

HeERO and eCall interoperability

HeERO International Conference
27 November 2014
Madrid, Spain

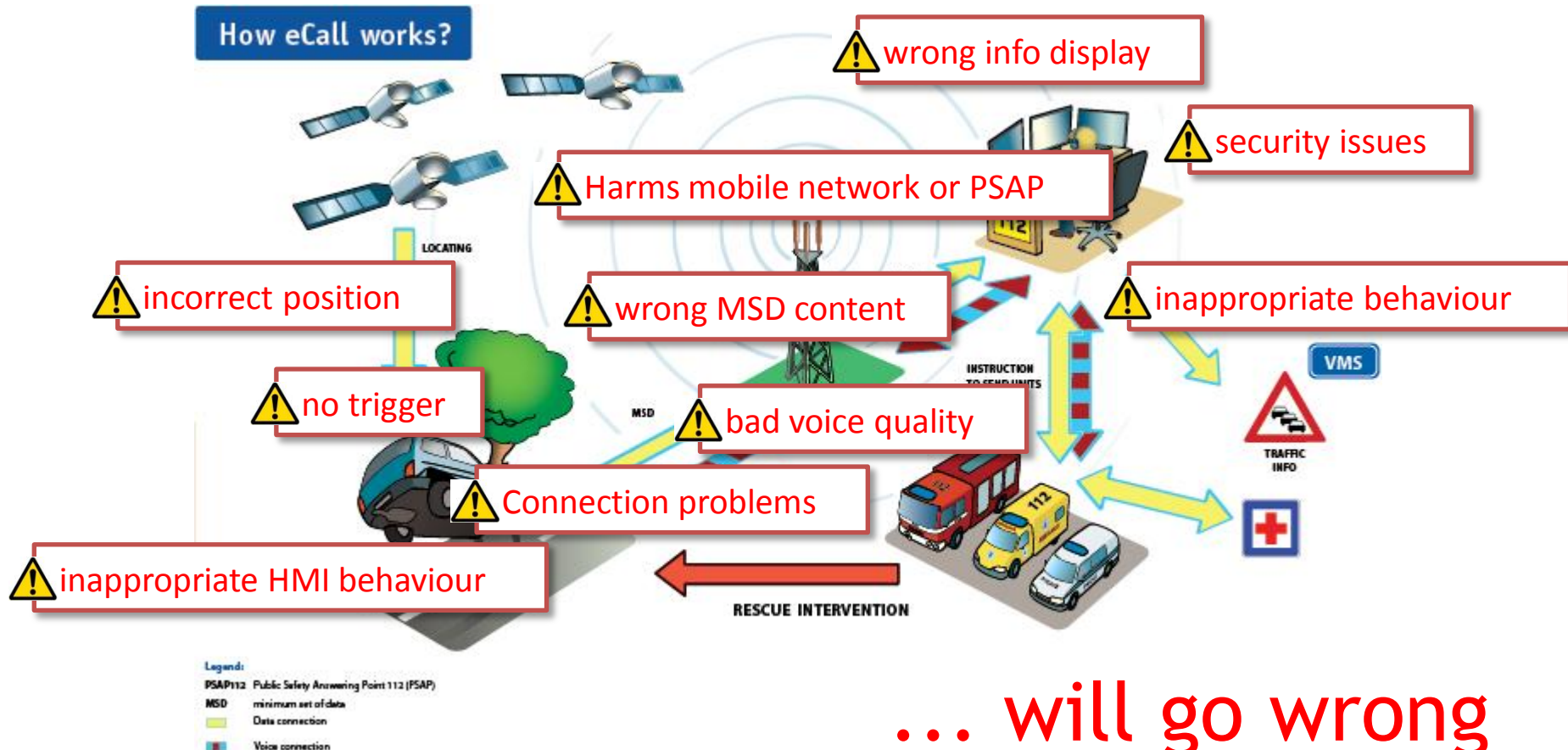


Agenda

- Where can eCall fail?
- Foster eCall Interoperability
- Standardisation Task Force
- eCall TESTFEST
- Certification framework
- The car manufacturers' proposal
- Conclusion

Where can eCall fail?

eCall chain - what can go wrong ...



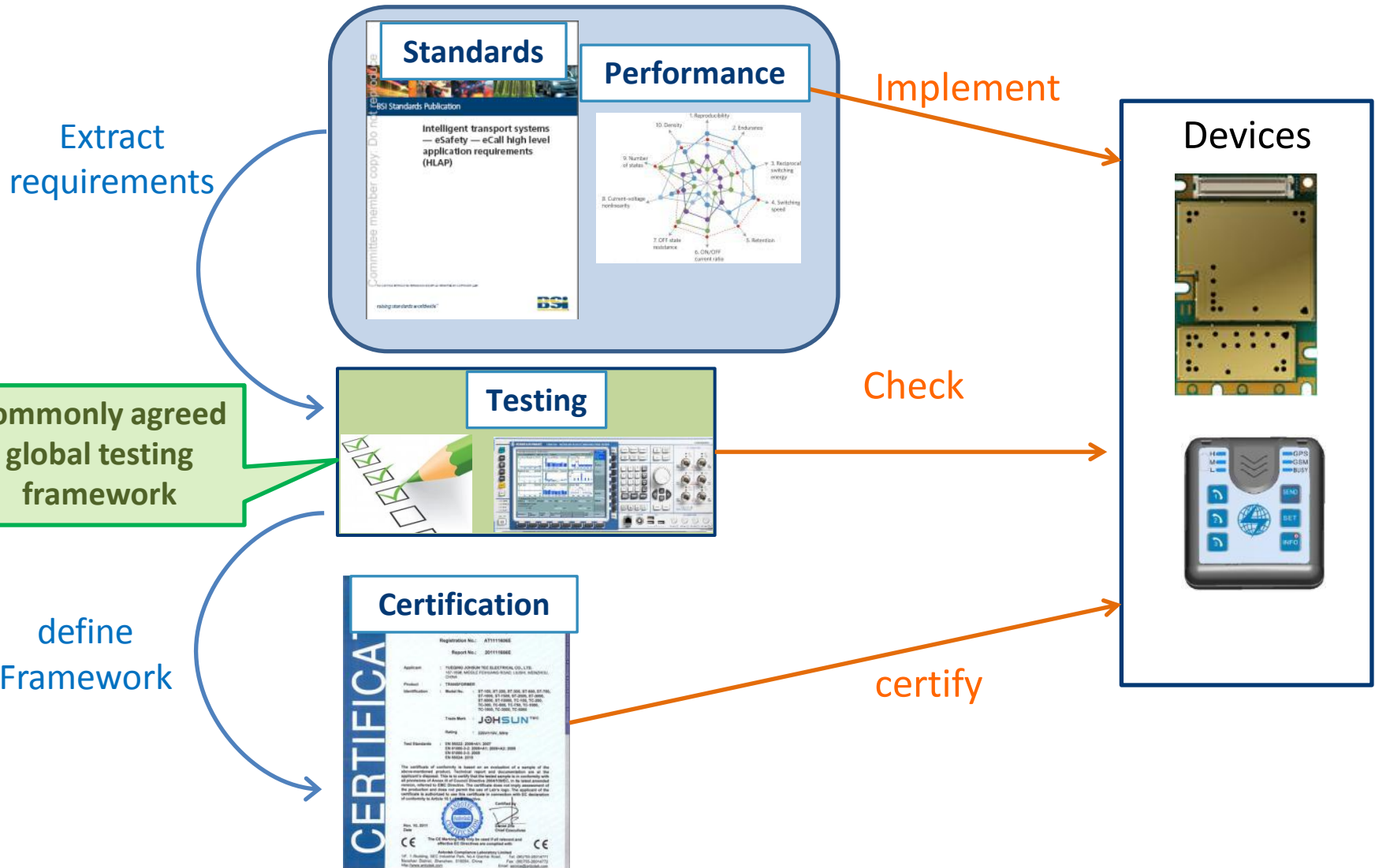
... will go wrong

Interoperability

- eCall can be successful only if all eCall chain components work well together
- Interoperability is thus critical and requires:
 - GSM compliance and performance
 - HLAP/MSD/in-band modem compliance
 - GNSS performance
 - Speech quality
 - Trigger and HMI performance(note: performance is meant at the minimum level)

Foster eCall Interoperability

Principles



HeERO2 – task 6.2 - action plan

“DoW: define the requirements for the certification of the different components of the eCall chain”

1. Create an open Networking group:
 - The Standardisation task force
2. Evaluate Interoperability
 - ERTICO/ETSI eCall TESTFEST
3. Define Certification framework
 - D6.3: *“Procedures for eCall certification and execution”*



Standardisation Task Force

Standardisation TF / 2011 - 2013

- Participants: stakeholders from all relevant sectors
 - 41 organisations / 80 persons
- 6 physical meetings 2011-2013
- Building on TESTFEST results, contributed in providing the first revision of the eCall standards:
 - EN 16062, EN 16072, EN 15722 and prEN 16454
 - Ballot until 18 Dec. 2014



A UNIQUE INITIATIVE TO EVALUATE AND FOSTER IVS-PSAP INTEROPERABILITY

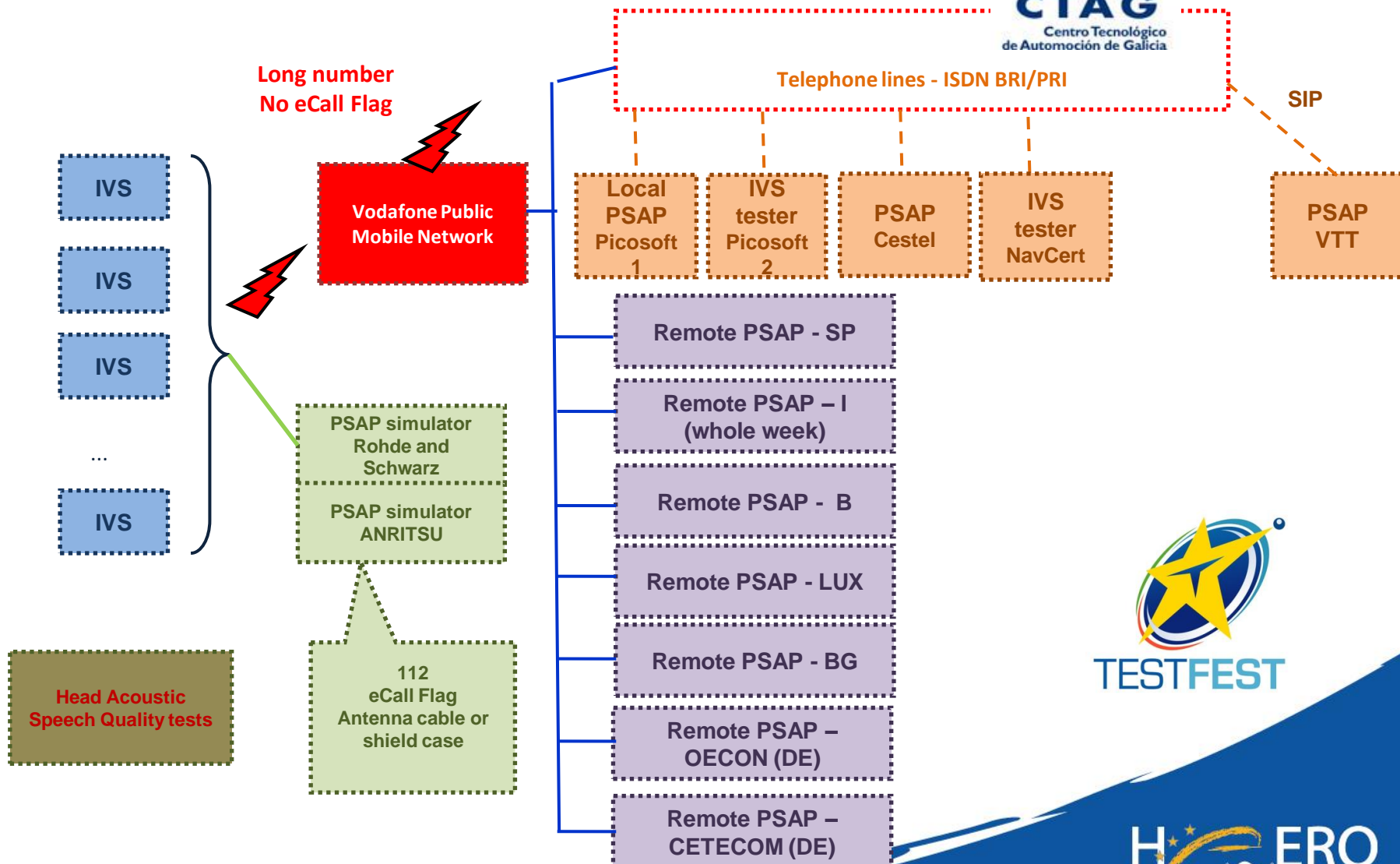
Event concept



- Interoperability test event operated by ERTICO in co-operation with ETSI
- Enable doing IVS – PSAP tests making eCall attempts through **as many vendor combinations as possible**
- Devices are operated by the developers, enabling understanding reasons for issues and quick bug fix, developers can also confidently discuss implementation issues with other vendors
- Events:
 - 2012 – MIRA, Nuneaton, UK
 - 2013 – CETECOM, Essen, DE
 - 2014 – CTAG, Vigo, SP



2014 eCall TESTFEST



Test programme

- IVS – PSAP interoperability tests
 - Test description document
- Conformance tests
 - Acc. To EN 16454
- RF Tests
- GNSS tests
- Speech quality tests



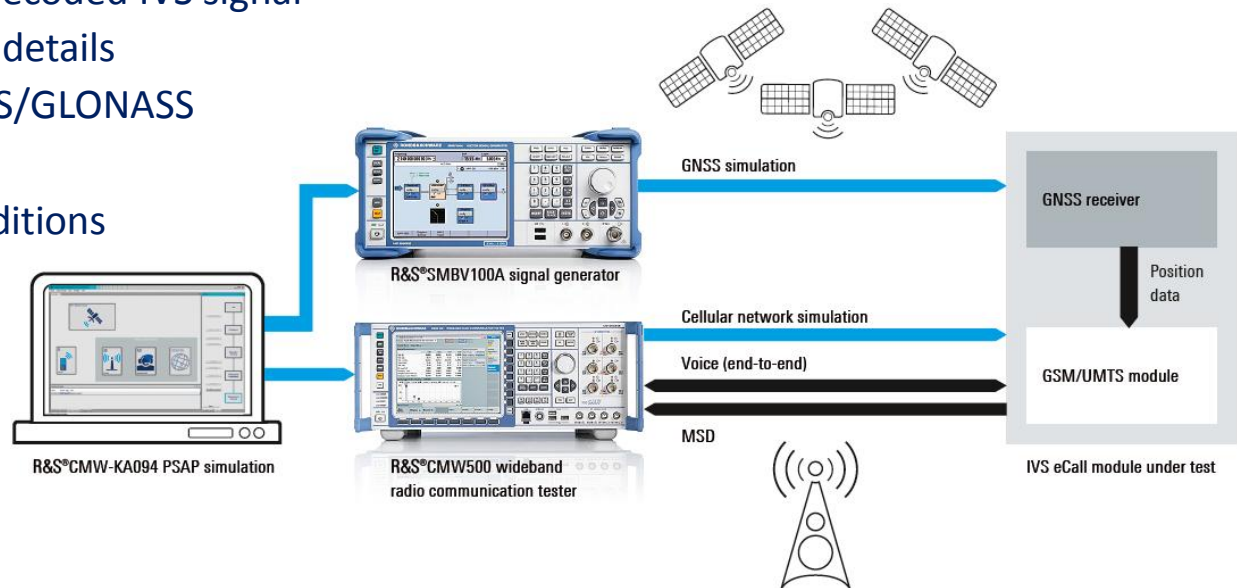
Conformance – RF – GNSS test bed

panEuropean eCall

- PSAP simulation for eCall over GSM and WCDMA
- Measure MSD transmission time
- MSD decoding (EN15722)
- Optional recording of un-decoded IVS signal
- PUSH and SYNC indication details
- Optional fixed position GPS/GLONASS
- Real eCall test over 112
- Reproducible channel conditions

ERA GLONASS eCall

- PSAP simulation for ERA-Glonass over GSM and WCDMA
- MSD decoding (GOST R 54620-2011 Annex C)



New in 2014 – Speech Quality test

Sending Direction (SND): “Uplink”

Transmission from car to PSAP side

Receiving Direction (RCV): “Downlink”

Transmission from PSAP side to car

Echo Measurements (ECHO):

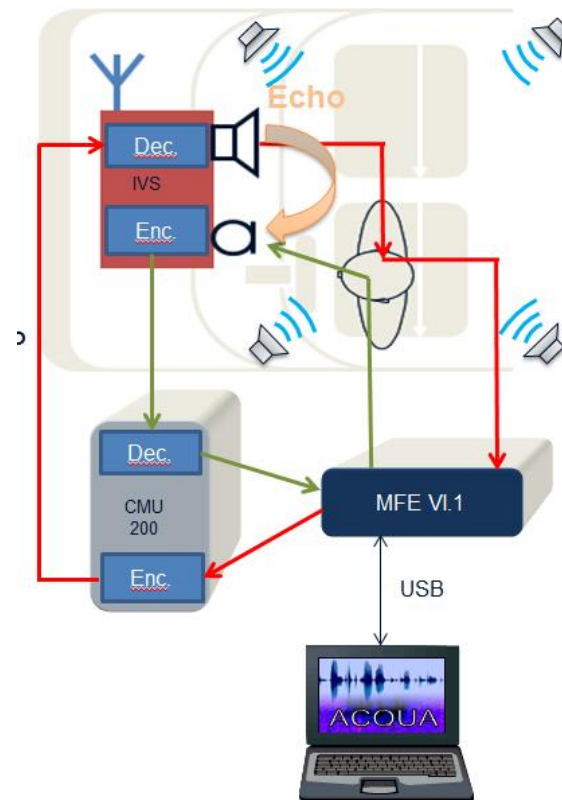
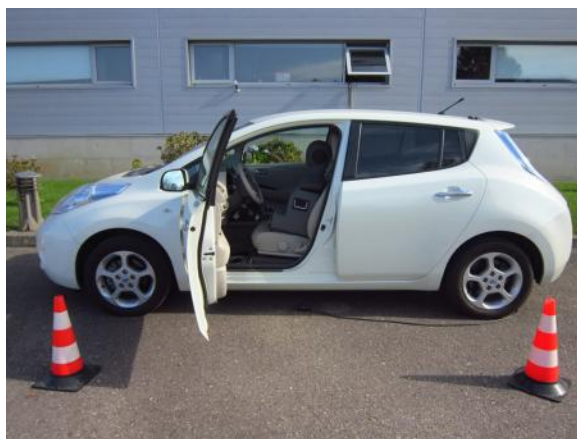
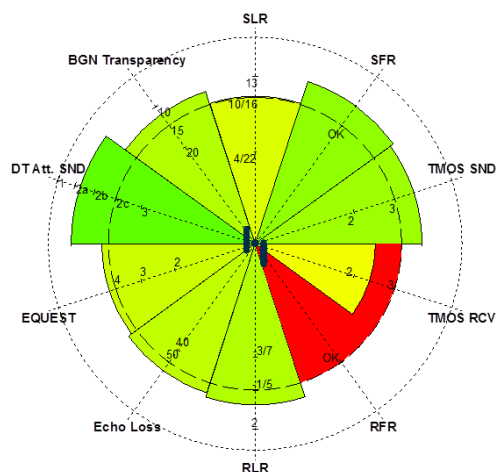
Determination of residual echoes at PSAP side

Double Talk Performance (DT):

Speech Quality if PSAP and car side talk simultaneously

Background Noise Transmission (BGNT):

Quality of transmitted background noises from car to PSAP side



Workshop

Company	Speaker	description	start time
		Registration	09:30
DGT	Ana Blanco	Opening	10:00
CTAG	Ana Paul	Opening	10:10
ERTICO	Andy Rooke	Welcome	10:20
CETECOM	Martin Albrink	Setting the scene	10:30
Rohde & Schwarz	Peter Sterly	Conformance test (HLAP, IBM, RF, GNSS)	10:50
		Coffee break	11:10
Head acoustic	Christian Landauer	Speech quality	11:40
CETECOM	Jürgen Schmitt	Antenna performances	12:00
IDIADA	Rafael Camarero and Lorena Garcia-Sol	EMC and Accident detection	12:20
GMV	Sara Gutiérrez	GNSS performance testing	12:40
		Lunch break	13:00
ERTICO	François Fischer	iMobility Support - certification	14:00
ETSI	Sebastian Müller	STF on HLAP	14:10
CTAG	Rosa Blanco	eCall testing framework	14:30
RENAULT	Philippe Favreau	Vehicle type approval	14:50
		Coffee break	15:10
IMA	Antoine Trarieux	TPS eCall : an experience of Interoperability	15:40
ERTICO	Andy Rooke	next step toward eCall deployment	16:00
		Visit TESTFEST	
		End	
		Networking Dinner	20:00



Certification framework

How was dealt the concertation

- The certification framework is resulting from:
 - Existing standards
 - Discussion in the standardisation task force
 - Expertise from test houses and test tool providers
 - Results from the TESTFEST events
 - Experiences from the industry (Suppliers, vehicle manufacturers, Mobile devices: GCF)
 - Feedbacks from stakeholders
 - Concertation with regulation experts (ACEA, CLEPA, OICA)

Certification requirements

IVS

- GSM
- In-band modem
- HLAP/MSD
- EMC
- Crash test
- Antenna
- GNSS
- Speech quality

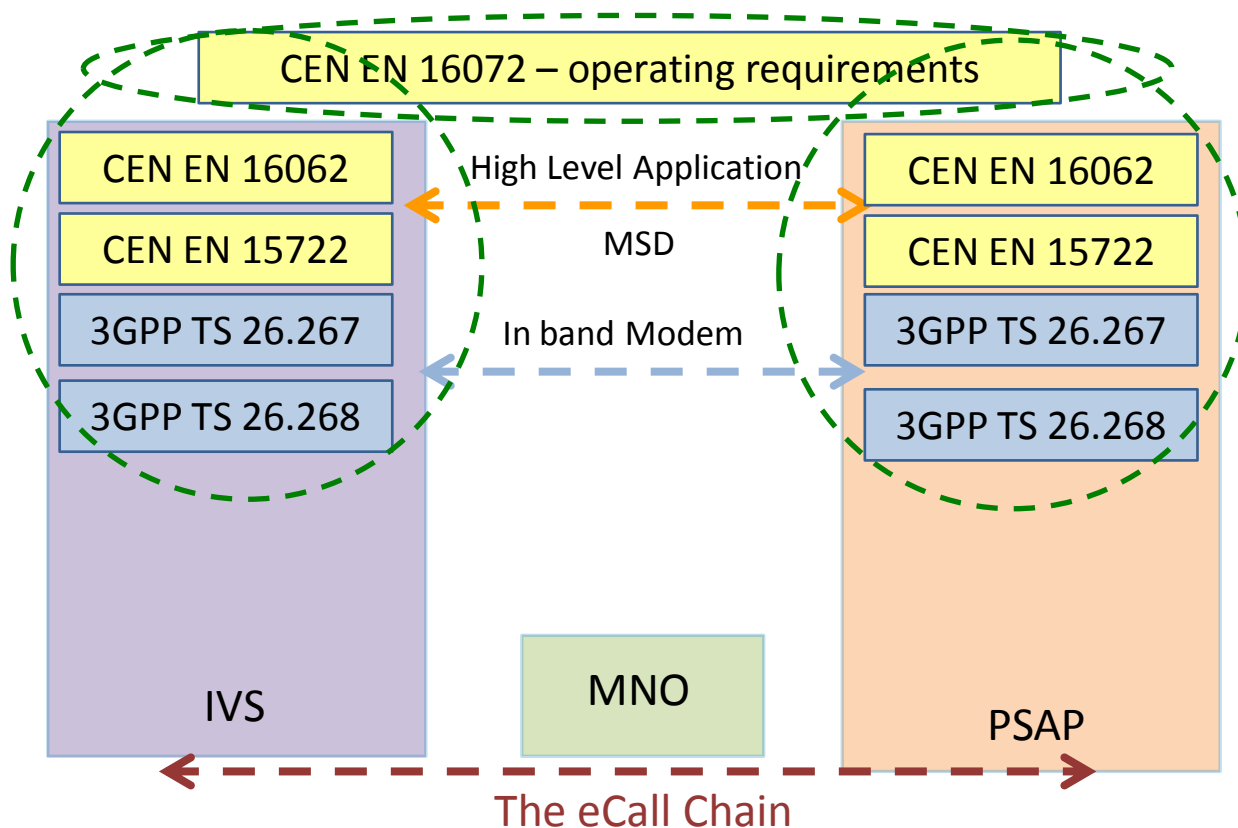
MNO

- Complex system
- Performance and compliancy under the responsibility of the operator
- National regulation to ensure MNOs provide quality of services
- No certification

PSAP

- In-band modem
- HLAP/MSD
- Speech Quality
- Quality of services

Requirements: e.g. . eCall standards



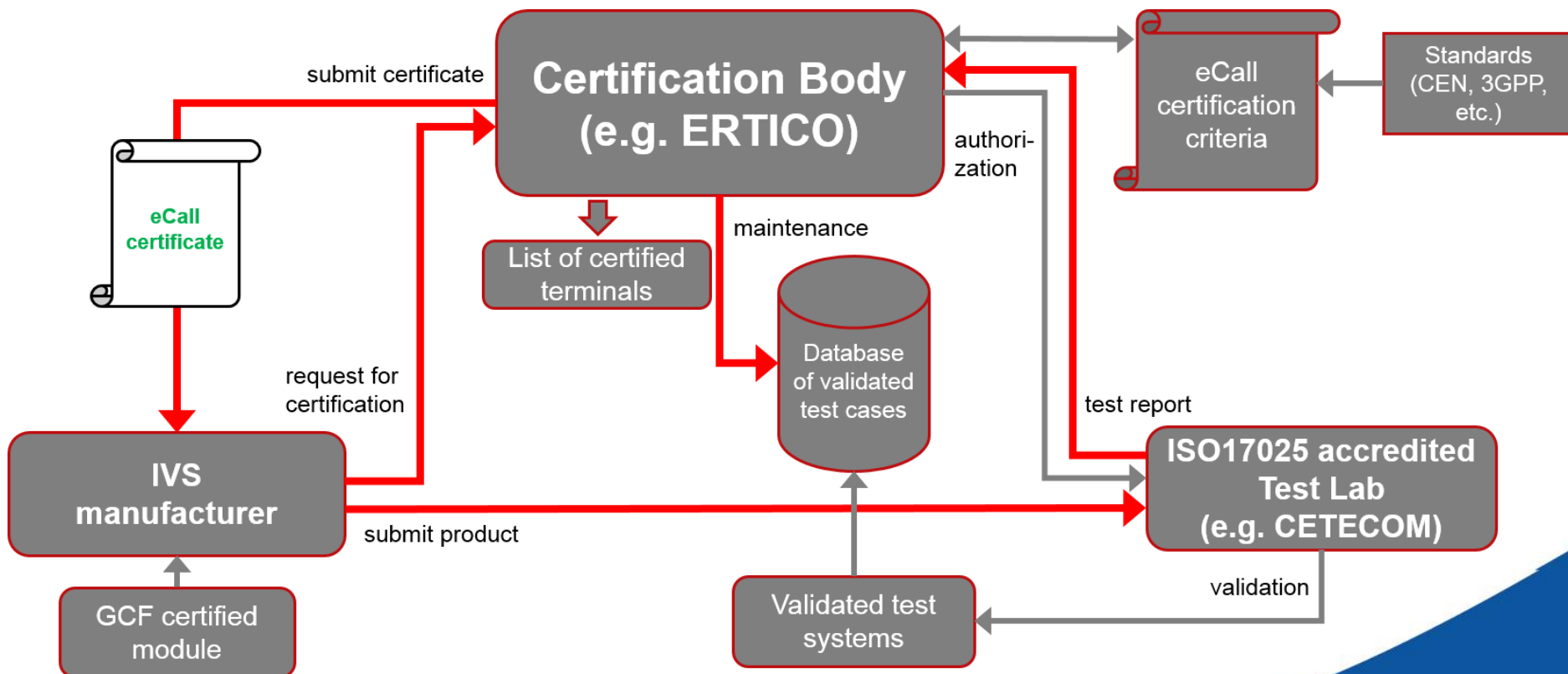
Testing processes

- GSM
 - R&TTE Directive 1999/5/EC
 - GCF mandated by Mobile Network Operators
- eCall requirements
 - EN16454 (End to end conformance tests)
- EMC
 - UNECE R10
- Crash tests
 - UNECE R 94 – 95
- GNSS
 - Under development – CEN TC5 / ERTICO eCall testing group
- Speech Quality/intelligibility
 - ITU-T and VDA standards for HFT exists
 - Need for further concertation

Certification schemes

- **IVS** – 2 types of certification schemes
 - EU Regulation: vehicle and component type approval
 - Coordination with UNECE
 - Industry certification for sub-components, after-market devices or voluntary certification
- **PSAP**
 - Delegated regulation 305/2013 (Member states)
 - Article 4 – conformity assessment
 - Would require coordination (ERTICO – I-HeERO)
 - EENA quality certification

IVS certification scheme proposal



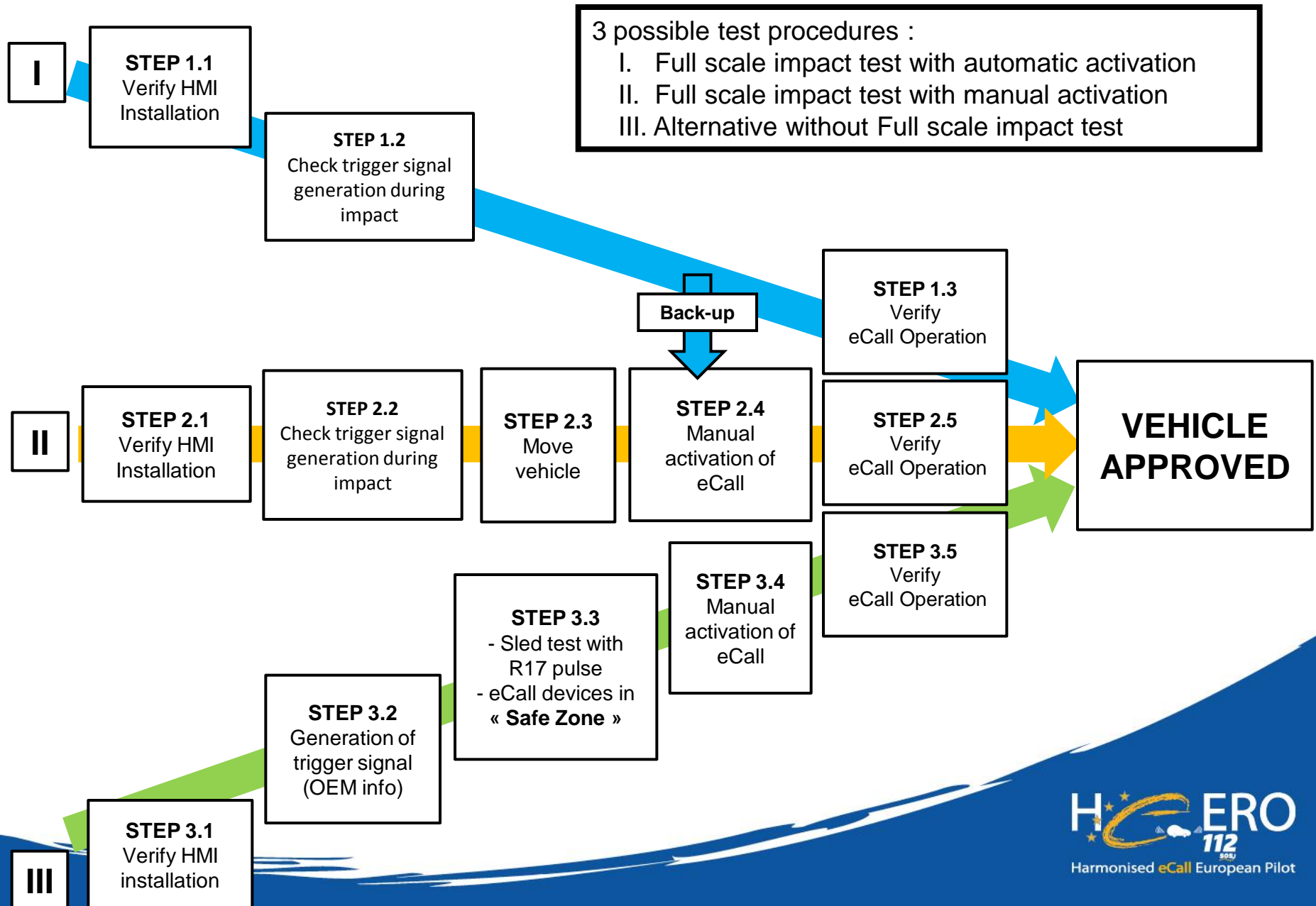
eCall PE112 Vehicle Type Approval

Car manufacturer proposals presented during the 3rd TESTFEST workshop in Vigo



Introduction

- Car manufacturers concerns
 - Availability of a suitable and harmonised vehicle type approval procedure at reasonable costs
 - Provide the best cost/benefit , e.g. with an optimised procedure for the crash tests
- Car manufacturers approach
 - To demonstrate their vehicles' compliance with eCall regulations, through 3 possible type approval methods
 - Use the same concept for PE112 eCall, ERA GLONASS and UNECE AECS (Accident Emergency Call System)
 - Vehicle type approval executed with an approved eCall component



Full scale impact test with automatic activation

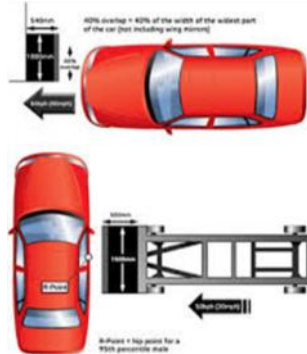
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STEP 1.1 Verify HMI Installation



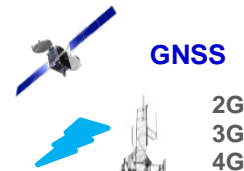
STEP 1.2

Check trigger signal
generation during
impact



Verify by one of the options:

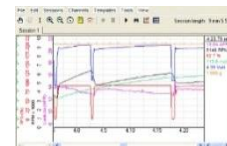
1. Actual GNSS, MNO, PSAP



2. Simulated GNSS, MNO, PSAP



3. Functional check



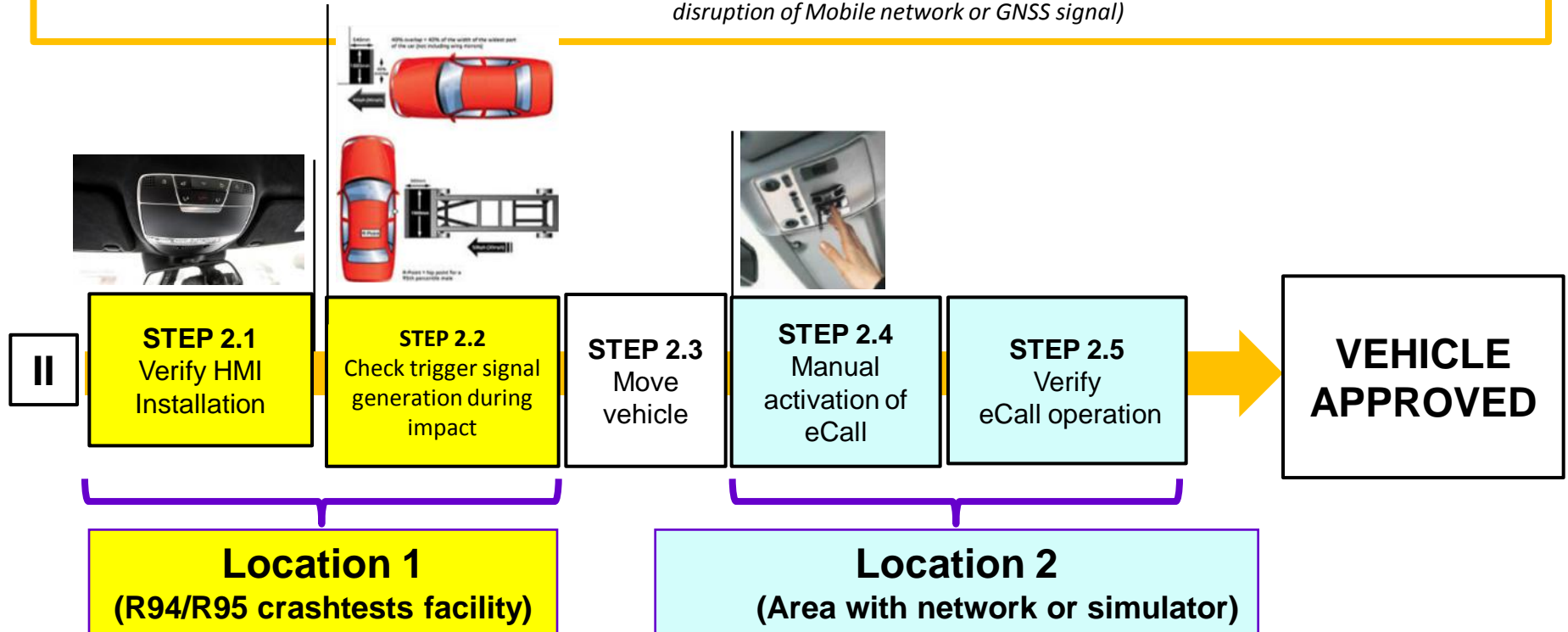
STEP 1.3 Verify eCall Operation

**VEHICLE
APPROVED**

Full scale impact test with manual activation

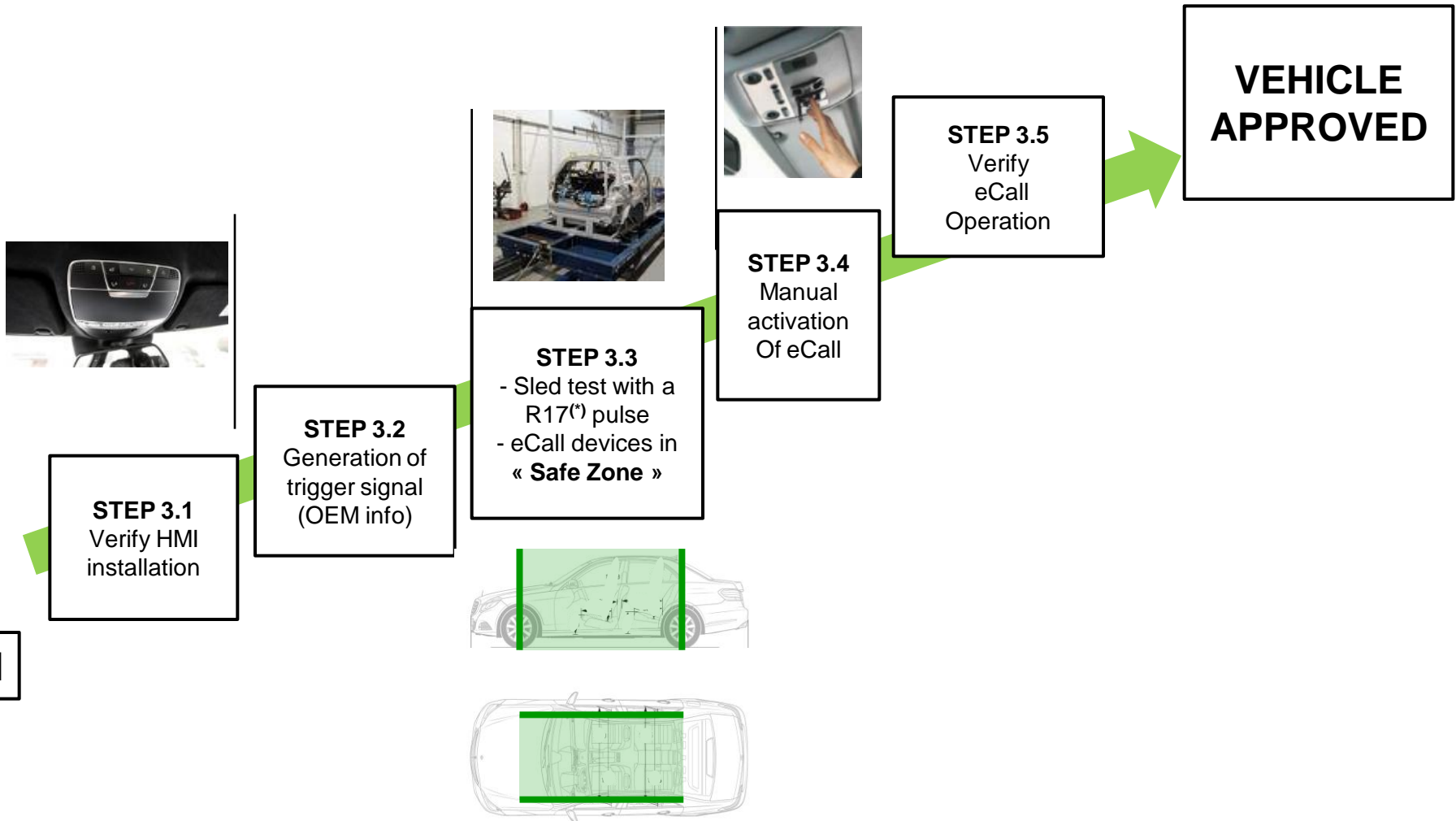
To be used in following cases:

1. If the Impact facility has no possibility to simulate Mobile or GNSS environment or has no reliable access to Mobile or GNSS environment
2. If During Test procedure 1, a failure occurs due to an external reason (e.g. failure or disruption of Mobile network or GNSS signal)



To ensure a realistic situation of emergency, the STEP 2.4 needs to be done just after the STEP 2.2

Alternative without Full scale impact test



Reference and contacts

- A complete presentation of this proposal is available on the UNECE web site (*Working parties and documents / GRSG / Informal groups / AECS*) :

<https://www2.unece.org/wiki/download/attachments/23759882/AECS-05-04e.pdf?api=v2>

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Conclusions

A full scale certification scheme covering essential requirements is ready for:

- PSAP conformity assessment
- IVS certification at the level of
 - components (full set of eCall features)
 - sub-component (selected features: NAD – GNSS - ...)

D6.3 « Procedures for eCall certification and execution” will be published next Month, providing a detailed description of:

- The relevant requirements and procedures for eCall IVS and PSAP certification
- Suitable test processes for type approval
- Recommendations for the coordination of eCall certification

Thank you for your attention!

Questions?

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