



112
EMERGENCY CALL

Update on Advanced Mobile Location

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Introduction about AML



AML in EU legislation

- Handset-based location transmitted free of charge to a PSAP during an emergency communication

"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(6), Directive 2018/1972

AML in EU legislation

- MNOs should make sure that location will be provided to PSAPs also for roaming end-users

"In addition, wholesale roaming agreements should include information on the technical parameters for ensuring access to emergency services, including [...] for ensuring the transmission of caller location information, including handset-derived information, to the most appropriate PSAP in the visited Member State."

Recital 19, Regulation 2022/612

AML in EU legislation

- National authorities should lay down criteria on the accuracy and reliability of caller location information by March 2024

"When laying down criteria for the accuracy and reliability of caller location information pursuant to Article 109(6) of Directive (EU) 2018/1972, competent regulatory authorities shall ensure, within the limits of technical feasibility, that the end-user's position is located as reliably and accurately as is necessary to enable the emergency services to come to the end-user's assistance."

Article 3, Delegated Regulation 2023/444

Standard

ETSI TS 103 625 v1.3.1 (2023-03)



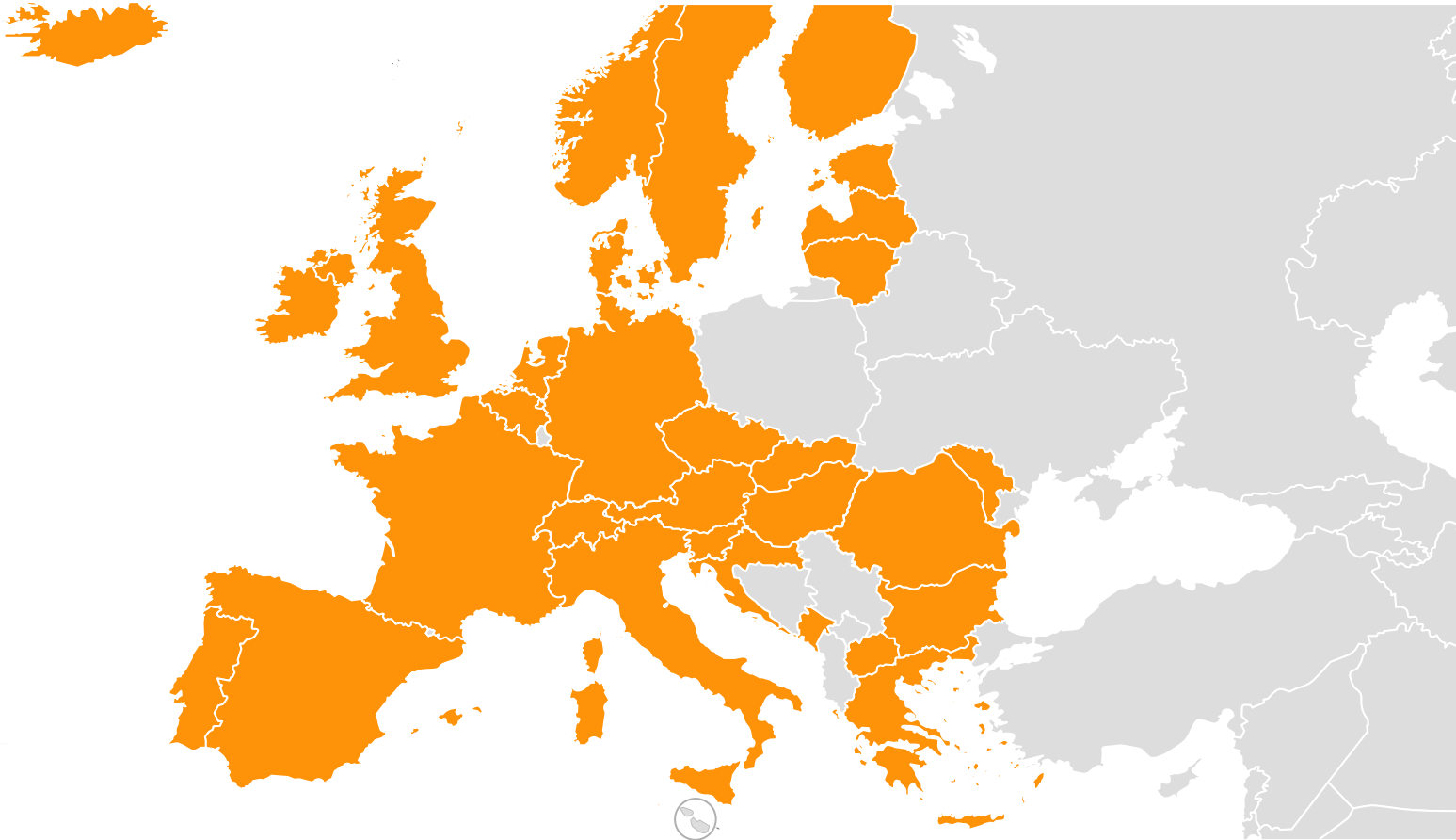
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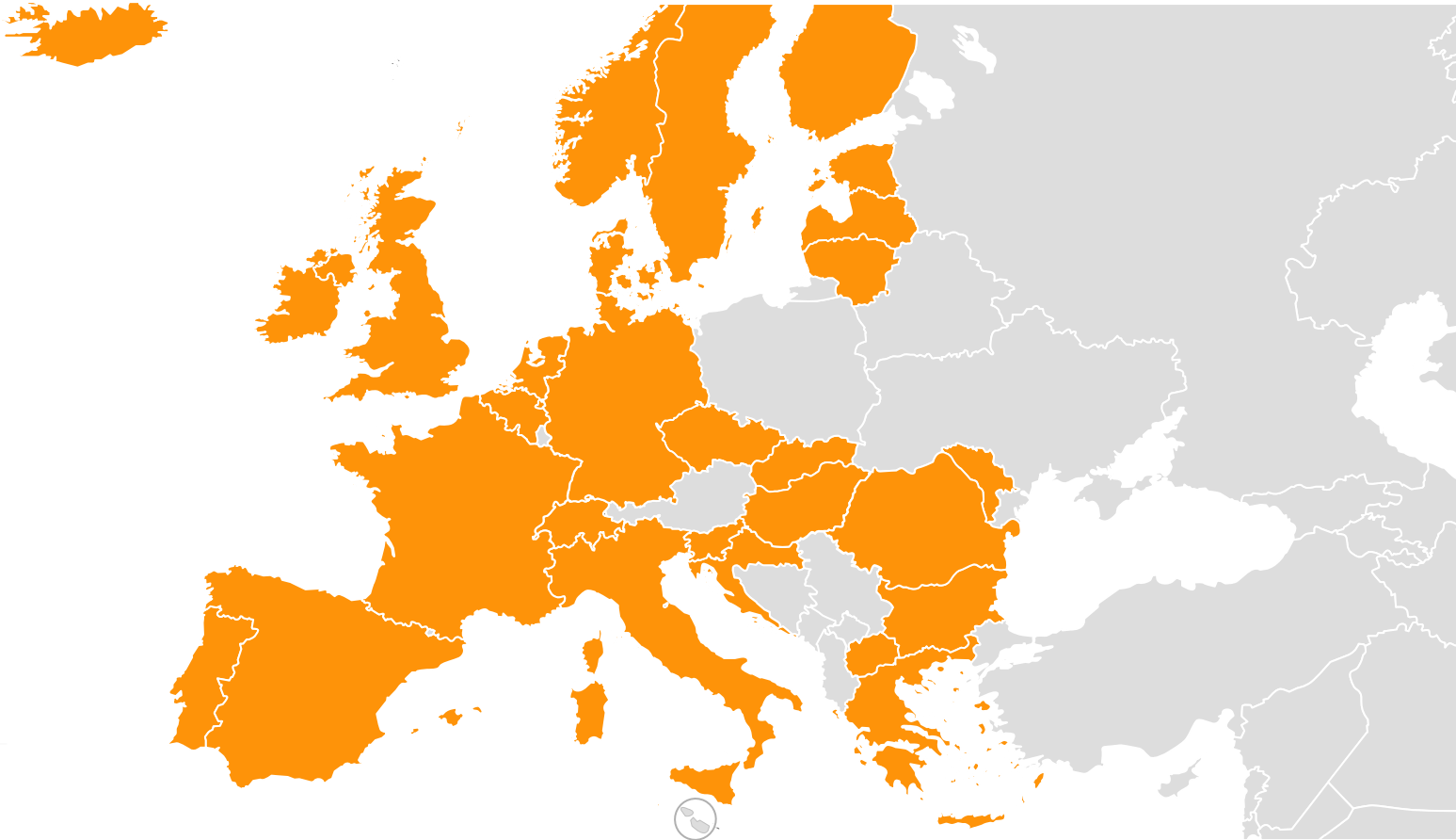
Latest publication



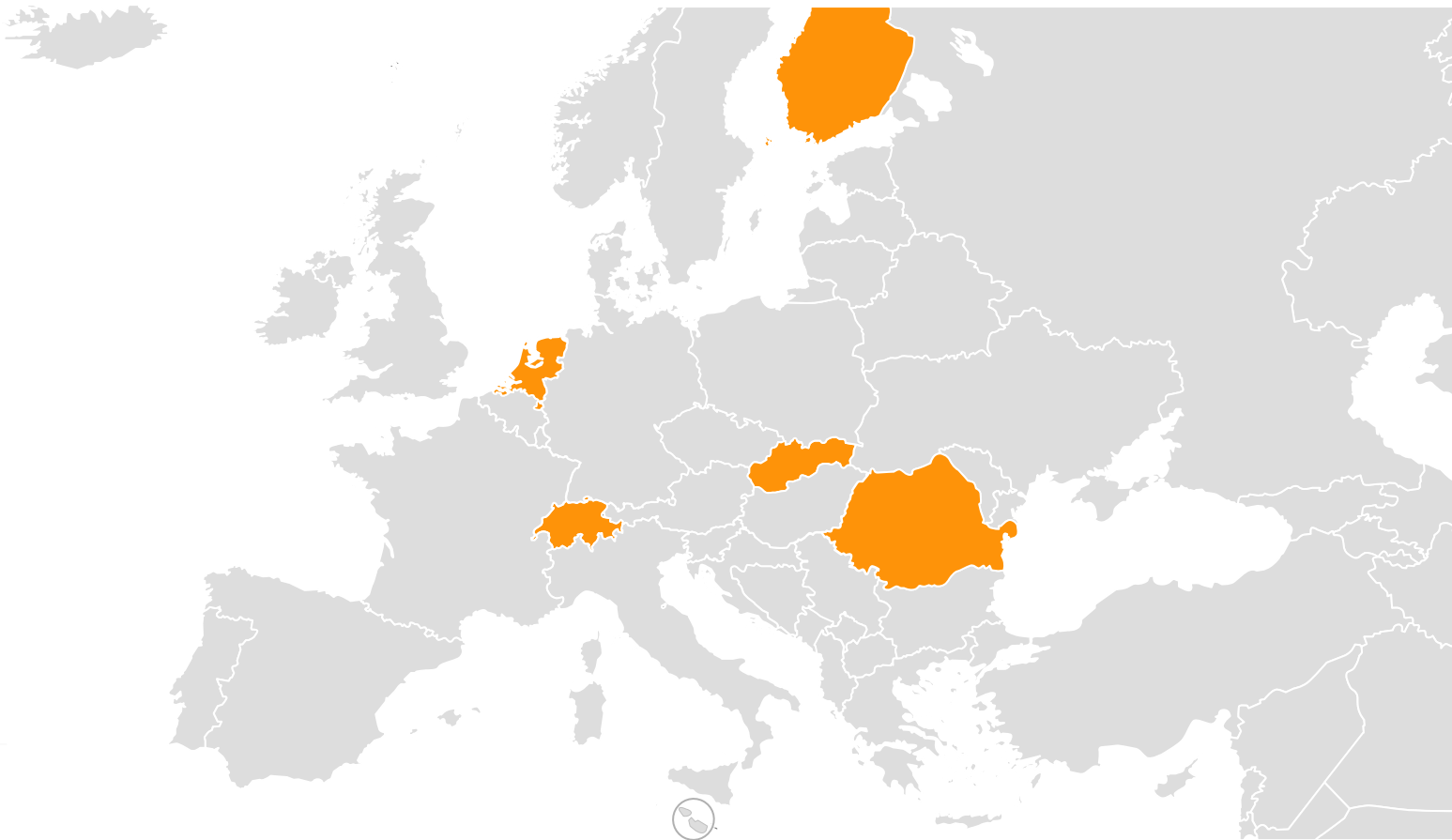
Availability of AML in Europe – On Android OS



Availability of AML in Europe – On iOS



Availability of AML in Europe – On HarmonyOS



Operational use of AML in Europe

	Emergency Medical Services	Fire & Rescue Services	Police	Numbers which trigger AML
Austria	X	X		- Android: 112, 122, 128, 140, 141, 144
Belgium	X	X	X	- Android: 112, 101, 100, 8101, 8112 - iOS (Apple): 112
Bulgaria	X	X	X	- Android & iOS (Apple): 112
Croatia			X	- Android: 112, 192, 195, 1987, 193, 194 - iOS (Apple): 112
Czech Republic	X	X	X	- Android & iOS (Apple): 112, 150, 155, 158
Denmark	X	X	X	- Android & iOS (Apple): 112, 911
Estonia	X	X	X	- Android & iOS (Apple): 112 - Android, iOS (Apple), HarmonyOS (Huawei) & Jolla: 112
Finland	X	X	X	(Huawei) & Jolla: 112
France	X	X		n/a
Germany	X	X		- Android & iOS (Apple): 112
Greece	X	X	X	- Android & iOS (Apple): 112
Hungary	X	X	X	- Android & iOS (Apple): 112
Iceland	X	X	X	- Android & iOS (Apple): 112, 911
Ireland	X	X	X	- Android & iOS (Apple): 112, 999
Italy	X	X	X	- Android & iOS (Apple): 112, 113, 115, 118, 1530

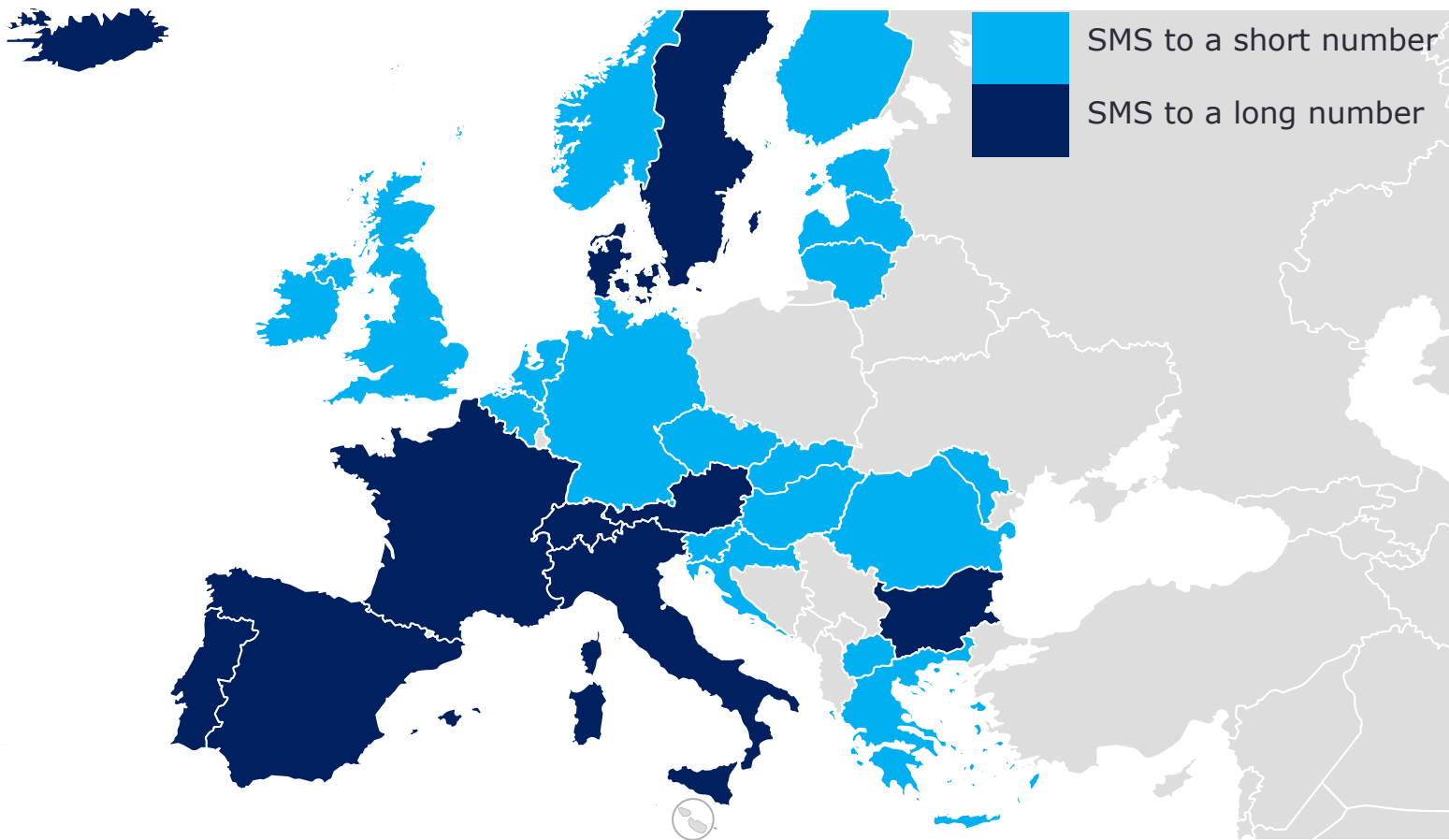
	Emergency Medical Services	Fire & Rescue Services	Police	Numbers which trigger AML
Latvia	X	X	X	- Android: 112, 110, 113, 114, 115 - iOS (Apple): 112
Lithuania	X	X	X	- Android & iOS (Apple): 112
Moldova	X	X	X	- Android: 112, 901, 902, 903 - iOS (Apple): 112
Montenegro	n/a	n/a	n/a	n/a
Netherlands	X	X	X	- Android, iOS (Apple) & HarmonyOS (Huawei): 112, 911
North Macedonia	X	X	X	- Android: 112, 195, 192, 193, 194 - iOS (Apple): 112, 195
Norway	X	X	X	- Android & iOS: 112, 110, 113, 1412
Portugal	X	X	X	- Android & iOS (Apple): 112, 911
Romania	X	X	X	- Android & HarmonyOS (Huawei): 112, 113 - iOS (Apple): 112
Slovakia	X	X	X	- Android, iOS (Apple) & HarmonyOS (Huawei): 112, 150, 155, 158
Slovenia	X	X		- Android & iOS (Apple): 112, 911
Spain	X	X	X	- Android & iOS (Apple): 112
Sweden	X	X	X	- Android & iOS (Apple): 112 - Android, iOS (Apple) & HarmonyOS (Huawei): 112, 117, 118, 143, 144, 145, 147, 1414, 0800117117, 911
Switzerland	X	X	X	147, 1414, 0800117117, 911
United Kingdom	X	X	X	- Android & iOS (Apple): 112, 999

Operational use of AML in Europe

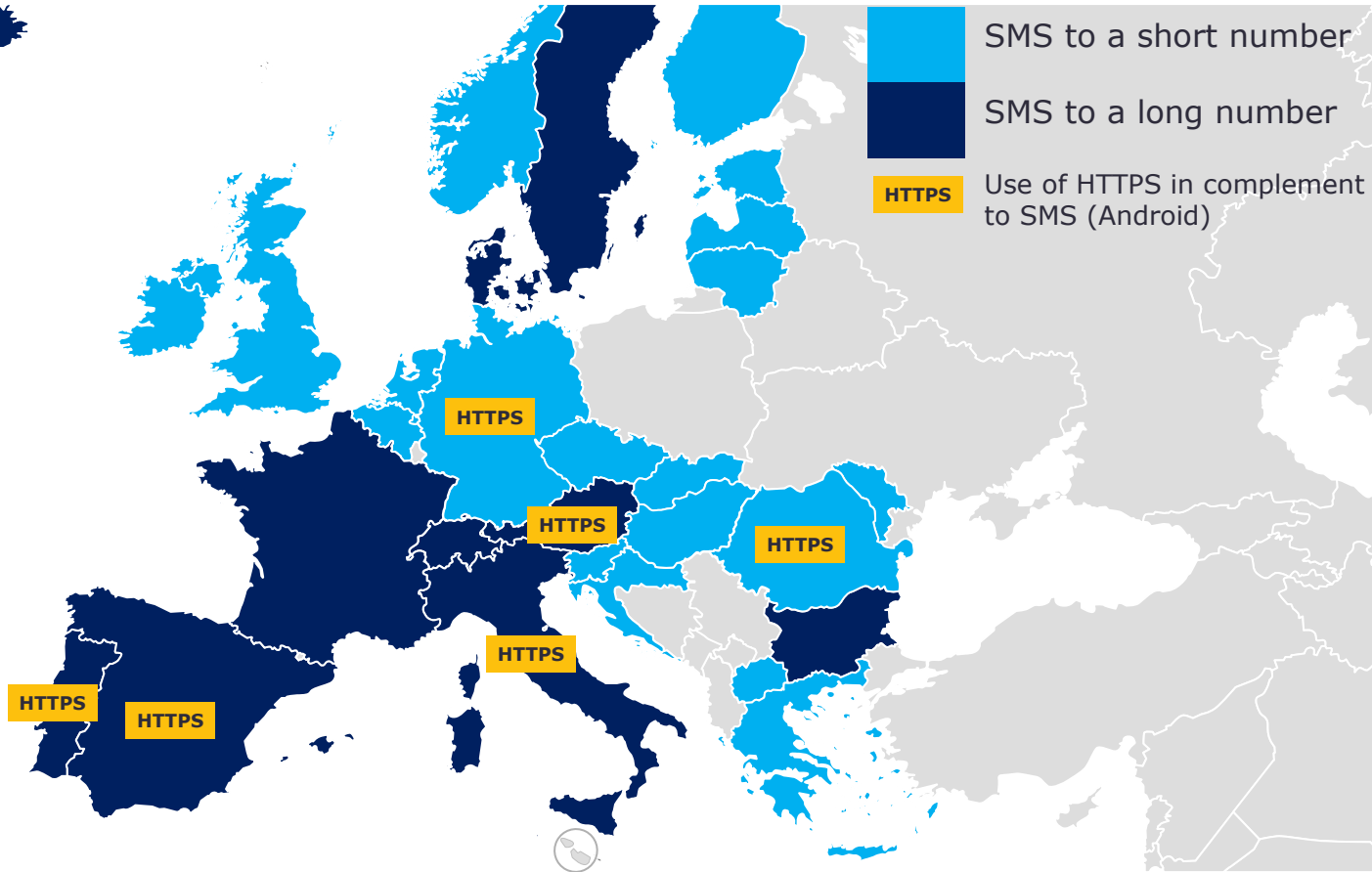
AML also being used by other emergency services:

- ❖ Coastguard
- ❖ Mountain rescue
- ❖ Gas emergencies
- ❖ Road assistance
- ❖ Air rescue

Transmission method



Transmission method



Transmission method

HTTPS can be used to:

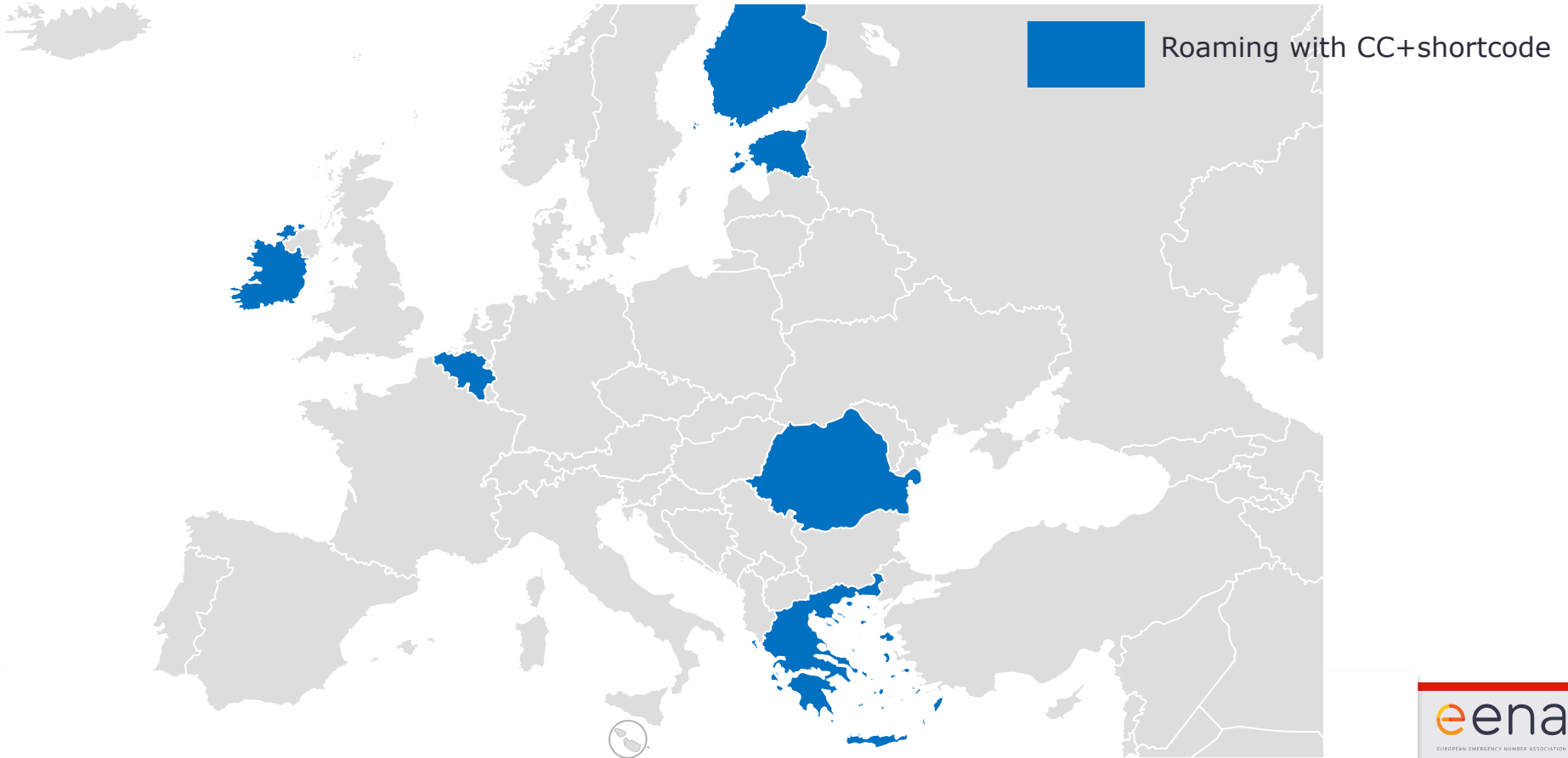
- Improve success rate
- Additional information (altitude, device language...)
- Roaming

Can be matched with SMS using the IMEI field –
Watch webinar [here](#)

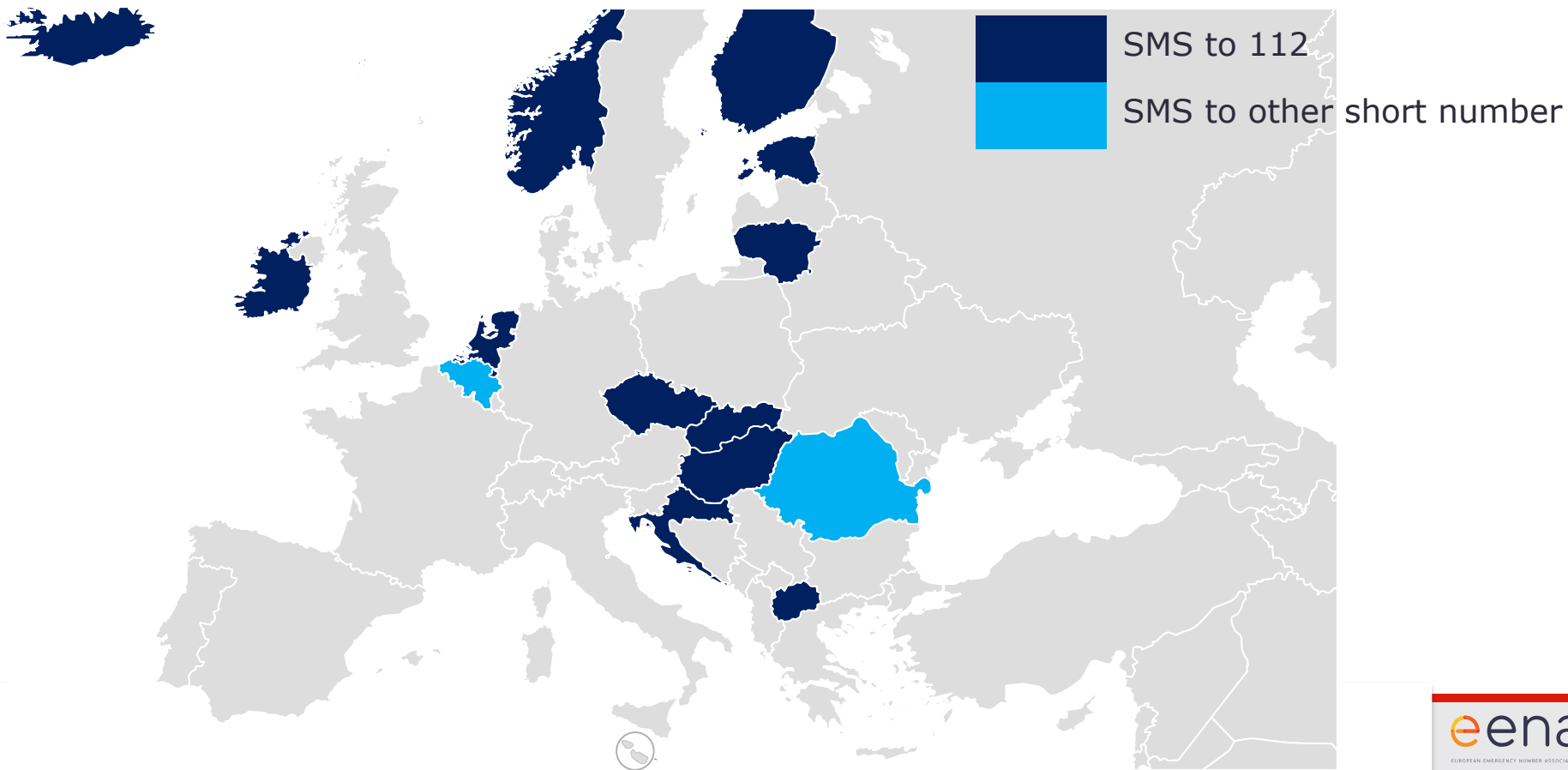
AML for roaming (Android phones only)

- Recommended solution: CC + shortcode
- It saves lives, as highlighted in the [112 Awards Ceremony 2023](#)
- Webinar – [HERE](#)

AML for roaming (Android phones only)



AML for SMS-to-112





AML Report Card 2023 – Facts & Figures (Question 5.1)

Detailed information provided by 17 responding countries
(BG, CZ, DK, ES, DE, HU, IS, IT, LV, LT, MD, NO, PT, RO, ES, SE, CH)



Network-based location

- PSAPs receive **network location** for **82%-100%** mobile originated emergency communications.
- The network location **accuracy** range is **300 metres to 25 kilometres**
- Mainly Cell-ID but Timing Advance and Round Trip Time solutions implemented in some countries
- Other factors positively impacting on accuracy – no. of cells and cell density (urban/rural divide)
- Potential of 5G networks for accurate location



Handset-derived location – AML (1)

- PSAPs receive AML handset-location for **30%-97%** of mobile originated emergency communications.
- Some factors impacting AML success rate
 - Roaming support (SMS +HTTPS)
 - Smartphone penetration
 - Number of limited-service state (LSS) calls
 - AML error rates
 - On some networks an SMS cannot be sent while a voice call is ongoing
- The AML **accuracy** range is **3 metres to 348 metres**
 - Lower accuracy figures reported could be based on environmental factors at the time the location estimates are calculated. E.g. indoor/outdoor or urban/rural



Handset-derived location – AML (2)

- Where handset-derived location was received by the PSAP
 - **81% to 94%** of locations had an accuracy estimate of **100m** or under.
 - **69% to 85%** of locations had an accuracy estimate of **50m** or under.
 - **36% to 79%** of locations had an accuracy estimate of **30m** or under.
- Where handset derived location was received by the PSAP
 - **79% to 100%** of locations were received within **60 seconds**.
 - **62% to 99%** of locations were received within **30 seconds**.
 - **12% to 98%** of locations were received within **15 seconds**.

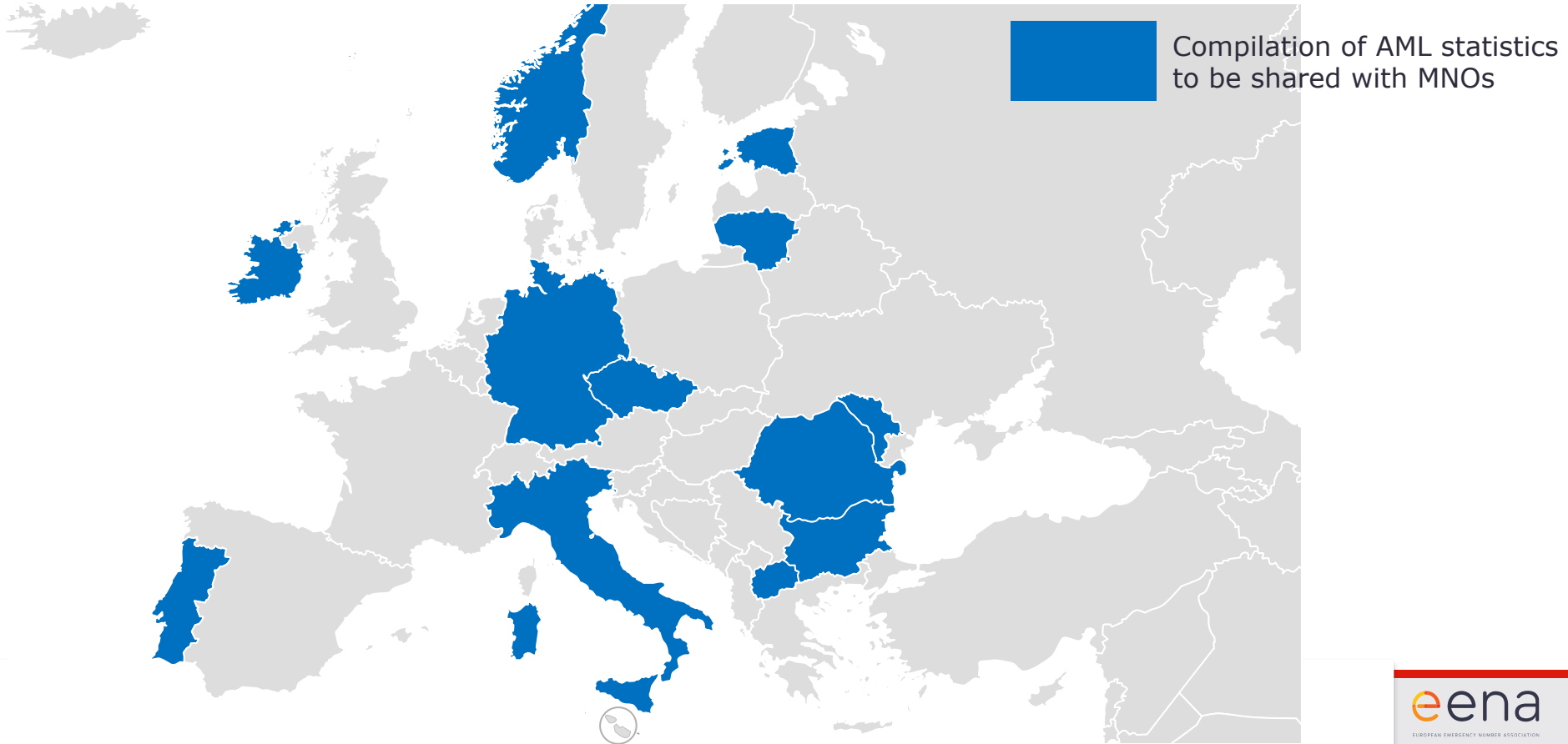


EENA Recommendation on Accuracy & Reliability Criteria

- Requirement of EECC Article 109 and supplementing Delegated Regulation
- Member States must report to EC on accuracy and reliability criteria by **5 March 2024**
- EENA publishing a **recommendation** in September 2023 aimed at promoting coordination across Europe and avoiding regulatory fragmentation
- Statistics gathered in AML Report Card survey will be used to determine recommendation along with analysis of international best practice and current technology capabilities. Recommendation will be presented at [EENA's September event](#).
- Current draft recommendation

*"a horizontal accuracy estimate of **50m** for **80%** of all mobile-originated emergency communications"*

Reporting



Reporting

Watch technical workshop on identifying and resolving AML errors when using Android ELS - [HERE](#)

Conclusion

- AML is now widely used in most European countries
- AML saves lives
- Still working on improvements:
 - Availability everywhere in Europe
 - Success rates
 - Roaming
- Future evolutions:
 - Provision of additional data
 - AML in NG112

Conclusion

All info on AML on <https://eena.org/aml>

Read 2023 AML Report Card [HERE](#)

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