

LAMPS, REFLECTIVE DEVICES AND ASSOCIATED EQUIPMENT FMVSS-108

**TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr**

CALCOAST - ITL
Lighting Technology
4072 Watts Street
Emeryville, CA 94608



27 September 2006

FINAL REPORT

PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

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NHTSA Report No. 108-CCITL-06-14

Prepared By:

A handwritten signature in blue ink, appearing to read "John G. Quinn", is written over a light blue rectangular background. A vertical red line is positioned to the right of the signature.

Approved By:

A handwritten signature in blue ink, appearing to read "Mark A. Evans", is written over a light blue rectangular background.

Approval Date: 27 September 2006

FINAL REPORT ACCEPTANCE BY OVSC:

A handwritten signature in blue ink, appearing to read "Se G. Lee", is written over a light blue rectangular background.

Accepted By: _____

Acceptance Date: 09-28-2006 _____

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 108-CCITL-06-14	2. Government Accession No. N/A	3. Recipient's Catalog No. N/A	
4. Title and Subtitle Test Series TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)for 2006 Honda Accord 4Dr		5. Report Date 27 September 2006	
		6. Performing Organization Code N/A	
7. Author(s) Mark A. Evans Photometric Engineer		8. Performing Organization Report No. 060922-03H	
9. Performing Organization Name and Address Calcoast - ITL 4072 Watts Street Emeryville, CA 94608		10. Work Unit No. N/A	
		11. Contract or Grant No.	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance 400 7th Street, S.W., Room 6111(NVS 222) Washington, D.C. 20590		13. Type of Report and Period Covered	
		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract The scope of this testing was limited to certain photometry and color tests as indicated. Test failures identified were as follows: lower beam and upper beam.			
17. Key Words Federal Motor Vehicle Safety Standard 108 Lamps, Reflective Devices and Associated Equipment		18. Distribution Statement Unlimited	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this report) Unclassified	21. No. of Pages 28	22. Price N/A



INDUSTRIAL TESTING LABORATORY

Report No. 060922-03H

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TEST REPORT

Report Date: 27 September 2006

Test Component: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL) for 2006 Honda Accord 4Dr

Manufactured By: TYC Brother Industrial Co., Ltd.

Submitted By: CCITL purchased for NHTSA

NHTSA Report No.: 108-CCITL-06-14

Test Laboratory: Calcoast - ITL
Emeryville, CA 94608

Devices Tested: Four (4) Pair

SUMMARY

Specifications: FMVSS 108

Photometric Tests - Replaceable Bulb Headlamp

Figure 17-2 Lower Beam 8 of 8 FAILED

Figure 17-2 Upper Beam 2 of 8 FAILED

Color Tests - SAE J578c FEB77 8 of 8 PASSED

Signature of Responsible Laboratory Official:

A handwritten signature in blue ink that reads "Mark A. Evans".

Mark A. Evans
Photometric Engineer

DESCRIPTION SHEET

Test Component: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr

GENERAL DESCRIPTION:

MARKINGS: LENS: "HB4", "TYC", "HB3", "SAE AHRI5PP2 00", "DOT",
"VOL", "20-6361" or "20-6362", "R" or "L"

HOUSING: "HB3", "20-6361B" or "20-6362B", "12V HB4", "R" or "L"
material markings, additional date information
See photometry data sheets for production markings

LENS: MATERIAL: Polycarbonate (Clear)
COATING: Unknown
METHOD OF ATTACHMENT: Clips and Glue

HOUSING: MATERIAL: Plastic
METHOD OF MOUNTING: Four (4) Bolts

BULBS USED:

FUNCTION	QUANTITY	TRADE NO.	VOLTS
Upper Beam	One	HB3	12.80V
Lower Beam & Upper Beam	One	HB4	12.80V

NOTE: HB3/HB4 bulbs supplied with the lamps were seasoned for 1.5/3.0 hours at design voltage prior to photometry and color testing.

TEST DATA SHEET

Test Component: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr

COLOR TEST: SAE J578c

Test Method: Tristimulus Method using Minolta CL100

Test Performed by: Douglas Cummins

Date: 9/24-25/2006

Lamp Voltage: 12.80V

Test Distance: 50 Feet

Measured average xy chromaticity coordinate values:

White

Lower Beam at 1.5D/2R

Upper Beam @ HV

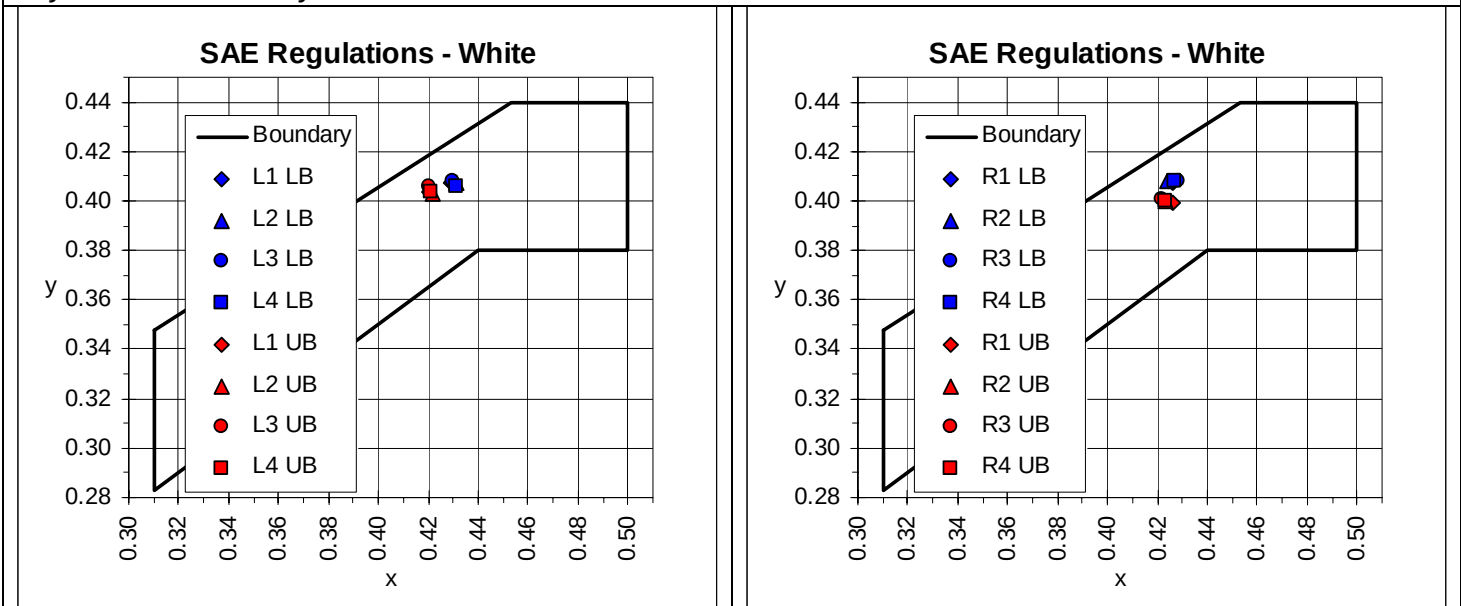
L1	L2	L3	L4	L1	L2	L3	L4
x=0.429	x=0.431	x=0.430	x=0.431	x=0.420	x=0.422	x=0.420	x=0.421
y=0.407	y=0.407	y=0.408	y=0.406	y=0.404	y=0.403	y=0.406	y=0.404

Lower Beam at 1.5D/2R

Upper Beam @ HV

R1	R2	R3	R4	R1	R2	R3	R4
x=0.426	x=0.424	x=0.428	x=0.427	x=0.426	x=0.423	x=0.422	x=0.423
y=0.407	y=0.408	y=0.408	y=0.408	y=0.399	y=0.400	y=0.401	y=0.400

xy Chromaticity Coordinate Boundaries:



Devices comply with all color requirements.

PHOTOMETRIC TEST SUMMARY SHEET

Test Component: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr

SUMMARY OF PHOTOMETRIC TESTS

Tests performed by: Douglas Cummins

Date: 9/24-25/2006

Reference calibration detector number: NIST P181-2

Test distance: 100 feet

Aim: Lamp mounted on Stanley SDA H/L LH or RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Fixture baseplate markings aligned left/right perpendicular to HV.

Sample aim screw adjusted until Lower Beam Max Gradient located at
0.4D/2.5L and verified level from 0.4D/3.5L to 0.4D/1.5L (VOL aim).

<u>Test</u>	<u>Equipment</u>
Photometry	Custom Goniometer (Aerotech Rotary Tables, Stepper Motors, Driver) Hoffman TSP-7501 Detector IOtech DaqBoard/2000 16-bit, 200kHz DAC HP 6652A Power Supply Data Precision 2480R DMM (Current) Keithley 197A DMM (Voltage) Kepco 15-12M Power Supply Fluke 23 DMM (Voltage) Keithley 197A (Current)

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr

VOL Aim

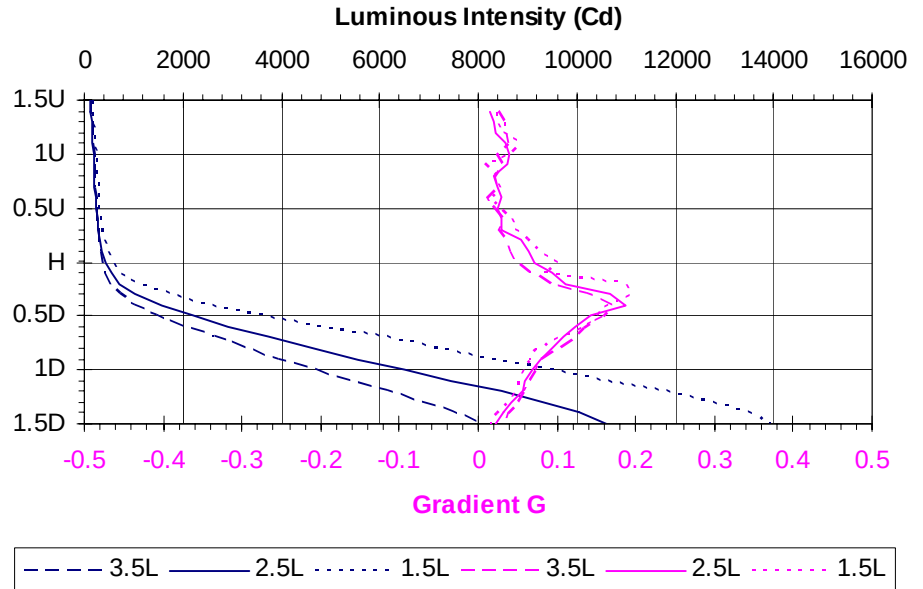
RH1

Maximum Vertical Gradient

Location	Value	Required
0.4D/3.5L	0.171	-
0.4D/2.5L	0.187	> 0.13
0.3D/1.5L	0.193	-

Horizontal width of cutoff is greater than 2° centered at 2.5L.

Maximum inclination of cutoff is within $\pm 0.2^\circ$.



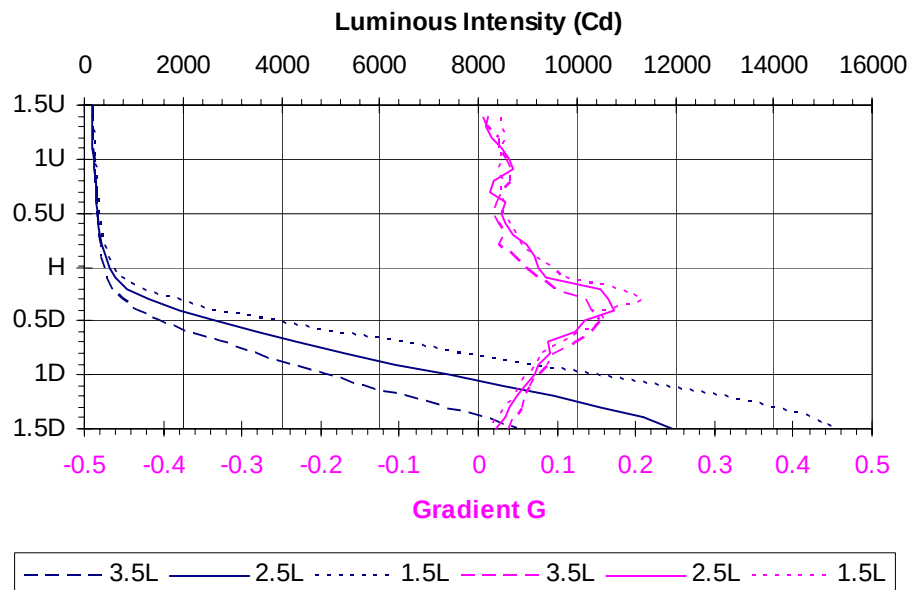
RH2

Maximum Vertical Gradient

Location	Value	Required
0.5D/3.5L	0.152	-
0.4D/2.5L	0.174	> 0.13
0.3D/1.5L	0.209	-

Horizontal width of cutoff is greater than 2° centered at 2.5L.

Maximum inclination of cutoff is within $\pm 0.2^\circ$.



PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr

VOL Aim

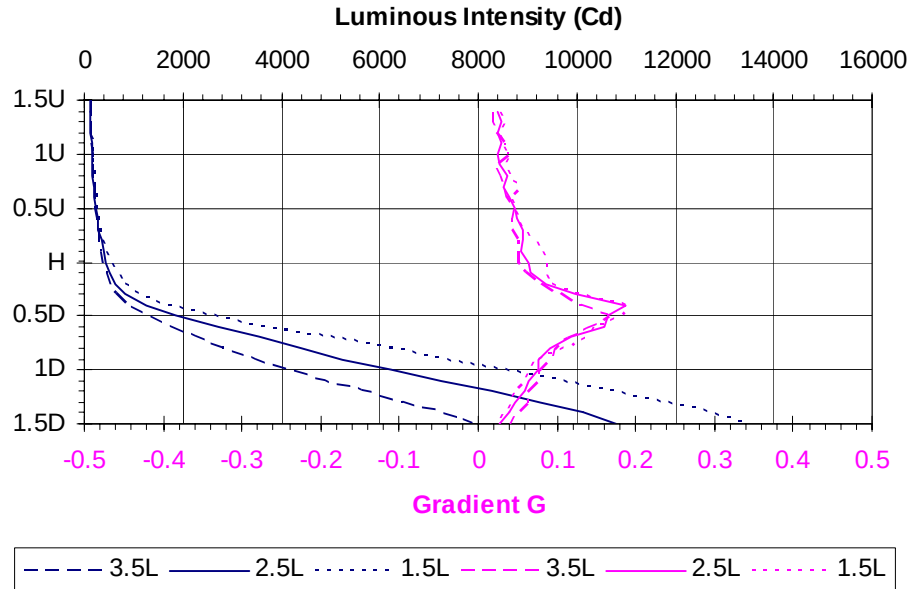
RH3

Maximum Vertical Gradient

Location	Value	Required
0.5D/3.5L	0.166	-
0.4D/2.5L	0.187	> 0.13
0.4D/1.5L	0.189	-

Horizontal width of cutoff is greater than 2° centered at 2.5L.

Maximum inclination of cutoff is within $\pm 0.2^\circ$.



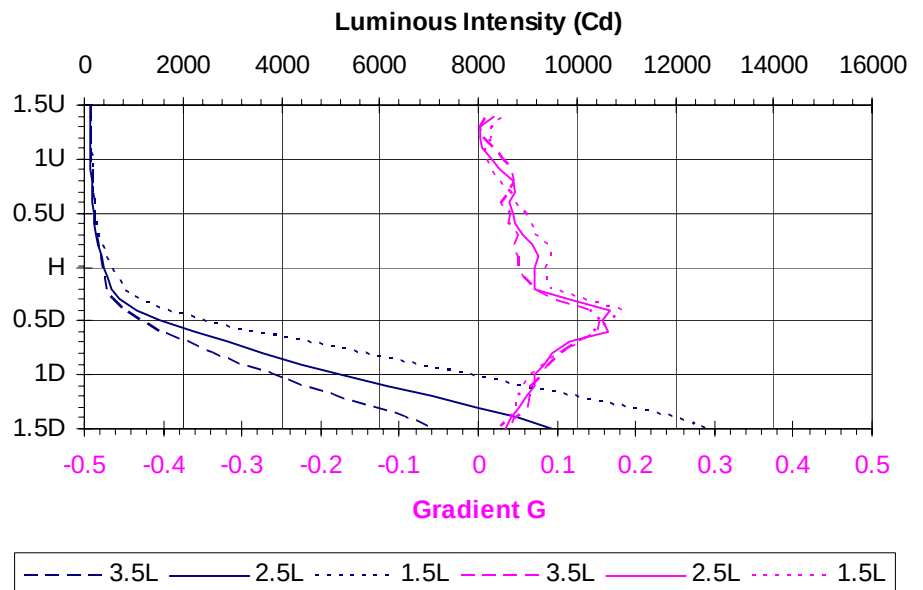
RH4

Maximum Vertical Gradient

Location	Value	Required
0.5D/3.5L	0.154	-
0.4D/2.5L	0.168	> 0.13
0.4D/1.5L	0.183	-

Horizontal width of cutoff is greater than 2° centered at 2.5L.

Maximum inclination of cutoff is within $\pm 0.2^\circ$.



PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6361, RH1

Production Markings: "06260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V						
				844.84		-	-
4.0U	8.0L			72.51		64	-
4.0U	8.0R			73.49		64	-
2.0U	4.0L			119.03	124.78*	135	-
1.5U	1.0R TO	3.0R	2.9R	146.11	166.28*	200	-
1.5U	1.0R TO		R	11.7R		-	1400
1.0U	1.5L TO		L	1.5L		-	700
0.5U	1.5L TO		L	1.6L		-	1000
0.5U	1.0R TO	3.0R	2.8R	338.40	519.34	500	-
0.5U	1.0R TO	3.0R	1.0R	599.20		-	2700
H	8.0L			250.65		64	-
H	4.0L			301.82		135	-
H	V			850.04		-	-
0.6D	1.3R			15337.75		10000	-
0.9D	3.5L			3840.30		1800	12000
0.9D	V			12269.11		4500	-
1.5D	2.0R			29412.02		15000	-
2.0D	15.0L			2256.48		1000	-
2.0D	9.0L			4033.81		1250	-
2.0D	9.0R			5130.50		1250	-
2.0D	15.0R			3757.09		1000	-
4.0D	20.0L			646.77		300	-
4.0D	V			5225.05		-	-
4.0D	4.0R			4667.10		-	12500
4.0D	20.0R			1849.86		300	-
MAXIMUM		1.4D	1.0R	38023.73		-	-
MX(10U-90U/90L-90R)		12.2U	4.9L	168.85*		-	125
H	V			850.54		-	-

* - Denotes Failure.

Bulb: Philips HB4 provided with sample @ 12.80V / 4.297A / Flux not measured

Aim: Lamp mounted on Stanley SDA RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L and verified level from 0.4D/3.5L to 1.5L (VOL aim). MaxG = 0.187

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6361, RH1

Production Markings: "06260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		64964.32		40000	75000
2.0U V		8231.71		1500	-
1.0U 3.0L		12074.16		5000	-
1.0U 3.0R		31659.87		5000	-
H 12.0L		2602.88		1500	-
H 9.0L		5315.55		3000	-
H 6.0L		7020.95		5000	-
H 3.0L		14878.77	17056.01	15000	-
H V		64683.39		40000	75000
H 3.0R		38471.07		15000	-
H 6.0R		9126.74		5000	-
H 9.0R		6866.68		3000	-
H 12.0R		4115.71		1500	-
1.5D 9.0L		7173.25		2000	-
1.5D V		39116.16		5000	-
1.5D 9.0R		8144.35		2000	-
2.5D 12.0L		4620.84		1000	-
2.5D V		17733.94		2500	-
2.5D 12.0R		6739.68		1000	-
4.0D V		6581.93		-	12000
MAXIMUM	0.5D 0.7R	69073.82		-	-
H V		64389.74		40000	75000

Sample meets test requirements at all points.

Bulb 1: Philips HB3 provided with sample @ 12.80V / 5.120A / Flux not measured

Bulb 2: Philips HB4 provided with sample @ 12.80V / 4.308A / Flux not measured

Aim: Lamp mounted on Stanley SDA RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L and verified level from 0.4D/3.5L to 1.5L (VOL aim).

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6361, RH2

Production Markings: "06260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V						
				1008.51		-	-
4.0U	8.0L			66.73		64	-
4.0U	8.0R			75.95		64	-
2.0U	4.0L			128.98	134.02*	135	-
1.5U	1.0R TO	3.0R	3.0R	146.30	163.18*	200	-
1.5U	1.0R TO	R	12.6R	319.76		-	1400
1.0U	1.5L TO	L	1.5L	216.35		-	700
0.5U	1.5L TO	L	1.5L	289.21		-	1000
0.5U	1.0R TO	3.0R	3.0R	346.43	603.73	500	-
0.5U	1.0R TO	3.0R	1.0R	454.56		-	2700
H	8.0L			262.81		64	-
H	4.0L			348.43		135	-
H	V			1026.08		-	-
0.6D	1.3R			16633.63		10000	-
0.9D	3.5L			4000.63		1800	12000
0.9D	V			17176.08		4500	-
1.5D	2.0R			25288.18		15000	-
2.0D	15.0L			2367.91		1000	-
2.0D	9.0L			4208.30		1250	-
2.0D	9.0R			5019.80		1250	-
2.0D	15.0R			3769.81		1000	-
4.0D	20.0L			619.87		300	-
4.0D	V			5327.49		-	-
4.0D	4.0R			4595.07		-	12500
4.0D	20.0R			1891.49		300	-
MAXIMUM		1.4D	0.7R	38877.12		-	-
MX(10U-90U/90L-90R)		12.0U	5.0L	180.25*		-	125
H	V			1031.69		-	-

* - Denotes Failure.

Bulb: Philips HB4 provided with sample @ 12.80V / 4.300A / Flux not measured

Aim: Lamp mounted on Stanley SDA RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L and verified level from 0.4D/3.5L to 1.5L (VOL aim). MaxG = 0.174

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6361, RH2

Production Markings: "06260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		62848.12		40000	75000
2.0U V		6372.04		1500	-
1.0U 3.0L		16563.95		5000	-
1.0U 3.0R		24768.91		5000	-
H 12.0L		3180.23		1500	-
H 9.0L		6836.50		3000	-
H 6.0L		8912.20		5000	-
H 3.0L		20219.00		15000	-
H V		63365.58		40000	75000
H 3.0R		28939.22		15000	-
H 6.0R		8249.62		5000	-
H 9.0R		5867.33		3000	-
H 12.0R		3099.75		1500	-
1.5D 9.0L		8519.49		2000	-
1.5D V		43283.01		5000	-
1.5D 9.0R		8123.83		2000	-
2.5D 12.0L		4993.42		1000	-
2.5D V		18927.58		2500	-
2.5D 12.0R		6923.87		1000	-
4.0D V		7133.00		-	12000
MAXIMUM	0.6D 0.1R	69260.94		-	-
H V		62293.22		40000	75000

Sample meets test requirements at all points.

Bulb 1: Philips HB3 provided with sample @ 12.80V / 5.124A / Flux not measured

Bulb 2: Philips HB4 provided with sample @ 12.80V / 4.310A / Flux not measured

Aim: Lamp mounted on Stanley SDA RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L and verified level from 0.4D/3.5L to 1.5L (VOL aim).

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6361, RH3

Production Markings: "06070609" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V			723.19		-	-
4.0U	8.0L			69.71		64	-
4.0U	8.0R			67.63		64	-
2.0U	4.0L			94.69	106.15*	135	-
1.5U	1.0R TO	3.0R	1.0R	131.72	179.34*	200	-
1.5U	1.0R TO		R	12.5R		-	1400
1.0U	1.5L TO		L	2.1L		-	700
0.5U	1.5L TO		L	1.7L		-	1000
0.5U	1.0R TO	3.0R	1.4R	474.55	706.14	500	-
0.5U	1.0R TO	3.0R	2.3R	539.00		-	2700
H	8.0L			186.80		64	-
H	4.0L			323.43		135	-
H	V			716.13		-	-
0.6D	1.3R			13872.69		10000	-
0.9D	3.5L			3164.82		1800	12000
0.9D	V			12267.82		4500	-
1.5D	2.0R			21037.47		15000	-
2.0D	15.0L			2135.56		1000	-
2.0D	9.0L			3919.63		1250	-
2.0D	9.0R			4665.51		1250	-
2.0D	15.0R			3288.72		1000	-
4.0D	20.0L			789.13		300	-
4.0D	V			4218.15		-	-
4.0D	4.0R			4496.98		-	12500
4.0D	20.0R			1542.32		300	-
MAXIMUM		1.4D	0.9R	32478.26		-	-
MX(10U-90U/90L-90R)	10.7U	5.0L		163.34*		-	125
H	V			718.16		-	-

* - Denotes Failure.

Bulb: Philips HB4 provided with sample @ 12.80V / 4.284A / Flux not measured

Aim: Lamp mounted on Stanley SDA RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L and verified level from 0.4D/3.5L to 1.5L (VOL aim). MaxG = 0.187

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6361, RH3

Production Markings: "06070609" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		65348.86		40000	75000
2.0U V		5823.44		1500	-
1.0U 3.0L		14055.81		5000	-
1.0U 3.0R		22909.18		5000	-
H 12.0L		2192.87		1500	-
H 9.0L		5058.32		3000	-
H 6.0L		8472.01		5000	-
H 3.0L		17898.30		15000	-
H V		63132.90		40000	75000
H 3.0R		30994.45		15000	-
H 6.0R		8700.77		5000	-
H 9.0R		5368.03		3000	-
H 12.0R		2490.74		1500	-
1.5D 9.0L		7387.98		2000	-
1.5D V		39414.65		5000	-
1.5D 9.0R		7338.86		2000	-
2.5D 12.0L		4161.25		1000	-
2.5D V		17736.13		2500	-
2.5D 12.0R		6327.15		1000	-
4.0D V		5880.10		-	12000
MAXIMUM	1.1D V	164442.71		-	-
	0.6D 0.2R	71734.42		-	-
H V		65421.44		40000	75000

Sample meets test requirements at all points.

Bulb 1: Philips HB3 provided with sample @ 12.80V / 5.117A / Flux not measured

Bulb 2: Philips HB4 provided with sample @ 12.80V / 4.294A / Flux not measured

Aim: Lamp mounted on Stanley SDA RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L and verified level from 0.4D/3.5L to 1.5L (VOL aim).

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6361, RH4

Production Markings: "06070609" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V						
				690.99		-	-
4.0U	8.0L			68.43		64	-
4.0U	8.0R			70.47		64	-
2.0U	4.0L			98.67	106.36*	135	-
1.5U	1.0R TO	3.0R	1.0R	128.54	172.02*	200	-
1.5U	1.0R TO		R	12.7R		-	1400
1.0U	1.5L TO		L	1.5L		-	700
0.5U	1.5L TO		L	1.7L		-	1000
0.5U	1.0R TO	3.0R	1.0R	378.49	613.41	500	-
0.5U	1.0R TO	3.0R	3.0R	518.95		-	2700
H	8.0L			193.66		64	-
H	4.0L			299.06		135	-
H	V			677.24		-	-
0.6D	1.3R			13281.67		10000	-
0.9D	3.5L			2909.39		1800	12000
0.9D	V			12468.98		4500	-
1.5D	2.0R			20924.59		15000	-
2.0D	15.0L			2032.53		1000	-
2.0D	9.0L			3851.03		1250	-
2.0D	9.0R			4347.48		1250	-
2.0D	15.0R			3105.91		1000	-
4.0D	20.0L			667.19		300	-
4.0D	V			4241.41		-	-
4.0D	4.0R			4702.04		-	12500
4.0D	20.0R			1697.29		300	-
MAXIMUM		1.5D	0.7R	33786.25		-	-
MX(10U-90U/90L-90R)	10.9U	5.1L		160.92*		-	125
H	V			685.55		-	-

* - Denotes Failure.

Bulb: Philips HB4 provided with sample @ 12.80V / 4.293A / Flux not measured

Aim: Lamp mounted on Stanley SDA RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L and verified level from 0.4D/3.5L to 1.5L (VOL aim). MaxG = 0.168

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6361, RH4

Production Markings: "06070609" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		62760.00		40000	75000
2.0U V		6074.30		1500	-
1.0U 3.0L		13290.84		5000	-
1.0U 3.0R		23525.36		5000	-
H 12.0L		1955.29		1500	-
H 9.0L		4935.41		3000	-
H 6.0L		8335.90		5000	-
H 3.0L		16289.71		15000	-
H V		60509.80		40000	75000
H 3.0R		33272.45		15000	-
H 6.0R		8775.51		5000	-
H 9.0R		5685.26		3000	-
H 12.0R		2630.25		1500	-
1.5D 9.0L		7070.76		2000	-
1.5D V		43419.45		5000	-
1.5D 9.0R		7352.86		2000	-
2.5D 12.0L		4117.50		1000	-
2.5D V		18923.63		2500	-
2.5D 12.0R		6191.86		1000	-
4.0D V		5786.89		-	12000
MAXIMUM	1.0D V	165638.39		-	-
	0.7D 0.4R	71919.48		-	-
H V		63021.99		40000	75000

Sample meets test requirements at all points.

Bulb 1: Philips HB3 provided with sample @ 12.80V / 5.119A / Flux not measured

Bulb 2: Philips HB4 provided with sample @ 12.80V / 4.304A / Flux not measured

Aim: Lamp mounted on Stanley SDA RH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

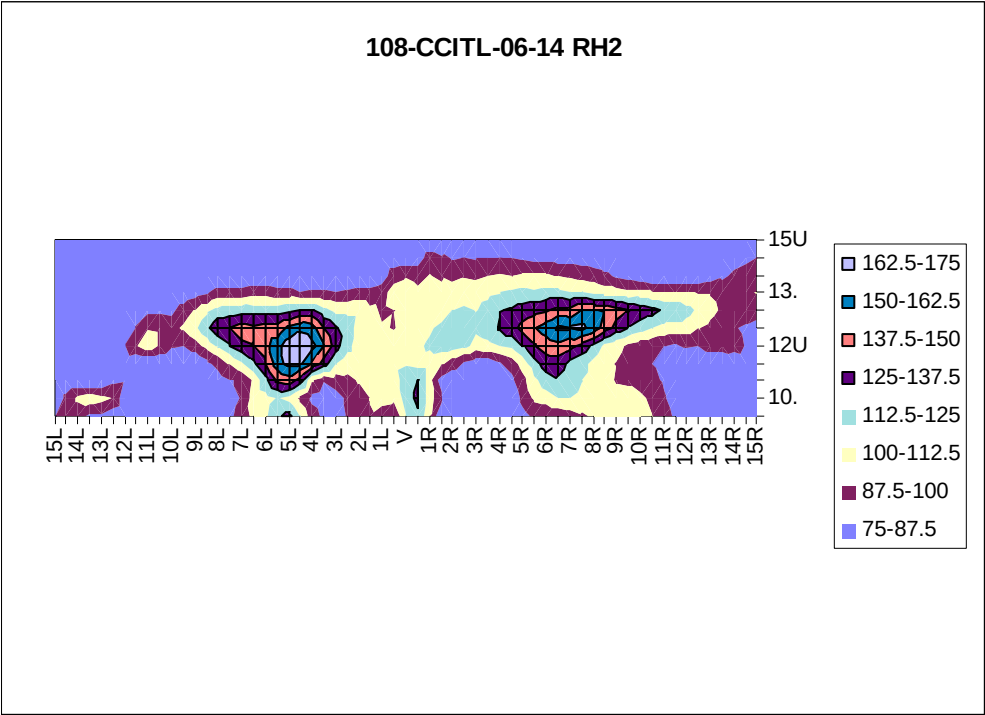
Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L and verified level from 0.4D/3.5L to 1.5L (VOL aim).

PHOTOMETRIC TEST DATA SHEET

Project Name: Honda SDA Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: RH2



Representative Sample

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr

VOL Aim

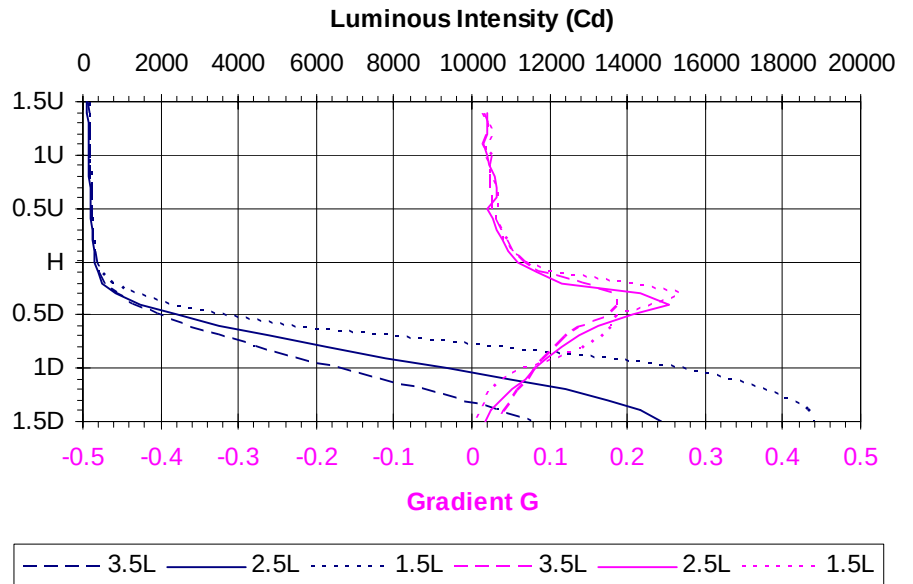
LH1

Maximum Vertical Gradient

Location	Value	Required
1.1D/3.5L	0.148	-
0.4D/2.5L	0.177	> 0.13
0.2D/1.5L	0.232	-

Horizontal width of cutoff is greater than 2° centered at 2.5L.

Maximum inclination of cutoff is **not** within $\pm 0.2^\circ$.



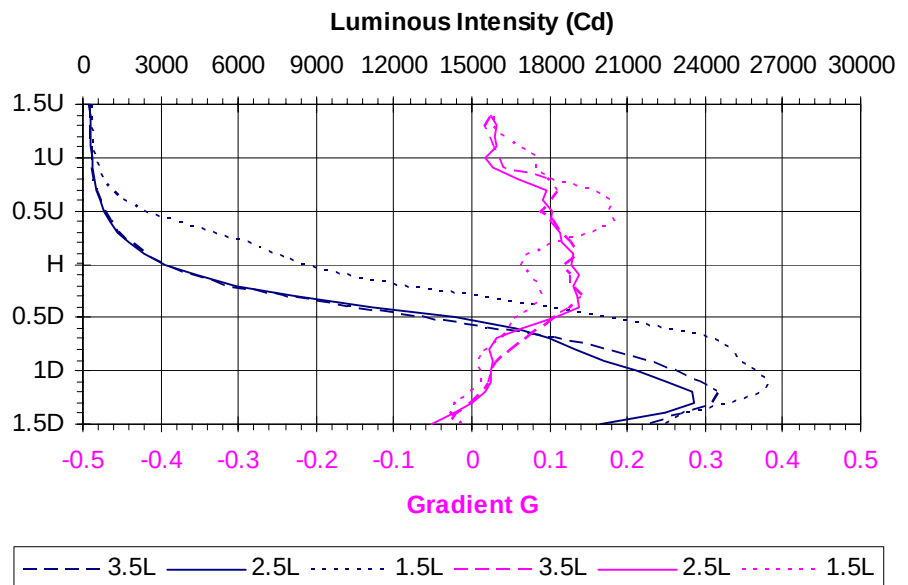
LH2

Maximum Vertical Gradient

Location	Value	Required
0.3D/3.5L	0.140	-
0.4D/2.5L	0.138	> 0.13
0.4U/1.5L	0.182	-

Horizontal width of cutoff is greater than 2° centered at 2.5L.

Maximum inclination of cutoff is **not** within $\pm 0.2^\circ$.



PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr

VOL Aim

LH3

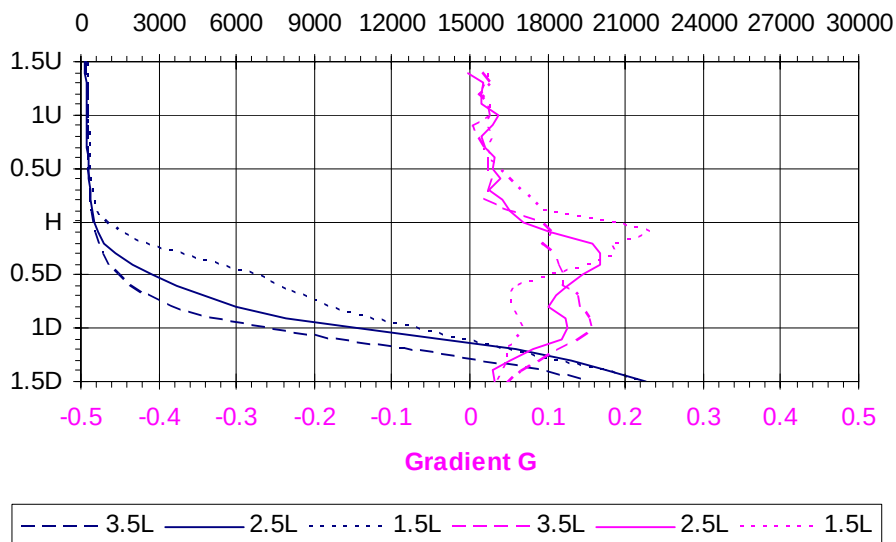
Maximum Vertical Gradient

Location	Value	Required
1.0D/3.5L	0.154	-
0.4D/2.5L	0.168	> 0.13
0.1D/1.5L	0.232	-

Horizontal width of cutoff is greater than 2° centered at 2.5L.

Maximum inclination of cutoff is **not** within $\pm 0.2^\circ$.

Luminous Intensity (Cd)



LH4

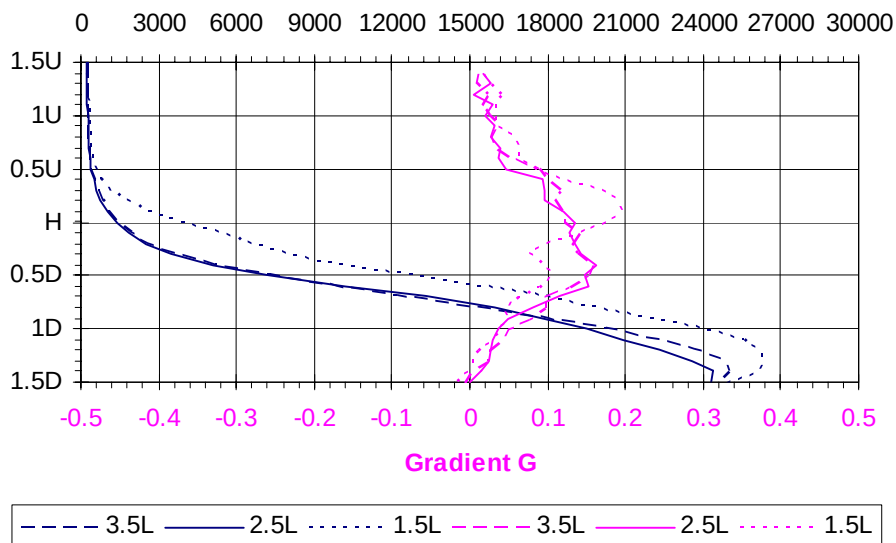
Maximum Vertical Gradient

Location	Value	Required
0.4D/3.5L	0.156	-
0.4D/2.5L	0.162	> 0.13
0.1U/1.5L	0.194	-

Horizontal width of cutoff is greater than 2° centered at 2.5L.

Maximum inclination of cutoff is **not** within $\pm 0.2^\circ$.

Luminous Intensity (Cd)



PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6362, LH1

Production Markings: "07260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V			2002.22		-	-
4.0U	8.0L			93.83		64	-
4.0U	8.0R			72.29		64	-
2.0U	4.0L			128.93	136.07	135	-
1.5U	1.0R	TO	3.0R	162.92	215.15	200	-
1.5U	1.0R	TO	R	8.9R		-	1400
1.0U	1.5L	TO	L	1.7L		-	700
0.5U	1.5L	TO	L	1.6L		-	1000
0.5U	1.0R	TO	3.0R	1.0R		500	-
0.5U	1.0R	TO	3.0R	2.3R		-	2700
H	8.0L			423.14		64	-
H	4.0L			367.08		135	-
H	V			2083.34		-	-
0.6D	1.3R			7248.65	7868.55*	10000	-
0.9D	3.5L			3655.06		1800	12000
0.9D	V			10109.08		4500	-
1.5D	2.0R			6853.89	7868.02*	15000	-
2.0D	15.0L			2626.07		1000	-
2.0D	9.0L			6281.37		1250	-
2.0D	9.0R			3665.30		1250	-
2.0D	15.0R			2189.99		1000	-
4.0D	20.0L			1530.83		300	-
4.0D	V			8602.50		-	-
4.0D	4.0R			3959.22		-	12500
4.0D	20.0R			539.66		300	-
MAXIMUM		1.9D	2.1L	27297.83		-	-
MX(10U-90U/90L-90R)		14.2U	4.7L	150.76*		-	125
H	V			2185.69		-	-

* - Denotes Failure.

Bulb: Philips HB4 provided with sample @ 12.80V / 4.334A / Flux not measured

Aim: Lamp mounted on Stanley SDA LH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at
0.4D/2.5L. MaxG = 0.177. Verified not level from 0.4D/3.5L to 1.5L.

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6362, LH1

Production Markings: "07260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		20892.09	26439.20*	40000	75000
2.0U V		3500.40		1500	-
1.0U 3.0L		8256.36		5000	-
1.0U 3.0R		6561.47		5000	-
H 12.0L		4648.28		1500	-
H 9.0L		10028.61		3000	-
H 6.0L		23268.29		5000	-
H 3.0L		32864.91		15000	-
H V		21797.27	26493.22*	40000	75000
H 3.0R		12231.80	13224.80*	15000	-
H 6.0R		4696.87	5165.36	5000	-
H 9.0R		2512.54	2886.18*	3000	-
H 12.0R		1484.79	1750.58	1500	-
1.5D 9.0L		16034.11		2000	-
1.5D V		39062.65		5000	-
1.5D 9.0R		5753.32		2000	-
2.5D 12.0L		6558.42		1000	-
2.5D V		29332.97		2500	-
2.5D 12.0R		3962.22		1000	-
4.0D V		11203.74		-	12000
MAXIMUM	1.4D 2.3L	81644.45		-	-
H V		22147.80	26730.77*	40000	75000

* - Denotes Failure.

Bulb 1: Philips HB3 provided with sample @ 12.80V / 5.151A / Flux not measured

Bulb 2: Philips HB4 provided with sample @ 12.80V / 4.334A / Flux not measured

Aim: Lamp mounted on Stanley SDA LH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at
0.4D/2.5L. Verified not level from 0.4D/3.5L to 1.5L.

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6362, LH2

Production Markings: "07260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V			9950.28		-	-
4.0U	8.0L			110.43		64	-
4.0U	8.0R			94.77		64	-
2.0U	4.0L			185.21		135	-
1.5U	1.0R	TO	3.0R	1.0R	443.99	200	-
1.5U	1.0R	TO		R	2.8R	1389.31	1400
1.0U	1.5L	TO		L	1.5L	484.51	700
0.5U	1.5L	TO		L	11.0L	2217.49	1000
0.5U	1.0R	TO	3.0R	3.0R	3826.20	4486.60	500
0.5U	1.0R	TO	3.0R	1.2R	7544.86	5315.30*	2700
H	8.0L			3298.15		64	-
H	4.0L			3354.44		135	-
H	V			10080.90		-	-
0.6D	1.3R			9755.09	10612.96	10000	-
0.9D	3.5L			21458.78	16675.50*	1800	12000
0.9D	V			16486.36		4500	-
1.5D	2.0R			10993.15	11572.08*	15000	-
2.0D	15.0L			2279.78		1000	-
2.0D	9.0L			5367.21		1250	-
2.0D	9.0R			4320.44		1250	-
2.0D	15.0R			2559.66		1000	-
4.0D	20.0L			1134.53		300	-
4.0D	V			4947.29		-	-
4.0D	4.0R			3053.23		-	12500
4.0D	20.0R			504.95		300	-
MAXIMUM		1.1D	1.6L	26659.14		-	-
MX(10U-90U/90L-90R)		14.5U	0.6R	171.72*		-	125
H	V			10239.26		-	-

* - Denotes Failure.

Bulb: Philips HB4 provided with sample @ 12.80V / 4.318A / Flux not measured

Aim: Lamp mounted on Stanley SDA LH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L. MaxG = 0.138. Verified not level from 0.4D/3.5L to 1.5L.

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6362, LH2

Production Markings: "07260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		40156.35		40000	75000
2.0U V		9151.65		1500	-
1.0U 3.0L		42447.81		5000	-
1.0U 3.0R		13902.23		5000	-
H 12.0L		5159.64		1500	-
H 9.0L		12557.73		3000	-
H 6.0L		25401.54		5000	-
H 3.0L		70195.51		15000	-
H V		41840.34		40000	75000
H 3.0R		17402.55		15000	-
H 6.0R		8674.36		5000	-
H 9.0R		4755.36		3000	-
H 12.0R		2598.56		1500	-
1.5D 9.0L		11329.24		2000	-
1.5D V		38666.85		5000	-
1.5D 9.0R		6748.90		2000	-
2.5D 12.0L		4630.63		1000	-
2.5D V		17859.69		2500	-
2.5D 12.0R		4210.37		1000	-
4.0D V		6132.58		-	12000
MAXIMUM	0.5D 1.8L	80483.03		-	-
H V		41642.31		40000	75000

Sample meets test requirements at all points.

Bulb 1: Philips HB3 provided with sample @ 12.80V / 5.175A / Flux not measured

Bulb 2: Philips HB4 provided with sample @ 12.80V / 4.318A / Flux not measured

Aim: Lamp mounted on Stanley SDA LH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L. Verified not level from 0.4D/3.5L to 1.5L.

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6362, LH3

Production Markings: "07260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V						
				2996.17		-	-
4.0U	8.0L			96.37		64	-
4.0U	8.0R			64.47		64	-
2.0U	4.0L			143.79		135	-
1.5U	1.0R TO	3.0R	1.2R	162.75	212.97	200	-
1.5U	1.0R TO	R	8.2R	227.39		-	1400
1.0U	1.5L TO	L	2.9L	239.08		-	700
0.5U	1.5L TO	L	2.1L	326.85		-	1000
0.5U	1.0R TO	3.0R	1.0R	957.49		500	-
0.5U	1.0R TO	3.0R	2.2R	2043.65		-	2700
H	8.0L			480.02		64	-
H	4.0L			420.96		135	-
H	V			3097.75		-	-
0.6D	1.3R			7085.32	7357.75*	10000	-
0.9D	3.5L			4511.53		1800	12000
0.9D	V			10858.35		4500	-
1.5D	2.0R			6772.48	7787.27*	15000	-
2.0D	15.0L			2555.66		1000	-
2.0D	9.0L			6074.75		1250	-
2.0D	9.0R			3600.86		1250	-
2.0D	15.0R			2133.99		1000	-
4.0D	20.0L			1396.66		300	-
4.0D	V			8460.64		-	-
4.0D	4.0R			3961.19		-	12500
4.0D	20.0R			500.28		300	-
MAXIMUM		1.8D	2.1L	27692.47		-	-
MX(10U-90U/90L-90R)	14.8U	1.2L		180.86*		-	125
H	V			3168.62		-	-

* - Denotes Failure.

Bulb: Philips HB4 provided with sample @ 12.80V / 4.285A / Flux not measured

Aim: Lamp mounted on Stanley SDA LH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at
0.4D/2.5L. MaxG = 0.168. Verified not level from 0.4D/3.5L to 1.5L.

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6362, LH3

Production Markings: "07260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		23938.72	28261.77*	40000	75000
2.0U V		4439.70		1500	-
1.0U 3.0L		10504.13		5000	-
1.0U 3.0R		8235.60		5000	-
H 12.0L		4352.91		1500	-
H 9.0L		9993.12		3000	-
H 6.0L		25084.41		5000	-
H 3.0L		56614.12		15000	-
H V		25103.78	28387.13*	40000	75000
H 3.0R		13167.67	13589.44*	15000	-
H 6.0R		5661.62		5000	-
H 9.0R		2674.06	3295.25	3000	-
H 12.0R		1854.10		1500	-
1.5D 9.0L		13541.53		2000	-
1.5D V		37872.14		5000	-
1.5D 9.0R		5860.28		2000	-
2.5D 12.0L		6040.77		1000	-
2.5D V		28279.29		2500	-
2.5D 12.0R		3822.12		1000	-
4.0D V		10934.56		-	12000
MAXIMUM	1.2D 2.1L	75592.77		-	-
H V		25522.32	28938.98*	40000	75000

* - Denotes Failure.

Bulb 1: Philips HB3 provided with sample @ 12.80V / 5.166A / Flux not measured

Bulb 2: Philips HB4 provided with sample @ 12.80V / 4.298A / Flux not measured

Aim: Lamp mounted on Stanley SDA LH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at
0.4D/2.5L. Verified not level from 0.4D/3.5L to 1.5L.

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6362, LH4

Production Markings: "07260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Lower Beam

Luminous Intensity, Candela

Test Point		Location		Measured	Reaim	Minimum	Maximum
H	V			8047.88		-	-
4.0U	8.0L			100.82		64	-
4.0U	8.0R			86.90		64	-
2.0U	4.0L			159.27		135	-
1.5U	1.0R	TO	3.0R	1.0R	239.31	200	-
1.5U	1.0R	TO	R	3.6R	527.50	-	1400
1.0U	1.5L	TO	L	10.9L	293.16	-	700
0.5U	1.5L	TO	L	10.6L	1047.96	521.50	1000
0.5U	1.0R	TO	3.0R	3.0R	2995.73	3732.80	500
0.5U	1.0R	TO	3.0R	2.3R	4438.47	2723.87*	2700
H	8.0L			2343.87		64	-
H	4.0L			1562.51		135	-
H	V			8094.94		-	-
0.6D	1.3R			10730.92		10000	-
0.9D	3.5L			17319.56	10515.84	1800	12000
0.9D	V			17759.65		4500	-
1.5D	2.0R			10221.72	10553.76*	15000	-
2.0D	15.0L			2547.98		1000	-
2.0D	9.0L			5868.71		1250	-
2.0D	9.0R			4103.41		1250	-
2.0D	15.0R			2391.14		1000	-
4.0D	20.0L			1196.52		300	-
4.0D	V			5350.20		-	-
4.0D	4.0R			3341.14		-	12500
4.0D	20.0R			599.22		300	-
MAXIMUM		1.3D	1.4L	26768.73		-	-
MX(10U-90U/90L-90R)		13.1U	1.2L	171.82*		-	125
H	V			8100.94		-	-

* - Denotes Failure.

Bulb: Philips HB4 provided with sample @ 12.80V / 4.288A / Flux not measured

Aim: Lamp mounted on Stanley SDA LH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

Sample aim screw adjusted until Lower Beam Max Gradient located at 0.4D/2.5L. MaxG = 0.162. Verified not level from 0.4D/3.5L to 1.5L.

PHOTOMETRIC TEST DATA SHEET

Project Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

Sample Number: TYC 20-6362, LH4

Production Markings: "07260610" in blue ink, "4 04 1" date code

Specification: FMVSS108 Figure 17-2 (Replaceable Bulb V0 Headlamp)

Color: White, Upper Beam

Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
H V		36787.50	40342.47	40000	75000
2.0U V		7931.20		1500	-
1.0U 3.0L		27463.63		5000	-
1.0U 3.0R		12179.48		5000	-
H 12.0L		5164.93		1500	-
H 9.0L		11969.79		3000	-
H 6.0L		24155.07		5000	-
H 3.0L		63992.88		15000	-
H V		38256.80	40299.24	40000	75000
H 3.0R		16536.50		15000	-
H 6.0R		7255.09		5000	-
H 9.0R		3903.55		3000	-
H 12.0R		2269.82		1500	-
1.5D 9.0L		11856.99		2000	-
1.5D V		41774.99		5000	-
1.5D 9.0R		6695.83		2000	-
2.5D 12.0L		5256.79		1000	-
2.5D V		21423.69		2500	-
2.5D 12.0R		4316.71		1000	-
4.0D V		6999.97		-	12000
MAXIMUM	0.7D 2.0L	75326.31		-	-
H V		38491.33	40265.21	40000	75000

Sample meets test requirements at all points.

Bulb 1: Philips HB3 provided with sample @ 12.80V / 5.157A / Flux not measured

Bulb 2: Philips HB4 provided with sample @ 12.80V / 4.298A / Flux not measured

Aim: Lamp mounted on Stanley SDA LH test fixture.

Fixture placed on level goniometer with HB4 filament at center of rotation.

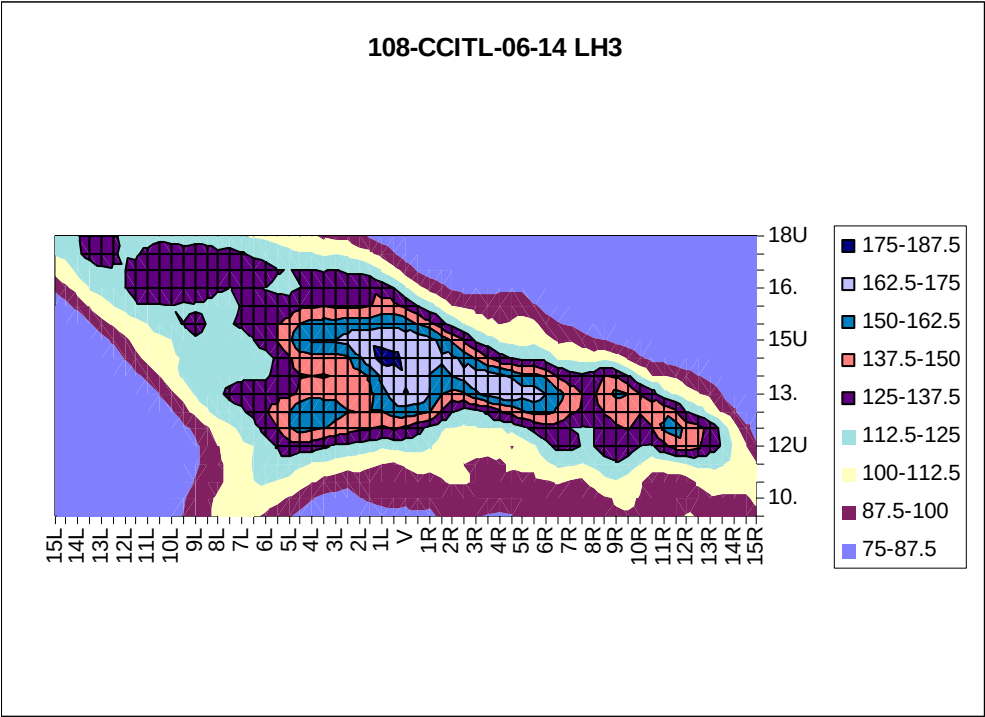
Sample aim screw adjusted until Lower Beam Max Gradient located at

0.4D/2.5L. Verified not level from 0.4D/3.5L to 1.5L.

PHOTOMETRIC TEST DATA SHEET

Project Name: Honda SDA Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord

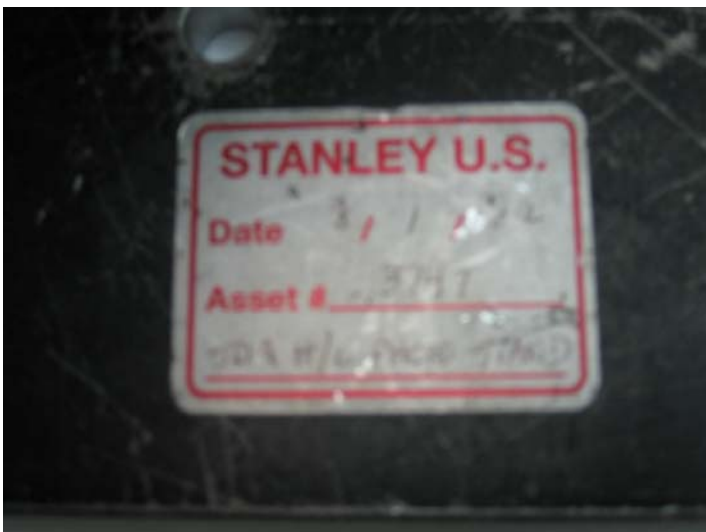
Sample Number: LH3



Representative Sample

PHOTOGRAPH SHEET

Device Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr



PHOTOGRAPH SHEET

Device Name: TYC 20-6361/62 Replaceable Bulb (HB4/HB3) Headlamps (VOL)
for 2006 Honda Accord 4Dr

