



Informal document **GRE-68-19**
(68th GRE, 15-18 October 2012,
agenda item 18(f))

Background information on GRE/2012/44 (EMC)

Proposal for the 05 series of amendments of Regulation No. 10

October 2012

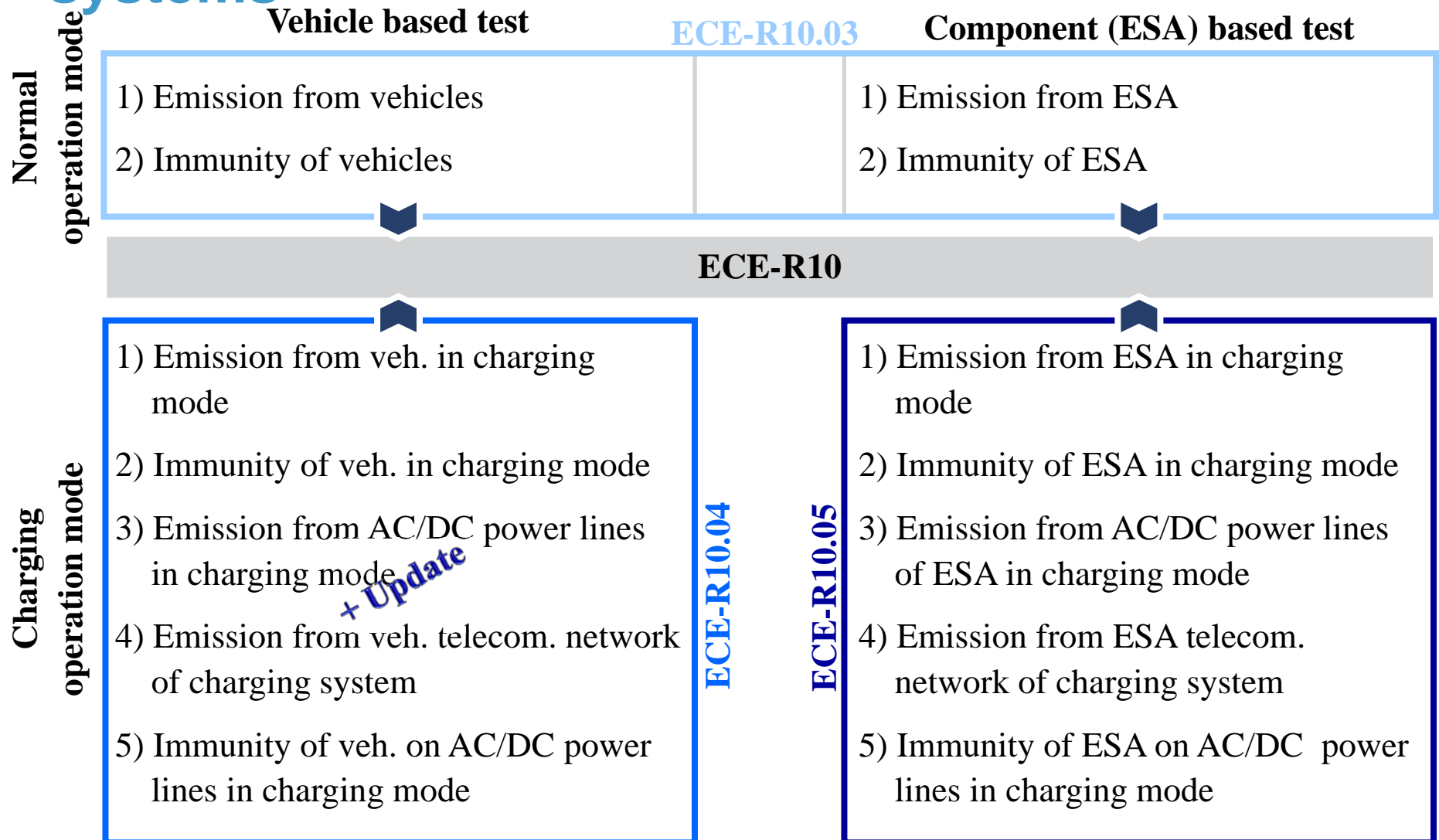
Objective

- The proposed changes are based on the latest version of ECE-R10:

Series 04 of amendments to regulation ECE-R10 (WP.29/2011/8 + para. 53) at last amended by correction 1 (WP.29/2011/83) and correction 2 (WP.29/2011/129) and supplement 2 (WP.29/2012/66)

- The main objective of series 04 was to extend the scope of the Regulation No. 10 to the **charging mode of electric vehicle**.
- The main objectives of the proposed series 05 are two types of amendments:
 - Type 1) The **extension** of the scope of the Regulation No. 10 to the **charging mode of involved charging components** (ESA's like on-board charger).
 - Type 2) The **update** of the measurement setups and procedures **in accordance with the latest IEC, ISO and CISPR standards**.

Extensions of ECE-R10 to include charging systems



Types of modifications

Type 1 – Amendments related to components in charging mode

- **Amendments related to components (ESA's) in charging mode** have been added in paragraph 7.10 – 7.19 and accordingly in annexes 17 – 22.
 - Paragraphs 7.10 – 7.14 & 7.17 considering emissions from ESA's in charging mode according to CISPR and IEC standards
 - Paragraphs 7.15, 7.16 & 7.18, 7.19 considering immunity of ESA's in charging mode according to IEC and ISO standards
- The **requirements (limits) for the ESA's have been overtaken** from the vehicle test which are already defined in ECE-R10.04 (paragraph 7.2 – 7.9)
- The **measurement setups and procedures have been adjusted** to allow a component test in the following points:
 - ESA operation state during the test was defined
 - The vehicle was replaced by the ESA and measurement setup has been adjusted accordingly

Types of modifications

Type 1 - Overview of amendments for ESA's in charging mode 1/2

| New paragraph and requirement for ESA | Annex with measurement procedure | Related standards |
|---|---|---|
| 7.10. Specifications concerning broadband electromagnetic interference caused by ESAs | Update annex 7 (already existing for ESA test acc. To R10.03) | According to CISPR 25 |
| 7.11. Specifications concerning emission of harmonics on AC power lines from ESAs | New annex 17 | According to IEC 61000-3-2 , IEC 61000-3-12 |
| 7.12. Specifications concerning emission of voltage changes, voltage fluctuations and flicker on AC power lines from ESAs | New annex 18 | According to IEC 61000-3-3 , IEC 61000-3-11 |
| 7.13. Specifications concerning emission of radiofrequency conducted disturbances on AC or DC power lines from ESA | New annex 19 | According to CISPR 16-2-1; limits according IEC 61000-6-3 |
| 7.14. Specifications concerning emission of radiofrequency conducted disturbances on network and telecommunication access from ESA | New annex 20 | According to CISPR 22; limits according IEC 61000-6-3 |

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Types of modifications

Type 1 - Overview of amendments for ESA's in charging mode 2/2

| New paragraph and requirement for ESA | Annex with measurement procedure | Related standards |
|---|--|--|
| 7.15. Specifications concerning the immunity of ESAs to electrical fast transient/burst disturbances conducted along AC and DC power lines | New annex 21 | According to IEC 61000-4-4 |
| 7.16. Specifications concerning the immunity of ESAs to surge conducted along AC or DC power lines | New annex 21 | According to IEC 61000-4-5 |
| 7.17. Specifications concerning the emission of transient conducted disturbances generated by ESAs on 12/ 24 V supply lines | Update annex 10 (already existing for ESA test acc. To R10.03) | ISO 7637-2 |
| 7.18. Specifications concerning immunity of ESAs to electromagnetic radiation | Update annex 9 (already existing for ESA test acc. To R10.03) | ISO 11452-2 (ALSE), ISO 11452-4 (BCI) |
| 7.19. Specifications concerning the immunity of ESAs to transient disturbances conducted along 12/ 24 V supply lines. | Update annex 10 (already existing for ESA test acc. To R10.03) | ISO 7637-2 |

Types of modifications

Type 2 – Amendments related to vehicles in charging mode

- **Changes related to vehicles in charging mode** dealing with more accurate description, editorial corrections and updated version of referenced standards, are:
 - Update of definitions (e.g. RESS → REESS)
 - Precision of test procedure regarding the used charging cable
 - Characterization of “artificial network” for test setups
 - More precise definition for surge test method added
 - Update of chapter “exceptions”
 - Update of references to standards, figures and tables
 - Amendment of transitional provisions and information document
 - Precision of measurement setups for vehicles and ESA’s in charging mode for several annexes (SOC condition, position of charging station / power mains / artificial network / impedance stabilisation / power charging / communication cable, adjustment of spectrum analyser- / receiver)
 - Update of all relevant figures for vehicles and ESA’s in charging mode



Thank You
