DRAFT TP-141-00
May 25, 2016

U.S DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

LABORATORY TEST PROCEDURE

FOR

FMVSS 141

Minimum Sound Requirements for Hybrid and Electric Vehicles

DRAFT

ENFORCEMENT
Office of Vehicle Safety Compliance
Mail Code: NEF-210
1200 New Jersey Avenue, SE
Washington, DC 20590

OVSC LABORATORY TEST PROCEDURE NO. 141
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PREFACE

On (add date of final rule), NHTSA published a final rule establishing a new Federal motor vehicle safety standard (FMVSS) No. 141, requiring minimum sound levels for hybrid and electric vehicles. The final rule was established based upon the PSEA……

REVISION CONTROL LOG
FOR OVSC LABORATORY TEST PROCEDURES

TP-141
Minimum Sound Requirements for Hybrid and Electric Vehicles

TEST PROCEDURE		**FMVSS 141**		**DESCRIPTION**
REV. No.	**DATE**	**AMENDMENT**	**EFFECTIVE DATE**	
00	TBD	TBD	------	Final Rule
01				
02				
03				
04				
05				
06				

1. PURPOSE AND APPLICATION

This document is a laboratory test procedure provided by the National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC) for the purpose of presenting guidelines for a uniform testing data and information recording format, and providing suggestions for the use of specific equipment and procedures for contracted testing laboratories. The data correspond to specific requirements of the Federal Motor Vehicle Safety Standard(s) (FMVSS). The OVSC test procedures include requirements that are general in scope to provide flexibility for contracted laboratories to perform compliance testing and are not intended to limit or restrain a contractor from developing or utilizing any testing techniques or equipment which will assist in procuring the required compliance test data. These test procedures do not constitute an endorsement or recommendation for use of any particular product or testing method.

Prior to conducting compliance testing, contracted laboratories are required to submit a detailed test procedure to the COTR to demonstrate concurrence with the OVSC laboratory test procedure and the applicable FMVSS. If any contractor views any part of an OVSC laboratory test procedure to conflict with a FMVSS or observes deficiencies in a laboratory test procedure, the contractor is required to advise the Contracting Officer's Technical Representative (COTR) and resolve the discrepancy prior to the start of compliance testing or as soon as practicable. The contractor's test procedures must include a step-by-step description of the methodology and detailed check-off sheets. Detailed check-off sheets shall also be provided for the testing instrumentation including a complete listing of the test equipment with make and model numbers. The list of test equipment shall include instrument accuracy and calibration dates. All equipment shall be calibrated in accordance with the manufacturer's instructions. There shall be no contradictions between the laboratory test procedures and the contractor's in-house test procedure. Written approval of the in-house test procedures shall be obtained from the COTR before initiating the compliance test program.

NOTE: The OVSC Laboratory Test Procedures, prepared for the limited purpose of use by independent laboratories under contract to conduct compliance tests for the OVSC, are not rules, regulations or NHTSA interpretations regarding the meaning of a FMVSS. The laboratory test procedures are not intended to limit the requirements of the applicable FMVSS(s). In some cases, the OVSC laboratory test procedures do not include all of the various FMVSS minimum performance requirements. Recognizing applicable test tolerances, the laboratory test procedures may specify test conditions that are less severe than the minimum requirements of the standard. In addition, the laboratory test procedures may be modified by the OVSC at any time without notice, and the COTR may direct or authorize contractors to deviate from these procedures, as long as the tests are performed in a manner consistent with the standard itself and within the scope of the

contract. Laboratory test procedures may not be relied upon to create any right or benefit in any person. Therefore, compliance of a vehicle or item of motor vehicle equipment is not necessarily guaranteed if the manufacturer limits its certification tests to those described in the OVSC laboratory test procedures.

2. GENERAL REQUIREMENTS

FMVSS 141 specifies vehicle performance requirements intended to reduce the number of injuries that result from electric and hybrid vehicle crashes with pedestrians by providing a sound level and sound characteristics necessary for these vehicles to be detected and recognized by pedestrians. This standard applies to –

a) Electric vehicles that are passenger cars, multipurpose passenger vehicles, trucks, buses, and low-speed vehicles; and
b) Passenger cars, multi-purpose passenger vehicles, trucks, buses, and low-speed vehicles with more than one means of propulsion for which the vehicle's propulsion system can propel the vehicle in the normal travel mode in reverse and at least one forward drive gear without the internal combustion engine operating.

Refer to NPRM dated January 14, 2013

Applicable vehicles must meet audible alert requirements during multiple critical operating scenarios including, stationary, backing, and constant pass-by speeds of 10, 20 and 30 km/h. (See S5.1.1 – S5.1.5 in NPRM)

Requirements for pitch shifting, recognition and same sound (See S5.1.6, S5.2 and S5.3 in NPRM) are not to be tested and are not included in this test procedure at this time.

METRIC SYSTEM OF MEASUREMENT

Section 5164 of the Omnibus Trade and Competitiveness Act (Pub. L. 100-418) establishes that the metric system of measurement is the preferred system of weights and measures for trade and commerce in the United States. Executive order 12770 directs Federal agencies to comply with the Act by converting regulatory standards to the metric system after September 30, 1992. In a final rule published on March 15, 1990 (60 FR 13639), NHTSA completed the first phase of metrication, converting English measurement in several regulatory standards to the metric system. Since then, metrication has be applied to other regulatory standards (63 FR 28912).

Accordingly, the OVSC laboratory test procedures include revisions to comply with governmental directives in using the metric system. Regulatory standards converted to metric units are required to use metric measurement in the test procedures. For any testing equipment that is not available for direct measurement in metric units, the test laboratory shall calculate the exact metric equivalent by means of a conversion factor

carried out to at least five significant digits before rounding consistent with the specified metric requirement.

All final compliance test reports are required to include metric measurements for standards using metrication.

NOTE: The methodology for rounding measurement in the test reports shall be made in accordance with ASTM E29-06b, "Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications."

3. SECURITY

The contractor shall provide appropriate security measures to protect the OVSC test vehicles and Government Furnished Property (GFP) from unauthorized personnel during the entire compliance testing program. The contractor is financially responsible for any acts of theft and/or vandalism which occur during the storage of test vehicles and GFP. Any security problems which arise shall be reported by telephone to the Industrial Property Manager (IPM), Office of Acquisition Management, within two working days after the incident. A letter containing specific details of the security problem shall be sent to the IPM (with copy to the COTR) within 48 hours.

The contractor shall protect and segregate the data that evolves from compliance testing before and after each vehicle test. No information concerning the vehicle safety compliance testing program shall be released to anyone except the COTR, unless specifically authorized by the COTR or the COTR's Division Chief.

NOTE: No individuals, other than contractor personnel directly involved in the compliance testing program or OVSC personnel, shall be allowed to witness any vehicle or equipment item compliance test or test dummy calibration unless specifically authorized by the COTR.

4. GOOD HOUSEKEEPING

Contractors shall maintain the entire vehicle compliance testing area, test fixtures and instrumentation in a neat, clean and painted condition with test instruments arranged in an orderly manner consistent with good test laboratory housekeeping practices.

5. TEST SCHEDULING AND MONITORING

The contractor shall submit a test schedule to the COTR prior to conducting the first compliance test. Tests shall be completed at intervals as required in the contract. If not specified, the first test shall be conducted within 6 weeks after receiving the first delivered unit. Subsequent tests shall be completed in no longer that 1 week intervals unless otherwise specified by the COTR.

Scheduling of tests shall be adjusted to permit vehicles (or equipment, whichever applies) to be tested to other FMVSSs as may be required by the OVSC. All compliance testing shall be coordinated with the COTR in order to allow monitoring by the COTR and/or other OVSC personnel if desired. The contractor shall submit a monthly test status report and a vehicle status report (if applicable) to the COTR. The vehicle status report shall be submitted until all vehicles are disposed of. The status report forms are provided in the forms section.

6. TEST DATA DISPOSITION

The Contractor shall make all preliminary compliance test data available to the COTR on location within 30 minutes after the test. Final test data, including digital printouts and computer generated plots, shall be available to the COTR in accordance with the contract schedule or if not specified within two working days. Additionally, the Contractor shall analyze the preliminary test results as directed by the COTR.

All backup data sheets, strip charts, recordings, plots, technicians' notes, etc., shall be either sent to the COTR or destroyed at the conclusion of each delivery order, purchase order, etc.

The contractor shall protect and segregate the data that evolves form compliance testing before and after each test.

TEST DATA LOSS

A. INVALID TEST DESCRIPTION

An invalid compliance test is one, which does not conform precisely to all requirements/specifications of the OVSC Laboratory Test Procedures and Statement of Work applicable to the test.

B. INVALID TEST NOTIFICATION

The Contractor shall notify NHTSA of any test not meeting all requirements/specifications of the OVSC Laboratory Test Procedure and Statement of Work applicable to the test, by telephone, within 24 hours of the test and send written notice to the COTR within 48 hours of the test completion.

C. RETEST NOTIFICATION

The Contracting Officer of NHTSA is the only NHTSA official authorized to notify the Contractor that a retest is required. The retest shall be completed within 2 weeks after receipt of notification by the Contracting Officer that a retest is required.

D. WAIVER OF RETEST

NHTSA, in its sole discretion, reserves the right to waive the retest requirement. This provision shall not constitute a basis for dispute over the NHTSA's waiving or not waiving any requirement.

E. TEST VEHICLE

NHTSA shall furnish only one vehicle for each test ordered. The Contractor shall furnish the test vehicle required for the retest. The retest vehicle shall be equipped as the original vehicle. The original vehicle used in the invalid test shall remain the property of NHTSA, and the retest vehicle shall remain the property of the Contractor. The Contractor shall retain the retest vehicle for a period not exceeding 180 days if it fails the test. If the retest vehicle passes the test, the Contractor may dispose of it upon notification from the COTR that the test report has been accepted.

F. TEST REPORT

No test report is required for any test that is determined to be invalid unless NHTSA specifically decides, in writing, to require the Contractor to submit such report. The test data from the invalid test must be safeguarded until the data from the retest has been accepted by the COTR. The electronic data, draft final test report, dummy calibration report, and video shall be submitted within 14 days of the final test. The final test report, dummy calibration report, and video shall be submitted 7 days after receiving comments from the COTR.

G. DEFAULT

The Contractor is subject to the default and subsequent reprocurement costs for nondelivery of valid or conforming test (pursuant to the Termination For Default clause in the contract).

H. NHTSA'S RIGHTS

None of the requirements herein stated shall diminish or modify the rights of NHTSA to determine that any test submitted by the Contractor does not conform precisely to all requirements/specifications of the OVSC Laboratory Test Procedure and Statement of Work applicable to the test.

7. GOVERNMENT FURNISHED PROPERTY (GFP)

A. ACCEPTANCE OF TEST VEHICLES

The contractor has the responsibility of accepting each GFP test vehicle whether delivered by a new vehicle dealership or another vehicle transporter. In both instances, the Contractor acts on behalf of the OVSC when signing an acceptance of the GFP test vehicle delivery order. When a GFP vehicle is delivered, the contractor must verify:

1. All options listed on the “window sticker” are present on the test vehicle.

2. Tires and wheel rims are new and the same as listed.

3. There are no dents or other interior or exterior flaws in the vehicle body.

4. The vehicle has been properly prepared and is in running condition.

5. The glove box contains an owner’s manual, warranty document, consumer information, and extra set of keys.

6. Proper fuel filler cap is supplied on the test vehicle.

7. Spare tire, jack, lug wrench and tool kit (If applicable) is located in the vehicle cargo area.

8. The VIN (vehicle identification number) on the vehicle condition report matches the VIN on the vehicle.

9. The vehicle is equipped as specified by the COTR.

A Vehicle Condition form will be supplied to the Contractor by the COTR when the test vehicle is transferred from a new vehicle dealership or between test contracts. The upper half of the form is used to describe the vehicle as initially accepted. The lower half of the Vehicle Condition form provides space for detailed description of the post-test condition. The contractor must complete a Vehicle Condition form for each vehicle and deliver it to the COTR with the Final Test Report or the report will NOT be accepted for payment.

If the test vehicle is delivered by a government contracted transporter, the contractor should check for damage which may have occurred during transit.

GFP vehicle(s) shall not be driven by the contractor on public roadways unless authorized by the COTR.

B. NOTIFICATION OF COTR

The COTR must be notified within 24 hours after a vehicle (and/or equipment item) has been delivered. In addition, if any discrepancy or damage is found at the time of delivery, a copy of the Vehicle Condition form shall be sent to the COTR immediately.

8. CALIBRATION OF TEST INSTRUMENTS

Before the Contractor initiates the vehicle safety compliance test program, a test instrumentation calibration system must be implemented and maintained in accordance

with established calibration practices. The calibration system shall include the following as a minimum:

A. Standards for calibrating the measuring and test equipment shall be stored and used under appropriate environmental conditions to assure their accuracy and stability.

B. All measuring instruments and standards shall be calibrated by the Contractor, or a commercial facility, against a higher order standard at periodic intervals not exceeding 12 months for instruments and 12 months for the calibration standards except for static types of measuring devices such as rulers, weights, etc., which shall be calibrated at periodic intervals not to exceed two years. Records, showing the calibration traceability to the National Institute of Standards and Technology (NIST), shall be maintained for all measuring and test equipment.

Accelerometers shall be calibrated every 12 months or after a test failure or after any indication from calibration checks that there may be a problem with the accelerometer whichever occurs sooner.

C. All measuring and test equipment and measuring standards shall be labeled with the following information:

1. Date of calibration

2. Date of next scheduled calibration

3. Name of the technician who calibrated the equipment

D. A written calibration procedure shall be provided by the Contractor, which includes as a minimum the following information for all measurement and test equipment:

1. Type of equipment, manufacturer, model number, etc.

2. Measurement range

3. Accuracy

4. Calibration interval

5. Type of standard used to calibrate the equipment (calibration traceability of the standard must be evident)

6. The actual procedures and the forms used to perform the calibrations

E. Records of calibration for all test instrumentation shall be kept by the Contractor in a manner that assures the maintenance of established calibration schedules.

F. All such records shall be readily available for inspection when requested by the COTR. The calibration system shall need the acceptance of the COTR before vehicle safety compliance testing commences.

G. Test equipment shall receive a system functional check out using a known test input immediately before and after the test. This check shall be recorded by the test technician(s) and submitted with the final report.

H. The Contractor may be directed by NHTSA to evaluate its data acquisition system.

Further guidance is provided in the International Standard ISO 10012-1, "Quality Assurance Requirements for Measuring Equipment" and American National Standard ANSI/NCSL Z540-1, "Calibration Laboratories and Measuring and Test Equipment General Requirements."

NOTE: In the event of a failure to meet the standard's minimum performance requirements additional calibration checks of some critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration will be at the COTR's discretion and shall be performed without additional cost.

9. SUGGESTED TEST EQUIPMENT (Details to be added)

Equipment requirements are specified in SAE J2889-1. NHTSA research used test equipment procured from Bruel & Kjaer North America (B&K), the "B&K Pass-by System." Contracted test labs should have similar equipment.

OVSC plans to make available to contracted test labs the MATLAB coding required for post processing test run data collected for test pass/fail determinations.

10. PHOTOGRAPHIC DOCUMENTATION

DIGITAL PHOTOGRAPHS

The contractor shall take digital photographs of the test execution procedures. Photographs shall be taken in color and contain clear images. A tag, label or placard identifying the test item, NHTSA number (if applicable) and date shall appear in each photograph and must be legible. Each photograph shall be labeled as to the subject matter. The required resolution for digital photographs is a minimum of 1,600 x 1,200 pixels. Digital photographs are required to be created in color and in a JPG format. Glare or light from any illuminated or reflective surface should be minimized while taking photographs.

The test reports should include enough photographs to describe the testing in detail and should be organized in a logical succession of consecutive pictures. The digital photographs should be included in the test report as 203 mm x 254 mm or 215.9 mm x

279 mm (8 x 10 or 8 ½ x 11 inch) pictures. All photographs are required to be included in the test report in the event of a test failure. Any failure must be photographed at various angles to assure complete coverage. Upon request, the photographs should be sent to the COTR on a CD or DVD and saved in a "read only" format to ensure that the digital photographs are the exact pictures taken during testing and have not been altered from the original condition.

Photographic Views

As a minimum the following test photographs shall be included in each vehicle final test report, submitted by the contractor:

A. ¾ Frontal – left side view of the test vehicle

B. ¾ Rear – right side view of the test vehicle

C. Vehicle certification label

D. Vehicle placard (titled, "Tire and Loading Information")

E. Tire inflation pressure label, if provided (optional label)

F. Close-up view(s) of test instrumentation mounted on the outside of the vehicle

G. Close-up view(s) of test instrumentation mounted on the inside of the vehicle

H. View(s) of microphone and light trap setup for stationary testing

I. View(s) of microphone and light trap setup for pass-by testing

J. Any damage or apparent test failure that cannot be seen in the above photographs

REAL TIME CAMERA (Details to be added)

11. DEFINITIONS (Details to be added)

12. PRETEST REQUIREMENTS

Prior to conducting a compliance test, the contractor shall:

A. Verify COTR approval of Contractor's in-house test procedure,

B. Verify the training of technicians for performance of this test,

C. Verify the calibration status of test equipment,

D. Review applicable revision of FMVSS 141,

E. Review vehicle Owner's Manual (or equipment mfg. instructions),

F. Set cold tire pressures according to the vehicle manufacturer's recommendations (where applicable), and

G. Except where specified otherwise, the test surface shall be level.

DETAILED TEST AND QUALITY CONTROL PROCEDURES REQUIRED

Prior to conducting any compliance test, Contractors are required to submit a detailed in-house compliance test procedure to the COTR which includes:

A. A step-by-step description of the methodology to be used.

B. A written Quality Control (QC) Procedure which shall include calibrations, the data review process, report review, and the people assigned to perform QC on each task.

C. A complete listing of test equipment with instrument accuracy and calibration dates.

D. Detailed check off lists to be used during the test and during data review. These lists shall include all test procedure requirements and FMVSS requirements pertaining to the safety standard for which testing is being performed. Each separate check off sheet shall identify the lab, test date, vehicle and test technicians. These check sheets shall be used to document that all requirements and procedures have been complied with. These sheets shall be submitted with the test report.

Test Personnel Performance

Personnel supervising and/or performing the compliance test program shall be thoroughly familiar with the requirements, test conditions, and equipment for the test to be conducted.

VEHICLE IDENTIFICATION (DATA SHEET 1)

A. Inspect test vehicle and owner's manual. Document required test vehicle information.

B. Ensure the vehicle's tires are clear of rocks and other debris.

C. Check vehicle fluids and adjust to the proper levels for operation.

D. Document manufacturer recommended cold inflation pressure obtained from the vehicle tire placard.

E. Check and adjust the tire inflation pressures if necessary to ensure that the test vehicle tires are inflated to the manufacturer recommended cold inflation pressures.

F. Ensure the vehicle does not make any unintended sounds while stationary or in motion (e.g. squeaky brakes)

G. Measure vehicle curb weight, the weight of the equipment and the weight of the driver used during the execution of this test.

TEST PREPARATION (DATA SHEET 2)

A. Instrument vehicle

B. Check vehicle parameters

1. Check tires
    i. Check tire inflation pressure
    ii. Add or remove air as necessary to obtain manufacture's recommended tire pressure
    iii. Record tire inflation pressures
    iv. If necessary, remove stones, etc. from tires

2. Verify non-propulsion vehicle systems that can be shut down are turned off
    i. These include air conditioner, wipers, heat, HVAC fan, audio/video systems, etc.

ii. Propulsion battery cooling fans and pumps and other components of the vehicle's propulsion battery thermal management system are not considered accessory equipment.

C. Check Meteorological Conditions

1. The meteorological instrumentation shall deliver data representative for the test site and shall be positioned adjacent to the test area at a height representative of the height of the measuring microphone.

2. Test measurements shall be made when the ambient air temperature is within the range from 5˚C to 40˚C

3. Tests shall not be carried out if the wind speed, including gusts, at microphone height exceeds 5 m/s, during the sound measurement interval.

D. Check condition of test surface

1. Check for foreign objects (i.e. moisture, dirt, cracks, etc.) and remove

13. COMPLIANCE TEST EXECUTION (Details to be added)

(Refer to sections S6. *Test Conditions* and S7. *Test Procedure* in NPRM dated Jan. 14, 2013)

A. STATIONARY TEST (DATA SHEET 3)
(See S7.1 in NPRM)

B. BACKING TEST (DATA SHEET 4)
(See S7.2 in NPRM)

C. CONSTANT SPEED PASS-BY TESTS (DATA SHEET 5)
(See S7.3, S7.4, and S7.5)

14. POST TEST REQUIREMENTS

After the required tests are completed, the contractor shall:

A. Restore vehicle to original condition

B. Verify all instrumentation, data sheets and photographs

C. Complete the Vehicle Condition report form including a word description of its post test condition

D. Copy applicable pages of the vehicle Owner's Manual for attachment to the final test report

E. Move the test vehicle to a secure area, and

F. Place all original records in a secure and organized file awaiting test data disposition.

15. REPORTS

15.1 MONTHLY STATUS REPORTS

The contractor shall submit a monthly Test Status Report and a Vehicle Status Report to the COTR. The Vehicle Status Report shall be submitted until all vehicles are disposed of. Samples of the required Monthly Status Reports are contained in the report forms section.

15.2 APPARENT NONCOMPLIANCE

Any indication of a test failure shall be communicated by telephone to the COTR within 24 hours with written notification mailed within 48 hours (Saturdays and Sundays excluded). A Notice of Test Failure (see report forms section) with a copy of the particular compliance test data sheet(s) and preliminary data plot(s) shall be included.

In the event of a test failure, a post test calibration check of some critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration shall be at the COTR's discretion and shall be performed without additional costs to the OVSC.

15.3 FINAL TEST REPORTS

15.3.1 COPIES

An electronic draft test report is required after completion of each test. The test report and content shall comply with the TP. The organization and content of test data sheets in the report shall be consistent with the applicable TP.

Within seven (7) days of receiving the COTR's comments on the draft test report, the Contractor shall submit up to seven (7) compact discs (at discretion of the COTR) of the final report for which the test items failed to meet the requirements of the test or the test was a retest (another test of a vehicle that previously exceeded the performance requirements). Four (4) compact discs of the final report shall be submitted for tests for which there were no failures.

NOTE: Prior to submission of the compact discs of the final report, the final report shall be electronically transmitted to the COTR to facilitate electronic signature for acceptance. The COTR shall sign the report then send the electronic file, containing the signature back to the contractor for the purposes of placing the file on compact disc. The final report shall be in PDF format.

The Final Test Report format to be used by all contractors can be found in Section 14.3.2: "REQUIREMENTS".

Payment of contractor's invoices for completed compliance tests may be withheld until the Final Test Report is accepted by the COTR. Contractors are requested to NOT submit invoices before the COTR is provided copies of the Final Test Report.

Contractors are required to PROOF READ all Final Tet Reports before submittal to the COTR. The OVSC will not act as a report quality control office for contractors. Reports containing a significant number of errors will be returned to the contractor for correction, and a "hold" will be placed on invoice payment for the particular test.

Electric file copies of the Final Test Report shall be provided in accordance with the following:

a. Electronic Master File:
   An electronic version of the final report shall be used as the "Master" report copy. The hard-copy and electronic reports shall be generated from this electronic master file. A copy of the electronic master file shall be provided to NHTSA as required.

b. System Compatibility:

   1. All electronically submitted report copies shall be stored on compact discs (CD) in PDF format.

   2. The software application used to store the electronic file version (Master copy) of the final report shall be compatible with Microsoft Word, i.e., the file must be able to be opened, viewed and edited using Microsoft Word.

   3. All test report images (photographs, charts, graphs, etc.) shall be imbedded as part of a Microsoft Word file and shall be JPEG or TIFF file format.

c. For any of the option periods exercised under this contract, NHTSA reserves the right to change the hardware and software requirements stated above, such that submitted electronic files continue to be compatible with computer systems utilized by the Office of Vehicle Safety Compliance.

If a Final Test Report is returned to the laboratory for correction, the report date shall be changed to the date of re-submission. Delivery of an unacceptable Final Test Report will not be construed as meeting the due date specified.

The data tapes recorded from the sensors during the test shall be provided on a compact disc or other acceptable media. The data shall be developed and formatted as specified by the Office of Crashworthiness Research Data References Guides. The guides can be located at NHTSA address:

http://www-nrd.nhtsa.dot.gov/software/test-reference-guides/test-reference-guides.html

15.3.2 REQUIREMENTS

The Final Test Report and associated documentation (including photographs) are relied upon as the chronicle of the compliance test. The Final Test Report will be released to the public domain after review and acceptance by the COTR. For these reasons, each final report must be a complete document capable of standing by itself.

The contractor should use **detailed** descriptions of all compliance test events. Any events that are not directly associated with the standard but are of technical interest should also be included. The contractor should include as much **detail** as possible in the report.

Instructions for the preparation of the first three pages of the final test report are provided below for the purpose of standardization.

15.3.3 FIRST THREE PAGES

A. FRONT COVER

A heavy paperback cover (or transparency) shall be provided for the protection of the final report. The information required on the cover is as follows:

(1) Final Report Number such as 141-ABC-XX-01 where

141 is the FMVSS tested
ABC are the initials for the laboratory
XX is the Fiscal Year of the test program
001 is the Group Number (001 for the 1st test, 002 for the 2nd test, etc.)

(2) Final Report Title and Subtitle such as

SAFETY COMPLIANCE TESTING FOR FMVSS 141
Minimum Sound Requirements for Hybrid and Electric Vehicles
* * * * * * * * * * * * * * * * * *
XYZ Car Manufacturer
Make and Model

NHTSA No. CX1401

(3) Contractor's Name and Address such as

COMPLIANCE TESTING LABORATORIES, INC.
4335 West Dearborn Street
Detroit, Michigan 48090

NOTE: DOT SYMBOL WILL BE PLACED BETWEEN ITEMS (3) AND (4)

(4) Date of Final Report completion

(5) The words "FINAL REPORT"

(6) The sponsoring agency's name and address as follows

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
Mail Code: NVS-220
1200 New Jersey Ave., SE
Washington, DC 20590

B. FIRST PAGE AFTER FRONT COVER

When a contract test laboratory is reporting, a disclaimer statement and an acceptance signature block for the COTR shall be provided as follows:

> This publication is distributed by the National Highway Traffic Safety Administration in the interest of information exchange. Options, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contests or use thereof.
>
> If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be constructed as an endorsement.

Prepared By:

_____

Approved By:
_____*

Approval Date:
_____*

FINAL REPORT ACCEPTANCE BY OVSE: *

Accepted By:
_____

Acceptance Date:
_____

* These lies not required when OVSC staff writes the Test Report

C. SECOND PAGE AFTER FRONT COVER

A completed Technical Report Documentation Page (Form DOT F1700.7) shall be completed for those items that are applicable with the other spaces left blank. Sample data for the applicable block numbers of the title page follows.

Block 1 – REPORT NUMBER

141-ABC-XX-001

Block 2 – GOVERNMENT ACCESSION NUMBER

Leave blank

Block 3 – RECIPIENT'S CATALOG NUMBER

Leave blank

Block 4 – TITLE AND SUBTITLE

Final Report of FMVSS 141 Compliance Testing of 20XX XYZ, NHTSA No. CX1401

Block 5 – REPORT DATE

March 1, 20XX

Block 6 – PERFORMING ORGANIZATION CODE

ABC

Block 7 – AUTHOR(S)

John Smith, Project Manager / Bill Doe, Project Engineer

Block 8 – PERFORMING ORGANIZATION REPORT NUMBER

ABC-DOT-XXX-001

Block 9 – PERFORMING ORGANIZATION NAME AND ADDRESS

ABC Laboratories
405 Main Street
Detroit, MI 48070

Block 10 – WORK UNIT NUMBER

Leave blank

Block 11 – CONTRACT GRANT NUMBER

DTNH22-XX-D-XXXXX

Block 12 – SPONSORING AGENCY NAME AND ADDRESS

U.S. Department of Transportation
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
Mail Code: NEF-210
1200 New Jersey Ave., SE
Washington, DC 20590

Block 13 – TYPE OF REPORT AND PERIOD COVERED

Final Test Report
Month Day to Month Day, 20XX

Block 14 – SPONSORING AGENCY CODE

NEF-210

Block 15 – SUPPLEMENTARY NOTES

Leave blank

Block 16 – ABSTRACT

Compliance tests were conducted on the subject 20XX XYZ Carrier in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-141-XX for the determination of FMVSS 141 compliance.

Test failures identified were as follows:

None

NONE: Above wording must be shown with appropriate changes made for a particular compliance test. Any questions should be resolved with the COTR.

Block 17 – KEY WORDS

Compliance Testing
Safety Engineering
FMVSS 141

Block 18 – DISTRIBUTION STATEMENT

Copies of this report are available from the following:

National Highway Traffic Safety Administration
Technical Information Services Division, NPO-411
1200 New Jersey Avenue SE (Room E12-100)
Washington DC 20590

e-mail: tis@nhtsa.dot.gov
FAX: 202-493-2833

Block 19 – SECURITY CLASSIFICATION OF REPORT

Unclassified

Block 20 – SECURITY CLASSIFICATION OF PAGE

Unclassified

Block 21 – NUMBER OF PAGES

Add appropriate number

Block 22 – PRICE

Leave blank

15.3.4 TABLE OF CONTENTS

The final test report Table of Contents shall include the following as a minimum:

Section 1 – Purpose of Compliance Test

Section 2 – Test Procedure and Discussion of Results

Section 3 – Compliance Test Data

Section 4 – Test Equipment List and Calibration Information

Section 5 – Photographs

Section 6 – Notice of Test Failure (if applicable)

Section 7 – Vehicle Owner's Manual (applicable pages)

16. DATA SHEETS

DATA SHEET SUMMARY
FMVSS 141

DATA SHEET 1 – Vehicle Identification

DATA SHEET 2 – Test Preparation

DATA SHEET 3 – Compliance Test Execution – Stationary Test

DATA SHEET 4 – Compliance Test Execution – Backing Test

DATA SHEET 5 – Compliance Test Execution – Constant-Speed Pass-by Tests

DATA SHEET 1

VEHICLE IDENTIFICATION

A. GENERAL VEHICLE INFORMATION:

TEST DATE: _____ LAB.: _____

VEHICLE NHTSA NO._____

VIN: _____ BUILD DATE: _____

MY/MAKE/MODEL/BODY STYLE: _____

ENGINE LOCATION:

Front _____ Rear _____
Other _____ (describe: _____)

TRANSMISSION TYPE:

Automatic _____ Manual _____
Other _____ (describe: _____)

DRIVE TRAIN TYPE:

Front Wheel _____ Rear Wheel _____ 4-Wheel _____

FUEL TANK LEVEL: _____ (% of max.) MILEAGE: _____

B. VEHICLE FLUIDS:

Check all vehicle fluids and adjust to the proper levels for operation ☐

C. VEHICLE TIRE PLACARD INFORMATION:

Measured (kPa): LF _____ LR _____ RF _____ RR _____

D. WEIGHT

VEHICLE CURB WEIGHT (kg): _____ WEIGHT OF DRIVER (kg): _____

WEIGHT OF EQUIPMENT (kg): _____

DATA SHEET 2

TEST PREPARATION

A. TEST VEHICLE

☐The measured tire pressure is equal to the manufacturer's recommended tire pressure:

Recorded tire pressure: _____ kPa (_____ psi)

Manufacturer's recommended tire pressure _____ kPa (_____ psi)

☐All rocks and debris in the tire treads have been removed

☐All four tires are evenly worn and 90 percent or more of the original tread remains on each tire (if not, replace the tire)

☐All unneeded devices including but not limited to the air-conditioning unit and radio are off

☐All windows have been closed to reduce unwanted noise during measurements

☐If a gap in the window is needed for wires, the opening has thoroughly been taped

☐The vehicle represents an average vehicle of this type with no issues

B. METEOROLOGICAL CONDITIONS

Ambient air temperature: _____˚C

☐Between 5˚C and 40˚C

Wind speed: _____m/s

☐Less than 5 m/s

C. TEST SURFACE

Verify that the measurement surface is:

☐Dry

☐Free of cracks

☐Free of debris

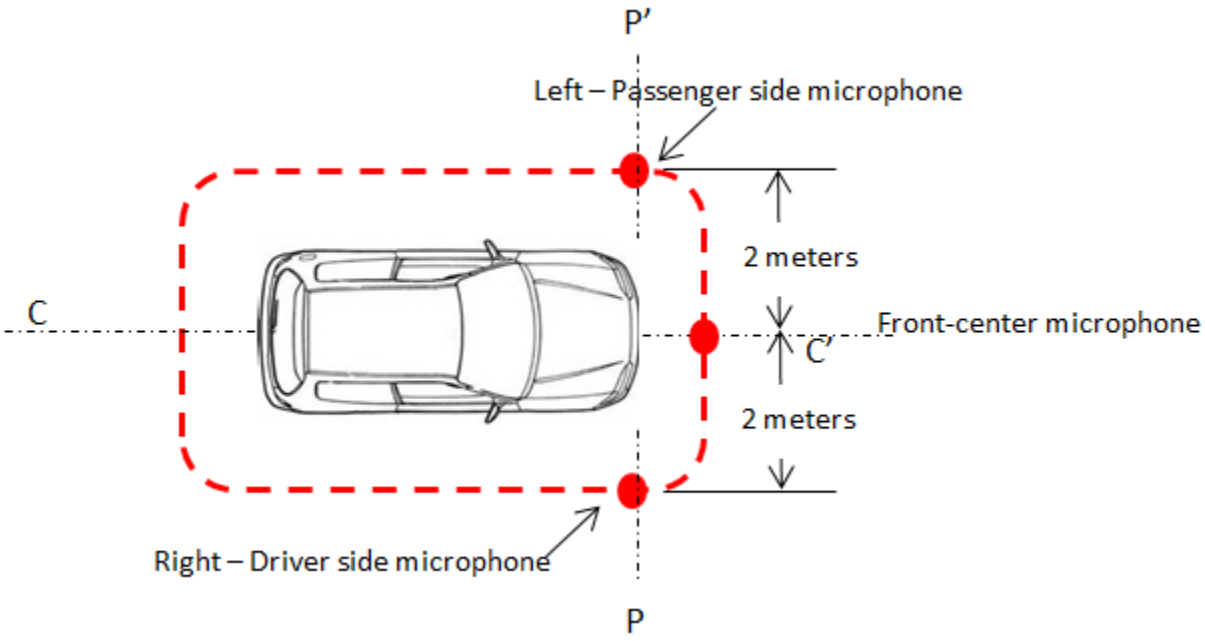
☐In accordance with ISO 10844:2011[1]

☐In accordance with ISO 10844:1994

[1] Possible area for modification for 'other vehicles' in the Act

DATA SHEET 3

COMPLIANCE TEST EXECUTION
STATIONARY TEST



First four valid tests within 2dBA overall SPL

Valid Test 1 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): FRONT LEFT/DRIVER RIGHT/PASSENGER

Valid Test 2 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): FRONT LEFT/DRIVER RIGHT/PASSENGER

Valid Test 3 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): FRONT LEFT/DRIVER RIGHT/PASSENGER

Valid Test 4 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): FRONT LEFT/DRIVER RIGHT/PASSENGER

DATA SHEET 3, CONT…

COMPLIANCE TEST EXECUTION
STATIONARY TEST

SPL value ranges

LEFT/ DRIVER SIDE

Largest left side SPL value _____ dB – Smallest left side SPL value _____ dB

= Range of left side SPL values _____ dB

RIGHT/ PASSENGER SIDE

Largest right side SPL value _____ dB – Smallest right side SPL value _____ dB

= Range of right side SPL values _____ dB

FRONT-CENTER

Largest front side SPL value _____ dB – Smallest front side SPL value _____ dB

= Range of front side SPL values _____ dB

The range for the left side, right side, and front-center are all less than or equal to 2.0 dB (circle)

YES NO

Average overall SPL values

LEFT/ DRIVER SIDE

Average left side SPL value = _____ dB

RIGHT/ PASSENGER SIDE

Average right side SPL value = _____ dB

Lowest average overall SPL value of the left and right side: _____ dB

DATA SHEET 3, CONT…

COMPLIANCE TEST EXECUTION
STATIONARY TEST

Maximum overall SPL values

LEFT/DRIVER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Left side average overall ambient-corrected SPL = _____dB

RIGHT/PASSENGER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Right side average overall ambient-corrected SPL = _____dB

DATA SHEET 3, CONT…

COMPLIANCE TEST EXECUTION
STATIONARY TEST

Selection of one-third octave bands (use the lower of the four left or right side acoustic files)

Using lower of LEFT/DRIVER RIGHT/PASSENGER side (circle).

Valid Test 1 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 2 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 3, CONT…

COMPLIANCE TEST EXECUTION
STATIONARY TEST

Valid Test 3 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 4 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 3, CONT…

COMPLIANCE TEST EXECUTION
STATIONARY TEST

Averaging corrected values

1/3 octave band center frequency, Hz	Valid Test 1 corrected SPL, dB	Valid Test 2 corrected SPL, dB	Valid Test 3 corrected SPL, dB	Valid Test 4 corrected SPL, dB	Average corrected SPL, dB
315					
400					
500					
630					
800					
1000					
1250					
1600					
2000					
2500					
3150					
4000					
5000					

Is this vehicle designed to meet the eight-band requirements?

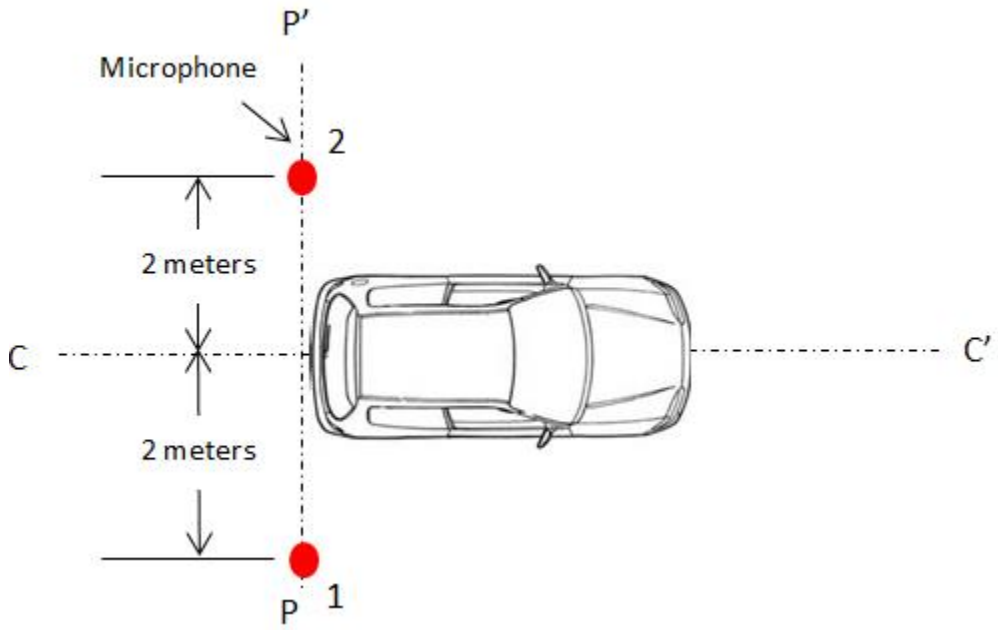
YES NO

Eight-band requirements PASS/FAIL_____

Stationary Test PASS/FAIL _____

DATA SHEET 4

COMPLIANCE TEST EXECUTION
BACKING TEST



First four valid tests within 2dBA overall SPL

Valid Test 1 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 2 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 3 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 4 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

DATA SHEET 4, CONT…

COMPLIANCE TEST EXECUTION
BACKING TEST

SPL value ranges

LEFT/ DRIVER SIDE

Largest left side SPL value _____ dB – Smallest left side SPL value _____ dB

= Range of left side SPL values _____ dB

RIGHT/ PASSENGER SIDE

Largest right side SPL value _____ dB – Smallest right side SPL value _____ dB

= Range of right side SPL values _____ dB

The range for the left side, right side, and front-center are all less than or equal to 2.0 dB (circle)

YES NO

Average overall SPL values

LEFT/ DRIVER SIDE

Average left side SPL value = _____ dB

RIGHT/ PASSENGER SIDE

Average right side SPL value = _____ dB

Lowest average overall SPL value of the left and right side: _____ dB

DATA SHEET 4, CONT…

COMPLIANCE TEST EXECUTION
BACKING TEST

Maximum overall SPL values

LEFT/DRIVER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Left side average overall ambient-corrected SPL = _____dB

RIGHT/PASSENGER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Right side average overall ambient-corrected SPL = _____dB

DATA SHEET 4, CONT…

COMPLIANCE TEST EXECUTION
BACKING TEST

Selection of one-third octave bands (use the lower of the four left or right side acoustic files)

Using lower of LEFT/DRIVER RIGHT/PASSENGER side (circle).

Valid Test 1 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 2 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 4, CONT…

COMPLIANCE TEST EXECUTION
BACKING TEST

Valid Test 3 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 4 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 4, CONT…

COMPLIANCE TEST EXECUTION
BACKING TEST

Averaging corrected values

1/3 octave band center frequency, Hz	Valid Test 1 corrected SPL, dB	Valid Test 2 corrected SPL, dB	Valid Test 3 corrected SPL, dB	Valid Test 4 corrected SPL, dB	Average corrected SPL, dB
315					
400					
500					
630					
800					
1000					
1250					
1600					
2000					
2500					
3150					
4000					
5000					

Is this vehicle designed to meet the eight-band requirements?

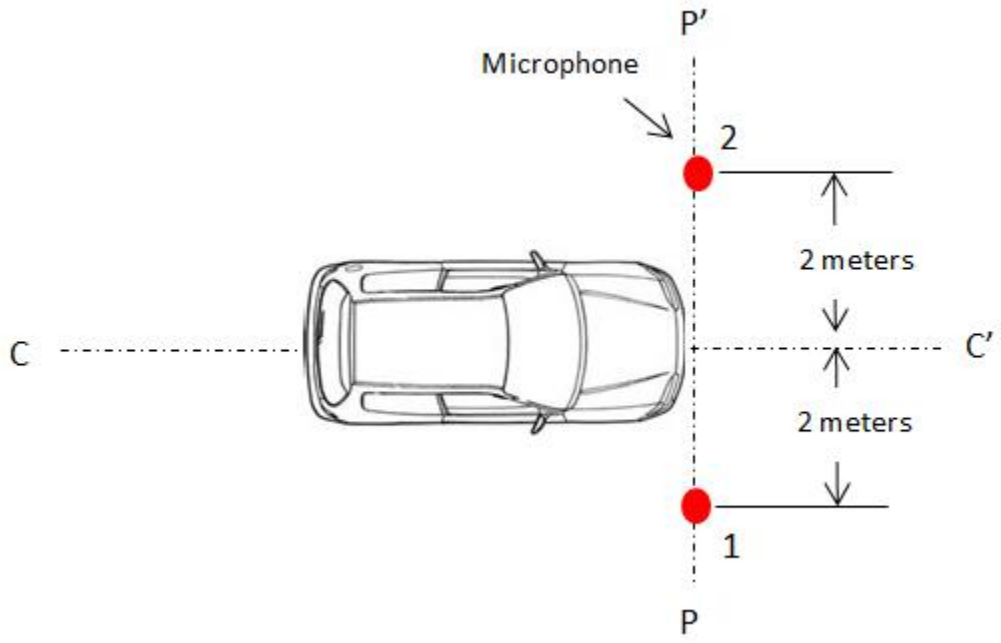
YES NO

Eight-band requirements PASS/FAIL _____

Reverse Test PASS/FAIL _____

DATA SHEET 5

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**10 KM/H**)



First four valid tests within 2dBA overall SPL

Valid Test 1 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 2 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 3 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 4 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**10 KM/H**)

SPL value ranges

LEFT/ DRIVER SIDE

Largest left side SPL value _____ dB – Smallest left side SPL value _____ dB

= Range of left side SPL values _____ dB

RIGHT/ PASSENGER SIDE

Largest right side SPL value _____ dB – Smallest right side SPL value _____ dB

= Range of right side SPL values _____ dB

The range for the left side, right side, and front-center are all less than or equal to 2.0 dB (circle)

YES NO

Average overall SPL values

LEFT/ DRIVER SIDE

Average left side SPL value = _____ dB

RIGHT/ PASSENGER SIDE

Average right side SPL value = _____ dB

Lowest average overall SPL value of the left and right side: _____ dB

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**10 KM/H**)

Maximum overall SPL values

LEFT/DRIVER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Left side average overall ambient-corrected SPL = _____dB

RIGHT/PASSENGER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Right side average overall ambient-corrected SPL = _____dB

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**10 KM/H**)

Selection of one-third octave bands (use the lower of the four left or right side acoustic files)

Using lower of LEFT/DRIVER RIGHT/PASSENGER side (circle).

Valid Test 1 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 2 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**10 KM/H**)

Valid Test 3 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 4 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**10 KM/H**)

Averaging corrected values

1/3 octave band center frequency, Hz	Valid Test 1 corrected SPL, dB	Valid Test 2 corrected SPL, dB	Valid Test 3 corrected SPL, dB	Valid Test 4 corrected SPL, dB	Average corrected SPL, dB
315					
400					
500					
630					
800					
1000					
1250					
1600					
2000					
2500					
3150					
4000					
5000					

Is this vehicle designed to meet the four-band requirements?

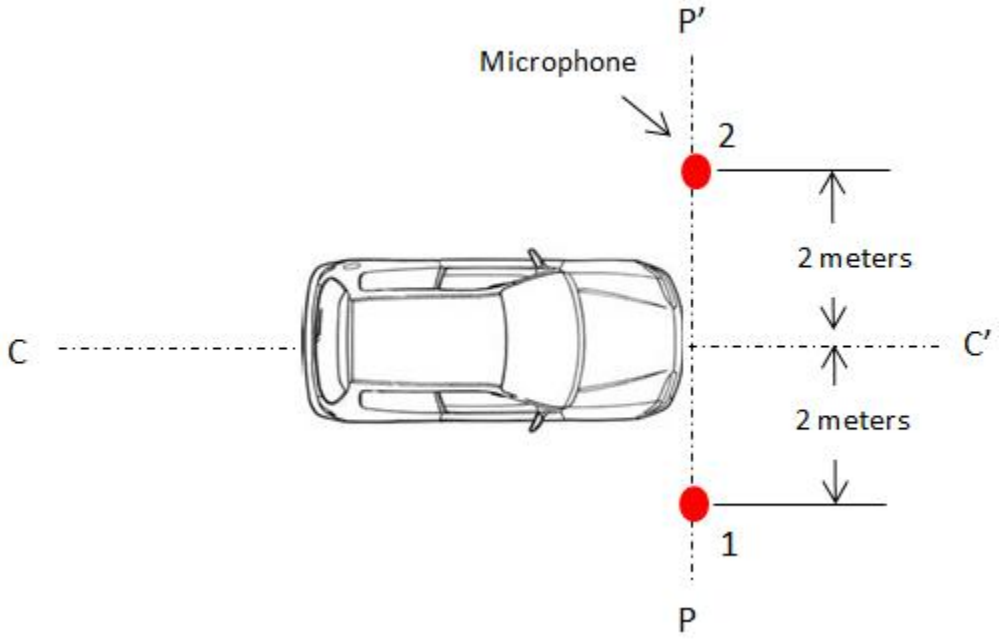
YES NO

Eight-band requirements PASS/FAIL_____

10 km/h Pass-by Test PASS/FAIL _____

DATA SHEET 5

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**20 KM/H**)



First four valid tests within 2dBA overall SPL

Valid Test 1 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 2 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 3 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 4 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**10 KM/H**)

SPL value ranges

LEFT/ DRIVER SIDE

Largest left side SPL value _____ dB – Smallest left side SPL value _____ dB

= Range of left side SPL values _____ dB

RIGHT/ PASSENGER SIDE

Largest right side SPL value _____ dB – Smallest right side SPL value _____ dB

= Range of right side SPL values _____ dB

The range for the left side, right side, and front-center are all less than or equal to 2.0 dB (circle)

YES NO

Average overall SPL values

LEFT/ DRIVER SIDE

Average left side SPL value = _____ dB

RIGHT/ PASSENGER SIDE

Average right side SPL value = _____ dB

Lowest average overall SPL value of the left and right side: _____ dB

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**20 KM/H**)

Maximum overall SPL values

LEFT/DRIVER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Left side average overall ambient-corrected SPL = _____dB

RIGHT/PASSENGER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Right side average overall ambient-corrected SPL = _____dB

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**20 KM/H**)

Selection of one-third octave bands (use the lower of the four left or right side acoustic files)

Using lower of LEFT/DRIVER RIGHT/PASSENGER side (circle).

Valid Test 1 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 2 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**20 KM/H**)

Valid Test 3 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 4 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**20 KM/H**)

Averaging corrected values

1/3 octave band center frequency, Hz	Valid Test 1 corrected SPL, dB	Valid Test 2 corrected SPL, dB	Valid Test 3 corrected SPL, dB	Valid Test 4 corrected SPL, dB	Average corrected SPL, dB
315					
400					
500					
630					
800					
1000					
1250					
1600					
2000					
2500					
3150					
4000					
5000					

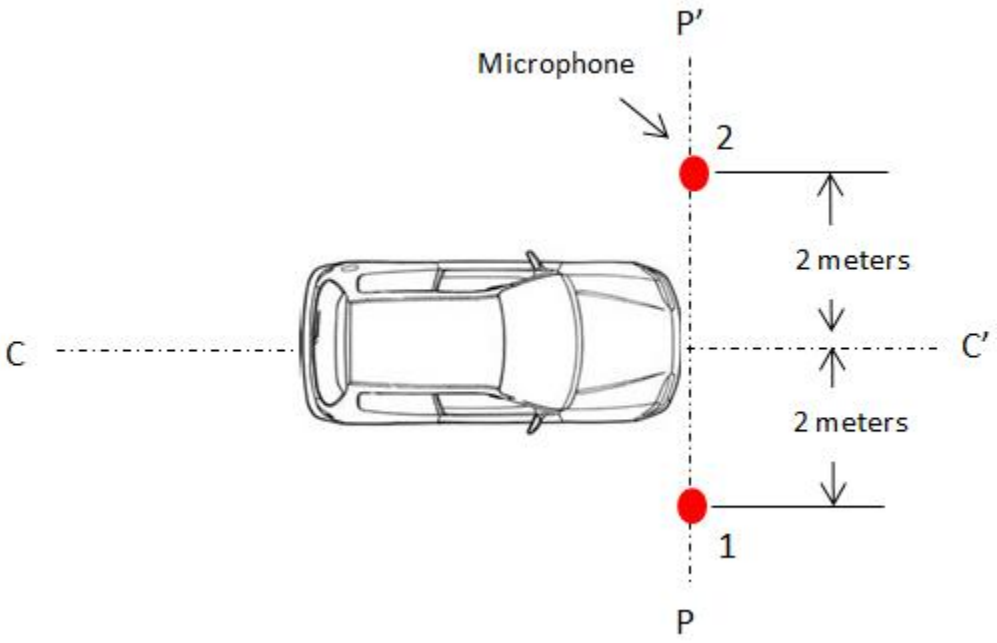
Is this vehicle designed to meet the eight-band requirements?

YES NO

20 km/h Pass-by Test PASS/FAIL _____

DATA SHEET 5

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**30 KM/H**)



First four valid tests within 2dBA overall SPL

Valid Test 1 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 2 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 3 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

Valid Test 4 – Test Sequence Number _____; MAX overall SPL _____dB

Microphone (circle): LEFT/DRIVER RIGHT/PASSENGER

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**30 KM/H**)

SPL value ranges

LEFT/ DRIVER SIDE

Largest left side SPL value _____ dB – Smallest left side SPL value _____ dB

= Range of left side SPL values _____ dB

RIGHT/ PASSENGER SIDE

Largest right side SPL value _____ dB – Smallest right side SPL value _____ dB

= Range of right side SPL values _____ dB

The range for the left side, right side, and front-center are all less than or equal to 2.0 dB (circle)

YES NO

Average overall SPL values

LEFT/ DRIVER SIDE

Average left side SPL value = _____ dB

RIGHT/ PASSENGER SIDE

Average right side SPL value = _____ dB

Lowest average overall SPL value of the left and right side: _____ dB

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**30 KM/H**)

Maximum overall SPL values

LEFT/DRIVER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Left side average overall ambient-corrected SPL = _____dB

RIGHT/PASSENGER SIDE

Valid Test 1 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 2 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 3 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Valid Test 4 – MAX overall SPL _____dB; Ambient corrected value: _____dB

Right side average overall ambient-corrected SPL = _____dB

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**30 KM/H**)

Selection of one-third octave bands (use the lower of the four left or right side acoustic files)

Using lower of LEFT/DRIVER RIGHT/PASSENGER side (circle).

Valid Test 1 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 2 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**30 KM/H**)

Valid Test 3 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

Valid Test 4 – SPL _____dB

1/3 octave band center frequency, Hz	SPL in band, dB	Ambient corrected SPL in band, dB
315		
400		
500		
630		
800		
1000		
1250		
1600		
2000		
2500		
3150		
4000		
5000		

DATA SHEET 5, CONT…

COMPLIANCE TEST EXECUTION
CONSTANT SPEED PASS-BY TEST (**30 KM/H**)

Averaging corrected values

1/3 octave band center frequency, Hz	Valid Test 1 corrected SPL, dB	Valid Test 2 corrected SPL, dB	Valid Test 3 corrected SPL, dB	Valid Test 4 corrected SPL, dB	Average corrected SPL, dB
315					
400					
500					
630					
800					
1000					
1250					
1600					
2000					
2500					
3150					
4000					
5000					

Is this vehicle designed to meet the eight-band requirements?

YES NO

30 km/h Pass-by Test PASS/FAIL _____

17. FORMS

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.:141 TEST DATE:_____

LABORATORY: _____

CONTRACT NO.: _____ DELV. ORDER NO: _____

LAB. PROJECT ENGINEER'S NAME: _____

TEST SPECIMEN DESCRIPTION:

VEHICLE NHTSA NO.: _____ VIN: _____

PART NO.: _____ MFR: _____

TEST FAILURE DESCRIPTION:

FMVSS REQUIREMENT, PARAGRAPH §_____:

NOTIFICATION TO NHTSA (COTR): _____

DATE: _____ BY: _____

REMARKS:

MONTHLY TEST STATUS REPORT
FMVSS 141

DATE OF REPORT: _____

NO.	VEHICLE NHTSA NO., MAKE & MODEL	COMPLIANCE TEST DATE	PASS/ FAIL	DATE REPORT SUBMITTED	DATE INVOICE SUBMITTED	INVOICE PAYMENT DATE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

MONTHLY VEHICLE STATUS REPORT
FMVSS 141

DATE OF REPORT: _____

NO.	VEHICLE NHTSA NO., MAKE & MODEL	DATE OF DELIVERY	ODOM. READING	TEST COMPLETE DATE	VEHICLE SHIPMENT DATE	ODOM. READING
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						