GM	WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW15898

Inside Rear View Mirror - Auto-Dimming Function Verification Test

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. Functional verification test of the automatic dimming feature of the Inside Rear View Mirror (ISRVM).

Note: This GMW is not intended to be a validation test of the Component Technical Specifications (CTS), as the supplier is engineering responsible for component level validation (Level III Supplier Integration). As such, each subsequent program with usage of an auto-dimming ISRVM is NOT expected to perform this GMW to verify the auto-dimming ISRVMs functionality. The ISRVMs auto-dimming reflectance requirements (CTS) are documented in GMW16159.

The purpose of this GMW is to provide a simple procedure to confirm basic auto-dimming ISRVM functionality if it is ever questioned in a vehicle assembly plant, in a dealership, during proving grounds vehicle level testing, or vehicle electrical-bench testing to protect against and/or to detect a quality spill.

1.2 Applicability. This procedure applies to all passenger cars, light duty trucks, and medium duty trucks having auto-dimming (i.e., light sensitive, ElectroChromic (EC), or variable-reflectance) ISRVMs.

1.3 Remarks.

1.3.1 The auto-dimming (variable reflectance) feature detects forward and rear light conditions and then adjusts the reflectance level of the mirror to eliminate unwanted rear glare by the use of two photoelectric sensors. The reflectance level is variable and is dependent on the amount of rear glare in relationship to ambient conditions. Any light source viewed in the rear view mirror can be considered glare during nighttime conditions.

When the forward-facing Ambient Light Sensor (ALS) detects daytime conditions, the rearward-facing “glare” sensor is inactive and the mirror remains in a high reflectance mode.

When nighttime conditions are sensed by the forward sensor, the rear-facing sensor is active and detects glare from rearward approaching vehicles and/or other glare producing light sources. The mirror will automatically adjust to a lower variable reflectance mode to remove the unwanted glare from the inside rear view mirror. The mirror will automatically return to a high reflectance mode whenever the vehicle is placed in **REVERSE** to ensure an improved view when backing up.

Note: During normal operation, do not allow the forward-facing or rearward-facing sensors to be obstructed, since this may impair proper performance. This “keep out zone” Field of View (FOV) for both the ALS and glare sensors are documented on reference layers in the 3-dimensional (3D) UniGraphics component math data for all ISRVM part numbers.

1.3.2 The GM Global Corporate Common Component (CCC) automatic dimming inside rear view mirror does not have a Light Emitting Diode (LED) status indicator or On/Off button interface like the typical automatic dimming ISRVMs have had in the past.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW16159

© Copyright 2019 General Motors Company All Rights Reserved

Documents
Document Sharing Hub

Copyright General Motors
Provided by IHS Markit under license with General Motors

Full document details: GMW GMW15898 2019

2.3 Additional References.

- CG190 GM Evaluation Report Template (ID)

(ID) = This document is limited to internal use within General Motors and shall not be accessed outside this company. Contact the GM Lead Engineer for further instructions.

3 Resources

3.1 Facilities. The facility should have all of the equipment listed in 3.2 and be capable of providing the conditions required in 4.2.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Light source (e.g., flashlight or shop light).

3.2.2 Cover for forward sensor (must be dark and opaque, like black electrical tape).

3.3 Test Vehicle/Test Piece. A full vehicle body, or an electrical bench test fixture that has a wiring harness to mate to the auto-dimming ISRVM with the correct pin-outs and electrical loads per the published Interface Control Document (ICD).

3.4 Test Time. The following is an estimate of the amount of time (work hours) needed to perform this procedure.

Note: These time estimates are approximate averages. Actual times vary considerably depending on early component failures (and subsequent availability of replacement parts), testing to varying multiples of cycle lives, varying requirements for frequency of environmental test conditions, scheduling problems for test facilities, test equipment malfunctions, scheduling of overtime and/or multiple shifts, scheduling of **witnesses** for tests, actual readiness of test samples upon receipt, unique or additional requests for detailed test information, running multiple samples (times shown are for one system), etc.

These times consider preparation and other downtime, actual test, and analysis of data in capturing a total calendar time. Report writing, approval, processing, etc., are not part of these estimates.

Calendar time:	1 d
Engineer time:	0 h
Technician time:	0.5 h

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Test technician familiar with test facilities and equipment.

4 Procedure

4.1 Preparation.

4.1.1 Sample Inspection. The test and requesting engineers should inspect the test items to insure all material listed in 3.3 is of correct design level and assembled properly.

4.1.2 Sample Preparation. This test is normally run on the test subject in an **as received** condition. If it is requested to be run in a specifically adjusted condition, follow the applicable procedure(s).

4.2 Conditions.

4.2.1 Environmental Conditions. Unless otherwise specified in this document's text or by the requesting engineer, the typical environmental conditions for this test are the temperature, humidity and pressure at the major test facility (3.1). Unless otherwise noted, these conditions are typically 23 °C ± 5 °C, relative humidity of 40% ± 20%, and atmospheric pressure equivalent to the local barometric pressure (which is variable during any given day and from day to day).

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions.

4.3.1 Daytime Conditions.

© Copyright 2019 General Motors Company All Rights Reserved

Documents
Document Sharing Hub

Copyright General Motors
Provided by IHS Markit under license with General Motors

Full document details: GMW GMW15898 2019