



Ethernet AVB Device Test Specification

1 Scope

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. The purpose of this procedure is to verify the interface requirements of the physical and data link layers of an Ethernet Audio/Video Bridging (AVB) Communications System as specified in the Global Infotainment System documentation.

1.2 Foreword. This procedure describes component/single Electronic Control Unit (ECU) level tests. This procedure shall be executed by the ECU supplier at each sample delivery phase and at every software change thereafter. Test results shall be submitted to the GM Serial Data Team (serialdata.team@gm.com) for review by GM as per the Global Component Serial Communication Process described in the Appendix of the Statement of Requirements (SOR).

1.3 Applicability. This procedure applies to all ECUs communicating in an Ethernet AVB Infotainment System.

2 References

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

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

None

2.3 Additional References.

- CG3689, Ethernet AVB Device Test Result Template
- Electrical and Software Issues Management System (ESIMS)
- ECU Functional Requirements Specification
- Global Infotainment Standard (GIS)-610, Ethernet AVB Network Management for Infotainment 3.0
- GIS-611, Message Schema and Serialization Specification
- GIS-612, Network Interface Configuration for Infotainment 3.0
- GIS-618, I3B System State Management Specification
- Problem Resolution Tracking System (PRTS)
- Statement of Requirements (Appendix describing the Global Component Serial Communication Process)

3 Resources

3.1 Facilities. Testing shall be performed at the supplier facility using a bench that allows communication between the test tools and the ECU being tested.

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. The minimum required set of equipment to perform this test procedure includes:

3.2.1 Unless otherwise specified, the ECU being tested shall be powered by a direct current (DC) power supply at 12.5 V. This need not be an independent supply (i.e., it could be used to supply power to other devices in the test setup) unless specifically noted in the test procedure.

3.2.2 GM recommended hardware and software as needed for automated testing.

3.2.3 A high end oscilloscope with differential probes and the supporting software; measurement equipment for voltage and current.

3.2.4 A computer capable of running the GM recommended automated verification software.

3.2.5 A table listing the required hardware and software for automation, including versions and part numbers, is listed in CG3689.

3.3 Test Vehicle/Test Piece. A representative ECU flashed with the applicable software version for testing.

3.4 Test Time.

Calendar time: 2 days to 5 days

Test hours: 16 hours to 40 hours

Coordination hours: 3 hours

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills.

3.6.1. Familiarity with Ethernet AVB serial data communications protocol, physical layer, and tool set.

3.6.2. Familiarity with ECU component functionality.

4 Procedure

4.1 Preparation. As described for each individual test listed in CG3689.

4.2 Conditions.

4.2.1 Environmental Conditions. Conditions must be consistent with those specified in the ECU Functional Requirements Specification.

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 CG3689 contains a reference table depicting which tests are applicable for Master ECUs vs. Slave ECUs. The supplier shall execute all tests that are applicable to the ECU type being tested.

4.3.2 CG3689 contains a reference table depicting which tests have automated scripts available and which must be performed manually. Suppliers are strongly recommended to use the GM provided automated verification test scripts to perform component verification of Ethernet AVB communications and hardware requirements. The latest version of recommended hardware and software may be necessary to run the verification scripts. Additional equipment is necessary for Physical Layer testing. If the Supplier chooses not to use this approach, it may be required to demonstrate that test tool hardware and software have equal or better characteristics.

4.3.2.1 In order to obtain the automated scripts, the supplier is to:

- Register on GM Supply Power
- Notify GM of registered person
- Follow the supplied directions to the Automated Tools selection in the Secure File Exchange section

5 Data

5.1 Calculations. Not applicable.