

2018 Toyota Camry VOR Integral Beam (LED) Headlamps  
(SAE AHL IPP2)

Toyota P/N: 81110-06C40/81150-06C40

**CALCOAST - ITL**  
Lighting Technology  
683 Thornton Street  
San Leandro, CA 94577



07 February 2022

FINAL REPORT 108-CAN-22-001

PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue SE  
Washington, D.C. 20590

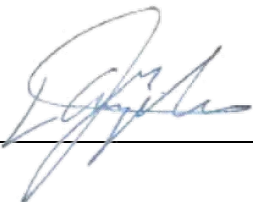
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Prepared and Approved By: 

Approval Date: 07 February 2022

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:  \_\_\_\_\_

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TECHNICAL REPORT STANDARD TITLE PAGE

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<b>4. Title and Subtitle</b> Test Series 2018 Toyota Camry VOR Integral Beam (LED) Headlamps		<b>5. Report Date</b> 07 February 2022	
<b>7. Author(s)</b> Mark Evans, Laboratory Director		<b>6. Performing Organization Code</b> N/A  <b>8. Performing Organization Report No.</b> 210922-01H	
<b>9. Performing Organization Name and Address</b> Calcoast - ITL 683 Thornton Street San Leandro, CA 94577		<b>10. Work Unit No.</b> N/A	
<b>12. Sponsoring Agency Name and Address</b> U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance 1200 New Jersey Avenue SE West Building - 4 <sup>th</sup> Floor - NEF220 Washington, D.C. 20590		<b>11. Contract or Grant No.</b> 693JJ919D000023 693JJ921RQ000965  <b>13. Type of Report and Period Covered</b>	
<b>15. Supplementary Notes</b>		<b>14. Sponsoring Agency Code</b>	
<b>16. Abstract</b> The scope of this testing was limited to certain photometry, color, and markings tests as indicated. Test failures identified were as follows: None			
<b>17. Key Words</b> Federal Motor Vehicle Safety Standard 108 Lamps, Reflective Devices and Associated Equipment		<b>18. Distribution Statement</b> Unlimited	
<b>19. Security Classif. (of this report)</b> Unclassified	<b>20. Security Classif. (of this report)</b> Unclassified	<b>21. No. of Pages</b> 79	<b>22. Price</b> N/A



INDUSTRIAL TESTING LABORATORY

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TEST REPORT

Report Date: 07 February 2022

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Submitted by: Purchased by CCITL for NHTSA from One Toyota of Oakland Dealership

Test Laboratory: Calcoast - ITL San Leandro, CA 94577

Samples Submitted: Four (4) pair lamps purchased 22 September 2021

SUMMARY

TESTS (FMVSS-108)

PHOTOMETRY - Combination Front Lamp System

- Headlamp, Lower Beam - S10.15.6 / Table XIX-a (LB2V) .....Passed
- Headlamp, Upper Beam - S10.15.6 / Table XVIII (UB2) .....Passed
- Front Turn Signal Lamp - S7.1.1.13 / Table VI-a .....Passed
- Sidemarkers Lamp - S7.4.13 / Table X .....Passed
- Parking Lamp - S7.8.13 / Table XIV .....Passed
- Reflex Reflector, Side - S8.1.11 / Table XVI-a .....Passed

- Lens Area Tests (EPLLA) - Table IV-a.....Not Tested
- Visibility Tests - Table V-c, Luminous Intensity Option.....Passed
- Bulb Socket Test- S14.2.....Not Applicable
- Color Tests - S14.4.1.....Passed
- Plastic Optical Material Tests - S14.4.2.....Not Tested
- Physical (Mechanical) Tests - S14.5.....Not Tested
- Physical (Mechanical) Tests - S14.6.....Not Tested
- Aimability Tests - S10.18.9.....Not Tested
- Markings - S6.5 / S10.18 / Table III.....Passed

Written and Approved by:

Mark A. Evans  
Laboratory Director

**DESCRIPTION SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

**DESCRIPTION:**

The 2018 Toyota Camry headlamps (P/N: 81110-06C40/81150-06C40) use LED source for lower beam and a shutter system for upper beam functions. The lamps also have Turn Signal, Sidemarker, Parking and Reflex Reflector functions. The on-vehicle lamp mounting height is less than 750 mm per the manufacturer for the turn signal and parking functions. There is no horizontal aimer.

**PHYSICAL INSPECTION****MARKINGS:**

Lens: "DOT", "VOR", "SAE AHL IPP2 18", "NAL 06-266", optical axis mark

Housing: "TOYOTA", "NAL", "USA", "12V34/29W", "7444NA", "12V", "W5W", additional material markings,

LH1: "09:00 137 1", "250706 A"

LH2: "08:19 237 1", "021001 C"

LH3: "06:53 152 1", "052204 C"

LH4: "13:39 244 1", "362001 B"

RH1: "18:29 260 0", "272008 A"

RH2: "05:43 145 1", "271907 C"

RH3: "09:06 137 1", "280170 B"

Rh4: "07:23 152 1", "170107 C"

On Sticker: "9TY 945270-01" or "9TY 945270-02"

**Marking Requirements:**

S6.5.1: The lens is marked with the symbol "DOT".

S6.5.3.1: The lens is marked with the name and/or trademark of the manufacturer or importer registered with the U.S. Patent and Trademark Office.

S6.5.3.2: The lamp is marked with its voltage. The lamp is marked with its part or trade number.

S10.18.5: Headlamp lens has an optical mark indicating proper alignment.

S10.18.9.6: The lens is marked "VOR" in letters not less than 3 mm high.

Samples meet Markings requirements.

**MATERIAL:**

Not inspected.

**BULBS:**

FUNCTION	QUANTITY	TYPE	VOLTAGE	POWER	FLUX
Lower Beam (LB)	Unknown	LED	12.8V	25.7W	-
Upper Beam (UB)					
Sidemarker (P2)	One (1)	WY5W	13.5V	5W	50 Lm
Parking (P)	One (1)	7444NA	13.5V	28W	28 Lm
Turn Signal (I)				8W	377 Lm

**PHOTOMETRY SUMMARY SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

**PHOTOMETRY SUMMARY**

Specification(s): FMVSS 108

Reference detector control number: NIST P181-2

Test distance: 100 feet

Tests performed by: MAE

Date: 01-03 February 2022

Samples meet requirements at all points for:

Headlamp, Lower Beam - S10.15.6 / Table XIX-a (LB2V)

Headlamp, Upper Beam - S10.15.6 / Table XVIII (UB2)

Front Turn Signal Lamp - S7.1.1.13 / Table VI-a

Sidemarkers Lamp - S7.4.13 / Table X

Parking Lamp - S7.8.13 / Table XIV

Reflex Reflector, Side - S8.1.11 / Table XVI-a

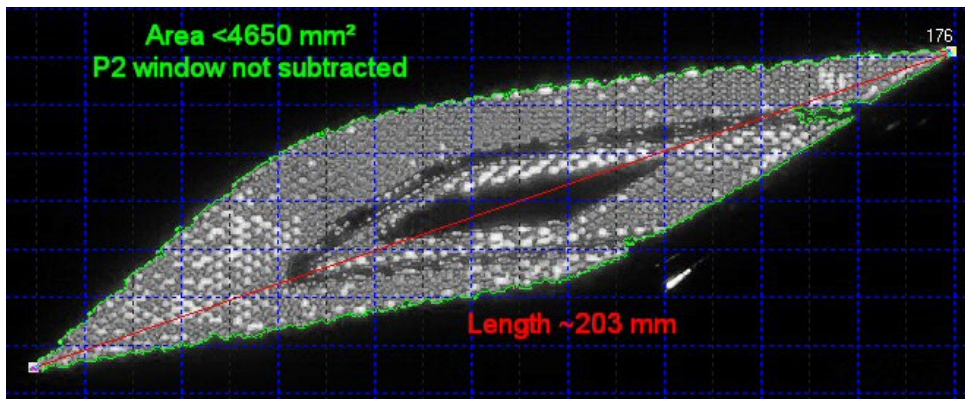
Photometry compliance verification tests for the headlamp functions (Lower Beam, Upper Beam) were performed using the seasoned LEDs at design voltage after thermal stabilization (<1%/5 minute change). Photometry for incandescent signaling and marking functions performed using accurate-rated, calibrated bulbs at luminous flux.

All tests were performed with the lamps mounted on a test fixture supplied by Toyota.

The manufacturer specified the Sidemarkers inboard test angle is 23°.

The manufacturer specified the on-vehicle turn signal and parking function mounting heights are less than 750 mm.

The manufacturer specified the on-vehicle reflex and sidemarkers function mounting heights are greater than 750 mm.

**Reflex Reflector**

The reflex reflector max linear dimension at HV is ~203 mm with a projected area of <math><4650 \text{ mm}^2</math>.

S14.2.3.6 specifies "Reflex reflectors may have any linear or area dimensions but must have no more than 7740 sq mm projected area contained within a 254 mm diameter circle exposed for photometry."

The linear dimension of the reflex elements is within the circle and its projected area is less than the maximum area for photometry.

**PHOTOMETRY SUMMARY SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

**PHOTOMETRY SUMMARY**

Specification(s): FMVSS 108

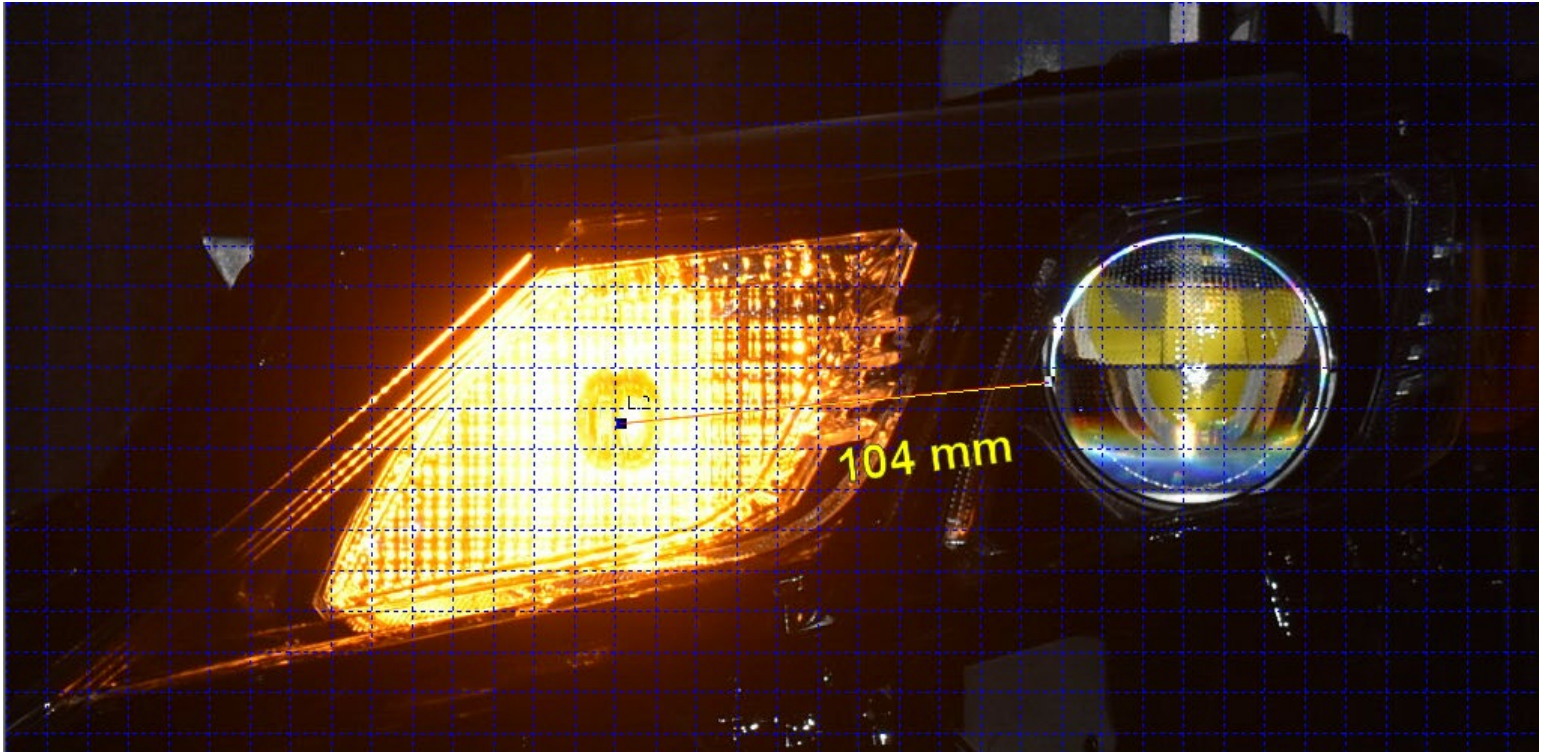
Reference detector control number: NIST P181-2

Test distance: 100 feet

Tests performed by: MAE

Date: 01-03 February 2022

Turn Signal to Headlamp Separation



Turn Signal center to Headlamp edge

The Calcoast-ITL measured turn signal to lower beam lighted edge is 104 mm.

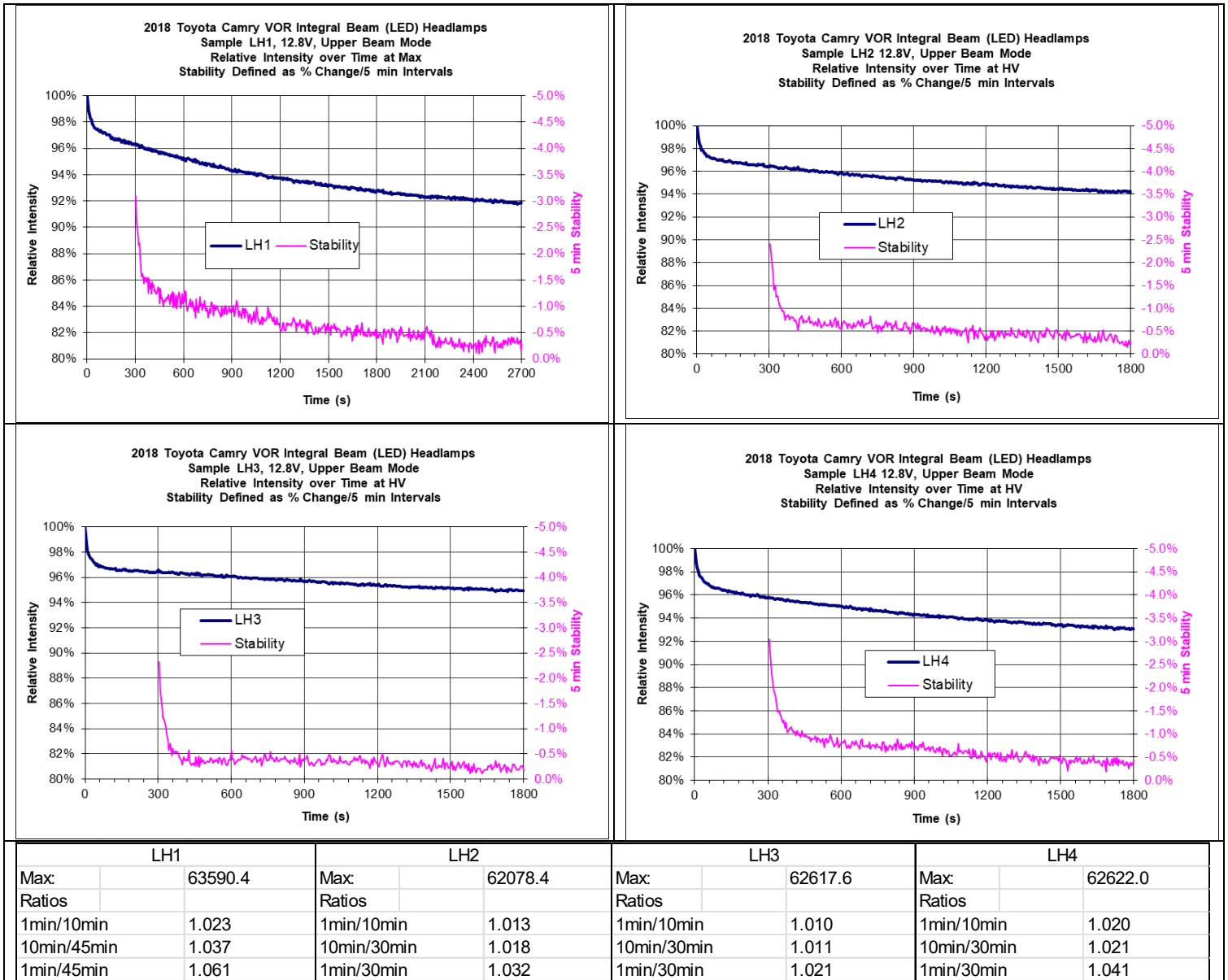
The measured value is consistent with the lens SAE marking of "I" indicating that the Turn Signal center is designed to be greater than 100 mm from the headlamp edge and meet 1.0X Base requirements.



**PHOTOMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1-LH4



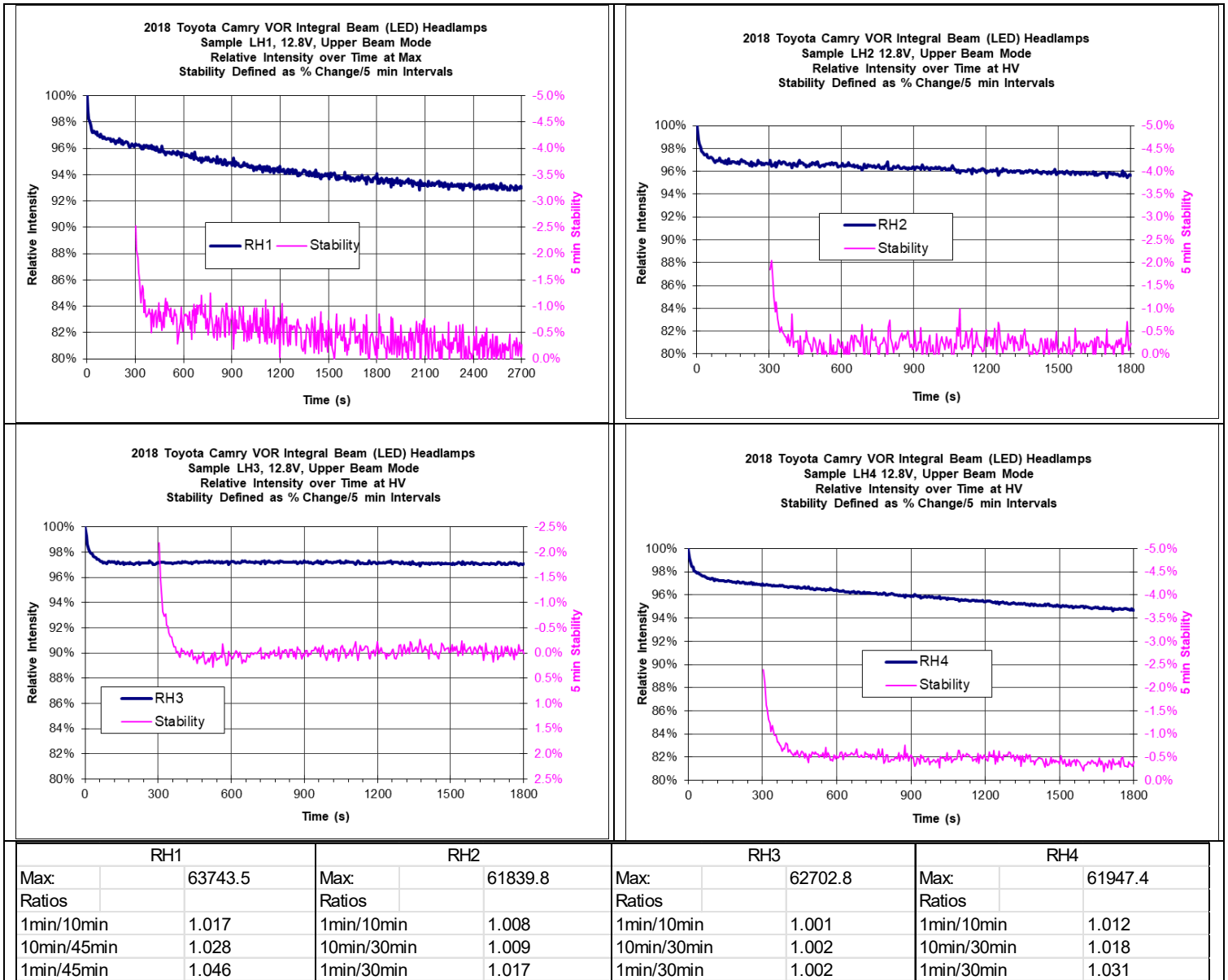
Samples' lower/upper beam LEDs reached 1% stability within 10 minutes of activation



**PHOTOMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1-RH4



Samples' lower/upper beam LEDs reached 1% stability within 10 minutes of activation

**PHOTOMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1 & LH2, Left Hand (VOR Aim)

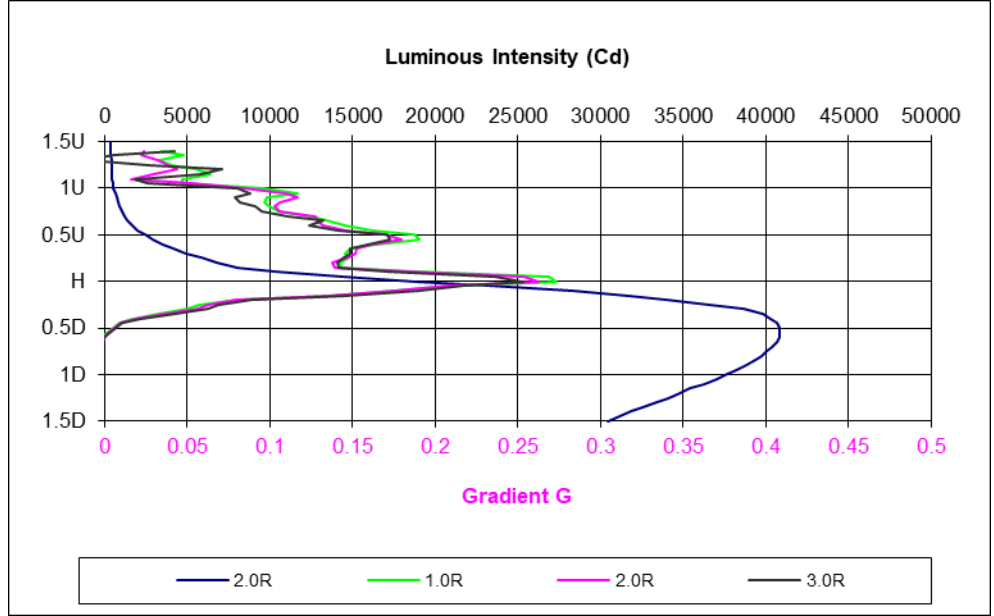
LH1

Maximum Vertical Gradient

Location	Value	Required
H/1.0R	0.273	> 0.13
H/2.0R	0.262	
H/3.0R	0.253	

Horizontal width of cutoff is greater than 2° centered at 2.0R.

Maximum inclination of cutoff is within ±0.2°.



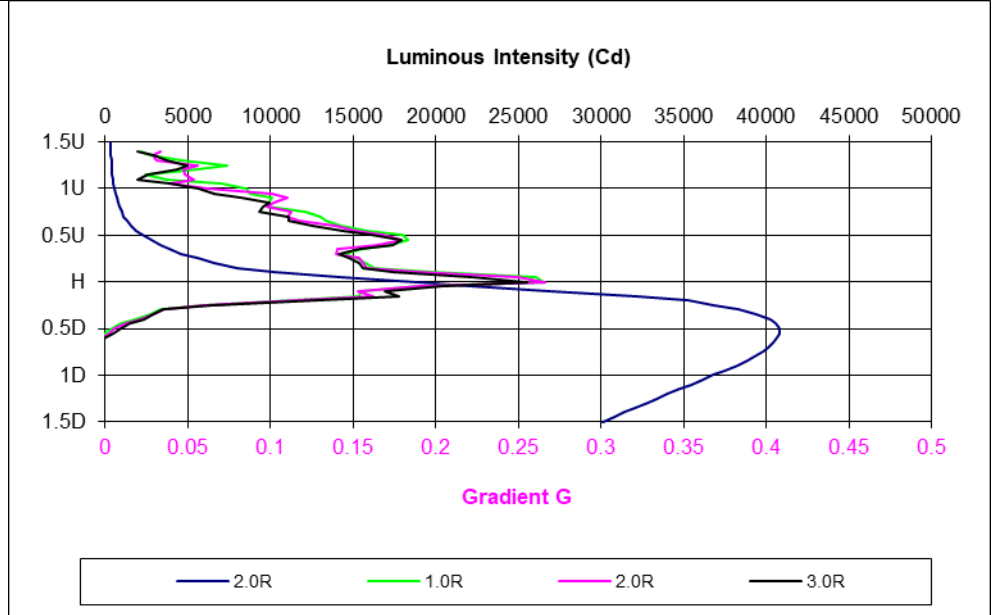
LH2

Maximum Vertical Gradient

Location	Value	Required
H/1.0R	0.266	> 0.13
H/2.0R	0.266	
H/3.0R	0.255	

Horizontal width of cutoff is greater than 2° centered at 2.0R.

Maximum inclination of cutoff is within ±0.2°.



Samples meet S10.18.9 Visual/Optical Aiming cutoff requirements

**PHOTOMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH3 & LH4, Left Hand (VOR Aim)

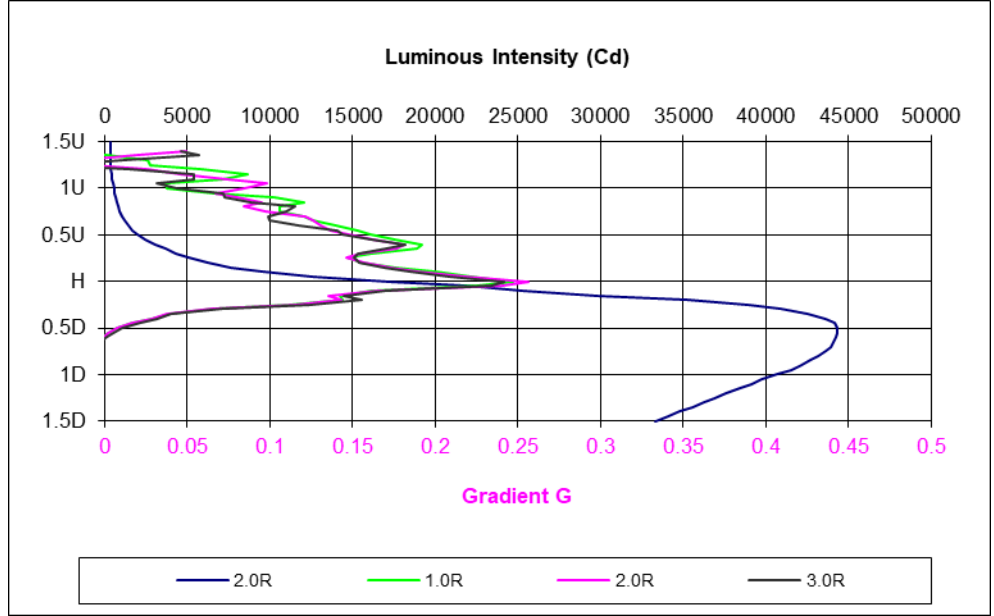
LH3

Maximum Vertical Gradient

Location	Value	Required
0.05U/1.0R	0.247	> 0.13
H/2.0R	0.256	
H/3.0R	0.241	

Horizontal width of cutoff is greater than 2° centered at 2.0R.

Maximum inclination of cutoff is within ±0.2°.



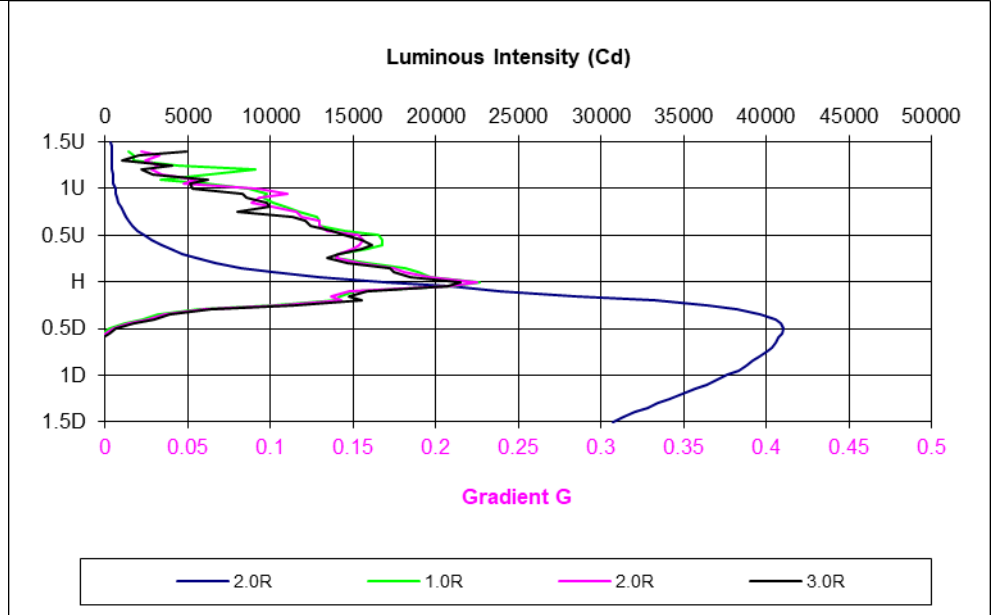
LH4

Maximum Vertical Gradient

Location	Value	Required
H/1.0R	0.227	> 0.13
H/2.0R	0.225	
H/3.0R	0.215	

Horizontal width of cutoff is greater than 2° centered at 2.0R.

Maximum inclination of cutoff is within ±0.2°.



Samples meet S10.18.9 Visual/Optical Aiming cutoff requirements

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
4.0U 8.0L		169.81		64	-
4.0U 8.0R		124.89		64	-
2.0U 4.0L		204.67		135	-
1.5U 1.0R TO 3.0R	3.0R	310.49		200	-
1.5U 1.0R TO R	1.4R	351.59		-	1400
1.0U 1.5L TO L	1.5L	288.60		-	700
0.5U 1.5L TO L	1.5L	789.45		-	1000
0.5U 1.0R TO 3.0R	3.0R	1807.29		500	-
0.5U 1.0R TO 3.0R	1.0R	2514.16		-	2700
H 8.0L		2422.72		64	-
H 4.0L		2464.47		135	-
H V		21066.85		-	-
0.6D 1.3R		46308.27		10000	-
0.9D 3.5L		13842.75	9158.23	1800	12000
0.9D V		48605.65		4500	-
1.5D 2.0R		30582.49		15000	-
2.0D 15.0L		5699.77		1000	-
2.0D 9.0L		10837.35		1250	-
2.0D 9.0R		9165.45		1250	-
2.0D 15.0R		4534.95		1000	-
4.0D 20.0L		2161.82		300	-
4.0D V		6029.61		-	-
4.0D 4.0R		5469.17		-	12500
4.0D 20.0R		1917.05		300	-
MAXIMUM	0.5D 0.2R	52168.61		-	-
MX(10U-90U/90L-90R)	10.0U 10.3L	62.43		-	125

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.012A after 45 min warmup (1% stabilization)  
 Multiply above t = stabilized values by 1.06 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1

Specification: FMVSS108 Table XVIII: UB2 (Headlamp - 2 Lamp System)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
2.0U V		17181.62		1500	-
1.0U 3.0L		41135.03		5000	-
1.0U 3.0R		32361.35		5000	-
H 12.0L		6994.19		1500	-
H 9.0L		12408.17		3000	-
H 6.0L		24576.65		5000	-
H 3.0L		45324.58		15000	-
H V		59149.91		40000	75000
H 3.0R		36435.22		15000	-
H 6.0R		18871.28		5000	-
H 9.0R		7647.79		3000	-
H 12.0R		4773.80		1500	-
1.5D 9.0L		12602.34		2000	-
1.5D V		36453.55		5000	-
1.5D 9.0R		9780.84		2000	-
2.5D 12.0L		6821.41		1000	-
2.5D V		18515.67		2500	-
2.5D 12.0R		5894.63		1000	-
4.0D V		6008.94		-	12000
MAXIMUM	0.1D 0.7L	60229.81		-	-

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.364A after 45 min warmup (includes solenoid)  
 Multiply above t = stabilized values by 1.06 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

## PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH2

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
4.0U 8.0L		141.39		64	-
4.0U 8.0R		115.48		64	-
2.0U 4.0L		195.75		135	-
1.5U 1.0R TO 3.0R	1.7R	312.17		200	-
1.5U 1.0R TO R	3.3R	332.15		-	1400
1.0U 1.5L TO L	1.5L	318.32		-	700
0.5U 1.5L TO L	1.5L	862.33		-	1000
0.5U 1.0R TO 3.0R	3.0R	1840.50		500	-
0.5U 1.0R TO 3.0R	1.0R	2564.59		-	2700
H 8.0L		3104.18		64	-
H 4.0L		3090.46		135	-
H V		21939.03		-	-
0.6D 1.3R		45376.72		10000	-
0.9D 3.5L		14566.33	8294.47	1800	12000
0.9D V		44692.96		4500	-
1.5D 2.0R		30127.93		15000	-
2.0D 15.0L		5790.42		1000	-
2.0D 9.0L		10495.01		1250	-
2.0D 9.0R		9314.26		1250	-
2.0D 15.0R		4841.84		1000	-
4.0D 20.0L		2115.78		300	-
4.0D V		5591.32		-	-
4.0D 4.0R		5284.21		-	12500
4.0D 20.0R		1950.11		300	-
MAXIMUM	0.5D 0.4R	49579.22		-	-
MX(10U-90U/90L-90R)	10.0U 7.7L	66.83		-	125

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.009A after 30 min warmup (1% stabilization)  
Multiply above t = stabilized values by 1.03 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH2

Specification: FMVSS108 Table XVIII: UB2 (Headlamp - 2 Lamp System)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
2.0U V		22414.28		1500	-
1.0U 3.0L		44788.74		5000	-
1.0U 3.0R		35079.32		5000	-
H 12.0L		7014.25		1500	-
H 9.0L		11298.18		3000	-
H 6.0L		24238.06		5000	-
H 3.0L		44372.35		15000	-
H V		58419.40		40000	75000
H 3.0R		38121.65		15000	-
H 6.0R		19653.34		5000	-
H 9.0R		9074.20		3000	-
H 12.0R		5407.84		1500	-
1.5D 9.0L		12332.69		2000	-
1.5D V		34156.10		5000	-
1.5D 9.0R		10521.77		2000	-
2.5D 12.0L		6578.74		1000	-
2.5D V		18042.50		2500	-
2.5D 12.0R		6001.20		1000	-
4.0D V		5538.51		-	12000
MAXIMUM	0.2U 0.3L	59632.35		-	-

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.373A after 30 min warmup (includes solenoid)

Multiply above t = stabilized values by 1.03 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)



**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH3

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
4.0U 8.0L		138.91		64	-
4.0U 8.0R		112.62		64	-
2.0U 4.0L		197.67		135	-
1.5U 1.0R TO 3.0R	3.0R	304.52		200	-
1.5U 1.0R TO R	2.7R	334.99		-	1400
1.0U 1.5L TO L	1.6L	267.22		-	700
0.5U 1.5L TO L	1.5L	640.53		-	1000
0.5U 1.0R TO 3.0R	3.0R	1465.91		500	-
0.5U 1.0R TO 3.0R	1.0R	1921.68		-	2700
H 8.0L		2064.94		64	-
H 4.0L		2335.98		135	-
H V		15488.12		-	-
0.6D 1.3R		49586.78		10000	-
0.9D 3.5L		10671.13		1800	12000
0.9D V		48637.02		4500	-
1.5D 2.0R		33569.49		15000	-
2.0D 15.0L		5718.16		1000	-
2.0D 9.0L		10618.66		1250	-
2.0D 9.0R		10129.73		1250	-
2.0D 15.0R		5170.94		1000	-
4.0D 20.0L		2277.68		300	-
4.0D V		6370.45		-	-
4.0D 4.0R		5863.02		-	12500
4.0D 20.0R		1946.23		300	-
MAXIMUM	0.5D 0.5R	52690.97		-	-
MX(10U-90U/90L-90R)	10.0U 8.2L	63.50		-	125

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.033A after 30 min warmup (1% stabilization)  
 Multiply above t = stabilized values by 1.02 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH3

Specification: FMVSS108 Table XVIII: UB2 (Headlamp - 2 Lamp System)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
2.0U V		15047.05		1500	-
1.0U 3.0L		39092.26		5000	-
1.0U 3.0R		36693.36		5000	-
H 12.0L		5504.01		1500	-
H 9.0L		9944.46		3000	-
H 6.0L		23050.10		5000	-
H 3.0L		43853.93		15000	-
H V		60010.89		40000	75000
H 3.0R		40995.74		15000	-
H 6.0R		20641.71		5000	-
H 9.0R		9607.51		3000	-
H 12.0R		5205.99		1500	-
1.5D 9.0L		11919.21		2000	-
1.5D V		39180.13		5000	-
1.5D 9.0R		11192.75		2000	-
2.5D 12.0L		6863.40		1000	-
2.5D V		21049.24		2500	-
2.5D 12.0R		6357.03		1000	-
4.0D V		6465.86		-	12000
MAXIMUM	0.1D 0.2L	60583.52		-	-

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.401A after 30 min warmup (includes solenoid)  
 Multiply above t = stabilized values by 1.02 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH4

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
4.0U 8.0L		141.32		64	-
4.0U 8.0R		118.11		64	-
2.0U 4.0L		219.82		135	-
1.5U 1.0R TO 3.0R	3.0R	316.53		200	-
1.5U 1.0R TO R	2.4R	363.68		-	1400
1.0U 1.5L TO L	1.5L	314.89		-	700
0.5U 1.5L TO L	1.5L	818.47		-	1000
0.5U 1.0R TO 3.0R	3.0R	1835.40		500	-
0.5U 1.0R TO 3.0R	1.0R	2484.13		-	2700
H 8.0L		2697.86		64	-
H 4.0L		2688.43		135	-
H V		18714.11		-	-
0.6D 1.3R		46285.09		10000	-
0.9D 3.5L		12711.92	7464.04	1800	12000
0.9D V		47261.02		4500	-
1.5D 2.0R		30936.01		15000	-
2.0D 15.0L		5618.35		1000	-
2.0D 9.0L		10227.40		1250	-
2.0D 9.0R		9209.99		1250	-
2.0D 15.0R		4673.57		1000	-
4.0D 20.0L		2079.67		300	-
4.0D V		5712.32		-	-
4.0D 4.0R		5300.59		-	12500
4.0D 20.0R		1887.60		300	-
MAXIMUM	0.5D 0.4R	50887.59		-	-
MX(10U-90U/90L-90R)	10.0U 9.6L	62.01		-	125

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.013A after 30 min warmup (1% stabilization)  
Multiply above t = stabilized values by 1.04 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH4

Specification: FMVSS108 Table XVIII: UB2 (Headlamp - 2 Lamp System)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
2.0U V		16721.38		1500	-
1.0U 3.0L		41164.87		5000	-
1.0U 3.0R		34719.46		5000	-
H 12.0L		6376.56		1500	-
H 9.0L		11234.52		3000	-
H 6.0L		24161.56		5000	-
H 3.0L		45342.60		15000	-
H V		58796.12		40000	75000
H 3.0R		38313.64		15000	-
H 6.0R		19403.29		5000	-
H 9.0R		8570.57		3000	-
H 12.0R		4906.65		1500	-
1.5D 9.0L		11753.97		2000	-
1.5D V		36760.67		5000	-
1.5D 9.0R		10149.77		2000	-
2.5D 12.0L		6350.24		1000	-
2.5D V		19335.74		2500	-
2.5D 12.0R		5931.59		1000	-
4.0D V		5927.69		-	12000
MAXIMUM	H 0.3L	59643.95		-	-

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.379A after 30 min warmup (includes solenoid)  
 Multiply above t = stabilized values by 1.04 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1 & RH2, Right Hand (VOR Aim)

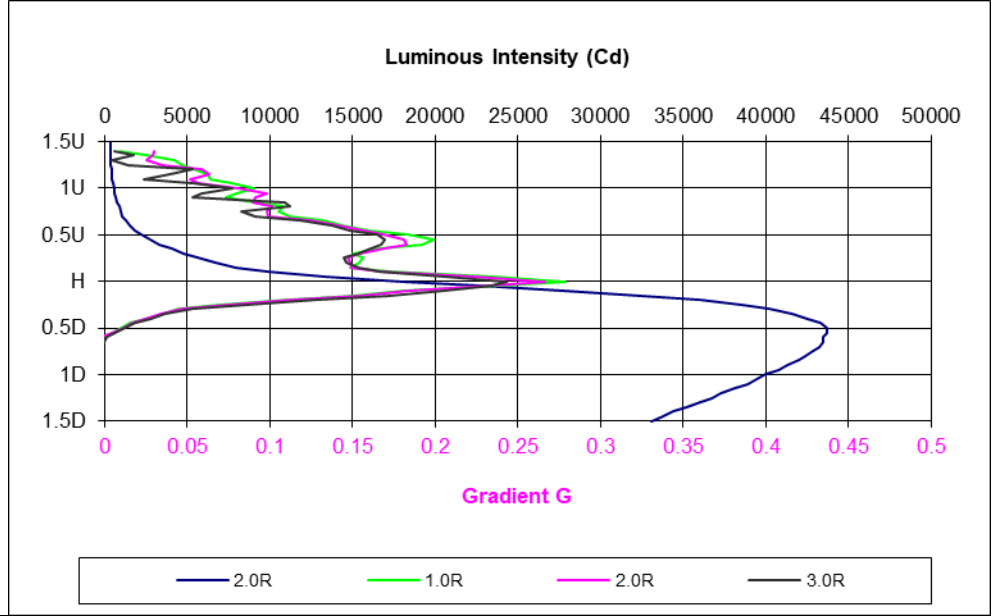
RH1

Maximum Vertical Gradient

Location	Value	Required
H/1.0R	0.279	> 0.13
H/2.0R	0.266	
H/3.0R	0.243	

Horizontal width of cutoff is greater than 2° centered at 2.0R.

Maximum inclination of cutoff is within ±0.2°.



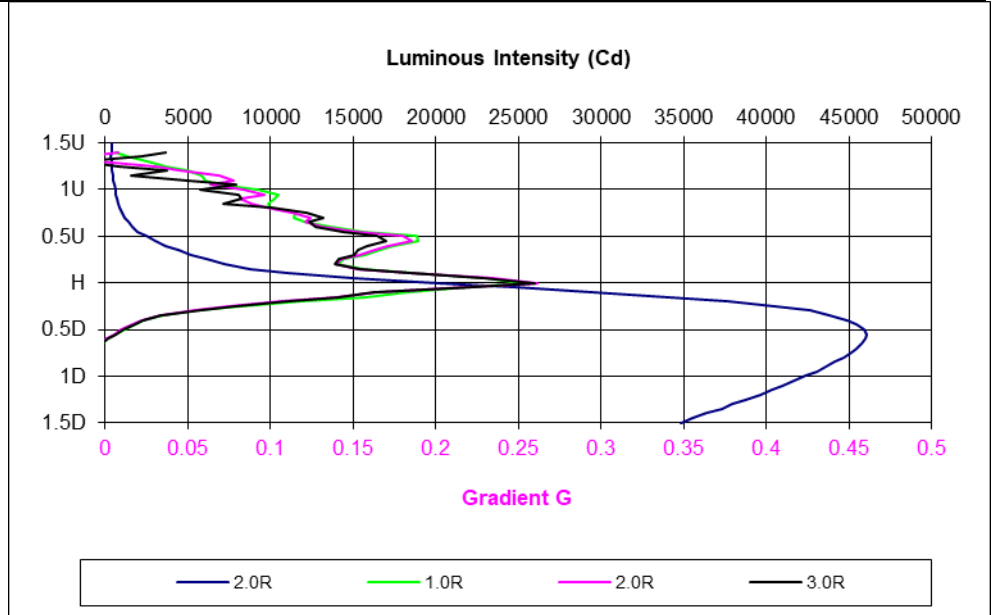
RH2

Maximum Vertical Gradient

Location	Value	Required
H/1.0R	0.252	> 0.13
H/2.0R	0.262	
H/3.0R	0.260	

Horizontal width of cutoff is greater than 2° centered at 2.0R.

Maximum inclination of cutoff is within ±0.2°.



Samples meet S10.18.9 Visual/Optical Aiming cutoff requirements

**PHOTOMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH3 & RH4, Right Hand (VOR Aim)

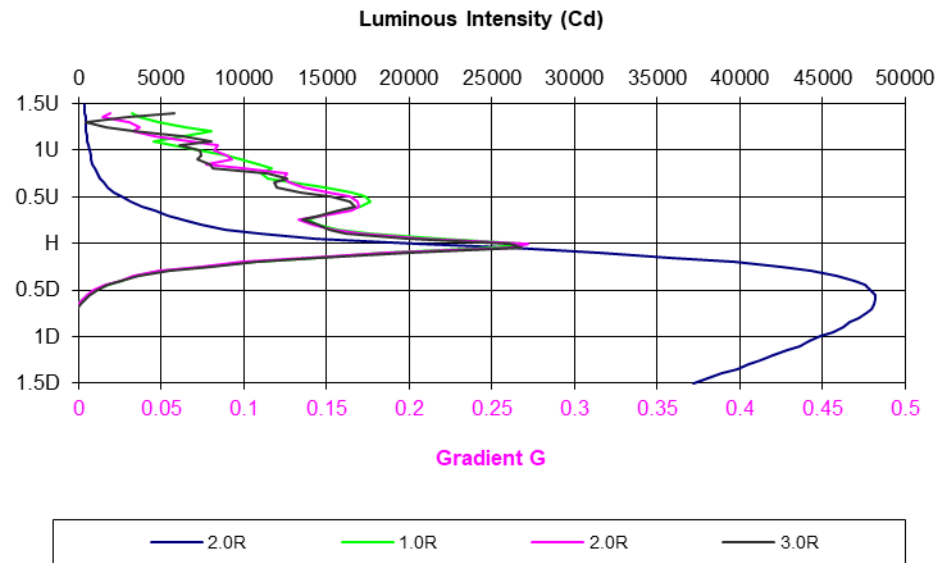
RH3

Maximum Vertical Gradient

Location	Value	Required
H/1.0R	0.270	> 0.13
H/2.0R	0.272	
0.05D/3.0R	0.268	

Horizontal width of cutoff is greater than 2° centered at 2.0R.

Maximum inclination of cutoff is within ±0.2°.



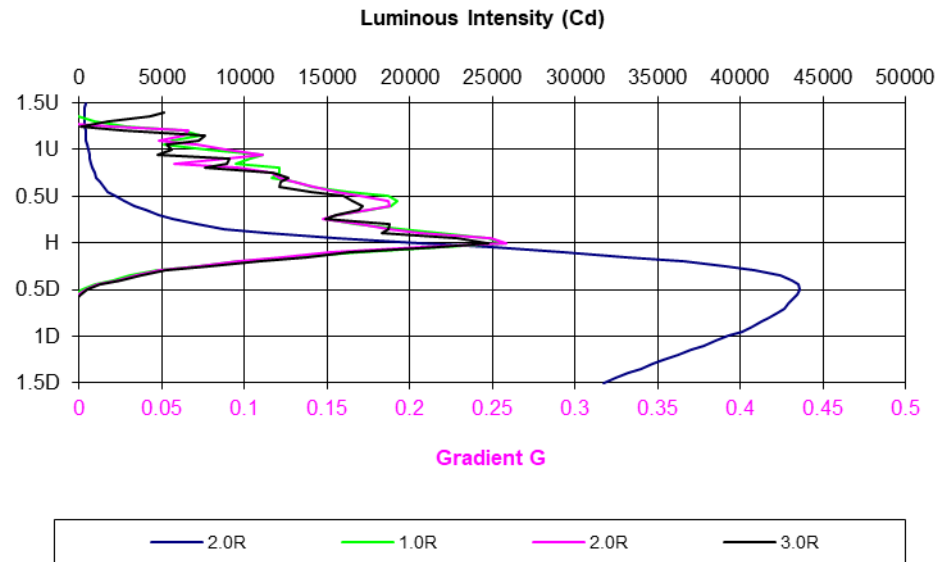
RH4

Maximum Vertical Gradient

Location	Value	Required
H/1.0R	0.257	> 0.13
H/2.0R	0.258	
H/3.0R	0.247	

Horizontal width of cutoff is greater than 2° centered at 2.0R.

Maximum inclination of cutoff is within ±0.2°.



Samples meet S10.18.9 Visual/Optical Aiming cutoff requirements

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
4.0U 8.0L		127.39		64	-
4.0U 8.0R		128.38		64	-
2.0U 4.0L		210.47		135	-
1.5U 1.0R TO 3.0R	2.0R	312.03		200	-
1.5U 1.0R TO R	4.7R	347.56		-	1400
1.0U 1.5L TO L	1.5L	260.34		-	700
0.5U 1.5L TO L	1.7L	691.56		-	1000
0.5U 1.0R TO 3.0R	3.0R	1780.57		500	-
0.5U 1.0R TO 3.0R	1.0R	2322.78		-	2700
H 8.0L		2687.10		64	-
H 4.0L		2585.15		135	-
H V		17509.35		-	-
0.6D 1.3R		48989.05		10000	-
0.9D 3.5L		13785.07	8361.31	1800	12000
0.9D V		47226.63		4500	-
1.5D 2.0R		33130.86		15000	-
2.0D 15.0L		5282.52		1000	-
2.0D 9.0L		9977.42		1250	-
2.0D 9.0R		10742.19		1250	-
2.0D 15.0R		5261.28		1000	-
4.0D 20.0L		1894.41		300	-
4.0D V		5929.89		-	-
4.0D 4.0R		6031.43		-	12500
4.0D 20.0R		2342.07		300	-
MAXIMUM	0.6D 0.4R	52145.48		-	-
MX(10U-90U/90L-90R)	10.0U 9.1R	68.58		-	125

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 1.992A after 45 min warmup (1% stabilization)  
Multiply above t = stabilized values by 1.05 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)



**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1

Specification: FMVSS108 Table XVIII: UB2 (Headlamp - 2 Lamp System)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		61563.27		-	-
2.0U	V	20437.76		1500	-
1.0U	3.0L	36889.93		5000	-
1.0U	3.0R	35894.19		5000	-
H	12.0L	6254.53		1500	-
H	9.0L	10235.10		3000	-
H	6.0L	22931.51		5000	-
H	3.0L	42704.47		15000	-
H	V	61563.27		40000	75000
H	3.0R	40741.40		15000	-
H	6.0R	20998.12		5000	-
H	9.0R	9395.11		3000	-
H	12.0R	5296.61		1500	-
1.5D	9.0L	11474.83		2000	-
1.5D	V	36388.58		5000	-
1.5D	9.0R	11154.57		2000	-
2.5D	12.0L	6321.00		1000	-
2.5D	V	19467.16		2500	-
2.5D	12.0R	6926.38		1000	-
4.0D	V	5919.14		-	12000
H	V	61563.27		-	-
MAXIMUM	0.4D	V	62205.79	-	-

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.339A after 45 min warmup (includes solenoid)  
Multiply above t = stabilized values by 1.05 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

## PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH2

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V			13572.89		-	-
4.0U	8.0L			128.50		64	-
4.0U	8.0R			150.91		64	-
2.0U	4.0L			196.51		135	-
1.5U	1.0R TO	3.0R	2.4R	323.88		200	-
1.5U	1.0R TO		R	3.3R		-	1400
1.0U	1.5L TO		L	1.6L		-	700
0.5U	1.5L TO		L	1.6L		-	1000
0.5U	1.0R TO	3.0R	3.0R	2038.50		500	-
0.5U	1.0R TO	3.0R	1.3R	2430.96		-	2700
H	8.0L			2152.84		64	-
H	4.0L			2292.73		135	-
0.6D	1.3R			50649.52		10000	-
0.9D	3.5L			11203.32		1800	12000
0.9D	V			46036.68		4500	-
1.5D	2.0R			34868.73		15000	-
2.0D	15.0L			5125.52		1000	-
2.0D	9.0L			9266.84		1250	-
2.0D	9.0R			10543.88		1250	-
2.0D	15.0R			5360.48		1000	-
4.0D	20.0L			1895.96		300	-
4.0D	V			6194.20		-	-
4.0D	4.0R			6051.60		-	12500
4.0D	20.0R			2198.62		300	-
MAXIMUM		0.6D	0.8R	52440.20		-	-
MX(10U-90U/90L-90R)		10.0U	8.1R	65.39		-	125
H	V			13121.67		-	-

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.032A after 30 min warmup (1% stabilization)  
Multiply above t = stabilized values by 1.02 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH2

Specification: FMVSS108 Table XVIII: UB2 (Headlamp - 2 Lamp System)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		58693.70		40000	75000
2.0U	V	14562.34		1500	-
1.0U	3.0L	34263.12		5000	-
1.0U	3.0R	37065.00		5000	-
H	12.0L	5920.43		1500	-
H	9.0L	10073.84		3000	-
H	6.0L	21571.69		5000	-
H	3.0L	40549.94		15000	-
H	V	58689.78		40000	75000
H	3.0R	43361.45		15000	-
H	6.0R	22629.54		5000	-
H	9.0R	10347.06		3000	-
H	12.0R	5758.12		1500	-
1.5D	9.0L	10946.29		2000	-
1.5D	V	39119.06		5000	-
1.5D	9.0R	11324.71		2000	-
2.5D	12.0L	6212.42		1000	-
2.5D	V	20581.01		2500	-
2.5D	12.0R	6654.72		1000	-
4.0D	V	6242.65		-	12000
MAXIMUM	0.1D 0.3R	59477.44		-	-
H	V	58753.84		40000	75000

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.393A after 30 min warmup (includes solenoid)  
 Multiply above t = stabilized values by 1.02 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

## PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH3

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V			12382.75		-	-
4.0U	8.0L			139.48		64	-
4.0U	8.0R			148.65		64	-
2.0U	4.0L			179.31		135	-
1.5U	1.0R TO	3.0R	2.3R	336.40		200	-
1.5U	1.0R TO		R	3.3R		-	1400
1.0U	1.5L TO		L	1.5L		-	700
0.5U	1.5L TO		L	1.5L		-	1000
0.5U	1.0R TO	3.0R	3.0R	2117.43		500	-
0.5U	1.0R TO	3.0R	1.1R	2691.07		-	2700
H	8.0L			2308.52		64	-
H	4.0L			2576.36		135	-
0.6D	1.3R			53213.29		10000	-
0.9D	3.5L			11706.96		1800	12000
0.9D	V			47948.54		4500	-
1.5D	2.0R			37141.27		15000	-
2.0D	15.0L			5247.04		1000	-
2.0D	9.0L			9872.10		1250	-
2.0D	9.0R			11378.02		1250	-
2.0D	15.0R			5573.13		1000	-
4.0D	20.0L			1943.77		300	-
4.0D	V			6404.05		-	-
4.0D	4.0R			6127.45		-	12500
4.0D	20.0R			2235.44		300	-
MAXIMUM		0.6D	0.6R	54835.37		-	-
MX(10U-90U/90L-90R)		10.0U	9.3R	67.54		-	125
H	V			11662.83		-	-

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.041A after 30 min warmup (1% stabilization)  
Multiply above t = stabilized values by 1.00 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH3

Specification: FMVSS108 Table XVIII: UB2 (Headlamp - 2 Lamp System)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		60153.12		40000	75000
2.0U	V	11993.57		1500	-
1.0U	3.0L	37555.35		5000	-
1.0U	3.0R	36960.59		5000	-
H	12.0L	5476.67		1500	-
H	9.0L	9554.29		3000	-
H	6.0L	20989.67		5000	-
H	3.0L	40375.23		15000	-
H	V	60124.22		40000	75000
H	3.0R	43893.08		15000	-
H	6.0R	22834.63		5000	-
H	9.0R	10089.44		3000	-
H	12.0R	5368.43		1500	-
1.5D	9.0L	11341.50		2000	-
1.5D	V	42397.50		5000	-
1.5D	9.0R	11702.92		2000	-
2.5D	12.0L	6327.39		1000	-
2.5D	V	21631.32		2500	-
2.5D	12.0R	6877.62		1000	-
4.0D	V	6530.55		-	12000
MAXIMUM	0.1D 0.2L	61040.52		-	-
H	V	60091.77		40000	75000

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.404A after 30 min warmup (includes solenoid)  
Multiply above t = stabilized values by 1.00 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

## PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH4

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V			16786.26		-	-
4.0U	8.0L			147.81		64	-
4.0U	8.0R			152.17		64	-
2.0U	4.0L			198.10		135	-
1.5U	1.0R TO	3.0R	2.2R	290.06		200	-
1.5U	1.0R TO		R	1.1R	316.37	-	1400
1.0U	1.5L TO		L	1.5L	239.06	-	700
0.5U	1.5L TO		L	1.5L	598.23	-	1000
0.5U	1.0R TO	3.0R	3.0R	1624.38		500	-
0.5U	1.0R TO	3.0R	1.0R	1977.99		-	2700
H	8.0L			2064.56		64	-
H	4.0L			2414.79		135	-
0.6D	1.3R			47865.12		10000	-
0.9D	3.5L			10906.58		1800	12000
0.9D	V			44237.28		4500	-
1.5D	2.0R			32146.67		15000	-
2.0D	15.0L			5144.73		1000	-
2.0D	9.0L			9295.69		1250	-
2.0D	9.0R			10314.32		1250	-
2.0D	15.0R			5279.44		1000	-
4.0D	20.0L			1954.21		300	-
4.0D	V			6003.43		-	-
4.0D	4.0R			5942.91		-	12500
4.0D	20.0R			2136.64		300	-
MAXIMUM		0.5D	0.8R	50282.43		-	-
MX(10U-90U/90L-90R)		10.0U	8.7R	67.94		-	125
H	V			12601.84		-	-

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.043A after 30 min warmup (1% stabilization)  
Multiply above t = stabilized values by 1.03 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH4

Specification: FMVSS108 Table XVIII: UB2 (Headlamp - 2 Lamp System)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		58685.33		40000	75000
2.0U	V	19110.57		1500	-
1.0U	3.0L	36116.82		5000	-
1.0U	3.0R	37001.24		5000	-
H	12.0L	5637.39		1500	-
H	9.0L	9558.62		3000	-
H	6.0L	21793.72		5000	-
H	3.0L	41180.83		15000	-
H	V	58742.27		40000	75000
H	3.0R	41173.56		15000	-
H	6.0R	21793.10		5000	-
H	9.0R	10085.27		3000	-
H	12.0R	5868.65		1500	-
1.5D	9.0L	11247.98		2000	-
1.5D	V	36128.03		5000	-
1.5D	9.0R	11194.14		2000	-
2.5D	12.0L	6220.40		1000	-
2.5D	V	19875.79		2500	-
2.5D	12.0R	6536.36		1000	-
4.0D	V	6149.31		-	12000
MAXIMUM	0.1U 0.1R	59011.77		-	-
H	V	58765.36		40000	75000

Sample meets test requirements at all points.

Bulb: Seasoned LEDs @ 12.80V / 2.407A after 30 min warmup (includes solenoid)  
Multiply above t = stabilized values by 1.03 to acquire t = 1 minute values

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with HV aligned with the optical axis mark and LED located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim)



## PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp

Color: Yellow, 1 Lighted Section - Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		376.87		40	-
10.0U 5.0R		250.45		40	-
5.0U 20.0L		47.27		25	-
5.0U 10.0L		396.87		75	-
5.0U V		381.76		175	-
5.0U 10.0R		317.55		75	-
5.0U 20.0R		225.01		25	-
H 10.0L		402.29		100	-
H 5.0L		449.56		200	-
H V		419.20		200	-
H 5.0R		381.88		200	-
H 10.0R		357.04		100	-
5.0D 20.0L		44.97		25	-
5.0D 10.0L		348.18		75	-
5.0D V		341.14		175	-
5.0D 10.0R		339.53		75	-
5.0D 20.0R		201.57		25	-
5.0D 5.0L		357.24		40	-
5.0D 5.0R		324.01		40	-
MAXIMUM	2.0U 4.8L	480.60		-	-
Zone 1		826.35		130	-
Zone 2		1147.34		250	-
Zone 3		1973.54		950	-
Zone 4		1014.12		250	-
Zone 5		1001.04		130	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.51V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH2

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp

Color: Yellow, 1 Lighted Section - Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		345.91		40	-
10.0U 5.0R		272.66		40	-
5.0U 20.0L		47.97		25	-
5.0U 10.0L		488.81		75	-
5.0U V		419.64		175	-
5.0U 10.0R		336.96		75	-
5.0U 20.0R		214.12		25	-
H 10.0L		460.94		100	-
H 5.0L		469.81		200	-
H V		442.56		200	-
H 5.0R		405.86		200	-
H 10.0R		372.46		100	-
5.0D 20.0L		39.74		25	-
5.0D 10.0L		334.77		75	-
5.0D V		337.83		175	-
5.0D 10.0R		324.34		75	-
5.0D 20.0R		170.67		25	-
5.0D 5.0L		333.53		40	-
5.0D 5.0R		323.39		40	-
MAXIMUM	0.7U 5.3L	469.84		-	-
Zone 1		767.15		130	-
Zone 2		1284.52		250	-
Zone 3		2075.70		950	-
Zone 4		1033.76		250	-
Zone 5		980.84		130	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.51V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH3

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp

Color: Yellow, 1 Lighted Section - Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		408.52		40	-
10.0U 5.0R		264.02		40	-
5.0U 20.0L		49.03		25	-
5.0U 10.0L		498.31		75	-
5.0U V		394.16		175	-
5.0U 10.0R		330.76		75	-
5.0U 20.0R		218.41		25	-
H 10.0L		461.50		100	-
H 5.0L		455.84		200	-
H V		436.05		200	-
H 5.0R		385.14		200	-
H 10.0R		361.17		100	-
5.0D 20.0L		41.05		25	-
5.0D 10.0L		354.24		75	-
5.0D V		326.00		175	-
5.0D 10.0R		304.08		75	-
5.0D 20.0R		175.81		25	-
5.0D 5.0L		325.88		40	-
5.0D 5.0R		295.60		40	-
MAXIMUM	0.5U 4.7L	473.94		-	-
Zone 1		824.48		130	-
Zone 2		1314.05		250	-
Zone 3		1997.18		950	-
Zone 4		996.01		250	-
Zone 5		953.85		130	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.52V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH4

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp

Color: Yellow, 1 Lighted Section - Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		283.35		40	-
10.0U 5.0R		203.73		40	-
5.0U 20.0L		46.95		25	-
5.0U 10.0L		343.75		75	-
5.0U V		366.95		175	-
5.0U 10.0R		292.15		75	-
5.0U 20.0R		207.27		25	-
H 10.0L		332.81		100	-
H 5.0L		470.24		200	-
H V		418.84		200	-
H 5.0R		375.83		200	-
H 10.0R		329.14		100	-
5.0D 20.0L		48.55		25	-
5.0D 10.0L		305.80		75	-
5.0D V		385.37		175	-
5.0D 10.0R		344.33		75	-
5.0D 20.0R		197.98		25	-
5.0D 5.0L		395.82		40	-
5.0D 5.0R		366.10		40	-
MAXIMUM	0.2U 4.9L	467.59		-	-
Zone 1		774.67		130	-
Zone 2		982.36		250	-
Zone 3		2017.23		950	-
Zone 4		965.61		250	-
Zone 5		975.08		130	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.50V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp

Color: Yellow, 1 Lighted Section - Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		209.23		40	-
10.0U 5.0R		237.68		40	-
5.0U 20.0L		226.21		25	-
5.0U 10.0L		293.33		75	-
5.0U V		385.47		175	-
5.0U 10.0R		385.12		75	-
5.0U 20.0R		41.74		25	-
H 10.0L		339.43		100	-
H 5.0L		386.60		200	-
H V		430.84		200	-
H 5.0R		449.69		200	-
H 10.0R		379.51		100	-
5.0D 20.0L		203.76		25	-
5.0D 10.0L		392.47		75	-
5.0D V		432.07		175	-
5.0D 10.0R		325.72		75	-
5.0D 20.0R		40.75		25	-
5.0D 5.0L		403.06		40	-
5.0D 5.0R		416.08		40	-
MAXIMUM	2.4D 2.4R	475.78		-	-
Zone 1		1042.25		130	-
Zone 2		1025.23		250	-
Zone 3		2084.67		950	-
Zone 4		1090.34		250	-
Zone 5		736.25		130	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.55V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH2

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp

Color: Yellow, 1 Lighted Section - Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		214.04		40	-
10.0U 5.0R		263.64		40	-
5.0U 20.0L		224.29		25	-
5.0U 10.0L		292.30		75	-
5.0U V		405.50		175	-
5.0U 10.0R		397.37		75	-
5.0U 20.0R		42.27		25	-
H 10.0L		335.52		100	-
H 5.0L		393.76		200	-
H V		431.31		200	-
H 5.0R		470.19		200	-
H 10.0R		396.80		100	-
5.0D 20.0L		208.77		25	-
5.0D 10.0L		387.65		75	-
5.0D V		418.74		175	-
5.0D 10.0R		334.46		75	-
5.0D 20.0R		40.18		25	-
5.0D 5.0L		390.67		40	-
5.0D 5.0R		412.61		40	-
MAXIMUM	2.2D 2.3R	468.98		-	-
Zone 1		1037.77		130	-
Zone 2		1015.47		250	-
Zone 3		2119.50		950	-
Zone 4		1128.63		250	-
Zone 5		758.71		130	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.52V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH3

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp

Color: Yellow, 1 Lighted Section - Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		197.99		40	-
10.0U 5.0R		219.72		40	-
5.0U 20.0L		207.93		25	-
5.0U 10.0L		275.57		75	-
5.0U V		396.72		175	-
5.0U 10.0R		432.51		75	-
5.0U 20.0R		46.77		25	-
H 10.0L		326.70		100	-
H 5.0L		398.88		200	-
H V		452.52		200	-
H 5.0R		451.18		200	-
H 10.0R		482.30		100	-
5.0D 20.0L		202.04		25	-
5.0D 10.0L		318.01		75	-
5.0D V		440.50		175	-
5.0D 10.0R		428.75		75	-
5.0D 20.0R		43.87		25	-
5.0D 5.0L		419.63		40	-
5.0D 5.0R		411.71		40	-
MAXIMUM	2.5D 2.5R	472.03		-	-
Zone 1		1027.59		130	-
Zone 2		920.29		250	-
Zone 3		2139.80		950	-
Zone 4		1343.56		250	-
Zone 5		722.08		130	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.48V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.



**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH4

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp

Color: Yellow, 1 Lighted Section - Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		212.84		40	-
10.0U 5.0R		284.25		40	-
5.0U 20.0L		221.33		25	-
5.0U 10.0L		293.15		75	-
5.0U V		383.01		175	-
5.0U 10.0R		342.03		75	-
5.0U 20.0R		42.47		25	-
H 10.0L		332.56		100	-
H 5.0L		391.88		200	-
H V		430.99		200	-
H 5.0R		449.93		200	-
H 10.0R		337.28		100	-
5.0D 20.0L		207.93		25	-
5.0D 10.0L		351.33		75	-
5.0D V		406.65		175	-
5.0D 10.0R		283.23		75	-
5.0D 20.0R		45.62		25	-
5.0D 5.0L		352.66		40	-
5.0D 5.0R		397.02		40	-
MAXIMUM	0.5U 4.6R	465.29		-	-
Zone 1		994.76		130	-
Zone 2		977.04		250	-
Zone 3		2062.47		950	-
Zone 4		962.54		250	-
Zone 5		769.36		130	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.47V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1

Specification: FMVSS 108 Table XIV: Parking Lamp

Color: Yellow, Lamp mounted &lt;750mm above road surface

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		21.50		0.8	125.0
10.0U 5.0R		18.62		0.8	125.0
5.0U 20.0L		4.00		0.4	125.0
5.0U 10.0L		25.90		0.8	125.0
5.0U V		31.38		2.8	125.0
5.0U 10.0R		22.60		0.8	125.0
5.0U 20.0R		6.61		0.4	125.0
H 10.0L		25.60		1.4	125.0
H 5.0L		31.45		3.6	125.0
H V		36.27		4.0	125.0
H 5.0R		29.75		3.6	125.0
H 10.0R		25.13		1.4	125.0
5.0D 20.0L		3.46		0.4	250.0
5.0D 10.0L		21.57		0.8	250.0
5.0D V		28.47		2.8	250.0
5.0D 10.0R		22.10		0.8	250.0
5.0D 20.0R		10.23		0.4	250.0
5.0D 5.0L		22.28		0.8	250.0
5.0D 5.0R		23.85		0.8	250.0
MX (H-90U/45L-45R)	0.3U 0.1R	36.45		-	-
MX (5D-H/45L-45R)	H 0.1R	35.57		-	250.0
Zone 1		51.24		2.4	-
Zone 2		73.07		3.0	-
Zone 3		157.33		16.8	-
Zone 4		69.83		3.0	-
Zone 5		59.31		2.4	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.05V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH2

Specification: FMVSS 108 Table XIV: Parking Lamp

Color: Yellow, Lamp mounted &lt;750mm above road surface

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		21.99		0.8	125.0
10.0U 5.0R		18.75		0.8	125.0
5.0U 20.0L		7.83		0.4	125.0
5.0U 10.0L		28.41		0.8	125.0
5.0U V		30.05		2.8	125.0
5.0U 10.0R		20.79		0.8	125.0
5.0U 20.0R		8.32		0.4	125.0
H 10.0L		28.42		1.4	125.0
H 5.0L		29.91		3.6	125.0
H V		33.02		4.0	125.0
H 5.0R		28.84		3.6	125.0
H 10.0R		21.00		1.4	125.0
5.0D 20.0L		6.33		0.4	250.0
5.0D 10.0L		23.15		0.8	250.0
5.0D V		26.25		2.8	250.0
5.0D 10.0R		15.83		0.8	250.0
5.0D 20.0R		5.47		0.4	250.0
5.0D 5.0L		22.27		0.8	250.0
5.0D 5.0R		22.07		0.8	250.0
MX (H-90U/45L-45R)	0.8U 0.8L	35.63		-	-
MX (5D-H/45L-45R)	H 0.4L	34.32		-	250.0
Zone 1		58.42		2.4	-
Zone 2		79.98		3.0	-
Zone 3		148.08		16.8	-
Zone 4		57.62		3.0	-
Zone 5		54.60		2.4	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.01V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH3

Specification: FMVSS 108 Table XIV: Parking Lamp

Color: Yellow, Lamp mounted &lt;750mm above road surface

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		22.88		0.8	125.0
10.0U 5.0R		19.30		0.8	125.0
5.0U 20.0L		5.59		0.4	125.0
5.0U 10.0L		33.32		0.8	125.0
5.0U V		31.62		2.8	125.0
5.0U 10.0R		21.94		0.8	125.0
5.0U 20.0R		8.05		0.4	125.0
H 10.0L		31.93		1.4	125.0
H 5.0L		33.14		3.6	125.0
H V		35.79		4.0	125.0
H 5.0R		29.14		3.6	125.0
H 10.0R		23.85		1.4	125.0
5.0D 20.0L		5.56		0.4	250.0
5.0D 10.0L		24.47		0.8	250.0
5.0D V		27.43		2.8	250.0
5.0D 10.0R		18.57		0.8	250.0
5.0D 20.0R		6.41		0.4	250.0
5.0D 5.0L		23.45		0.8	250.0
5.0D 5.0R		22.48		0.8	250.0
MX (H-90U/45L-45R)	1.2U 0.2L	37.50		-	-
MX (5D-H/45L-45R)	H 0.4L	35.68		-	250.0
Zone 1		57.49		2.4	-
Zone 2		89.71		3.0	-
Zone 3		157.13		16.8	-
Zone 4		64.36		3.0	-
Zone 5		56.23		2.4	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.02V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH4

Specification: FMVSS 108 Table XIV: Parking Lamp

Color: Yellow, Lamp mounted &lt;750mm above road surface

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		16.23		0.8	125.0
10.0U 5.0R		15.78		0.8	125.0
5.0U 20.0L		3.71		0.4	125.0
5.0U 10.0L		22.22		0.8	125.0
5.0U V		26.60		2.8	125.0
5.0U 10.0R		18.20		0.8	125.0
5.0U 20.0R		6.07		0.4	125.0
H 10.0L		23.56		1.4	125.0
H 5.0L		28.22		3.6	125.0
H V		31.96		4.0	125.0
H 5.0R		26.06		3.6	125.0
H 10.0R		23.37		1.4	125.0
5.0D 20.0L		3.19		0.4	250.0
5.0D 10.0L		20.67		0.8	250.0
5.0D V		29.01		2.8	250.0
5.0D 10.0R		22.71		0.8	250.0
5.0D 20.0R		8.76		0.4	250.0
5.0D 5.0L		21.09		0.8	250.0
5.0D 5.0R		23.57		0.8	250.0
MX (H-90U/45L-45R)	0.2U 0.3L	33.33		-	-
MX (5D-H/45L-45R)	0.1D 0.1L	33.32		-	250.0
Zone 1		44.22		2.4	-
Zone 2		66.45		3.0	-
Zone 3		141.85		16.8	-
Zone 4		64.28		3.0	-
Zone 5		54.17		2.4	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.01V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1

Specification: FMVSS 108 Table XIV: Parking Lamp

Color: Yellow, Lamp mounted &lt;750mm above road surface

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		16.95		0.8	125.0
10.0U 5.0R		17.38		0.8	125.0
5.0U 20.0L		5.95		0.4	125.0
5.0U 10.0L		18.58		0.8	125.0
5.0U V		25.49		2.8	125.0
5.0U 10.0R		24.51		0.8	125.0
5.0U 20.0R		3.36		0.4	125.0
H 10.0L		21.61		1.4	125.0
H 5.0L		30.53		3.6	125.0
H V		31.72		4.0	125.0
H 5.0R		28.22		3.6	125.0
H 10.0R		26.59		1.4	125.0
5.0D 20.0L		6.78		0.4	250.0
5.0D 10.0L		21.01		0.8	250.0
5.0D V		29.86		2.8	250.0
5.0D 10.0R		23.92		0.8	250.0
5.0D 20.0R		3.39		0.4	250.0
5.0D 5.0L		27.12		0.8	250.0
5.0D 5.0R		25.23		0.8	250.0
MX (H-90U/45L-45R)	0.1U V	37.76		-	-
MX (5D-H/45L-45R)	1.1D 0.4R	38.07		-	250.0
Zone 1		56.80		2.4	-
Zone 2		61.19		3.0	-
Zone 3		145.83		16.8	-
Zone 4		75.02		3.0	-
Zone 5		49.35		2.4	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.01V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH2

Specification: FMVSS 108 Table XIV: Parking Lamp

Color: Yellow, Lamp mounted &lt;750mm above road surface

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		16.73		0.8	125.0
10.0U 5.0R		17.63		0.8	125.0
5.0U 20.0L		5.61		0.4	125.0
5.0U 10.0L		18.71		0.8	125.0
5.0U V		26.62		2.8	125.0
5.0U 10.0R		23.68		0.8	125.0
5.0U 20.0R		3.34		0.4	125.0
H 10.0L		22.32		1.4	125.0
H 5.0L		29.44		3.6	125.0
H V		32.78		4.0	125.0
H 5.0R		27.18		3.6	125.0
H 10.0R		26.30		1.4	125.0
5.0D 20.0L		7.32		0.4	250.0
5.0D 10.0L		20.03		0.8	250.0
5.0D V		28.95		2.8	250.0
5.0D 10.0R		22.74		0.8	250.0
5.0D 20.0R		3.40		0.4	250.0
5.0D 5.0L		25.47		0.8	250.0
5.0D 5.0R		23.39		0.8	250.0
MX (H-90U/45L-45R)	0.3U 0.1R	37.43		-	-
MX (5D-H/45L-45R)	0.9D V	36.77		-	250.0
Zone 1		55.13		2.4	-
Zone 2		61.06		3.0	-
Zone 3		144.97		16.8	-
Zone 4		72.72		3.0	-
Zone 5		47.76		2.4	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 13.99V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH3

Specification: FMVSS 108 Table XIV: Parking Lamp

Color: Yellow, Lamp mounted &lt;750mm above road surface

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		15.71		0.8	125.0
10.0U 5.0R		17.88		0.8	125.0
5.0U 20.0L		6.29		0.4	125.0
5.0U 10.0L		16.54		0.8	125.0
5.0U V		25.64		2.8	125.0
5.0U 10.0R		23.84		0.8	125.0
5.0U 20.0R		4.85		0.4	125.0
H 10.0L		18.40		1.4	125.0
H 5.0L		27.87		3.6	125.0
H V		32.32		4.0	125.0
H 5.0R		30.04		3.6	125.0
H 10.0R		27.55		1.4	125.0
5.0D 20.0L		8.59		0.4	250.0
5.0D 10.0L		18.17		0.8	250.0
5.0D V		29.80		2.8	250.0
5.0D 10.0R		25.65		0.8	250.0
5.0D 20.0R		4.18		0.4	250.0
5.0D 5.0L		26.57		0.8	250.0
5.0D 5.0R		27.33		0.8	250.0
MX (H-90U/45L-45R)	H 0.5R	38.15		-	-
MX (5D-H/45L-45R)	0.7D 0.2R	39.27		-	250.0
Zone 1		57.17		2.4	-
Zone 2		53.11		3.0	-
Zone 3		145.67		16.8	-
Zone 4		77.04		3.0	-
Zone 5		54.23		2.4	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.02V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.



**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH4

Specification: FMVSS 108 Table XIV: Parking Lamp

Color: Yellow, Lamp mounted &lt;750mm above road surface

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 5.0L		15.01		0.8	125.0
10.0U 5.0R		18.22		0.8	125.0
5.0U 20.0L		6.10		0.4	125.0
5.0U 10.0L		18.99		0.8	125.0
5.0U V		29.08		2.8	125.0
5.0U 10.0R		22.82		0.8	125.0
5.0U 20.0R		3.34		0.4	125.0
H 10.0L		22.13		1.4	125.0
H 5.0L		29.02		3.6	125.0
H V		36.15		4.0	125.0
H 5.0R		27.63		3.6	125.0
H 10.0R		24.89		1.4	125.0
5.0D 20.0L		9.18		0.4	250.0
5.0D 10.0L		21.93		0.8	250.0
5.0D V		31.55		2.8	250.0
5.0D 10.0R		20.95		0.8	250.0
5.0D 20.0R		3.24		0.4	250.0
5.0D 5.0L		25.21		0.8	250.0
5.0D 5.0R		25.17		0.8	250.0
MX (H-90U/45L-45R)	H 0.2L	36.54		-	-
MX (5D-H/45L-45R)	H 0.2L	36.68		-	250.0
Zone 1		55.50		2.4	-
Zone 2		63.05		3.0	-
Zone 3		153.43		16.8	-
Zone 4		68.66		3.0	-
Zone 5		49.97		2.4	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.14V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1-LH4

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp  
Turn Signal/Parking Ratio

	Parking				Turn				I/P Ratio				Required
	LH1	LH2	LH3	LH4	LH1	LH2	LH3	LH4	LH1	LH2	LH3	LH4	Required
10.0U 5.0L	21.5	22.0	22.9	16.2	376.9	345.9	408.5	283.4	17.5	15.7	17.9	17.5	3
10.0U 5.0R	18.6	18.8	19.3	15.8	250.5	272.7	264.0	203.7	13.5	14.5	13.7	12.9	3
5.0U 20.0L	4.0	7.8	5.6	3.7	47.3	48.0	49.0	47.0	11.8	6.1	8.8	12.7	3
5.0U 10.0L	25.9	28.4	33.3	22.2	396.9	488.8	498.3	343.8	15.3	17.2	15.0	15.5	3
5.0U V	31.4	30.1	31.6	26.6	381.8	419.6	394.2	367.0	12.2	14.0	12.5	13.8	5
5.0U 10.0R	22.6	20.8	21.9	18.2	317.6	337.0	330.8	292.2	14.1	16.2	15.1	16.1	3
5.0U 20.0R	6.6	8.3	8.1	6.1	225.0	214.1	218.4	207.3	34.0	25.7	27.1	34.1	3
H 10.0L	25.6	28.4	31.9	23.6	402.3	460.9	461.5	332.8	15.7	16.2	14.5	14.1	3
H 5.0L	31.5	29.9	33.1	28.2	449.6	469.8	455.8	470.2	14.3	15.7	13.8	16.7	5
H V	36.3	33.0	35.8	32.0	419.2	442.6	436.1	418.8	11.6	13.4	12.2	13.1	5
H 5.0R	29.8	28.8	29.1	26.1	381.9	405.9	385.1	375.8	12.8	14.1	13.2	14.4	5
H 10.0R	25.1	21.0	23.9	23.4	357.0	372.5	361.2	329.1	14.2	17.7	15.1	14.1	3
5.0D 20.0L	3.5	6.3	5.6	3.2	45.0	39.7	41.1	48.6	13.0	6.3	7.4	15.2	-
5.0D 10.0L	21.6	23.2	24.5	20.7	348.2	334.8	354.2	305.8	16.1	14.5	14.5	14.8	-
5.0D V	28.5	26.3	27.4	29.0	341.1	337.8	326.0	385.4	12.0	12.9	11.9	13.3	-
5.0D 10.0R	22.1	15.8	18.6	22.7	339.5	324.3	304.1	344.3	15.4	20.5	16.4	15.2	-
5.0D 20.0R	10.2	5.5	6.4	8.8	201.6	170.7	175.8	198.0	19.7	31.2	27.4	22.6	-
5.0D 5.0L	22.3	22.3	23.5	21.1	357.2	333.5	325.9	395.8	16.0	15.0	13.9	18.8	-
5.0D 5.0R	23.9	22.1	22.5	23.6	324.0	323.4	295.6	366.1	13.6	14.7	13.1	15.5	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA)

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1-RH4

Specification: FMVSS 108 Table VI-a: Front Turn Signal Lamp  
Turn Signal/Parking Ratio

	Parking				Turn				I/P Ratio				Required
	RH1	RH2	RH3	RH4	RH1	RH2	RH3	RH4	RH1	RH2	RH3	RH4	
10.0U 5.0L	17.0	16.7	15.7	15.0	209.2	214.0	198.0	212.8	12.3	12.8	12.6	14.2	3
10.0U 5.0R	17.4	17.6	17.9	18.2	237.7	263.6	219.7	284.3	13.7	15.0	12.3	15.6	3
5.0U 20.0L	6.0	5.6	6.3	6.1	226.2	224.3	207.9	221.3	38.0	40.0	33.1	36.3	3
5.0U 10.0L	18.6	18.7	16.5	19.0	293.3	292.3	275.6	293.2	15.8	15.6	16.7	15.4	3
5.0U V	25.5	26.6	25.6	29.1	385.5	405.5	396.7	383.0	15.1	15.2	15.5	13.2	5
5.0U 10.0R	24.5	23.7	23.8	22.8	385.1	397.4	432.5	342.0	15.7	16.8	18.1	15.0	3
5.0U 20.0R	3.4	3.3	4.9	3.3	41.7	42.3	46.8	42.5	12.4	12.7	9.6	12.7	3
H 10.0L	21.6	22.3	18.4	22.1	339.4	335.5	326.7	332.6	15.7	15.0	17.8	15.0	3
H 5.0L	30.5	29.4	27.9	29.0	386.6	393.8	398.9	391.9	12.7	13.4	14.3	13.5	5
H V	31.7	32.8	32.3	36.2	430.8	431.3	452.5	431.0	13.6	13.2	14.0	11.9	5
H 5.0R	28.2	27.2	30.0	27.6	449.7	470.2	451.2	449.9	15.9	17.3	15.0	16.3	5
H 10.0R	26.6	26.3	27.6	24.9	379.5	396.8	482.3	337.3	14.3	15.1	17.5	13.6	3
5.0D 20.0L	6.8	7.3	8.6	9.2	203.8	208.8	202.0	207.9	30.1	28.5	23.5	22.7	-
5.0D 10.0L	21.0	20.0	18.2	21.9	392.5	387.7	318.0	351.3	18.7	19.4	17.5	16.0	-
5.0D V	29.9	29.0	29.8	31.6	432.1	418.7	440.5	406.7	14.5	14.5	14.8	12.9	-
5.0D 10.0R	23.9	22.7	25.7	21.0	325.7	334.5	428.8	283.2	13.6	14.7	16.7	13.5	-
5.0D 20.0R	3.4	3.4	4.2	3.2	40.8	40.2	43.9	45.6	12.0	11.8	10.5	14.1	-
5.0D 5.0L	27.1	25.5	26.6	25.2	403.1	390.7	419.6	352.7	14.9	15.3	15.8	14.0	-
5.0D 5.0R	25.2	23.4	27.3	25.2	416.1	412.6	411.7	397.0	16.5	17.6	15.1	15.8	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA)

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1

Specification: FMVSS 108 Table X: Sidemarker Lamp (Reduced Inboard Angles)

Color: Yellow (LH), Front-to-Rear Sidemarker Separations of 3.9 m

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 23.0L		3.42		0.62	-
10.0U V		3.92		0.62	-
10.0U 45.0R		1.99		0.62	-
10.0U 23.0L TO 45.0R	44.8R	1.97		0.62	-
5.0U 23.0L TO 45.0R	44.2R	2.14		0.62	-
H 23.0L		2.34		0.62	-
H V		3.60		0.62	-
H 45.0R		2.30		0.62	-
H 23.0L TO 45.0R	45.0R	2.29		0.62	-
5.0D 23.0L TO 45.0R	23.0L	1.70		0.62	-
10.0D 23.0L		1.10		0.62	-
10.0D V		1.67		0.62	-
10.0D 45.0R		1.87		0.62	-
10.0D 23.0L TO 45.0R	22.5L	1.09		0.62	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1516 (W5W, LCL=12.99mm) @ 14.35V / 0.393A / 50.0Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with W5W located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH2

Specification: FMVSS 108 Table X: Sidemarker Lamp (Reduced Inboard Angles)

Color: Yellow (LH), Front-to-Rear Sidemarker Separations of 3.9 m

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 23.0L		4.07		0.62	-
10.0U V		4.12		0.62	-
10.0U 45.0R		2.32		0.62	-
10.0U 23.0L TO 45.0R	45.0R	2.30		0.62	-
5.0U 23.0L TO 45.0R	43.0R	2.43		0.62	-
H 23.0L		2.87		0.62	-
H V		4.07		0.62	-
H 45.0R		2.45		0.62	-
H 23.0L TO 45.0R	44.7R	2.42		0.62	-
5.0D 23.0L TO 45.0R	22.9L	2.11		0.62	-
10.0D 23.0L		1.30		0.62	-
10.0D V		2.12		0.62	-
10.0D 45.0R		2.17		0.62	-
10.0D 23.0L TO 45.0R	22.9L	1.30		0.62	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1516 (W5W, LCL=12.99mm) @ 14.68V / 0.393A / 50.0Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with W5W located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH3

Specification: FMVSS 108 Table X: Sidemarker Lamp (Reduced Inboard Angles)

Color: Yellow (LH), Front-to-Rear Sidemarker Separations of 3.9 m

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 23.0L		3.84		0.62	-
10.0U V		4.50		0.62	-
10.0U 45.0R		2.37		0.62	-
10.0U 23.0L TO 45.0R	44.6R	2.34		0.62	-
5.0U 23.0L TO 45.0R	44.7R	2.52		0.62	-
H 23.0L		2.53		0.62	-
H V		3.99		0.62	-
H 45.0R		2.69		0.62	-
H 23.0L TO 45.0R	23.0L	2.53		0.62	-
5.0D 23.0L TO 45.0R	23.0L	1.81		0.62	-
10.0D 23.0L		1.15		0.62	-
10.0D V		1.79		0.62	-
10.0D 45.0R		2.06		0.62	-
10.0D 23.0L TO 45.0R	23.0L	1.14		0.62	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1516 (W5W, LCL=12.99mm) @ 14.68V / 0.393A / 50.0Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with W5W located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH4

Specification: FMVSS 108 Table X: Sidemarker Lamp (Reduced Inboard Angles)

Color: Yellow (LH), Front-to-Rear Sidemarker Separations of 3.9 m

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 23.0L		3.92		0.62	-
10.0U V		3.89		0.62	-
10.0U 45.0R		2.31		0.62	-
10.0U 23.0L TO 45.0R	45.0R	2.29		0.62	-
5.0U 23.0L TO 45.0R	45.0R	2.34		0.62	-
H 23.0L		2.79		0.62	-
H V		3.66		0.62	-
H 45.0R		2.28		0.62	-
H 23.0L TO 45.0R	45.0R	2.25		0.62	-
5.0D 23.0L TO 45.0R	23.0L	2.09		0.62	-
10.0D 23.0L		1.30		0.62	-
10.0D V		1.91		0.62	-
10.0D 45.0R		1.91		0.62	-
10.0D 23.0L TO 45.0R	23.0L	1.30		0.62	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1516 (W5W, LCL=12.99mm) @ 14.22V / 0.393A / 50.0Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with W5W located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1

Specification: FMVSS 108 Table X: Sidemarker Lamp (Reduced Inboard Angles)

Color: Yellow (RH), Front-to-Rear Sidemarker Separations of 3.9 m

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 45.0L		1.78		0.62	-
10.0U V		3.58		0.62	-
10.0U 23.0R		3.35		0.62	-
10.0U 45.0L TO 23.0R	45.0L	1.75		0.62	-
5.0U 45.0L TO 23.0R	45.0L	1.97		0.62	-
H 45.0L		2.10		0.62	-
H V		3.45		0.62	-
H 23.0R		2.75		0.62	-
H 45.0L TO 23.0R	44.6L	2.09		0.62	-
5.0D 45.0L TO 23.0R	45.0L	2.08		0.62	-
10.0D 45.0L		1.92		0.62	-
10.0D V		2.48		0.62	-
10.0D 23.0R		1.77		0.62	-
10.0D 45.0L TO 23.0R	23.0R	1.76		0.62	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1516 (W5W, LCL=12.99mm) @ 14.64V / 0.393A / 50.0Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with W5W located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.



**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH2

Specification: FMVSS 108 Table X: Sidemarker Lamp (Reduced Inboard Angles)

Color: Yellow (RH), Front-to-Rear Sidemarker Separations of 3.9 m

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 45.0L		1.60		0.62	-
10.0U V		2.53		0.62	-
10.0U 23.0R		2.39		0.62	-
10.0U 45.0L TO 23.0R	42.9L	1.59		0.62	-
5.0U 45.0L TO 23.0R	45.0L	1.93		0.62	-
H 45.0L		2.28		0.62	-
H V		2.85		0.62	-
H 23.0R		2.07		0.62	-
H 45.0L TO 23.0R	23.0R	2.05		0.62	-
5.0D 45.0L TO 23.0R	23.0R	1.84		0.62	-
10.0D 45.0L		2.40		0.62	-
10.0D V		2.35		0.62	-
10.0D 23.0R		1.55		0.62	-
10.0D 45.0L TO 23.0R	23.0R	1.54		0.62	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1516 (W5W, LCL=12.99mm) @ 14.71V / 0.393A / 50.0Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with W5W located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH3

Specification: FMVSS 108 Table X: Sidemarker Lamp (Reduced Inboard Angles)

Color: Yellow (RH), Front-to-Rear Sidemarker Separations of 3.9 m

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 45.0L		1.97		0.62	-
10.0U V		2.69		0.62	-
10.0U 23.0R		2.72		0.62	-
10.0U 45.0L TO 23.0R	45.0L	1.98		0.62	-
5.0U 45.0L TO 23.0R	44.6L	2.17		0.62	-
H 45.0L		2.27		0.62	-
H V		2.82		0.62	-
H 23.0R		2.23		0.62	-
H 45.0L TO 23.0R	23.0R	2.23		0.62	-
5.0D 45.0L TO 23.0R	23.0R	1.82		0.62	-
10.0D 45.0L		2.05		0.62	-
10.0D V		2.12		0.62	-
10.0D 23.0R		1.29		0.62	-
10.0D 45.0L TO 23.0R	23.0R	1.28		0.62	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1516 (W5W, LCL=12.99mm) @ 14.71V / 0.393A / 50.0Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with W5W located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH4

Specification: FMVSS 108 Table X: Sidemarker Lamp (Reduced Inboard Angles)

Color: Yellow (RH), Front-to-Rear Sidemarker Separations of 3.9 m

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
10.0U 45.0L		1.63		0.62	-
10.0U V		2.59		0.62	-
10.0U 23.0R		2.43		0.62	-
10.0U 45.0L TO 23.0R	44.6L	1.63		0.62	-
5.0U 45.0L TO 23.0R	45.0L	2.03		0.62	-
H 45.0L		2.41		0.62	-
H V		2.88		0.62	-
H 23.0R		2.05		0.62	-
H 45.0L TO 23.0R	23.0R	2.03		0.62	-
5.0D 45.0L TO 23.0R	23.0R	1.76		0.62	-
10.0D 45.0L		2.41		0.62	-
10.0D V		2.32		0.62	-
10.0D 23.0R		1.42		0.62	-
10.0D 45.0L TO 23.0R	23.0R	1.42		0.62	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1516 (W5W, LCL=12.99mm) @ 14.55V / 0.393A / 50.0Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with W5W located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1-LH4

Specification: FMVSS 108 Table XVI-a: Reflex Reflector

Color: Yellow

Specific Intensity, milliCandela / Lux

Test Point	Measured 0.2°	Required Minimum	Measured 1.5°	Required Minimum
LH1				
10.0U V	2516.6	700	71.9	13
H 20.0L	1427.3	350	41.9	8
H V	2946.0	1050	85.3	15
H 20.0R	2055.4	350	68.3	8
10.0D V	2377.0	700	70.1	13
LH2				
10.0U V	2069.9	700	78.3	13
H 20.0L	1256.9	350	47.9	8
H V	2506.3	1050	90.1	15
H 20.0R	1706.8	350	66.3	8
10.0D V	2155.8	700	80.3	13
LH3				
10.0U V	2533.8	700	73.3	13
H 20.0L	1479.0	350	43.0	8
H V	3061.0	1050	85.8	15
H 20.0R	2096.0	350	66.2	8
10.0D V	2545.7	700	69.7	13
LH4				
10.0U V	2059.9	700	76.0	13
H 20.0L	1279.9	350	49.0	8
H V	2486.9	1050	89.5	15
H 20.0R	1689.0	350	64.9	8
10.0D V	2231.4	700	84.8	13

Incident Illumination upon sample: 0.945 fc (10.17 Lux)

Samples meet test requirements at all points.

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with Reflex located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

Note: Entire lamp, excluding the Reflex, masked off during testing.

**PHOTOMETRIC TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1-RH4

Specification: FMVSS 108 Table XVI-a: Reflex Reflector

Color: Yellow

Specific Intensity, milliCandela / Lux

Test Point	Measured 0.2°	Required Minimum	Measured 1.5°	Required Minimum
RH1				
10.0U V	2399.2	700	75.8	13
H 20.0L	2082.0	350	67.0	8
H V	2942.2	1050	90.3	15
H 20.0R	1479.8	350	44.4	8
10.0D V	2701.5	700	77.9	13
RH2				
10.0U V	2321.5	700	73.8	13
H 20.0L	2043.4	350	67.0	8
H V	2859.9	1050	86.0	15
H 20.0R	1357.8	350	38.1	8
10.0D V	2414.3	700	64.8	13
RH3				
10.0U V	2679.9	700	73.0	13
H 20.0L	2261.2	350	65.2	8
H V	3177.8	1050	86.6	15
H 20.0R	1618.8	350	41.4	8
10.0D V	2823.9	700	67.2	13
RH4				
10.0U V	2341.3	700	73.0	13
H 20.0L	2056.6	350	66.2	8
H V	2877.0	1050	87.4	15
H 20.0R	1431.6	350	43.4	8
10.0D V	2658.8	700	74.1	13

Incident Illumination upon sample: 0.951 fc (10.23 Lux)

Samples meet test requirements at all points.

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with Reflex located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

Note: Entire lamp, excluding the Reflex, masked off during testing.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Front Turn Signal (LH) -Lamp mounted <750mm above ground  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 80.0L		2.73		0.30	-
15.0U 45.0R		7.49		0.30	-
15.0U 80.0L TO 45.0R	80.0L	2.77		0.30	-
10.0U 80.0L		2.47		0.30	-
10.0U 45.0R		12.93		0.30	-
10.0U 80.0L TO 45.0R	80.0L	2.47		0.30	-
5.0U 80.0L		2.51		0.30	-
5.0U 45.0R		8.32		0.30	-
5.0U 80.0L TO 45.0R	79.8L	2.52		0.30	-
H 80.0L		2.65		0.30	-
H 45.0R		5.16		0.30	-
H 80.0L TO 45.0R	80.0L	2.65		0.30	-
5.0D 80.0L		2.28		0.30	-
5.0D 45.0R		3.41		0.30	-
5.0D 80.0L TO 45.0R	78.3L	2.28		0.30	-
15.0U TO 5.0D 80.0L	5.0D	2.30		0.30	-
15.0U TO 5.0D 45.0R	4.8D	3.41		0.30	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.51V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH2

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Front Turn Signal (LH) -Lamp mounted <750mm above ground  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 80.0L		2.58		0.30	-
15.0U 45.0R		6.88		0.30	-
15.0U 80.0L TO 45.0R	80.0L	2.57		0.30	-
10.0U 80.0L		2.35		0.30	-
10.0U 45.0R		10.48		0.30	-
10.0U 80.0L TO 45.0R	79.8L	2.35		0.30	-
5.0U 80.0L		2.35		0.30	-
5.0U 45.0R		5.55		0.30	-
5.0U 80.0L TO 45.0R	79.8L	2.31		0.30	-
H 80.0L		2.50		0.30	-
H 45.0R		3.84		0.30	-
H 80.0L TO 45.0R	79.6L	2.49		0.30	-
5.0D 80.0L		2.18		0.30	-
5.0D 45.0R		2.94		0.30	-
5.0D 80.0L TO 45.0R	80.0L	2.20		0.30	-
15.0U TO 5.0D 80.0L	5.0D	2.10		0.30	-
15.0U TO 5.0D 45.0R	5.0D	2.84		0.30	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.51V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH3

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option

Color: Yellow, Front Turn Signal (LH) -Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 80.0L		2.89		0.30	-
15.0U 45.0R		7.87		0.30	-
15.0U 80.0L TO 45.0R	80.0L	2.89		0.30	-
10.0U 80.0L		2.54		0.30	-
10.0U 45.0R		12.25		0.30	-
10.0U 80.0L TO 45.0R	79.6L	2.53		0.30	-
5.0U 80.0L		2.55		0.30	-
5.0U 45.0R		6.14		0.30	-
5.0U 80.0L TO 45.0R	79.3L	2.49		0.30	-
H 80.0L		2.72		0.30	-
H 45.0R		4.20		0.30	-
H 80.0L TO 45.0R	79.6L	2.72		0.30	-
5.0D 80.0L		2.36		0.30	-
5.0D 45.0R		3.14		0.30	-
5.0D 80.0L TO 45.0R	78.0L	2.33		0.30	-
15.0U TO 5.0D 80.0L	3.3U	2.30		0.30	-
15.0U TO 5.0D 45.0R	4.9D	3.15		0.30	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.52V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.



**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH4

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Front Turn Signal (LH) -Lamp mounted <750mm above ground  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 80.0L		2.54		0.30	-
15.0U 45.0R		5.42		0.30	-
15.0U 80.0L TO 45.0R	80.0L	2.54		0.30	-
10.0U 80.0L		2.21		0.30	-
10.0U 45.0R		13.93		0.30	-
10.0U 80.0L TO 45.0R	80.0L	2.21		0.30	-
5.0U 80.0L		2.35		0.30	-
5.0U 45.0R		8.58		0.30	-
5.0U 80.0L TO 45.0R	80.0L	2.35		0.30	-
H 80.0L		2.31		0.30	-
H 45.0R		4.26		0.30	-
H 80.0L TO 45.0R	80.0L	2.31		0.30	-
5.0D 80.0L		2.16		0.30	-
5.0D 45.0R		3.62		0.30	-
5.0D 80.0L TO 45.0R	77.2L	2.14		0.30	-
15.0U TO 5.0D 80.0L	5.0D	2.10		0.30	-
15.0U TO 5.0D 45.0R	5.0D	3.62		0.30	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.50V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option

Color: Yellow, Front Turn Signal (RH) -Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 45.0L		6.52		0.30	-
15.0U 80.0R		2.75		0.30	-
15.0U 45.0L TO 80.0R	80.0R	2.72		0.30	-
10.0U 45.0L		11.75		0.30	-
10.0U 80.0R		2.59		0.30	-
10.0U 45.0L TO 80.0R	80.0R	2.56		0.30	-
5.0U 45.0L		5.30		0.30	-
5.0U 80.0R		2.65		0.30	-
5.0U 45.0L TO 80.0R	80.0R	2.64		0.30	-
H 45.0L		3.56		0.30	-
H 80.0R		2.68		0.30	-
H 45.0L TO 80.0R	80.0R	2.66		0.30	-
5.0D 45.0L		3.78		0.30	-
5.0D 80.0R		2.50		0.30	-
5.0D 45.0L TO 80.0R	80.0R	2.51		0.30	-
15.0U TO 5.0D 45.0L	0.3D	3.58		0.30	-
15.0U TO 5.0D 80.0R	7.8U	2.40		0.30	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.55V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH2

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option

Color: Yellow, Front Turn Signal (RH) -Lamp mounted &lt;750mm above ground

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 45.0L		7.19		0.30	-
15.0U 80.0R		2.66		0.30	-
15.0U 45.0L TO 80.0R	80.0R	2.63		0.30	-
10.0U 45.0L		13.73		0.30	-
10.0U 80.0R		2.40		0.30	-
10.0U 45.0L TO 80.0R	80.0R	2.38		0.30	-
5.0U 45.0L		6.02		0.30	-
5.0U 80.0R		2.40		0.30	-
5.0U 45.0L TO 80.0R	80.0R	2.40		0.30	-
H 45.0L		3.60		0.30	-
H 80.0R		2.51		0.30	-
H 45.0L TO 80.0R	80.0R	2.50		0.30	-
5.0D 45.0L		3.28		0.30	-
5.0D 80.0R		2.40		0.30	-
5.0D 45.0L TO 80.0R	80.0R	2.40		0.30	-
15.0U TO 5.0D 45.0L	5.0D	3.29		0.30	-
15.0U TO 5.0D 80.0R	8.3U	2.28		0.30	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.52V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH3

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Front Turn Signal (RH) -Lamp mounted <750mm above ground  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 45.0L		5.14		0.30	-
15.0U 80.0R		2.81		0.30	-
15.0U 45.0L TO 80.0R	80.0R	2.81		0.30	-
10.0U 45.0L		11.43		0.30	-
10.0U 80.0R		2.66		0.30	-
10.0U 45.0L TO 80.0R	80.0R	2.64		0.30	-
5.0U 45.0L		4.48		0.30	-
5.0U 80.0R		2.62		0.30	-
5.0U 45.0L TO 80.0R	80.0R	2.62		0.30	-
H 45.0L		3.10		0.30	-
H 80.0R		2.69		0.30	-
H 45.0L TO 80.0R	79.8R	2.68		0.30	-
5.0D 45.0L		3.43		0.30	-
5.0D 80.0R		2.55		0.30	-
5.0D 45.0L TO 80.0R	80.0R	2.53		0.30	-
15.0U TO 5.0D 45.0L	1.2U	2.91		0.30	-
15.0U TO 5.0D 80.0R	7.3U	2.45		0.30	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.48V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH4

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Front Turn Signal (RH) -Lamp mounted <750mm above ground  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 45.0L		7.55		0.30	-
15.0U 80.0R		2.58		0.30	-
15.0U 45.0L TO 80.0R	80.0R	2.58		0.30	-
10.0U 45.0L		13.10		0.30	-
10.0U 80.0R		2.42		0.30	-
10.0U 45.0L TO 80.0R	80.0R	2.42		0.30	-
5.0U 45.0L		6.39		0.30	-
5.0U 80.0R		2.36		0.30	-
5.0U 45.0L TO 80.0R	80.0R	2.35		0.30	-
H 45.0L		3.72		0.30	-
H 80.0R		2.46		0.30	-
H 45.0L TO 80.0R	80.0R	2.46		0.30	-
5.0D 45.0L		3.27		0.30	-
5.0D 80.0R		2.42		0.30	-
5.0D 45.0L TO 80.0R	79.3R	2.41		0.30	-
15.0U TO 5.0D 45.0L	5.0D	3.22		0.30	-
15.0U TO 5.0D 80.0R	7.6U	2.24		0.30	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=25mm) @ 13.47V / 2.360A / 377Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Parking (LH) - Lamp mounted <750mm above road surface  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 80.0L		0.24		0.05	-
15.0U 45.0R		0.82		0.05	-
15.0U 80.0L TO 45.0R	79.8L	0.22		0.05	-
10.0U 80.0L		0.24		0.05	-
10.0U 45.0R		1.13		0.05	-
10.0U 80.0L TO 45.0R	80.0L	0.20		0.05	-
5.0U 80.0L		0.19		0.05	-
5.0U 45.0R		1.01		0.05	-
5.0U 80.0L TO 45.0R	80.0L	0.19		0.05	-
H 80.0L		0.20		0.05	-
H 45.0R		0.77		0.05	-
H 80.0L TO 45.0R	79.8L	0.20		0.05	-
5.0D 80.0L		0.20		0.05	-
5.0D 45.0R		0.30		0.05	-
5.0D 80.0L TO 45.0R	79.8L	0.20		0.05	-
15.0U TO 5.0D 80.0L	5.0D	0.20		0.05	-
15.0U TO 5.0D 45.0R	5.0D	0.29		0.05	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.05V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH2

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Parking (LH) - Lamp mounted <750mm above road surface  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 80.0L		0.21		0.05	-
15.0U 45.0R		0.56		0.05	-
15.0U 80.0L TO 45.0R	80.0L	0.20		0.05	-
10.0U 80.0L		0.19		0.05	-
10.0U 45.0R		0.94		0.05	-
10.0U 80.0L TO 45.0R	80.0L	0.19		0.05	-
5.0U 80.0L		0.19		0.05	-
5.0U 45.0R		0.59		0.05	-
5.0U 80.0L TO 45.0R	79.1L	0.19		0.05	-
H 80.0L		0.20		0.05	-
H 45.0R		0.52		0.05	-
H 80.0L TO 45.0R	79.1L	0.20		0.05	-
5.0D 80.0L		0.18		0.05	-
5.0D 45.0R		0.17		0.05	-
5.0D 80.0L TO 45.0R	45.0R	0.16		0.05	-
15.0U TO 5.0D 80.0L	5.0D	0.17		0.05	-
15.0U TO 5.0D 45.0R	5.0D	0.16		0.05	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.01V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH3

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Parking (LH) - Lamp mounted <750mm above road surface  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 80.0L		0.22		0.05	-
15.0U 45.0R		0.63		0.05	-
15.0U 80.0L TO 45.0R	80.0L	0.22		0.05	-
10.0U 80.0L		0.20		0.05	-
10.0U 45.0R		1.12		0.05	-
10.0U 80.0L TO 45.0R	80.0L	0.20		0.05	-
5.0U 80.0L		0.21		0.05	-
5.0U 45.0R		0.72		0.05	-
5.0U 80.0L TO 45.0R	79.1L	0.20		0.05	-
H 80.0L		0.22		0.05	-
H 45.0R		0.62		0.05	-
H 80.0L TO 45.0R	80.0L	0.22		0.05	-
5.0D 80.0L		0.19		0.05	-
5.0D 45.0R		0.22		0.05	-
5.0D 80.0L TO 45.0R	79.8L	0.19		0.05	-
15.0U TO 5.0D 80.0L 10.9U		0.21		0.05	-
15.0U TO 5.0D 45.0R 5.0D		0.26		0.05	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.02V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.



**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH4

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Parking (LH) - Lamp mounted <750mm above road surface  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 80.0L		0.33		0.05	-
15.0U 45.0R		0.68		0.05	-
15.0U 80.0L TO 45.0R	80.0L	0.32		0.05	-
10.0U 80.0L		0.31		0.05	-
10.0U 45.0R		1.13		0.05	-
10.0U 80.0L TO 45.0R	80.0L	0.31		0.05	-
5.0U 80.0L		0.34		0.05	-
5.0U 45.0R		1.04		0.05	-
5.0U 80.0L TO 45.0R	80.0L	0.34		0.05	-
H 80.0L		0.37		0.05	-
H 45.0R		0.82		0.05	-
H 80.0L TO 45.0R	80.0L	0.37		0.05	-
5.0D 80.0L		0.33		0.05	-
5.0D 45.0R		0.51		0.05	-
5.0D 80.0L TO 45.0R	79.8L	0.33		0.05	-
15.0U TO 5.0D 80.0L	5.0D	0.18		0.05	-
15.0U TO 5.0D 45.0R	5.0D	0.39		0.05	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.01V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Parking (RH) - Lamp mounted <750mm above road surface  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 45.0L		0.59		0.05	-
15.0U 80.0R		0.25		0.05	-
15.0U 45.0L TO 80.0R	80.0R	0.25		0.05	-
10.0U 45.0L		0.94		0.05	-
10.0U 80.0R		0.22		0.05	-
10.0U 45.0L TO 80.0R	80.0R	0.22		0.05	-
5.0U 45.0L		0.76		0.05	-
5.0U 80.0R		0.23		0.05	-
5.0U 45.0L TO 80.0R	80.0R	0.23		0.05	-
H 45.0L		0.63		0.05	-
H 80.0R		0.23		0.05	-
H 45.0L TO 80.0R	80.0R	0.22		0.05	-
5.0D 45.0L		0.33		0.05	-
5.0D 80.0R		0.21		0.05	-
5.0D 45.0L TO 80.0R	80.0R	0.20		0.05	-
15.0U TO 5.0D 45.0L	5.0D	0.33		0.05	-
15.0U TO 5.0D 80.0R	9.5U	0.19		0.05	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.01V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH2

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Parking (RH) - Lamp mounted <750mm above road surface  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 45.0L		0.67		0.05	-
15.0U 80.0R		0.22		0.05	-
15.0U 45.0L TO 80.0R	80.0R	0.23		0.05	-
10.0U 45.0L		1.02		0.05	-
10.0U 80.0R		0.20		0.05	-
10.0U 45.0L TO 80.0R	80.0R	0.20		0.05	-
5.0U 45.0L		0.79		0.05	-
5.0U 80.0R		0.21		0.05	-
5.0U 45.0L TO 80.0R	80.0R	0.24		0.05	-
H 45.0L		0.63		0.05	-
H 80.0R		0.24		0.05	-
H 45.0L TO 80.0R	80.0R	0.26		0.05	-
5.0D 45.0L		0.34		0.05	-
5.0D 80.0R		0.24		0.05	-
5.0D 45.0L TO 80.0R	80.0R	0.23		0.05	-
15.0U TO 5.0D 45.0L	5.0D	0.30		0.05	-
15.0U TO 5.0D 80.0R	5.0D	0.20		0.05	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 13.99V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH3

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Parking (RH) - Lamp mounted <750mm above road surface  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 45.0L		0.57		0.05	-
15.0U 80.0R		0.24		0.05	-
15.0U 45.0L TO 80.0R	80.0R	0.24		0.05	-
10.0U 45.0L		1.05		0.05	-
10.0U 80.0R		0.21		0.05	-
10.0U 45.0L TO 80.0R	80.0R	0.21		0.05	-
5.0U 45.0L		0.68		0.05	-
5.0U 80.0R		0.21		0.05	-
5.0U 45.0L TO 80.0R	80.0R	0.21		0.05	-
H 45.0L		0.43		0.05	-
H 80.0R		0.21		0.05	-
H 45.0L TO 80.0R	80.0R	0.20		0.05	-
5.0D 45.0L		0.26		0.05	-
5.0D 80.0R		0.19		0.05	-
5.0D 45.0L TO 80.0R	80.0R	0.19		0.05	-
15.0U TO 5.0D 45.0L	5.0D	0.25		0.05	-
15.0U TO 5.0D 80.0R	5.0D	0.19		0.05	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.02V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**VISIBILITY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH4

Specification: FMVSS 108 Table V-c: Visibility - Luminous Intensity Option  
 Color: Yellow, Parking (RH) - Lamp mounted <750mm above road surface  
 Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
15.0U 45.0L		0.70		0.05	-
15.0U 80.0R		0.21		0.05	-
15.0U 45.0L TO 80.0R	80.0R	0.21		0.05	-
10.0U 45.0L		0.95		0.05	-
10.0U 80.0R		0.19		0.05	-
10.0U 45.0L TO 80.0R	80.0R	0.19		0.05	-
5.0U 45.0L		0.77		0.05	-
5.0U 80.0R		0.19		0.05	-
5.0U 45.0L TO 80.0R	80.0R	0.19		0.05	-
H 45.0L		0.63		0.05	-
H 80.0R		0.19		0.05	-
H 45.0L TO 80.0R	80.0R	0.19		0.05	-
5.0D 45.0L		0.30		0.05	-
5.0D 80.0R		0.18		0.05	-
5.0D 45.0L TO 80.0R	80.0R	0.18		0.05	-
15.0U TO 5.0D 45.0L	5.0D	0.30		0.05	-
15.0U TO 5.0D 80.0R	5.0D	0.18		0.05	-

Sample meets test requirements at all points.

Calibrated Bulb: ITL-1834 (7444NA, LCL=28.06mm) @ 14.14V / 0.572A / 28Lm

Aim: Sample mounted on fixture provided by Toyota. Fixture mounted on level goniometer with 7444NA located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV.

**COLORIMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1-LH4

Requirement: FMVSS 108 S14.4.1 Color Test

Test Method: FMVSS 108 S14.4.1.4 Tristimulus Method (Average of 3 reads)

Instrument: Photo Research PR-655 Spectroradiometer with SRS-3 Target

Location: 1.5D/2.0R (LB); HV (UB)

Voltage: 12.8V

Function	Sample	Time	x	y	WHITE Requirement & Chart
Lower Beam 1.5D/2R 12.8V	LH1	0min	0.3297	0.3272	$0.31 \leq x \leq 0.50$ $0.38 \leq y \leq 0.44$ $y \geq 0.75x + 0.05$ $y \leq 0.64x + 0.15$
		45min	0.3262	0.3239	
	LH2	0min	0.3333	0.3319	
		30min	0.3318	0.3304	
	LH3	0min	0.3299	0.3284	
		30min	0.3269	0.3258	
	LH4	0min	0.3365	0.3384	
		30min	0.3350	0.3318	
Upper Beam HV 12.8V	LH1	0min	0.3357	0.3351	<p>The chart, titled 'FMVSS 108 White', plots chromaticity coordinates x (horizontal axis, 0.30 to 0.52) against y (vertical axis, 0.27 to 0.45). A magenta boundary defines the white region. Two data series are shown: 'Lower Beam' (blue diamonds) and 'Upper Beam' (yellow triangles). The Lower Beam points are clustered around x=0.33, y=0.33, and the Upper Beam points are clustered around x=0.34, y=0.34. Both clusters are well within the white boundary.</p>
		45min	0.3329	0.3326	
	LH2	0min	0.3376	0.3375	
		30min	0.3362	0.3359	
	LH3	0min	0.3357	0.3369	
		30min	0.3324	0.3336	
	LH4	0min	0.3419	0.3466	
		30min	0.3400	0.3450	

Samples meet Color requirements for White.

**COLORIMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1-RH4

Requirement: FMVSS 108 S14.4.1 Color Test

Test Method: FMVSS 108 S14.4.1.4 Tristimulus Method (Average of 3 reads)

Instrument: Photo Research PR-655 Spectroradiometer with SRS-3 Target

Location: 1.5D/2.0R (LB); HV (UB)

Voltage: 12.8V

Function	Sample	Time	x	y	WHITE Requirement & Chart
Lower Beam 1.5D/2R 12.8V	RH1	0min	0.3347	0.3418	$0.31 \leq x \leq 0.50$ $0.38 \leq y \leq 0.44$ $y \geq 0.75x + 0.05$ $y \leq 0.64x + 0.15$
		45min	0.3331	0.3402	
	RH2	0min	0.3275	0.3268	
		30min	0.3263	0.3257	
	RH3	0min	0.3302	0.3302	
		30min	0.3263	0.3261	
	RH4	0min	0.3300	0.3295	
		30min	0.3291	0.3290	
Upper Beam HV 12.8V	RH1	0min	0.3409	0.3506	
		45min	0.3387	0.3481	
	RH2	0min	0.3358	0.3383	
		30min	0.3338	0.3362	
	RH3	0min	0.3367	0.3392	
		30min	0.3339	0.3361	
	RH4	0min	0.3350	0.3367	
		30min	0.3328	0.3343	

Samples meet Color requirements for White.

**COLORIMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: LH1-LH4

Requirement: FMVSS 108 S14.4.1 Color Test

Test Method: FMVSS 108 S14.4.1.4 Tristimulus Method (Average of 3 reads)

Instrument: Photo Research PR-655 Spectroradiometer with SRS-3 Target

Location: HV (Turn, Parking & Marker)

5D/V (Reflex - Ill. A, 2° Observer, +5°/0.33° Geometry at 15 ft)

Voltage: 13.5V

Function	Sample	x	y	YELLOW (AMBER) Requirement & Chart
Turn Signal HV 13.5V	LH1	0.5683	0.4241	$y \geq 0.39$ $y \geq 0.79 - 0.67x$ $y \leq x - 0.12$ 
	LH2	0.5654	0.4264	
	LH3	0.5639	0.4277	
	LH4	0.5662	0.4255	
Parking HV 13.5V	LH1	0.5879	0.4060	
	LH2	0.5839	0.4100	
	LH3	0.5837	0.4093	
	LH4	0.5857	0.4053	
Marker 13.5V HV	LH1	0.5756	0.4162	
	LH2	0.5736	0.4172	
	LH3	0.5720	0.4216	
	LH4	0.5771	0.4164	
Reflex	LH1	0.5882	0.409	
	LH2	0.5889	0.4083	
	LH3	0.5884	0.4087	
	LH4	0.5902	0.4069	

Samples meet Color requirements for Yellow (Amber).

Note: Devices tested with bulbs that came with each lamp.



**COLORIMETRY TEST DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

Sample Number: RH1-RH4

Requirement: FMVSS 108 S14.4.1 Color Test

Test Method: FMVSS 108 S14.4.1.4 Tristimulus Method (Average of 3 reads)

Instrument: Photo Research PR-655 Spectroradiometer with SRS-3 Target

Location: HV (Turn, Parking & Marker)

5D/V (Reflex - Ill. A, 2° Observer, +5°/0.33° Geometry at 15 ft)

Voltage: 13.5V

Function	Sample	x	y	YELLOW (AMBER) Requirement & Chart
Turn Signal HV 13.5V	RH1	0.5721	0.4201	$y \geq 0.39$ $y \geq 0.79 - 0.67x$ $y \leq x - 0.12$ 
	RH2	0.5657	0.4260	
	RH3	0.5700	0.4227	
	RH4	0.564	0.4274	
Parking HV 13.5V	RH1	0.5908	0.4008	
	RH2	0.5849	0.4076	
	RH3	0.5874	0.4056	
	RH4	0.5844	0.4096	
Marker 13.5V HV	RH1	0.5710	0.4244	
	RH2	0.5736	0.4214	
	RH3	0.5720	0.4245	
	RH4	0.5715	0.4233	
Reflex	RH1	0.5896	0.4072	
	RH2	0.5917	0.4051	
	RH3	0.5899	0.4071	
	RH4	0.5921	0.4049	

Samples meet Color requirements for Yellow (Amber).

Note: Devices tested with bulbs that came with each lamp.

**PHOTOGRAPH SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps



**PHOTOGRAPH SHEET**

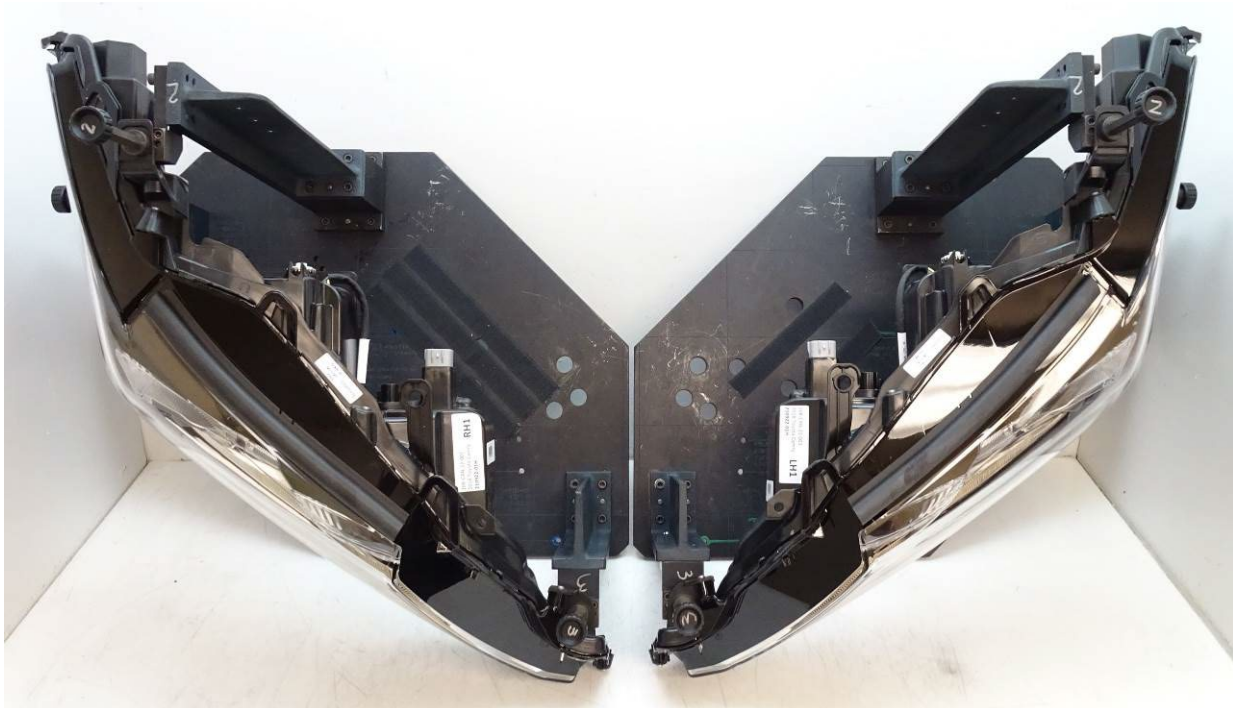
Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps





**PHOTOGRAPH SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps



**PHOTOGRAPH SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps



**CALIBRATION DATA SHEET**

Project Name: 2018 Toyota Camry VOR Integral Beam (LED) Headlamps

PHOTOMETRY / COLOR

Last Calibrated

Goniometer

ITL Custom with Aerotech ART-330, 320 Stepper Motors .....20 Sep 2021  
[resolution 0.001°, accuracy ±0.01° (±0.05%)] .....[due every 5 years]

Luminous Intensity

Hoffman TSP-7501(HG), S/Ns 1060, 1061, 1027 .....07 Feb 2022  
[0.01 Cd to 600 kCd, ±0.01 Cd, accuracy ±2.0%] ..... [due every 12 months]

Color - Spectroradiometric

Photoresearch PR-655 w/MS-75 lens & SRS-3 target,  
S/N 65160706 .....05 Nov 2021  
[resolution ±2nm, (x, y) ±0.001, ±4% luminance] ..... [due every 12 months]

Reflex Projector

Hoffman GPS-102, S/N 1006 .....before every test  
[~1 fc (10 Lx) at 2856K (Illuminant A)] .....[due as needed]

ELECTRICAL

Last Calibrated

DC Power Supply

HP 6652A, S/N 3347A-01634 .....N/A  
[500W, 0-20V, 0-25A] ..... [use DMMs for measurement]

Voltage

Fluke 45 (#1), S/N 7934019 ..... 29 February 2021  
[resolution 0.01V, accuracy ±0.02%] ..... [due every 12 months]

Current

Keithley 197A (#1), S/N 741430 ..... 29 February 2021  
[resolution 0.001A, accuracy ±0.02%] ..... [due every 12 months]