

CRS-27-10



Dummy References and Technical Specifications in ECE-Regulations

Paris, 8th September 2011

Current Situation

- Annex 8
 - Description of dummies
- 1. General
 - 1.1. The dummies prescribed in this Regulation are described in this Annex, in technical drawings held by First Technology Safety Systems and in the user manuals delivered with the dummies.
 - 1.2. Alternative dummies may be used provided that:
 - 1.2.1. their equivalence can be demonstrated to the satisfaction of the competent authority, and
 - 1.2.2. their use is recorded in the test report, and in the communication form described in Annex 1 to this Regulation.
- 2. Description of the Dummies
 - 2.1. The dimensions and masses of the Q0, Q1, Q1.5, Q3 and Q6 [and Q10] dummies described below are based on the anthropometry of 50th per centile children aged 0, 1, 1.5, 3 and 6 [and 10.5] years respectively.
 - 2.2. The dummies consist of a metal and plastic skeleton covered with plastic skinned foam parts to complete body components.
 - 2.3. For an overview of the dummies, see below:
- [to be defined]

Current Situation

- Insufficient descriptions and specifications of the measurement device „Dummy“ within the ECE regulations (References to User's Manual)
- Sufficient dummy specifications if used in FMVSS (49 CFR Part 572)
- ECE regulations are dependent on the products of a single company
- Current monopoly situation of the dummy market does not provide alternatives for dummies which are not specified in FMVSS (e.g. Q-Dummy)

Recommendation

- Introduction of an ECE-Dummy and –Measurement Device reference list (e.g. ECE-Rxxx) including detailed descriptions and technical drawings (according to Part 572)
 - Key Benefits:
 - Ensure the availability of regularized measurement devices
 - Possibility of alternatives in case of economic difficulties of the dummy-/measurement device manufacturer (see current monopoly)
 - Update of the reference list without changing the regulation document

Approach

- Reference list similar to U.S. Regulation (49 CFR Part 572)
- Detailed description of the measurement devices
 - Public domain technical drawings (2D, 3D)
 - Instrumentation and filter classes
 - Precisely described performance requirements (certification tests, -requirements and -equipment)
- No link to a specific manufacturer

Backup



Proposal – Option 1



- Definition of a new ECE regulation with all dummies (similar to U.S. legislation part 572)
- Link in new ECE-R44 to a “dummy ECE-Rxxx”
- Example
 - Replacement of Annex 8 including all sub-parts by the following article:
Annex 8
Description of dummies
1 General
1.1 The dummies prescribed in this Regulation are described in ECE-Rxxx.

Proposal – Option 2

- Detailed description of **ALL** prescribed dummies in the new ECE-R44 (according to U.S. legislation part 572)
- Example
 - Replacement of Annex 8 including all sub-parts by the following article:
 - Annex 8*
 - Description of dummies*
 - 1 Q0
 - 1.1 Incorporated material
 - 1.2 General description
 - 1.3 Head assembly
 - ...
 - 1.n Instrumentation and test conditions
 - 2 Q1
 - ...

Description of the dummies (separate ECE or new Annex 8)

Incorporated material

- Reference to the drawings
- Reference to the dummy users manual
- Reference to the sign conventions of the instrumentation

General description

- Exterior dimensions
- Weights of the body segments

Head/neck/thorax... assembly

- General description (reference to the drawings)
- Instrumentation
- Description and requirements of the certification tests

Instrumentation and test conditions

- Filtering of signals
- Adjustment of the limb joints
- Temperature and humidity

Example: ECE-R44

Annex 8: DESCRIPTION OF MANIKINS (P3/4, P3, P6, P10)

1. General

1.1. The manikins prescribed in this Regulation are described in Appendices 1 to 3 to this annex, and in technical drawings produced by the TNO (Research Institute for Road Vehicles), Schoemakerstraat 97, 2628 VK Delft, The Netherlands.

1.2. Alternative manikins may be used provided that:

1.2.1. Their equivalence can be demonstrated to the satisfaction of the competent authority, and

1.2.2. Their use is recorded in the test report, and in the communication form described in Annex 1 to this Regulation.

➔ Rudimentary dummy description in Appendix 1 to 3. Contents largely adopted from User's Manuals.

**➔ Technical drawings respectively detailed dummy specifications not available.
➔ Know-how of the dummy manufacturer!**

Example: ECE-R94

Annex 3 – Pkt. 2: DUMMIES

2.1.1. A dummy corresponding to the specifications for Hybrid III (1) fitted with a 45° ankle and meeting the specifications for.....The ankle of the dummy shall be certified in accordance with the procedures in Annex 10.

(1) The technical specifications and detailed drawings of Hybrid III, corresponding to the principal dimensions of a fiftieth percentile male of the United States of America, and the specifications for its adjustment for this test are deposited with the Secretary-General of the United Nations and may be consulted on request at the secretariat of the Economic Commission for Europe, Palais des Nations, Geneva, Switzerland.

➔ ***Availability of detailed dummy specifications due to the disclosure obligation of FMVSS!***

Annex 10:

1.2. The complete Hybrid III lower leg assembly, left (86-5001-001) and right (86-5001-002), equipped with the foot and ankle assembly, left (78051-614) and right (78051-615), shall be used, including the knee assembly.

➔ ***Description only by the part numbers of a certain dummy manufacturer***

Example: ECE-R95

Annex 6 (Rev.1/Add.94/Ammend.4): Technical Description of the Side Impact Dummy

1. GENERAL

- 1.1. The side impact dummy prescribed in this Regulation, including the instrumentation and calibration, is described in technical drawings and a user's manual **(1)**.
- 1.2. The dimensions and masses of the side impact dummy represent a 50th percentile adult male, without lower arms.
- 1.3. The side impact dummy consists of a metal and plastic skeleton covered by flesh simulating rubber, plastic and foam.

(1) The dummy is corresponding with the specification of the ES-2 dummy. The number of the table of contents of the technical drawing is : No. E-AA-DRAWING-LIST-7-25-032 dated on 25 July 2003. The complete set of ES-2 technical drawings and the ES-2 User Manual are deposited with the United Nations Economic Commission for Europe (UNECE), Palais des Nations, Geneva, Switzerland and may be consulted on request at the secretariat.

➔ Availability of detailed dummy specifications due to the disclosure obligation of FMVSS!