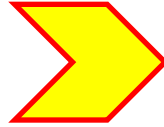


Proposals for homologation of AECD and Installation in vehicle

DRAFT status 20140226

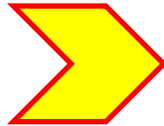
Legal Background

UN R94



*UNIFORM PROVISIONS
CONCERNING THE APPROVAL OF
VEHICLES WITH REGARD TO THE
**PROTECTION OF THE OCCUPANTS
IN THE EVENT OF A FRONTAL
COLLISION***

UN R95

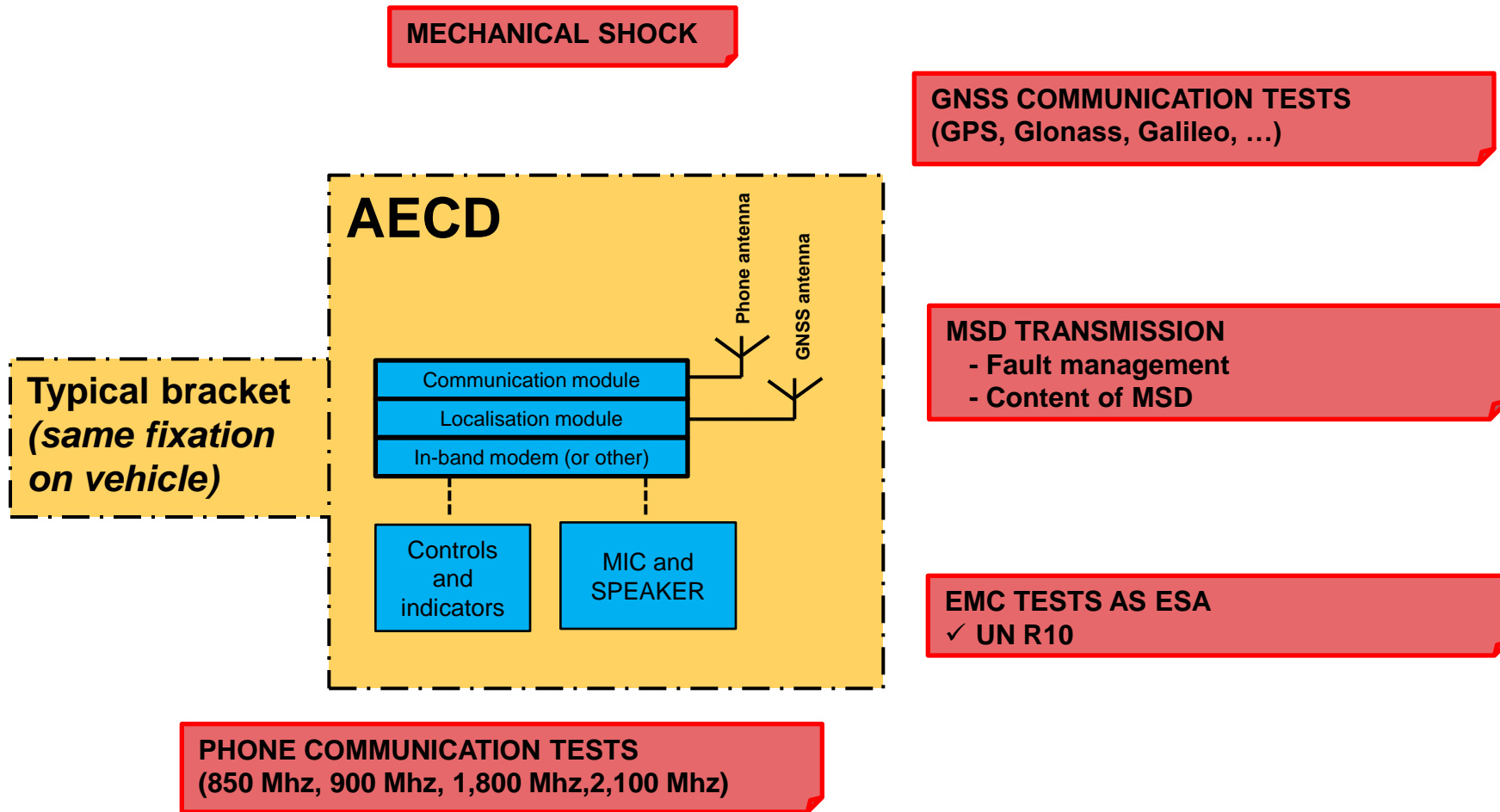


*UNIFORM PROVISIONS
CONCERNING THE APPROVAL
OF VEHICLES WITH REGARD TO
THE **PROTECTION OF THE
OCCUPANTS IN THE EVENT OF A
LATERAL COLLISION***

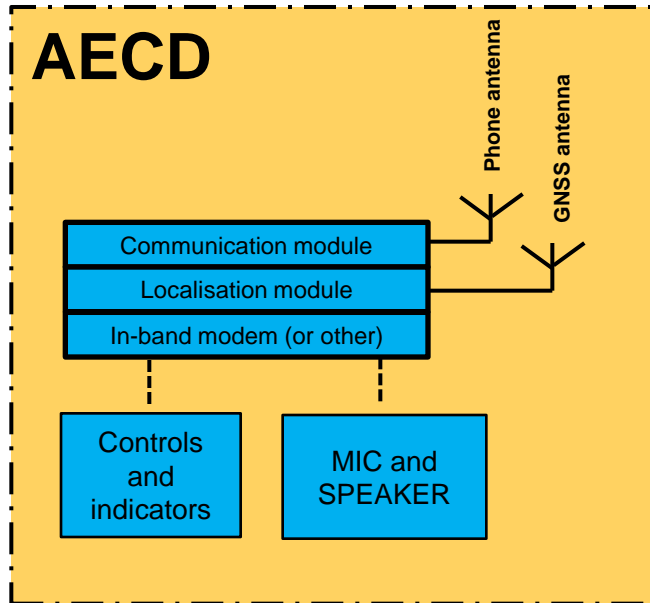
Conclusion:

Tests regarding UN R94 and R95 are intended to check the protection of the occupants.

AECD homologation – Component Approval



AECD homologation – Vehicle Approval



PERFORMANCE and/or FUNCTIONING TESTS

- AUDIO TEST
- PHONE TESTS
- GNSS TESTS
- HMI CHECK
- MANUAL ACTIVATION

Verification of generation of Trigger Signal (in minimum) under the conditions described in UN R94/R95

This can be done

- ✓ during R94/95 impact tests or
- ✓ via other measures

EMC TESTS IF COMPONENTS NOT APPROVED AS ESA

- ✓ UN R10

AECD without a back-up battery have to demonstrate that after the impact tests of UN R94/R95 on-board energy is still available

AECD homologation

PERFORMANCE and FUNCTIONING TESTS (not R94/95 related)

- AUDIO TEST
- PHONE TESTS
- GNSS TESTS
- HMI CHECK
- MANUAL ACTIVATION

VEHICLE

PHONE COMMUNICATION TESTS

(850 Mhz, 900 Mhz, 1,800 Mhz, 2,100 Mhz)

COMPONENT

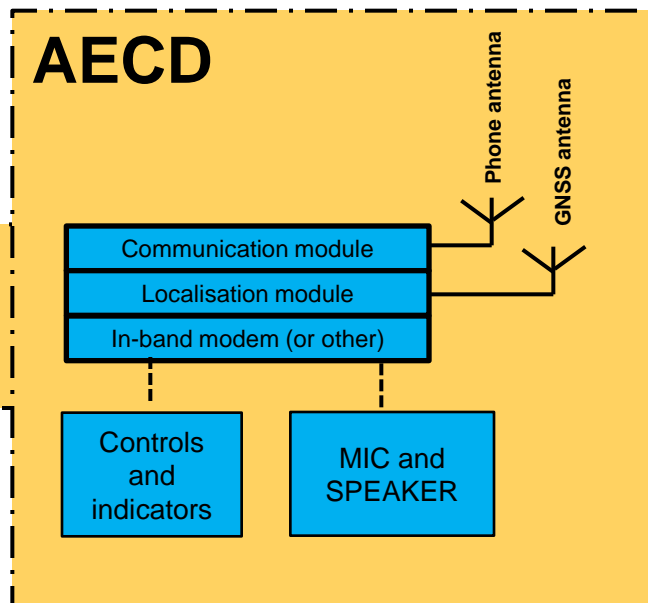
GNSS COMMUNICATION TESTS

(GPS, Glonass, Galileo, ...)

COMPONENT

AECD

Typical bracket
(same fixation
on vehicle)



MSD TRANSMISSION

- Fault management
- Content of MSD

COMPONENT

- ✓ Mechanical impact
- ✓ EMC as ESA (UN R10)

COMPONENT

Verification (in minimum) of

- generation of Trigger Signal during the UN R94/R95 impacts,
- audio capabilities and MSD transmission during crash test procedure.

This can also be done via other measures

EMC TESTS IF COMPONENTS NOT APPROVED AS ESA

- ✓ UN R10

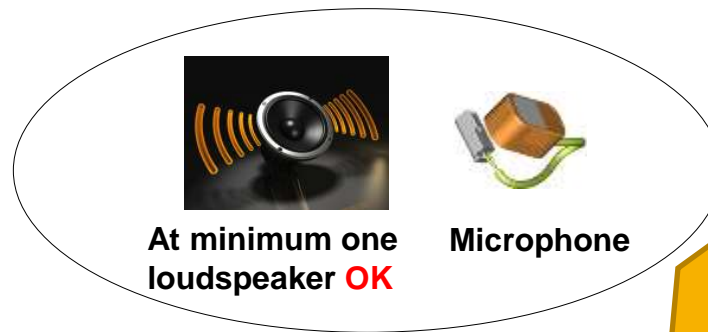
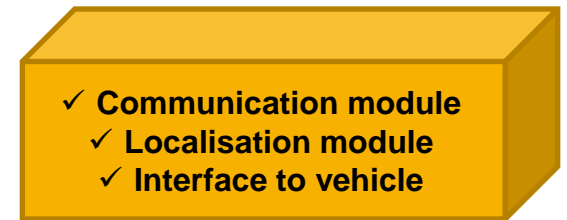
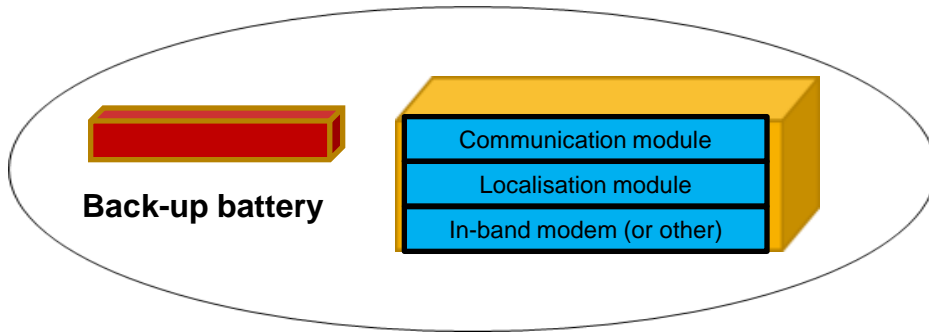
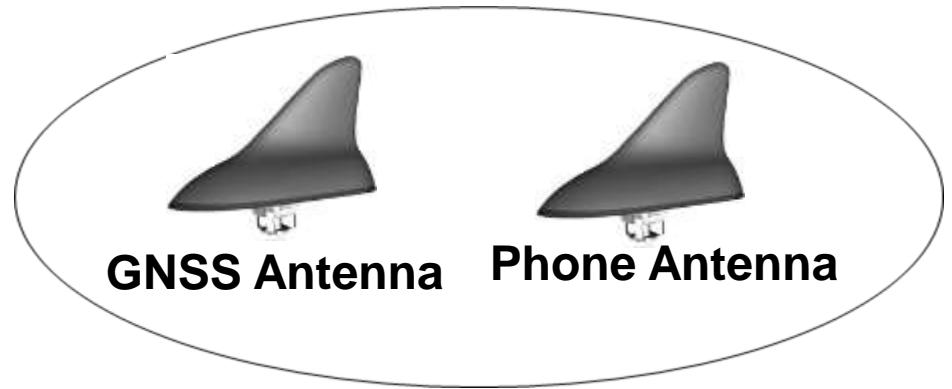
VEHICLE

AECD without a back-up battery have to demonstrate that after the impact tests of UN R94/R95 on-board energy is still available

VEHICLE

VEHICLE

Component Approval (Part I)



Necessary for voice connection (if mandatory)

IN VEHICLE PERFORMANCE and/or FUNCTIONING TESTS (Part II)

STEP 1

Verification of generation of Trigger Signal



- For vehicles of category M1 and N1 which are in the scope of R94 and/or R95 verification of generation of a trigger signal to AECD during impact test of R94 and/or R95
- If no backup battery is fitted: Check after impact that the onboard energy is still available

The manufacturer may show with other measures that

- the AECD system is triggered during severe accidents
- if no backup battery is fitted onboard energy is still available

IN VEHICLE PERFORMANCE and/or FUNCTIONING TESTS (Part II)

STEP 2 Verification of installation of AECD

Verification of reception quality for each antenna in-vehicle (phone, GNSS)



Audio functioning



Calibrated emission of phone and GNSS signals
(like EMC emission)



Real antennas
Installed in
vehicle

Vehicle on turn table for execute tests for several directions

IN VEHICLE PERFORMANCE and/or FUNCTIONING TESTS Part III)

STEP 1 & STEP 2 together

Verification of generation of Trigger Signal & installation of AECS



**Showing that an emergency call
been sent successfully after the
impact under R94 and R95**

IN VEHICLE PERFORMANCE and FUNCTIONING TESTS

STEP 3

Manual AECD activation



HMI conformity

✓ ECE121

Vehicles of category M1 and N1 not in the scope of UN R94 and/or R95 have to be equipped (at the minimum) with a manual activation of an emergency call.

Execute a manual emergency call with :

- ✓ real **PSAP** (with 112 or testing number)
- ✓ or **PSAP** dedicated to eCall test issue
- ✓ or **simulator** of PSAP (mobile network + GNSS + Audio vocal channel)