

REPORT NUMBER 138-STF-09-008

# SAFETY COMPLIANCE TESTING FOR FMVSS NO. 138 TIRE PRESSURE MONITORING SYSTEMS

AUDI AG  
2009 AUDI A6  
FOUR-DOOR PASSENGER CAR  
NHTSA NO. C95800

U.S. DOT SAN ANGELO TEST FACILITY  
131 COMANCHE TRAIL, BUILDING 3527  
GOODFELLOW AFB, TEXAS 76908



December 9, 2009

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
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SECTION 1  
INTRODUCTION

1.1 PURPOSE OF COMPLIANCE TEST

A 2009 Audi A6 four-door passenger car was tested to determine if the vehicle was in compliance with the requirements of FMVSS 138. All tests were conducted in accordance with NHTSA/Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure TP-138-03 dated July 12, 2007.

1.2 TEST VEHICLE

The test vehicle was a 2009 Audi A6 four-door passenger car. Nomenclatures applicable to the test vehicle are:

A. Vehicle Identification Number: WAUCH74F29N022298

B. NHTSA Number: C95800

C. Manufacturer: Audi AG

D. Manufacture Date: 11/2008

1.3 TEST DATE

The test vehicle was tested during the time period May 27, 2009, through June 9, 2009.

## SECTION 2

### TEST PROCEDURE AND SUMMARY OF RESULTS

#### 2.1 TEST PROCEDURE

Prior to test, the test vehicle was inspected for completeness, systems operability, and appropriate fuel and liquid levels, i.e. oil and coolant. The vehicle was then photographically documented as required by the NHTSA/OVSC Test Procedure. Tire sidewall information was recorded. The owner's manual was reviewed, and pertinent tire and TPMS information were noted. Telltale's symbol, color, location, and lamp function were checked.

Subsequent events included weighing the vehicle to establish the Unloaded Vehicle Weight (UVW) and the distribution of weight on the front and rear axles and each wheel position. The vehicle was loaded to its Lightly Loaded Vehicle Weight (LLVW) for eight tire deflation scenarios. This LLVW included the weights of driver, one passenger, and test equipment. The vehicle was loaded to its Unloaded Vehicle Weight plus Vehicle Capacity Weight (VCW) for seven additional tire deflation scenarios. The VCW included the weights of driver, one passenger, test equipment, ballast in the rear seat, and ballast in the rear cargo area. The vehicle is required to be loaded to its maximum capacity without exceeding either the Vehicle Capacity Weight or Gross Vehicle Weight Rating (GVWR). For determination of the telltale warning activation pressure, the recommended cold inflation pressure was identified from the vehicle placard.

The vehicle was instrumented with a Racelogic VBOX III 100 Hz GPS Data Logger and brake pedal trigger. The VBOX uses GPS to measure vehicle speed, time, and distance. Test data were recorded to a compact flash card. During the test, a stopwatch was used to determine the approximate 'Cumulative Driving Time' during each test phase. Cumulative driving time does not include time during the brake application or when the vehicle speed was below 50 km/h or above 100 km/h. Upon completion of a tire deflation scenario, graphs were generated by VBOX software showing vehicle speed versus time during the test procedures. The graphs furnish a second by second analysis of each calibration and low inflation pressure detection phase (as appropriate). The cumulative driving time was calculated by post-processing the VBOX graph data, and is reported in Section 3 (Test Data) as 'Total Driving Time'.

The tire deflation test scenario consisted of four phases:

1. Calibration phase: Tires were set at vehicle placard cold inflation pressure and the vehicle was driven for at least twenty minutes of cumulative driving time between 50 and 100 km/h.
2. Detection phase: Immediately after calibration phase, the selected tire(s) were deflated to seven kPa (one psi) below the Telltale Warning Activation Pressure. After one minute, the inflation pressure(s) of only deflated tire(s) were rechecked and adjusted if necessary. The vehicle was started and driven to ensure that the low inflation pressure telltale illuminated.

3. Cool down phase: Vehicle was parked in the San Angelo Test Facility (SATF) open bay shielded from direct sunlight. Tires were allowed to cool down for a minimum of one hour. After cool down, the vehicle was started and the low tire pressure telltale was checked for re-illumination.
4. Extinguishment phase: Tires were adjusted to vehicle placard cold inflation pressure. The vehicle was started, the TPMS was reset, and the vehicle was driven to ensure that the low inflation pressure telltale extinguished, unless the TPMS low tire pressure telltale extinguished prior to engaging of transmission.

Four malfunction scenarios were performed on the Audi A6. The first malfunction was simulated by disconnecting wiring to the TPMS ECU. The second scenario was performed by removing the TPMS fuse. The wheel speed sensor (ABS) was disconnected for the third scenario, and in the fourth, the right front tire was replaced with a smaller size tire.

## 2.2 SUMMARY OF RESULTS

Eight tire deflation scenarios were performed on the test vehicle at LLVW:

- A. Left front
- B. Left front and left rear
- C. Left front, left rear, right rear, and right front
- D. Left front and right rear
- E. Left rear and right rear
- F. Left front, left rear, and right rear
- G. Right rear
- H. Left front, right rear, and right front

Seven tire deflation scenarios were performed on the test vehicle at UVW + VCW:

- I. Left front and right front
- J. Left rear, right rear, and right front
- K. Left rear and right front
- L. Right front
- M. Left rear
- N. Right front and right rear
- O. Left front, left rear, and right front

The data indicate compliance of the test vehicle's tire pressure monitoring system for the fifteen tire deflation scenarios tested.

Four malfunction detection scenarios were performed on the test vehicle:

1. Wiring to the TPMS ECU was disconnected.
2. TPMS fuse was removed.
3. Wheel speed sensor was disconnected.
4. Right front tire was replaced with a smaller size tire at LLVW.

In all scenarios except the last one, the vehicle's combination malfunction telltale properly operated per the standard's requirements. After a power cycle in the last scenario, the TPMS light self extinguished while the malfunction was still in effect.



SECTION 3  
TEST DATA

## FMVSS No. 138 – TEST DATA SUMMARY

TEST DATES: May 27 - June 9, 2009      LAB: U. S. DOT San Angelo Test Facility

VIN: WAUCH74F29N022298      VEHICLE NHTSA NUMBER: C95800

CERTIFICATION LABEL BUILD DATE: 11/2008

REQUIREMENTS	PASS/FAIL
LOW TIRE PRESSURE WARNING TELLTALE S138: S4.3.1 (a), (b); S4.3.3 (a), (b)	
Mounting	<b>PASS</b>
Symbol and color	<b>PASS</b>
Check of lamp function	<b>PASS</b>
MALFUNCTION TELLTALE S138: S4.4 (b) or (c)	
Mounting	<b>PASS</b>
Symbol and color	<b>PASS</b>
Check of lamp function	<b>PASS</b>
LOW TIRE PRESSURE WARNING - OPERATIONAL PERFORMANCE S138: S4.2, S4.3.1 (c), S4.3.2	
Telltale illumination	<b>PASS</b>
MALFUNCTION INDICATOR – OPERATIONAL PERFORMANCE S138: S4.4 (a)	
Telltale illumination	<b>FAIL</b>
TPMS WRITTEN INSTRUCTIONS S138: S4.5	
Image of telltales	<b>PASS</b>
Verbatim statements	<b>PASS</b>

REMARKS: None

**DATA SHEET 1 (Sheet 1 of 3)**  
**TEST PREPARATION INFORMATION**

TEST DATE: May 27, 2009 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800 VIN: WAUCH74F29N022298

CERTIFICATION LABEL BUILD DATE: 11/2008 ENGINE: 3.2 liter, 6 cylinder

MY/MAKE/MODEL/BODY STYLE: 2009 Audi A6 four-door passenger car

**TIRE CONDITIONING:**

( X ) Tires used more than 100 km. Actual odometer reading : 460 km (286 mi)

**VEHICLE ALIGNMENT AND WHEEL BALANCING:**

Alignment checked: ( ) Front ( ) Rear ( X ) COTR waived

Wheels balanced: ( ) Front ( ) Rear ( X ) COTR waived

**TPMS IDENTIFICATION:**

TPMS MAKE/MODEL: ECU: NIRA Dynamics AB

Source: Manufacturer supplied information

TPMS TYPE: ( ) Direct ( X ) Indirect ( ) Other

Does TPMS require execution of a learning/calibration driving phase? ( X ) YES ( ) NO

Source: Manufacturer supplied information

Does TPMS have a manual reset control? ( X ) YES ( ) NO

Location and function: In Multi Media Interface center console display

**TPMS MALFUNCTION INDICATOR TYPE:**

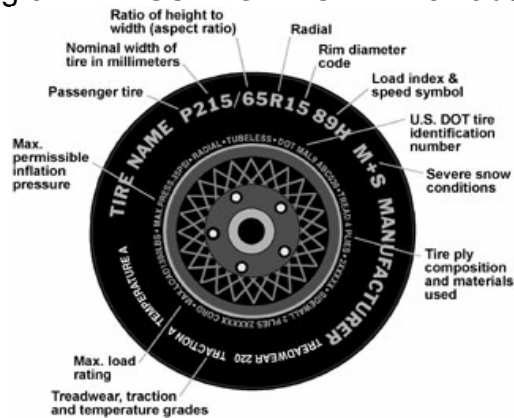
( ) None ( ) Dedicated Telltale ( X ) Combination low tire pressure/malfunction telltale

**DATA SHEET 1 (Sheet 2 of 3)  
TEST PREPARATION INFORMATION**

**DESIGNATED TIRE SIZE(S) FROM VEHICLE LABELING AND OWNER’S MANUAL:**

Axle	Tire Size	Recommended Cold Inflation Pressure	Source
Front and Rear	245/40R18	270 kPa (39 psi)	Vehicle placard
Front Normal Load	245/40R18	250 kPa (36 psi)	Owner’s manual
Front Full Load	245/40R18	270 kPa (39 psi)	Owner’s manual
Rear Normal Load	245/40R18	230 kPa (33 psi)	Owner’s manual
Rear Full Load	245/40R18	270 kPa (39 psi)	Owner’s manual

**INSTALLED TIRE DATA**  
Diagram - PASSENGER CAR Tire Labeling



**Front and Rear Axles**

Tire Size and Load Index / Speed Rating: 245/40R18 97H Extra Load

Manufacturer/Tire Name: Continental ContiPro Contact

Sidewall Max Load Rating: 730 kg (1,609 lbs)

Max Inflation Pressure: 350 kPa (51 psi)

Sidewall Construction (number of plies and ply material): 1 rayon

Tread Construction (number of plies and ply material): 1 rayon, 2 steel, 1 polyamide

**Do all installed tires have the same sidewall information?** (X) YES ( ) NO

**Are all installed tires the same as designated by the vehicle manufacturer on the vehicle placard?** (X) YES ( ) NO

**DATA SHEET 1 (Sheet 3 of 3)  
TEST PREPARATION**

<b>Worksheet for Determining FMVSS No. 138 Telltale Warning Activation Pressure for Tires Installed on Vehicle</b>		
<b>Part</b>	<b>Front Axle</b>	<b>Rear Axle</b>
<b>(A)</b> Recommended Inflation Pressure x .75	<u>270</u> kPa x .75 = <u>202.5</u> kPa	<u>270</u> kPa x .75 = <u>202.5</u> kPa
<b>(B)</b> Information from FMVSS 138 Table 1 below, Tire types are:  Inflation pressure  Minimum activation pressures from Table 1	( <input type="checkbox"/> ) P-metric-Standard load ( <input checked="" type="checkbox"/> ) P-metric-Extra Load Load Range ( <input type="checkbox"/> ) C, ( <input type="checkbox"/> ) D, or ( <input type="checkbox"/> ) E  ( <input checked="" type="checkbox"/> ) Maximum or ( <input type="checkbox"/> ) Rated <u>350</u> kPa (51 psi)  <u>160</u> kPa (23 psi)	( <input type="checkbox"/> ) P-metric-Standard load ( <input checked="" type="checkbox"/> ) P-metric-Extra Load Load Range ( <input type="checkbox"/> ) C, ( <input type="checkbox"/> ) D, or ( <input type="checkbox"/> ) E  ( <input checked="" type="checkbox"/> ) Maximum or ( <input type="checkbox"/> ) Rated <u>350</u> kPa (51 psi)  <u>160</u> kPa (23 psi)
<b>(C)</b> Telltale Warning Activation Pressure is the higher of Part (A) or (B)	<u>202.5</u> kPa (29.4 psi)	<u>202.5</u> kPa (29.4 psi)
<b>(D)</b> Pressure at which to deflate tire(s) = (C) – 7 kPa	<u>195.5</u> kPa (28.4 psi)	<u>195.5</u> kPa (28.4 psi)

**FMVSS 138 Table 1 - Low Tire Pressure Warning Telltale - Minimum Activation Pressure**

<b>Tire Type</b>	<b>Maximum or Rated Inflation Pressure</b>		<b>Minimum Activation Pressure</b>	
	<b>(kPa)</b>	<b>(psi)</b>	<b>(kPa)</b>	<b>(psi)</b>
P-metric -- Standard Load	240, 300, or 350	35, 44, or 51	140 140 140	20 20 20
P-metric - Extra Load	280 or 340	41 or 49	160 160	23 23
Load Range C	350	51	200	29
Load Range D	450	65	240	35
Load Range E	550	80	240	35

REMARKS: None

RECORDED BY: Todd P. Groghan

DATE: May 27, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 2 (Sheet 1 of 2)**  
**LOW TIRE PRESSURE WARNING AND MALFUNCTION TELLTALE**

TEST DATE: May 27, 2009      LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

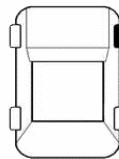
**TPMS Low Tire Pressure Warning Telltale**

Telltale is mounted inside the occupant compartment in front of and in clear view of the driver?

( X ) YES      ( ) NO (fail)

TPMS Low Tire Pressure Warning Telltale Location: In instrument cluster at top left of  
speedometer

Identify Telltale Symbol Used (check box above figure).



OTHER (fail)  
(describe below)

Note any words or additional symbols used: See Remarks

Telltale is part of a reconfigurable display?      ( ) YES      ( X ) NO

**TPMS Malfunction Telltale**

( ) None      ( ) Dedicated stand-alone      ( X ) Combined with low tire pressure telltale

**DATA SHEET 2 (Sheet 2 of 2)**  
**LOW TIRE PRESSURE WARNING AND MALFUNCTION TELLTALE**

**Check Telltale Lamp Functions:**

LOW TIRE PRESSURE WARNING AND MALFUNCTION TELLTALE

Ignition locking system position when telltale illuminates:

- |                                     |          |                          |                             |
|-------------------------------------|----------|--------------------------|-----------------------------|
| <input type="checkbox"/>            | OFF/LOCK | <input type="checkbox"/> | Between OFF/LOCK and ON/RUN |
| <input checked="" type="checkbox"/> | ON/RUN   | <input type="checkbox"/> | Between ON/RUN and START    |

Is the telltale yellow in color?      ( X )YES    ( )NO (fail)

Time telltale remains illuminated 2.5 seconds.

**Starter Interlocks:**

Does vehicle have any starter, transmission or other interlocks that affect operation of the telltale lamp check function?      ( )YES      ( X )NO

Low Tire Pressure Warning and Malfunction Telltales (PASS/FAIL)      PASS

REMARKS: In addition to the combined low inflation pressure/malfunction telltale, the Audi is equipped with a reconfigurable display (Driver Information System) that provides supplementary low inflation pressure and malfunction information (see Figure 5.11).

RECORDED BY: Todd P. Groghan

DATE: May 27, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 1 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**

TEST DATE: June 3, 2009      LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Time:                                      Start: 1:55 pm                      End: 2:48 pm

Ambient Temperature:                Start: 27.8°C (82.0°F)                End: 29.6°C (85.3°F)

Trip Odometer Reading:              Start: 534.0 km (331.8 mi)

Fuel Level:                                Start: Full

Weather Conditions:                                      Sunny

Time vehicle remained with engine off and tires shielded from direct sunlight  
(1 hour minimum): 1 hour

**PRE-TEST TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Pre-test cold measurements after ambient soak: Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	23.8°C (74.8°F)	23.4°C (74.1°F)	23.2°C (73.8°F)	23.8°C (74.8°F)



**DATA SHEET 3 (Sheet 2 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**

**VEHICLE WEIGHT:**

**Vehicle Ratings from Certification Label:**

GVWR: 2,265 kg (4,993 lbs)

GAWR (front): 1,190 kg (2,623 lbs)

GAWR (rear): 1,175 kg (2,590 lbs)

**Vehicle Capacity Weight:**

Vehicle Capacity Weight 500 kg (1,102 lbs)

**Measured Unloaded Vehicle Weight:**

LF	<u>504 kg (1,112 lbs)</u>	LR	<u>378 kg (834 lbs)</u>
RF	<u>501 kg (1,105 lbs)</u>	RR	<u>373 kg (822 lbs)</u>
Front		Rear	
Axle	<u>1,005 kg (2,217 lbs)</u>	Axle	<u>751 kg (1,656 lbs)</u>
Total Vehicle		<u>1,756 kg (3,873 lbs)</u>	

**Measured Test Weight: ( X )LLVW(+50, -0 kg) ( )UVW + VCW ( )GVWR(+0, -50 kg)**

LF	<u>550 kg (1,213 lbs)</u>	LR	<u>420 kg (927 lbs)</u>
RF	<u>548 kg (1,208 lbs)</u>	RR	<u>416 kg (918 lbs)</u>
Front		Rear	
Axle	<u>1,098 kg (2,421 lbs)</u> ( ≤ GAWR)	Axle	<u>836 kg (1,845 lbs)</u> ( ≤ GAWR)
Total Vehicle		<u>1,934 kg (4,266 lbs)</u> (not greater than GVWR)	

Note: For scenarios A through H, this Total Vehicle Weight measures the vehicle loaded to Lightly Loaded Vehicle Weight (LLVW), 178 kg (393 lbs) of driver, passenger, and test equipment.

**DATA SHEET 3 (Sheet 3 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO A – Left Front Tire Deflation at LLVW**

TEST DATE: June 4, 2009 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>19.3°C (66.7°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	21.0°C (69.8°F)	20.8°C (69.4°F)	20.8°C (69.4°F)	21.2°C (70.2°F)
San Angelo Test Facility Shop Floor Temp	23.6°C (74.5°F)	23.2°C (73.8°F)	23.2°C (73.8°F)	23.2°C (73.8°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 12:56:43 UTC End: 13:22:30 UTC  
 Trip Odometer Reading: Start: 539.1 km (335.0 mi) End: 571.2 km (354.9 mi)  
 Ambient Temperature: Start: 19.0°C (66.2°F) End: 20.3°C (68.5°F)  
 Roadway Temperature: Start: 22.0°C (71.6°F) End: 24.6°C (76.3°F)

Driving in first direction:

Goodfellow Air Force  
 Starting point: Base (GAFB) north gate Direction: see chart, page 96  
10:14 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 96  
10:21 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed:** 98.1 km/h (61.0 mph)

**Total Driving Time:** 20:37 minutes (VBox time)

**DATA SHEET 3 (Sheet 4 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO A – Left Front Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Immediately, after vehicle is stopped, engine off: Inflation Pressure	295.0 kPa (42.8 psi)	290.0 kPa (42.1 psi)	289.7 kPa (42.0 psi)	293.9 kPa (42.6 psi)
Tire Sidewall Temp	37.2°C (99.0°F)	31.8°C (89.2°F)	30.2°C (86.4°F)	35.2°C (95.4°F)
San Angelo Test Facility Shop Floor Temp	23.4°C (74.1°F)	23.6°C (74.5°F)	23.4°C (74.1°F)	23.6°C (74.5°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Indicate Location of Tire(s) Deflated: ( X )LF ( )LR ( )RR ( )RF Inflation Pressure	195.5 kPa (28.4 psi)			

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 97

1.4 km (0.9 mi) distance (non-cumulative)

**Max speed:** 75.1 km/h (46.7 mph)

**Total Driving Time:** 0:15 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> ( X )YES   ( )NO (fail)
--

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES   ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES   ( )NO (fail)

**DATA SHEET 3 (Sheet 5 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO A – Left Front Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>22.3°C (72.1°F)</u> Vehicle cool down period: <u>61</u> minutes				
Inflation Pressure	187.5 kPa (27.2 psi)	278.1 kPa (40.3 psi)	277.4 kPa (40.2 psi)	281.0 kPa (40.8 psi)
Tire Sidewall Temp	29.6°C (85.3°F)	26.6°C (79.9°F)	26.8°C (80.2°F)	30.0°C (86.0°F)
San Angelo Test Facility Shop Floor Temp	24.4°C (75.9°F)	24.0°C (75.2°F)	24.6°C (76.3°F)	24.6°C (76.3°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:				
	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale? ( )YES ( X )NO  
(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

PASS

Left front tire was deflated at LLVW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been  
readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 4, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 6 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO B – Left Front and Left Rear Tire Deflation at LLVW**

TEST DATE: June 4, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>22.3°C (72.1°F)</u> Vehicle cool down period: <u>68</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	29.4°C (84.9°F)	26.2°C (79.2°F)	26.4°C (79.5°F)	29.6°C (85.3°F)
San Angelo Test Facility Shop Floor Temp	24.4°C (75.9°F)	24.6°C (76.3°F)	24.6°C (76.3°F)	24.4°C (75.9°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 14:56:55 UTC End: 15:22:16 UTC  
 Trip Odometer Reading: Start: 575.8 km (357.8 mi) End: 607.8 km (377.7 mi)  
 Ambient Temperature: Start: 22.3°C (72.1°F) End: 23.2°C (73.8°F)  
 Roadway Temperature: Start: 33.4°C (92.1°F) End: 37.6°C (99.7°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 98  
10:10 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 98  
10:31 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed:** 97.0 km/h (60.3 mph)

**Total Driving Time:** 20:43 minutes (VBox time)

**DATA SHEET 3 (Sheet 7 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO B – Left Front and Left Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	288.5 kPa (41.8 psi)	288.5 kPa (41.8 psi)	288.7 kPa (41.9 psi)	290.0 kPa (42.1 psi)
Tire Sidewall Temp	41.0°C (105.8°F)	35.2°C (95.4°F)	34.0°C (93.2°F)	38.4°C (101.1°F)
San Angelo Test Facility Shop Floor Temp	24.8°C (76.6°F)	24.8°C (76.6°F)	24.8°C (76.6°F)	24.4°C (75.9°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( X )LR ( )RR ( )RF Inflation Pressure	195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)		

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 99

3.2 km (2.0 mi) distance (non-cumulative)

**Max speed:** 81.5 km/h (50.6 mph)

**Total Driving Time:** 2:01 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b>	<b>( X )YES ( )NO (fail)</b>
--	------------------------------

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

**DATA SHEET 3 (Sheet 8 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO B – Left Front and Left Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>25.0°C (77.0°F)</u> Vehicle cool down period: <u>62</u> minutes				
Inflation Pressure	186.4 kPa (27.0 psi)	188.1 kPa (27.3 psi)	274.8 kPa (39.9 psi)	275.1 kPa (39.9 psi)
Tire Sidewall Temp	33.0°C (91.4°F)	30.2°C (86.4°F)	30.0°C (86.0°F)	32.8°C (91.0°F)
San Angelo Test Facility Shop Floor Temp	25.6°C (78.1°F)	25.6°C (78.1°F)	25.6°C (78.1°F)	25.8°C (78.4°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?             YES     NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?     YES     NO

(See Remarks)

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left front and left rear tires were deflated at LLVW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 4, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 9 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO C – Left Front, Left Rear, Right Rear,**  
**and Right Front Tire Deflation at LLVW**

TEST DATE: June 4, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>26.9°C (80.4°F)</u> Vehicle cool down period: <u>69</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	33.4°C (92.1°F)	30.4°C (86.7°F)	30.0°C (86.0°F)	33.0°C (91.4°F)
San Angelo Test Facility Shop Floor Temp	26.0°C (78.8°F)	25.8°C (78.4°F)	26.2°C (79.2°F)	26.0°C (78.8°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 17:01:47 UTC End: 17:26:13 UTC  
Trip Odometer Reading: Start: 616.1 km (382.8 mi) End: 648.1 km (402.7 mi)  
Ambient Temperature: Start: 26.9°C (80.4°F) End: 26.8°C (80.2°F)  
Roadway Temperature: Start: 46.8°C (116.2°F) End: 48.4°C (119.1°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 100  
10:14 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 100  
10:34 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed: 99.3 km/h (61.7 mph)**

**Total Driving Time: 20:50 minutes (VBox time)**



**DATA SHEET 3 (Sheet 10 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO C – Left Front, Left Rear, Right Rear,**  
**and Right Front Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	288.8 kPa (41.9 psi)	286.6 kPa (41.6 psi)	288.0 kPa (41.8 psi)	289.6 kPa (42.0 psi)
Tire Sidewall Temp	45.0°C (113.0°F)	39.2°C (102.6°F)	38.6°C (101.5°F)	42.8°C (109.0°F)
San Angelo Test Facility Shop Floor Temp	26.4°C (79.5°F)	26.8°C (80.2°F)	27.0°C (80.6°F)	26.4°C (79.5°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( X )LR ( X )RR ( X )RF Inflation Pressure	195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 101

7.9 km (4.9 mi) distance (non-cumulative)

**Max speed:** 95.5 km/h (59.3 mph)

**Total Driving Time:** 5:03 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> <b>( X )YES ( )NO (fail)</b>
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      **( X )YES ( )NO (fail)**

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      **( X )YES ( )NO (fail)**

**DATA SHEET 3 (Sheet 11 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO C – Left Front, Left Rear, Right Rear,**  
**and Right Front Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>29.6°C (85.3°F)</u> Vehicle cool down period: <u>61</u> minutes				
Inflation Pressure	185.9 kPa (27.0 psi)	187.8 kPa (27.2 psi)	188.6 kPa (27.4 psi)	187.3 kPa (27.2 psi)
Tire Sidewall Temp	35.8°C (96.4°F)	32.8°C (91.0°F)	32.6°C (90.7°F)	35.6°C (96.1°F)
San Angelo Test Facility Shop Floor Temp	26.8°C (80.2°F)	27.2°C (81.0°F)	27.4°C (81.3°F)	27.2°C (81.0°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?       YES     NO (fail)

**TELLTALE EXTINGUISHMENT:**  
**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?       YES     NO  
(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left front, left rear, right rear, and right front tires were deflated at LLVW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 4, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 12 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO D – Left Front and Right Rear Tire Deflation at LLVW**

TEST DATE: June 5, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>20.4°C (68.7°F)</u> Vehicle cool down period: <u>overnight</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	22.0°C (71.6°F)	21.6°C (70.9°F)	21.8°C (71.2°F)	22.4°C (72.3°F)
San Angelo Test Facility Shop Floor Temp	23.8°C (74.8°F)	23.4°C (74.1°F)	23.8°C (74.8°F)	23.8°C (74.8°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 13:06:21 UTC End: 13:31:33 UTC  
 Trip Odometer Reading: Start: 669.3 km (415.9 mi) End: 701.5 km (435.9 mi)  
 Ambient Temperature: Start: 20.4°C (68.7°F) End: 21.4°C (70.5°F)  
 Roadway Temperature: Start: 22.6°C (72.7°F) End: 26.6°C (79.9°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 102  
10:08 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 102  
10:35 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed:** 97.6 km/h (60.6 mph)

**Total Driving Time:** 20:43 minutes (VBox time)

**DATA SHEET 3 (Sheet 13 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO D – Left Front and Right Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	294.3 kPa (42.7 psi)	290.2 kPa (42.1 psi)	290.2 kPa (42.1 psi)	294.2 kPa (42.7 psi)
Tire Sidewall Temp	38.0°C (100.4°F)	32.6°C (90.7°F)	31.6°C (88.9°F)	36.4°C (97.5°F)
San Angelo Test Facility Shop Floor Temp	24.4°C (75.9°F)	24.0°C (75.2°F)	24.0°C (75.2°F)	24.2°C (75.6°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( )LR ( X )RR ( )RF Inflation Pressure	195.5 kPa (28.4 psi)		195.5 kPa (28.4 psi)	

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop Direction: see chart, page 103

3.5 km (2.2 mi) distance (non-cumulative)

**Max speed:** 82.0 km/h (51.0 mph)

**Total Driving Time:** 2:12 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> ( X )YES ( )NO (fail)
--

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

**DATA SHEET 3 (Sheet 14 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO D – Left Front and Right Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>23.3°C (73.9°F)</u> Vehicle cool down period: <u>60</u> minutes				
Inflation Pressure	187.7 kPa (21.7 psi)	277.9 kPa (21.7 psi)	188.8 kPa (21.7 psi)	280.9 kPa (21.8 psi)
Tire Sidewall Temp	29.8°C (63.3°F)	27.6°C (63.3°F)	28.2°C (63.7°F)	30.4°C (65.5°F)
San Angelo Test Facility Shop Floor Temp	24.8°C (63.0°F)	24.6°C (63.0°F)	24.8°C (63.0°F)	24.8°C (63.7°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position? ( X )YES ( )NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:				
	270.0 kPa (31.9 psi)	270.0 kPa (31.9 psi)	270.0 kPa (31.9 psi)	270.0 kPa (31.9 psi)

Is it necessary to drive the vehicle to extinguish the telltale? ( )YES ( X )NO  
(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left front and right rear tires were deflated at LLVW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 5, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 15 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO E – Left Rear and Right Rear Tire Deflation at LLVW**

TEST DATE: June 5, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>23.3°C (73.9°F)</u> Vehicle cool down period: <u>68</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	30.0°C (86.0°F)	27.4°C (81.3°F)	27.8°C (82.0°F)	30.2°C (86.4°F)
San Angelo Test Facility Shop Floor Temp	25.0°C (77.0°F)	25.2°C (77.4°F)	25.2°C (77.4°F)	25.2°C (77.4°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 15:06:52 UTC End: 15:31:38 UTC  
 Trip Odometer Reading: Start: 709.9 km (441.1 mi) End: 741.9 km (461.0 mi)  
 Ambient Temperature: Start: 23.3°C (73.9°F) End: 25.2°C (77.4°F)  
 Roadway Temperature: Start: 35.6°C (96.1°F) End: 40.2°C (104.4°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 104  
10:11 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 104  
10:28 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 97.8 km/h (60.8 mph)

**Total Driving Time:** 20:40 minutes (VBox time)

**DATA SHEET 3 (Sheet 16 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO E – Left Rear and Right Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	290.9 kPa (42.2 psi)	290.6 kPa (42.1 psi)	289.3 kPa (42.0 psi)	291.7 kPa (42.3 psi)
Tire Sidewall Temp	44.6°C (112.3°F)	38.8°C (101.8°F)	37.2°C (99.0°F)	42.6°C (108.7°F)
San Angelo Test Facility Shop Floor Temp	25.6°C (78.1°F)	25.6°C (78.1°F)	25.8°C (78.4°F)	25.8°C (78.4°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( )LF ( X )LR ( X )RR ( )RF Inflation Pressure		195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)	

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 105

4.2 km (2.6 mi) distance (non-cumulative)

**Max speed:** 87.3 km/h (54.2 mph)

**Total Driving Time:** 2:38 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> <b>( X )YES ( )NO (fail)</b>
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      **( X )YES ( )NO (fail)**

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      **( X )YES ( )NO (fail)**

**DATA SHEET 3 (Sheet 17 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO E – Left Rear and Right Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>28.1°C (82.6°F)</u> Vehicle cool down period: <u>60</u> minutes				
Inflation Pressure	274.9 kPa (39.9 psi)	187.2 kPa (27.2 psi)	187.5 kPa (27.2 psi)	277.0 kPa (40.2 psi)
Tire Sidewall Temp	34.6°C (94.3°F)	31.2°C (88.2°F)	32.2°C (90.0°F)	35.8°C (96.4°F)
San Angelo Test Facility Shop Floor Temp	26.6°C (79.9°F)	26.2°C (79.2°F)	26.6°C (79.9°F)	26.2°C (79.2°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?             YES     NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?             YES     NO

(See Remarks)

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left rear and right rear tires were deflated at LLVW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 5, 2009

APPROVED BY: Kenneth H. Yates



**DATA SHEET 3 (Sheet 18 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO F – Left Front, Left Rear, and Right Rear Tire Deflation at LLVW**

TEST DATE: June 5, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>29.1°C (84.4°F)</u> Vehicle cool down period: <u>68</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	34.6°C (94.3°F)	31.2°C (88.2°F)	32.2°C (90.0°F)	35.8°C (96.4°F)
San Angelo Test Facility Shop Floor Temp	26.6°C (79.9°F)	26.2°C (79.2°F)	26.6°C (79.9°F)	26.2°C (79.2°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 17:08:13 UTC End: 17:32:46 UTC  
 Trip Odometer Reading: Start: 752.5 km (467.6 mi) End: 784.6 km (487.5 mi)  
 Ambient Temperature: Start: 29.1°C (84.4°F) End: 29.1°C (84.4°F)  
 Roadway Temperature: Start: 47.4°C (117.3°F) End: 49.6°C (121.3°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 106  
10:11 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 106  
10:26 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 98.9 km/h (61.5 mph)

**Total Driving Time:** 20:37 minutes (VBox time)

**DATA SHEET 3 (Sheet 19 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO F – Left Front, Left Rear, and Right Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Immediately, after vehicle is stopped, engine off: Inflation Pressure	292.8 kPa (42.5 psi)	290.9 kPa (42.2 psi)	290.4 kPa (42.1 psi)	292.6 kPa (42.4 psi)
Tire Sidewall Temp	49.4°C (120.9°F)	43.6°C (110.5°F)	42.4°C (108.3°F)	47.2°C (117.0°F)
San Angelo Test Facility Shop Floor Temp	27.4°C (81.3°F)	27.4°C (81.3°F)	27.2°C (81.0°F)	27.2°C (81.0°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Indicate Location of Tire(s) Deflated: ( X )LF ( X )LR ( X )RR ( )RF Inflation Pressure	195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)	

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop Direction: see chart, page 107

3.7 km (2.3 mi) distance (non-cumulative)

**Max speed:** 87.5 km/h (54.4 mph)

**Total Driving Time:** 2:12 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> ( X )YES ( )NO (fail)
--

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?  
( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?  
( X )YES ( )NO (fail)

**DATA SHEET 3 (Sheet 20 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO F – Left Front, Left Rear, and Right Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>32.9°C (91.2°F)</u> Vehicle cool down period: <u>63</u> minutes				
Inflation Pressure	184.3 kPa (26.7 psi)	185.4 kPa (26.9 psi)	185.9 kPa (27.0 psi)	274.7 kPa (39.8 psi)
Tire Sidewall Temp	37.8°C (100.0°F)	34.6°C (94.3°F)	35.4°C (95.7°F)	38.4°C (101.1°F)
San Angelo Test Facility Shop Floor Temp	28.2°C (82.8°F)	27.8°C (82.0°F)	28.4°C (83.1°F)	28.0°C (82.4°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?       YES     NO (fail)

**TELLTALE EXTINGUISHMENT:  
RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?       YES     NO  
(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left front, left rear, and right rear tires were deflated at LLVW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 5, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 21 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO G – Right Rear Tire Deflation at LLVW**

TEST DATE: June 8, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>23.8°C (74.8°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	24.4°C (75.9°F)	24.4°C (75.9°F)	24.8°C (76.6°F)	25.2°C (77.4°F)
San Angelo Test Facility Shop Floor Temp	26.2°C (79.2°F)	26.2°C (79.2°F)	26.6°C (79.9°F)	26.0°C (78.8°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 13:06:54 UTC End: 13:31:06 UTC  
Trip Odometer Reading: Start: 793.2 km (492.9 mi) End: 825.4 km (512.9 mi)  
Ambient Temperature: Start: 23.8°C (74.8°F) End: 23.8°C (74.8°F)  
Roadway Temperature: Start: 26.0°C (78.8°F) End: 28.8°C (83.8°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 108  
10:09 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 108  
10:29 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed:** 98.0 km/h (60.9 mph)

**Total Driving Time:** 20:38 minutes (VBox time)

**DATA SHEET 3 (Sheet 22 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO G – Right Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	294.2 kPa (42.7 psi)	288.9 kPa (41.9 psi)	287.5 kPa (41.7 psi)	292.3 kPa (42.4 psi)
Tire Sidewall Temp	35.2°C (95.4°F)	35.8°C (96.4°F)	34.2°C (93.6°F)	39.4°C (102.9°F)
San Angelo Test Facility Shop Floor Temp	26.6°C (79.9°F)	27.0°C (80.6°F)	26.8°C (80.2°F)	27.0°C (80.6°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( )LF ( )LR (X)RR ( )RF Inflation Pressure			195.5 kPa (28.4 psi)	

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop Direction: see chart, page 109

1.3 km (0.8 mi) distance (non-cumulative)

Max speed: 82.7 km/h (51.4 mph)

Total Driving Time: 0:29 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> ( X )YES ( )NO (fail)
--

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position? ( X )YES ( )NO (fail)

**DATA SHEET 3 (Sheet 23 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO G – Right Rear Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>25.8°C (78.4°F)</u> Vehicle cool down period: <u>64</u> minutes				
Inflation Pressure	278.4 kPa (40.4 psi)	275.4 kPa (39.9 psi)	188.7 kPa (27.4 psi)	279.8 kPa (40.6 psi)
Tire Sidewall Temp	30.6°C (87.1°F)	28.2°C (82.8°F)	29.4°C (84.9°F)	32.8°C (91.0°F)
San Angelo Test Facility Shop Floor Temp	26.8°C (80.2°F)	26.8°C (80.2°F)	26.8°C (80.2°F)	26.8°C (80.2°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?      ( X )YES    ( )NO (fail)

**TELLTALE EXTINGUISHMENT:**  
**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?      ( )YES    ( X )NO  
 (See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Right rear tire was deflated at LLVW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 8, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 24 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO H – Left Front, Right Rear, and Right Front Tire Deflation at LLVW**

TEST DATE: June 8, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to LLVW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>26.8°C (80.2°F)</u> Vehicle cool down period: <u>71</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	30.4°C (86.7°F)	27.8°C (82.0°F)	29.0°C (84.2°F)	32.6°C (90.7°F)
San Angelo Test Facility Shop Floor Temp	26.6°C (79.9°F)	26.8°C (80.2°F)	27.0°C (80.6°F)	27.0°C (80.6°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 15:09:56 UTC End: 15:34:49 UTC  
 Trip Odometer Reading: Start: 830.3 km (515.9 mi) End: 862.3 km (535.8 mi)  
 Ambient Temperature: Start: 26.8°C (80.2°F) End: 27.8°C (82.0°F)  
 Roadway Temperature: Start: 36.8°C (98.2°F) End: 40.2°C (104.4°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 110  
10:11 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 110  
10:32 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 98.5 km/h (61.2 mph)

**Total Driving Time:** 20:45 minutes (VBox time)

**DATA SHEET 3 (Sheet 25 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO H – Left Front, Right Rear, and Right Front Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Immediately, after vehicle is stopped, engine off: Inflation Pressure	293.4 kPa (42.6 psi)	290.6 kPa (42.1 psi)	287.4 kPa (41.7 psi)	290.8 kPa (42.2 psi)
Tire Sidewall Temp	46.8°C (116.2°F)	40.2°C (104.4°F)	38.6°C (101.5°F)	43.8°C (110.8°F)
San Angelo Test Facility Shop Floor Temp	27.8°C (82.0°F)	27.2°C (81.0°F)	27.8°C (82.0°F)	27.6°C (81.7°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Indicate Location of Tire(s) Deflated: ( X )LF ( )LR ( X )RR ( X )RF Inflation Pressure	195.5 kPa (28.4 psi)		195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 111

3.2 km (2.0 mi) distance (non-cumulative)

Max speed: 85.1 km/h (52.9 mph)

Total Driving Time: 2:05 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> <b>( X )YES ( )NO (fail)</b>
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)



**DATA SHEET 3 (Sheet 26 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO H – Left Front, Right Rear, and Right Front Tire Deflation at LLVW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>29.7°C (85.5°F)</u> Vehicle cool down period: <u>60</u> minutes				
Inflation Pressure	184.6 kPa (26.8 psi)	274.9 kPa (39.9 psi)	186.9 kPa (27.1 psi)	187.0 kPa (27.1 psi)
Tire Sidewall Temp	33.6°C (92.5°F)	31.2°C (88.2°F)	31.8°C (89.2°F)	35.8°C (96.4°F)
San Angelo Test Facility Shop Floor Temp	28.2°C (82.8°F)	27.8°C (82.0°F)	28.0°C (82.4°F)	28.2°C (82.8°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?             YES     NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?             YES     NO

(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left front, right rear, and right front tires were deflated at LLVW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 8, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 27 of 51)  
TPMS OPERATIONAL PERFORMANCE**

TEST DATE: June 1, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Time: Start: 11:46 am End: 1:05 pm

Ambient Temperature: Start: 25.2°C (77.4°F) End: 27.1°C (80.8°F)

Odometer Reading: Start: 460 km (286 mi)

Fuel Level: Start: Full

Weather Conditions: Sunny and calm

Time vehicle remained with engine off and tires shielded from direct sunlight  
(1 hour minimum): overnight

**PRE-TEST TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Pre-test cold measurements after ambient soak: Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	26.4°C (79.5°F)	27.4°C (81.3°F)	27.5°C (81.5°F)	26.8°C (80.2°F)

**DATA SHEET 3 (Sheet 28 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**VEHICLE WEIGHT:**

**Vehicle Ratings from Certification Label:**

GVWR: 2,265 kg (4,993 lbs)

GAWR (front): 1,190 kg (2,623 lbs)

GAWR (rear): 1,175 kg (2,590 lbs)

**Vehicle Capacity Weight:**

Vehicle Capacity Weight 500 kg (1,102 lbs)

**Measured Unloaded Vehicle Weight:**

LF	<u>504 kg (1,112 lbs)</u>	LR	<u>376 kg (830 lbs)</u>
RF	<u>502 kg (1,107 lbs)</u>	RR	<u>374 kg (824 lbs)</u>
Front		Rear	
Axle	<u>1,006 kg (2,219 lbs)</u>	Axle	<u>750 kg (1,654 lbs)</u>
Total Vehicle		<u>1,756 kg (3,873 lbs)</u>	

**Measured Test Weight: ( ) LLVW(+50, -0 kg) ( X ) UVW + VCW ( ) GVWR(+0, -50 kg)**

LF	<u>565 kg (1,246 lbs)</u>	LR	<u>571 kg (1,258 lbs)</u>
RF	<u>558 kg (1,231 lbs)</u>	RR	<u>562 kg (1,240 lbs)</u>
Front		Rear	
Axle	<u>1,123 kg (2,477 lbs)</u> ( ≤ GAWR )	Axle	<u>1,133 kg (2,498 lbs)</u> ( ≤ GAWR )
Total Vehicle		<u>2,256 kg (4,975 lbs)</u> (not greater than GVWR)	

Note: For scenarios I through L, this Total Vehicle Weight measures the vehicle loaded to Unloaded Vehicle Weight (UVW) and Vehicle Capacity Weight (VCW), 500 kg (1,102 lbs) of driver, passenger, test equipment, and ballast.

**DATA SHEET 3 (Sheet 29 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO I – Left Front and Right Front Tire Deflation at UVW + VCW**

TEST DATE: June 2, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 28 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>27.1°C (80.8°F)</u> Vehicle cool down period: <u>67</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	27.8°C (82.0°F)	27.2°C (81.0°F)	27.4°C (81.3°F)	28.4°C (83.1°F)
San Angelo Test Facility Shop Floor Temp	26.8°C (80.2°F)	26.4°C (79.5°F)	26.8°C (80.2°F)	26.8°C (80.2°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 16:42:45 UTC End: 17:07:35 UTC  
 Trip Odometer Reading: Start: 374.2 km (232.5 mi) End: 406.2 km (252.4 mi)  
 Ambient Temperature: Start: 27.1°C (80.8°F) End: 28.0°C (82.4°F)  
 Roadway Temperature: Start: 44.2°C (111.6°F) End: 43.8°C (110.8°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 112  
10:13 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 112  
10:27 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed:** 98.0 km/h (60.9 mph)

**Total Driving Time:** 20:34 minutes (VBox time)

**DATA SHEET 3 (Sheet 30 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO I – Left Front and Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	296.9 kPa (43.1 psi)	298.3 kPa (43.3 psi)	298.7 kPa (43.3 psi)	295.9 kPa (42.9 psi)
Tire Sidewall Temp	39.6°C (103.3°F)	39.4°C (102.9°F)	37.6°C (99.7°F)	36.8°C (98.2°F)
San Angelo Test Facility Shop Floor Temp	26.2°C (79.2°F)	26.4°C (79.5°F)	26.6°C (79.9°F)	26.6°C (79.9°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( )LR ( )RR ( X )RF Inflation Pressure	195.5 kPa (28.4 psi)			195.5 kPa (28.4 psi)

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 113

4.2 km (2.6 mi) distance (non-cumulative)

Max speed: 88.6 km/h (55.1 mph)

Total Driving Time: 2:25 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> <b>( X )YES ( )NO (fail)</b>
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

**DATA SHEET 3 (Sheet 31 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO I – Left Front and Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>31.0°C (87.8°F)</u> Vehicle cool down period: <u>60</u> minutes				
Inflation Pressure	185.7 kPa (26.9 psi)	278.2 kPa (40.3 psi)	279.1 kPa (40.5 psi)	186.9 kPa (27.1 psi)
Tire Sidewall Temp	29.8°C (85.6°F)	29.6°C (85.3°F)	29.8°C (85.6°F)	30.2°C (86.4°F)
San Angelo Test Facility Shop Floor Temp	27.2°C (81.0°F)	27.2°C (81.0°F)	27.6°C (81.7°F)	27.4°C (81.3°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?       YES     NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?       YES     NO

(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left front and right front tires were deflated at UVW + VCW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 2, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 32 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO J – Left Rear, Right Rear, Right Front Tire Deflation at UVW + VCW**

TEST DATE: June 2, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 28 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>31.0°C (87.8°F)</u> Vehicle cool down period: <u>70</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	31.6°C (88.9°F)	30.4°C (86.7°F)	30.6°C (87.1°F)	30.8°C (87.4°F)
San Angelo Test Facility Shop Floor Temp	27.2°C (81.0°F)	27.6°C (81.7°F)	27.6°C (81.7°F)	27.4°C (81.3°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 18:49:51 UTC End: 19:15:02 UTC  
 Trip Odometer Reading: Start: 417.3 km (259.3 mi) End: 449.3 km (279.2 mi)  
 Ambient Temperature: Start: 31.0°C (87.8°F) End: 32.0°C (89.6°F)  
 Roadway Temperature: Start: 51.2°C (124.2°F) End: 52.2°C (126.0°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 114  
10:16 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 114  
10:27 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 98.3 km/h (61.1 mph)

**Total Driving Time:** 20:43 minutes (VBox time)

**DATA SHEET 3 (Sheet 33 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO J – Left Rear, Right Rear, Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	291.0 kPa (42.2 psi)	296.0 kPa (42.9 psi)	295.9 kPa (42.9 psi)	291.4 kPa (42.3 psi)
Tire Sidewall Temp	43.8°C (110.8°F)	45.2°C (113.4°F)	44.0°C (111.2°F)	42.2°C (108.0°F)
San Angelo Test Facility Shop Floor Temp	29.8°C (85.6°F)	29.8°C (85.6°F)	29.4°C (84.9°F)	28.8°C (83.8°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( )LF ( X )LR ( X )RR ( X )RF Inflation Pressure		195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)

**TELLTALE ILLUMINATION:**

Driving in first direction:

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop Direction: see chart, page 115

3.4 km (2.1 mi) distance (non-cumulative)

Max speed: 83.4 km/h (51.8 mph)

Total Driving Time: 1:58 minutes (VBox time)

**TEST RESULTS**

**TELLTALE ILLUMINATES WITHIN 20 MINUTES: ( X )YES ( )NO (fail)**

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?  
( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?  
( X )YES ( )NO (fail)



**DATA SHEET 3 (Sheet 34 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO J – Left Rear, Right Rear, Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>33.8°C (92.8°F)</u> Vehicle cool down period: <u>66</u> minutes				
Inflation Pressure	270.6 kPa (39.2 psi)	181.7 kPa (26.4 psi)	182.9 kPa (26.5 psi)	184.3 kPa (26.7 psi)
Tire Sidewall Temp	32.6°C (90.7°F)	32.8°C (91.0°F)	32.8°C (91.0°F)	32.8°C (91.0°F)
San Angelo Test Facility Shop Floor Temp	28.8°C (83.8°F)	29.0°C (84.2°F)	29.2°C (84.6°F)	28.8°C (83.8°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?       YES     NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?       YES     NO

(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left rear, right rear, and right front tires were deflated at UVW + VCW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 2, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 35 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO K – Left Rear and Right Front Tire Deflation at UVW + VCW**

TEST DATE: June 3, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 28 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>20.8°C (69.4°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	23.4°C (74.1°F)	23.2°C (73.8°F)	22.8°C (73.0°F)	22.8°C (73.0°F)
San Angelo Test Facility Shop Floor Temp	23.6°C (74.5°F)	23.8°C (74.8°F)	23.6°C (74.5°F)	23.8°C (74.8°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 13:47:10 UTC End: 14:11:44 UTC  
 Trip Odometer Reading: Start: 458.0 km (284.6 mi) End: 490.2 km (304.6 mi)  
 Ambient Temperature: Start: 20.8°C (69.4°F) End: 21.8°C (71.2°F)  
 Roadway Temperature: Start: 24.2°C (75.6°F) End: 26.4°C (79.5°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 116  
10:10 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 116  
10:29 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed: 100.4 km/h (62.4 mph)**

**Total Driving Time: 20:40 minutes (VBox time)**

**DATA SHEET 3 (Sheet 36 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO K – Left Rear and Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	296.0 kPa (42.9 psi)	296.1 kPa (42.9 psi)	295.9 kPa (42.9 psi)	294.8 kPa (42.8 psi)
Tire Sidewall Temp	33.4°C (92.1°F)	31.4°C (88.5°F)	32.2°C (90.0°F)	31.4°C (88.5°F)
San Angelo Test Facility Shop Floor Temp	24.2°C (75.6°F)	24.0°C (75.2°F)	23.8°C (74.8°F)	24.2°C (75.6°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( )LF ( X )LR ( )RR ( X )RF Inflation Pressure		195.5 kPa (28.4 psi)		195.5 kPa (28.4 psi)

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 117

3.1 km (1.9 mi) distance (non-cumulative)

Max speed: 46.0 km/h (28.6 mph)

Total Driving Time: 1:54 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> <b>( X )YES ( )NO (fail)</b>
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

**DATA SHEET 3 (Sheet 37 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO K – Left Rear and Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>23.7°C (74.7°F)</u> Vehicle cool down period: <u>60</u> minutes				
Inflation Pressure	281.1 kPa (40.8 psi)	184.6 kPa (26.8 psi)	276.5 kPa (40.1 psi)	186.8 kPa (27.1 psi)
Tire Sidewall Temp	26.6°C (79.9°F)	26.2°C (79.2°F)	25.2°C (77.4°F)	25.6°C (78.1°F)
San Angelo Test Facility Shop Floor Temp	24.4°C (75.9°F)	24.6°C (76.3°F)	24.4°C (75.9°F)	24.6°C (76.3°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?      ( X )YES    ( )NO (fail)

**TELLTALE EXTINGUISHMENT:  
RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?      ( )YES    ( X )NO

(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Left rear and right front tires were deflated at UVW + VCW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 3, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 38 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO L – Right Front Tire Deflation at UVW + VCW**

TEST DATE: June 3, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 28 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>23.7°C (74.7°F)</u> Vehicle cool down period: <u>67</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	26.4°C (79.5°F)	25.8°C (78.4°F)	25.0°C (77.0°F)	25.8°C (78.4°F)
San Angelo Test Facility Shop Floor Temp	24.6°C (76.3°F)	24.6°C (76.3°F)	24.6°C (76.3°F)	24.6°C (76.3°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 15:48:08 UTC End: 16:13:23 UTC  
 Trip Odometer Reading: Start: 497.9 km (309.4 mi) End: 530.0 km (329.3 mi)  
 Ambient Temperature: Start: 23.7°C (74.7°F) End: 23.7°C (74.7°F)  
 Roadway Temperature: Start: 32.4°C (90.3°F) End: 33.2°C (91.8°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 118  
10:07 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 118  
10:27 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed: 99.7 km/h (62.0 mph)**

**Total Driving Time: 20:39 minutes (VBox time)**

**DATA SHEET 3 (Sheet 39 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO L – Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	289.1 kPa (41.9 psi)	290.5 kPa (42.1 psi)	292.5 kPa (42.4 psi)	287.9 kPa (41.8 psi)
Tire Sidewall Temp	35.0°C (95.0°F)	35.4°C (95.7°F)	33.8°C (92.8°F)	35.4°C (95.7°F)
San Angelo Test Facility Shop Floor Temp	25.2°C (77.4°F)	25.2°C (77.4°F)	24.8°C (76.6°F)	24.8°C (76.6°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( )LF ( )LR ( )RR ( X )RF Inflation Pressure				195.5 kPa (28.4 psi)

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 119

1.1 km (0.7 mi) distance (non-cumulative)

Max speed: 75.7 km/h (47.0 mph)

Total Driving Time: 0:17 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (fail)
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?       YES     NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?       YES     NO (fail)

**DATA SHEET 3 (Sheet 40 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**  
**SCENARIO L – Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>25.0°C (77.0°F)</u> Vehicle cool down period: <u>62</u> minutes				
Inflation Pressure	272.8 kPa (39.6 psi)	270.7 kPa (39.3 psi)	272.1 kPa (39.5 psi)	186.2 kPa (27.0 psi)
Tire Sidewall Temp	27.6°C (81.7°F)	27.2°C (81.0°F)	26.6°C (79.9°F)	26.6°C (79.9°F)
San Angelo Test Facility Shop Floor Temp	25.6°C (78.1°F)	25.8°C (78.4°F)	25.4°C (77.7°F)	25.2°C (77.4°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?       YES     NO (fail)

**TELLTALE EXTINGUISHMENT:**  
**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?       YES     NO  
(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Right front tire was deflated at UVW + VCW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 3, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 41 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**

TEST DATE: June 8, 2009      LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Time:                                      Start: 1:32 pm                                      End: 2:30 pm

Ambient Temperature:                Start: 32.7°C (90.9°F)                                      End: 32.7°C (90.9°F)

Trip Odometer Reading:                Start: 873 km (542.2 mi)

Fuel Level:                                      Start: Full

Weather Conditions:                                      Sunny and calm

Time vehicle remained with engine off and tires shielded from direct sunlight  
(1 hour minimum): overnight

**PRE-TEST TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
Pre-test cold measurements after ambient soak: Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	30.2°C (86.4°F)	29.8°C (85.6°F)	29.6°C (85.3°F)	30.2°C (86.4°F)



**DATA SHEET 3 (Sheet 42 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**

**VEHICLE WEIGHT:**

**Vehicle Ratings from Certification Label:**

GVWR: 2,265 kg (4,993 lbs)

GAWR (front): 1,190 kg (2,623 lbs)

GAWR (rear): 1,175 kg (2,590 lbs)

**Vehicle Capacity Weight:**

Vehicle Capacity Weight 500 kg (1,102 lbs)

**Measured Unloaded Vehicle Weight:**

LF	<u>504 kg (1,112 lbs)</u>	LR	<u>378 kg (833 lbs)</u>
RF	<u>503 kg (1,108 lbs)</u>	RR	<u>372 kg (821 lbs)</u>
Front		Rear	
Axle	<u>1,007 kg (2,220 lbs)</u>	Axle	<u>750 kg (1,654 lbs)</u>
Total Vehicle		<u>1,757 kg (3,874 lbs)</u>	

**Measured Test Weight: ( ) LLVW(+50, -0 kg) ( X ) UVW + VCW ( ) GVWR(+0, -50 kg)**

LF	<u>560 kg (1,234 lbs)</u>	LR	<u>575 kg (1,268 lbs)</u>
RF	<u>556 kg (1,225 lbs)</u>	RR	<u>567 kg (1,249 lbs)</u>
Front		Rear	
Axle	<u>1,116 kg (2,459 lbs)</u> ( ≤ GAWR )	Axle	<u>1,142 kg (2,517 lbs)</u> ( ≤ GAWR )
Total Vehicle		<u>2,258 kg (4,976 lbs)</u> (not greater than GVWR)	

Note: For scenarios M, N, and O, this Total Vehicle Weight measures the vehicle loaded to Unloaded Vehicle Weight (UVW) and Vehicle Capacity Weight (VCW), 500 kg (1,102 lbs) of driver, passenger, test equipment, and ballast.

**DATA SHEET 3 (Sheet 43 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO M – Left Rear Tire Deflation at UVW + VCW**

TEST DATE: June 9, 2009 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 42 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>24.0°C (75.2°F)</u> Vehicle cool down period: <u>overnight</u>				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	24.8°C (76.6°F)	24.8°C (76.6°F)	25.2°C (77.4°F)	25.4°C (77.7°F)
San Angelo Test Facility Shop Floor Temp	26.4°C (79.5°F)	26.2°C (79.2°F)	26.4°C (79.5°F)	26.2°C (79.2°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 13:21:54 UTC End: 13:46:51 UTC  
 Trip Odometer Reading: Start: 872.6 km (542.2 mi) End: 904.6 km (562.1 mi)  
 Ambient Temperature: Start: 24.0°C (75.2°F) End: 24.0°C (75.2°F)  
 Roadway Temperature: Start: 27.6°C (81.7°F) End: 28.4°C (83.1°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 120  
10:13 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 120  
10:30 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 99.1 km/h (61.6 mph)

**Total Driving Time:** 20:43 minutes (VBox time)

**DATA SHEET 3 (Sheet 44 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO M – Left Rear Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	294.8 kPa (42.8 psi)	294.1 kPa (42.7 psi)	293.0 kPa (42.5 psi)	293.5 kPa (42.6 psi)
Tire Sidewall Temp	40.8°C (105.4°F)	38.4°C (101.1°F)	37.6°C (99.7°F)	40.2°C (104.4°F)
San Angelo Test Facility Shop Floor Temp	26.6°C (79.9°F)	26.6°C (79.9°F)	26.8°C (80.2°F)	26.6°C (79.9°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( )LF ( X )LR ( )RR ( )RF Inflation Pressure		195.5 kPa (28.4 psi)		

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 121

1.0 km (0.6 mi) distance (non-cumulative)

Max speed: 74.1 km/h (46.0 mph)

Total Driving Time: 0:10 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:      ( X )YES   ( )NO (fail)</b>
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES   ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES   ( )NO (fail)

**DATA SHEET 3 (Sheet 45 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO M – Left Rear Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>26.1°C (79.0°F)</u> Vehicle cool down period: <u>61</u> minutes				
Inflation Pressure	280.6 kPa (40.7 psi)	185.0 kPa (26.8 psi)	276.7 kPa (40.1 psi)	280.4 kPa (40.7 psi)
Tire Sidewall Temp	32.4°C (90.3°F)	30.2°C (86.4°F)	30.6°C (87.1°F)	34.4°C (93.9°F)
San Angelo Test Facility Shop Floor Temp	26.8°C (80.2°F)	26.8°C (80.2°F)	27.2°C (81.0°F)	27.2°C (81.0°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position? ( X )YES ( )NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:				
	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale? ( )YES ( X )NO  
(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

PASS

Left rear tire was deflated at UVW + VCW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 9, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 46 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO N – Right Front and Right Rear Tire Deflation at UVW + VCW**

TEST DATE: June 9, 2009 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 42 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>26.1°C (79.0°F)</u> Vehicle cool down period: <u>67</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	32.6°C (90.7°F)	29.8°C (85.6°F)	30.6°C (87.1°F)	34.0°C (93.2°F)
San Angelo Test Facility Shop Floor Temp	26.8°C (80.2°F)	26.8°C (80.2°F)	26.9°C (80.4°F)	26.8°C (80.2°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 15:17:35 UTC End: 15:41:49 UTC  
 Trip Odometer Reading: Start: 908.8 km (564.7 mi) End: 940.8 km (584.6 mi)  
 Ambient Temperature: Start: 26.1°C (79.0°F) End: 26.1°C (79.0°F)  
 Roadway Temperature: Start: 31.6°C (88.9°F) End: 34.2°C (93.6°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 122  
10:12 minutes (stopwatch time) 15.8 km (9.8 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 122  
10:26 minutes (stopwatch time) 16.3 km (10.1 mi) distance

**Max speed:** 98.4km/h (61.1 mph)

**Total Driving Time:** 20:38 minutes (VBox time)

**DATA SHEET 3 (Sheet 47 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO N – Right Front and Right Rear Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	289.2 kPa (41.9 psi)	290.7 kPa (42.2 psi)	291.2 kPa (42.2 psi)	288.2 kPa (41.8 psi)
Tire Sidewall Temp	45.6°C (114.1°F)	42.4°C (108.3°F)	40.8°C (105.4°F)	43.4°C (110.1°F)
San Angelo Test Facility Shop Floor Temp	27.8°C (82.0°F)	27.6°C (81.7°F)	27.8°C (82.0°F)	27.6°C (81.7°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( )LF ( )LR ( X )RR ( X )RF Inflation Pressure			195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 123

3.1 km (1.9 mi) distance (non-cumulative)

Max speed: 85.4 km/h (53.1 mph)

Total Driving Time: 1:49 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:      ( X )YES   ( )NO (fail)</b>
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES   ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES   ( )NO (fail)

**DATA SHEET 3 (Sheet 48 of 51)**  
**TPMS OPERATIONAL PERFORMANCE**

**SCENARIO N – Right Front and Right Rear Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>30.0°C (86.0°F)</u> Vehicle cool down period: <u>60</u> minutes				
Inflation Pressure	272.9 kPa (39.6 psi)	272.0 kPa (39.5 psi)	184.9 kPa (26.8 psi)	186.9 kPa (27.1 psi)
Tire Sidewall Temp	34.2°C (93.6°F)	32.4°C (90.3°F)	33.2°C (91.8°F)	36.2°C (97.2°F)
San Angelo Test Facility Shop Floor Temp	28.2°C (82.8°F)	28.6°C (83.5°F)	28.4°C (83.1°F)	28.4°C (83.1°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position?      ( X )YES    ( )NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:				
	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale?      ( )YES    ( X )NO  
 (See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

**PASS**

Right front and right rear tires were deflated at UVW + VCW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 9, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 3 (Sheet 49 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO O – Left Front, Left Rear, and Right Front Tire Deflation at UVW + VCW**

TEST DATE: June 9, 2009 LAB: U. S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Note: See Data Sheet 3 (Sheet 42 of 51) for Test Weight.

**TIRE INFLATION PRESSURES AND TIRE/SURFACE TEMPERATURES  
BEFORE CALIBRATION PHASE:**

<b>Execution Procedure</b>	<b>LF Tire</b>	<b>LR Tire</b>	<b>RR Tire</b>	<b>RF Tire</b>
After loading vehicle to UVW + VCW, positioning vehicle at selected test start point, and vehicle cool down period: Ambient Temperature: <u>30.0°C (86.0°F)</u> Vehicle cool down period: <u>66</u> minutes				
Inflation Pressure	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)
Tire Sidewall Temp	33.4°C (92.1°F)	31.2°C (88.2°F)	32.2°C (90.0°F)	35.4°C (95.7°F)
San Angelo Test Facility Shop Floor Temp	27.4°C (81.3°F)	27.4°C (81.3°F)	27.8°C (82.0°F)	27.8°C (82.0°F)

**SYSTEM CALIBRATION/LEARNING PHASE:**

Time: Start: 17:16:16 UTC End: 17:41:59 UTC  
 Trip Odometer Reading: Start: 948.5 km (589.4 mi) End: 980.6 km (609.3 mi)  
 Ambient Temperature: Start: 30.0°C (86.0°F) End: 31.0°C (87.8°F)  
 Roadway Temperature: Start: 43.2°C (109.8°F) End: 46.2°C (115.2°F)

Driving in first direction:

Starting point: GAFB north gate Direction: see chart, page 124  
10:11 minutes (stopwatch time) 15.9 km (9.9 mi) distance

Driving in opposite direction:

Starting point: US 87 crossover overpass Direction: see chart, page 124  
10:25 minutes (stopwatch time) 16.1 km (10.0 mi) distance

**Max speed:** 99.2 km/h (61.6 mph)

**Total Driving Time:** 20:35 minutes (VBox time)



**DATA SHEET 3 (Sheet 50 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO O – Left Front, Left Rear, and Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER CALIBRATION PHASE:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Immediately, after vehicle is stopped, engine off: Inflation Pressure	292.2 kPa (42.4 psi)	293.5 kPa (42.6 psi)	292.2 kPa (42.4 psi)	289.7 kPa (42.0 psi)
Tire Sidewall Temp	50.6°C (123.1°F)	47.8°C (118.0°F)	46.4°C (115.5°F)	48.8°C (119.8°F)
San Angelo Test Facility Shop Floor Temp	29.0°C (84.2°F)	29.2°C (84.6°F)	29.4°C (84.9°F)	28.8°C (83.8°F)

**SYSTEM DETECTION PHASE:**

**LOCATION AND PRESSURE(S) OF DEFLATED TIRE(S):**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
Indicate Location of Tire(s) Deflated: ( X )LF ( X )LR ( )RR ( X )RF Inflation Pressure	195.5 kPa (28.4 psi)	195.5 kPa (28.4 psi)		195.5 kPa (28.4 psi)

**TELLTALE ILLUMINATION:**

Starting point: San Angelo Test Facility shop      Direction: see chart, page 125

3.1 km (1.9 mi) distance (non-cumulative)

Max speed: 85.2 km/h (52.9 mph)

Total Driving Time: 1:56 minutes (VBox time)

**TEST RESULTS**

<b>TELLTALE ILLUMINATES WITHIN 20 MINUTES:</b> <b>( X )YES ( )NO (fail)</b>
---

After 5 minutes with the ignition locking system in the “Off” or “Lock” position, does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the “On” or “Run” position?      ( X )YES ( )NO (fail)

**DATA SHEET 3 (Sheet 51 of 51)  
TPMS OPERATIONAL PERFORMANCE**

**SCENARIO O – Left Front, Left Rear, and Right Front Tire Deflation at UVW + VCW**

**TIRE INFLATION PRESSURES AND TEMPERATURES AFTER TELLTALE ILLUMINATION:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After vehicle cool down period: Ambient Temperature: <u>33.0°C (91.4°F)</u> Vehicle cool down period: <u>61</u> minutes				
Inflation Pressure	185.6 kPa (26.9 psi)	184.7 kPa (26.8 psi)	273.8 kPa (39.7 psi)	186.6 kPa (27.1 psi)
Tire Sidewall Temp	38.4°C (101.1°F)	36.6°C (97.9°F)	37.2°C (99.0°F)	40.0°C (104.0°F)
San Angelo Test Facility Shop Floor Temp	29.4°C (84.9°F)	29.6°C (85.3°F)	30.2°C (86.4°F)	29.8°C (85.6°F)

After the cool down period of a minimum of one hour, restart the vehicle engine. Does the telltale re-illuminate and stay illuminated when the ignition locking system is activated to the "On" or "Run" position? ( X )YES ( )NO (fail)

**TELLTALE EXTINGUISHMENT:**

**RE-ADJUSTED TIRE INFLATION PRESSURES:**

Execution Procedure	LF Tire	LR Tire	RR Tire	RF Tire
After illumination verification: Re-adjusted Inflation Pressure:				
	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)	270.0 kPa (39.2 psi)

Is it necessary to drive the vehicle to extinguish the telltale? ( )YES ( X )NO  
(See Remarks)

**TEST RESULTS**

**TPMS Performance Test Results (PASS/FAIL)**

PASS

Left front, left rear, and right front tires were deflated at UVW + VCW.

**REMARKS:** In order to extinguish the low inflation pressure telltale, the Audi A6

indirect TPMS requires a manual reset of the system after the tire pressures have been

readjusted back to the cold recommended inflation pressure.

RECORDED BY: Todd P. Groghan

DATE: June 9, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 4 (Sheet 1 of 8)**  
**Malfunction Detection Test 1**  
**Disconnect Wiring to TPMS ECU**

TEST DATE: June 3, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Time: Start: 12:53 pm End: 1:21 pm  
Trip Odometer Reading: Start: 534.0 km (331.8 mi) End: 534.0 km (331.8 mi)  
Ambient Temperature: Start: 26.9°C (80.4°F)  
Fuel Level: Start: Full

Note: See Data Sheet 3 (Sheet 28 of 51) for Test Weight.

TPMS TYPE: ( ) Direct (X) Indirect ( ) Other Describe: \_\_\_\_\_

TPMS MALFUNCTION TELLTALE:

( ) Dedicated stand-alone (X) Combination low tire pressure warning/malfunction telltale

**METHOD OF MALFUNCTION SIMULATION:**

Describe method of malfunction simulation: Wiring to TPMS ECU was disconnected.

**MALFUNCTION TELLTALE ILLUMINATION**

(after ignition locking system is activated to "On" ("Run") position):

***Combination Malfunction Telltale***

Telltale illuminated immediately upon reactivation of ignition locking system. Driving the vehicle was not necessary.

**COMBINATION MALFUNCTION TELLTALE ILLUMINATES (FLASHING AND ILLUMINATION SEQUENCE) WITHIN 20 MINUTES:**

(X)YES ( )NO

**DATA SHEET 4 (Sheet 2 of 8)**  
**Malfunction Detection Test 1**  
**Disconnect Wiring to TPMS ECU**

After 5 minutes with the ignition locking system in the "Off" or "Lock" position, does the combination low tire pressure/malfunction telltale flash for a period of at least 60 seconds but no longer than 90 seconds, and then remain illuminated when the ignition locking system is activated to the "On" or "Run" position?         YES     NO (fail)

Time it takes before telltale starts flashing      0   seconds

Time telltale remains flashing                       61   seconds

Time telltale remains illuminated                 60+  seconds  
(Verified for a minimum of 60 seconds)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale's illumination sequence repeat when the ignition locking system is activated and the engine running?         YES     NO (fail)

**Extinguishment Phase:**

Restore the TPMS to normal operation. Is it necessary to drive the vehicle to extinguish the telltale?                      YES     NO

<b>COMBINATION MALFUNCTION TELLTALE EXTINGUISHED:</b> <b><input checked="" type="checkbox"/> YES    <input type="checkbox"/> NO (FAIL)</b>
---

**TPMS MALFUNCTION PERFORMANCE TEST RESULTS (PASS/FAIL)**                       PASS    
Wiring to TPMS ECU was disconnected.

**REMARKS:**      None  

RECORDED BY:      Todd P. Groghan  

DATE:                  June 3, 2009  

APPROVED BY:      Kenneth H. Yates

**DATA SHEET 4 (Sheet 3 of 8)**

**Malfunction Detection Test 2  
Remove TPMS Fuse**

TEST DATE: June 3, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Time: Start: 1:28 pm End: 1:45 pm  
Trip Odometer Reading: Start: 534.0 km (331.8 mi) End: 534.0 km (331.8 mi)  
Ambient Temperature: Start: 26.8°C (80.2°F)  
Fuel Level: Start: Full

Note: See Data Sheet 3 (Sheet 28 of 51) for Test Weight.

TPMS TYPE: ( ) Direct (X) Indirect ( ) Other Describe: \_\_\_\_\_

TPMS MALFUNCTION TELLTALE:

( ) Dedicated stand-alone (X) Combination low tire pressure warning/malfunction telltale

**METHOD OF MALFUNCTION SIMULATION:**

Describe method of malfunction simulation: TPMS fuse was removed.

**MALFUNCTION TELLTALE ILLUMINATION**

(after ignition locking system is activated to "On" ("Run") position):

***Combination Malfunction Telltale***

Telltale illuminated upon reactivation of ignition locking system. Driving the vehicle was not necessary.

**COMBINATION MALFUNCTION TELLTALE ILLUMINATES (FLASHING AND ILLUMINATION SEQUENCE) WITHIN 20 MINUTES:**

(X)YES ( )NO

**DATA SHEET 4 (Sheet 4 of 8)**

**Malfunction Detection Test 2  
Remove TPMS Fuse**

After 5 minutes with the ignition locking system in the "Off" or "Lock" position, does the combination low tire pressure/malfunction telltale flash for a period of at least 60 seconds but no longer than 90 seconds, and then remain illuminated when the ignition locking system is activated to the "On" or "Run" position?       YES     NO (fail)

Time it takes before telltale starts flashing      0   seconds

Time telltale remains flashing                      60   seconds

Time telltale remains illuminated                 60+  seconds  
(Verified for a minimum of 60 seconds)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale's illumination sequence repeat when the ignition locking system is activated and the engine running?       YES     NO (fail)

**Extinguishment Phase:**

Restore the TPMS to normal operation. Is it necessary to drive the vehicle to extinguish the telltale?       YES     NO

**COMBINATION MALFUNCTION TELLTALE EXTINGUISHED:**  
 **YES     NO (FAIL)**

**TPMS MALFUNCTION PERFORMANCE TEST RESULTS (PASS/FAIL)**        PASS    
TPMS fuse was removed.

**REMARKS:**   None  

RECORDED BY:   Todd P. Groghan  

DATE:   June 3, 2009  

APPROVED BY:   Kenneth H. Yates

**DATA SHEET 4 (Sheet 5 of 8)**  
**Malfunction Detection Test 3**  
**Disconnect Wheel Speed (ABS) Sensor**

TEST DATE: June 3, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Time: Start: 2:51 pm End: 3:08 pm  
Trip Odometer Reading: Start: 534.6 km (332.2 mi) End: 534.6 km (332.2 mi)  
Ambient Temperature: Start: 27.8°C (82.0°F)  
Fuel Level: Start: Full

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

TPMS TYPE: ( ) Direct (X) Indirect ( ) Other Describe: \_\_\_\_\_

TPMS MALFUNCTION TELLTALE:

( ) Dedicated stand-alone (X) Combination low tire pressure warning/malfunction telltale

**METHOD OF MALFUNCTION SIMULATION:**

Describe method of malfunction simulation: Wheel speed (ABS) sensor was  
disconnected.

**MALFUNCTION TELLTALE ILLUMINATION**

(after ignition locking system is activated to "On" ("Run") position):

***Combination Malfunction Telltale***

Telltale illuminated upon reactivation of ignition locking system. Driving the vehicle was not necessary.

**COMBINATION MALFUNCTION TELLTALE ILLUMINATES (FLASHING AND ILLUMINATION SEQUENCE) WITHIN 20 MINUTES:**

(X)YES ( )NO

**DATA SHEET 4 (Sheet 6 of 8)**  
**Malfunction Detection Test 3**  
**Disconnect Wheel Speed (ABS) Sensor**

After 5 minutes with the ignition locking system in the "Off" or "Lock" position, does the combination low tire pressure/malfunction telltale flash for a period of at least 60 seconds but no longer than 90 seconds, and then remain illuminated when the ignition locking system is activated to the "On" or "Run" position?       YES     NO (fail)

Time it takes before telltale starts flashing        0   seconds

Time telltale remains flashing                               62  seconds

Time telltale remains illuminated                              60+ seconds  
 (Verified for a minimum of 60 seconds)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale's illumination sequence repeat when the ignition locking system is activated and the engine running?       YES     NO (fail)

**Extinguishment Phase:**

Restore the TPMS to normal operation. Is it necessary to drive the vehicle to extinguish the telltale?       YES     NO

<p><b>COMBINATION MALFUNCTION TELLTALE EXTINGUISHED:</b>  <input checked="" type="checkbox"/> YES    <input type="checkbox"/> NO (FAIL)</p>
---

**TPMS MALFUNCTION PERFORMANCE TEST RESULTS (PASS/FAIL)                                PASS**

Wheel speed sensor (ABS) was disconnected.

**REMARKS:**     None 

RECORDED BY:  Todd P. Groghan 

DATE:  June 3, 2009 

APPROVED BY:  Kenneth H. Yates



**DATA SHEET 4 (Sheet 7 of 8)**

**Malfunction Detection Test 4  
Replace Right Front Tire with Smaller Size Tire at LLVW**

TEST DATE: June 3, 2009 LAB: U.S. DOT San Angelo Test Facility

VEHICLE NHTSA NUMBER: C95800

Time: Start: 3:10 pm End: 3:59 pm

Trip Odometer Reading: Start: 534.6 km (332.2 mi) End: 538.5 km (334.6 mi)

Ambient Temperature: Start: 28.8°C (83.8°F)

Fuel Level: Start: Full

Note: See Data Sheet 3 (Sheet 2 of 51) for Test Weight.

TPMS TYPE: ( ) Direct (X) Indirect ( ) Other Describe: \_\_\_\_\_

TPMS MALFUNCTION TELLTALE:

( ) Dedicated stand-alone (X) Combination low tire pressure warning/malfunction telltale

**METHOD OF MALFUNCTION SIMULATION:**

Describe method of malfunction simulation: Right front tire was replaced with a  
smaller size tire -215/35ZR18.

**MALFUNCTION TELLTALE ILLUMINATION**

(after ignition locking system is activated to "On" ("Run") position):

***Combination Malfunction Telltale***

Starting point: San Angelo Test Facility shop

0.3 km (0.2 mi) distance (non-cumulative)

**TEST RESULTS**

**COMBINATION MALFUNCTION TELLTALE ILLUMINATES (FLASHING AND ILLUMINATION SEQUENCE) WITHIN 20 MINUTES:**

**(X)YES ( )NO**

**DATA SHEET 4 (Sheet 8 of 8)**

**Malfunction Detection Test 4  
Replace Right Front Tire with Smaller Size Tire at LLVW**

After 5 minutes with the ignition locking system in the "Off" or "Lock" position, does the combination low tire pressure/malfunction telltale flash for a period of at least 60 seconds but no longer than 90 seconds, and then remain illuminated when the ignition locking system is activated to the "On" or "Run" position?      ( X )YES    ( )NO (fail)

Time it takes before telltale starts flashing      0   seconds

Time telltale remains flashing                      65   seconds

Time telltale remains illuminated                 60+  seconds  
(Verified for a minimum of 60 seconds)

Deactivate the ignition locking system and then re-start the vehicle engine. Does the telltale's illumination sequence repeat when the ignition locking system is activated and the engine running?      ( X )YES    ( )NO (fail)

**Extinguishment Phase:**

Restore the TPMS to normal operation. Is it necessary to drive the vehicle to extinguish the telltale?      ( )YES    ( )NO **[see Remarks]**

**COMBINATION MALFUNCTION TELLTALE EXTINGUISHED:**

( )YES    ( X )NO (FAIL) **[see Remarks]**

**TPMS MALFUNCTION PERFORMANCE TEST RESULTS (PASS/FAIL)**

**FAIL**

Right front tire was replaced with a smaller size tire.

**REMARKS:** During extinguishment phase, the vehicle had to be driven back to the test facility so the original tire could be reinstalled on the vehicle. However, before arriving back at the test facility, the malfunction telltale extinguished even though the malfunction had not been corrected. Paragraph S4.4(c)(2) requires the malfunction to remain illuminated until the malfunction has been corrected.

RECORDED BY: Todd P. Groghan

DATE: June 3, 2009

APPROVED BY: Kenneth H. Yates

**DATA SHEET 5 (Sheet 1 of 3)**  
**TPMS WRITTEN INSTRUCTIONS**

TEST  
DATE: May 27, 2009

LAB: San Angelo Test Facility

VEHICLE  
NHTSA NO: C95800

**The following statement, in the English language, is provided verbatim in the Owner's Manual.** (X)YES ( )NO

"Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. (If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.)

As an added safety feature, your vehicle has been equipped with a tire pressure monitoring system (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated. Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale."

**DATA SHEET 5 (Sheet 2 of 3)**  
**TPMS WRITTEN INSTRUCTIONS**

**As specified, the following sections, in the English language, are required verbatim in paragraph form in the Owner's Manual:**

*The following statement is required for all vehicles certified to the standard starting on September 1, 2007 and for vehicles voluntarily equipped with a compliant TPMS MIL before that time.*

"Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly."

**The above statement in the English language is provided verbatim in owner's manual:**

YES    NO

*For vehicles with a dedicated MIL telltale, add the following statement:*

"The TPMS malfunction indicator is provided by a separate telltale, which displays the symbol "TPMS" when illuminated."

**The above statement in the English language is provided verbatim in owner's manual:**

YES    NO    N/A

*For vehicles with a combined low tire pressure/MIL telltale, add the following statement:*

"The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle start-ups as long as the malfunction exists."

**The above statement in the English language is provided verbatim in owner's manual:**

YES    NO    N/A

*The following statement is required for all vehicles certified to the standard starting on September 1, 2007 and for vehicles voluntarily equipped with a compliant TPMS MIL before that time.*

"When the malfunction indicator is illuminated, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of replacement or alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the TPMS malfunction telltale after replacing one or more tires or wheels on your vehicle to ensure that the replacement or alternate tires and wheels allow the TPMS to continue to function properly."

**The above statement in the English language is provided verbatim in owner's manual:**

YES    NO

DATA INDICATES COMPLIANCE:

PASS/FAIL: PASS

**DATA SHEET 5 (Sheet 3 of 3)**  
**TPMS WRITTEN INSTRUCTIONS**

**Does the Owner's Manual provide an image of the Low Tire Pressure Warning Telltale symbol (and an image of the TPMS Malfunction Telltale warning ("TPMS")), if a dedicated telltale is utilized for this function)?** ( X )YES ( )NO

**Does the Owner's Manual include the following (allowable) information?**

- Significance of the low tire pressure warning telltale illuminating
- A description of corrective action to be undertaken
- Whether the tire pressure monitoring system functions with the vehicle's spare tire (if provided)
- How to use a reset button, if one is provided
- The time for the TPMS telltale(s) to extinguish once the low tire pressure condition or the malfunction is corrected

**REMARKS:** None

RECORDED BY: Todd P. Groghan

DATE: May 27, 2009

APPROVED BY: Kenneth H. Yates

**SECTION 4**  
**TEST EQUIPMENT LIST AND CALIBRATION INFORMATION**

<b>EQUIPMENT</b>	<b>DESCRIPTION</b>	<b>MODEL/ SERIAL NO</b>	<b>CAL. DATE</b>	<b>NEXT CAL. DATE</b>
STOPWATCH	CHAMPION SPORTS TIMER	910 R	N/A	N/A
VBOX RECORDING DEVICE	RACELOGIC VBOX III	SERIAL # 030209	3/22/2009	3/22/2010
AMBIENT TEMPERATURE GAUGE	FLUKE 179 DIGITAL THERMOMETER	SERIAL # 84740316	2/12/2009	2/12/2010
LASER TEMPERATURE GAUGE (TIRES AND GROUND)	RAYTEK ST20	SERIAL 2065640101-0014	8/14/2008	8/08/2009
AIR PRESSURE GAUGE	ASHCROFT GENERAL PURPOSE DIGITAL GAUGE	MODEL # D1005PS 02L 100 PSI SERIAL # 20017398-01	11/20/2008	11/20/2009
FLOOR SCALES (VEHICLE)	INTERCOMP SW DELUXE SCALES	PART # 100156 SERIAL # 27032382	8/5/2008	8/5/2009
PLATFORM SCALE (BALLAST)	HOWE RICHARDSON	MODEL # 6401 SERIAL # 0181- 5509-26	8/5/2008	8/5/2009

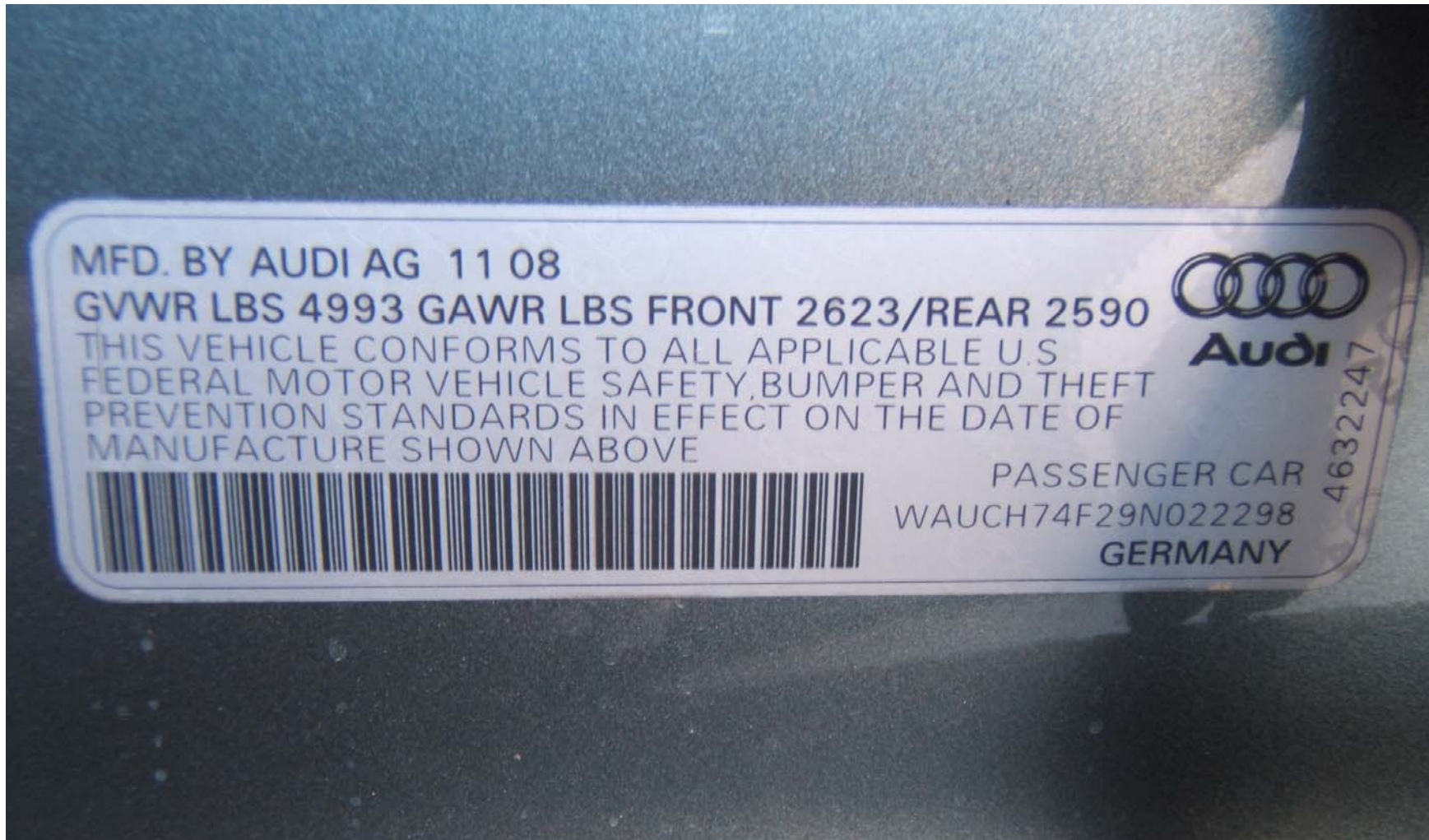
SECTION 5  
PHOTOGRAPHS



2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO.138

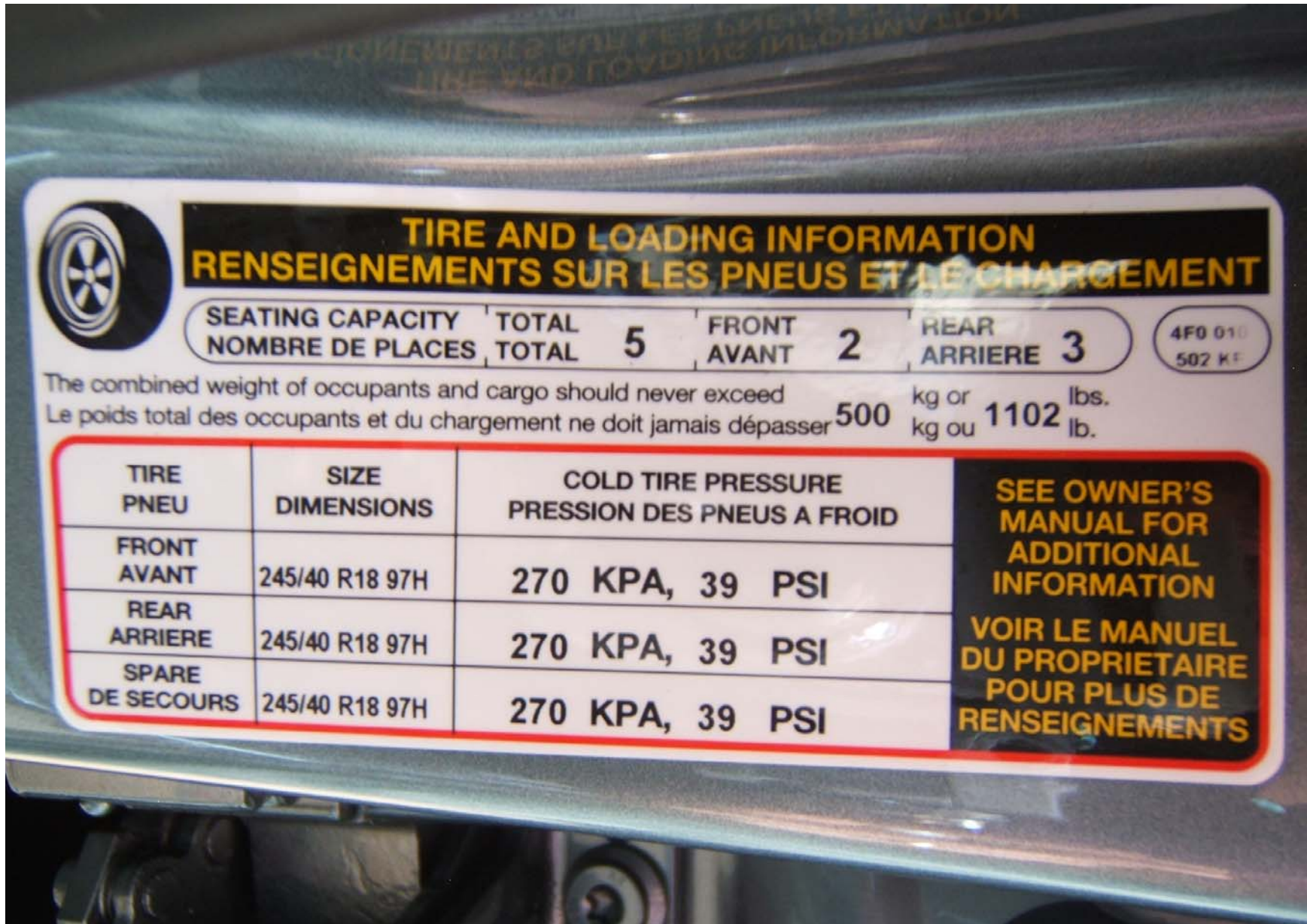
FIGURE 5.1  
¾ FRONT VIEW FROM LEFT SIDE OF VEHICLE





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO.138

FIGURE 5.2  
VEHICLE CERTIFICATION LABEL



2009 AUDI A6  
 NHTSA NO. C95800  
 FMVSS NO. 138

FIGURE 5.3  
 VEHICLE PLACARD





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.4  
TIRE SHOWING BRAND





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.5  
TIRE SHOWING MODEL



2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.6  
TIRE SHOWING SIZE AND LOAD INDEX / SPEED RATING





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.7  
TIRE SHOWING DOT SERIAL NUMBER





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.8  
TIRE SHOWING MAX COLD INFLATION  
PRESSURE AND MAX LOAD RATING





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.9  
TIRE SHOWING SIDEWALL / TREAD CONSTRUCTION





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.10  
RIM CONTOUR FOR FULL  
WIDTH OF CROSS SECTION



2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.11  
DRIVER INFORMATION SYSTEM (BOTTOM CENTER) AND COMBINATION LOW  
TIRE PRESSURE /TPMS MALFUNCTION WARNING TELLTALE (UPPER RIGHT)



2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO 138

FIGURE 5.12  
MULTI MEDIA INTERFACE CENTER CONSOLE DISPLAY SHOWING TPMS RESET



2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO 138

FIGURE 5.13  
TEST INSTRUMENTATION INSTALLED IN VEHICLE





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.14  
VEHICLE REAR SEAT BALLAST FOR UVW + VCW LOAD



2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.15  
VEHICLE CARGO AREA BALLAST FOR UVW + VCW LOAD





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

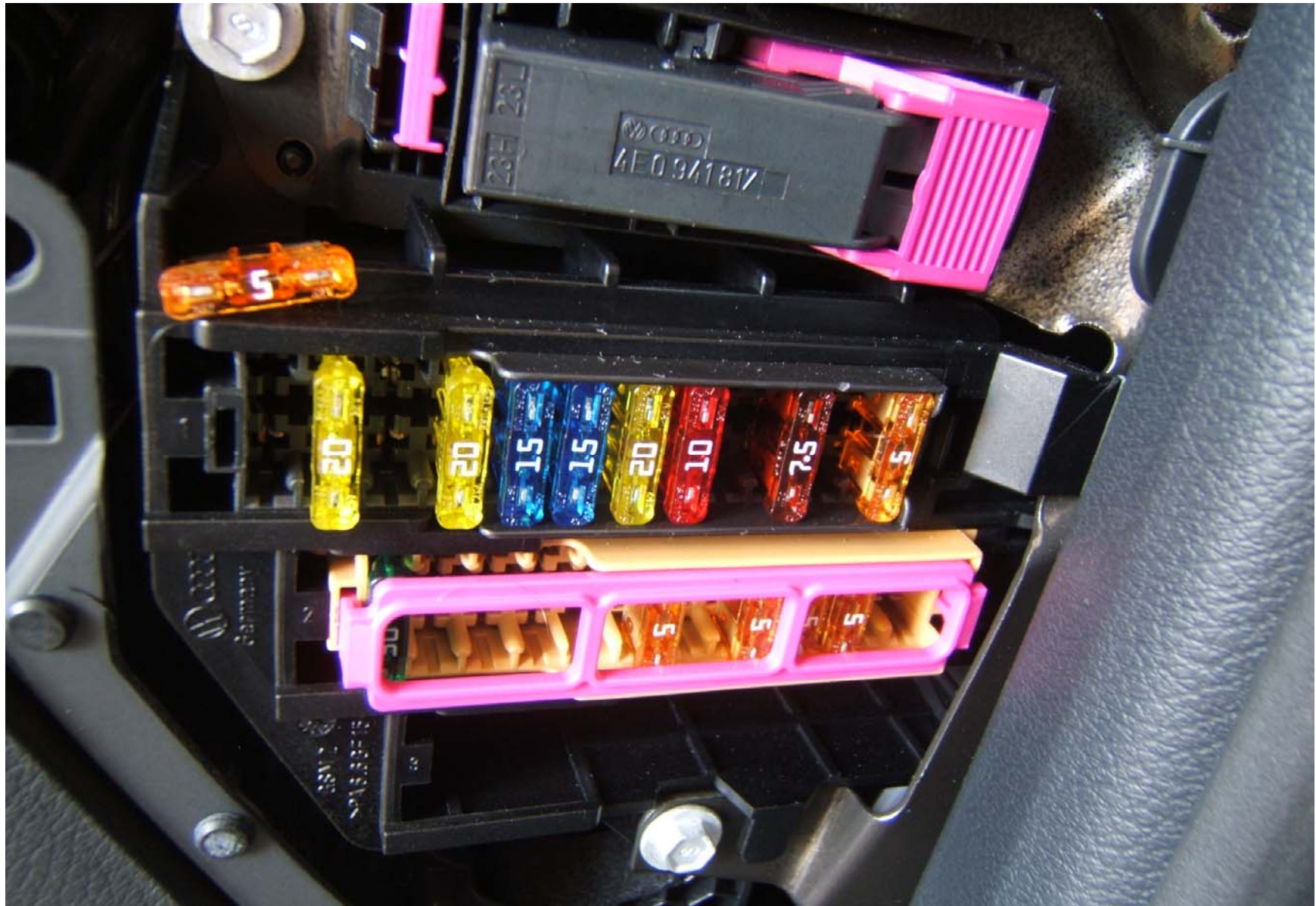
FIGURE 5.16  
VEHICLE ON WEIGHT SCALES



2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

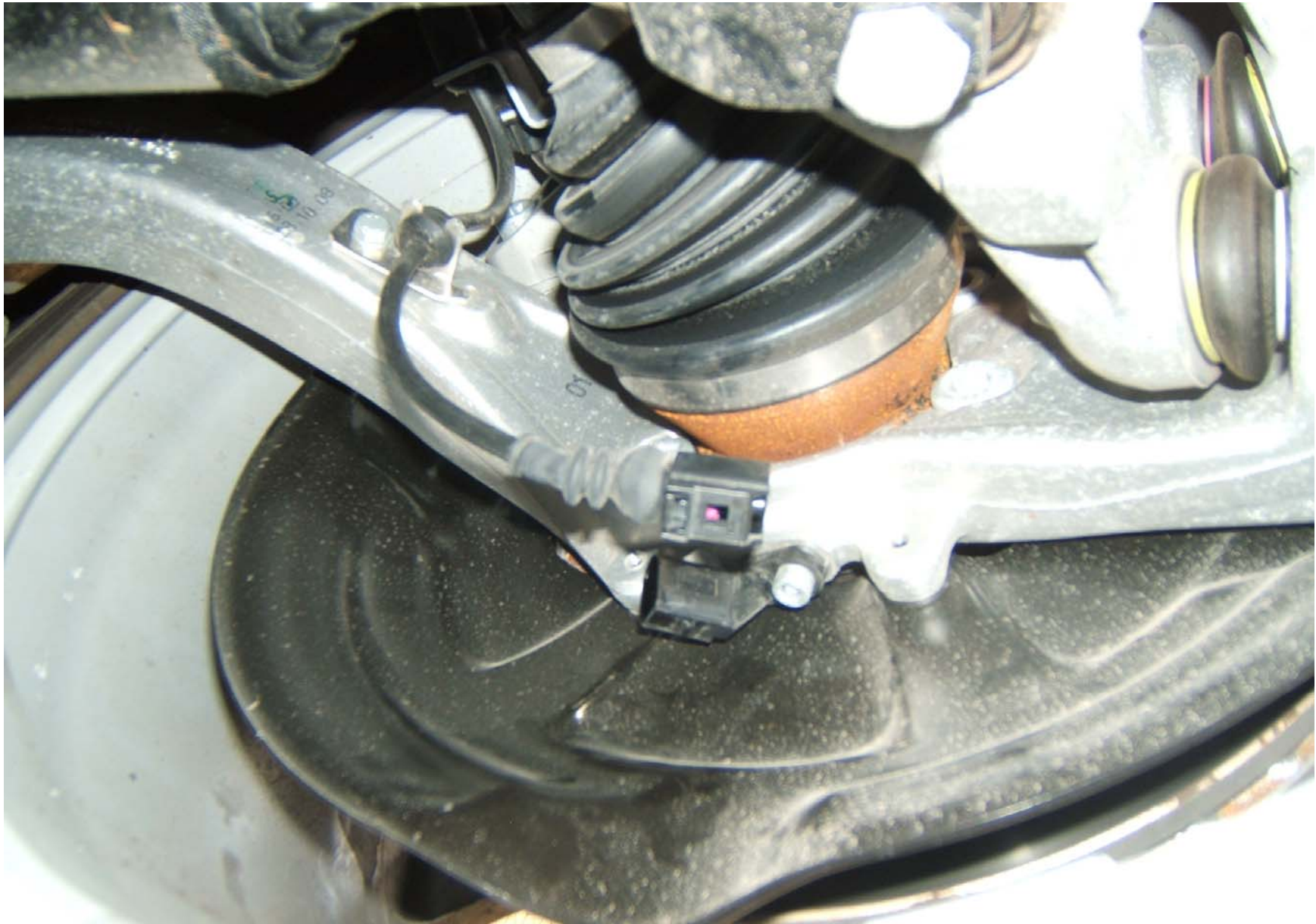
FIGURE 5.17  
MALFUNCTION DETECTION TEST 1-  
WIRING TO TPMS ECU DISCONNECTED





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.18  
MALFUNCTION DETECTION TEST 2 -  
TPMS FUSE REMOVED



2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.19  
MALFUNCTION DETECTION TEST 3 -  
WHEEL SPEED (ABS) SENSOR DISCONNECTED





2009 AUDI A6  
NHTSA NO. C95800  
FMVSS NO. 138

FIGURE 5.20  
MALFUNCTION DETECTION TEST 4 -  
RIGHT FRONT TIRE REPLACED WITH SMALLER SIZE TIRE

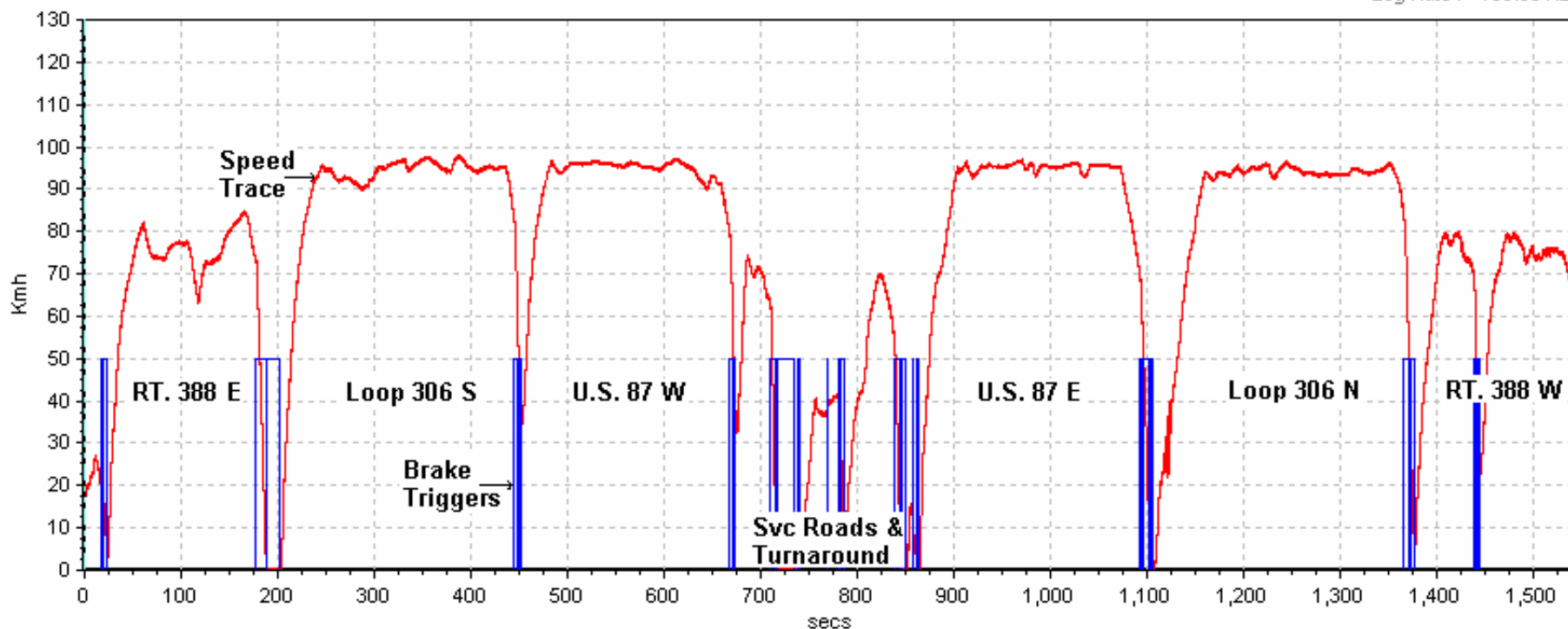
SECTION 6  
TEST PLOTS

Scenario A: Left Front Tire at LLVW  
Test Date: 6/4/09  
Data File Time: 25:48 minutes  
Cumulative Driving Time: 20:37 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LF Calibration LLVW

Log Rate := 100.00 Hz

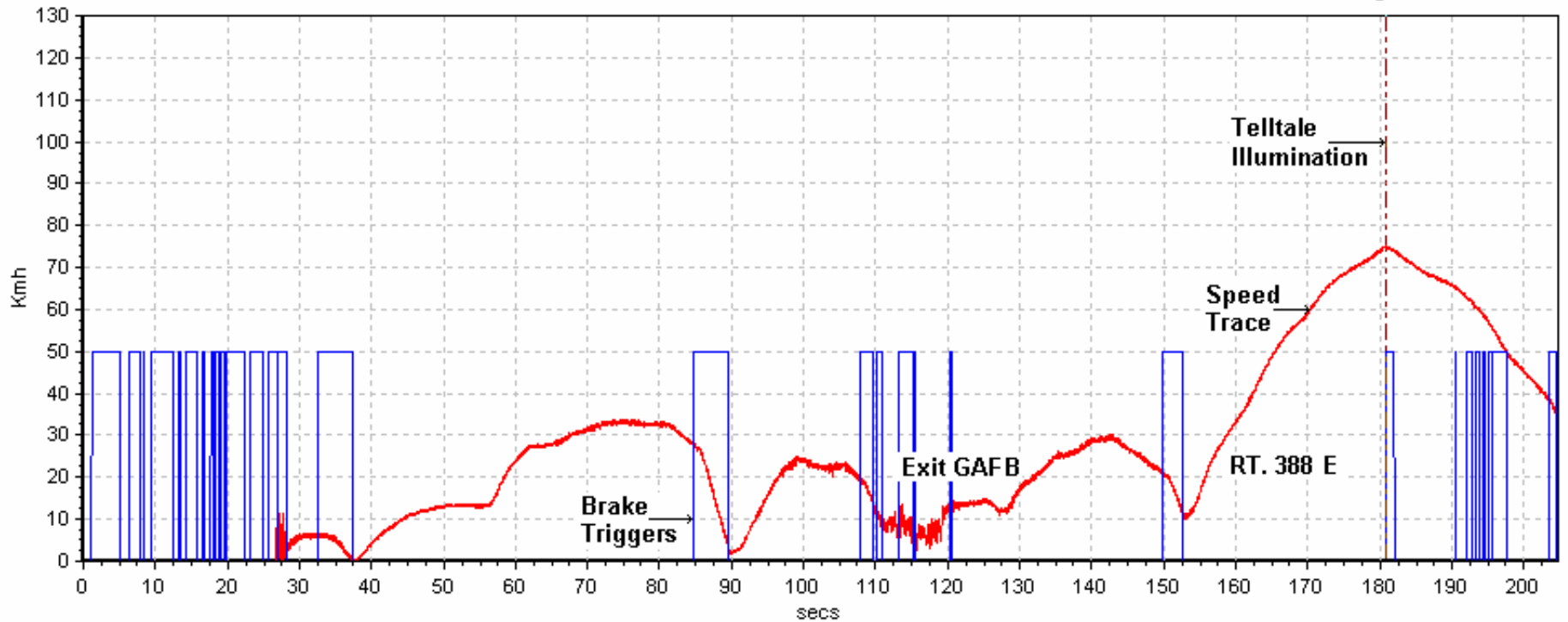


Scenario A: Left Front Tire at LLVW  
Test Date: 6/4/09  
Data File Time: 3:25 minutes  
Cumulative Driving Time: 0:15 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LF Illumination LLVW

Log Rate := 100.00 Hz

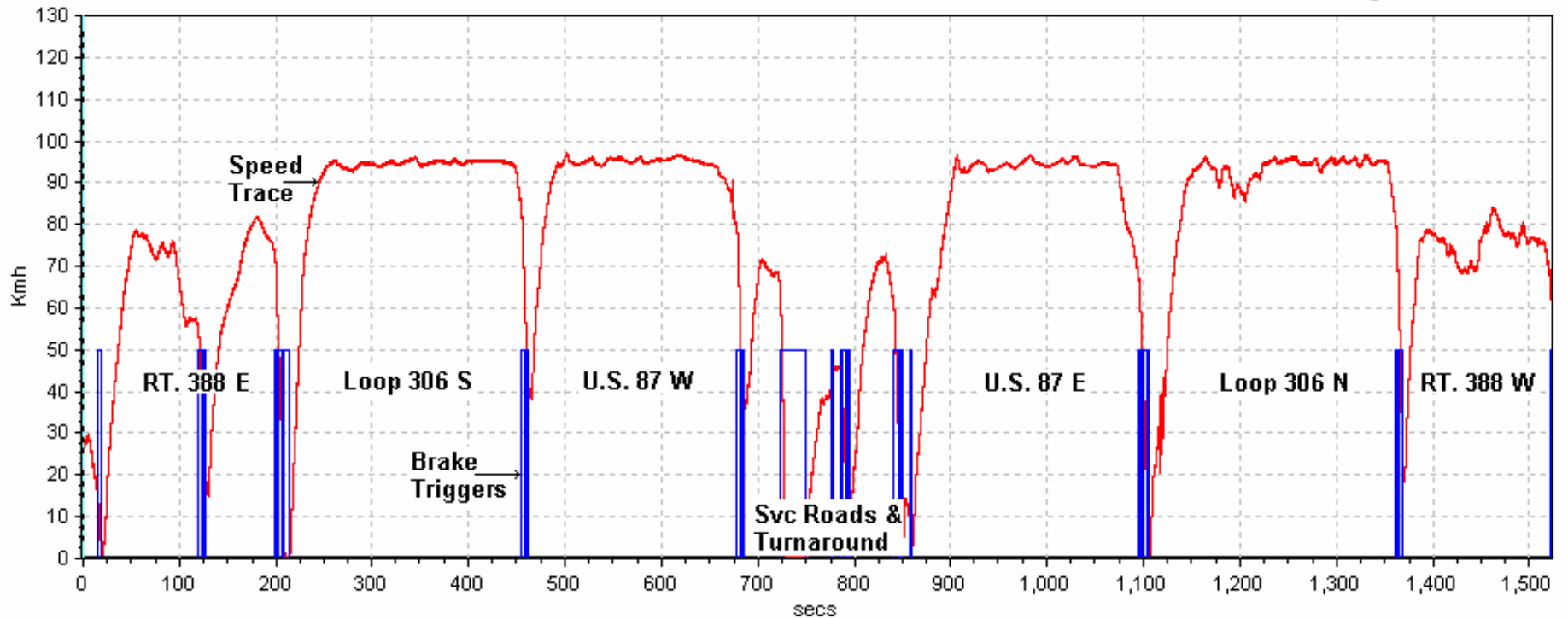


Scenario B: Left Front, Left Rear Tires at LLVW  
Test Date: 6/4/09  
Data File Time: 25:24 minutes  
Cumulative Driving Time: 20:43 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LF, LR Calibration LLVW

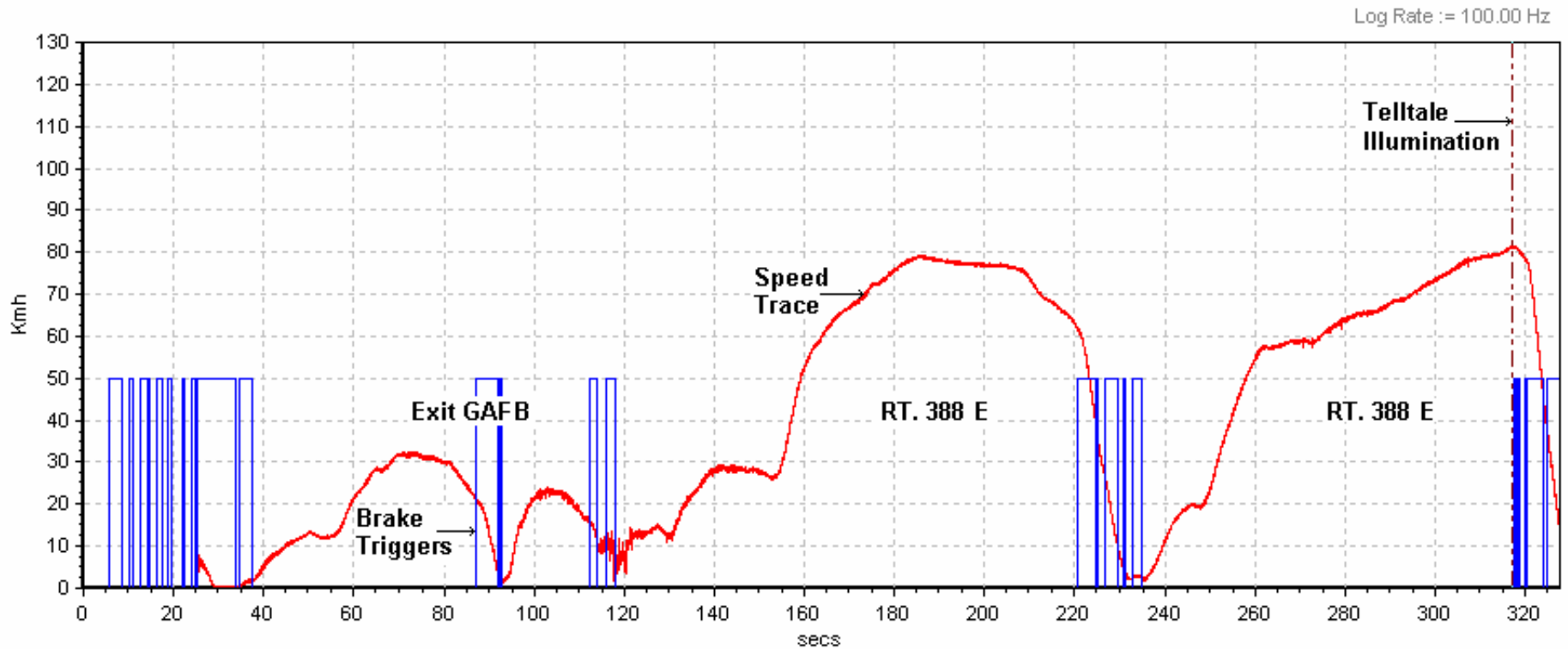
Log Rate := 100.00 Hz



Scenario B: Left Front, Left Rear Tires at LLVW  
Test Date: 6/4/09  
Data File Time: 5:28 minutes  
Cumulative Driving Time: 2:01 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LF, LR Illumination LLVW



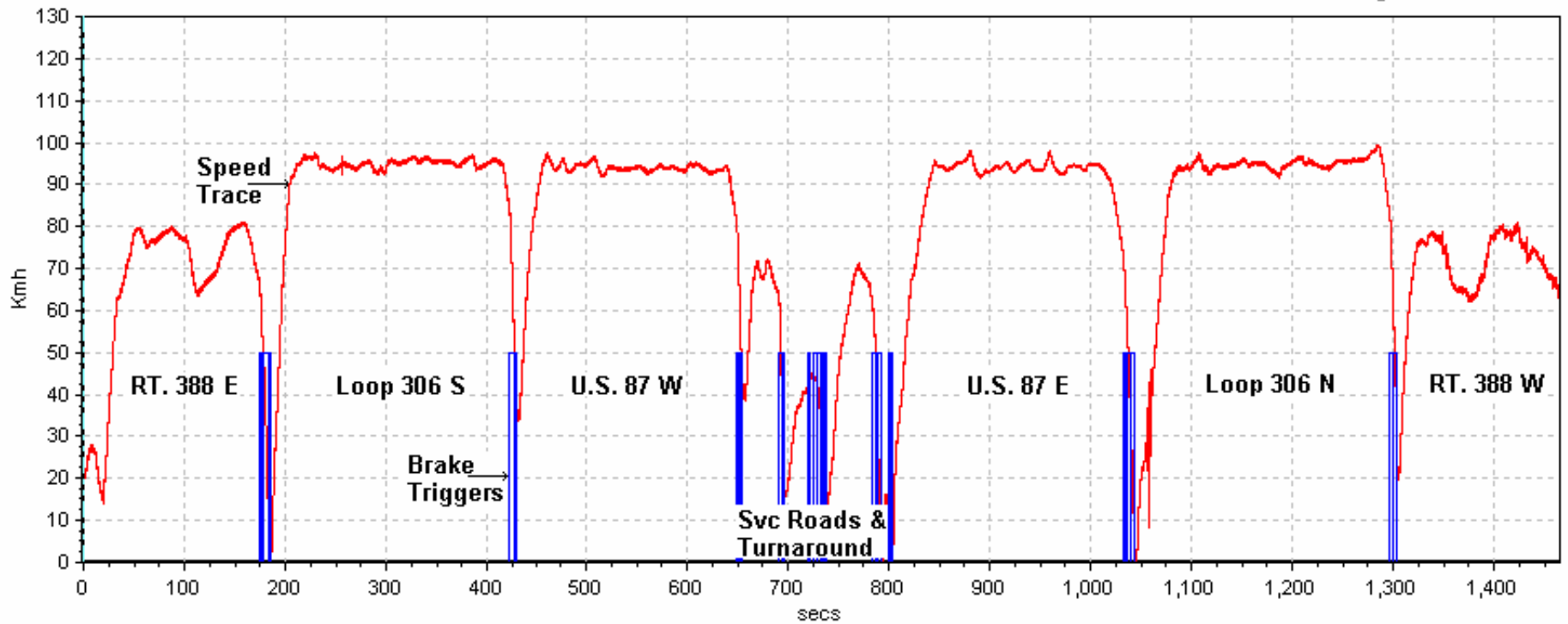


Scenario C: Left Front, Left Rear, Right Rear, Right Front Tires at LLVW  
Test Date: 6/4/09  
Data File Time: 24:27 minutes  
Cumulative Driving Time: 20:50 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LF, RF, LR, RR Calibration LLVW

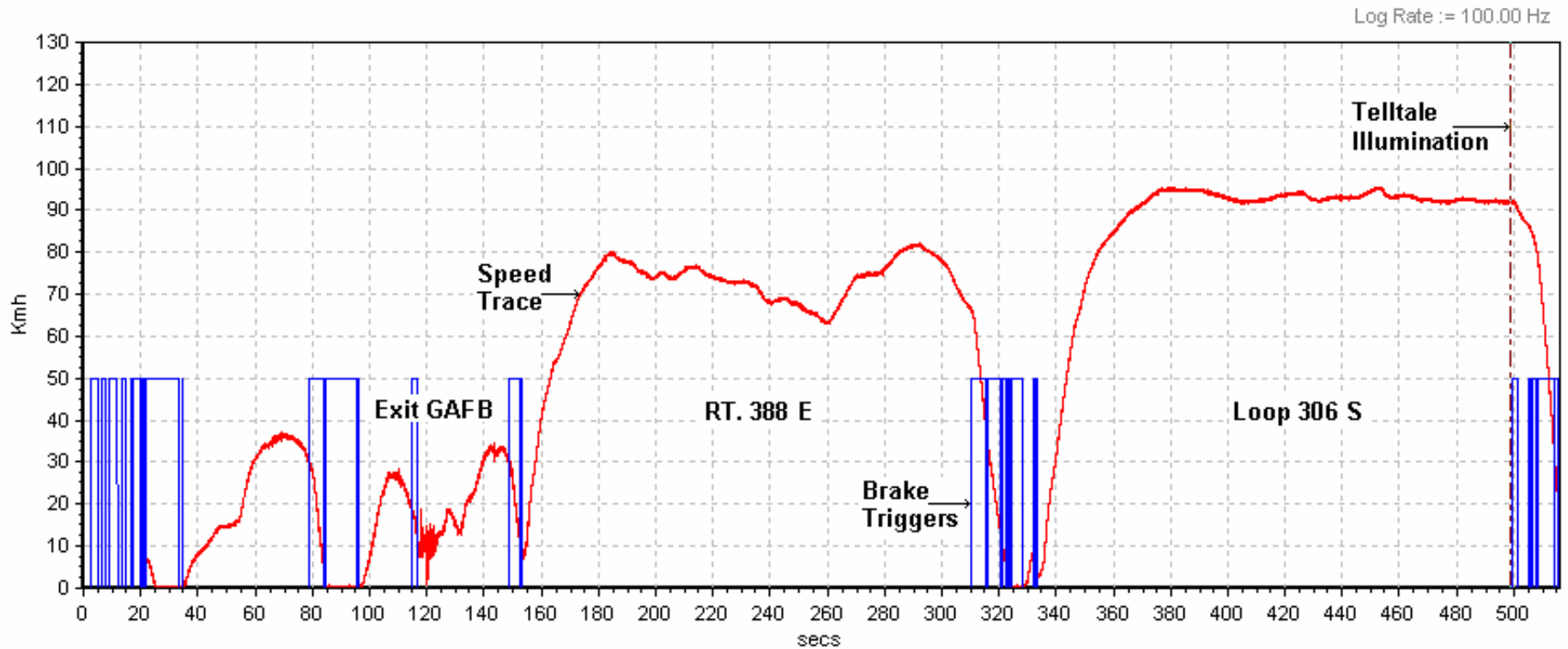
Log Rate := 100.00 Hz



Scenario C: Left Front, Left Rear, Right Rear, Right Front Tires at LLVW  
Test Date: 6/4/09  
Data File Time: 8:36 minutes  
Cumulative Driving Time: 5:03 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LF, LR, RR, RF Illumination LLVW

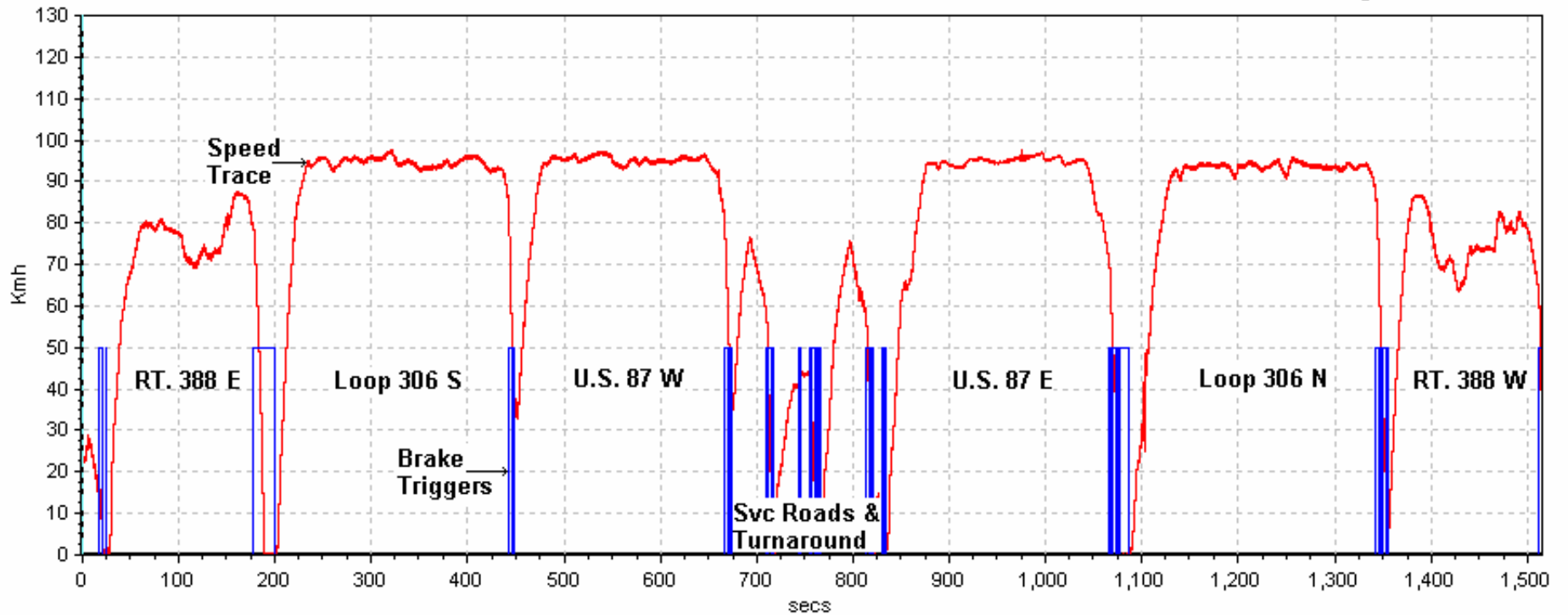


Scenario D: Left Front, Right Rear Tires at LLVW  
Test Date: 6/5/09  
Data File Time: 25:16 minutes  
Cumulative Driving Time: 20:43 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LF, RR Calibration LLVW

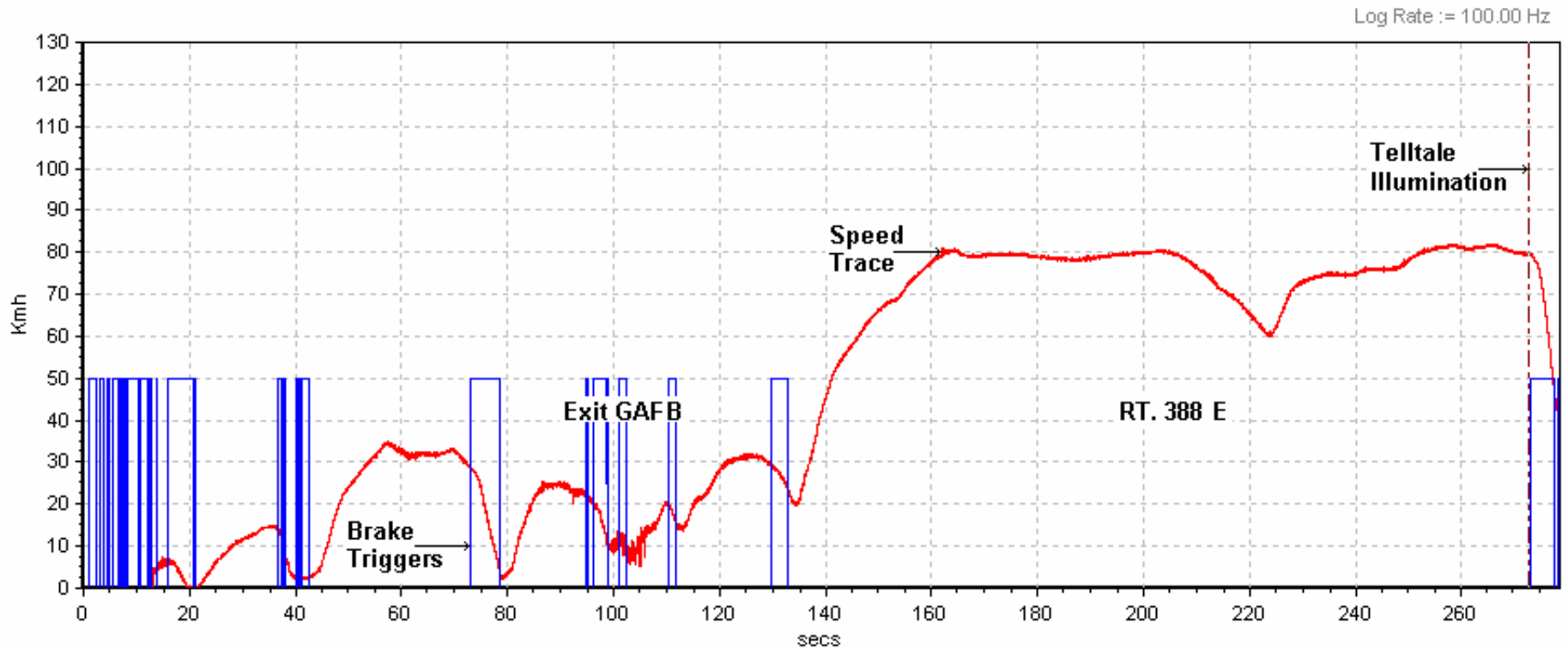
Log Rate := 100.00 Hz



Scenario D: Left Front, Right Rear Tires at LLVW  
Test Date: 6/5/09  
Data File Time: 4:39 minutes  
Cumulative Driving Time: 2:12 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LF, RR Illumination LLVW

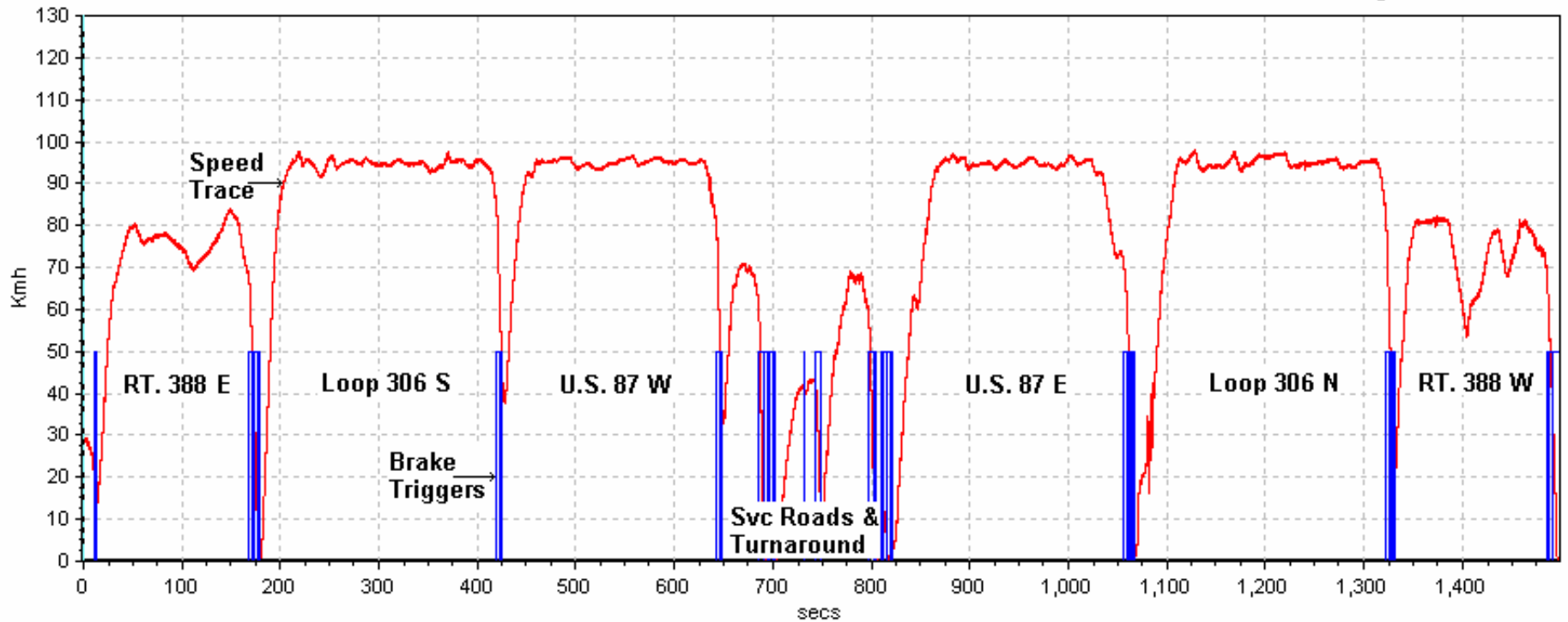


Scenario E: Left Rear, Right Rear Tires at LLWW  
Test Date: 6/5/09  
Data File Time: 24:59 minutes  
Cumulative Driving Time: 20:40 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LR, RR Calibration LLWW

Log Rate := 100.00 Hz

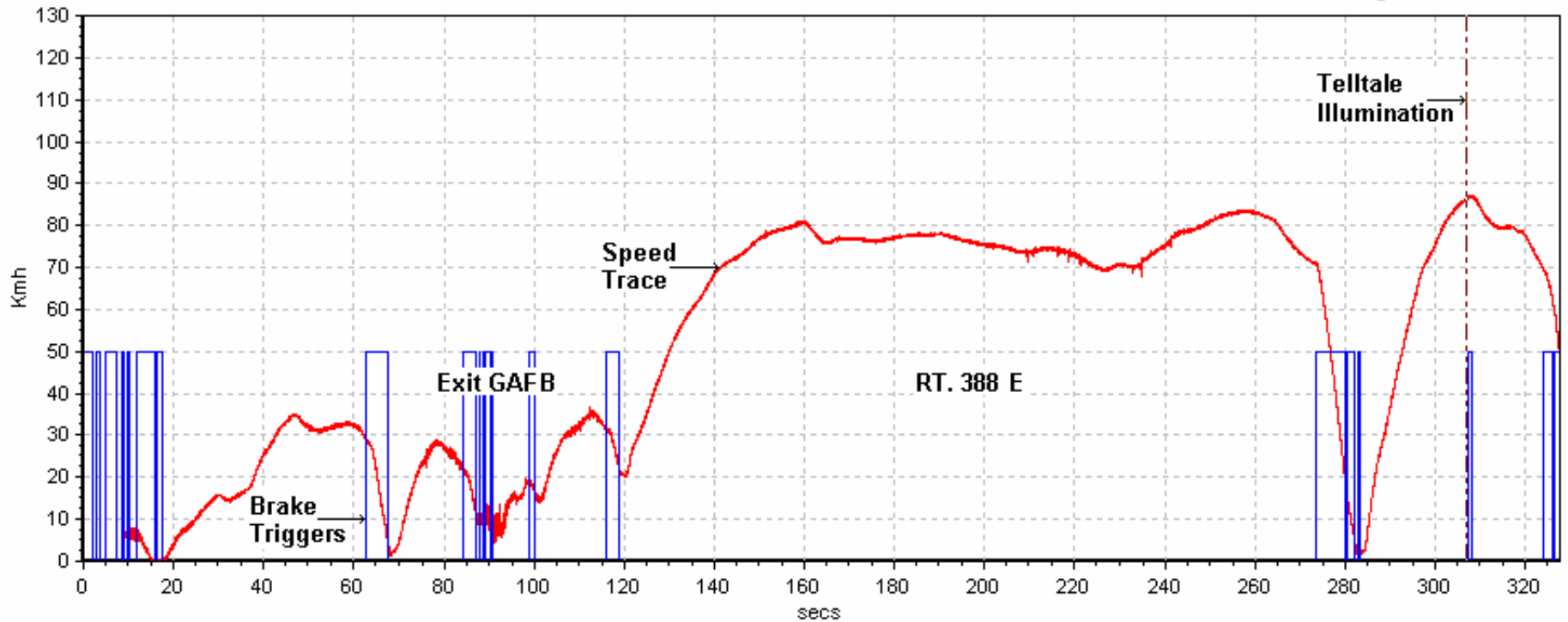


Scenario E: Left Rear, Right Rear Tires at LLVW  
Test Date: 6/5/09  
Data File Time: 5:28 minutes  
Cumulative Driving Time: 2:38 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LR, RR Illumination LLVW

Log Rate := 100.00 Hz

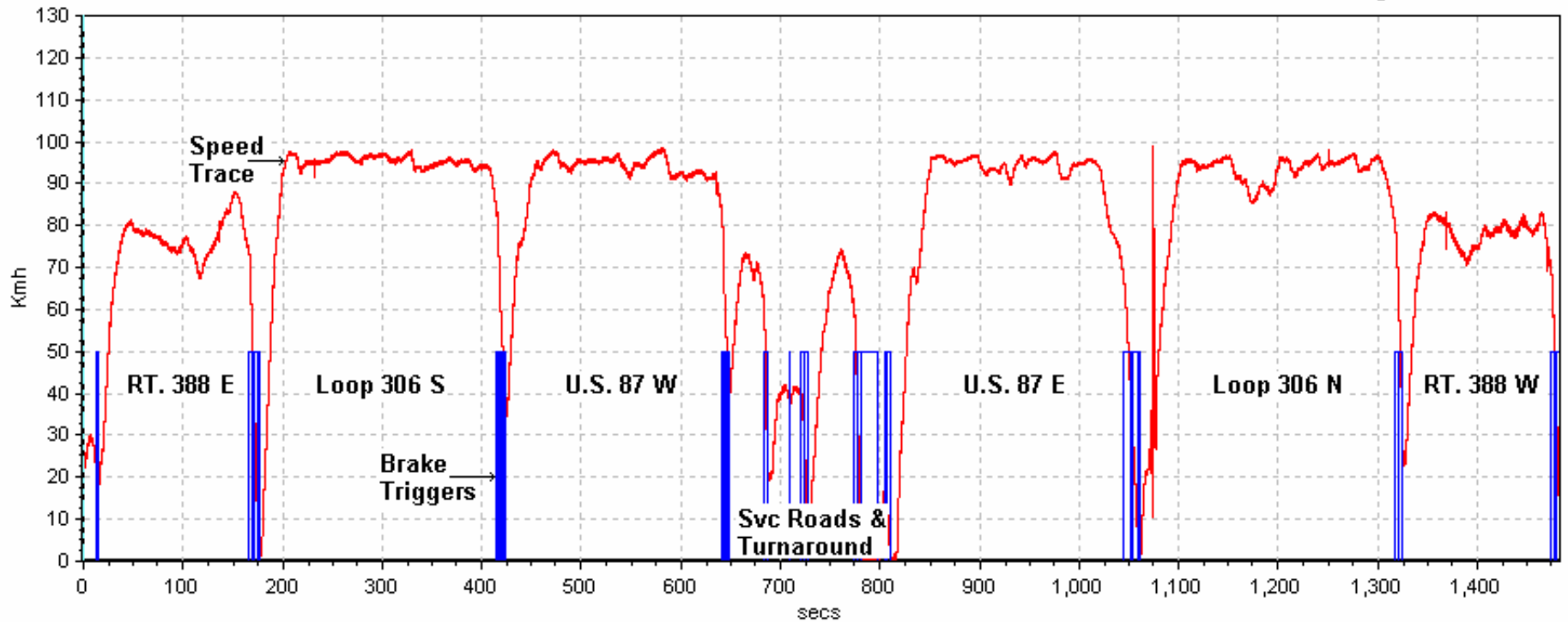


Scenario F: Left Front, Left Rear, Right Rear Tires at LLVW  
Test Date: 6/5/09  
Data File Time: 24:43 minutes  
Cumulative Driving Time: 20:37 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LF, LR, RR Calibration LLVW

Log Rate := 100.00 Hz

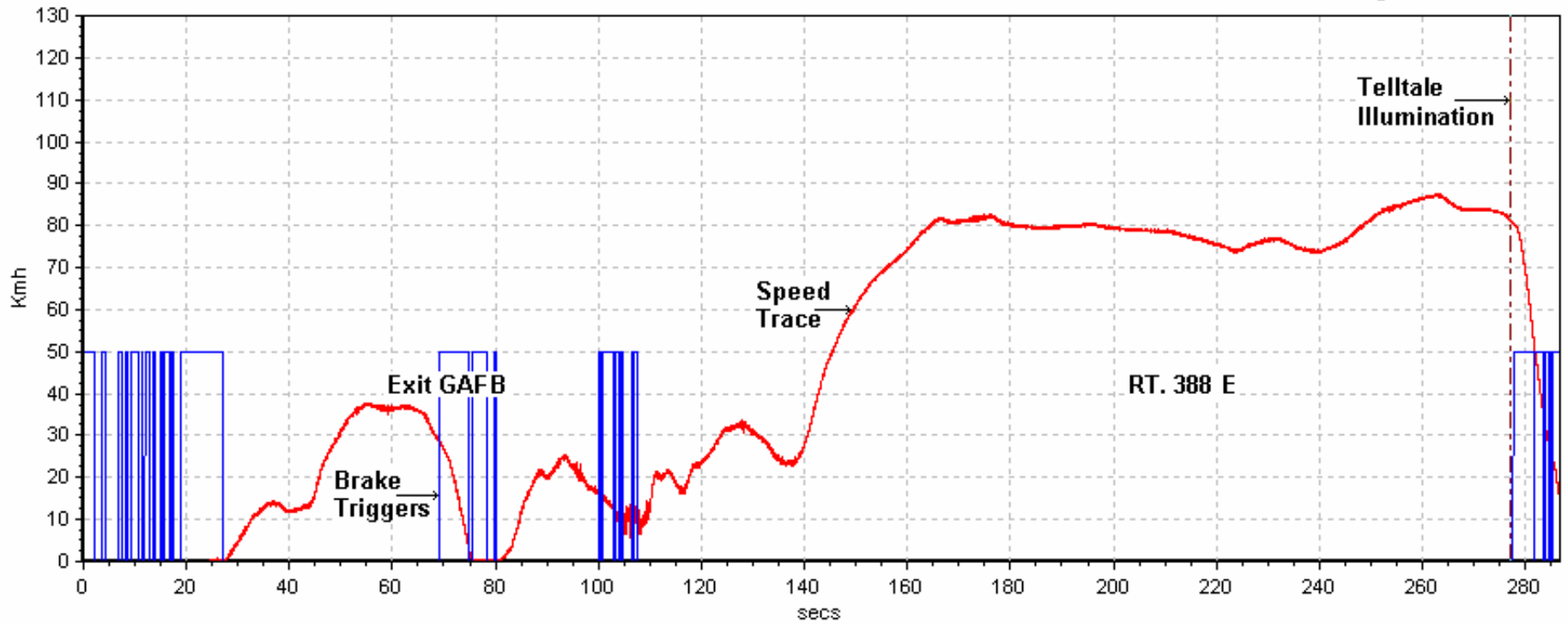


Scenario F: Left Front, Left Rear, Right Rear Tires at LLVW  
Test Date: 6/5/09  
Data File Time: 4:47 minutes  
Cumulative Driving Time: 2:12 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LF, LR, RR Illumination LLVW

Log Rate := 100.00 Hz



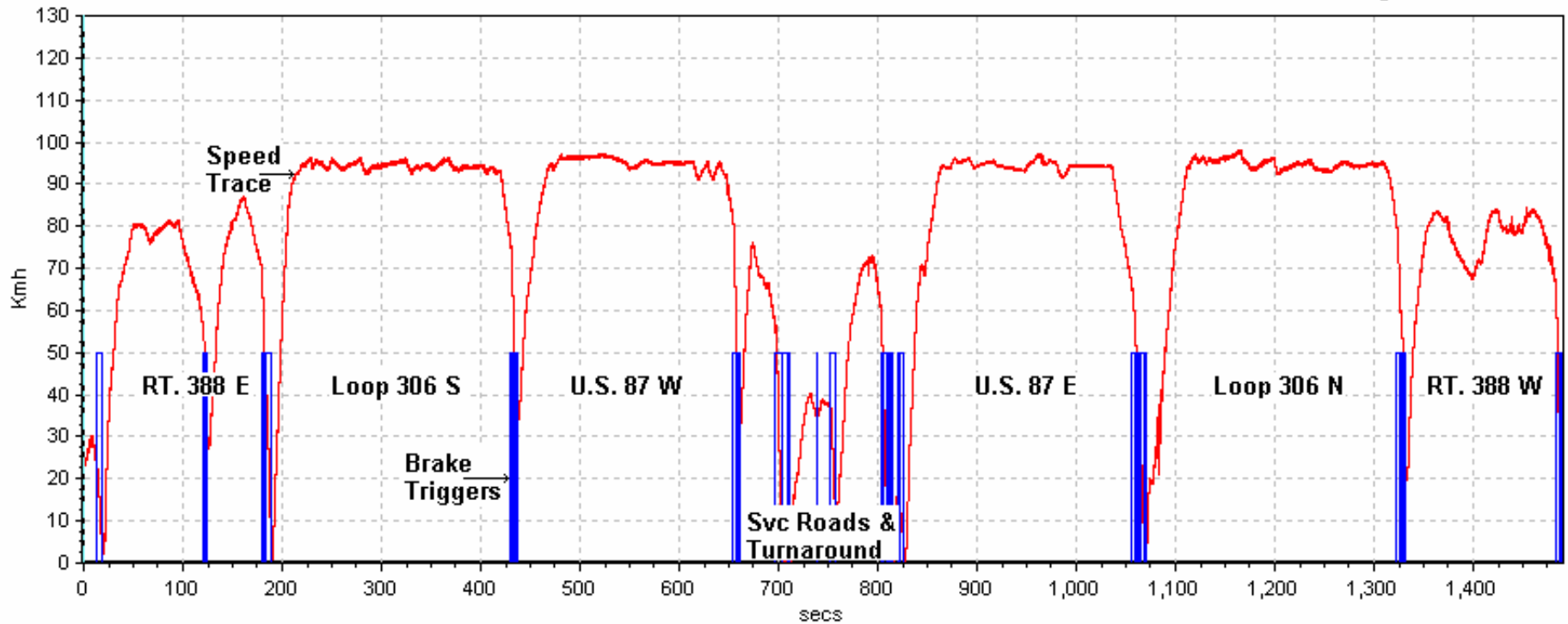


Scenario G: Right Rear Tire at LLVW  
Test Date: 6/8/09  
Data File Time: 24:51 minutes  
Cumulative Driving Time: 20:38 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) RR Calibration LLVW

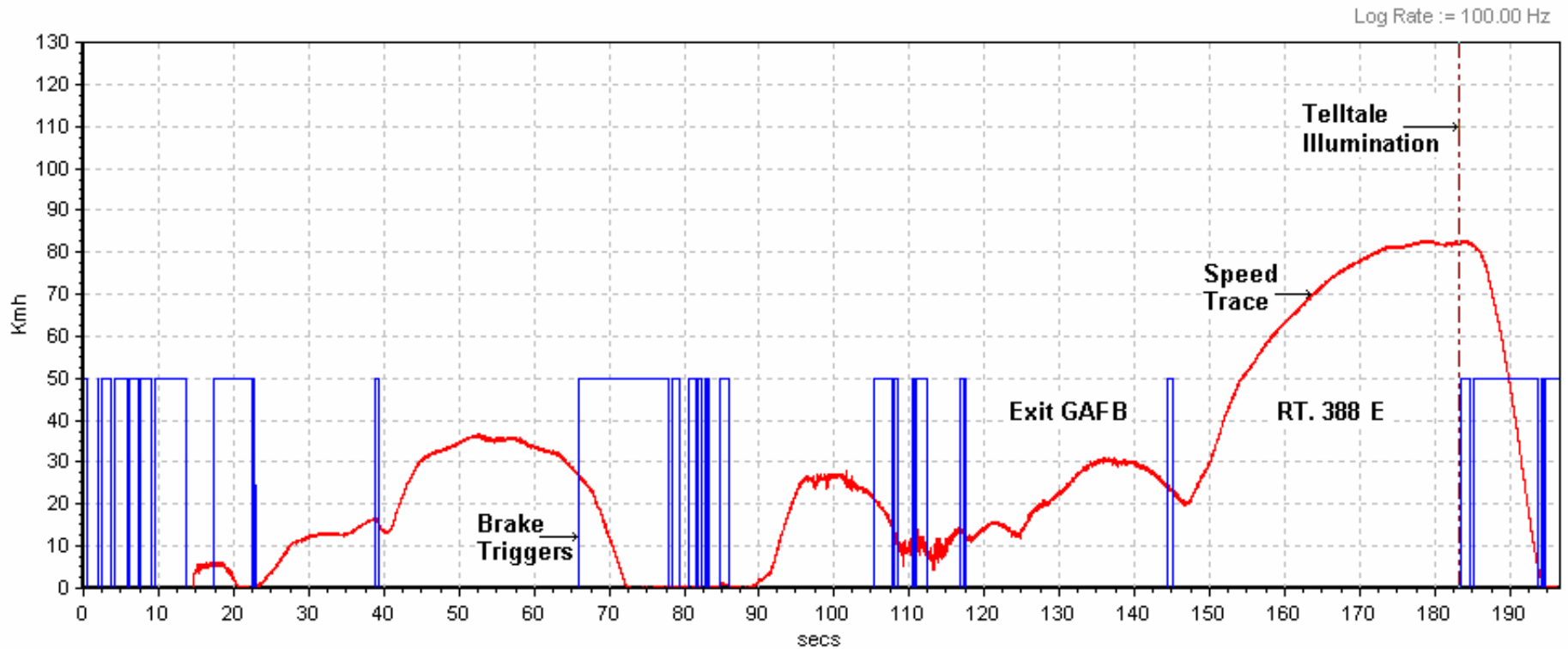
Log Rate := 100.00 Hz



Scenario G: Right Rear Tire at LLVW  
Test Date: 6/8/09  
Data File Time: 3:17 minutes  
Cumulative Driving Time: 0:29 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) RR Illumination LLVW

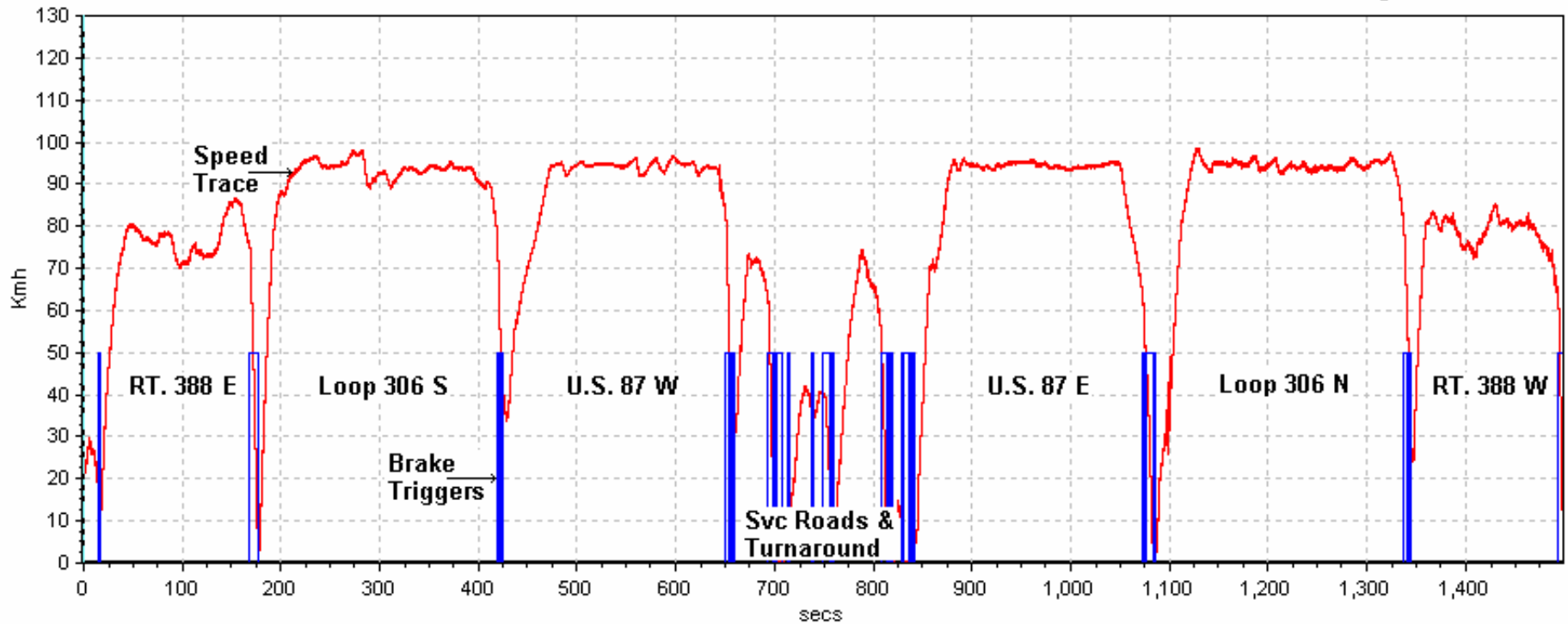


Scenario H: Left Front, Right Rear, Right Front Tires at LLVW  
Test Date: 6/8/09  
Data File Time: 24:59 minutes  
Cumulative Driving Time: 20:45 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LF, RR, RF Calibration LLVW

Log Rate := 100.00 Hz

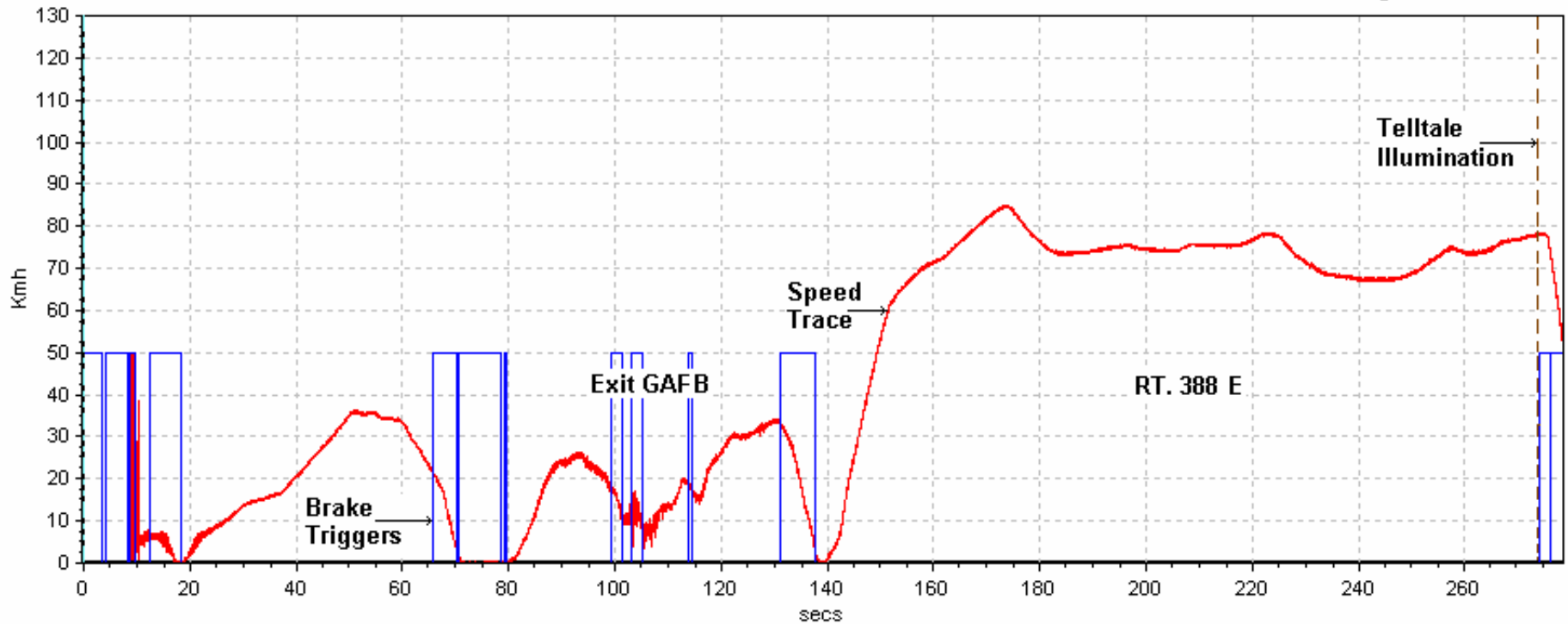


Scenario H: Left Front, Right Rear, Right Front Tires at LLVW  
Test Date: 6/8/09  
Data File Time: 4:39 minutes  
Cumulative Driving Time: 2:05 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LF, RR, RF Illumination LLVW

Log Rate := 100.00 Hz

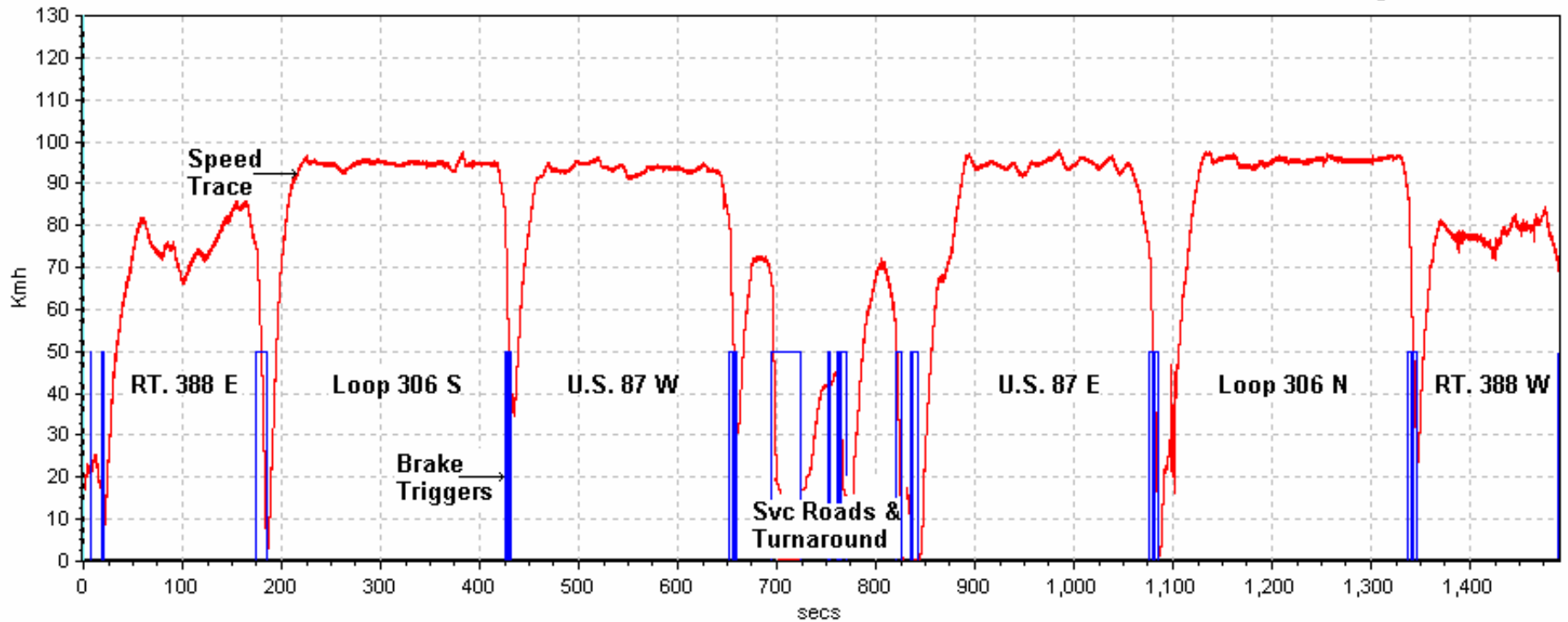


Scenario I: Left Front, Right Front Tires at UVW + VCW  
Test Date: 6/2/09  
Data File Time: 24:51 minutes  
Cumulative Driving Time: 20:34 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LF, RF Callibration UWW+VCW

Log Rate := 100.00 Hz

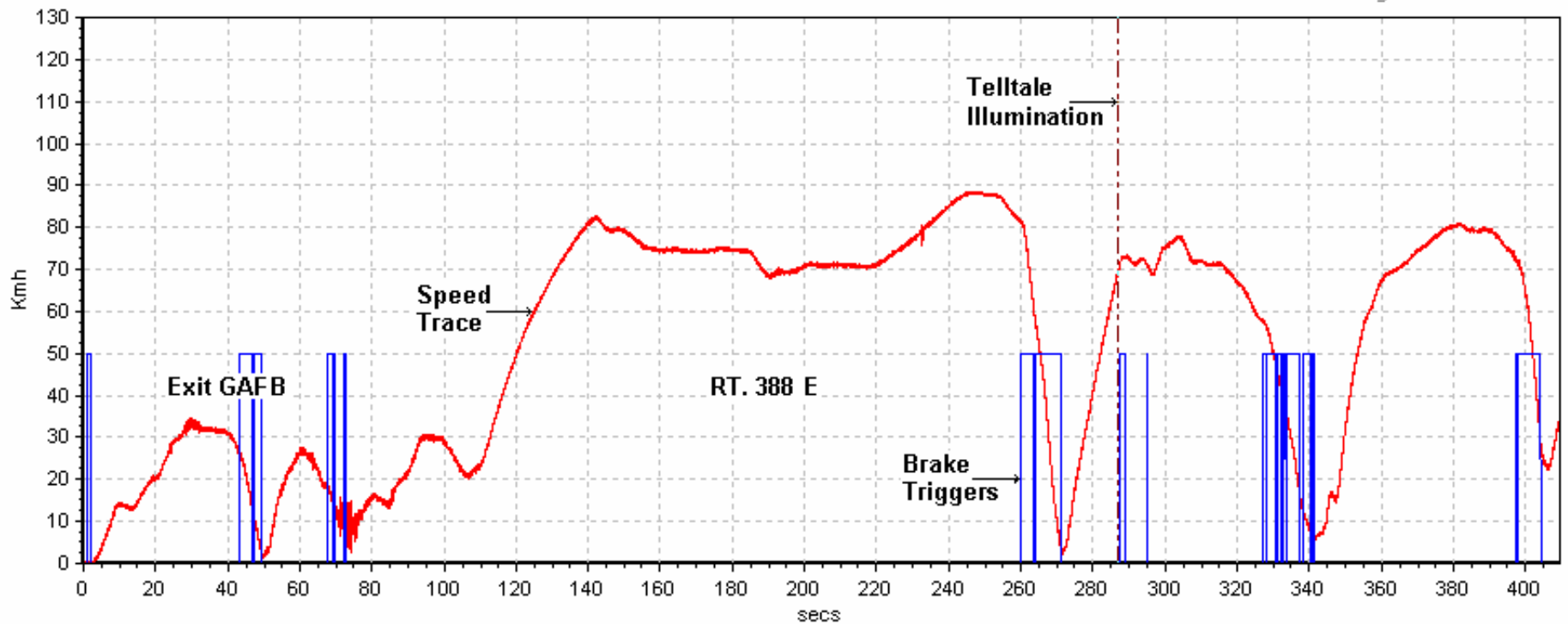


Scenario I: Left Front, Right Front Tires at UVW + VCW  
Test Date: 6/2/09  
Data File Time: 6:50 minutes  
Cumulative Driving Time: 2:25 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LF, RF Illumination UVW+VCW

Log Rate := 100.00 Hz

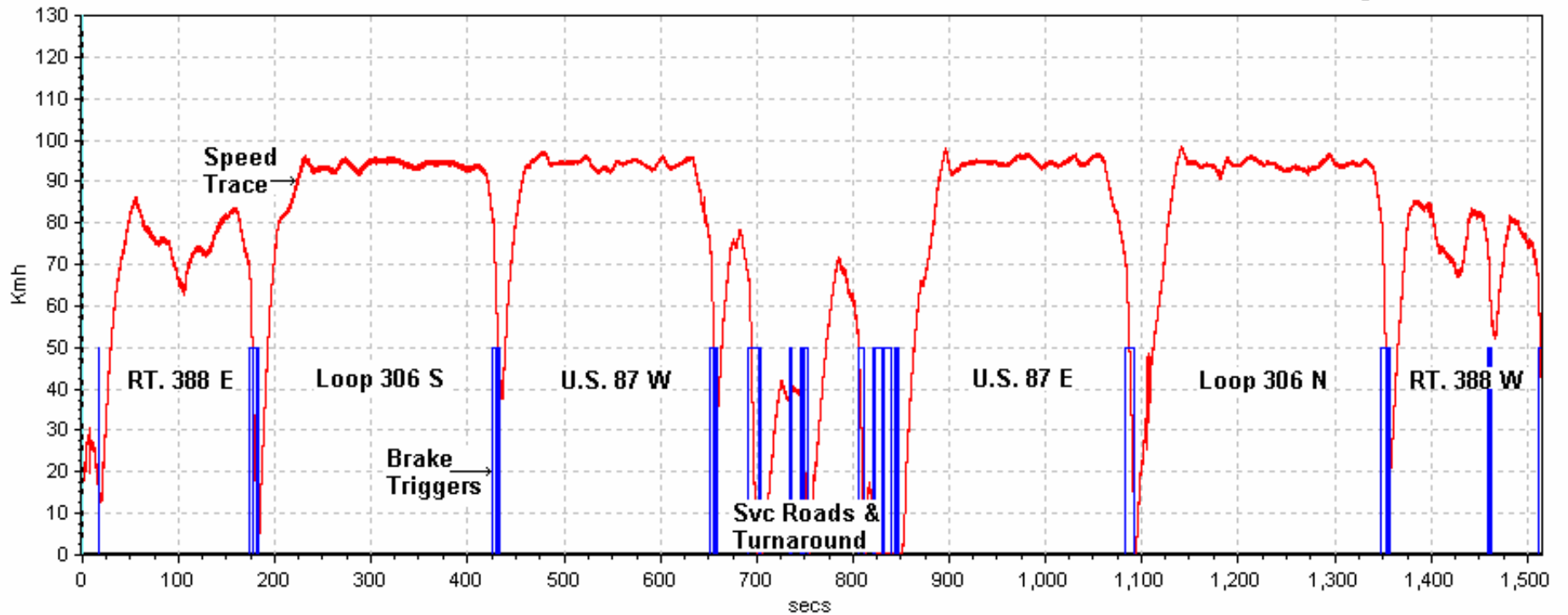


Scenario J: Left Rear, Right Rear, Right Front Tires at UVW + VCW  
Test Date: 6/2/09  
Data File Time: 25:15 minutes  
Cumulative Driving Time: 20:43 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LR, RR, RF Callibration UWW+VCW

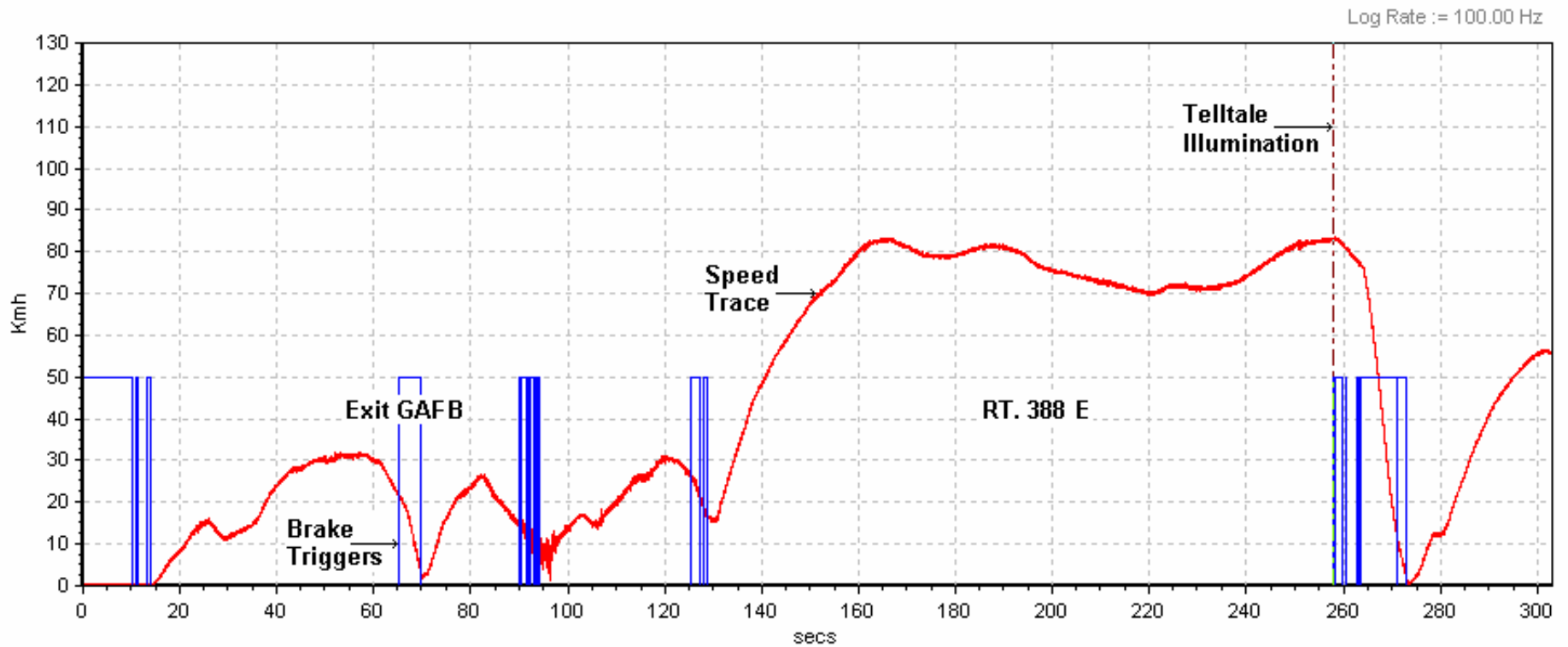
Log Rate := 100.00 Hz



Scenario J: Left Rear, Right Rear, Right Front Tires at UVW + VCW  
Test Date: 6/2/09  
Data File Time: 5:03 minutes  
Cumulative Driving Time: 1:58 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LR, RR, RF Illumination UVW+VCW



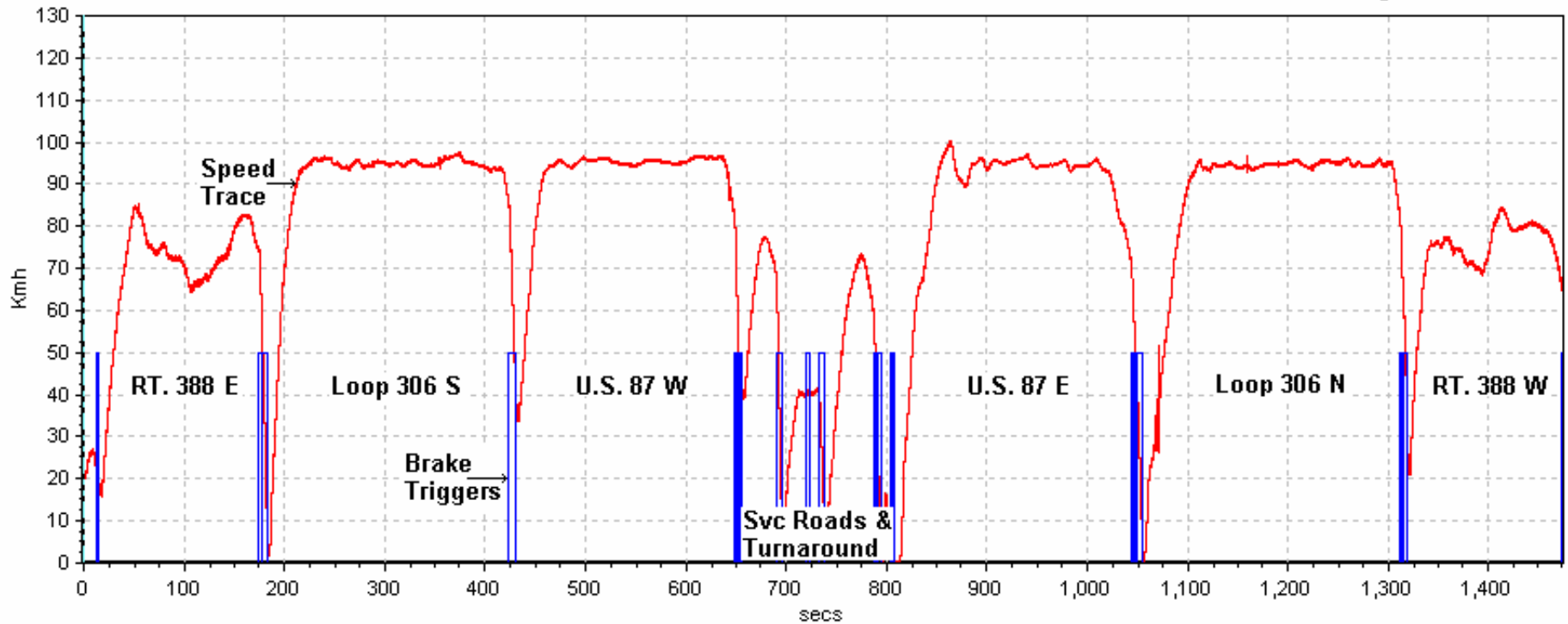


Scenario K: Left Rear, Right Front Tires at UVW + VCW  
Test Date: 6/3/09  
Data File Time: 24:35 minutes  
Cumulative Driving Time: 20:40 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LR, RF Callibration UWW+VCW

Log Rate := 100.00 Hz

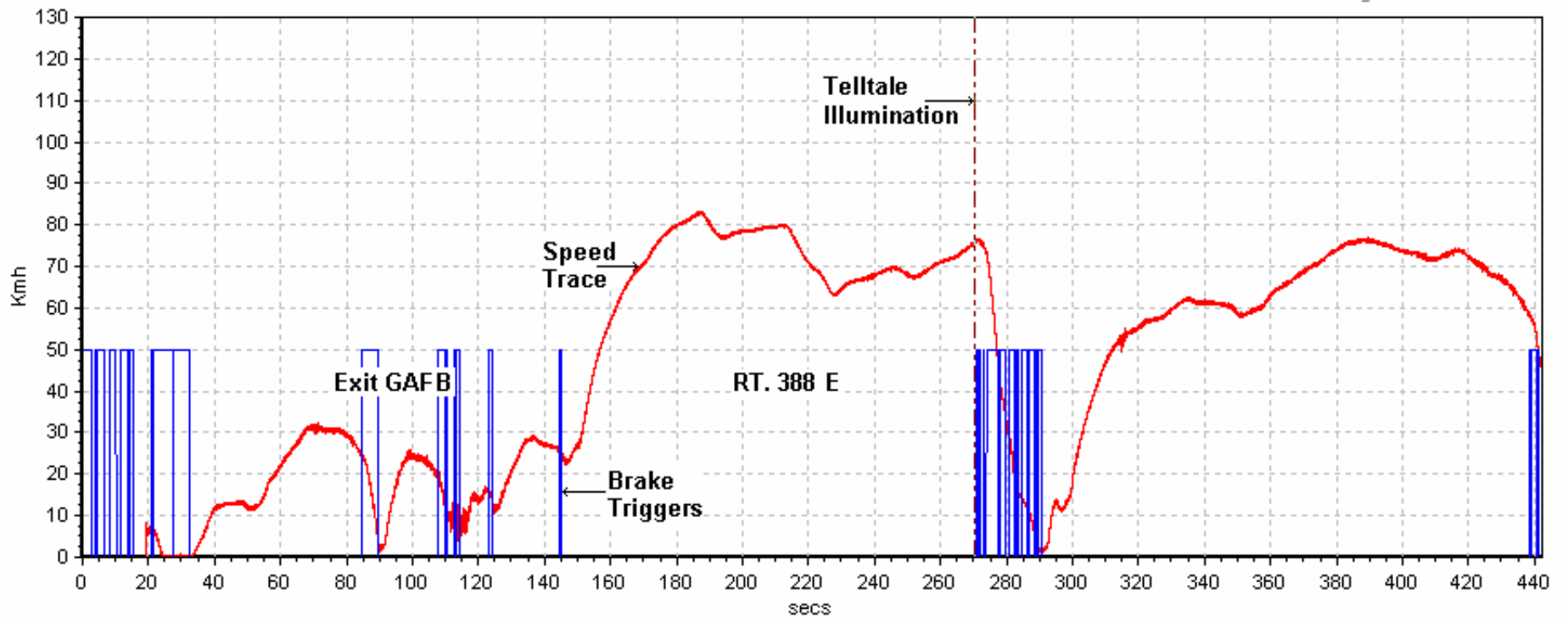


Scenario K: Left Rear, Right Front Tires at UVW + VCW  
Test Date: 6/3/09  
Data File Time: 7:22 minutes  
Cumulative Driving Time: 1:54 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LR, RF Illumination UVW+VCW

Log Rate := 100.00 Hz

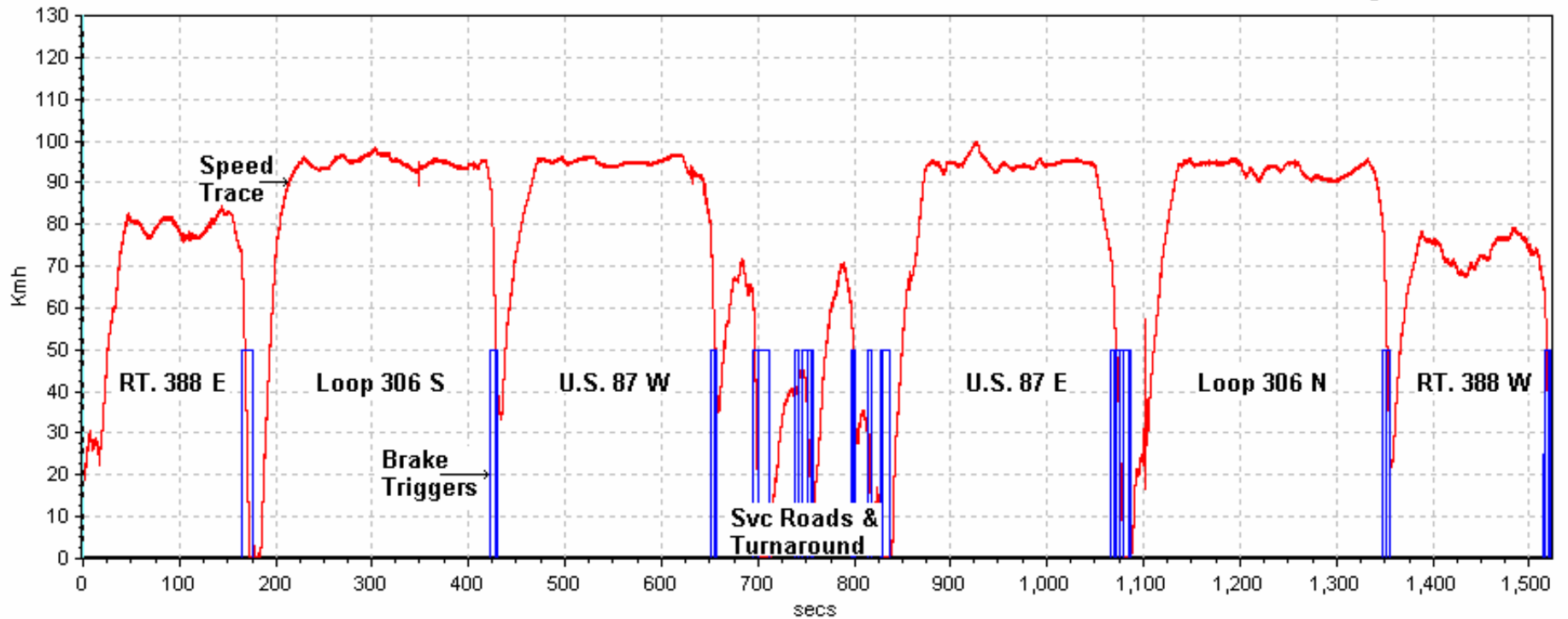


Scenario L: Right Front Tire at UVW + VCW  
Test Date: 6/3/09  
Data File Time: 25:24 minutes  
Cumulative Driving Time: 20:39 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) RF Calibration UWW+VCW

Log Rate := 100.00 Hz

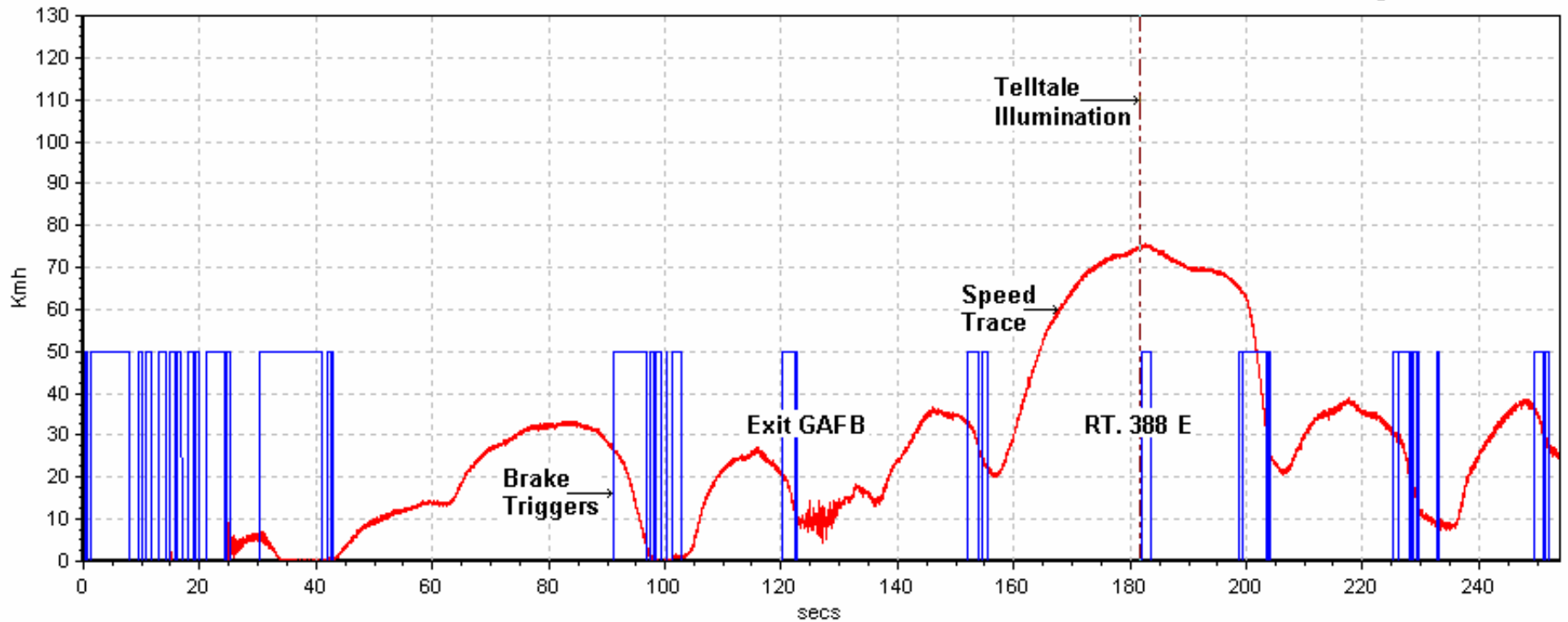


Scenario L: Right Front Tire at UVW + VCW  
Test Date: 6/3/09  
Data File Time: 4:13 minutes  
Cumulative Driving Time: 0:17 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) RF Illumination UVW+VCW

Log Rate := 100.00 Hz

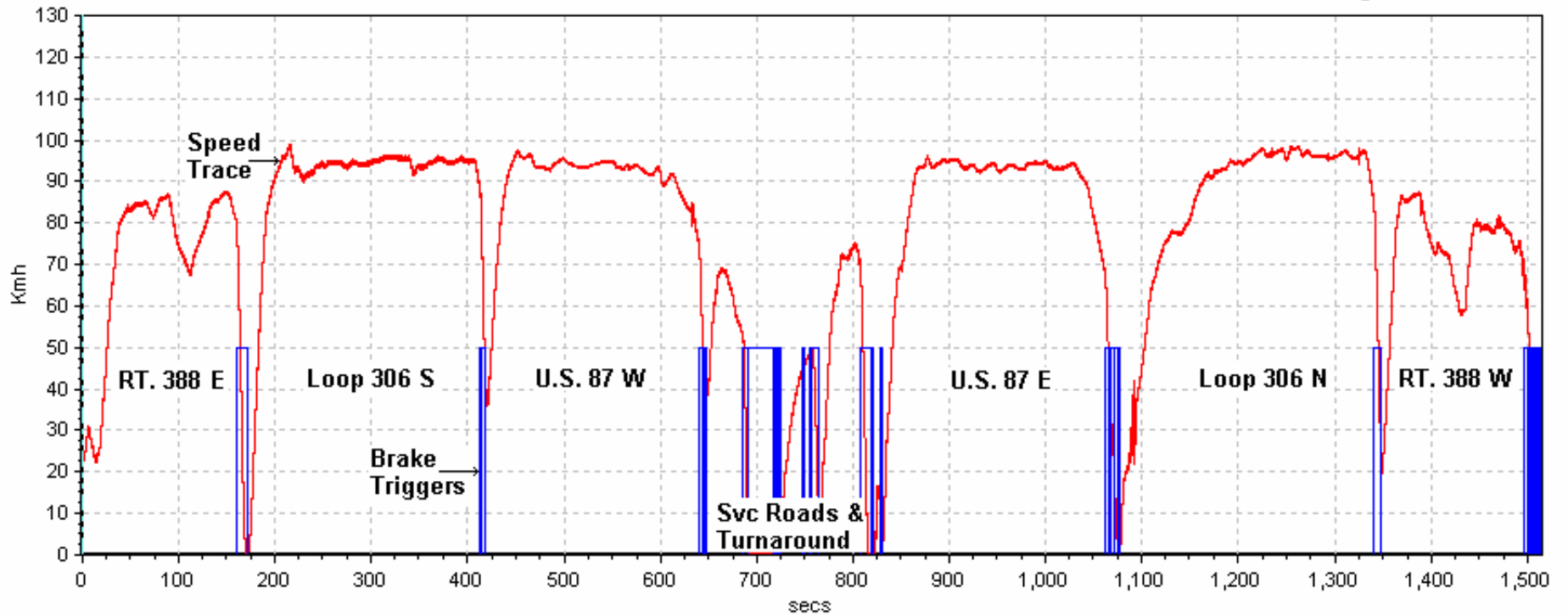


Scenario M: Left Rear Tire at UVW + VCW  
Test Date: 6/9/09  
Data File Time: 25:16 minutes  
Cumulative Driving Time: 20:43 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LR Calibration UVW+VCW

Log Rate := 100.00 Hz

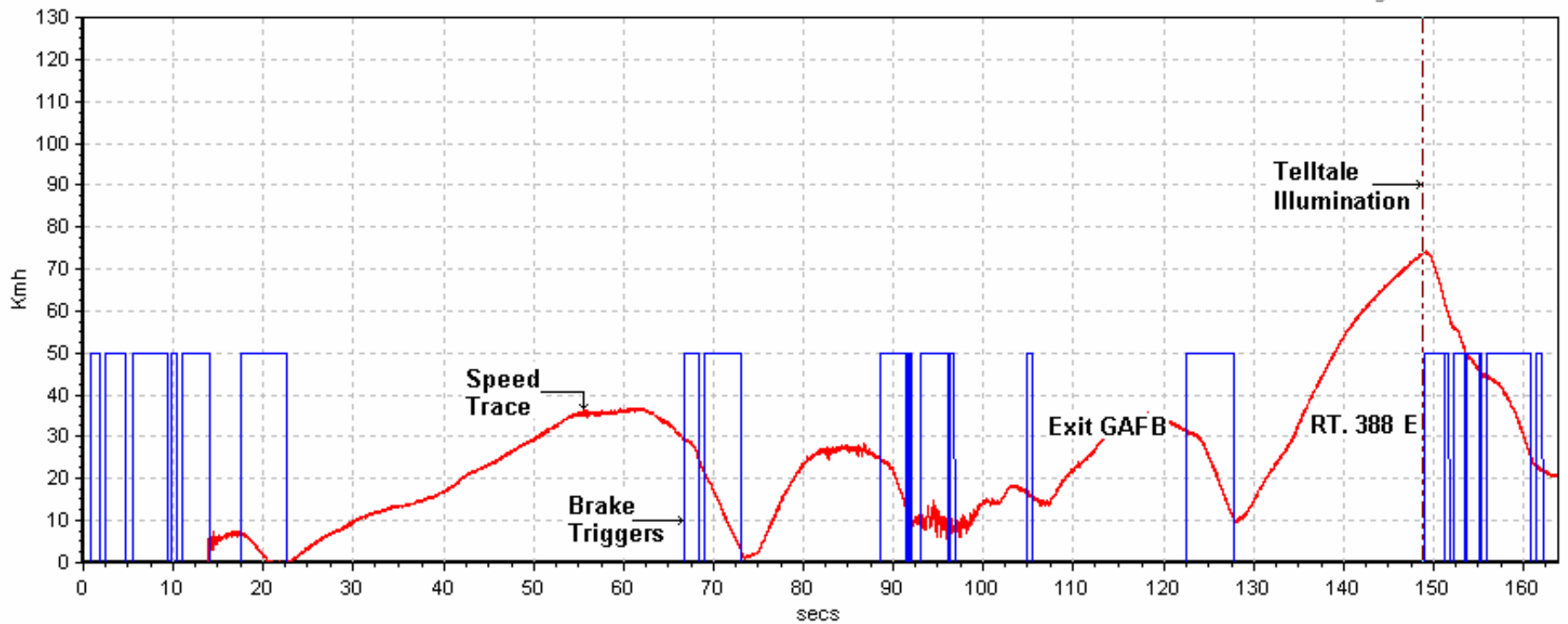


Scenario M: Left Rear Tire at UVW + VCW  
Test Date: 6/9/09  
Data File Time: 2:44 minutes  
Cumulative Driving Time: 0:10 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LR Illumination UVW+VCW

Log Rate := 100.00 Hz

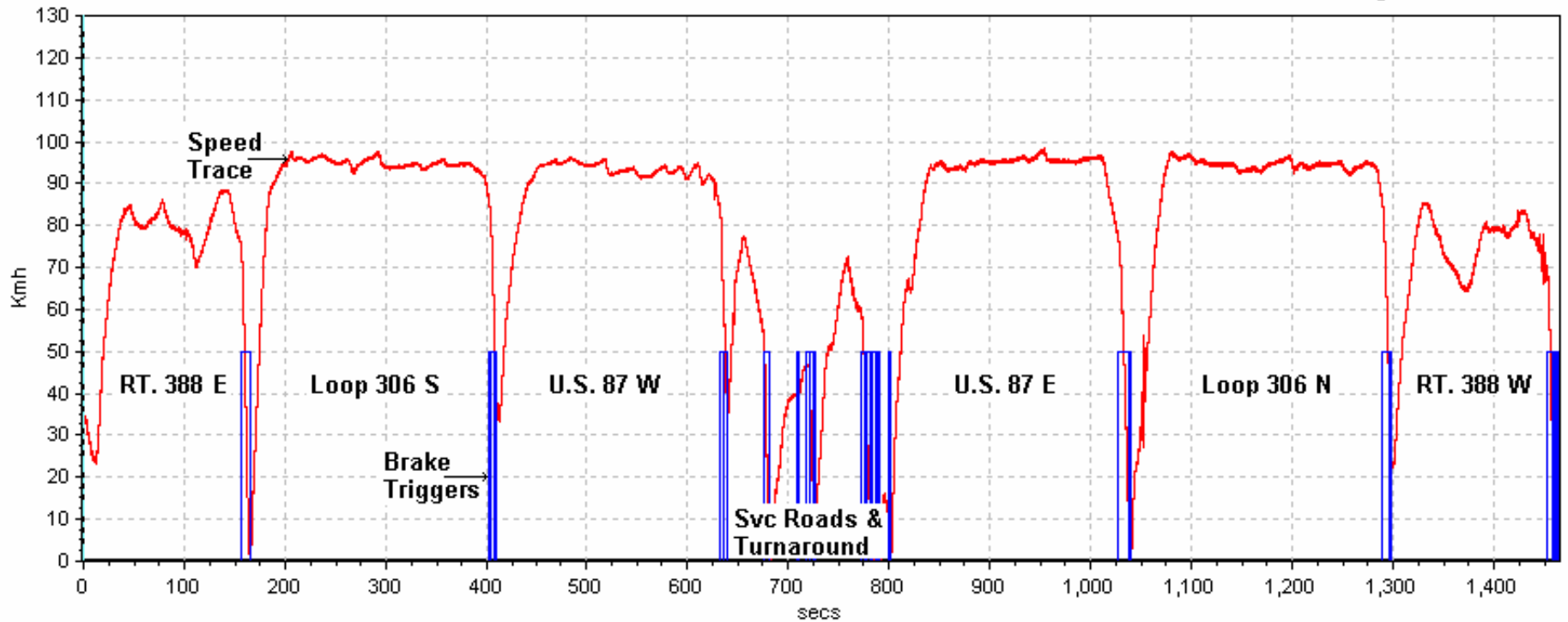


Scenario N: Right Rear, Right Front Tires at UVW + VCW  
Test Date: 6/9/09  
Data File Time: 24:27 minutes  
Cumulative Driving Time: 20:38 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) RR, RF Calibration UVW+VCW

Log Rate := 100.00 Hz

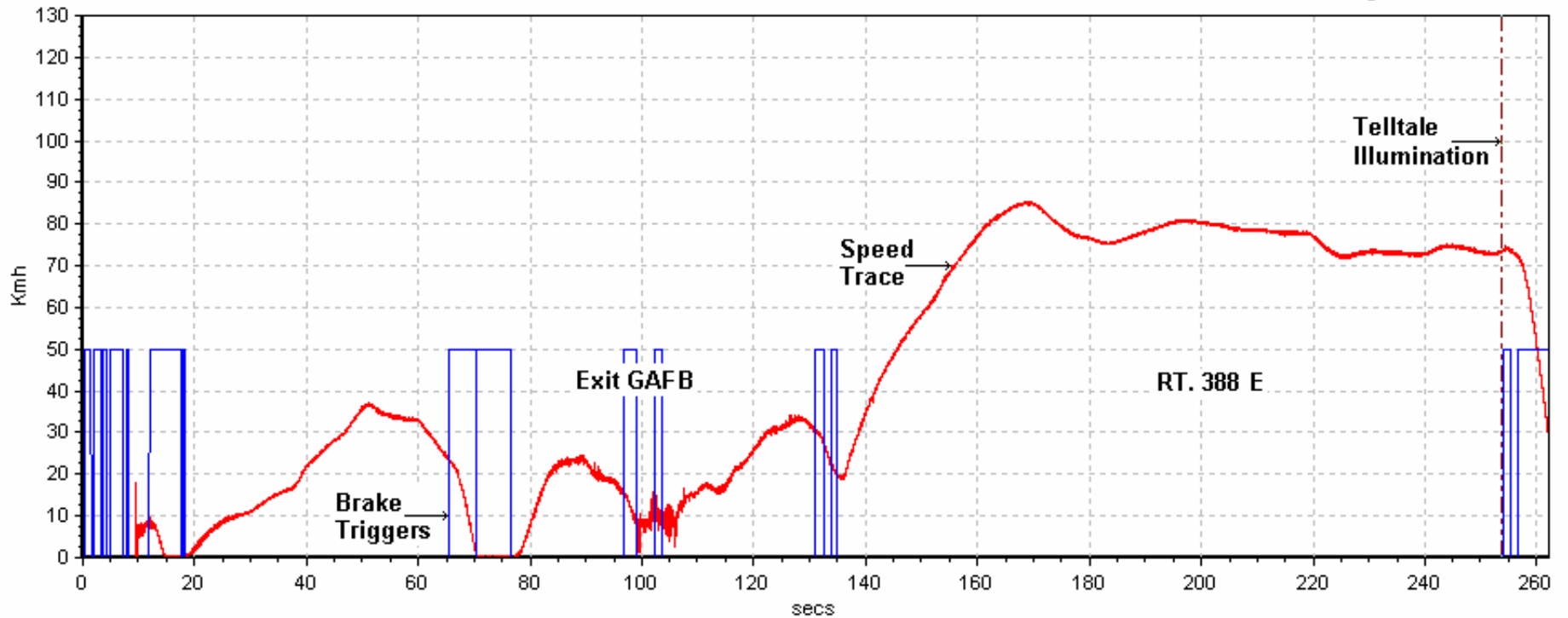


Scenario N: Right Rear, Right Front Tires at UVW + VCW  
Test Date: 6/9/09  
Data File Time: 4:22 minutes  
Cumulative Driving Time: 1:49 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) RR, RF Illumination UWW+VCW

Log Rate := 100.00 Hz



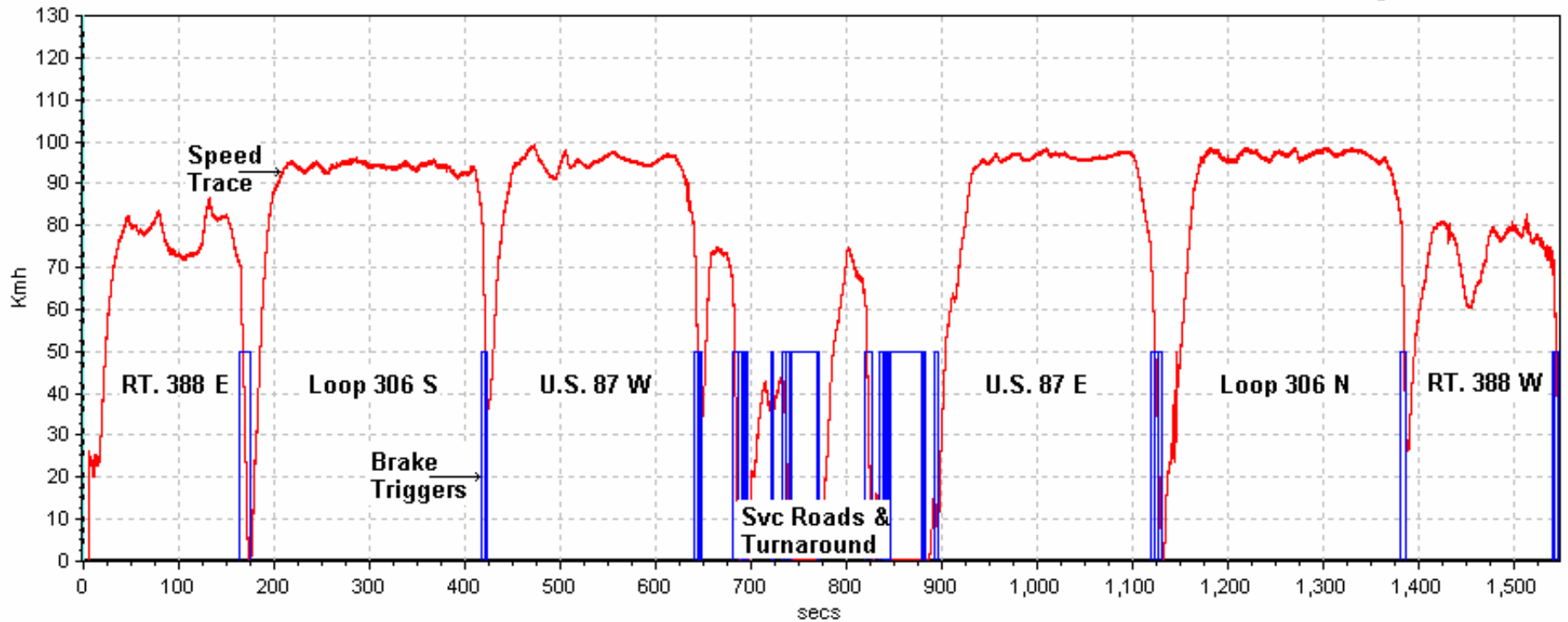


Scenario 0: Left Front, Left Rear, Right Front Tires at UVW + VCW  
Test Date: 6/9/09  
Data File Time: 25:48 minutes  
Cumulative Driving Time: 20:35 minutes  
Start Point: GAFB North Gate

Calibration Phase:

2009 Audi A6 (C95800) LF, LR, RF Calibration UVW+VCW

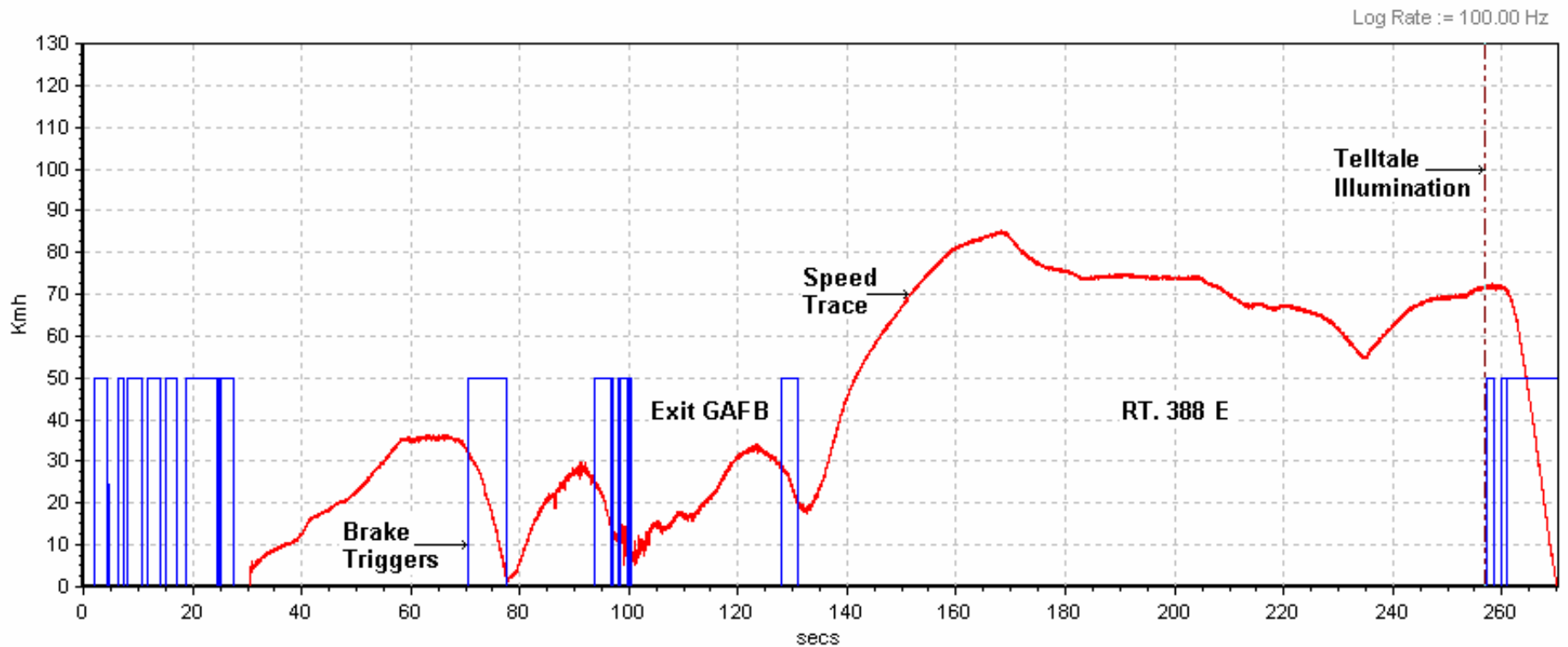
Log Rate := 100.00 Hz



Scenario 0: Left Front, Left Rear, Right Front Tires at UVW + VCW  
Test Date: 6/9/09  
Data File Time: 4:31 minutes  
Cumulative Driving Time: 1:56 minutes  
Start Point: San Angelo Test Facility Shop

Detection Phase:

2009 Audi A6 (C95800) LF, LR, RF Illumination UVW+VCW



SECTION 7  
OWNER'S MANUAL PAGES

- After any impact, immediately inspect your tires or have them inspected by the nearest authorized Audi dealer. Replace a damaged tire as soon as possible.
- Inspect your tires every 2,000 miles (3,000 km) for damage and wear. Damage is not always easy to see. Damage can lead to loss of air and underinflation, which could eventually cause tire failure. If you believe that a tire may have been damaged, replace the tire as soon as possible.
- These tires may wear more quickly than others.
- Please also remember that, while these tires deliver responsive handling, they may ride less comfortably and make more noise than other choices.

#### Reduced performance in winter/cold season conditions

All tires are designed for certain purposes. The low aspect ratio, ultra high performance tires originally installed on your vehicle are intended for maximum dry and wet road performance and handling. They are not suitable for cold, snowy or icy weather conditions. If you drive under those circumstances, you should equip your vehicle with all-season or winter tires, which offer better traction under those conditions. We suggest you use the recommended snow or all-season tires specified for your vehicle, or their equivalent.

Refer to ⇒ *page 333* for more detailed information regarding winter tires. ■

## Tire pressure monitoring system

### General notes

Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. (If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pres-

sure label, you should determine the proper tire inflation pressure for those tires.)

As an added safety feature, your vehicle has been equipped with a tire pressure monitoring system (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated. Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.

Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly. The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle start-ups as long as the malfunction exists.

When the malfunction indicator is illuminated, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of replacement or alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the TPMS malfunction telltale after replacing one or more tires or wheels on your vehicle to ensure that the replacement or alternate tires and wheels allow the TPMS to continue to function properly. ■



## Tire pressure indicator appears

The tire pressure indicator in the instrument cluster informs you if the tire pressure is too low or if there is a system malfunction.

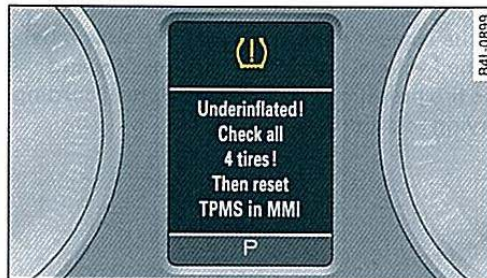


Fig. 252 Display: underinflation warning

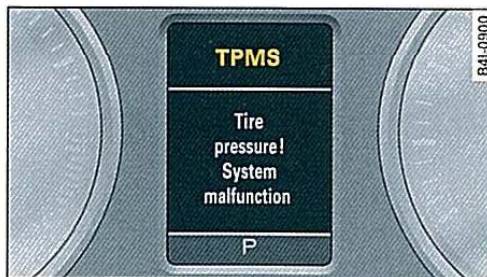



Fig. 253 Display: System malfunction




Using the ABS sensors, the tire pressure monitoring system compares the tire tread circumference and vibration characteristics of the individual tires. If the pressure decreases in one or more tires, this is indicated in the instrument cluster with a warning symbol  and a message  $\Rightarrow$  fig. 252. The driver message in the display goes out after 5 seconds. The driver message can be displayed again by pressing the **CHECK** button. If only one tire is affected, the display will indicate its position.


The tire pressure monitoring must be reset via MMI each time the pressures are adjusted (e. g. when switching between partial and full load pressure) or after changing or replacing a tire on your vehicle  $\Rightarrow$  page 338. You can find the recommended tire pressures for your vehicle on the label on the driver's door pillar  $\Rightarrow$  page 321.

Tire tread circumference and vibration characteristics can change and cause a tire pressure warning if:


- the tire pressure in one or more tires is too low,
- the tire has structural damage,
- the tire pressure was changed, wheels rotated or replaced but the TPMS was not reset  $\Rightarrow$  page 338.

### Warning symbols

 Loss of pressure in at least one tire  $\Rightarrow$  . Check the tire or tires and replace or repair if necessary. The indicator light  in the instrument cluster also illuminates  $\Rightarrow$  page 16. Check/correct the pressures of all four tires and reset TPMS via MMI.

**TPMS (Tire Pressure Monitoring System) Tire pressure! System malfunction.** If **TPMS** appears after switching the ignition on or while driving  $\Rightarrow$  fig. 253 and the indicator light  in the instrument cluster blinks for approximately one minute and then stays on, there is a system malfunction. See your authorized Audi dealer as soon as possible.

### WARNING

- If the tire pressure indicator appears in the instrument cluster display, one or more of your tires is significantly under-inflated. Reduce your speed immediately and avoid any hard steering or braking maneuvers. Stop as soon as possible and check the tires and their pressures. Inflate the tire pressure to the proper pressure as indicated on the vehicle's tire pressure label  $\Rightarrow$  page 321. Driving on a significantly under-inflated tire causes the tire to over-heat and can lead to tire failure. Under-inflation also is likely to impair the vehicle's handling and stopping ability. 

**⚠ WARNING (continued)**

- The driver is responsible for maintaining the correct tire pressures. You must check the tire pressures regularly.
- Under certain conditions (such as a sporty driving style, winter conditions or unpaved roads), the pressure monitor indicator may be delayed.
- Ask your authorized Audi dealer if run-flat tires may be used on your vehicle. Your vehicle registration becomes invalid if you use these tires when not permitted. Damage to your vehicle or accidents could also result.
- To ensure a proper TPMS-function use Audi released tires which are marked with "AO" or "RO" on the tire sidewall ⇒ *page 331*.

**i Tips**

- The tire pressure monitoring system stops working when there is an ESP/ABS malfunction.
- Using snow chains may result in a system malfunction. ■

### Reset tire pressure monitoring system

*If the tire pressure is adjusted, wheels are rotated or changed, the TPMS must be reset via MMI.*



Fig. 254 Car: Tire pressure monitoring system

- Turn on the ignition.
- Select: the **CAR** function key > **Tire pressure monitoring** > **Store now**.

**i Tips**

Before reset the TPMS, the current pressures of all four tires must correspond to the specified values. Adjust the tire pressure and reset the pressure in the tire pressure monitoring system according to the load you are carrying ⇒ *page 321*. ■

SECTION 8  
FAILURE REPORT

**LABORATORY NOTICE OF TEST FAILURE**

FMVSS NUMBER: 138 TEST DATES: May 27 through June 9, 2009

LABORATORY: US DOT San Angelo Test Facility

CONTRACT NUMBER: N/A DELIVERY ORDER NUMBER: N/A

LABORATORY PROJECT ENGINEER'S NAME: Kenneth H. Yates

TEST SPECIMEN DESCRIPTION: 2009 Audi A6 four-door passenger car

NHTSA VEHICLE NUMBER: C95800 VIN: WAUCH74F29N022298

MANUFACTURER: Audi AG

TEST FAILURE DESCRIPTION: The TPMS telltale self extinguishes while malfunction still exists.

FMVSS REQUIREMENT, PARAGRAPH : S138, S4.4(c)(2)

"After each period of prescribed flashing, the telltale must remain continuously illuminated as long as a malfunction exists and the ignition locking system is in the "On" ("Run") position."

NOTIFICATION TO NHTSA (COTR): John Finneran

DATE: June 3, 2009 BY: Kenneth H. Yates

REMARKS: \_\_\_\_\_