

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P915489

Luminaire Tested: DFN2DIP-TR4F0-040D120US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915489
REPORT IS A COMBINATION OF REPORTS P902034 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D120US927-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

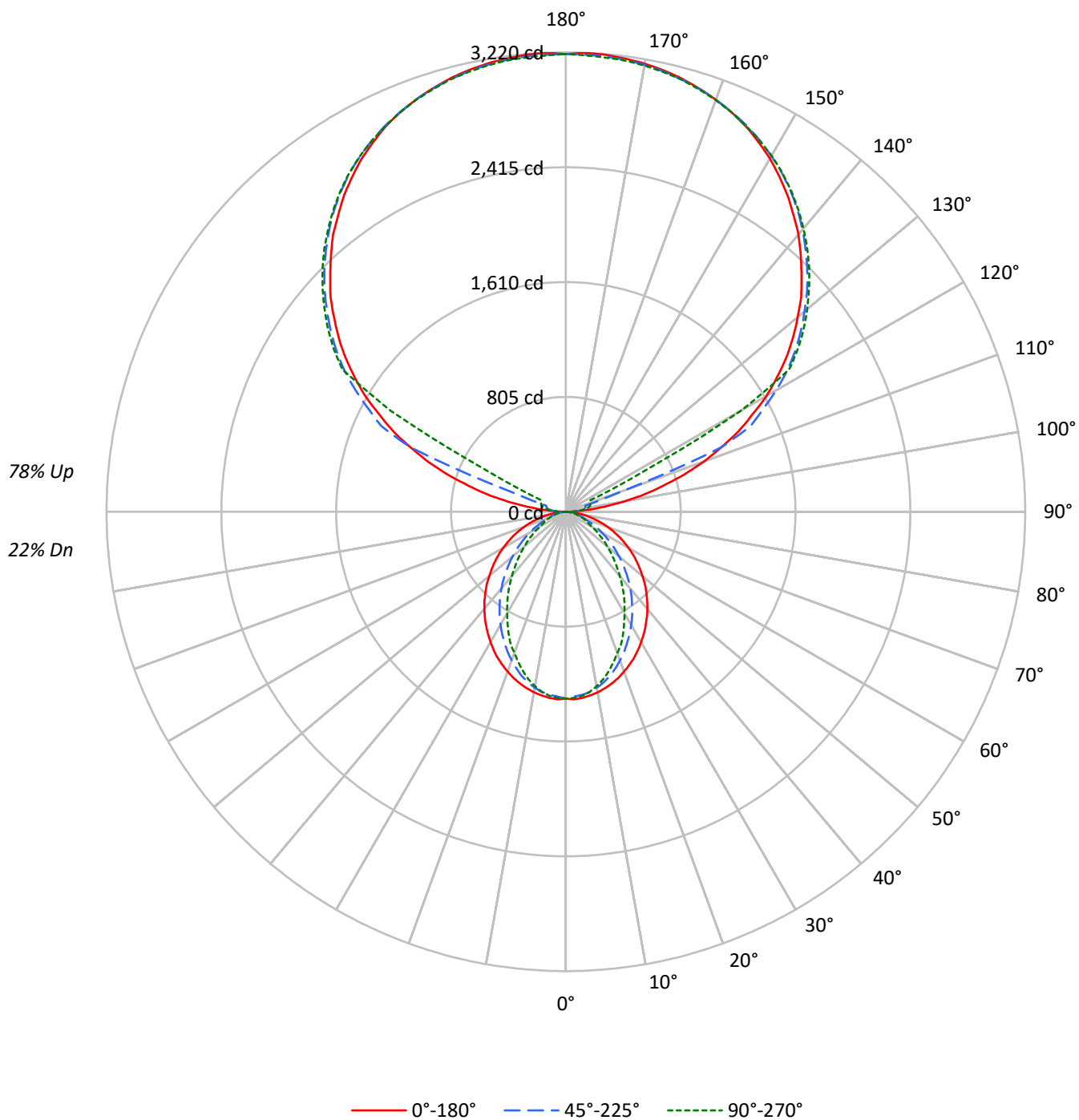
Lumens per Lamp: N/A
Luminaire Lumens: 12104.5 lumens
Efficiency: N/A
Efficacy: 98.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 123.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	101	101	101	101	89	89	89	89	68	68	68	49	49	49	31	31	31			22
1	92	88	84	81	81	78	75	72	60	58	56	43	42	41	27	27	26			19
2	84	77	71	66	74	68	64	60	52	49	47	38	36	34	24	23	22			16
3	76	68	61	55	68	60	55	50	46	43	39	34	31	29	22	20	19			14
4	70	60	52	47	62	53	47	42	41	37	34	30	27	25	20	18	17			12
5	64	53	46	40	57	48	41	36	37	32	29	27	24	22	18	16	15			11
6	59	48	40	35	52	43	36	31	33	29	25	24	21	19	16	14	13			10
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12			9
8	50	39	32	27	45	35	29	24	27	23	20	20	17	15	14	12	10			8
9	47	35	28	23	42	32	26	21	25	20	17	19	16	13	12	11	9			7
10	44	32	25	21	39	29	23	19	23	19	16	17	14	12	12	10	9			6

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1040	1040	1040
5°	1042	1024	1030
10°	1032	1004	997
15°	1018	971	945
20°	999	925	881
25°	980	874	820
30°	954	821	742
35°	928	764	674
40°	903	706	595
45°	873	641	524
50°	842	576	454
55°	810	506	388
60°	772	432	319
65°	729	358	287
70°	677	289	260
75°	611	254	236
80°	517	213	205
85°	360	142	154

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1704 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.7	1.0
10°-20°	336.9	2.8
20°-30°	473.1	3.9
30°-40°	515.7	4.3
40°-50°	473.9	3.9
50°-60°	372.2	3.1
60°-70°	242.3	2.0
70°-80°	124.7	1.0
80°-90°	37.5	0.3
90°-100°	105.8	0.9
100°-110°	394.4	3.3
110°-120°	1045.9	8.6
120°-130°	1734.7	14.3
130°-140°	1842.7	15.2
140°-150°	1712.6	14.1
150°-160°	1376.9	11.4
160°-170°	887.2	7.3
170°-180°	305.4	2.5
0°-30°	932.7	7.7
0°-40°	1448.4	12.0
0°-60°	2294.6	19.0
0°-90°	2699.0	22.3
90°-120°	1546.1	12.8
90°-150°	6836.0	56.5
90°-180°	9405.0	77.7
0°-180°	12104.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1310	1310	1310	1310	1310	
5°	1310	1304	1288	1299	1296	124
15°	1246	1233	1192	1170	1158	351
25°	1131	1093	1014	966	948	520
35°	974	914	810	735	709	610
45°	796	717	593	508	480	615
55°	606	513	385	314	292	541
65°	409	313	206	166	162	405
75°	218	135	95	86	85	231
85°	51	26	22	22	22	58
90°	2	28	46	58	63	11
95°	151	74	90	102	100	179
105°	706	776	142	167	176	754
115°	1335	1374	1432	358	190	1314
125°	1887	1918	1962	1978	1985	1683
135°	2335	2373	2393	2417	2412	1804
145°	2709	2707	2746	2762	2751	1694
155°	2983	2962	2990	3004	2986	1375
165°	3143	3129	3136	3153	3136	888
175°	3215	3199	3204	3220	3197	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1309.6	1309.6	1309.6	1309.6	1309.6
2.5°	1315.6	1309.6	1296.6	1308.5	1306.1
5°	1309.6	1303.7	1288.2	1298.9	1295.5
7.5°	1298.9	1291.9	1275.3	1279.9	1274.1
10°	1284.8	1276.4	1252.8	1249.1	1242.1
12.5°	1267.0	1256.3	1224.2	1217.2	1204.1
15°	1245.6	1232.6	1192.3	1169.8	1158.0
17.5°	1220.8	1201.7	1151.9	1125.9	1106.9
20°	1192.3	1168.5	1109.3	1079.7	1053.6
22.5°	1161.5	1134.2	1065.4	1025.2	1007.5
25°	1130.7	1092.7	1014.5	966.0	948.1
27.5°	1094.0	1053.6	967.1	911.4	884.1
30°	1054.9	1009.7	914.9	854.5	822.5
32.5°	1016.9	962.3	865.2	794.1	764.4
35°	974.3	913.8	809.5	734.8	708.7
37.5°	932.8	867.5	757.3	675.5	645.9
40°	888.9	817.8	702.8	618.7	587.9
42.5°	843.8	768.0	648.3	560.5	531.0
45°	796.5	717.0	592.6	508.4	480.0
47.5°	751.5	667.3	539.3	455.1	429.0
50°	701.6	617.5	487.1	405.3	380.5
52.5°	653.0	564.1	437.4	359.1	336.6
55°	605.6	513.2	385.2	314.1	291.6
57.5°	557.1	462.2	339.0	272.6	253.7
60°	507.2	412.4	290.3	230.0	211.0
62.5°	458.8	363.9	248.8	192.0	182.6
65°	408.9	312.8	206.2	166.0	162.3
67.5°	361.6	265.5	166.0	145.8	142.2
70°	311.7	219.3	137.4	125.6	120.8
72.5°	264.4	176.6	114.9	105.5	103.1
75°	218.0	135.1	94.8	86.5	85.4
77.5°	171.9	95.9	74.7	69.9	67.5
80°	129.1	68.8	56.8	52.2	52.2
82.5°	90.1	46.3	39.1	36.7	36.7
85°	50.9	26.1	22.5	22.5	22.5
87.5°	19.0	9.4	9.4	8.3	8.3
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.8	74.1	90.4	102.3	99.8
97.5°	271.6	81.4	118.3	125.4	127.6
100°	411.0	92.9	132.3	150.8	155.5
102.5°	564.0	559.6	137.0	162.4	169.5
105°	705.7	775.5	141.7	167.1	176.4
107.5°	870.5	928.4	146.4	171.7	181.1
110°	1028.5	1077.0	406.3	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1177.1	1218.7	1179.3	178.6	185.8
115°	1334.7	1374.2	1432.3	357.5	190.5
117.5°	1471.8	1518.1	1557.8	1225.6	617.5
120°	1625.1	1659.8	1701.7	1729.6	1416.1
122.5°	1754.9	1792.2	1838.7	1852.5	1855.0
125°	1887.2	1917.6	1961.7	1977.9	1984.8
127.5°	2007.9	2040.5	2075.5	2098.6	2100.9
130°	2121.8	2159.0	2184.4	2210.0	2207.8
132.5°	2237.8	2268.2	2293.5	2314.5	2312.3
135°	2335.4	2372.7	2393.3	2416.8	2412.1
137.5°	2437.5	2465.3	2488.7	2511.8	2505.0
140°	2537.3	2556.0	2581.3	2602.3	2590.7
142.5°	2621.0	2637.3	2667.4	2685.8	2674.2
145°	2709.3	2706.8	2746.2	2762.5	2750.8
147.5°	2785.6	2778.7	2818.2	2829.8	2820.6
150°	2860.0	2843.8	2881.0	2894.8	2883.2
152.5°	2922.6	2904.1	2938.9	2952.9	2936.7
155°	2983.0	2962.3	2990.2	3004.0	2985.5
157.5°	3031.8	3013.3	3034.3	3050.5	3031.8
160°	3073.7	3059.6	3073.7	3087.4	3071.2
162.5°	3110.7	3096.9	3108.4	3124.7	3103.8
165°	3143.1	3129.4	3136.2	3152.6	3136.2
167.5°	3168.8	3154.7	3161.9	3178.2	3157.2
170°	3189.7	3175.7	3180.4	3196.6	3175.7
172.5°	3203.5	3189.7	3194.5	3210.7	3189.7
175°	3215.1	3198.8	3203.5	3219.8	3196.6
177.5°	3219.8	3203.5	3206.0	3222.3	3201.4
180°	3208.3	3208.3	3208.3	3208.3	3208.3

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	3.85	4.50	5.02	5.65	7.27	0.00	0.47	1.00	1.62	3.24
	3H	5.52	6.09	6.69	7.25	8.89	1.00	1.58	2.18	2.74	4.37
	4H	6.12	6.67	7.30	7.82	9.46	1.45	1.99	2.63	3.15	4.79
	6H	6.53	7.03	7.72	8.19	9.84	1.76	2.26	2.95	3.42	5.07
	8H	6.65	7.13	7.84	8.30	9.95	1.84	2.32	3.04	3.50	5.14
	12H	6.71	7.16	7.90	8.33	9.99	1.88	2.34	3.08	3.50	5.17
4H	2H	3.85	4.40	5.04	5.56	7.19	0.40	0.95	1.59	2.11	3.75
	3H	5.66	6.12	6.86	7.30	8.95	1.73	2.19	2.93	3.37	5.02
	4H	6.35	6.77	7.54	7.94	9.61	2.28	2.70	3.47	3.87	5.54
	6H	6.85	7.21	8.05	8.40	10.06	2.69	3.04	3.88	4.24	5.90
	8H	7.02	7.36	8.22	8.54	10.22	2.81	3.15	4.01	4.33	6.01
	12H	7.11	7.41	8.32	8.61	10.29	2.87	3.17	4.08	4.37	6.05
8H	4H	6.30	6.64	7.50	7.82	9.50	2.54	2.88	3.74	4.06	5.74
	6H	6.86	7.14	8.08	8.36	10.03	3.05	3.33	4.27	4.56	6.23
	8H	7.08	7.32	8.30	8.52	10.21	3.25	3.49	4.47	4.69	6.38
	12H	7.21	7.42	8.43	8.62	10.34	3.36	3.57	4.58	4.77	6.49
12H	4H	6.24	6.55	7.46	7.74	9.42	2.54	2.84	3.75	4.04	5.72
	6H	6.83	7.07	8.06	8.28	9.97	3.10	3.34	4.32	4.55	6.24
	8H	7.05	7.26	8.27	8.46	10.18	3.31	3.52	4.53	4.72	6.44

END OF REPORT