



# Economic and Social Council

Distr.: General

XX XXX 2018

Original: English

---

## Economic Commission for Europe

### Inland Transport Committee

### World Forum for Harmonization of Vehicle Regulations

#### Working Party on Lighting and Light-Signalling

#### Eightys session

Geneva, 25<sup>th</sup> October 2018

Item XX of the provisional agenda

#### Other Regulations:

Regulation No. 10 (Electromagnetic compatibility)

## **Proposal for the 06 series of amendments to Regulation No. 10 (Electromagnetic compatibility)**

### **Submitted by the Task Force on Electromagnetic Compatibility (TF EMC)\***

The text reproduced below was prepared by TF EMC with the aim :

- to clarify definition of OTS
- to update failure criteria for vehicle in charging mode
- to update figures for ESE immunity test in annex 9

The modifications are marked in bold for new or strikethrough for deleted characters.

---

\* In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/254, para. 159 and ECE/TRANS/2016/28/Add.1, cluster 3.1), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

## I. Proposal

Paragraph 2., add new paragraph 2.25:

**“2.25. “Outdoor Test Site (OTS)” measurement site similar to an open area test site as specified in CISPR 16, however a ground plane is not required and there are dimensional changes.”**

Annex 6, paragraph 2.2.1.2., table amend to read:

| “1 “REESS charging mode” vehicle test conditions   | Failure criteria  |
|--|---|
| <p>The REESS shall be in charging mode. The REESS State of charge (SOC) shall be kept between 20 per cent and 80 per cent of the maximum SOC during the whole frequency range measurement (this may lead to split the measurement in different sub-bands with the need to discharge the vehicle’s traction battery before starting the next sub-bands). If the current consumption can be adjusted, then the current shall be set to at least 20 per cent of its nominal value.</p> <p>In case of multiple batteries the average state of charge must be considered.</p> | <p>Vehicle sets in motion.</p> <p><del>Electric parking brake warning indicator OFF</del></p> <p><b>Unexpected release of the parking brake.</b></p> <p><b>Loss of Parking position for automatic transmission.</b></p> |

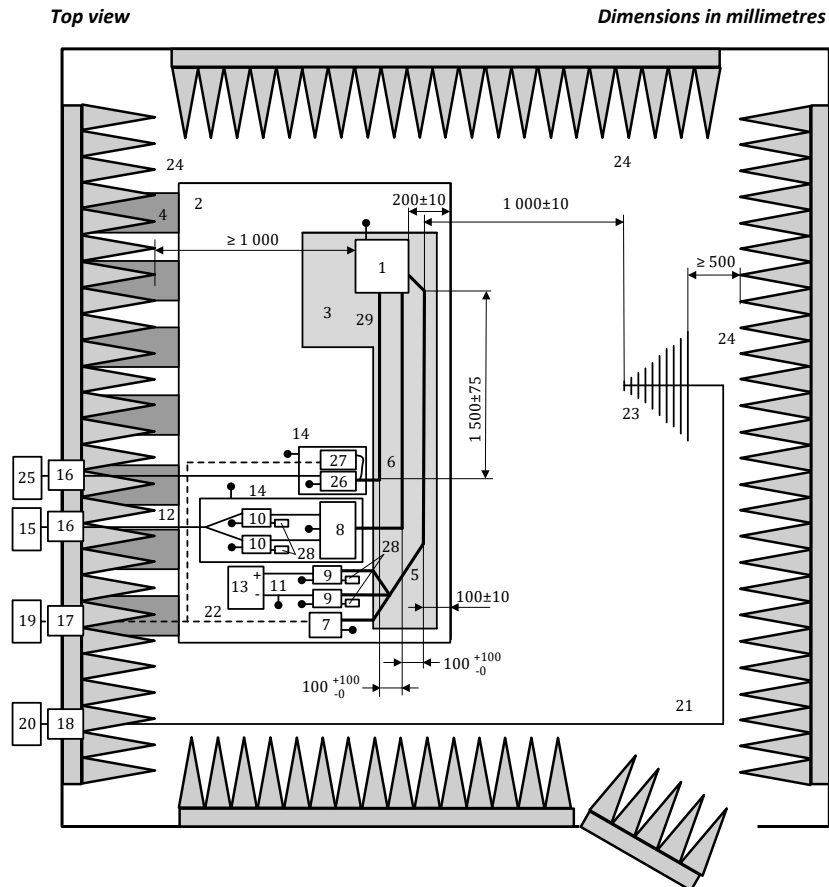
Annex 9, appendix 3, delete and replace by:

“Absorber chamber test

Test configuration for ESA's involved in "REESS charging mode coupled to the power grid". The test shall be performed according to ISO 11452-2.

**Figure 1**

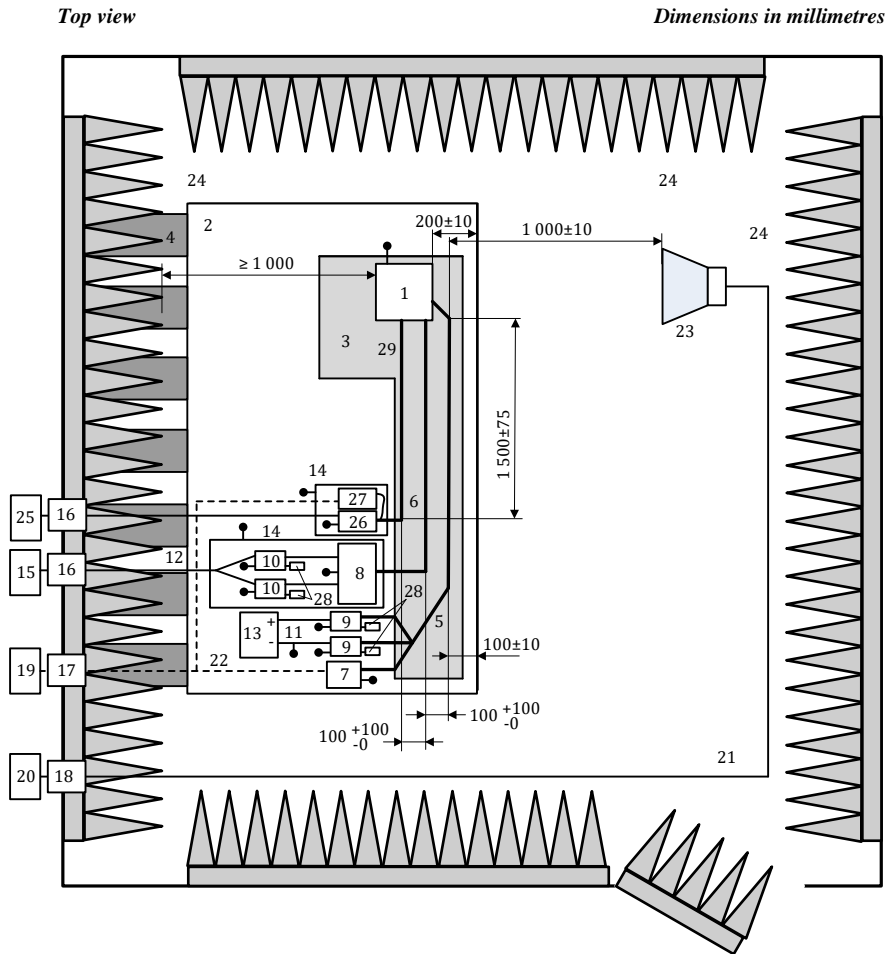
**Example of test set-up for log-periodic antenna**



**Legend:**

- |    |  |    |  |
|----|--|----|--|
| 1  | ESA (grounded locally if required in test plan)                              | 16 | power line filter  |
| 2  | ground plane   | 17 | fibre optic feed through                                       |
| 3  | low relative permittivity support ( $\epsilon_r \leq 1.4$ ); thickness 50 mm | 18 | bulk head connector  |
| 4  | ground straps  | 19 | stimulating and monitoring system                              |
| 5  | LV harness   | 20 | RF signal generator and amplifier                              |
| 6  | HV lines (HV+, HV-)  | 21 | high quality coaxial cable e.g. double shielded (50 $\Omega$ ) |
| 7  | LV load simulator  | 22 | optical fibre  |
| 8  | impedance matching network (optional)  | 23 | log-periodic antenna   |
| 9  | LV AN  | 24 | RF absorber material   |
| 10 | HV AN  | 25 | a.c. power mains   |
| 11 | LV supply lines  | 26 | AMN for a.c. power mains                                       |
| 12 | HV supply lines  | 27 | a.c. charging load simulator                                   |
| 13 | LV power supply 12 V / 24 V / 48 V (placed on the bench)                     | 28 | 50 $\Omega$ load   |
| 14 | additional shielded box (optional)   | 29 | a.c. lines   |
| 15 | HV power supply (should be shielded if placed inside ALSE)                   |    |  |

**Figure 2**  
**Example of test set-up for horn antenna**



**Legend:**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1 ESA (grounded locally if required in test plan)</li> <li>2 ground plane</li> <li>3 low relative permittivity support (<math>\epsilon_r \leq 1.4</math>); thickness 50 mm</li> <li>4 ground straps</li> <li>5 LV harness</li> <li>6 HV lines (HV+, HV-)</li> <li>7 LV load simulator</li> <li>8 impedance matching network (optional)</li> <li>9 LV AN</li> <li>10 HV AN</li> <li>11 LV supply lines</li> <li>12 HV supply lines</li> <li>13 LV power supply 12 V / 24 V / 48 V (placed on the bench)</li> <li>14 additional shielded box (optional)</li> <li>15 HV power supply (should be shielded if placed inside ALSE)</li> </ul> | <ul style="list-style-type: none"> <li>16 power line filter</li> <li>17 fibre optic feed through</li> <li>18 bulk head connector</li> <li>19 stimulating and monitoring system</li> <li>20 RF signal generator and amplifier</li> <li>21 high quality coaxial cable e.g. double shielded (50 <math>\Omega</math>)</li> <li>22 optical fibre</li> <li>23 horn antenna</li> <li>24 RF absorber material</li> <li>25 a.c. power mains</li> <li>26 AMN for a.c. power mains</li> <li>27 a.c. charging load simulator</li> <li>28 50 <math>\Omega</math> load</li> <li>29 a.c. lines</li> </ul> |
|--|--|

## II. Justification

1. The wording OTS need to be clarified in order to avoid misunderstanding (OTS site can be with or without ground plane).
  2. The failure criteria "Electric parking brake warning indicator OFF" is not applicable for all types of electric or hybrid vehicles in charging mode (some vehicles may not have a warning indicator, for some other vehicles the electric parking brake indicator may light on only for a few seconds, ...). The proposed updated failures criteria are more representative for existing vehicles.
  3. The figure provided in Annex 9, appendix 3 was not in line with ISO 11452-2 in which horn antenna is placed facing the ESA. An additionnal figure for log-periodic antenna has been added (with the antenna facing the middle of the harness as defined in ISO 11452-2 for this kind of antenna)
-