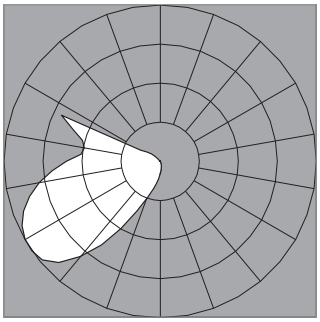
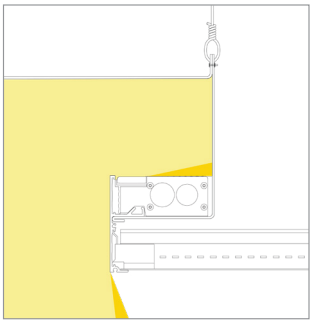




IES Report

ZipWave® | 707 | Clear with EdgeSoft™, fixture in cove | 90 CRI | SO

707-Z9-4-48-AW / EW-XX-X-0-Z-SO-359-C1-0-AL-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	56	57	59	60
Total Lumens, 4’ rail length (1219mm)	1469	1515	1546	1577
Lumens per foot (305mm)	367	379	386	394
Input Power (W), 4’ rail length (1219mm)	26.7	26.7	26.7	26.7
Watts per foot (305mm)	6.7	6.7	6.7	6.7
CRI	96	96	96	96

Due to the large number of options in Vode’s product offering, most Vode IES reports are factored reports prepared from source reports. Source reports are the IES test reports prepared for Vode by an NVLAP accredited photometric test laboratory. Factored reports are based on data from the Vode source reports.

If the data above is in black, it is directly from a Vode source report. If it is in grey, it is factored from Vode source reports. Reference details on Vode source reports can be found on the IES File Finder page on vode.com.

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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L101707604 **Issue Date: 11/1/2017**

Report Prepared For: Vode Lighting
21684 8th Street East, Suite 700, Sonoma, CA 95476

Model Number: 707-Z9-48-AW-Z-SO-359-C1

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: 10/26/17

Date of Tests: 10/27/17 - 11/1/17

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

Equipment List

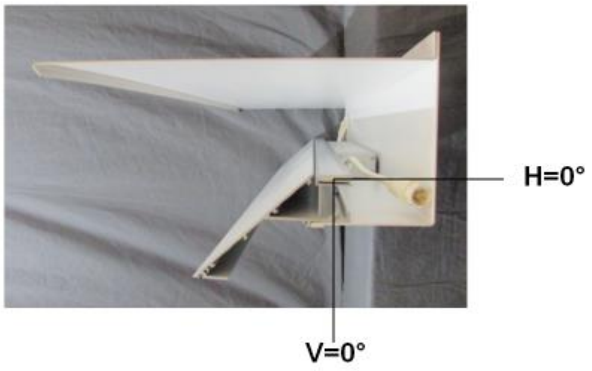
Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 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.

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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Test Summary	
Manufacturer:	Vode Lighting
Model Number:	707-Z9-48-AW-Z-SO-359-C1
Driver Model Number:	eldoLED SOLOdrive 561/M
Total Lumens:	1545.79
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.23
Input Power (W):	26.65
Input Power Factor:	0.98
Current ATHD @ 120V(%):	6%
Current ATHD @ 277V(%):	N/A
Efficacy:	58
Color Rendering Index (CRI):	96
Correlated Color Temperature (K):	3211
Chromaticity Coordinate x:	0.4215
Chromaticity Coordinate y:	0.3961
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	2:40



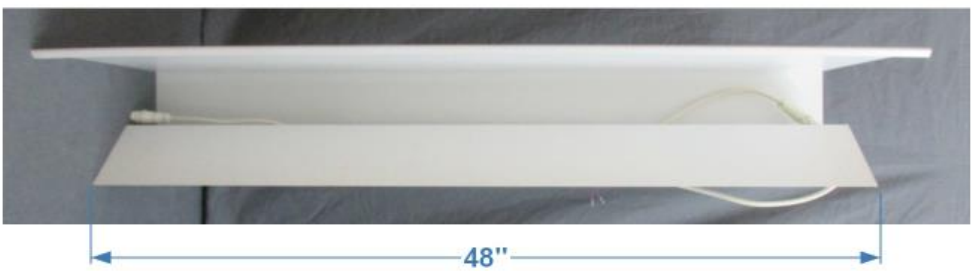


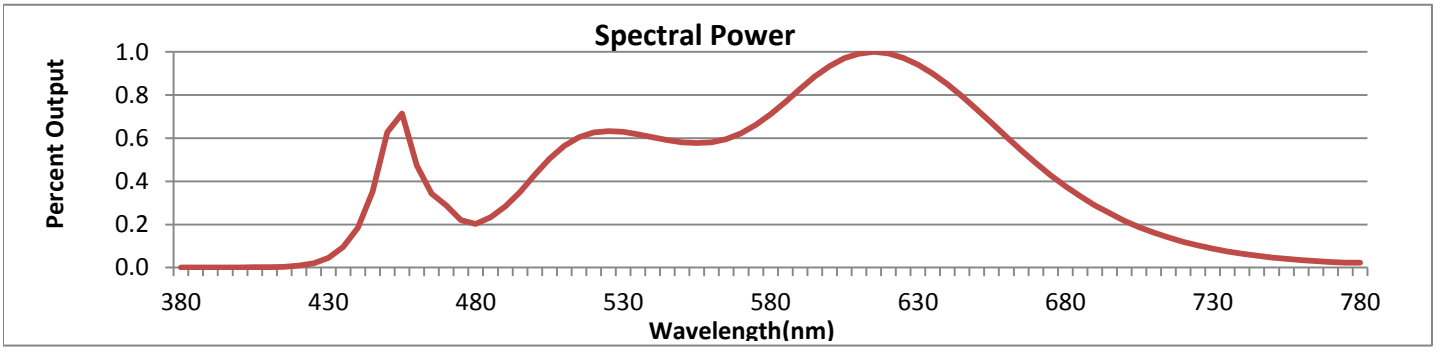
FIG. 1 LUMINAIRE

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

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

Report No: L101707604

NVLAP TESTING
NVLAP LAB CODE 200927-0



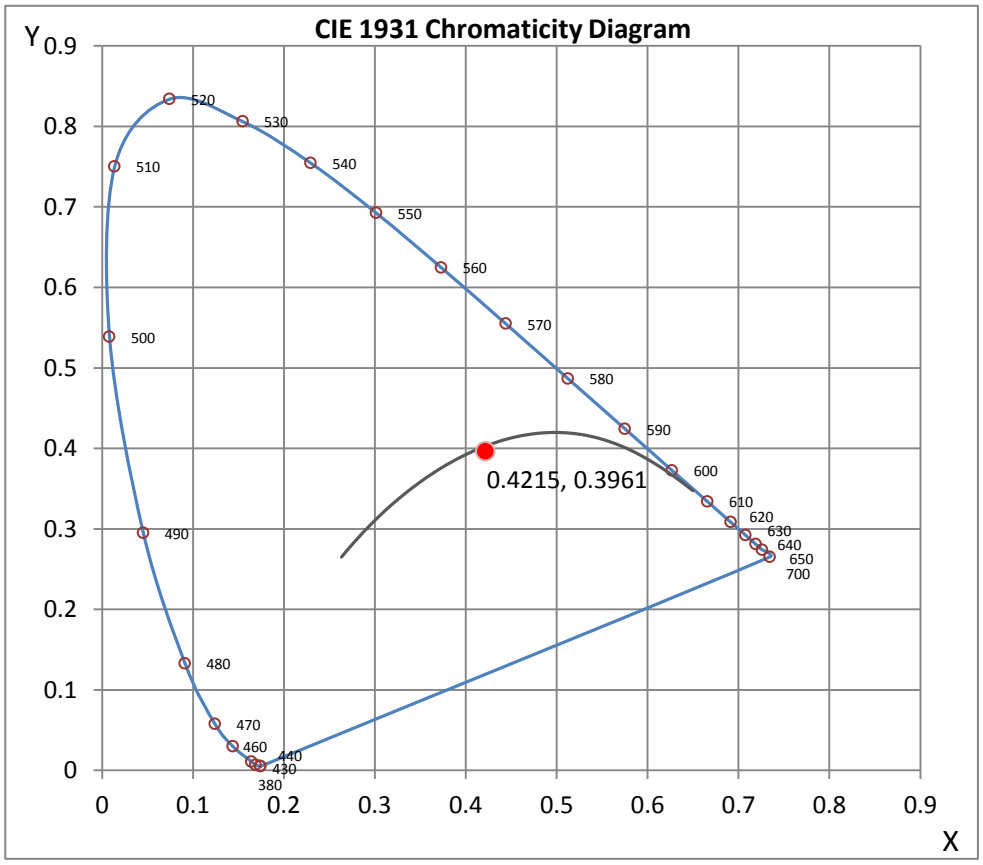
Wavelength	W/m²nm	440	0.1848	510	0.5640	580	0.7119	650	0.7334	720	0.1195
380	0.0009	450	0.6287	520	0.6262	590	0.8290	660	0.6076	730	0.0879
390	0.0008	460	0.4744	530	0.6292	600	0.9344	670	0.4836	740	0.0644
400	0.0011	470	0.2878	540	0.6045	610	0.9925	680	0.3774	750	0.0472
410	0.0020	480	0.2029	550	0.5812	620	0.9926	690	0.2879	760	0.0348
420	0.0087	490	0.2835	560	0.5806	630	0.9408	700	0.2174	770	0.0257
430	0.0453	500	0.4305	570	0.6228	640	0.8507	710	0.1620	780	0.0220

CRI & CCT

x	0.4215
y	0.3961
u'	0.2440
v'	0.5159
CRI	95.60
CCT	3211
Duv	-0.00088

R Values

R1	98.24
R2	98.98
R3	98.99
R4	96.32
R5	98.20
R6	94.19
R7	93.38
R8	86.72
R9	69.15
R10	98.45
R11	89.27
R12	83.86
R13	97.80
R14	98.77



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

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

NVLAP TESTING
NVLAP LAB CODE 200927-0

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 : Keyur Patel

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: 11*

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

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

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707604.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L101707604
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 11/1/2017
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z9-48-AW-Z-SO-359-C1
[LUMINAIRE] ZipWave LED, 48", Armstrong wall cove part no. AXIDLCWKE48, 3500K, 90 CRI
[MORE] zipper board, clear lens w/edge softening, standard output
[BALLASTCAT] eldoLED SOLOdrive 561/M
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 26.65W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1546
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	58
Total Luminaire Watts	26.65
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	0.38
Spacing Criterion (90-270)	2.24
Spacing Criterion (Diagonal)	3.50
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.08 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	48	903	3897
55	0	1172	5273
65	0	1431	7554
75	0	1558	12335
85	0	2313	29690

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707604.IES

CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0	50	50	50	50	50	50	50	50	50	50
5	37	37	37	37	38	38	39	40	40	41
10	27	27	27	28	28	29	30	31	33	34
15	19	19	20	20	21	22	24	25	26	28
20	13	13	14	14	16	17	19	21	23	25
25	5	5	6	8	10	12	14	16	19	22
30	3	3	4	5	6	7	10	13	16	19
35	3	3	3	4	6	7	9	11	14	17
40	3	3	3	5	6	8	10	12	15	17
45	1	2	3	4	6	8	10	13	16	19
50	0	1	2	4	6	8	11	13	17	20
55	0	1	2	4	6	8	10	13	17	20
60	0	1	2	3	5	7	10	13	16	20
65	0	1	2	3	5	6	9	11	14	18
70	0	1	2	3	4	6	8	10	13	15
75	0	2	2	3	4	5	6	8	10	12
80	0	2	2	2	3	4	4	6	7	9
85	0	2	2	2	2	3	3	4	5	6
90	0	2	2	2	2	2	3	3	4	4
95	0	2	2	2	3	3	3	4	4	5
100	0	2	2	3	3	4	5	5	6	8
105	0	2	3	3	4	5	6	8	9	11
110	0	3	3	4	5	7	8	10	12	16
115	0	3	4	5	7	9	11	14	17	21
120	0	4	4	6	8	11	14	18	22	28
125	0	4	5	7	10	14	16	22	29	35
130	0	3	5	8	11	15	20	28	36	42
135	0	3	5	8	12	17	24	34	39	43
140	0	3	5	8	11	16	23	31	40	43
145	0	4	5	7	10	15	21	27	35	42
150	0	4	4	5	6	13	19	24	29	35
155	0	4	4	4	5	8	13	18	22	26
160	0	4	4	4	5	6	8	11	13	16
165	0	4	4	4	5	6	7	8	9	9
170	0	3	3	3	3	3	4	4	5	5
175	0	2	2	2	2	2	2	2	2	2
180	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	50	50	50	50	50	50	50	50	50	50
5	42	43	44	45	46	47	48	49	51	52
10	35	37	39	41	43	45	47	49	52	55
15	31	33	36	38	42	45	48	52	56	59
20	28	31	34	37	41	45	49	54	59	64
25	26	29	33	37	41	46	51	56	62	69
30	23	28	32	37	42	47	53	60	67	75
35	22	27	32	37	43	49	56	64	72	82
40	21	26	31	38	44	51	59	67	77	88
45	23	27	32	38	46	54	62	72	82	94
50	24	28	33	39	47	55	65	75	86	100
55	25	29	34	40	48	57	67	78	90	105
60	24	30	35	41	47	57	68	79	93	111

CANDELA TABULATION - (Cont.)

65	22	28	34	39	47	56	67	80	95	115
70	19	23	31	37	43	53	64	79	96	118
75	14	19	23	32	40	51	61	75	95	121
80	11	13	14	21	28	38	57	68	91	113
85	7	9	10	10	16	22	34	47	77	101
90	5	6	7	7	7	8	12	22	46	56
95	6	7	8	9	11	14	18	32	45	53
100	9	11	13	16	21	29	43	56	68	81
105	13	17	21	27	35	47	61	72	83	93
110	19	24	30	39	50	64	74	84	93	99
115	26	33	42	53	65	74	83	92	99	104
120	35	43	54	65	73	81	89	96	102	106
125	44	54	62	69	76	85	91	97	101	104
130	50	56	63	70	77	83	89	94	97	99
135	50	56	62	68	74	79	85	87	90	91
140	48	53	58	63	68	73	76	78	80	81
145	45	48	52	56	60	64	66	68	69	69
150	41	44	45	48	51	54	56	58	58	59
155	31	35	40	41	42	44	45	46	46	46
160	19	23	27	30	33	35	36	36	36	35
165	10	11	13	15	17	19	20	20	21	21
170	6	6	6	6	7	7	7	7	7	6
175	2	2	2	3	3	3	3	3	3	3
180	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	50	50	50	50	50	50	50	50	50	50
5	53	55	56	57	58	60	61	62	63	64
10	58	61	63	66	69	72	75	77	80	82
15	63	67	72	77	81	86	91	96	101	105
20	70	76	82	89	97	105	112	119	126	132
25	77	85	94	104	114	125	135	145	156	168
30	85	95	107	120	132	147	164	181	196	217
35	93	106	120	137	156	176	202	230	257	286
40	101	116	135	156	184	216	251	291	330	364
45	108	128	152	179	213	266	315	358	397	433
50	117	141	171	216	268	322	370	415	454	490
55	126	154	196	252	312	367	415	460	491	519
60	135	170	221	292	348	403	440	475	501	524
65	145	196	259	319	368	408	442	470	494	514
70	151	212	275	324	364	397	427	452	475	493
75	155	219	264	308	343	371	401	422	443	458
80	141	184	235	274	307	334	355	376	393	410
85	112	130	178	222	253	282	302	321	340	356
90	76	99	113	157	183	219	243	262	285	304
95	74	98	121	142	158	184	202	221	243	254
100	95	109	127	147	179	192	208	223	238	251
105	101	110	120	136	158	178	224	249	266	277
110	104	109	114	121	127	133	134	192	223	271
115	107	108	110	113	116	118	121	122	123	123
120	107	107	106	105	105	106	106	106	105	104
125	105	104	102	99	96	94	93	90	88	86
130	100	99	97	92	88	83	80	76	73	69
135	91	90	88	85	80	75	69	64	59	55

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707604.IES

CANDELA TABULATION - (Cont.)

140	81	80	78	74	71	66	60	54	48	42
145	69	68	67	64	60	56	51	46	40	34
150	58	56	55	53	50	47	42	38	34	28
155	46	45	43	41	39	37	34	29	24	19
160	35	35	34	32	29	25	22	18	14	11
165	20	19	17	15	13	11	10	9	8	6
170	7	7	7	7	7	6	5	4	4	3
175	3	3	3	3	3	2	2	2	2	2
180	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**						
	150	**155**	**160**	**165**	**170**	**175**	**180**
0	50	50	50	50	50	50	50
5	64	65	66	66	67	67	67
10	84	85	87	88	88	89	89
15	109	112	114	117	118	119	119
20	139	144	148	152	154	156	156
25	178	187	195	201	205	209	210
30	236	253	268	279	288	295	296
35	312	335	355	370	381	389	390
40	392	417	437	453	465	474	475
45	462	487	508	525	537	544	547
50	517	537	554	568	578	584	586
55	542	558	571	582	590	595	597
60	543	558	571	581	588	593	595
65	534	547	558	567	574	579	581
70	510	523	533	542	549	553	554
75	473	486	495	503	510	514	516
80	424	436	447	456	462	466	468
85	372	385	395	403	409	412	414
90	315	327	338	346	352	356	357
95	271	279	291	300	302	302	303
100	263	272	280	287	291	294	294
105	284	292	297	304	306	307	307
110	337	335	346	351	355	354	353
115	149	188	153	281	192	330	415
120	102	99	97	93	88	99	85
125	82	79	74	69	63	60	61
130	66	61	55	50	44	42	42
135	50	45	39	33	28	25	25
140	37	32	26	18	14	12	12
145	28	21	14	9	4	3	3
150	21	15	10	5	2	1	1
155	14	11	6	3	2	1	1
160	9	6	3	2	2	2	2
165	4	3	2	2	2	2	2
170	2	2	2	2	2	2	2
175	2	2	2	2	2	2	2
180	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707604.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	23.07	N.A.	1.50
0-30	63.42	N.A.	4.10
0-40	145.41	N.A.	9.40
0-60	474.81	N.A.	30.70
0-80	900.77	N.A.	58.30
0-90	1064.85	N.A.	68.90
10-90	1059.82	N.A.	68.60
20-40	122.35	N.A.	7.90
20-50	261.62	N.A.	16.90
40-70	545.94	N.A.	35.30
60-80	425.96	N.A.	27.60
70-80	209.42	N.A.	13.50
80-90	164.07	N.A.	10.60
90-110	245.87	N.A.	15.90
90-120	341.33	N.A.	22.10
90-130	399.71	N.A.	25.90
90-150	465.52	N.A.	30.10
90-180	480.94	N.A.	31.10
110-180	235.07	N.A.	15.20
0-180	1545.79	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	5.03
10-20	18.04
20-30	40.35
30-40	81.99
40-50	139.27
50-60	190.13
60-70	216.54
70-80	209.42
80-90	164.07
90-100	121.17
100-110	124.70
110-120	95.46
120-130	58.38
130-140	41.15
140-150	24.66
150-160	11.91
160-170	3.23
170-180	0.28

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707604.IES

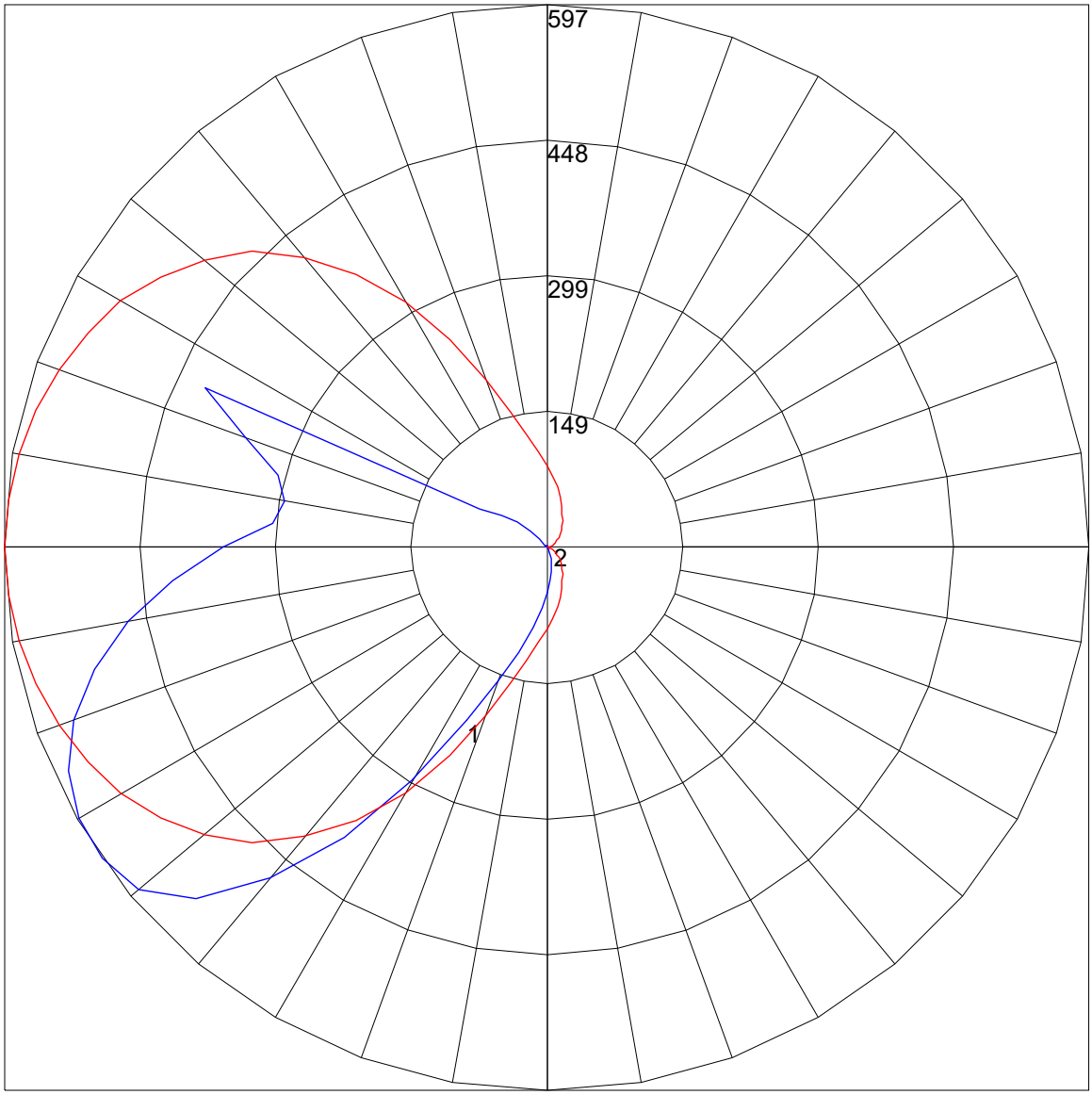
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73	69
1	96	89	82	77	90	83	78	73	73	69	64	64	60	57	55	52	50	45
2	84	73	64	57	78	69	61	54	60	53	48	52	47	42	44	40	36	32
3	75	62	52	44	70	58	49	41	50	43	37	43	37	32	37	32	28	24
4	68	53	43	35	63	50	40	33	43	35	29	37	30	25	31	26	22	18
5	61	46	36	28	57	43	34	27	38	30	23	32	26	20	27	22	17	14
6	56	41	31	23	52	38	29	22	33	25	19	28	22	17	24	18	14	11
7	51	36	27	20	47	34	25	19	29	22	16	25	19	14	21	16	12	9
8	47	33	23	17	44	30	22	16	27	19	14	23	17	12	19	14	10	8
9	44	29	21	15	41	28	19	14	24	17	12	21	15	10	18	12	9	6
10	41	27	18	13	38	25	17	12	22	15	10	19	13	9	16	11	8	5

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707604.IES

POLAR GRAPH



Maximum Candela = 597 Located At Horizontal Angle = 180, Vertical Angle = 55
1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (55) (Through Max. Cd.)