Advanced Mobile Location

Benoît VIVIER, Responsable Affaires Publiques, EENA
• **EENA = European Emergency Number Association**
  - Non-for-profit association
  - Mission: Improve the safety of the people
  - Discussion platform between public safety professionals.

• **Benoit Vivier, Public Affairs Manager**
  - Following legal issues around emergency communications.
  - Coordinating and helping public authorities in implementing AML.
The problem: locate emergency calls

- Average accuracy of location information provided to emergency services: 2km (up to 30km in the mountain).

- In 2015, in the United Kingdom:
  - About 36,000 incidents per year involve searches of 30+ minutes because a mobile caller is unable to give location
The solution...

AML = Advanced Mobile Location
Advanced Mobile Location

Automatically activated when an emergency call is placed
Once AML is activates, the phone automatically determines the location (using GNSS and Wifi)
Localisation Mobile Avancée (AML)

All is automated: no action is required from the caller.
Where is it activated?
Where is it activated?

AML deployed (Android + Apple)
AML partially deployed

+ Mexico (some states)
+ New Zealand
+ United Arab Emirates
+ United States (some states)
Où est-ce activé?

AML deployed (Android + Apple)
AML partially deployed
AML soon available

+ Mexico (some states)
New Zealand
United Arab Emirates
United States (some states)
So, how does it look like?
### Content of an AML SMS

<table>
<thead>
<tr>
<th>Header &amp; Version</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Radius</th>
<th>Time of Positioning</th>
<th>Level of Confidence</th>
<th>Positioning Method (GNSS)</th>
<th>IMSI</th>
<th>IMEI</th>
<th>MCC</th>
<th>MNC</th>
<th>Message Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>AML=1;lt=+55.74297;lg=-4.26880;rd=10;top=20130717175329;lc=95;pm=G;si=234302543446355;ei=356708041746734;mcc=234;mnc=30;ml=127</td>
<td></td>
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</tbody>
</table>
Comparison – rural area

Network-based location – location radius of 2024m.

Handset-based location – location radius of 6m. (GNSS)
Comparison – urban area

Network-based location – location radius of 195m.

Handset-based location – location radius of 22m. (Wifi)
Comparison – urban area

Network-based location – location radius of 383m.

Network-based location – location radius of 34m. (Wifi)
For British emergency services
For Irish emergency services
For Irish emergency services
Some success stories...
Success stories...

Lost hikers
“A group tramping in the Bay of Plenty had become lost. One member of the group was injured and they had no food or water. They made a call to 111 from their mobile phone (which had a low battery). The call taker used the system to identify their location down to a six-metre radius. Police Search & Rescue were dispatched and the group was safely walked out of the bush a couple of hours later.”

Caller in panic
“A vehicle on fire with someone trapped. Bystander is in a panic and either does not know or cannot explain the location. Stage 1 call taker (ECAS) gives precise location to Stage 2 Fire Call taker, explaining the exact address and that the vehicle is in the grounds or carpark of a named hotel. Fire services respond immediately. Exact location is handed over in less than one minute.”
Success stories…

**Unknown location**
“Caller being attacked in a London park : did not know which park.”

**Calls dropping**
“Bystander calls looking for fire but call drops before address is handed over. Stage 1 call taker (ECAS) gives precise location to Stage 2 Fire Call taker, explaining the exact address including house number and street. Ambulance respond immediately. The house on fire is a new one and Fire mapping records did not show it.”

**Enfants ne connaissant pas leur adresse**
“An emergency call was received by the Klaipeda PSAP in Lithuania. The caller, a 7-year old boy, reported he had found his father unconscious or dead, probably struck by electricity. He did not know his address or the telephone number of any of his relatives, and Cell-ID location information received by the emergency services had a radius of 14 km. Fortunately, the operator received a GNSS location via ELS with a radius of 6 meters. The police and ambulance services were dispatched to the location. The emergency responders provided acute medical care to the man who had likely been struck by an epileptic seizure.”
Success stories...

Children who told that the toaster was in fire but didn’t know their exact address."

112 Estonia
Success stories...

Languages issues

“One of the best things is related to addresses that have foreign words in the names. We have a lot of those, because Finland is bilingual. For example, a caller can spell "Eekkerööntie" which can be in Finnish "Eckeröntie", "Ekeröntie" or in Swedish "Eckerövägen", "Ekerövägen". Those roads might be in different parts of Finland, so the possibility for a big mistake exists. Now the system shows the exact location and the spelling of the road in the map, so it saves a lot of time and keeps the call-taker’s focus on the call handling.”

112 Finland

Caller with learning difficulties/mental limitations

“Vulnerable male with severe learning difficulty who had been robbed... call taker tried numerous times and ways to get a location, nothing forthcoming...then used lat/long and found the victim. It was later established that he had also been sexually assaulted for over a year by the suspect. Don’t know how would have been found without lat/long.”

BT UK
Success stories...

**Suicidal calls**

“NZ Police received a call from a person who was having suicidal thoughts. The person let the operator know they were at a railway station, but hung up before the operator could get more information about their location. After establishing there was an immediate risk to the person’s safety, the call taker used the system to identify their location. The caller was identified as being on the train tracks, within a four-metre radius. Having this information meant the call was given high priority for a response, with Police dispatched to locate the person safely. The call taker was also able to notify train control to alert them to the issue.”

*NZ Government*

“The caller states that she is going to throw herself in front of the next train that comes along and refuses to give her location. Call taker uses initiative and identifies a station near the AML location. Call taker uses this as the location, passing to despatchers in just over a minute + police are on scene in 7 minutes locating the caller.”

*BT UK*
Success stories...

In the street
“A man on the street had a heart attack. The emergency number was called by the random passer, but he didn't know the exact location. Thanks to AML service, operator saw the exact position of the caller. Luckily the rescuers came to the location just in time.

112 Slovenia

Car accident
“Our operator told me his story about a car accident on the highway. The eyewitness called the emergency number. He was so terrified and confused that he wasn't able to provide information about location of accident. Fortunately, he knew approximate direction of the right location. AML has provide a quick response to the team rescues.”

112 Slovenia
Success stories...

Car accident
What’s next?
AML also available for SMSs to 112
Altitude + Floor detection
Handset-derived location in EU legislation
European Electronic Communications Code (EECC):

“Member States shall ensure that caller location information is made available to the most appropriate PSAP without delay after the emergency communication is set up. This shall include network-based location information and, where available, handset-derived caller location information.”

Article 109, paragraph 6

• Applicable starting from: 21 December 2020
Standardisation at ETSI
Any question?
CONTACT

Benoît VIVIER
Responsable Affaires Publiques

@BenoitVivier  bv@een.org  Benoit Vivier