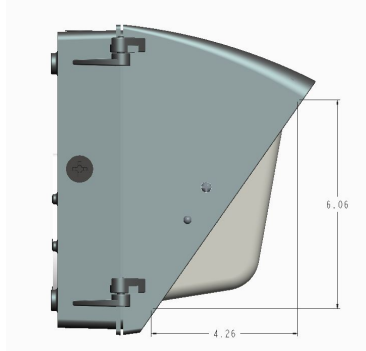


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

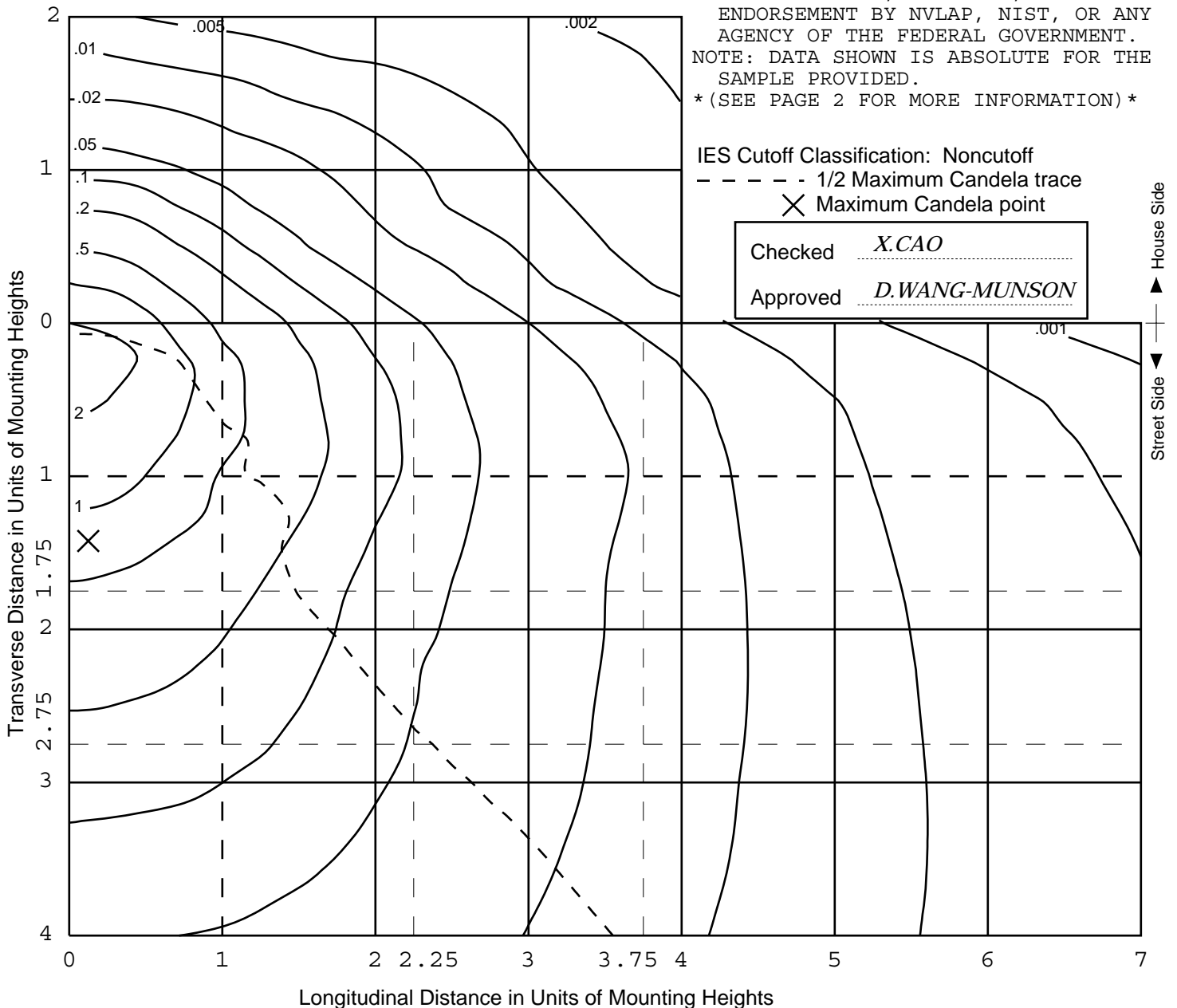
Values based on 16 foot mounting height.



REPORT NUMBER: RAB03121
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DATE SAMPLE TESTED: 03/29/17
CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)
LUMINAIRE: MID SIZED WALLPACK. ALL ALUMINUM PRECISION DIE CAST CONSTRUCTION WITH TEMPERED GLASS REFRACTOR.
LAMP: NINETY WHITE LIGHT EMITTING DIODES (LEDs).
NOTE: THIS REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT.
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.
(SEE PAGE 2 FOR MORE INFORMATION)

IES Cutoff Classification: Noncutoff

--- 1/2 Maximum Candela trace
X Maximum Candela point



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CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

ADDITIONAL INFORMATION

TOTAL INPUT WATTS = 26.438 W AT 347.0 VAC.

LED DRIVER: RD-026-A0450-N

TEST PROCEDURE: IESNA LM-79-08

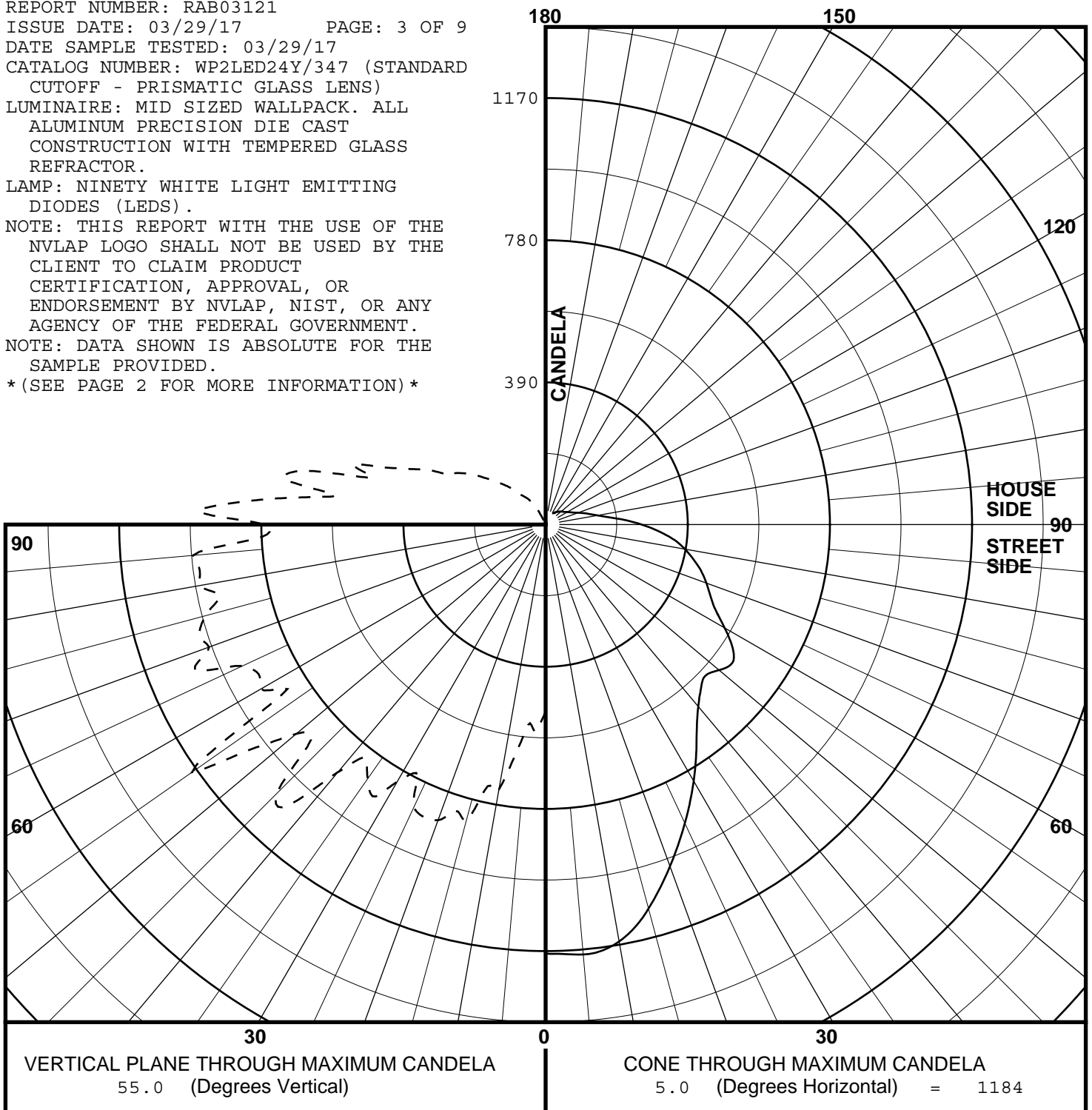
LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE

AMBIENT: 24.7

ACCREDITED LABORATORY CODE 201058-0

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB03121
 ISSUE DATE: 03/29/17 PAGE: 3 OF 9
 DATE SAMPLE TESTED: 03/29/17
 CATALOG NUMBER: WP2LED24Y/347 (STANDARD
 CUTOFF - PRISMATIC GLASS LENS)
 LUMINAIRE: MID SIZED WALLPACK. ALL
 ALUMINUM PRECISION DIE CAST
 CONSTRUCTION WITH TEMPERED GLASS
 REFRACTOR.
 LAMP: NINETY WHITE LIGHT EMITTING
 DIODES (LEDs).
 NOTE: THIS REPORT WITH THE USE OF THE
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 CLIENT TO CLAIM PRODUCT
 CERTIFICATION, APPROVAL, OR
 ENDORSEMENT BY NVLAP, NIST, OR ANY
 AGENCY OF THE FEDERAL GOVERNMENT.
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE
 SAMPLE PROVIDED.
 *(SEE PAGE 2 FOR MORE INFORMATION) *



REPORT NUMBER: RAB03121

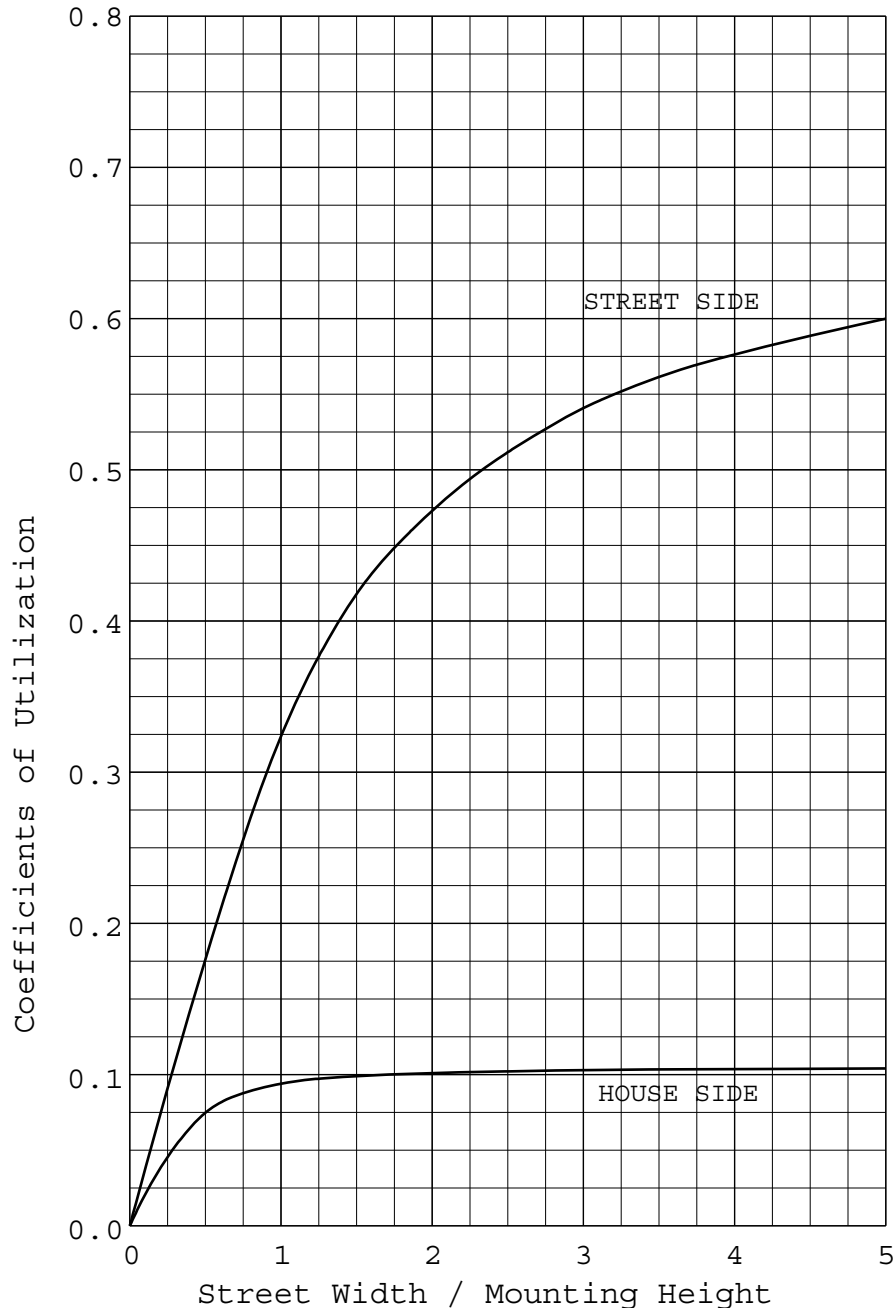
PAGE: 4 OF 9

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DATE SAMPLE TESTED: 03/29/17

CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	1976.	69.0
DOWNWARD HOUSE SIDE	302.	10.5
DOWNWARD TOTAL	2278.	79.5
UPWARD STREET SIDE	568.	19.8
UPWARD HOUSE SIDE	18.	0.6
UPWARD TOTAL	587.	20.5
TOTAL FLUX	2865.	100.0

TOTAL INPUT WATTS = 26.4
EFFICACY = 108.5 Lm/W

ALL CANDELA AND LUMENS IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY.
THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE
LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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DATE SAMPLE TESTED: 03/29/17

CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

BUG Rating:

Zonal Summary

Lumens

% of Fixture

B1 U3 G3

Zone Ratings

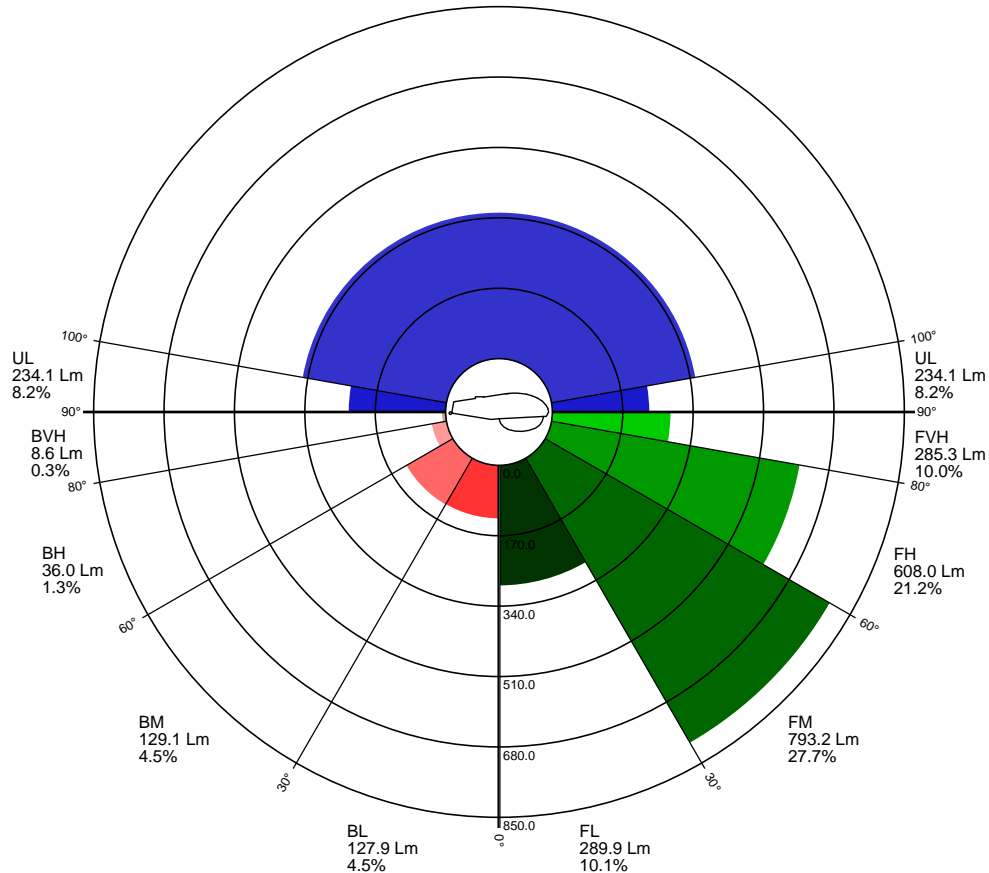
B U G

Forward		1976	69.0			
FL	(0° - 30°)	289.9	10.1			
FM	(30° - 60°)	793.2	27.7			
FH	(60° - 80°)	608.0	21.2			G0
FVH	(80° - 90°)	285.3	10.0			G3
Backward		302	10.5			
BL	(0° - 30°)	127.9	4.5	B1		
BM	(30° - 60°)	129.1	4.5	B0		
BH	(60° - 80°)	36.0	1.3	B0		G0
BVH	(80° - 90°)	8.6	0.3			G0
Upward		587	20.5			
UL	(90° - 100°)	234.1	8.2		U3	
UH	(100° - 180°)	352.5	12.3		U3	
Trapped Light		0	0.0			
Total Flux		2865	100.0			

Zonal Lumen Summary

(Linear scale)

UH
352.5 Lm
12.3%



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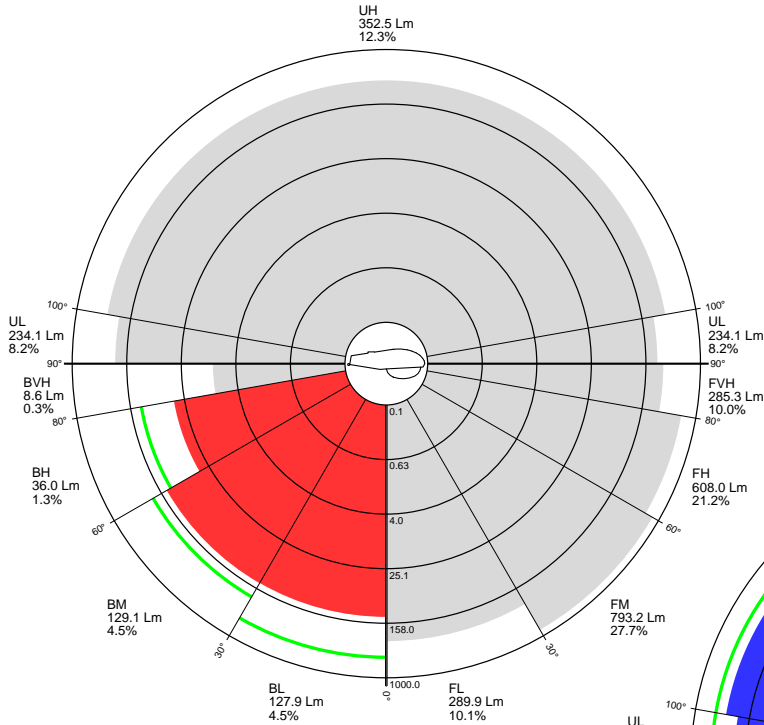
PAGE: 6 OF 9

DATE SAMPLE TESTED: 03/29/17

CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

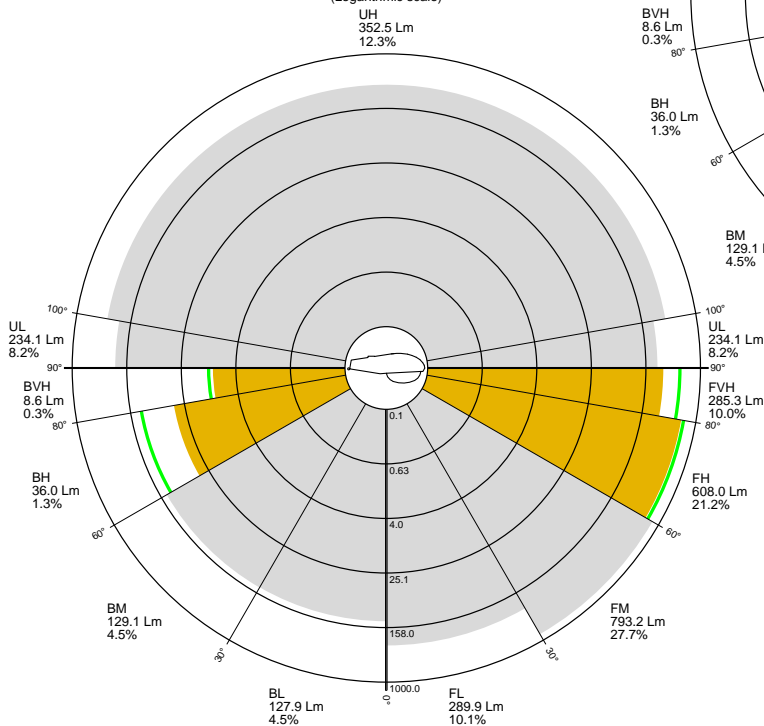
Backlight Rating Details

(Logarithmic scale)



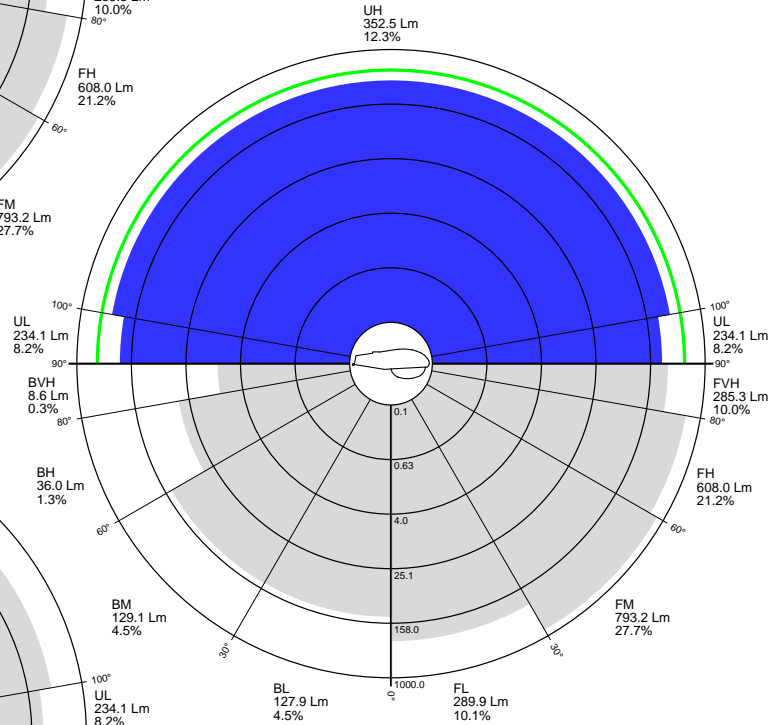
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



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DATE SAMPLE TESTED: 03/29/17

CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

CANDELA TABULATION

	STREET SIDE		LATERAL ANGLE							
	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	180.0	2.	2.	2.	2.	2.	2.	2.	2.	2.
	175.0	0.	0.	1.	1.	2.	2.	3.	3.	3.
	165.0	0.	0.	1.	1.	2.	2.	3.	3.	3.
	155.0	14.	13.	10.	6.	4.	2.	3.	3.	3.
	145.0	90.	88.	76.	56.	37.	18.	6.	3.	3.
	135.0	149.	149.	136.	117.	81.	53.	28.	10.	6.
	125.0	239.	238.	224.	205.	153.	109.	63.	30.	13.
	115.0	356.	353.	347.	305.	243.	188.	127.	61.	25.
	105.0	504.	496.	479.	462.	409.	252.	218.	126.	46.
	95.0	799.	784.	829.	757.	526.	376.	315.	217.	121.
	90.0	775.	772.	736.	666.	600.	459.	352.	266.	159.
	87.5	799.	779.	829.	768.	654.	478.	380.	281.	178.
	85.0	990.	971.	962.	825.	660.	489.	390.	276.	205.
V	82.5	970.	957.	953.	858.	665.	510.	420.	300.	214.
E	80.0	989.	962.	966.	825.	702.	534.	407.	309.	226.
R	77.5	940.	915.	892.	840.	686.	548.	404.	321.	247.
T	75.0	976.	967.	974.	868.	688.	524.	418.	325.	311.
I	72.5	1024.	997.	975.	858.	695.	492.	411.	347.	353.
C	70.0	997.	983.	978.	880.	668.	536.	428.	378.	312.
A	67.5	1044.	1041.	965.	836.	654.	507.	441.	427.	308.
L	65.0	944.	917.	880.	792.	669.	563.	503.	494.	400.
	62.5	886.	888.	863.	808.	641.	608.	540.	492.	397.
A	60.0	940.	902.	845.	743.	739.	670.	538.	457.	355.
N	57.5	817.	840.	866.	915.	810.	624.	551.	465.	382.
G	55.0<<	1177.	1184.	1091.	904.	722.	608.	631.	505.	432.
L	52.5	1039.	1006.	945.	801.	720.	685.	621.	536.	472.
E	50.0	903.	893.	877.	810.	763.	784.	600.	514.	447.
	47.5	884.	873.	863.	876.	889.	759.	597.	523.	436.
	45.0	1032.	1043.	1079.	982.	851.	672.	678.	557.	474.
	42.5	1075.	1045.	963.	863.	790.	639.	688.	615.	517.
	40.0	911.	887.	874.	820.	711.	755.	642.	631.	542.
	37.5	833.	809.	810.	773.	782.	788.	626.	628.	551.
	35.0	841.	851.	849.	855.	787.	681.	699.	632.	557.
	30.0	842.	814.	780.	774.	695.	775.	698.	702.	607.
	25.0	869.	857.	780.	818.	843.	757.	801.	669.	556.
	20.0	865.	863.	811.	814.	807.	821.	659.	656.	541.
	15.0	827.	840.	825.	757.	714.	699.	696.	589.	549.
	10.0	737.	738.	746.	716.	649.	608.	565.	571.	564.
	5.0	556.	552.	559.	574.	575.	575.	572.	544.	508.
	0.0	513.	513.	513.	513.	513.	513.	513.	513.	513.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB03121

PAGE: 8 OF 9

ISSUE DATE: 03/29/17

DATE SAMPLE TESTED: 03/29/17

CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

CANDELA TABULATION

HOUSE SIDE		LATERAL ANGLE									
		90.0	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0 180.0
	180.0	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
	175.0	3.	3.	3.	3.	3.	2.	2.	1.	1.	1.
	165.0	3.	3.	3.	3.	3.	2.	2.	2.	1.	1.
	155.0	3.	3.	3.	3.	3.	2.	2.	2.	2.	1.
	145.0	3.	3.	3.	3.	3.	2.	2.	2.	2.	2.
	135.0	4.	3.	3.	3.	3.	2.	2.	2.	2.	2.
	125.0	10.	9.	5.	4.	3.	2.	2.	2.	2.	2.
	115.0	17.	17.	11.	6.	4.	3.	2.	2.	2.	3.
	105.0	21.	24.	18.	10.	6.	4.	3.	3.	4.	4.
	95.0	20.	27.	29.	20.	11.	6.	4.	4.	5.	5.
	90.0	20.	26.	33.	26.	14.	7.	5.	4.	5.	5.
	87.5	24.	26.	34.	28.	16.	7.	4.	4.	4.	4.
	85.0	32.	29.	36.	31.	19.	8.	5.	4.	4.	4.
V	82.5	49.	33.	39.	33.	20.	9.	5.	4.	4.	4.
E	80.0	73.	39.	43.	35.	22.	9.	5.	3.	4.	4.
R	77.5	103.	48.	45.	38.	23.	10.	5.	3.	3.	4.
T	75.0	130.	65.	48.	41.	26.	11.	5.	3.	3.	3.
I	72.5	155.	86.	51.	44.	30.	16.	5.	2.	3.	3.
C	70.0	176.	108.	54.	48.	34.	20.	11.	3.	2.	2.
A	67.5	193.	126.	58.	51.	38.	24.	16.	11.	8.	5.
L	65.0	212.	142.	65.	55.	42.	28.	21.	15.	13.	14.
	62.5	222.	157.	75.	60.	47.	33.	27.	19.	18.	18.
A	60.0	237.	172.	89.	66.	51.	38.	30.	24.	21.	23.
N	57.5	255.	186.	104.	72.	56.	43.	34.	31.	25.	23.
G	55.0<<	264.	194.	117.	79.	61.	50.	39.	34.	33.	29.
L	52.5	272.	202.	134.	90.	69.	56.	48.	38.	38.	36.
E	50.0	276.	216.	148.	104.	78.	64.	56.	43.	42.	41.
	47.5	289.	229.	161.	116.	89.	74.	65.	52.	47.	46.
	45.0	297.	249.	172.	132.	102.	85.	75.	63.	55.	51.
	42.5	309.	263.	191.	145.	115.	98.	87.	75.	66.	60.
	40.0	327.	280.	206.	157.	129.	111.	99.	90.	80.	73.
	37.5	348.	300.	230.	175.	144.	124.	112.	105.	98.	90.
	35.0	364.	320.	249.	196.	159.	136.	124.	118.	114.	107.
	30.0	401.	366.	296.	238.	194.	169.	151.	145.	140.	137.
	25.0	436.	403.	354.	289.	241.	203.	186.	175.	168.	165.
	20.0	467.	448.	405.	345.	300.	261.	237.	218.	202.	201.
	15.0	488.	485.	443.	409.	371.	353.	312.	287.	274.	272.
	10.0	514.	514.	476.	466.	445.	409.	389.	385.	383.	381.
	5.0	503.	510.	511.	486.	465.	468.	476.	476.	472.	469.
	0.0	513.	513.	513.	513.	513.	513.	513.	513.	513.	513.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB03121
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 PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9
 DATE SAMPLE TESTED: 03/29/17

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	12
5- 10	37
10- 15	62
15- 20	84
20- 25	104
25- 30	118
30- 35	132
35- 40	141
40- 45	157
45- 50	161
50- 55	167
55- 60	166
60- 65	161
65- 70	163
70- 75	163
75- 80	157
80- 85	155
85- 90	139
90- 95	127
95-100	107
100-105	91
105-110	71
110-115	55
115-120	41
120-125	31
125-130	23
130-135	16
135-140	11
140-145	7
145-150	4
150-155	2
155-160	1
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	49
0- 20	195
0- 30	418
0- 40	691
0- 50	1008
0- 60	1340
0- 70	1664
0- 80	1984
0- 90	2278
0-100	2512
0-110	2674
0-120	2770
0-130	2824
0-140	2851
0-150	2861
0-160	2864
0-170	2864
0-180	2865

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DATE: 3/29/2017

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: MID SIZED WALLPACK. ALL ALUMINUM PRECISION DIE CAST CONSTRUCTION WITH TEMPERED GLASS REFRACTOR.

LAMP: NINETY WHITE LIGHT EMITTING DIODES (LEDs).

DRIVER: RD-026-A0450-N

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (347.0 VAC , 60Hz) TO THE TEST SAMPLE.

INSTRUMENTS:	GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100	Calibration Due:
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	N/A
	OCEAN OPTICS QE65PRO Spectroradiometer	3/01/18
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	03/07/18

OBJECT OF TEST: Measure the Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,1-14), Chromaticity Coordinates (x,y; u'v'), ANSI C78.377 Duv, and electrical data including ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD) to the test sample. Report Off-State Power.

PROCEDURE: The test sample was provided by the customer and had an unknown number of burn hours. The test sample was mounted inside the integrating sphere and allowed to stabilize. After stabilization occurred, measurements were taken. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the test sample operating at 347.0 VAC input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology. Off-State Power was reported with no voltage applied to the sample.

*NOTE: Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

RESULTS: (continued subsequent pages)

Checked	<u>X.CAO</u>
Approved	<u>D.WANG-MUNSON</u> Lighting Engineer

REPORT NUMBER: RAB03122
 DATE: 3/29/2017
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

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RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4295
Chromaticity Ordinate y	0.3997
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2476
Chromaticity Ordinate v'	0.5186
Correlated Color Temp CCT (K)	3093
Color Rendering Index (CRIa)	83
Color Rendering Index 1 (Light greyish red)	81
Color Rendering Index 2 (Dark greyish yellow)	91
Color Rendering Index 3 (Strong yellowish green)	96
Color Rendering Index 4 (Moderate yellowish green)	81
Color Rendering Index 5 (Light bluish green)	82
Color Rendering Index 6 (Light blue)	90
Color Rendering Index 7 (Light violet)	83
Color Rendering Index 8 (Light reddish purple)	60
Color Rendering Index 9 (Strong red)	10
Color Rendering Index 10 (Strong yellow)	80
Color Rendering Index 11 (Strong green)	80
Color Rendering Index 12 (Strong blue)	73
Color Rendering Index 13 (Light yellowish pink (skin))	84
Color Rendering Index 14 (Moderate olive green (leaf))	99
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	8759 *
ELECTRICAL FOR SPECTRORADIOMETRIC TEST	
Input Voltage (Volts AC)	347.0
Input Current (Amps AC)	0.077
Input Power (Watts)	26.4
Input Power Factor (%)	98.8
Input Current THD (%)	13.0
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

*NOTE:

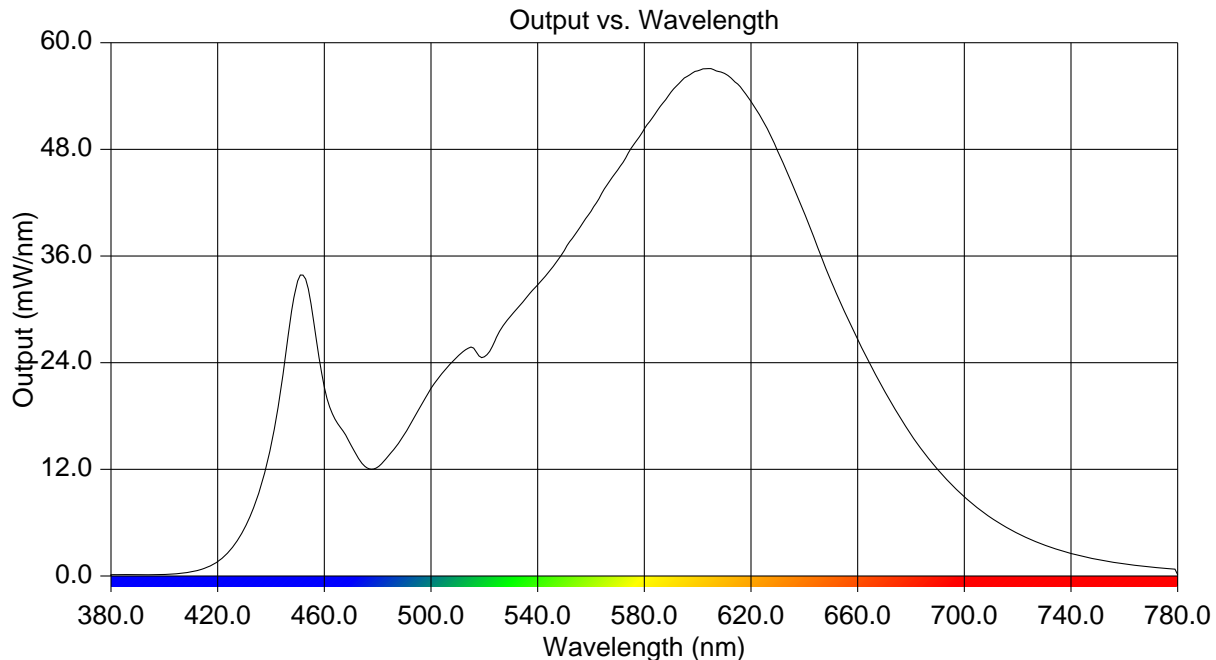
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

REPORT NUMBER: RAB03122
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.139	515	25.759	650	33.196
385	0.146	520	24.660	655	29.762
390	0.136	525	27.101	660	26.571
395	0.150	530	29.294	665	23.661
400	0.184	535	31.043	670	20.875
405	0.261	540	32.754	675	18.249
410	0.448	545	34.528	680	15.919
415	0.859	550	36.615	685	13.828
420	1.614	555	38.839	690	11.981
425	3.015	560	41.025	695	10.367
430	5.333	565	43.547	700	8.900
435	8.973	570	45.670	705	7.646
440	14.625	575	48.096	710	6.538
445	23.785	580	50.305	715	5.610
450	33.193	585	52.418	720	4.796
455	30.632	590	54.435	725	4.090
460	21.245	595	56.029	730	3.484
465	17.149	600	56.828	735	2.966
470	14.724	605	57.080	740	2.532
475	12.418	610	56.545	745	2.168
480	12.278	615	55.353	750	1.860
485	13.868	620	53.390	755	1.583
490	15.908	625	50.970	760	1.371
495	18.521	630	47.798	765	1.165
500	21.112	635	44.361	770	1.005
505	23.069	640	40.855	775	0.862
510	24.699	645	36.966	780	0.130



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CATALOG NUMBER: WP2LED24Y/347 (STANDARD CUTOFF - PRISMATIC GLASS LENS)

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CIE Chromaticity Diagram

