	Meaning	Digits	Coding	Value	Notes
VVV	Emergency Number	3	decimal	112	Fixed
WWW	Mobile Country Code	3	decimal	272	Fixed
XX	Mobile Network Code	2	decimal	01 - Vodafone, 02 - O2 03 - Meteor 05 - H3GI	Or other values assigned by ComReg.
YYYYYYY	eNB ID	7	decimal	1 to 1048575 Set by mobile operator	7 Digits representing the LTE eNB ID (20 bits)
ZZZ	Cell Identity	3	decimal	1 to 255 Set by mobile	3 Digits representing the

				operator	LTE Cell Identity (8 bits)
	Total	18			

Note 1: Decimal fields should be padded with zeros from the left, if necessary to fill the required number of digits.

Table 2: B-Number where mobile location information is available from LTE Cell

Example

112 272 01 1234567 123 (spaces are included for clarity)

4.3 Digits sent where mobile location information is not provided or unavailable

The following B-number shall be sent from a mobile network to the ECAS when an Emergency Call is being made, and location information is not provided or unavailable:

V	V	V	W	W	W	X	X	Y	Y	Y	Y	Y	Z	Z	Z	Z	Z
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Where the digits have the following meaning:

	Meaning	Digits	Coding	Value	Notes
VVV	Emergency Number	3	decimal	112	Fixed
WWW	Mobile Country Code	3	decimal	272	Fixed
XX	Mobile Network Code	2	decimal	01 - Vodafone, 02 - O2 03 - Meteor 05 - H3GI	Or other values assigned by ComReg.
YYYYY	Location Area Code	5	decimal	65533	LAC not provided or unavailable.
ZZZZZ	Cell Identity	5	decimal	65534	CI not provided or unavailable.
	Total	18			

Note 1: Decimal fields should be padded with zeros from the left, if necessary.

Table 2: B-Number where mobile location information is not provided or unavailable

Example

112 272 01 00000 00000 (spaces are included for clarity)

5 Network Suffixes

The network suffix for an Emergency Call is given by digits WWWXX of the B-number:

V	V	V	W	W	W	X	X	Y	Y	Y	Y	Y	Z	Z	Z	Z	Z
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

The implementation of this specification will result in the existing network suffixes used for Emergency Calls² from mobile networks being replaced by the suffixes given in the Table 3 below.

Suffix	Operator
WWWXX	
27201	Vodafone,
27202	O2
27203	Meteor
27205	H3GI

Table 3: Network suffixes for Emergency Calls from mobiles

6 Implementation issues

1. The eircom Reference Interconnect Offer network suffixes, will need to be revised to reflect the change in Network suffixes.
2. The existing eircom 999/112 call handling service will need to be modified to handle the new Emergency Call digits.
3. Transit networks, including eircom's, will need to be modified to handle the new Emergency Call digits.
4. During a transition period both the old and new Emergency Call digits will need to be supported. Some mobile networks may need to send both formats for an interim period.
5. Mobile operators are unlikely to be using the LAC and CI values of 00000, 65533, 65534 or 65535, however if allocated, the values would need to be changed to comply with this specification.

End of Document

² Network suffixes are used by eircom to determine the originating network for an emergency call.