LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L111700903R01 **Issue Date: 11/17/2017**

Report Prepared For: Number Eight Lighting Company
526 Portal Street, Cotati, CA 94931

Model Number: 803/J2-HI-40/EL1-8-1000/FS-P-1-WH/WW8

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 11/8/17

Date of Tests: 11/9/17 - 11/17/17

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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Test Summary	
Manufacturer:	Number Eight Lighting Company
Model Number:	803/J2-HI-40/EL1-8-1000/FS-P-1-WH/WW8
Driver Model Number:	eldoLED ECOdrive 261/S
Total Lumens:	590.57
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.12
Input Power (W):	14.32
Input Power Factor:	0.99
Current ATHD @ 120V(%):	12%
Current ATHD @ 277V(%):	N/A
Efficacy:	41
Color Rendering Index (CRI):	93
Correlated Color Temperature (K):	2858
Chromaticity Coordinate x:	0.4498
Chromaticity Coordinate y:	0.4122
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:05

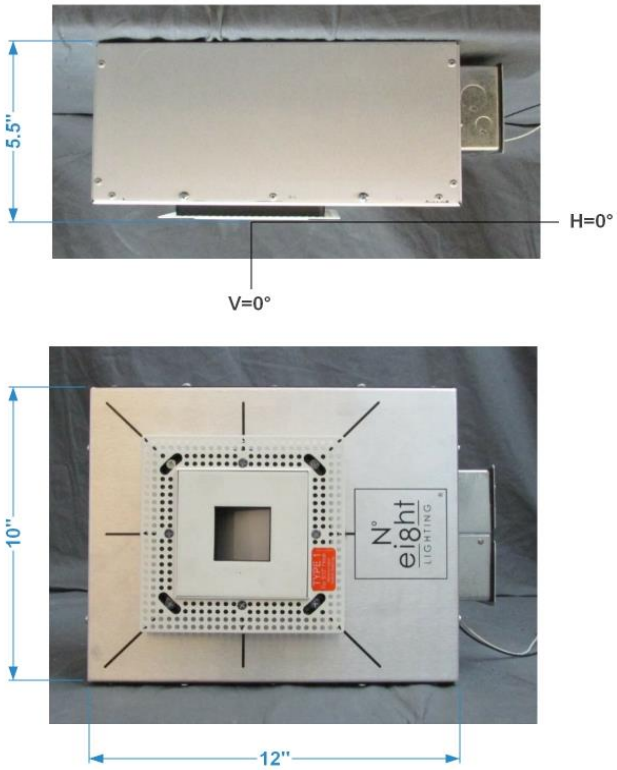

FIG. 1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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Report No: L111700903R01

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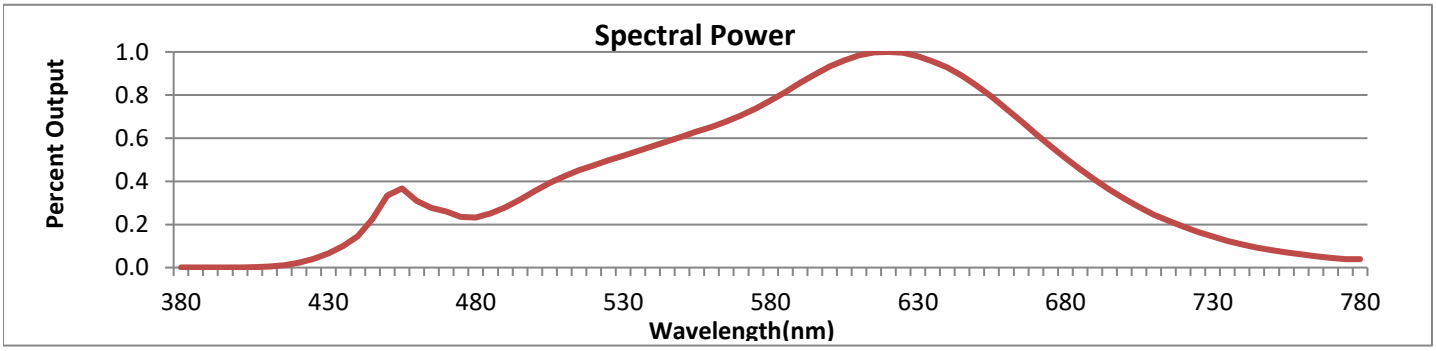


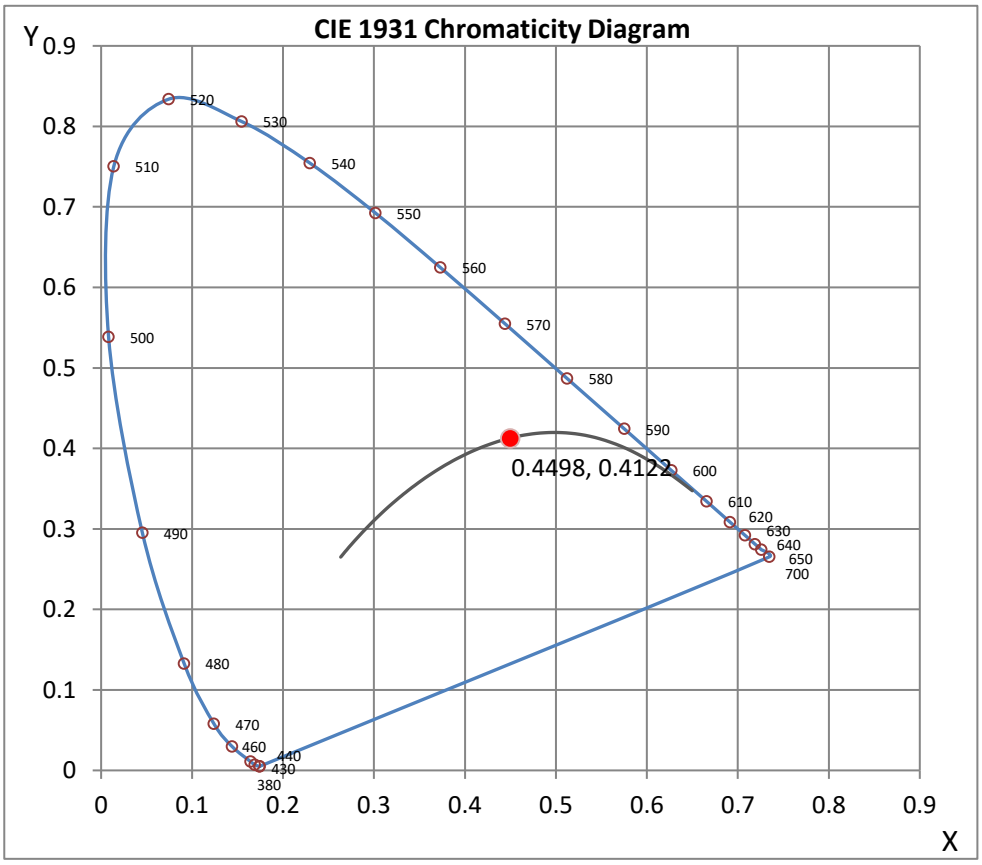
Wavelength	W/m²nm	440	0.1464	510	0.4241	580	0.7751	650	0.8432	720	0.1900
380	0.0007	450	0.3344	520	0.4746	590	0.8563	660	0.7369	730	0.1438
390	0.0009	460	0.3090	530	0.5189	600	0.9319	670	0.6199	740	0.1069
400	0.0012	470	0.2606	540	0.5627	610	0.9839	680	0.5079	750	0.0808
410	0.0047	480	0.2314	550	0.6078	620	1.0000	690	0.4069	760	0.0606
420	0.0227	490	0.2797	560	0.6518	630	0.9798	700	0.3195	770	0.0455
430	0.0662	500	0.3549	570	0.7056	640	0.9275	710	0.2460	780	0.0391

CRI & CCT

x	0.4498
y	0.4122
u'	0.2553
v'	0.5265
CRI	92.90
CCT	2858
Duv	0.00157

R Values

R1	92.74
R2	96.69
R3	99.45
R4	92.81
R5	92.57
R6	96.73
R7	91.57
R8	80.33
R9	56.48
R10	91.61
R11	94.16
R12	83.98
R13	93.87
R14	99.17



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Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Joseph Shin

Test Report Released by:

Jeff Ahn
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 10*

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L111700903R01.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L111700903R01
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 11/17/2017
[MANUFAC] Number Eight Lighting Company
[LUMCAT] 803/J2-HI-40/EL1-8-1000/FS-P-1-WH/WW8
[LUMINAIRE] LED Recessed Downlight, 90+ CRI, 40° Beam Spread, 20° Aiming Angle,
[MORE] 1.75" x 1.75" Aperture Trim, Wall Wash Lens Accessory
[BALLASTCAT] eldoLED ECOdrive 261/S
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 14.32W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	591
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	41
Total Luminaire Watts	14.32
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.62
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.20
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.15 ft
Luminous Width (90-270)	0.15 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	16560	33999	113014
55	3750	15332	71079
65	1696	2940	28160
75	2585	2216	4247
85	6581	6032	6581

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CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0
5	285.0	285.1	285.4	286.2	287.4	288.5	290.1	291.8	293.8	296.2
10	244.3	244.6	245.4	246.9	249.1	251.6	254.6	258.3	263.0	267.5
15	201.4	201.8	203.2	205.3	208.3	212.3	216.5	222.0	228.2	235.9
20	158.6	159.2	160.6	163.5	167.0	171.3	177.7	183.9	191.8	200.5
25	118.5	119.1	120.8	123.3	127.4	132.5	138.2	145.7	155.4	165.4
30	85.2	85.7	87.3	89.7	93.4	98.3	103.8	111.1	120.0	131.1
35	58.5	58.9	60.1	62.5	65.4	69.1	74.9	80.9	88.9	98.0
40	39.2	39.5	40.6	42.2	44.4	48.0	51.9	57.4	64.5	72.4
45	24.5	24.7	25.4	26.8	28.6	31.0	34.3	38.3	43.4	50.3
50	12.5	12.7	13.3	14.3	15.9	19.3	20.7	23.9	27.8	32.3
55	4.5	4.6	4.9	5.5	6.5	7.9	9.6	11.9	14.7	18.4
60	1.8	1.8	1.8	1.9	2.1	2.4	3.1	4.4	6.3	8.6
65	1.5	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.8	2.6
70	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.3	1.3
75	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2
80	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.1
85	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Vert. Angles	**Horizontal Angles**									
	50	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**95**
0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0
5	298.7	301.2	303.6	306.6	309.2	312.1	315.1	317.8	320.8	323.7
10	272.2	277.3	283.0	288.2	294.1	300.2	306.2	311.6	317.5	323.0
15	242.7	250.7	259.3	267.2	276.3	285.4	293.7	303.5	311.6	319.2
20	211.1	220.7	230.9	243.6	254.6	265.7	279.0	289.9	300.9	312.8
25	175.5	187.9	201.0	213.7	228.5	243.4	257.1	272.1	287.0	299.4
30	141.6	154.4	168.9	182.9	199.0	216.2	231.9	248.8	266.2	281.6
35	110.0	121.4	134.1	151.1	166.5	182.6	202.8	219.4	238.1	255.2
40	81.0	92.3	104.9	118.1	135.6	151.4	167.9	188.2	205.5	221.3
45	57.1	65.9	76.9	89.1	101.9	117.6	133.7	149.2	167.2	183.5
50	37.8	44.9	53.0	58.3	73.9	85.6	99.3	112.1	126.6	140.9
55	23.6	27.2	33.0	39.1	46.6	53.4	56.6	74.3	85.3	95.7
60	11.0	14.3	17.8	22.2	28.4	32.6	38.8	44.5	51.4	58.3
65	3.8	5.5	7.7	9.8	12.4	15.6	18.5	21.4	24.9	28.1
70	1.3	1.5	2.1	3.0	4.1	5.2	6.4	7.4	8.3	9.4
75	1.2	1.2	1.2	1.3	1.4	1.6	1.9	2.1	2.3	2.4
80	1.1	1.1	1.2	1.2	1.2	1.3	1.4	1.4	1.5	1.5
85	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Vert. Angles	**Horizontal Angles**									
	100	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**145**
0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0	322.0
5	326.3	328.7	331.4	333.7	336.2	338.2	340.1	342.0	343.7	345.2
10	327.9	333.0	337.7	342.2	345.9	349.8	352.9	355.8	358.4	360.4
15	327.7	334.4	341.0	347.1	352.0	356.7	361.4	364.7	367.5	370.3
20	322.1	332.4	340.1	346.7	353.9	359.4	363.6	367.3	370.3	372.5
25	313.0	323.2	333.2	341.8	348.4	354.9	359.2	363.0	365.2	366.9
30	294.7	307.6	319.0	328.4	335.6	342.0	347.0	349.7	351.6	352.8
35	269.5	283.5	295.5	304.9	313.7	319.9	324.0	326.3	328.1	328.6

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CANDELA TABULATION - (Cont.)

40	238.9	252.0	263.4	274.7	282.1	288.5	292.1	294.8	295.2	295.0
45	197.6	211.9	224.2	233.5	241.3	247.2	251.0	252.2	252.1	250.7
50	153.3	165.9	177.4	186.2	194.1	200.0	202.6	202.8	201.9	199.7
55	106.2	115.4	124.8	133.2	139.4	144.5	147.2	147.2	145.7	142.5
60	64.6	71.6	78.6	84.5	90.1	94.7	96.9	97.5	97.1	95.5
65	32.0	37.4	40.2	44.6	47.8	50.6	54.5	56.1	56.9	56.7
70	10.5	11.8	13.8	15.9	18.7	20.7	22.0	23.1	24.2	24.4
75	2.5	2.7	3.0	3.3	3.8	4.7	5.5	6.0	6.1	6.0
80	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.9
85	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Vert. Angles	**Horizontal Angles**						
	150	**155**	**160**	**165**	**170**	**175**	**180**
0	322.0	322.0	322.0	322.0	322.0	322.0	322.0
5	346.4	347.6	348.4	349.1	349.7	349.9	350.1
10	362.6	364.1	365.2	366.5	367.1	367.5	367.7
15	372.1	373.8	375.0	375.8	376.4	376.7	376.8
20	374.2	375.3	376.1	376.6	376.9	377.2	377.2
25	368.0	368.4	368.5	368.5	368.6	368.3	368.3
30	353.0	352.7	352.4	351.5	351.1	350.8	350.5
35	327.9	327.2	325.7	324.5	323.4	322.7	322.6
40	294.4	292.5	290.4	288.5	287.1	286.0	285.6
45	248.7	245.9	243.5	241.0	239.2	237.9	237.4
50	196.2	193.3	190.1	187.8	185.7	184.6	184.2
55	139.5	136.3	134.1	132.0	130.7	129.8	129.5
60	93.1	91.3	89.4	88.3	87.2	86.7	86.4
65	55.8	54.4	53.3	52.1	51.3	50.6	50.4
70	23.9	23.3	22.2	21.2	20.3	19.8	19.5
75	5.9	5.7	5.4	5.2	5.0	4.9	4.9
80	1.9	2.0	2.1	2.2	2.2	2.2	2.2
85	1.3	1.3	1.3	1.3	1.3	1.3	1.3
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	114.68	N.A.	19.40
0-30	236.16	N.A.	40.00
0-40	369.21	N.A.	62.50
0-60	556.24	N.A.	94.20
0-80	589.50	N.A.	99.80
0-90	590.57	N.A.	100.00
10-90	560.35	N.A.	94.90
20-40	254.52	N.A.	43.10
20-50	369.71	N.A.	62.60
40-70	215.49	N.A.	36.50
60-80	33.25	N.A.	5.60
70-80	4.80	N.A.	0.80
80-90	1.08	N.A.	0.20
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	590.57	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	30.23
10-20	84.46
20-30	121.48
30-40	133.05
40-50	115.18
50-60	71.85
60-70	28.45
70-80	4.80
80-90	1.08
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	108	105	102	109	106	103	100	102	99	97	98	96	94	94	93	91	89
2	104	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	81	79
3	96	87	81	76	94	86	80	75	83	78	74	81	76	72	78	74	71	69
4	89	79	72	66	87	78	71	66	76	70	65	73	68	64	71	67	63	61
5	83	72	64	59	81	71	64	58	69	62	58	67	61	57	65	60	57	55
6	77	66	58	52	75	65	57	52	63	56	52	61	56	51	60	55	51	49
7	72	60	52	47	70	59	52	47	58	51	46	56	51	46	55	50	46	44
8	67	55	48	42	66	55	47	42	53	47	42	52	46	42	51	46	42	40
9	63	51	44	39	62	50	43	39	49	43	38	48	42	38	47	42	38	36
10	59	47	40	35	58	47	40	35	46	40	35	45	39	35	44	39	35	33

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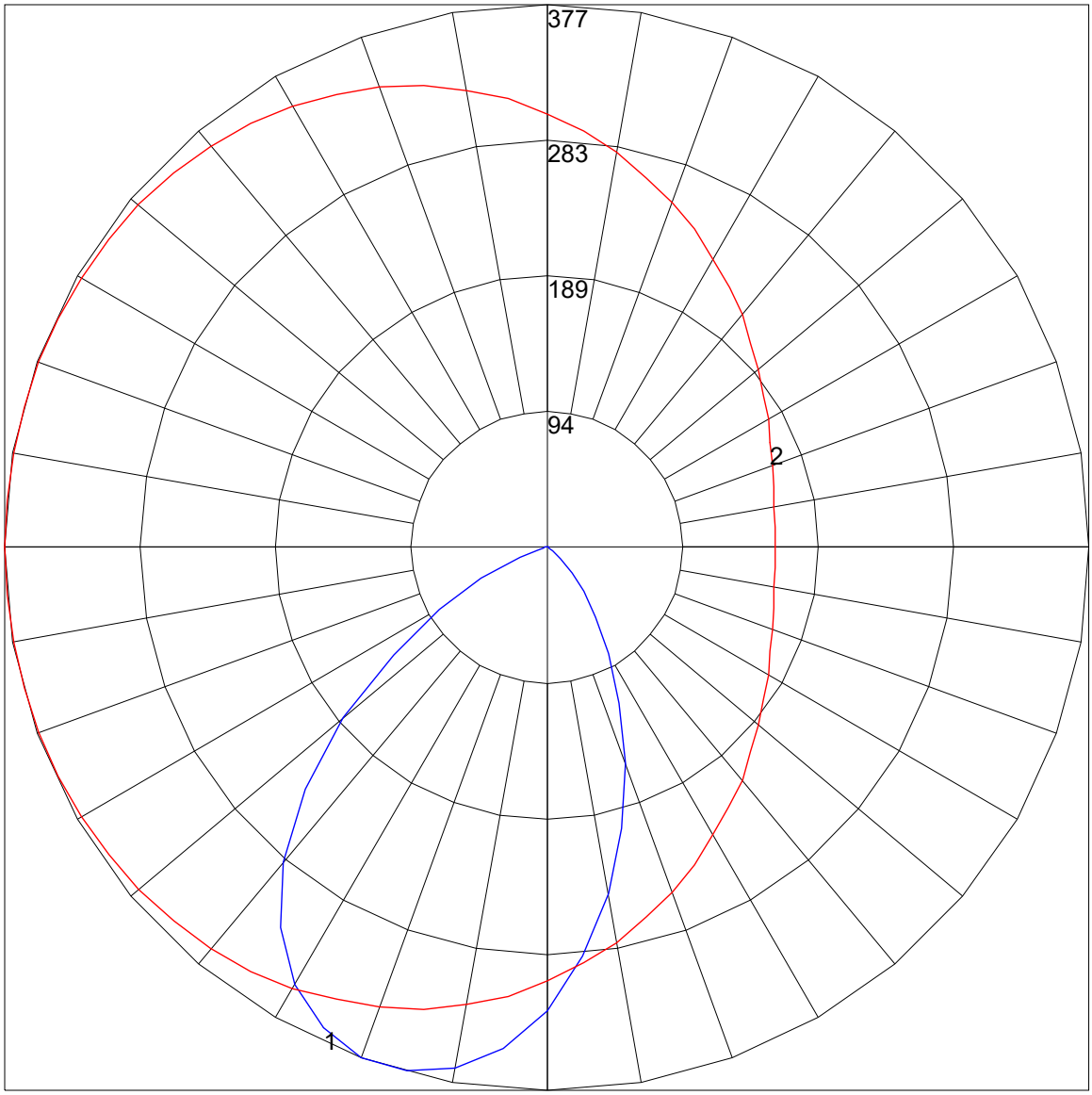
POLAR GRAPH



Maximum Candela = 377.2 Located At Horizontal Angle = 175, Vertical Angle = 20
1 - Vertical Plane Through Horizontal Angles (175 - 355) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (20) (Through Max. Cd.)

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