

**COMMUNICATIONS
ALLIANCE LTD**



INDUSTRY GUIDELINE

G557.6:2019

Location Information for Emergency Calls

Part 6: Advanced Mobile Location (AML)

G557.6:2019 Location Information for Emergency Calls Part 6: Advanced Mobile Location (AML) Industry Guideline

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INTRODUCTORY STATEMENT

The **Location Information for Emergency Calls Part 6: Advanced Mobile Location (AML)** Industry Guideline (G557.6:2019) is designed to:

- specify the arrangements for the transfer of Advanced Mobile Location (AML) information which is received from IMT Customer Equipment (CE) in accordance with AS/CA S042.1 associated with calls in Australia to 000 and 112 between Mobile Carriers and the Emergency Call Person (ECP) for 000 and 112; and
- specify the transport mechanism for the transfer of AML information between Mobile Carriers and the ECP for 000 and 112.

Michael Ryan
Chair

Advanced Mobile Location Inter Carrier Interface Working Committee

DECEMBER 2019

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1 GENERAL

1.1 Introduction

- 1.1.1 The development of the Guideline has been facilitated by Communications Alliance through a Working Committee comprised of representatives from the telecommunications industry.
- 1.1.2 The Guideline has been developed to support:
- (a) the Government announcement of 22 October 2018 that the Department of Communications and the Arts is in discussion with Telstra, in its role as the Emergency Call Person (ECP) for 000 and 112, to implement "*Advanced Mobile Location (AML) to provide more accurate location information by automatically sending coordinates*" from IMT CE to the ECP.
 - (b) The interest of the National Emergency Communications Working Group Australia / New Zealand, which includes representatives of Emergency Service Organisations (ESOs) and Carriers, in the implementation of AML.

NOTES:

1. The Ministerial announcement of 22 October 2018 is available from <https://www.minister.communications.gov.au/minister/mitch-fifield/news/triple-zero-investigation-reports-released>

2. Refer to other parts of G557 for information on other forms of location information associated with emergency calls from IMT CE.

- 1.1.3 The Guideline should be read in the context of other relevant Industry Codes, Standards, Guidelines and documents.
- 1.1.4 The Guideline should be read in conjunction with related legislation and determinations, including:
- (a) the *Telecommunications Act 1997* (the Act);
 - (b) the *Privacy Act 1988 (Cth)*; and
 - (c) *Telecommunications (Emergency Call Service) Determination 2019* (the Determination).
- 1.1.5 If there is a conflict between the requirements of the Guideline and any requirements imposed on a Supplier by statute, the Supplier will not be in breach of the Guideline by complying with the requirements of the statute.
- 1.1.6 Compliance with this Guideline does not guarantee compliance with any legislation. The Guideline is not a substitute for legal advice.

- 1.1.7 Statements in boxed text are a guide to interpretation only and not binding as Guideline rules.

1.2 Scope

- 1.2.1 The Guideline applies to the Carriers and Carriage Service Providers (CSPs) sections of the telecommunications industry under section 110 of the Act.
- 1.2.2 The Guideline deals with the following telecommunications activities as defined in section 109 of the Act:
- (a) carrying on business as a Carrier; or
 - (b) carrying on business activities as a CSP; or
 - (c) supplying goods or service(s) for use in connection with the supply of a Listed Carriage Service.
- 1.2.3 The Guideline applies to:
- (a) Mobile Carriers; and
 - (b) The Emergency Call Person (ECP) for 000 and 112.
- 1.2.4 The Guideline does not apply to ESOs.
- 1.2.5 The Guideline does not apply to the ECP for 106.
- 1.2.6 The Guideline does not apply to CE vendors.
- 1.2.7 The Guideline does not apply to AML requirements for Emergency Calls:
- (a) to 106;
 - (b) from services which are not a Public Mobile Telecommunications Service (PMTS);
 - (c) from Voice over the Internet Protocol (VoIP) services that are PMTS but operate independently of a Mobile Services Switching Centre (MSC) or Mobile Switching System (MSS) (e.g. 'over the top' of an underlying mobile data service);
 - (d) from CE for which the Mobile Carrier is unable to determine the unique calling line identification (CLI), e.g. no Subscriber Identity Module (SIM) or SIM not authorised to roam on the visited Public Land Mobile Network (PLMN);
 - (e) International Authorised Roamers (inbound or outbound);
 - (f) National outbound Authorised Roamers; and
 - (g) From IMT CE or services that do not register for a Short Message Service (SMS) or enable for SMS (i.e. user opts out for SMS, under financial barring).

- 1.2.8 The Specification does not deal with situations where a Mobile Carrier is technically unable to transfer an AML Short Message (SM) due to a matter beyond its control, including:
- (a) when the network(s) of the Mobile Carrier and/or the ECP are experiencing major faults such as the failure of an MSC/MSS, or data links to the ECP; or
 - (b) there is a level of SM traffic above the forecast of a Mobile Carrier.

NOTES:

1. When a Mobile Carrier is unable to transfer an AML SM, the MoLI based on G557.2, G557.4 and G557.5 may still be available.
2. Refer to AS/CA S042.1 for AML requirements for IMT CE.
3. At the time of publication of this Guideline, AS/CA S042.1 was being updated to include requirements that align with ETSI TS 103 625.

1.3 Objectives

- 1.3.1 The objectives of the Guideline are to:
- (a) Specify the arrangements for the transfer of an AML SM which is received from IMT CE in accordance with AS/CA S042.1:
 - (i) associated with calls in Australia to 000 and 112; and
 - (ii) between Mobile Carriers and the ECP for 000 and 112;
 - (b) Specify the transport mechanism for the transfer of an AML SM from a Mobile Carrier to the ECP for 000 and 112.

NOTE: The European Emergency Number Association originally specified the format of an AML SM (refer to <https://eena.org/aml/> for more information). The set of AML attributes is defined in ETSI TS 103 625. At the time of publication of this Guideline, AS/CA S042.1 was being updated to include requirements that align with ETSI TS 103 625.

1.4 Guideline review

- 1.4.1 The Guideline will be reviewed after 5 years of the Guideline being published and every 5 years subsequently, or earlier in the event of significant developments that affect the Guideline or a chapter within the Guideline.

2 ACRONYMS, DEFINITIONS AND INTERPRETATIONS

2.1 Acronyms

For the purposes of the Guideline:

ACMA

means Australian Communications and Media Authority.

AML

means Advanced Mobile Location.

CE

means Customer Equipment.

CLI

means Calling Line Identification.

CSP

means Carriage Service Provider.

DOS

means Denial Of Service

ECP

means Emergency Call Person.

EENA

means European Emergency Number Association.

ESO

means Emergency Service Organization.

ETSI

means European Telecommunications Standards Institute.

IMT

means International Mobile Telecommunications.

MoLI

means Mobile Location Information.

MSC

means Mobile Switching Centre.

MSS

means Mobile Switching System.

O&M

means Operations and Maintenance.

PLMN

means Public Land Mobile Network.

PMTS

means Public Mobile Telecommunications Service.

SIM

means Subscriber Identity Module.

SM

means Short Message.

SMS

means Short Message Service.

SMPP

means Short Message Peer to Peer.

SMSC

means Short Message Service Centre.

VoIP

means Voice over the Internet Protocol.

2.2 Definitions

For the purposes of the Guideline:

Act

means the *Telecommunications Act 1997 (Cth)*.

Authorised Roamer

means a subscriber whose PLMN is present in roaming agreements at the gateway station to which the subscriber is attempting to reregister.

<i>NOTE: Refer to ETSI TS 101 376-3-19.</i>

Carriage Service Provider

has the meaning given by section 87 of the Act.

Customer Equipment

has the meaning given by section 21 of the Act.

Carrier

has the meaning given by section 7 of the Act.

Determination

means the *Telecommunications (Emergency Call Service) Determination 2019*.

Emergency Call

has the meaning given by the Determination.

Emergency Call Person

has the meaning given by section 7 of the Act.

Emergency Call Person for 000 and 112

has the meaning given by the Determination.

Emergency Call Person for 106

has the meaning given by the Determination.

Emergency Service Organisation

has the meaning given by the Determination.

International Mobile Telecommunications

has the meaning given by AS/CA S042.1.

International Mobile Telecommunications CE

has the meaning given by AS/CA S042.1.

Listed Carriage Service

has the meaning given by section 16 of the Act.

Mobile Location Information

means information that is available about the approximate location of the CE of an end user on a PMTS.

Mobile Carrier

means a controlled network or controlled facility used to supply a PMTS..

Public Mobile Telecommunications Service

has the meaning given by section 32 of the Act.

Short Message

means information that may be conveyed by means of a Short Message Service.

Triple Zero

means the emergency service number '000' as defined in section 30 of the *Telecommunications Numbering Plan 2015*.

2.3 Interpretations

In the Guideline, unless the contrary appears:

- (a) headings are for convenience only and do not affect interpretation;
- (b) a reference to a statute, ordinance, code or other law includes regulations and other instruments under it and consolidations, amendments, re-enactments or replacements of any of them;
- (c) words in the singular includes the plural and vice versa;
- (d) words importing persons include a body whether corporate, politic or otherwise;
- (e) where a word or phrase is defined, its other grammatical forms have a corresponding meaning;
- (f) mentioning anything after include, includes or including does not limit what else might be included;
- (g) words and expressions which are not defined have the meanings given to them in the Act; and
- (h) a reference to a person includes a reference to the person's executors, administrators, successors, agents, assignees and novatees.

3 MOBILE CARRIER-ECP CONNECTION

3.1 Mobile Carrier-ECP connection

- 3.1.1 A Mobile Carrier and the ECP for 000 and 112 should establish dedicated links between one another for the transfer of an AML SM.
- 3.1.2 The transfer of an AML SM may be achieved via encapsulation in a SM over an SMPP link.
- 3.1.3 The telecommunications link between a Mobile Carrier and the ECP for 000 and 112 shall be via a secure transport layer (refer to Figure 1).
- 3.1.4 The telecommunications link between a Mobile Carrier and the ECP for 000 and 112 should have redundancy (refer to Figure 1).
- 3.1.5 The details of a telecommunications link between a Mobile Carrier and the ECP for 000 and 112 should be:
 - (a) Agreed via bilateral agreement; and
 - (b) Aligned with this Guideline.

NOTE: The interface between the Mobile Carrier and ECP for 000 and 112 will be managed via a bilateral agreement e.g. the ECP document AATWG-750601106-124.

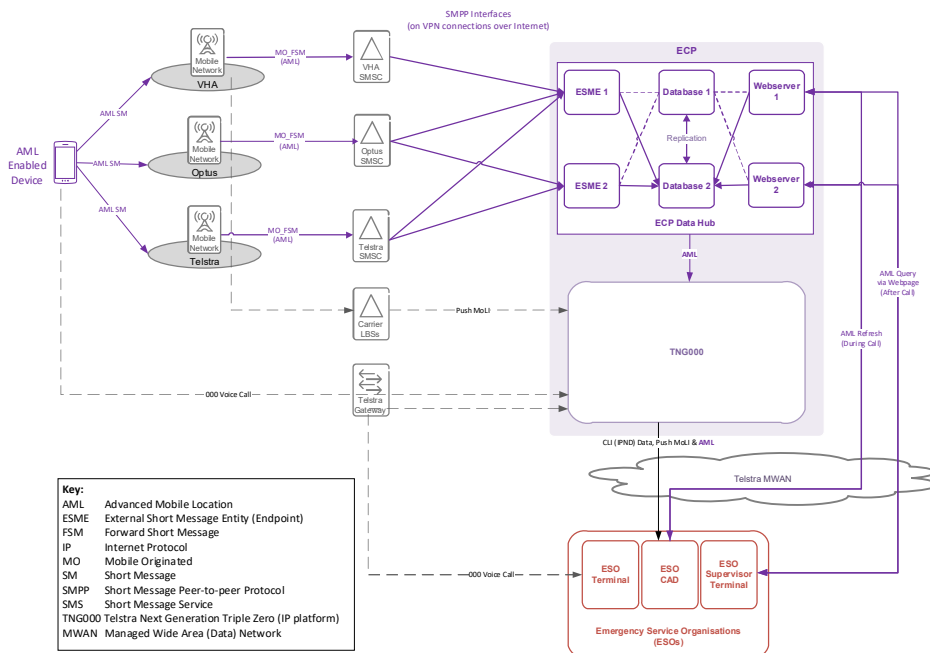


FIGURE 1
Inter Carrier AML Architecture for Australia

3.2 AML Information Sent via Short Message (SM)

3.2.1 AML information sent via SM should be sent from a Mobile Carrier's Short Message Service Centre (SMSC) to the ECP for 000 and 112.

3.2.2 Refer to AS/CA S042.1 for information on the format of an AML SM.

NOTE: At the time of publication of this Guideline, AS/CA S042.1 was being updated to include requirements that align with ETSI TS 103 625.

3.2.3 The destination Australian number for the AML SM should be 1262612626.

3.3 O&M for Mobile Carrier-ECP connection

3.3.1 The details of operations and maintenance (O&M) processes between a Carrier and the ECP for 000 and 112 should be:

- (a) Agreed via bilateral agreement; and
- (b) Aligned with this Guideline.

3.4 Privacy

3.4.1 The Mobile Carrier's SMSC is not expected to interrogate or analyse the contents of a SM that contains AML information unless required to do so under legislation.

3.5 Security

3.5.1 Communication of AML information between the Mobile Carrier and ECP for 000 and 112 should be secure.

NOTE: Security between the Mobile Carrier and ECP for 000 and 112 will be managed via a bilateral agreement e.g. the Telstra Interface Asset Service Specification (IASS) – For Service Name: Advanced Mobile Location (AML).

3.5.2 Management of denial of service (DOS) attacks is via existing Mobile Carrier network management processes.

NOTE: Communications Alliance Guideline G644 has more information on DOS attacks on involving emergency communications. G644 is not publicly available – contact Communications Alliance for more information.

3.6 Testing

3.6.1 AML information sent via SM should be tested between the Mobile Carrier and ECP for 000 and 112.

- 3.6.2 Testing of AML information sent via SM should be consistent with agreed test specification(s).

NOTE: Testing between the Mobile Carrier and ECP for 000 and 112 will be managed via a bilateral agreement e.g. the Telstra Interface Planning and Testing Agreement (IPTA) - Mobile Carriers - Triple Zero - Advanced Mobile Location (AML).

4 REFERENCES

Publication	Title
Australian Standards	
DR AS/CA S042.1:2019	Requirements for connection to an air interface of a Telecommunications Network - Part 1: General http://commsalliance.com.au/Documents/all/Standards/s042.1 NOTE: At the time of publication of this Guideline, AS/CA S042.1:2018 was being updated to include requirements on AML.
Emergency Call Person Documents	
AATWG-750601106-124	Interface Asset Service Specification (IASS) For Service Name: Advanced Mobile Location (AML)
AATWG-750601106-126	Telstra Interface Planning and Testing Agreement (IPTA) – Mobile Carriers Triple Zero – Advanced Mobile Location (AML)
Industry Guidelines and Specifications	
G557	Location Information for Emergency Calls http://commsalliance.com.au/Documents/all/guidelines/g557
G557.1:2019	Part 1 General
G557.2:2014	Part 2 Standardised Mobile Service Area (SMSA) and Location Indicator Register
G557.3:2017	Part 3 Location Independent Communications Service Location Indicator for Emergency Services Signalling
G557.4:2014	Part 4 Mobile Location Information (MOLI) Processes for Emergency Calling and Rescue Coordination
G557.5:2014	Part 5 Push Mobile Location Information (MoLI) Interface to Enhanced Calling Line Identification System (ECLIPS)
G644:2011	Emergency Call Service Requirements http://commsalliance.com.au/Documents/all/guidelines/g644

ETSI

ETSI TS 103 625 V1.1.1 (2019-12)	EMTEL; Transporting Handset Location to PSAPs for Emergency Calls – Advanced Mobile Location https://www.etsi.org/deliver/etsi_ts/103600_103699/103625/01.01.01_60/ts_103625v010101p.pdf
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ETSI TS 101 376-3-19 V1.1.1 (2001-03)	GEO-Mobile Radio Interface Specifications; Part 3: Network specifications; Sub-part 19: Optimal Routing technical realization; GMR-1 03.297 https://www.etsi.org/deliver/etsi_TS/101300_101399/1013760319/01.01.01_60/ts_1013760319v010101p.pdf
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Legislation

Privacy Act 1988
<https://www.legislation.gov.au/Series/C2004A03712>

Telecommunications Act 1997
<https://www.legislation.gov.au/Series/C2004A05145>

Regulatory Instruments

Telecommunications (Emergency Call Service) Determination 2019
<https://www.legislation.gov.au/Series/F2019L01509>

Telecommunications Numbering Plan 2015
<https://www.legislation.gov.au/Series/F2015L00319>

Register of Other Numbers
<https://www.acma.gov.au/choose-your-phone-number#register-of-other-numbers>

APPENDIX A (INFORMATIVE) CE OPERATING SYSTEM SETTINGS FOR AML IN AUSTRALIA

A1 Android Emergency Location Service

- A.1.1 The first available version of the IMT CE Android operating system for AML is Gingerbread.
- A.1.2 If a location is unavailable, an AML SM is sent with attribute values that conform to Version 1 of AML in ETSI TS 103 625.
- A.1.3 AML will activate when:
 - (a) the emergency button is pressed on the IMT CE; or
 - (b) the emergency numbers 112 or 000 are dialled on the IMT CE.

<i>Emergency numbers for Australia are defined in the Determination.</i>
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- A.1.4 The region/country to activate AML is Australia.
- A.1.5 The minimum battery percentage on the IMT CE to activate AML is 5%.
- A.1.6 The destination Australian number for AML is 1262612626.
- A.1.7 For the mobile country code (MCC), the 'Home MCC' is 505 i.e. Australia.
- A.1.8 For the mobile network code (MNC), the 'Home MNC' is defined in the *Register of Other Numbers* maintained by ACMA.
- A.1.9 The maximum time delta from the beginning of the emergency call to report AML is 25 seconds.
- A.1.10 AML should continue to report location every 30 seconds until the first of:
 - (a) The end of the emergency call; or
 - (b) 30 minutes after the start of the emergency call.
- A.1.11 AML should always report the first available location, in addition to the time deltas specified in A.1.9 and A.1.10.

PARTICIPANTS

The Working Committee that developed the Guideline consisted of the following organisations and their representatives:

Organisation	Membership	Representative
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Optus	Voting	James Dam
Optus	Non-voting	Sam Mangar
Optus	Non-voting	Chris Mezentsef
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Telstra	Non-voting	Michael Ryan
Telstra	Non-voting	Kirk Pascoe
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Vodafone Hutchison Australia	Non-voting	Michael Ziegelmann

This Working Committee was chaired by Michael Ryan. James Duck of Communications Alliance provided project management support.

Communications Alliance was formed in 1997 to provide a unified voice for the Australian communications industry and to lead it into the next generation of converging networks, technologies and services.

In pursuing its goals, Communications Alliance offers a forum for the industry to make coherent and constructive contributions to policy development and debate.

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