



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : CLRM4-FS1-UNV-20W-4000K.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
[TEST] LED-13301  
[TESTLAB] LSI INDUSTRIES, INC.  
[ISSUE DATE] 04/06/22  
[TEST DATE] 03/11/22  
[MANUFACT] LSI INDUSTRIES, INC.  
[LUMCAT] CLRM4-FS1-UNV-20W-4000K  
[OTHER] TEST PROCEDURE: IESNA LM-79-19  
[ABSOLUTE] NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED  
[OTHER] SCALED FROM ORIGINAL TEST DATA  
[SEARCH\_SOURCETYPE] LED  
[SEARCH\_APPLICATION] Indoor  
[SEARCH\_COLORTEMP] 4000

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2381
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	119
Total Luminaire Watts	20
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.18
Spacing Criterion (90-270)	3.06
Spacing Criterion (Diagonal)	2.62
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	3.83 ft
Luminous Width (90-270)	0.02 ft
Luminous Height	0.33 ft



**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	16352	5095	4536
55	14201	4454	3720
65	11458	3832	2990
75	7856	3280	2444
85	4133	2899	2078

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CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>	<u>202.5</u>
0.0	122	122	122	122	122	122	122	122	122	122
2.5	119	107	97	90	88	92	96	107	120	132
5.0	119	87	73	76	82	77	73	86	120	160
7.5	117	76	97	106	113	111	101	75	119	160
10.0	116	76	114	147	159	156	116	77	118	145
12.5	114	95	144	175	190	179	152	100	116	160
15.0	112	105	160	196	217	198	164	107	114	207
17.5	110	111	188	229	243	233	193	113	113	213
20.0	107	122	202	259	268	264	208	129	110	202
22.5	105	143	225	282	300	287	229	148	107	239
25.0	101	149	245	303	326	308	252	152	105	242
27.5	98	157	255	323	348	329	262	166	102	224
30.0	95	171	278	345	365	351	286	176	98	241
32.5	91	173	287	358	377	365	299	177	94	251
35.0	87	176	300	369	388	375	308	185	91	239
37.5	83	187	309	377	396	383	318	194	85	244
40.0	78	189	316	383	400	388	324	194	81	247
42.5	74	191	321	386	401	390	328	199	77	237
45.0	70	197	324	386	399	391	330	204	72	235
47.5	66	197	327	384	395	388	332	202	67	237
50.0	61	198	326	380	390	383	332	204	62	229
52.5	56	200	325	374	383	378	329	206	57	225
55.0	51	199	322	366	374	369	325	205	52	222
57.5	46	198	318	358	365	360	321	204	48	218
60.0	42	197	313	349	355	350	316	203	43	214
62.5	37	196	307	340	341	339	309	200	38	209
65.0	32	193	302	329	329	328	304	198	34	206
67.5	28	191	295	317	317	317	296	195	29	201
70.0	24	188	286	306	306	305	289	192	24	196
72.5	19	184	279	297	294	295	281	188	20	190
75.0	15	180	272	286	284	285	273	184	16	188
77.5	12	177	265	278	274	276	266	179	12	184
80.0	9	172	259	269	265	268	258	175	9	178
82.5	6	170	252	260	256	258	251	171	6	176
85.0	4	166	245	251	247	249	244	167	4	175
87.5	3	163	240	244	240	243	238	164	3	168
90.0	1	159	234	238	233	237	231	159	2	161
92.5	1	157	230	233	228	233	228	156	1	162
95.0	1	156	227	228	223	226	222	154	1	164
97.5	1	153	223	224	220	223	218	151	1	161
100.0	1	153	221	222	217	220	214	148	1	159
102.5	1	155	227	229	225	228	221	151	1	162
105.0	1	155	227	231	227	228	221	150	1	160
107.5	1	154	228	232	228	229	221	149	1	158
110.0	0	150	227	234	229	231	222	145	1	154
112.5	1	147	226	235	231	232	221	143	1	153
115.0	0	143	225	236	233	232	220	139	1	148
117.5	0	140	224	237	235	233	220	136	1	143
120.0	0	136	222	238	237	234	217	132	1	139
122.5	0	132	219	239	238	235	216	129	1	135
125.0	0	128	216	240	240	236	213	125	1	129
127.5	0	124	212	239	241	236	210	120	1	122
130.0	0	119	208	238	240	234	206	116	1	112
132.5	0	113	204	236	240	233	201	110	1	101

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**CANDELA TABULATION - (Cont.)**

135.0	0	106	198	233	238	230	196	103	1	96
137.5	1	98	192	229	236	225	190	96	1	88
140.0	0	88	185	224	231	221	183	87	1	77
142.5	0	76	177	218	226	214	175	75	1	65
145.0	0	64	168	211	220	207	166	63	1	54
147.5	0	54	157	201	212	198	156	53	1	45
150.0	1	46	139	190	202	187	144	45	1	35
152.5	1	37	124	177	189	176	131	39	1	25
155.0	1	29	104	163	175	162	114	32	1	15
157.5	1	21	81	146	160	143	90	24	1	1
160.0	0	14	56	126	140	122	69	17	1	1
162.5	0	7	43	98	115	91	54	3	1	1
165.0	0	0	34	67	77	66	41	1	1	1
167.5	0	1	23	45	56	49	28	1	1	0
170.0	0	0	12	33	39	32	11	1	1	0
172.5	0	1	0	12	19	12	1	1	1	1
175.0	0	0	0	0	0	0	1	1	1	1
177.5	0	0	0	0	0	0	1	1	1	1
180.0	0	0	0	0	0	0	0	0	0	0

**Vert. Angles**      **Horizontal Angles**

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0.0	122	122	122	122	122	122	122
2.5	145	150	151	155	149	136	119
5.0	148	146	151	149	145	162	119
7.5	172	223	210	224	183	152	117
10.0	218	255	266	262	214	146	116
12.5	247	267	299	268	255	173	114
15.0	251	301	322	302	251	214	112
17.5	294	337	341	340	296	206	110
20.0	296	362	368	364	298	211	107
22.5	325	372	387	375	322	247	105
25.0	330	380	398	383	336	233	101
27.5	338	388	399	388	340	233	98
30.0	348	388	395	387	346	254	95
32.5	342	383	387	384	346	248	91
35.0	344	374	377	375	343	245	87
37.5	339	363	360	363	339	251	83
40.0	333	349	344	349	331	244	78
42.5	326	334	327	333	325	241	74
45.0	316	319	310	319	315	241	70
47.5	307	306	297	305	305	237	66
50.0	298	292	283	291	295	232	61
52.5	289	277	269	277	286	228	56
55.0	279	265	257	264	275	224	51
57.5	269	254	247	252	265	222	46
60.0	260	245	239	244	258	217	42
62.5	252	237	229	234	250	212	37
65.0	245	227	221	226	242	209	32
67.5	236	220	215	218	234	204	28
70.0	230	214	210	213	228	199	24
72.5	224	210	205	208	221	194	19
75.0	218	203	199	202	217	191	15
77.5	212	197	196	196	210	187	12
80.0	207	193	192	191	205	180	9

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**CANDELA TABULATION - (Cont.)**

82.5	203	189	188	188	200	177	6
85.0	199	186	184	185	197	175	4
87.5	196	182	180	181	193	169	3
90.0	192	179	176	179	188	162	1
92.5	191	178	176	177	187	163	1
95.0	189	176	174	175	186	162	1
97.5	187	173	173	172	182	157	1
100.0	187	174	173	172	183	156	1
102.5	196	183	182	183	193	160	1
105.0	199	187	184	185	195	159	1
107.5	201	189	186	187	196	155	1
110.0	202	190	187	188	197	152	0
112.5	204	192	189	190	200	149	1
115.0	205	195	191	192	200	145	0
117.5	205	198	193	195	201	141	0
120.0	204	200	195	197	201	137	0
122.5	204	202	197	199	201	131	0
125.0	204	204	199	201	200	124	0
127.5	203	206	202	204	198	116	0
130.0	201	209	205	206	197	108	0
132.5	198	210	207	207	194	99	0
135.0	194	211	208	207	190	94	0
137.5	189	211	211	208	185	85	1
140.0	183	210	211	206	178	74	0
142.5	174	207	211	204	169	62	0
145.0	163	202	208	198	157	52	0
147.5	148	195	202	191	143	39	0
150.0	126	185	194	181	129	32	1
152.5	115	170	181	166	116	22	1
155.0	95	149	165	148	99	11	1
157.5	73	132	143	129	76	1	1
160.0	52	114	127	109	57	1	0
162.5	39	85	98	79	40	0	0
165.0	24	53	68	55	22	1	0
167.5	0	34	45	34	0	1	0
170.0	0	7	18	3	1	0	0
172.5	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0
177.5	0	0	0	0	0	1	0
180.0	0	0	0	0	0	0	0

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	71.15	N.A.	3.00
0-30	193.45	N.A.	8.10
0-40	372.77	N.A.	15.70
0-60	813.35	N.A.	34.20
0-80	1250.54	N.A.	52.50
0-90	1446.84	N.A.	60.80
10-90	1433.89	N.A.	60.20
20-40	301.62	N.A.	12.70
20-50	515.29	N.A.	21.60
40-70	665.23	N.A.	27.90
60-80	437.18	N.A.	18.40
70-80	212.53	N.A.	8.90
80-90	196.31	N.A.	8.20
90-110	359.70	N.A.	15.10
90-120	527.53	N.A.	22.20
90-130	676.40	N.A.	28.40
90-150	881.01	N.A.	37.00
90-180	934.20	N.A.	39.20
110-180	574.50	N.A.	24.10
0-180	2381.04	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	12.95
10-20	58.20
20-30	122.30
30-40	179.32
40-50	213.67
50-60	226.92
60-70	224.65
70-80	212.53
80-90	196.31
90-100	181.57
100-110	178.12
110-120	167.83
120-130	148.88
130-140	120.96
140-150	83.64
150-160	42.50
160-170	10.36
170-180	0.32

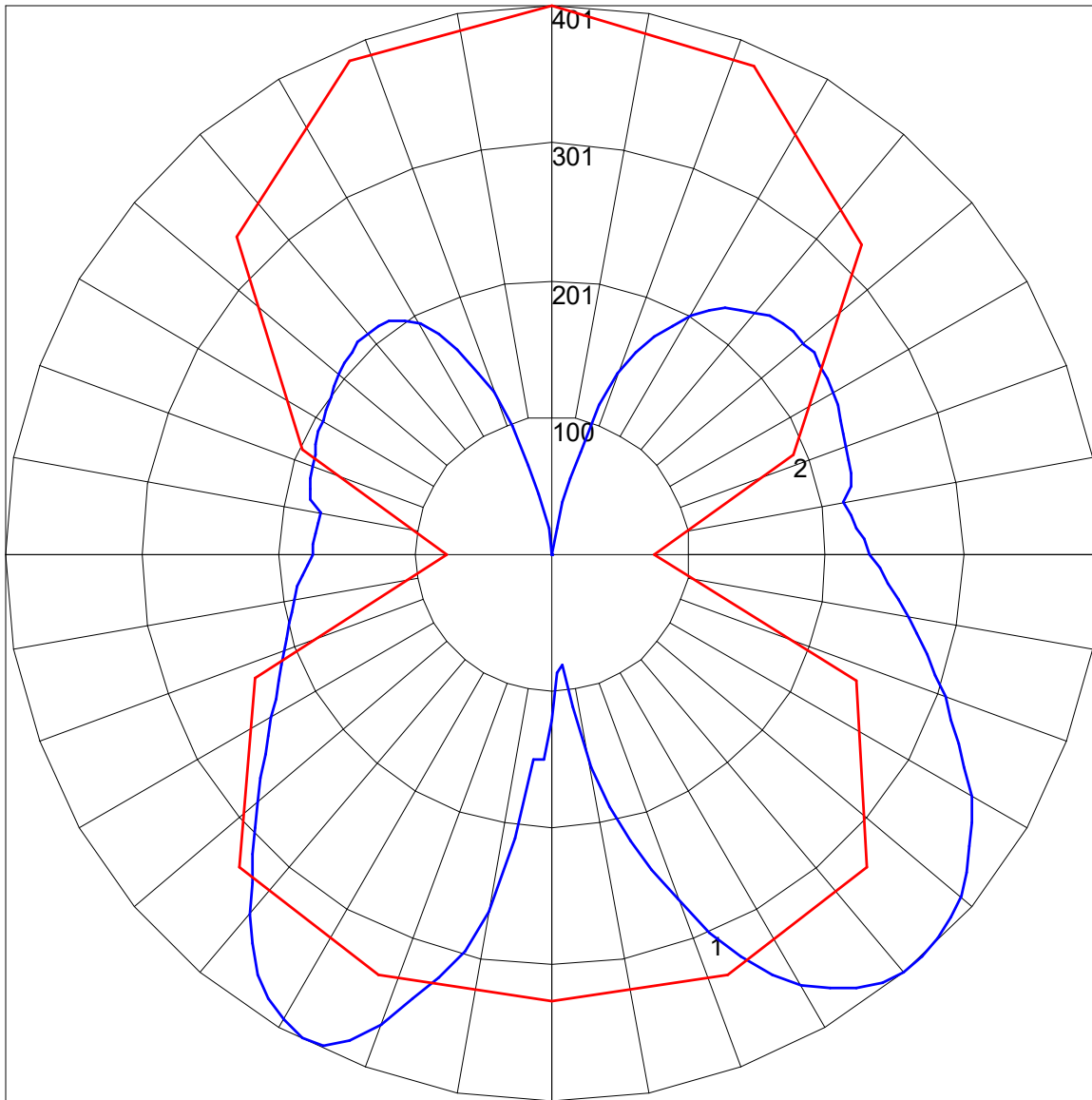
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	110	110	110	110	103	103	103	103	89	89	89	77	77	77	66	66	66	61
1	96	90	84	80	89	84	79	75	72	68	65	62	59	56	52	50	48	43
2	86	76	68	62	79	71	64	58	61	55	51	52	47	44	43	40	37	33
3	77	66	57	49	71	61	53	46	52	46	41	44	39	35	37	33	30	26
4	70	57	48	41	65	53	45	38	46	39	33	39	33	29	32	28	24	21
5	64	50	41	34	59	47	38	32	40	33	28	34	29	24	28	24	20	17
6	59	45	35	29	54	42	33	27	36	29	24	31	25	21	25	21	17	14
7	54	40	31	25	50	37	29	23	32	25	20	27	22	18	23	18	15	12
8	50	36	27	22	46	34	26	20	29	23	18	25	19	15	21	16	13	11
9	46	33	24	19	43	31	23	18	27	20	16	23	17	14	19	15	12	9
10	43	30	22	17	40	28	21	16	24	18	14	21	16	12	18	13	10	8

POLAR GRAPH



Maximum Candela = 401 Located At Horizontal Angle = 90, Vertical Angle = 42.5  
# 1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (42.5) (Through Max. Cd.)