



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MR16-6-24V05WLA-LED.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[ISSUE DATE] 12 March 2019

[TEST LAB] Spectra Lux Industries Inc.

[TEST] S1903121-R1

[LUMCAT] LEME 6-24V 05W BAW-IC

[LUMINAIRE] Lamp MR16 From AW - 12 to 24DC

[LAMP] Clusters of (4) HL-AT-2835D2W-2C-S1-08-PCT-HR3 LEDs c/w Integrated Driver @ 12.00V

[BURNING] Axial (435 Luminaire Lumens)

[REFLECTOR] None

[LENS] Acrylic Diffuser

[HOUSING] Polymeric Molded

[REPORT MODULE] IES LM-35-1989 Floodlight Report

[DISTRIBUTION] NEMA 5Hx5V (Max. CP at 0.0H,-10.0V)

[MANUFAC] BeLuce Canada Inc.

[SEARCH_SOURCETYPE] LED

[SEARCH_APPLICATION] Indoor, Emergency

[SEARCH_MOUNTING] Ceiling, Wall

[SEARCH_CERTIFICATION] CSA

Note: Candela values converted from Type-B to Type-C

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	436
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	97
Total Luminaire Watts	4.48
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.58
Spacing Criterion (90-270)	0.72
Spacing Criterion (Diagonal)	0.70
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.17 ft (Diameter)
Luminous Width (90-270)	0.17 ft (Diameter)
Luminous Height	0.00 ft

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LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	13239	15330	21601
55	10308	10308	13745
65	9327	8161	10493
75	7615	9519	9519
85	5653	0	11307

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CANDELA TABULATION

	<u>0.0</u>	<u>2.5</u>	<u>5.0</u>	<u>7.5</u>	<u>10.0</u>	<u>12.5</u>	<u>15.0</u>	<u>17.5</u>	<u>20.0</u>	<u>22.5</u>
0.0	658	658	658	658	658	658	658	658	658	658
2.5	645	645	645	645	645	645	645	645	645	645
5.0	623	623	623	623	623	623	623	623	624	624
7.5	591	590	590	590	590	590	591	591	592	592
10.0	542	541	541	541	541	541	543	542	543	544
12.5	479	478	477	476	477	477	478	478	480	482
15.0	404	402	401	401	403	403	404	406	409	409
17.5	332	330	330	330	330	331	332	334	335	337
20.0	265	263	263	263	263	263	265	265	267	269
22.5	203	201	200	200	201	202	203	204	206	208
25.0	150	149	148	148	149	150	152	153	155	157
27.5	110	109	109	109	110	111	112	113	115	116
30.0	82	81	81	81	82	82	83	84	85	85
32.5	62	62	62	62	62	62	63	64	64	64
35.0	47	47	46	47	47	48	48	49	48	48
37.5	35	35	35	36	36	36	37	37	37	37
40.0	28	27	27	28	28	28	29	29	28	29
42.5	22	22	22	22	23	23	23	23	23	24
45.0	19	19	19	18	19	19	19	20	20	19
47.5	16	16	16	16	16	17	17	17	17	17
50.0	14	14	14	14	14	15	15	14	14	15
52.5	13	13	13	13	13	13	13	13	13	13
55.0	12	12	12	12	11	11	11	12	12	12
57.5	10	10	10	10	10	10	10	10	11	11
60.0	10	10	9	9	9	9	9	9	10	10
62.5	9	9	9	9	9	9	8	8	9	9
65.0	8	8	8	8	8	8	8	8	8	8
67.5	7	7	7	7	7	7	7	7	7	7
70.0	6	6	6	6	6	6	6	6	6	6
72.5	6	6	6	6	6	5	5	5	5	6
75.0	4	3	3	3	3	3	3	3	3	3
77.5	1	1	1	1	1	1	1	1	1	1
80.0	0	1	1	1	1	1	1	1	1	1
82.5	1	1	1	1	1	1	1	1	1	0
85.0	1	1	1	1	1	1	1	1	0	0
87.5	1	1	1	1	1	1	1	1	1	0
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles	Horizontal Angles									
	<u>25.0</u>	<u>27.5</u>	<u>30.0</u>	<u>32.5</u>	<u>35.0</u>	<u>37.5</u>	<u>40.0</u>	<u>42.5</u>	<u>45.0</u>	<u>47.5</u>
0.0	658	658	658	658	658	658	658	658	658	658
2.5	645	645	645	646	646	646	646	647	647	647
5.0	625	625	626	626	627	628	629	630	631	632
7.5	593	594	595	597	599	601	603	606	607	610
10.0	546	548	551	552	554	556	558	561	563	566
12.5	484	485	487	490	493	498	499	501	504	508
15.0	411	414	417	419	422	425	429	435	436	439
17.5	339	341	344	346	350	352	354	356	361	363
20.0	271	273	275	277	278	280	282	285	289	294
22.5	210	212	212	214	215	218	221	224	228	231
25.0	158	158	159	162	164	166	169	172	175	177
27.5	116	117	119	121	123	125	127	129	131	132
30.0	85	87	89	90	91	93	94	95	97	99

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CANDELA TABULATION - (Cont.)

32.5	64	65	66	67	67	68	69	70	72	73
35.0	49	50	50	50	51	51	52	53	54	55
37.5	38	38	39	39	39	39	40	41	42	42
40.0	29	30	30	30	30	31	31	32	32	33
42.5	24	24	24	24	25	25	25	26	26	26
45.0	20	20	20	20	20	21	21	21	22	22
47.5	17	17	17	18	18	18	18	18	18	19
50.0	15	15	15	15	15	15	15	15	16	16
52.5	13	13	13	13	13	13	14	13	14	14
55.0	12	11	12	12	12	12	12	12	12	12
57.5	11	10	11	11	11	11	11	10	11	11
60.0	9	9	9	10	9	9	10	10	10	10
62.5	9	9	9	9	9	9	9	9	9	9
65.0	8	8	8	8	8	8	8	8	7	8
67.5	7	7	7	7	7	7	7	7	7	7
70.0	6	6	6	6	6	6	6	6	6	6
72.5	6	6	6	5	5	6	5	5	6	5
75.0	4	4	5	5	5	4	5	5	5	5
77.5	1	2	2	3	3	3	4	4	4	4
80.0	1	1	1	1	2	2	2	3	3	3
82.5	0	0	0	0	0	1	1	1	1	1
85.0	0	1	0	0	0	0	0	0	0	0
87.5	1	0	1	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles
Angles

	<u>50.0</u>	<u>52.5</u>	<u>55.0</u>	<u>57.5</u>	<u>60.0</u>	<u>62.5</u>	<u>65.0</u>	<u>67.5</u>	<u>70.0</u>	<u>72.5</u>
0.0	658	658	658	658	658	658	658	658	658	658
2.5	648	648	649	649	650	650	651	651	652	653
5.0	633	635	636	637	639	640	641	643	644	645
7.5	611	612	614	615	617	620	622	625	629	630
10.0	569	572	575	579	584	586	589	592	596	600
12.5	512	517	521	523	527	531	535	540	544	549
15.0	442	445	449	453	458	463	468	473	479	484
17.5	367	372	378	383	390	393	400	403	408	414
20.0	298	302	307	312	317	321	326	331	336	341
22.5	234	238	242	247	249	253	257	262	268	273
25.0	180	182	185	188	192	195	199	203	208	213
27.5	135	138	139	142	145	148	151	155	160	163
30.0	100	102	105	107	110	112	115	117	121	124
32.5	74	76	79	81	83	85	87	88	91	94
35.0	57	58	60	61	62	64	66	67	69	71
37.5	44	45	45	46	48	49	51	52	52	54
40.0	34	35	35	36	37	38	39	40	41	42
42.5	27	27	28	29	30	30	31	32	33	33
45.0	22	23	23	24	24	25	25	26	26	27
47.5	18	19	20	20	20	20	21	21	22	22
50.0	16	16	16	17	17	17	17	18	18	19
52.5	14	14	14	14	14	15	15	16	16	16
55.0	12	12	12	13	13	13	13	13	13	14
57.5	11	11	11	12	11	11	12	12	12	12
60.0	10	10	10	10	10	10	10	10	11	11
62.5	9	9	9	9	9	9	9	9	9	10
65.0	8	8	8	8	8	8	8	8	8	8
67.5	7	7	7	7	7	7	7	8	7	7

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CANDELA TABULATION - (Cont.)

70.0	6	6	6	6	6	6	6	6	6	7
72.5	5	5	6	6	5	6	6	5	6	5
75.0	5	5	5	5	5	4	5	5	5	5
77.5	4	4	4	4	4	4	4	4	4	4
80.0	3	3	3	3	3	3	3	3	3	3
82.5	2	2	2	3	2	2	2	2	2	2
85.0	0	0	0	1	1	1	2	2	2	2
87.5	0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles
Angles

	<u>75.0</u>	<u>77.5</u>	<u>80.0</u>	<u>82.5</u>	<u>85.0</u>	<u>87.5</u>	<u>90.0</u>	<u>92.5</u>	<u>95.0</u>	<u>97.5</u>
0.0	658	658	658	658	658	658	658	658	658	658
2.5	653	654	654	655	656	656	657	658	658	659
5.0	647	648	650	651	653	654	656	657	658	659
7.5	633	635	637	640	643	645	648	650	652	654
10.0	605	608	611	615	618	622	626	629	632	635
12.5	554	560	566	570	575	580	586	590	595	600
15.0	490	496	503	509	515	522	529	534	540	547
17.5	420	425	432	439	445	451	459	464	470	478
20.0	347	353	359	366	372	378	385	390	397	404
22.5	279	284	290	296	302	308	314	318	324	330
25.0	217	222	226	231	237	242	248	252	258	263
27.5	167	170	174	178	183	187	192	196	201	206
30.0	127	129	132	135	139	142	146	150	155	159
32.5	97	99	102	104	106	109	112	114	117	121
35.0	74	76	78	80	81	83	85	87	89	91
37.5	56	57	59	60	62	63	64	66	67	69
40.0	43	44	45	46	47	49	50	51	52	53
42.5	34	35	35	36	37	37	39	40	41	42
45.0	27	28	29	29	30	30	31	32	33	34
47.5	23	23	23	24	24	25	25	26	27	27
50.0	19	19	20	20	20	21	21	22	22	23
52.5	17	16	17	17	17	18	18	18	18	19
55.0	14	14	14	14	15	15	16	16	16	17
57.5	12	12	13	13	13	13	13	14	14	15
60.0	11	11	11	11	11	11	12	12	12	13
62.5	9	10	10	10	10	10	10	11	10	11
65.0	9	9	9	8	9	9	9	9	9	9
67.5	8	7	8	7	8	8	8	8	8	8
70.0	7	7	7	7	7	7	7	7	7	8
72.5	6	6	6	6	6	6	6	7	7	7
75.0	5	5	5	5	5	5	5	5	5	6
77.5	4	4	4	5	4	5	5	5	5	5
80.0	3	3	4	3	3	4	4	4	4	4
82.5	3	2	3	2	3	3	3	3	4	4
85.0	2	2	2	2	2	2	2	3	3	3
87.5	1	1	1	1	1	1	2	2	2	3
90.0	0	0	0	0	0	0	1	2	2	2

Vert. Horizontal Angles
Angles

	<u>100.0</u>	<u>102.5</u>	<u>105.0</u>	<u>107.5</u>	<u>110.0</u>	<u>112.5</u>	<u>115.0</u>	<u>117.5</u>	<u>120.0</u>	<u>122.5</u>
0.0	658	658	658	658	658	658	658	658	658	658
2.5	659	660	660	661	661	662	662	663	663	664

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CANDELA TABULATION - (Cont.)

5.0	660	661	662	663	664	665	666	667	668	669
7.5	656	658	660	662	663	665	666	667	669	670
10.0	638	642	645	648	650	653	656	658	661	664
12.5	605	610	614	618	623	628	631	635	639	644
15.0	554	559	565	571	577	581	587	593	599	604
17.5	484	490	498	504	510	516	524	529	537	540
20.0	410	417	423	429	435	441	447	453	459	464
22.5	336	343	348	354	360	365	370	376	381	387
25.0	269	274	279	285	289	293	297	303	308	313
27.5	211	216	221	224	228	231	235	240	244	248
30.0	163	168	171	174	177	179	183	186	189	191
32.5	124	127	130	133	135	137	140	142	144	147
35.0	93	96	98	100	101	104	106	108	109	111
37.5	71	73	74	76	77	79	81	81	83	84
40.0	55	56	57	58	60	61	62	63	64	65
42.5	43	44	45	46	47	47	48	49	50	50
45.0	34	35	36	36	37	37	38	39	39	39
47.5	28	29	29	29	30	30	31	31	31	32
50.0	23	24	24	24	25	25	25	26	26	26
52.5	19	20	20	20	21	21	21	21	22	22
55.0	17	17	17	17	17	18	18	18	18	18
57.5	14	15	15	15	15	16	16	16	16	16
60.0	12	13	13	13	13	13	13	13	14	14
62.5	11	11	11	12	12	12	12	12	12	12
65.0	10	10	10	10	11	11	10	11	11	10
67.5	9	9	9	9	9	9	9	9	9	9
70.0	8	8	8	8	8	8	8	8	8	8
72.5	7	7	7	7	7	7	7	7	7	7
75.0	6	6	6	6	6	6	6	6	6	6
77.5	5	5	5	5	5	5	5	5	6	5
80.0	5	5	5	5	5	5	5	5	5	5
82.5	4	4	4	4	4	4	4	4	4	4
85.0	3	3	3	3	3	3	3	3	3	3
87.5	3	3	3	3	3	3	3	3	3	3
90.0	2	2	2	2	2	2	2	2	2	2

Vert. Angles	Horizontal Angles									
	<u>125.0</u>	<u>127.5</u>	<u>130.0</u>	<u>132.5</u>	<u>135.0</u>	<u>137.5</u>	<u>140.0</u>	<u>142.5</u>	<u>145.0</u>	<u>147.5</u>
0.0	658	658	658	658	658	658	658	658	658	658
2.5	664	665	665	665	666	666	667	667	667	668
5.0	670	671	672	673	673	674	675	676	677	678
7.5	672	673	675	677	679	681	682	683	685	686
10.0	667	670	673	676	678	681	683	685	687	690
12.5	649	653	655	658	661	665	669	675	676	678
15.0	608	612	617	621	625	631	633	637	641	645
17.5	545	550	556	563	569	571	574	578	583	587
20.0	470	476	481	486	491	497	502	505	507	510
22.5	391	395	399	405	410	414	419	423	428	431
25.0	317	321	325	329	332	336	340	344	347	351
27.5	251	255	258	261	264	266	268	269	273	276
30.0	195	198	200	203	205	207	208	208	210	213
32.5	149	151	153	156	157	159	160	161	161	163
35.0	113	114	117	118	120	121	123	123	123	124
37.5	86	87	88	89	91	91	92	93	93	93
40.0	66	67	67	68	68	69	70	70	70	70

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CANDELA TABULATION - (Cont.)

42.5	51	51	52	52	52	53	53	53	53	54
45.0	39	40	40	41	40	41	41	41	42	42
47.5	32	32	32	32	32	33	33	33	33	33
50.0	26	26	26	26	26	27	27	27	27	26
52.5	22	22	22	22	22	22	22	22	22	22
55.0	19	19	18	18	18	19	19	19	18	18
57.5	16	16	16	16	16	16	16	16	16	16
60.0	14	14	14	14	14	14	14	14	14	14
62.5	12	12	12	12	12	12	12	12	12	12
65.0	10	11	11	11	10	11	11	11	11	11
67.5	9	9	9	9	9	9	9	9	10	9
70.0	8	8	8	8	8	9	8	8	9	8
72.5	7	7	7	7	7	7	7	8	7	7
75.0	6	7	6	7	6	7	7	6	7	7
77.5	5	6	6	5	6	6	5	6	6	6
80.0	5	5	5	5	5	5	5	5	5	5
82.5	4	4	4	4	4	4	4	4	4	5
85.0	3	3	3	3	3	4	4	4	3	3
87.5	3	3	3	2	2	2	2	2	3	3
90.0	2	2	2	2	2	2	2	2	2	2

Vert. Angles	Horizontal Angles									
	<u>150.0</u>	<u>152.5</u>	<u>155.0</u>	<u>157.5</u>	<u>160.0</u>	<u>162.5</u>	<u>165.0</u>	<u>167.5</u>	<u>170.0</u>	<u>172.5</u>
0.0	658	658	658	658	658	658	658	658	658	658
2.5	668	668	668	669	669	669	670	670	670	670
5.0	679	679	680	680	681	682	682	682	683	683
7.5	688	689	690	691	693	694	695	695	696	697
10.0	692	694	695	697	698	700	702	703	703	704
12.5	680	682	685	687	688	690	691	693	694	694
15.0	649	650	652	655	659	659	660	661	664	663
17.5	591	594	597	599	601	604	606	607	609	610
20.0	514	517	520	525	526	528	532	532	534	538
22.5	433	435	437	441	445	446	447	449	451	453
25.0	354	353	356	358	361	364	365	367	368	369
27.5	280	282	282	283	285	288	290	290	291	292
30.0	216	218	219	220	220	223	225	225	226	226
32.5	165	166	167	168	168	169	171	172	172	172
35.0	124	125	125	127	127	127	128	129	128	128
37.5	93	94	93	95	95	95	95	96	95	95
40.0	71	70	70	70	71	71	71	72	72	71
42.5	54	53	53	54	54	54	54	54	54	55
45.0	42	42	41	41	42	43	42	42	42	42
47.5	33	33	33	32	33	33	33	33	33	33
50.0	27	27	26	26	26	27	26	26	26	26
52.5	22	22	22	22	22	22	22	22	22	22
55.0	18	19	18	18	18	18	18	19	18	18
57.5	16	16	16	16	16	16	16	16	16	16
60.0	14	14	14	14	14	14	14	14	14	14
62.5	12	12	12	13	12	12	12	12	12	12
65.0	11	11	11	11	11	11	11	11	11	11
67.5	9	10	10	10	10	10	10	10	10	10
70.0	8	9	9	9	8	8	9	9	9	9
72.5	8	8	8	8	7	8	8	8	8	8
75.0	7	7	7	7	7	7	7	7	7	7
77.5	6	6	6	6	6	6	6	6	6	6

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CANDELA TABULATION - (Cont.)

80.0	5	5	5	5	5	5	5	5	5	6
82.5	4	4	4	4	4	5	5	5	5	5
85.0	3	3	4	4	4	4	4	4	4	4
87.5	3	3	3	3	3	3	3	3	3	3
90.0	2	2	2	2	2	2	2	2	2	2

Vert. Angles	Horizontal Angles		
	<u>175.0</u>	<u>177.5</u>	<u>180.0</u>
0.0	658	658	658
2.5	670	670	670
5.0	684	684	684
7.5	698	698	699
10.0	704	705	705
12.5	694	695	695
15.0	662	662	663
17.5	608	608	609
20.0	534	535	536
22.5	450	451	451
25.0	367	367	367
27.5	290	290	290
30.0	224	224	224
32.5	171	171	170
35.0	128	127	127
37.5	95	94	94
40.0	71	71	70
42.5	54	54	54
45.0	42	42	42
47.5	33	33	33
50.0	26	26	26
52.5	22	22	22
55.0	18	18	18
57.5	16	16	16
60.0	14	14	14
62.5	12	12	12
65.0	11	11	11
67.5	10	10	10
70.0	9	9	9
72.5	8	8	8
75.0	7	7	7
77.5	6	6	6
80.0	6	6	5
82.5	5	5	5
85.0	4	4	4
87.5	3	3	3
90.0	2	2	2

IES INDOOR REPORT
PHOTOMETRIC FILENAME : MR16-6-24V05WLA-LED.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	205.80	N.A.	47.20
0-30	322.82	N.A.	74.10
0-40	379.21	N.A.	87.00
0-60	418.25	N.A.	96.00
0-80	433.22	N.A.	99.40
0-90	435.65	N.A.	100.00
10-90	374.22	N.A.	85.90
20-40	173.41	N.A.	39.80
20-50	198.45	N.A.	45.60
40-70	48.32	N.A.	11.10
60-80	14.97	N.A.	3.40
70-80	5.69	N.A.	1.30
80-90	2.42	N.A.	0.60
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	435.65	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	61.43
10-20	144.37
20-30	117.02
30-40	56.39
40-50	25.03
50-60	14.00
60-70	9.28
70-80	5.69
80-90	2.42
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

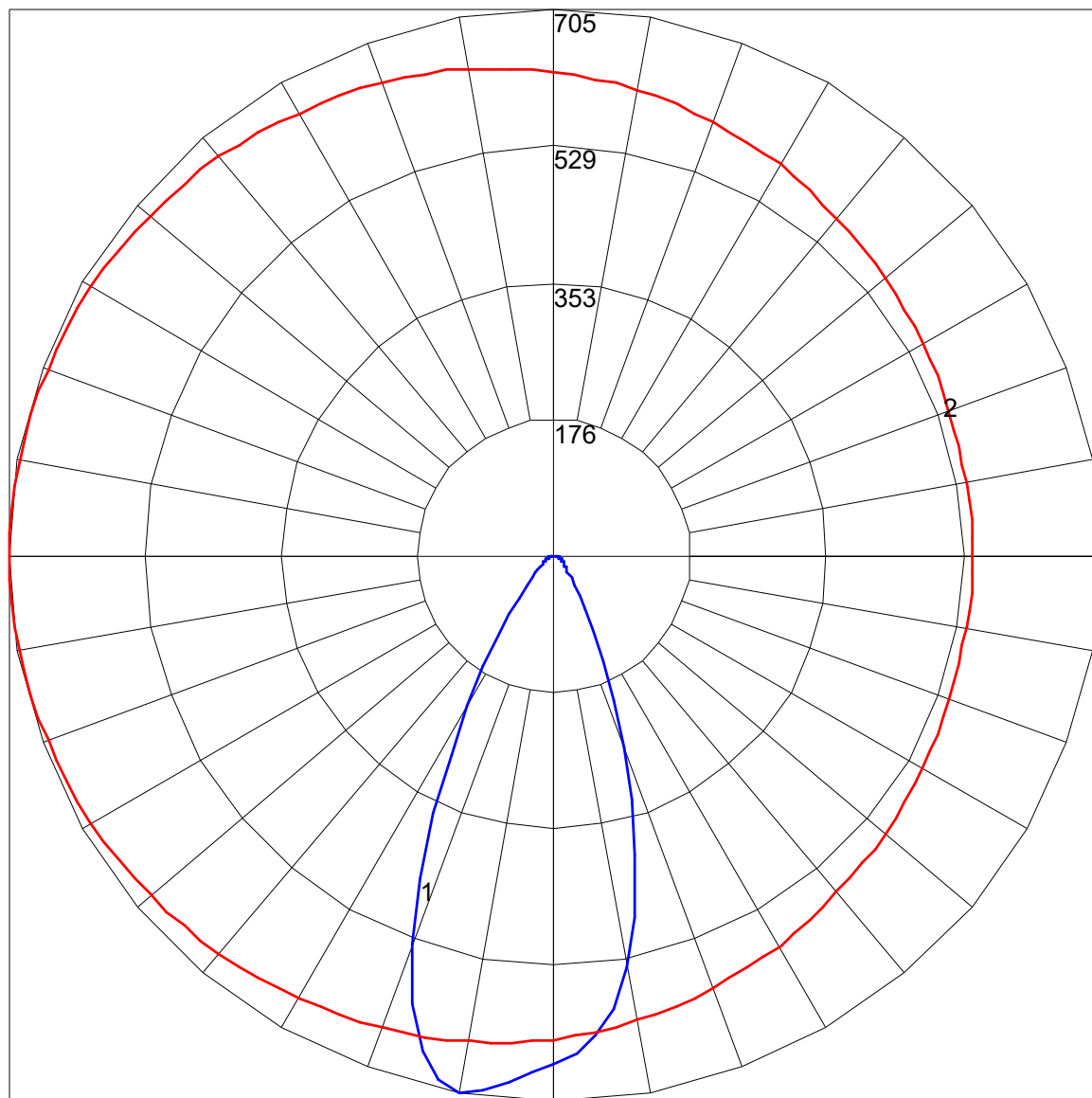
IES INDOOR REPORT
PHOTOMETRIC FILENAME : MR16-6-24V05WLA-LED.IES

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	119	119	119	119	116	116	116	116	111	111	111	107	107	107	102	102	102	100
1	113	110	108	105	111	108	106	104	104	102	100	100	99	97	97	96	95	93
2	108	102	98	95	105	101	97	94	97	94	92	94	92	90	92	90	88	86
3	102	96	90	86	100	94	89	86	91	88	84	89	86	83	87	84	82	80
4	97	89	84	80	95	88	83	79	86	82	78	84	80	77	82	79	76	75
5	92	84	78	74	91	83	78	74	81	77	73	80	76	72	78	75	72	70
6	88	79	73	69	87	79	73	69	77	72	68	76	71	68	74	70	67	66
7	84	75	69	65	83	74	69	65	73	68	64	72	67	64	71	67	64	62
8	80	71	65	61	79	71	65	61	69	64	61	68	64	61	67	63	60	59
9	77	68	62	58	76	67	62	58	66	61	58	65	61	57	64	60	57	56
10	74	64	59	55	73	64	59	55	63	58	55	62	58	55	62	57	54	53

POLAR GRAPH



Maximum Candela = 705 Located At Horizontal Angle = 177.5, Vertical Angle = 10
1 - Vertical Plane Through Horizontal Angles (177.5 - 357.5) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (10) (Through Max. Cd.)