

Proposal for demonstrate procedure of AECS functional check after (R94,95) crash tests. (In the phase of certification)

CONCEPT

In UN regulation, functional test to demonstrate availability of AECS after crash should be conducted by any country, at any location.

In the case Japanese OEM want to export to EU or Russia.

Japanese regulation prohibit to transmit radio wave which has different features from permitted frequency (ex. GSM).

Also, this situation is same to OEM in EU or Russia which want to export to Japan or Korea(or other CP).



When the OEM of each country exports car to the other countries, the test should be taken in a certification organization in the own country.

JAMA proposed the functional check method in case the transmission of different frequency radio wave is prohibited.

Basically JAMA's propose is wired method And also JAMA proposed separated damage check for the cases vehicle has I/o which has wire cannot connect to AECD after crash test.

▪ In 10th IG Meeting, It is said that not only damage check, also function confirmation is necessary after R94/95.

So JAMA decide not to perform the function confirmation for every part. **Main change point**

▪ As alternative technique that connecting protected cable and terminator to unit before crash test and connecting to Simulator after crash is suggested.

▪ JAMA add the proposal of function confirmation method for Mobile Antenna and wire.

▪ Adding a method as Option to carry the damaged vehicle after the crash test to the shield room from a crash experiment area.

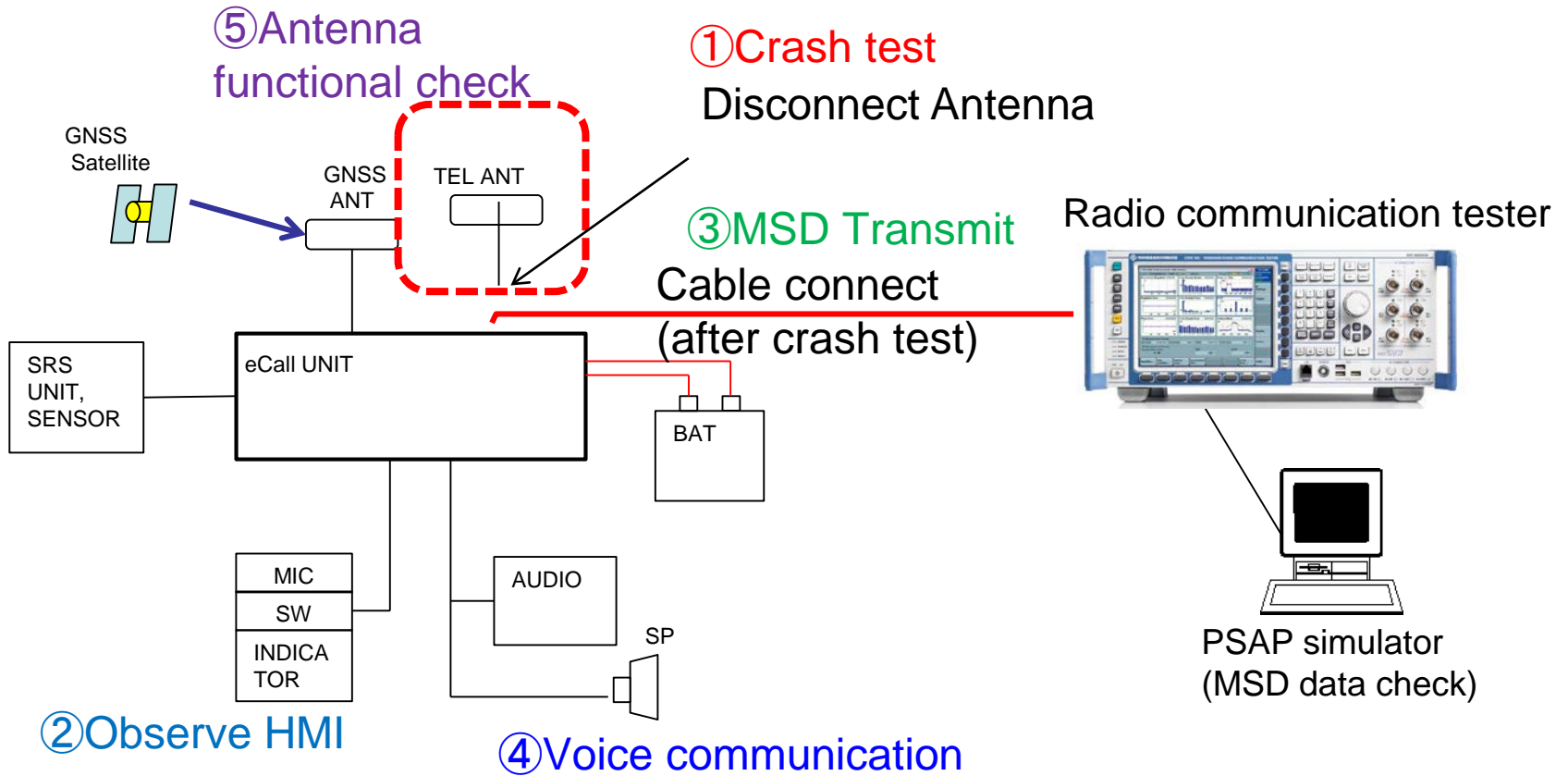
▪ Consolidated Annex9 and 10 is suggested according to the above-mentioned story.

The transmission tests using **radio wave which has different features from permitted frequency** are prohibited to conduct at open space (crash test area)

The method shall be chosen by agreement between the vehicle manufacturer and the technical service from followings options.

		Methods	Remarks
Option1	Transmit functional test with wired procedure	Connect co-axial cable to signal tester (Simulator) after crash test	This method can be conducted at crash test area.
Option2	Transmit functional test with radio wave	Transmit radio wave to signal tester in shield room	Need to carry damaged vehicle to shield room

AECS after collision confirmation method (Option 1)



① Crash test

- Install terminator of radio wave on AECD
- Disconnect TEL Antenna during crash test.

② Observe HMI

- Observation and recording of HMI are conducted at crash test.

③ MSD Transmit

- After crash test, connect co-axial cable to Radio communication tester.

(In the case vehicle has construction which has difficulty to connect cable after crash, pre-connecting cable and protect method is available.)

- Confirm whether AECD automatically informs the accident and send MSD data using crash signal from SRS.
- Manual button is available when AECD ended retry.

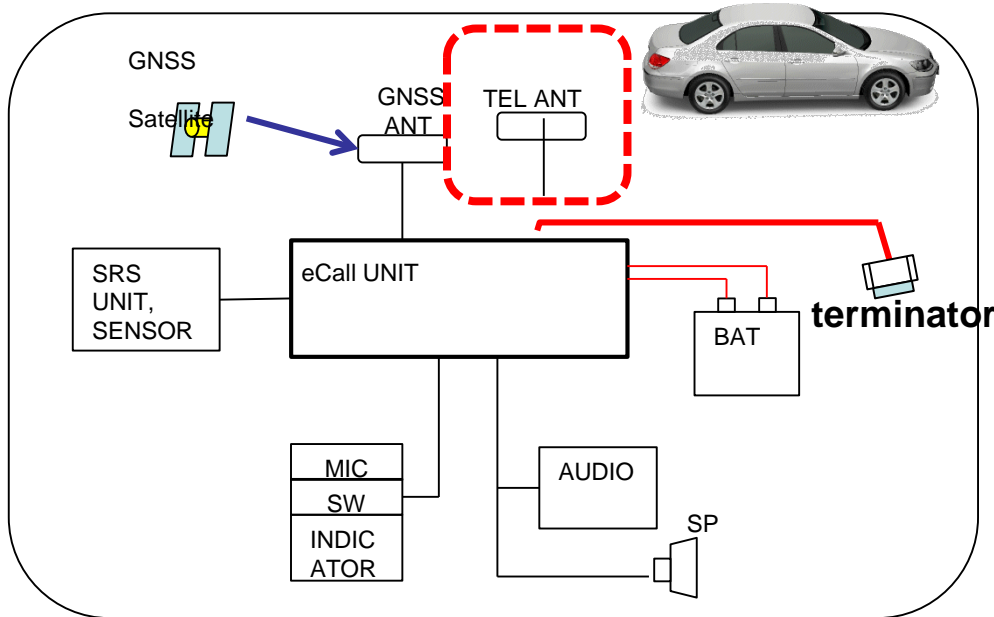
④ Voice communication

- Make voice call from inside of car, and PSAP simulator to confirm availability of microphone and speaker.

⑤ Antenna functional check

- Confirm validation of ANT and ANT harness after the crash. (measure VSWR)

AECS after collision confirmation method (Option 1)

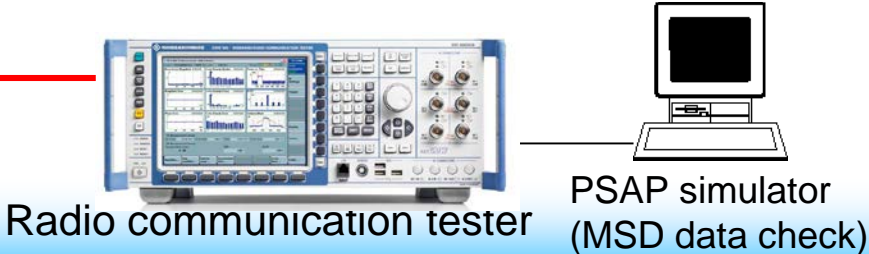
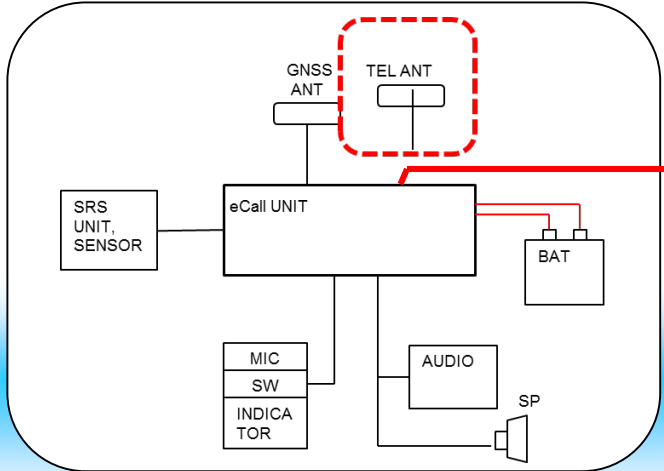


Countermeasure for the case vehicle has construction which has difficulty to connect cable after crash
 (JAMA has proposed separated functional check until 10th IG.)

During crash test
 Protected cable connected to AECD



After crash test
 Connect the cable to Simulator



AECS after collision confirmation item (Option 1)



The method by which this check is carried out shall be agreed between the vehicle manufacturer and the technical service with the method of assessment and results being appended to the type approval report.

Confirmation item (AECD)

Subject	Item subject to confirmation	Criteria	Example of the confirmation method
AECD	Activation of automatic call and dial-up.	Calling sequence to PSAP is performed after collision test	Confirm emergency calling sequence by PSAP simulator.
	Emission of MSD with antenna wire connection to simulator after the collision.	MSD has been emitted.	After completion of the emergency calling sequence, confirm the content of MSD

Confirmation item (Harness)

Subject	Item subject to confirmation	Criteria	Example of the confirmation method
Telephone antenna , Feeder wire	Function	Measured VSWR satisfy 'Do not be abnormal value (∞)'	Measure VSWR(Voltage Standing Wave Ratio)

*The format which described a standard and the sample of the test method every this examination item imitated R10

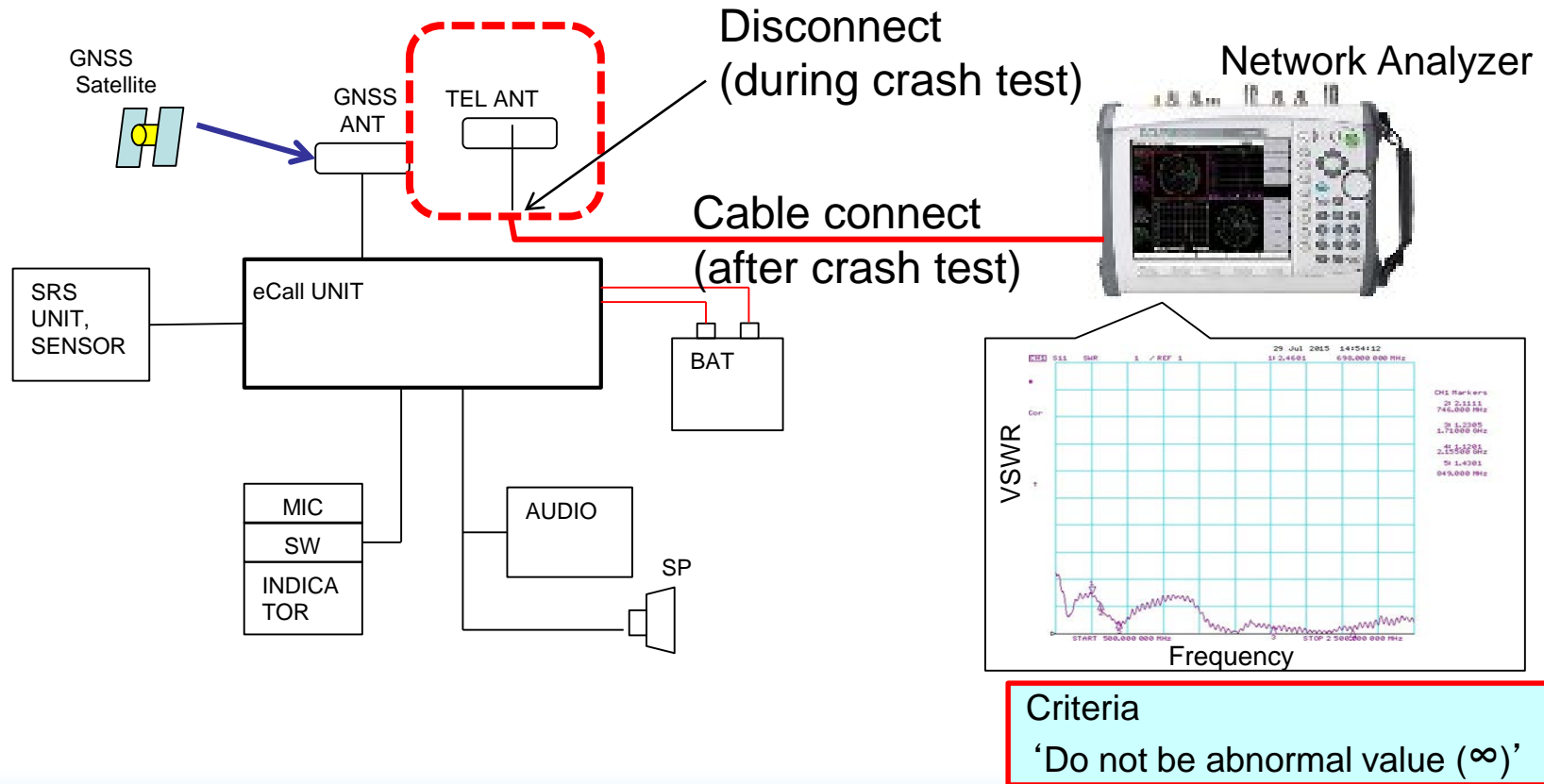
AECS after collision confirmation item (Option 1)



Confirmation item (Component)

Subject	Item subject to confirmation	Criteria	Example of the confirmation method
Tell-tale	Display	Correct operation during and after crash test	Visual observation and check operation
Microphone	Possibility of voice communication	Voice message from vehicle can be confirmed at PSAP simulator.	<p>Confirm voice condition during talking test with wire procedure.</p> <p>One inspector of the technical service makes telephone call to another inspector of PSAP simulator side through PSAP simulator.</p> <p>The language and sentence used for the test shall be one of those listed in appendix 1 to this Annex.</p> <p>The rated performance according to appendix 2 to this Annex shall, be at least “3”</p>
Speaker		Voice message from PSAP simulator can be confirmed at vehicle side.	

Method to measure VSWR(Voltage Standing Wave Ratio)

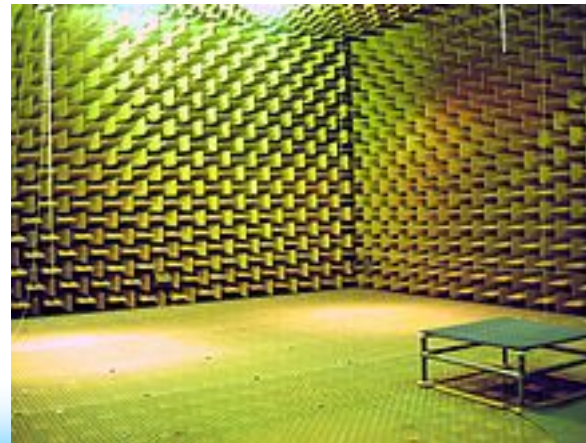
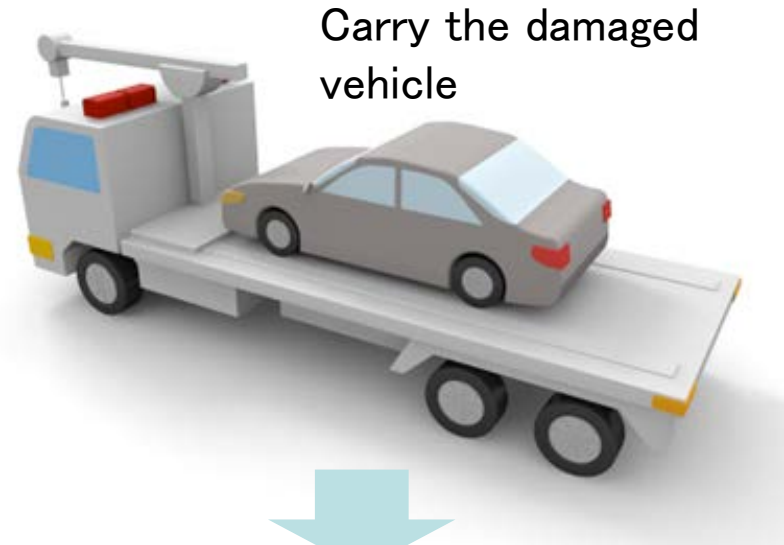


This method need simple measure instrument and measuring VSWR(Voltage Standing Wave Ratio)is easy.

AECS after collision confirmation method (Option 2)



Crash test
(Protect transmit radio wave)



Transmit test
using radio wave
in shield room

If it is possible to keep the condition (ex. Battery voltage) of the vehicle during conveyance, the certification test using the radio wave is enabled in a shield room.

END