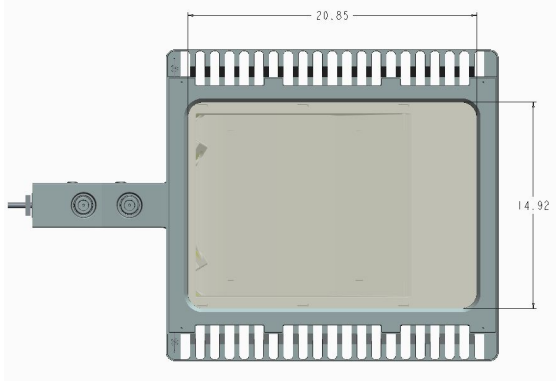


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 25 foot mounting height.



REPORT NUMBER: RAB01652
 ISSUE DATE: 03/31/16 PAGE: 1 OF 9
 DATE SAMPLE TESTED: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260Y/D10 -
 ALED4T260SFY/D10 - WPLED4T260Y/D10 -
 WPLED4T260YFX/D10 (TYPE IV)
 LUMINAIRE: CAST FINNED METAL HOUSING, 4
 CHIP ON BOARD LIGHT EMITTING DIODES,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH, CLEAR GLASS LENS IN
 CAST BRONZE PAINTED METAL FRAME.
 LAMPS: FOUR WHITE LIGHT EMITTING DIODES
 (LEDs)

NOTE: DATA SHOWN IS ABSOLUTE FOR THE
 SAMPLE PROVIDED.
 TOTAL INPUT WATTS = 261.64 W AT 120.0
 VAC.

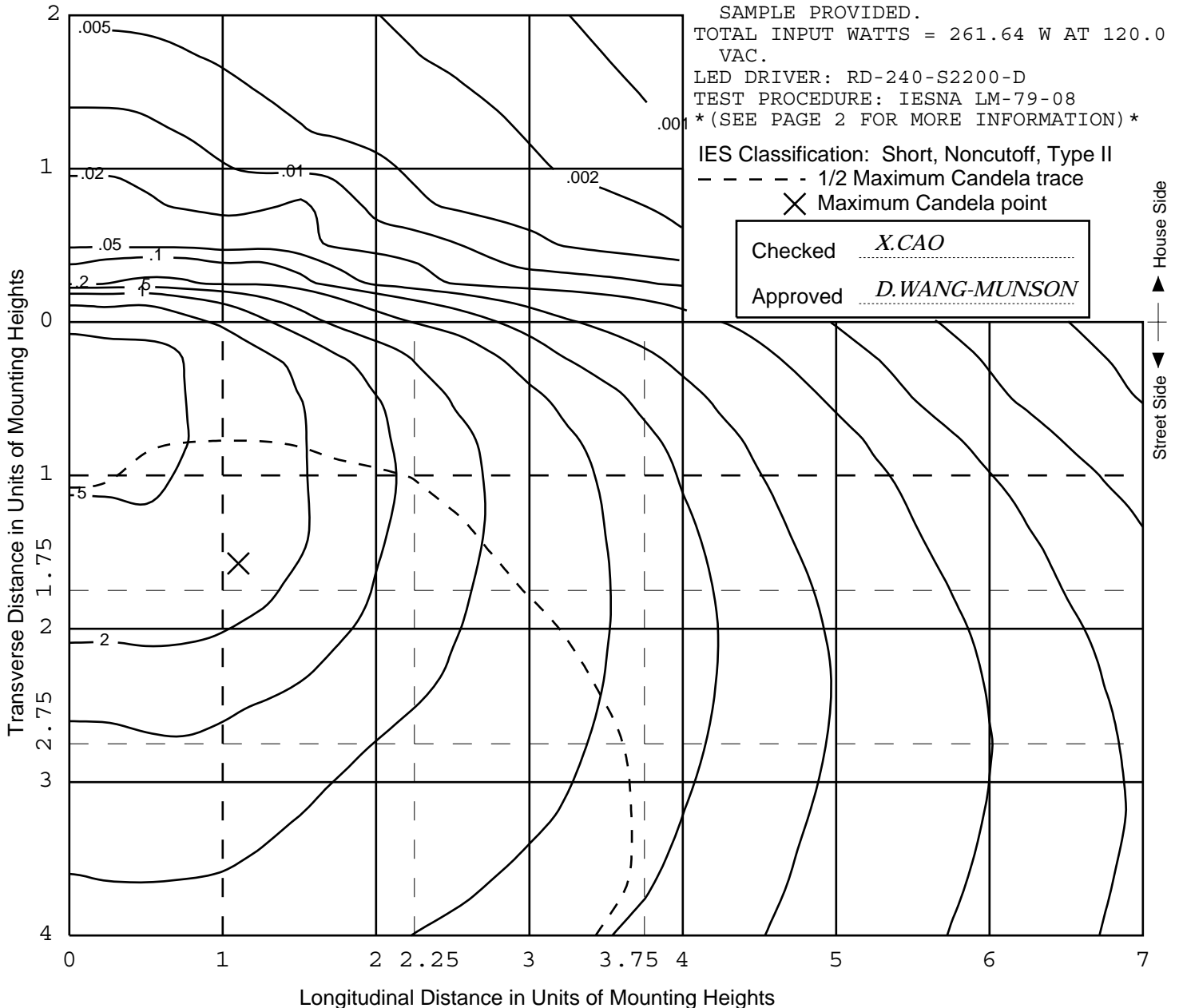
LED DRIVER: RD-240-S2200-D
 TEST PROCEDURE: IESNA LM-79-08
 (SEE PAGE 2 FOR MORE INFORMATION)

IES Classification: Short, Noncutoff, Type II

--- 1/2 Maximum Candela trace

X Maximum Candela point

Checked X.CAO
 Approved D.WANG-MUNSON



REPORT NUMBER: RAB01652
ISSUE DATE: 03/31/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 9
DATE SAMPLE TESTED: 03/31/16

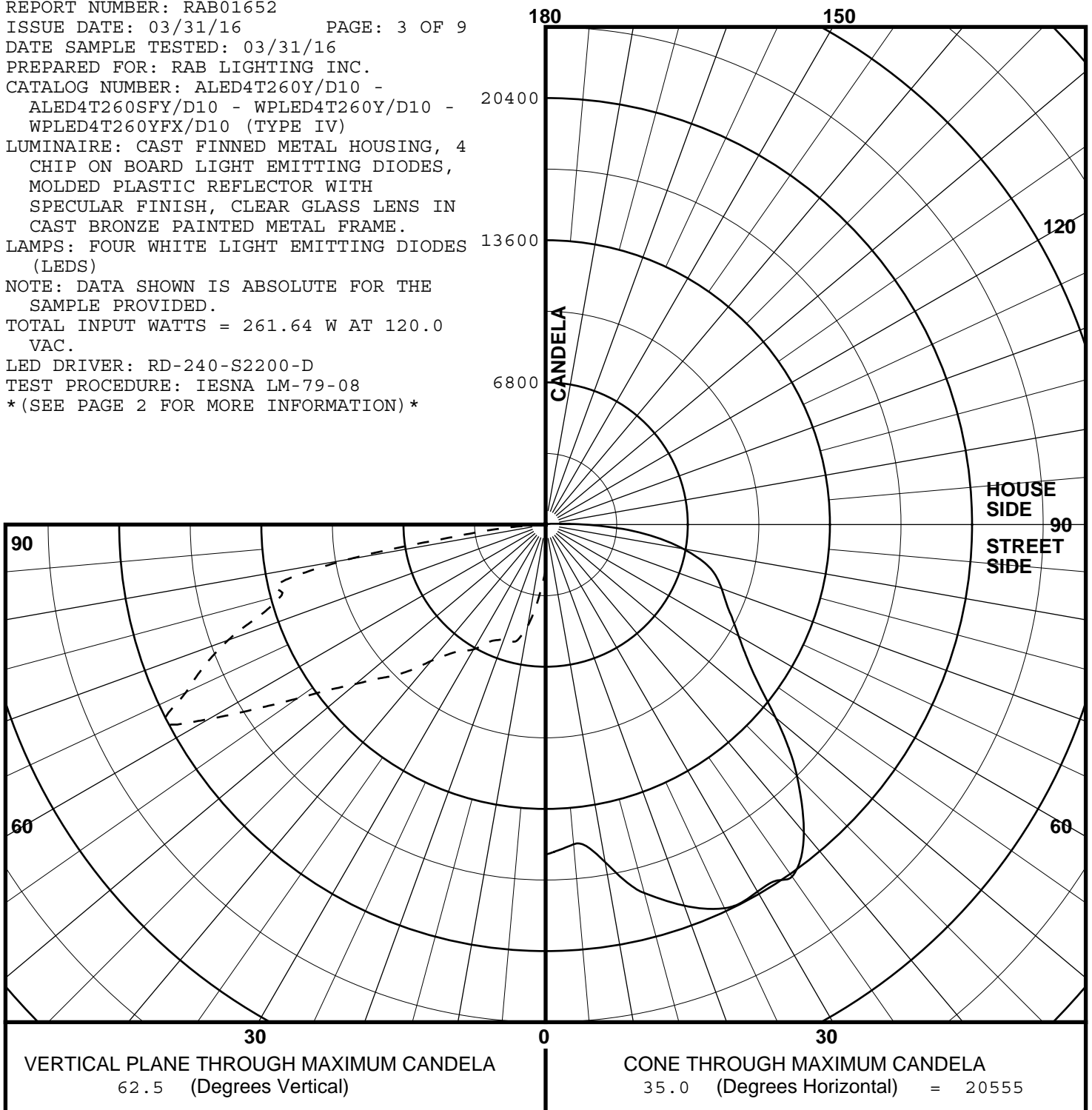
ADDITIONAL INFORMATION

ACCREDITED LABORATORY CODE 201058-0
TEST DISTANCE : 28.25 FEET

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.

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

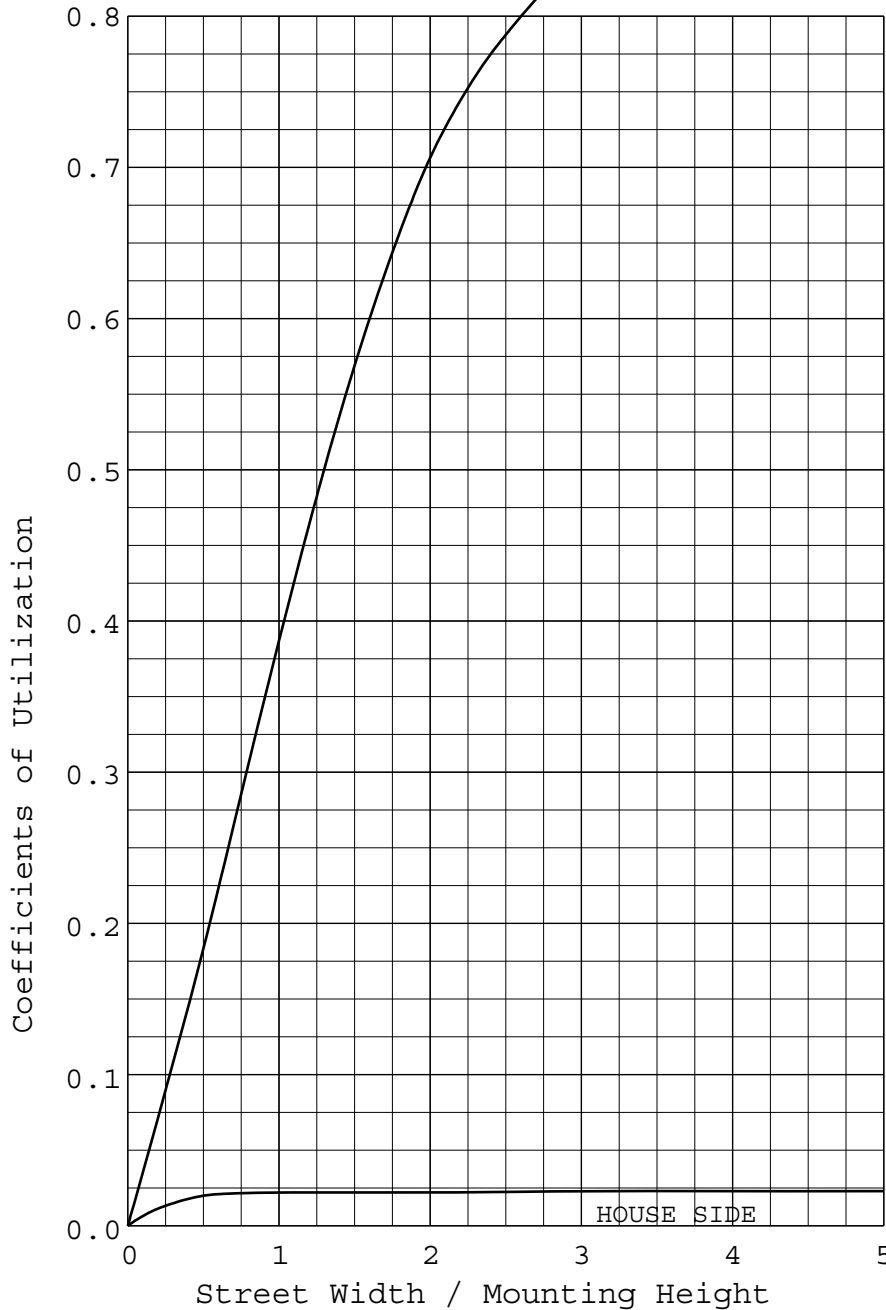
REPORT NUMBER: RAB01652
ISSUE DATE: 03/31/16 PAGE: 3 OF 9
DATE SAMPLE TESTED: 03/31/16
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: ALED4T260Y/D10 -
ALED4T260SFY/D10 - WPLED4T260Y/D10 -
WPLED4T260YFX/D10 (TYPE IV)
LUMINAIRE: CAST FINNED METAL HOUSING, 4
CHIP ON BOARD LIGHT EMITTING DIODES,
MOLDED PLASTIC REFLECTOR WITH
SPECULAR FINISH, CLEAR GLASS LENS IN
CAST BRONZE PAINTED METAL FRAME.
LAMPS: FOUR WHITE LIGHT EMITTING DIODES (LEDs)
NOTE: DATA SHOWN IS ABSOLUTE FOR THE
SAMPLE PROVIDED.
TOTAL INPUT WATTS = 261.64 W AT 120.0
VAC.
LED DRIVER: RD-240-S2200-D
TEST PROCEDURE: IESNA LM-79-08
(SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB01652
ISSUE DATE: 03/31/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 4 OF 9
DATE SAMPLE TESTED: 03/31/16

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	26241.	97.6
DOWNWARD HOUSE SIDE	647.	2.4
DOWNWARD TOTAL	26888.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	26888.	100.0
TOTAL INPUT WATTS = 261.6		
EFFICACY = 102.8 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.

REPORT NUMBER: RAB01652
 ISSUE DATE: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.

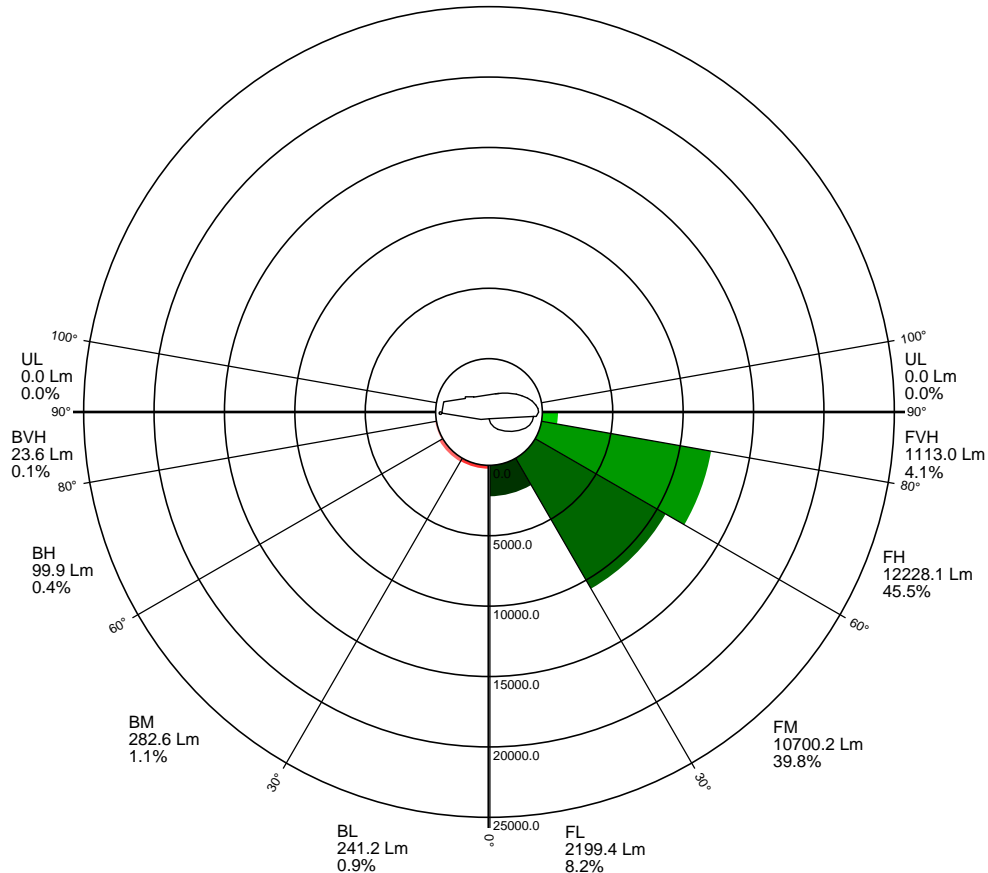
PAGE: 5 OF 9
 DATE SAMPLE TESTED: 03/31/16

BUG Rating:				B1 U0 G5		
Zonal Summary		Lumens	% of Fixture	Zone Ratings		
				B	U	G
Forward		26241	97.6			
FL	(0° - 30°)	2199.4	8.2			
FM	(30° - 60°)	10700.2	39.8			
FH	(60° - 80°)	12228.1	45.5			G5
FVH	(80° - 90°)	1113.0	4.1			G5
Backward		647	2.4			
BL	(0° - 30°)	241.2	0.9	B1		
BM	(30° - 60°)	282.6	1.1	B1		
BH	(60° - 80°)	99.9	0.4	B0		G0
BVH	(80° - 90°)	23.6	0.1			G1
Upward		0	0.0			
UL	(90° - 100°)	0.0	0.0		U0	
UH	(100° - 180°)	0.0	0.0		U0	
Trapped Light		0	0.0			
Total Flux		26888	100.0			

Zonal Lumen Summary

(Linear scale)

UH
0.0 Lm
0.0%

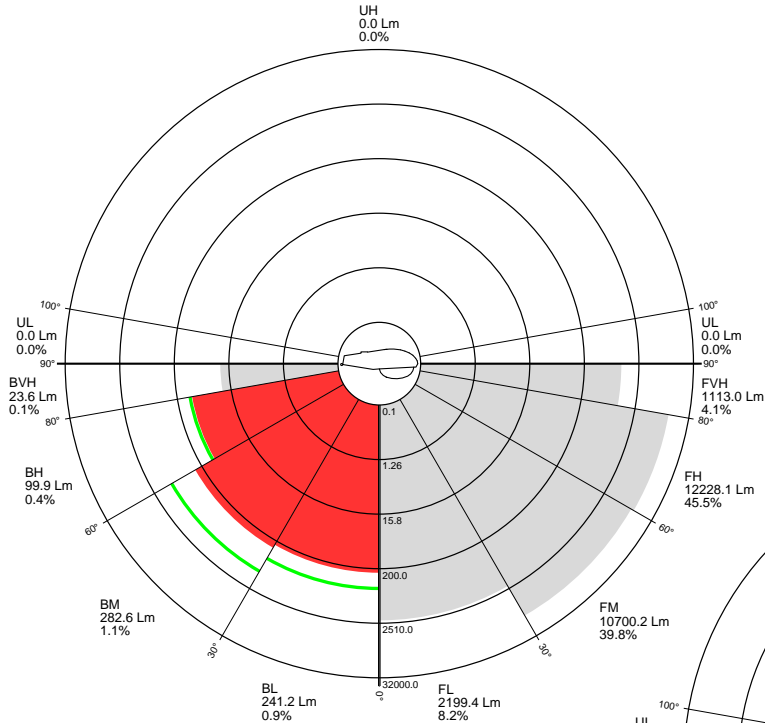


REPORT NUMBER: RAB01652
ISSUE DATE: 03/31/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 9
DATE SAMPLE TESTED: 03/31/16

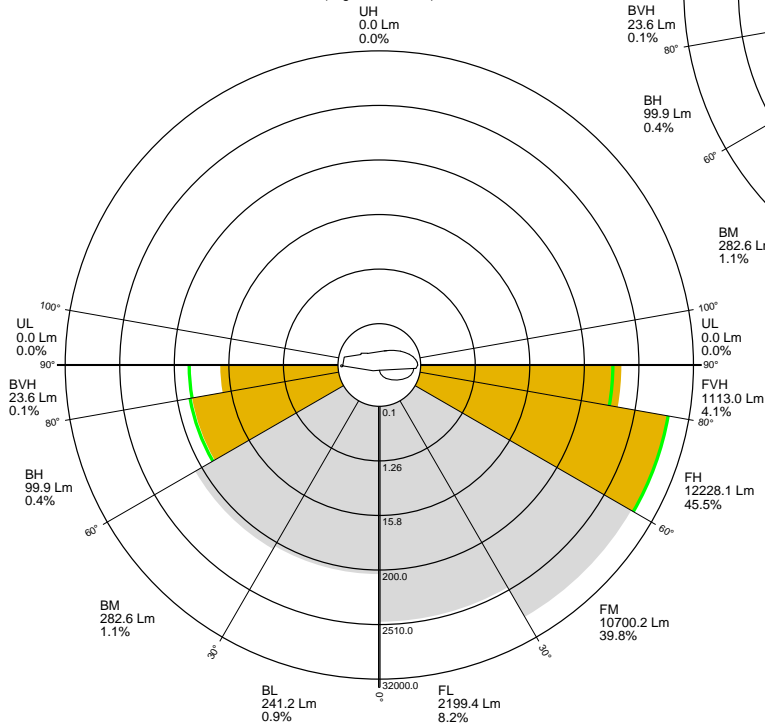
Backlight Rating Details

(Logarithmic scale)



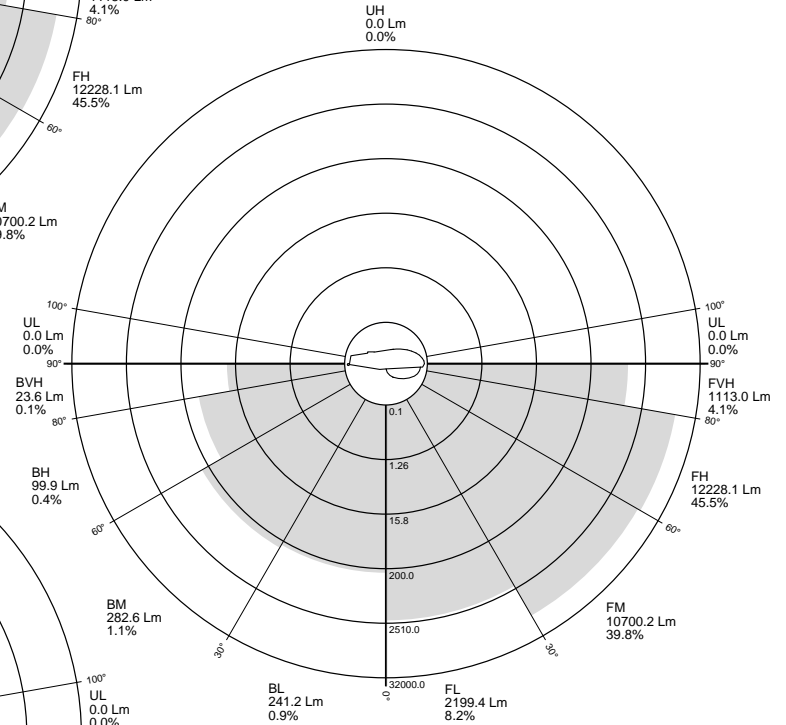
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB01652
 ISSUE DATE: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 9
 DATE SAMPLE TESTED: 03/31/16

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	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	263.	273.	220.	259.	404.	354.	294.	167.	90.	69.
	85.0	2126.	2388.	2121.	1910.	2182.	1795.	1394.	962.	608.	129.
V	82.5	4197.	4455.	4725.	3771.	4316.	4441.	3533.	2805.	1470.	292.
E	80.0	7207.	7417.	8615.	7421.	9589.	8937.	6816.	5146.	2644.	1004.
R	77.5	14543.	14945.	15441.	13344.	13132.	12473.	9811.	7082.	4044.	1706.
T	75.0	16531.	17553.	18207.	15758.	13071.	13030.	11242.	8361.	5636.	2458.
I	72.5	15244.	14958.	17129.	15473.	14246.	13876.	11454.	9513.	6832.	2718.
C	70.0	13322.	13534.	16140.	15863.	16163.	14689.	11872.	10172.	7599.	3519.
A	67.5	13540.	13586.	16134.	18134.	17677.	15349.	12230.	10545.	7504.	3978.
L	65.0	15510.	15270.	17334.	19328.	18987.	16658.	12158.	10091.	7994.	4381.
	62.5	15790.	15348.	18250.	20253.	20555.	17004.	12012.	9678.	8182.	4622.
A	60.0	16696.	15993.	18598.	20293.	18597.	15449.	11876.	9552.	7689.	4847.
N	57.5	17014.	17073.	18340.	18184.	16394.	13971.	11151.	9333.	7778.	5005.
G	55.0	14962.	15044.	15918.	15226.	14506.	12644.	10594.	8892.	7564.	4981.
L	52.5	12755.	12745.	13390.	13550.	12962.	11579.	10040.	8520.	7109.	4921.
E	50.0	10821.	10969.	11364.	12357.	11862.	10809.	9457.	8185.	6860.	4840.
	47.5	9701.	9743.	10179.	11526.	10915.	10266.	8965.	7800.	6707.	4813.
	45.0	9547.	9330.	9657.	10307.	10202.	9295.	8483.	7504.	6647.	4708.
	42.5	9088.	8928.	9031.	9626.	9396.	8591.	7875.	7166.	6477.	4481.
	40.0	8852.	8764.	8698.	8960.	8504.	8020.	7380.	6940.	6332.	4155.
	37.5	8578.	8529.	8288.	8227.	7898.	7663.	7111.	6698.	6150.	4140.
	35.0	8076.	7982.	7793.	7719.	7437.	7361.	7078.	6486.	5772.	3907.
	30.0	7058.	7028.	6978.	6722.	6894.	6884.	6756.	6420.	5462.	3776.
	25.0	6605.	6590.	6568.	6340.	6149.	6241.	6153.	6000.	4903.	3509.
	20.0	6291.	6294.	6285.	6208.	5846.	5552.	5456.	4934.	3864.	2859.
	15.0	5864.	5906.	5925.	5942.	5802.	5353.	4772.	4109.	3294.	2556.
	10.0	5241.	5210.	5194.	5095.	4918.	4495.	4003.	3454.	2967.	2451.
	5.0	3603.	3572.	3556.	3461.	3389.	3248.	3052.	2863.	2649.	2396.
	0.0	2134.	2134.	2134.	2134.	2134.	2134.	2134.	2134.	2134.	2134.

||
 PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB01652
 ISSUE DATE: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 9
 DATE SAMPLE TESTED: 03/31/16

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	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
87.5	73.	43.	45.	47.	49.	50.	50.	51.	50.	50.	50.
85.0	82.	46.	45.	46.	47.	48.	47.	48.	47.	47.	47.
V 82.5	133.	51.	45.	44.	44.	45.	44.	44.	44.	43.	44.
E 80.0	592.	61.	47.	42.	42.	42.	41.	41.	41.	39.	39.
R 77.5	975.	92.	48.	42.	39.	39.	38.	38.	37.	36.	36.
T 75.0	1205.	133.	50.	41.	37.	36.	36.	36.	35.	34.	34.
I 72.5	1325.	167.	56.	43.	36.	35.	34.	34.	34.	33.	32.
C 70.0	1659.	221.	65.	51.	35.	34.	33.	33.	33.	31.	31.
A 67.5	1809.	277.	68.	49.	35.	34.	33.	33.	32.	31.	31.
L 65.0	1796.	336.	72.	62.	36.	33.	32.	32.	32.	31.	31.
62.5<<	1869.	412.	84.	83.	36.	33.	32.	32.	32.	31.	31.
A 60.0	2133.	530.	100.	118.	38.	33.	32.	33.	32.	31.	31.
N 57.5	2403.	703.	116.	120.	41.	33.	32.	33.	33.	31.	31.
G 55.0	2598.	872.	130.	88.	42.	34.	33.	33.	33.	31.	31.
L 52.5	2765.	993.	158.	92.	44.	34.	32.	33.	33.	31.	31.
E 50.0	2946.	1087.	186.	74.	44.	35.	33.	34.	33.	32.	32.
47.5	3029.	1185.	216.	74.	46.	36.	33.	34.	34.	32.	32.
45.0	3109.	1271.	247.	79.	47.	37.	33.	33.	34.	33.	32.
42.5	3097.	1369.	273.	89.	56.	38.	34.	34.	34.	34.	33.
40.0	2999.	1417.	331.	95.	63.	39.	36.	35.	35.	34.	34.
37.5	2990.	1507.	405.	103.	75.	41.	36.	36.	35.	34.	34.
35.0	2910.	1663.	436.	127.	73.	47.	37.	36.	36.	35.	35.
30.0	3105.	2321.	562.	210.	81.	56.	42.	39.	38.	37.	36.
25.0	2904.	2485.	751.	324.	144.	68.	51.	45.	43.	40.	39.
20.0	2360.	1988.	971.	470.	223.	136.	77.	55.	47.	41.	40.
15.0	2192.	1873.	1212.	697.	405.	248.	200.	145.	116.	73.	70.
10.0	2216.	1989.	1610.	1131.	790.	562.	443.	349.	294.	262.	261.
5.0	2280.	2171.	1964.	1796.	1595.	1386.	1203.	1041.	942.	916.	940.
0.0	2134.	2134.	2134.	2134.	2134.	2134.	2134.	2134.	2134.	2134.	2134.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB01652
 ISSUE DATE: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9
 DATE SAMPLE TESTED: 03/31/16

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	53
5- 10	171
10- 15	311
15- 20	457
20- 25	626
25- 30	822
30- 35	1016
35- 40	1244
40- 45	1521
45- 50	1863
50- 55	2341
55- 60	2998
60- 65	3369
65- 70	3264
70- 75	3113
75- 80	2583
80- 85	992
85- 90	144
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	224
0- 20	993
0- 30	2441
0- 40	4700
0- 50	8084
0- 60	13423
0- 70	20056
0- 80	25751
0- 90	26888
0-100	26888
0-110	26888
0-120	26888
0-130	26888
0-140	26888
0-150	26888
0-160	26888
0-170	26888
0-180	26888

REPORT NUMBER: RAB01655
 DATE: 3/31/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260Y/D10 - ALED4T260SFY/D10 - WPLED4T260Y/D10 - WPLED4T260YFX/D10 (TYPE IV)
 ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647
 LUMINAIRE: CAST FINNED METAL HOUSING, 4 CHIP ON BOARD LIGHT EMITTING DIODES, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, CLEAR GLASS LENS IN CAST BRONZE PAINTED METAL FRAME.
 LAMP: FOUR WHITE LIGHT EMITTING DIODES (LEDs)
 DRIVER: RD-240-S2200-D
 OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (120.0 AND 277.0 VAC, 60Hz) TO THE TEST SAMPLE.
 INSTRUMENTS: GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100 Calibration Due: N/A
 CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202 2/26/17
 OCEAN OPTICS QE65PRO Spectroradiometer 3/21/17
 RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry 3/21/17
 OBJECT OF TEST: Measure the Absolute Flux in lumens*, 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. Measure electrical data including Total Harmonic Distortion (THD) at maximum nominal rated input voltage. Report Off-State Power.
 PROCEDURE: The test sample was mounted inside the integrating sphere, energized, 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 60 HZ input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. Electrical data was also recorded at maximum nominal rated input voltage (277.0 VAC). 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: RAB01655
 DATE: 3/31/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260Y/D10 - ALED4T260SFY/D10 - WPLED4T260Y/D10 - WPLED4T260YFX/D10 (TYPE IV)

Page 2 of 4

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	26888 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4250
Chromaticity Ordinate y	0.4062
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2420
Chromaticity Ordinate v'	0.5204
Correlated Color Temp CCT (K)	3227
ANSI C78.377-2008 Duv	0.003
Total Radiant Flux (milliWatts)	74703 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	2.18
Input Power (Watts)	261.6
Input Power Factor (%)	99.8
Input Current THD (%)	3.7
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	102.8
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.954
Input Power (Watts)	255.4
Input Power Factor (%)	96.6
Input Current THD (%)	6.0
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	70
R1 Light greyish red	65
R2 Dark greyish yellow	79
R3 Strong yellowish green	90
R4 Moderate yellowish green	66
R5 Light bluish green	65
R6 Light blue	70
R7 Light violet	79
R8 Light reddish purple	44
R9 Strong red	-40
R10 Strong yellow	50
R11 Strong green	59
R12 Strong blue	40
R13 Light yellowish pink (skin)	68
R14 Moderate olive green (leaf)	94

*NOTE:

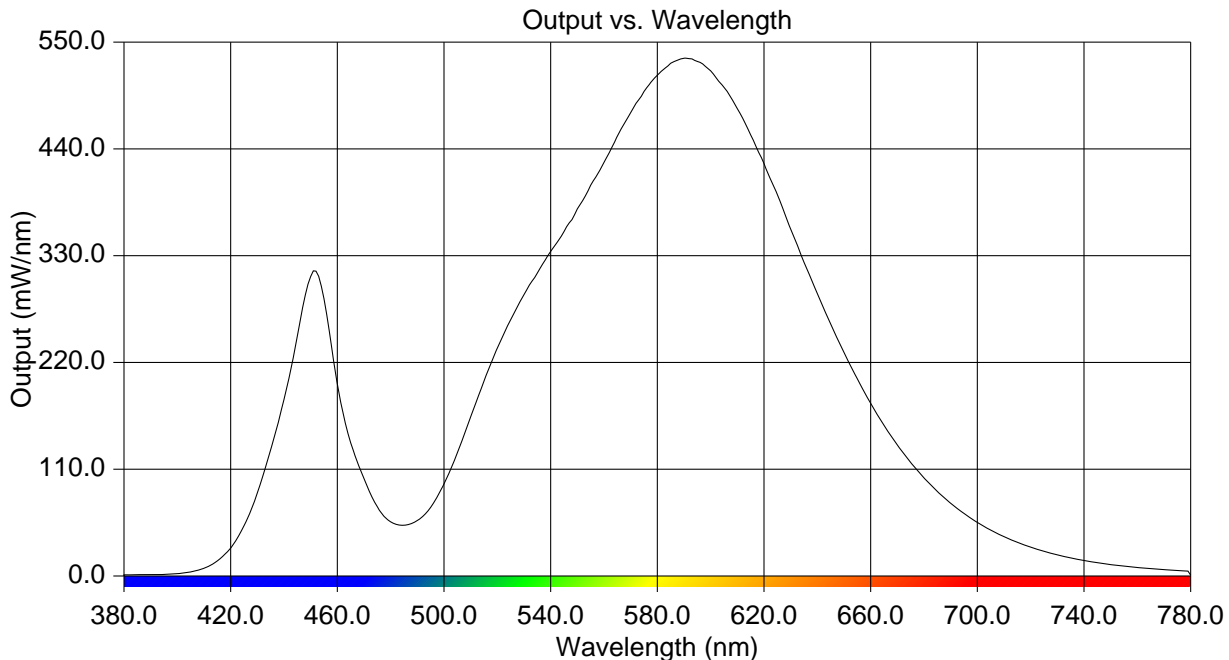
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB01655
 DATE: 3/31/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260Y/D10 - ALED4T260SFY/D10 - WPLED4T260Y/D10 - WPLED4T260YFX/D10
 (TYPE IV)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	1.157	515	200.754	650	230.447
385	1.282	520	235.375	655	203.355
390	1.405	525	264.471	660	177.966
395	1.675	530	289.970	665	155.241
400	2.497	535	312.406	670	135.138
405	4.159	540	334.900	675	117.320
410	7.967	545	355.154	680	101.229
415	15.569	550	378.571	685	87.073
420	28.705	555	402.981	690	75.098
425	51.813	560	426.592	695	64.536
430	85.711	565	453.245	700	55.183
435	130.305	570	477.163	705	47.359
440	182.062	575	499.628	710	40.515
445	247.249	580	516.399	715	34.702
450	308.834	585	528.761	720	29.712
455	285.841	590	534.021	725	25.439
460	198.075	595	530.631	730	21.801
465	137.400	600	520.955	735	18.601
470	100.512	605	503.792	740	15.890
475	71.460	610	481.911	745	13.711
480	55.925	615	454.875	750	11.763
485	52.476	620	425.334	755	10.132
490	57.294	625	393.559	760	8.745
495	70.782	630	357.793	765	7.509
500	94.888	635	323.521	770	6.525
505	127.103	640	291.123	775	5.624
510	163.725	645	259.999	780	0.853



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Page 4 of 4

CIE Chromaticity Diagram

