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Advanced Mobile Location for emergency calls

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Contents

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Foreword

This Technical Report (TR) has been produced by ETSI Special Committee Emergency Communications (EMTEL).

Modal verbs terminology

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Introduction

One of the biggest challenges facing the Emergency Services is determining the location of mobile callers. Cell based location has been available to the Emergency Services for more than 10 years. While cell data can help with verbal establishment of a caller's location, a more precise location will allow an even quicker emergency response.

Ambulance Service measurements show that, on average, 30 seconds per call can be saved if a precise location is automatically provided, and several minutes can be saved where callers are unable to verbally describe their location due to stress, injury, language or simple unfamiliarity with an area. In the UK alone it is estimated that each year there are about 36 000 cases where the Emergency Services have to spend a significant amount of time searching for a caller because a location could not be verbally provided.

Advanced Mobile Location (AML) allows use of native smart phone technology to pass (Assisted) GNSS or WiFi based location data to Emergency Service PSAPs. These technologies can provide a location precision as good as 5 metres outdoors (and averaging to within circular areas of ~25 m radius for indoor locations), a significant improvement on existing cell coverage provided by mobile networks, which average (across the UK) circular areas of about 1,75 km radius.

The present document builds on the Advanced Mobile Location initiative that has been piloted in the UK and shown to improve the precision and accuracy of a caller's location information for emergency calls from mobile handsets.

1 Scope

The scope of the present document is to:

- Consider how AML can be used with different PSAP, and Location Delivery to PSAP, arrangements that exist in Europe.
- Consider how AML can be extended to cover the case of handsets that roam.
- Optimize the content of a location message to be of most use to the emergency services.
- Provide a reference on AML for administrations, mobile networks and handset manufacturers.

The present document focusses on circuit switched emergency voice calls and location transport via SMS, but provides an outlook to other technologies suitable the future.

A review of how AML has been implemented in the UK is contained in Annex C.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

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The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2 Informative references

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] IETF RFC 6881: "Best Current Practice for Communications Services in Support of Emergency Calling".

[i.2] ETSI TS 123 167: "Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS) emergency sessions (3GPP TS 23.167)".

[i.3] ETSI TS 124 229: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229)".