Report No. 108-CCITL-02-3

LAMPS, REFLECTIVE DEVICES AND ASSOCIATED EQUIPMENT FMVSS-108

Autodynamic "HID-Philips" HB4 HID Conversion Kit

Supplied by Autodynamic (www.autodynamic.com)

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

January 29, 2002

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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Prepared By: Mark A Evans

Approved By: Mark A Evans

Approval Date: 29 January 2002

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: Michael Cole

Acceptance Date: 2/20/02

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 108-CCITL-02-3	**2. Government Accession No.** N/A	**3. Recipient's Catalog No.** N/A	
4. Title and Subtitle Test Series High Intensity Discharge (HID) Conversion Kits		**5. Report Date** January 29, 2002 **6. Performing Organization Code** N/A	
7. Author(s) Mark A. Evans Photometric Engineer		**8. Performing Organization Report No.** 1220-1B/B01	
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(NSA 30) 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 photometry and color tests to demonstrate the performance of a headlamp when a Autodynamic "HID-Philips" HB4 HID Conversion Kit is substituted for the standardized replaceable light source intended for use in the headlamp. Test failures identified were as follows: lower beam photometry and headlamp color.			
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** 8	**22. Price** N/A

LIGHTING TECHNOLOGY CALCOAST PHOTOMETRIC TESTING

INDUSTRIAL TESTING LABORATORY

Report No. 1220-1B/B01

TEST REPORT

Report Date: January 29, 2002

Test Component: Autodynamic "HID-Philips" HB4 HID Conversion Kit

Supplied By: Autodynamic (www.autodynamic.com)

Submitted By: NHTSA

Test Laboratory: Calcoast - ITL
Emeryville, CA 94608

Devices Tested: One (1) Complete Kit with Two(2) Modified D2S Light Sources and Ballast Assemblies

SUMMARY

Specifications: FMVSS 108

Photometric Tests (Figure 17-1)

Lower Beam using HB4 Bulb..... PASSED

Lower Beam using HID Conversion Kit..... **FAILED**

Color Tests

SAE J578c..... **FAILED**

Note: Tested using 1996 Chevrolet Lumina RBHL (LH) Manufactured By Guide.

Signature of Responsible Laboratory Official:

Mark A. Evans
Photometric Engineer MAE:cc(2)

DESCRIPTION SHEET

Device Name: Autodynamic "HID-Philips" HB4 HID Conversion Kit

Supplied By: Autodynamic (www.autodynamic.com)

GENERAL DESCRIPTION:

MARKINGS:

BALLAST: "PHILIPS", LVQ 212-L300", See photos for additional markings

IGNITER: N/A

BULB: "DOT", "G125, "E1", "03V"

DESCRIPTION:

BULB USED: QUANTITY: Two(2) D2S (Modified)

DESIGN VOLTS: 12.80V

MEASURED FLUX (@12.80v)	
Ballast 1/ Bulb 1	Ballast 2/ Bulb 2
3095 lumens(3.193A)	3193 lumens(3.213A)

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TEST DATA SHEET

Device Name: Autodynamic "HID-Philips" HB4 HID Conversion Kit

Supplied By: Autodynamic (www.autodynamic.com)

COLOR TEST: SAE J578c

Test Method: Tristimulus Method using Minolta Chroma Meter CL100

Lamp Voltage: 12.80V Test Performed By: Mark Evans

Test Distance: 50 ft Date: 01/07/2002

RESULTS

Measured xy Chromaticity Coordinate Values:
White
Lower Beam w/HID Kit @ 1.5D/2R x=0.3679 y=0.3994
xy Chromaticity Coordinate Boundaries:
White
0.38≤y<0.44 0.31≤x≤0.50 y≤0.15+0.64x y≥0.05+0.75x

Summary:

White- The color of the light emitted from the clear lens on device falls **outside** the acceptable limits for white.

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PHOTOMETRIC TEST DATA SHEET

Device Name: Baseline Replaceable Headlamp With Rated HB4 Light Source

Specification: FMVSS 108 Fig. 17-1 (Lower Beam)

Test Lamp: 1996 Chevrolet Lumina Headlamp (LH)

Luminous Intensity, Candela

Test Points Degrees		Location		LOWER BEAM Measured	Reaim	Required Minimum	Maximum
H	V			2591.77		-	-
4.0U	8.0L			79.56		64	-
4.0U	8.0R			126.09		64	-
2.0U	4.0L			245.59		135	-
1.5U	1.0R TO	3.0R	1.00R	420.36		200	-
1.5U	1.0R TO	R	4.02R	530.08		-	1400
1.0U	1.5L TO	L	1.50L	482.77		-	700
0.5U	1.5L TO	L	1.50L	683.26		-	1000
0.5U	1.0R TO	3.0R	2.58R	1504.23		500	-
0.5U	1.0R TO	3.0R	1.59R	1711.94		-	2700
H	4.0L			813.49		135	-
H	8.0L			388.98		64	-
0.5D	1.5L TO	L	1.50L	2105.42		-	3000
0.5D	1.5R			14155.43		10000	20000
1.0D	6.0L			1846.23		1000	-
1.5D	2.0R			25037.65		15000	-
1.5D	9.0L			1904.20		1000	-
1.5D	9.0R			3250.51		1000	-
2.0D	15.0L			1185.06		850	-
2.0D	15.0R			2390.30		850	-
4.0D	4.0R			5109.81		-	12500
Maximum		1.46D	2.51R	26064.01		-	-
10.0U TO 90.0U		10.04U	2.06R	60.80		-	125

Device meets requirements at all points.

Aim: 24H 32V (warm)

Bulb: ITL-820 (HB4/9006)
Voltage: 12.80V / Current: 4.340A / Flux: ~1053 lumens

Note: Lamp mounted in fixture designed to hold this lamp.
Lamp laser aimed using ITL Group II aiming plate.
Lamp was reaimed before each test series to assure proper aim.

Report No: 1220-1B/B01

PHOTOMETRIC TEST DATA SHEET

Device Name: Autodynamic "HID-Philips" HB4 HID Conversion Kit

Supplied By: Autodynamic (www.autodynamic.com)

Specification: FMVSS 108 Fig. 17-1 (Lower Beam)

Test Lamp: 1996 Chevrolet Lumina Headlamp (LH)

Luminous Intensity, Candela

Test Points Degrees		Location	LOWER BEAM Measured	Reaim	Required Minimum	Maximum
H	V		10766.68		-	-
4.0U	8.0L		368.28		64	-
4.0U	8.0R		486.25		64	-
2.0U	4.0L		915.10		135	-
1.5U	1.0R TO 3.0R	1.00R	1433.10		200	-
1.5U	1.0R TO R	2.00R	1581.88	1359.49	-	1400
1.0U	1.5L TO L	1.50L	2105.55	1765.44*	-	700
0.5U	1.5L TO L	1.50L	3151.58	2541.58*	-	1000
0.5U	1.0R TO 3.0R	1.99R	4355.75		500	-
0.5U	1.0R TO 3.0R	1.00R	5592.39	3630.24*	-	2700
H	4.0L		3392.58		135	-
H	8.0L		1872.07		64	-
0.5D	1.5L TO L	1.50L	7649.52	6488.07*	-	3000
0.5D	1.5R		20902.12	14379.34	10000	20000
1.0D	6.0L		5780.03		1000	-
1.5D	2.0R		81144.33		15000	-
1.5D	9.0L		5178.07		1000	-
1.5D	9.0R		8217.60		1000	-
2.0D	15.0L		2029.71		850	-
2.0D	15.0R		4906.94		850	-
4.0D	4.0R		22646.90	15194.50*	-	12500
Maximum	2.13D	2.46R	115409.17		-	-
10.0U TO 90.0U	10.00U	1.40R	243.35*		-	125

*** Denotes failure.**

Aim: 24H 32V (warm)

Bulb: HID (Module 1 / Bulb 1)
Voltage: 12.80V / Current: 3.188A / Flux: ~3095 lumens

Note: Lamp mounted in fixture designed to hold this lamp.
Lamp laser aimed using ITL Group II aiming plate.
Lamp was reaimed before each test series to assure proper aim.

CHART DATA SHEET

Device Name: Autodynamic "HID-Philips" HB4 HID Conversion Kit

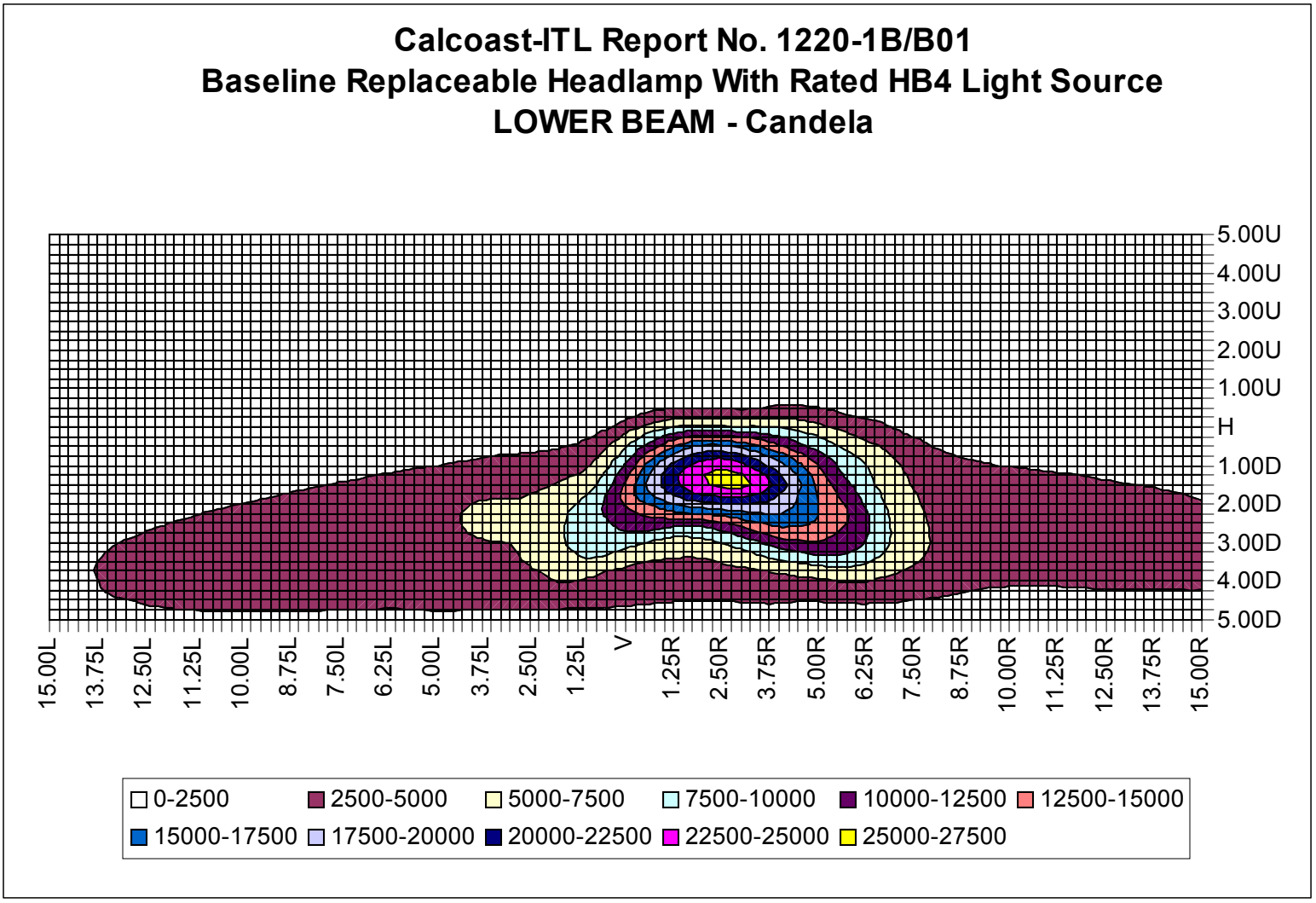

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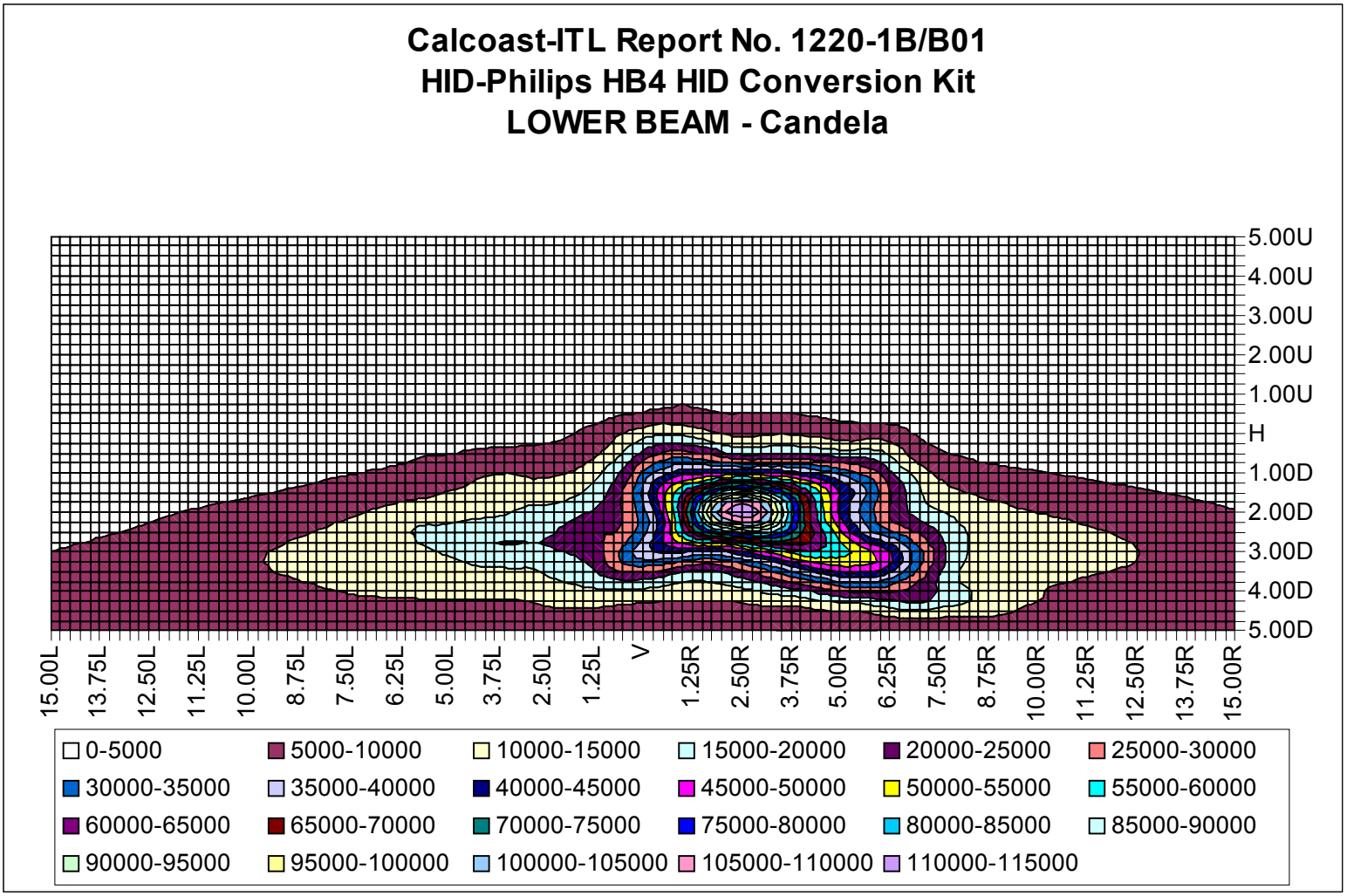
CHART DATA SHEET

Device Name: Autodynamic "HID-Philips" HB4 HID Conversion Kit



PHOTOGRAPH SHEET

Device Name: Autodynamic "HID-Philips" HB4 HID Conversion Kit