

FACT SHEET

ARIZONA MOBILITY TEST CENTER ADAPTIVE BEAM TESTING

Information about FMVSS 108 and Adaptive Beam Testing

There are 8 testing scenarios within the FMVSS 108 test for Adaptive Beam Headlights. These consist of a combination of radius curves (left-hand and right-hand) and straight lanes. Each of these scenarios utilize a combination of test fixtures which hold headlights and taillamps.



Headlamp Details

- 2018 Ford F-150 Halogen headlamp (Part #s KL3Z13008C/KL3Z13008D)
- 2018 Toyota Camry LED headlamp (Part #s 8111006C40/8115006C40)
- 2018 Harley Davidson Sportster (Part # 68297-05B)

Taillamp Details

- 2018 Ford-F150 incandescent rear combination lamp (Part #s JL3Z13405H/JL3Z13404H)
- 2018 Toyota Camry rear combination lamp (Part #s 81550-06730/81560-06730)
- 2018 Harley Davidson Roadster layback LED taillamp (Part # 67800355)

The Head/Taillamp fixtures are powered with a calibrated DC Power supply. The fixtures are powered by a constant 12.8 volts \pm 500 mV (measured at the lamp terminals).

Left-Hand Radius Curve Lanes

400 Meter Radius

- 220-meter distance measurement
 - Testing conducted at 50-55mph
 - Testing simulation – Opposing direction (Headlight Fixtures)

250 Meter Radius

- 150-meter distance measurement
 - Testing conducted at 40-45mph
 - Testing simulation – Opposing direction (Headlight Fixtures)
- 100-meter distance measurement
 - Testing conducted at 40-45mph
 - Testing simulation – Same direction (Taillamp Fixtures)

115 Meter Radius

- 60-meter distance measurement
 - Testing conducted at 25-30mph
 - Testing simulation – Opposing direction (Headlight Fixtures)

Right-Hand Radius Curve Lanes

400 Meter Radius

- 70-meter distance measurement
 - Testing conducted at 50-55mph
 - Testing simulation – Opposing direction (Headlight Fixtures)

250 Meter Radius

- 50-meter distance measurement
 - Testing conducted at 40-45mph
 - Testing simulation – Opposing direction (Headlight Fixtures)

Straight Line

- 100-meter distance measurement
 - Testing conducted at 60-70mph
 - Testing simulation – Same direction (Taillamp Fixtures)
- 220-meter distance measurement
 - Testing conducted at 60-70mph
 - Testing simulation – Opposing direction (Headlight Fixtures)

FOR MORE INFORMATION

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AMTC ADAPTIVE BEAM TESTING



The FMVSS 108 test requires a lane width of 10ft – 12ft. All lanes setup at AMTC for this test are 12ft wide. To verify that our lanes are within spec, we laid them out using survey equipment which has accuracy levels to centimeters. Physical markers with associated GPS coordinates are used to layout the lane for simplifying test setup and data analysis.

Equipment utilized for data analysis consist of the following (subject to change as our process improves):

- Racelogic - Vbox 3i, dual antenna (Vehicle/GPS speed & position)
- Racelogic – IMU (Yaw, Pitch, Roll)
- OxTS RT3000 v3 – (Vehicle/GPS Speed, Position [± 1 cm accuracy), Yaw, Pitch and Roll)
- LINK V-Max 4000 – Data Acquisition System (collect data from OxTS & other equipment via CAN) for easier raw data export capability
- International Light ILT6000/A6000/SED100 – Datalight software and detectors collects brightness readings from the vehicles ADB system in multiple locations simultaneously.

Testing allows for multiple runs, back-to-back. Equipment that is utilized provides needed accuracy to verify distance vs illuminance measurements. Intertek has created post processing scripts that provide preliminary test results track side within minutes, to give customers general performance trends.

Official pass/fail results are available after engineering analysis and completion of a final technical review.

