



12449018

## **Procedure for Testing Passing Beam Headlamps Manufactured According to U.S.A. Federal Regulation**

### **1. Background**

- 1.1 The Israeli Traffic Regulations allows the import of vehicles equipped with headlamps manufactured according to the European Community regulation only.
- 1.2 The exception to this rule is the import of vehicles manufactured according to the U.S.A. Federal Motor Vehicle Safety Standards equipped with headlamps manufactured according to FMVSS/CMVSS 108 undergo testing according to this procedure and receive the approval of the Ministry of Transport and Road Safety (MOT) Vehicle Department.
- 1.3 This document has been specifically developed by the MOT to present a test procedure for headlamps manufactured according to FMVSS/CMVSS 108 and to specify the adjusting specifications of the lamps when installed on the vehicle.
- 1.4 The MOT reserves the right to update the procedure during the implementation.

### **2. Scope**

The purpose of this document is to establish a regulatory policy for the approval and documentation of vehicles equipped with headlamps manufactured according to FMVSS/CMVSS 108, in order to enable their use in Israel.

### **3. Method**

- 3.1 Testing is carried out in accordance with ECE passing beam regulation.
- 3.2 Testing focuses on road illumination, traffic sign visibility, pedestrian visibility and glare prevention, as follows:
  - 3.2.1 Illuminance is measured above the H-H line for maximum permitted illumination values and traffic sign visibility.
  - 3.2.2 Illuminance is measured below the H-H line for illumination values guaranteeing road illumination, pedestrian visibility and traffic sign visibility.
- 3.3 Light distribution test: allows deviation from regulation values as detailed in Section 4.



- 3.4 Cut-off: the light distribution of the passing beam headlamp shall incorporate a "cut-off" which is in accordance with the corresponding ECE regulation (e.g., ECE Regulation No. 112, Chapter 6, Figure 1) and which enables the headlamp to be adjusted correctly for photometric measurements and aiming.
- 3.5 Testing of the headlamp according to this procedure shall be carried out by an approved technical service as defined in Directive 2007/46/EC or by an accredited Israeli technical service.
- 3.6 Testing shall include both headlamps (right and left sides).

#### 4. Testing

4.1 Illuminance shall be tested using a goniophotometer at a measurement distance of 25 meters and with headlamp aiming at 1 per cent (according to Chapter 6.2.2.1), or headlamp aiming down from the H-H as specified by the vehicle manufacturer in accordance with one of the following Regulations:

4.1.1 DOT VOL or VOR types according to:

ECE-R112 for headlamps emitting an asymmetrical passing beam and equipped with filament lamps and/or LED modules

- A. The passing beam light will be tested in accordance with ECE-R112 paragraph 6.2 'Provisions Concerning Passing Beams'
- B. The headlamp passing beam must produce a satisfactory cut-off
- C. The passing beam shall meet the luminous intensities at the test points as defined in paragraph 6.2.4
- D. Notwithstanding in paragraph C the measured values may deviate unfavorably up to 20% from the values prescribed in paragraph 6.2.4.
- E. For values in Zone III the maximum unfavourable deviation may be up to 380 cd.
- F. For value at point B50L the maximum unfavorable deviation may be up to 255 cd.
- G. If the results of the tests described above do not meet the requirements, the alignment of the headlamp may be changed, provided that the axis of the beam is not displaced laterally by more than 1 deg. to the right or left and provided such an alignment is possible on the specific vehicle.
- H. An additional tolerance of up to 5% of the measured values will be accepted.
- I. Vehicles with headlamps using LED modules to provide a passing beam having an objective luminous flux which exceeds 2,000 lumen, shall be equipped with automatic leveling systems in accordance with



the load distributions described in Annex 5 of ECE Regulation No. 48.

4.1.2 Other types not designated as DOT VOL or VOR including symmetrical types according to:

ECE-R112 for headlamps emitting an asymmetrical passing beam and equipped with filament lamps and/or LED modules

- A. The passing beam light will be tested in accordance with ECE-R112 paragraph 6.2 'Provisions Concerning Passing Beams'
- B. The passing beam shall meet the luminous intensities at the test points as defined in paragraph 6.2.4
- C. Notwithstanding in paragraph C the measured values may deviate unfavorably up to 20% from the values prescribed in paragraph 6.2.4.
- D. For values in Zone III the maximum unfavourable deviation may be up to 380 cd.
- E. For value at point B50L the maximum unfavourable deviation may be up to 255 cd.
- F. If the results of the tests described above do not meet the requirements, the alignment of the headlamp may be changed, provided that the axis of the beam is not displaced laterally by more than 1 deg. to the right or left and provided such an alignment is possible on the specific vehicle.
- G. An additional tolerance of up to 5% of the measured values will be accepted.
- H. Vehicles with headlamps using LED modules to provide a passing beam having an objective luminous flux which exceeds 2,000 lumen, shall be equipped with automatic leveling systems in accordance with the load distributions described in Annex 5 of ECE Regulation No. 48.
- I. The headlamp passing beam must meet the minimum illumination values at designated points as follows:

Test Point designation	Minimum
	cd
0.50U, 2R	625



#### 4.1.3 ECE-R98 for headlamps equipped with gas-discharge light source

- A. The passing beam light will be tested in accordance with ECE-R98 paragraph 6.2 'Provisions Concerning Passing Beams'
- B. The headlamp passing beam must produce a satisfactory cut-off
- C. The passing beam shall meet the luminous intensities at the test points as defined in paragraph 6.2.4
- D. Notwithstanding in paragraph C the measured values may deviate unfavorably up to 20% from the values prescribed in paragraph 6.2.4.
- E. For values in Zone III the maximum unfavourable deviation may be up to 380 cd.
- F. For value at point B50L the maximum unfavorable deviation may be up to 255 cd.
- G. If the results of the tests described above do not meet the requirements, the alignment of the headlamp may be changed, provided that the axis of the beam is not displaced laterally by more than 1 deg. to the right or left and provided such an alignment is possible on the specific vehicle.
- H. An additional tolerance of up to 5% of the measured values will be accepted.
- I. Vehicles with passing beam headlamps equipped with gas- discharge lamps having an objective luminous flux which exceeds 2,000 lumen shall be equipped with automatic leveling systems in accordance with the load distributions described in Annex 5 of ECE Regulation No. 48.

#### 4.1.4 Adaptive Front-lighting System

Vehicles manufactured according to the U.S.A. Federal Motor Vehicle Safety Standards and equipped with AFS headlamps will be accepted in Israel without the need to undergo testing according to this procedure

#### 4.1.5 Headlamps for two and three-wheeled motor cycle and quadricycle vehicles according to:

##### ECE-R113 for headlamps emitting a symmetrical passing beam and equipped with filament, gas-discharge light sources or LED modules

- A. The passing beam light will be tested in accordance with ECE-R112 paragraph 6.2 'Provisions Concerning Passing Beams'
- B. The headlamp passing beam must produce a satisfactory cut-off
- C. The passing beam shall meet the luminous intensities at the test points as defined in paragraph 6.2.4



- D. Notwithstanding in paragraph C the measured values may deviate unfavorably up to 20% from the values prescribed in paragraph 6.2.4.
- E. For values in Zone III the maximum unfavourable deviation may be up to 380 cd.
- F. For value at point B50L the maximum unfavorable deviation may be up to 255 cd.
- G. If the results of the tests described above do not meet the requirements, the alignment of the headlamp may be changed, provided that the axis of the beam is not displaced laterally by more than 1 deg. to the right or left and provided such an alignment is possible on the specific vehicle.
- H. An additional tolerance of up to 5% of the measured values will be accepted.

#### 4.2 Light Sources (Lamps)

The MOT gives preference to U.S.A. headlamps comprising a lamp complying with ECE Regulation No. 37 (filament lamps) and/or ECE Regulation No. 99 (gas-discharge lamps). Headlamps with lamps that are not in compliance with ECE-R37 will be tested individually, and in some cases additional testing may be required:

- 4.2.1 Headlamps conforming to FMVSS/CMVSS 108 equipped with lamps complying with ECE-R37 requirements and marked with H3, H4, H7, H11, H13, etc., shall be tested with a standard (etalon) lamp in accordance with ECE-R37.
- 4.2.2 Headlamps conforming to FMVSS/CMVSS 108 equipped with lamp units that do not comply with ECE R37 requirements will be tested with the original lamp installed in the headlamp unit.
- 4.2.3 Headlamp units conforming to FMVSS/CMVSS 108, comprising a lamp not in accordance with ECE R37 will be approved only if the provided lamp has clearly marked SAE or DOT and has the manufacturer markings.



## **5. Technical Report**

The laboratory report includes the following parameters:

- 5.1 The model of the vehicle equipped with the tested headlamp.
- 5.2 Light source specifications, lamp unit specifications and approval markings according to FMVSS.
- 5.3 Itemization of the tests carried out and their results:
  - 5.3.1 Declaration that the passing beam headlamp produces a satisfactory cut-off, adjustable in accordance with Chapter 6.2 of the corresponding ECE Regulation. If headlamp classes are defined differently in the ECE Regulation, the corresponding class should be stated (e.g. class A for ECE-R112).
  - 5.3.2 Illuminance distribution (isolux distribution) of the passing beam from the test sample for right side headlamps.
  - 5.3.3 Illuminance distribution (isolux distribution) of the passing beam from the test sample for left side headlamps.
  - 5.3.4 Technical report stating whether or not the passing beam complies with procedure, and explanation.



APPENDIX 1: ISOLUX DISTRIBUTION

