

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: P928202

Luminaire Tested: DFN2DIP-HX4F0-040D120US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928202
REPORT IS A COMBINATION OF REPORTS P900964 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D120US927-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

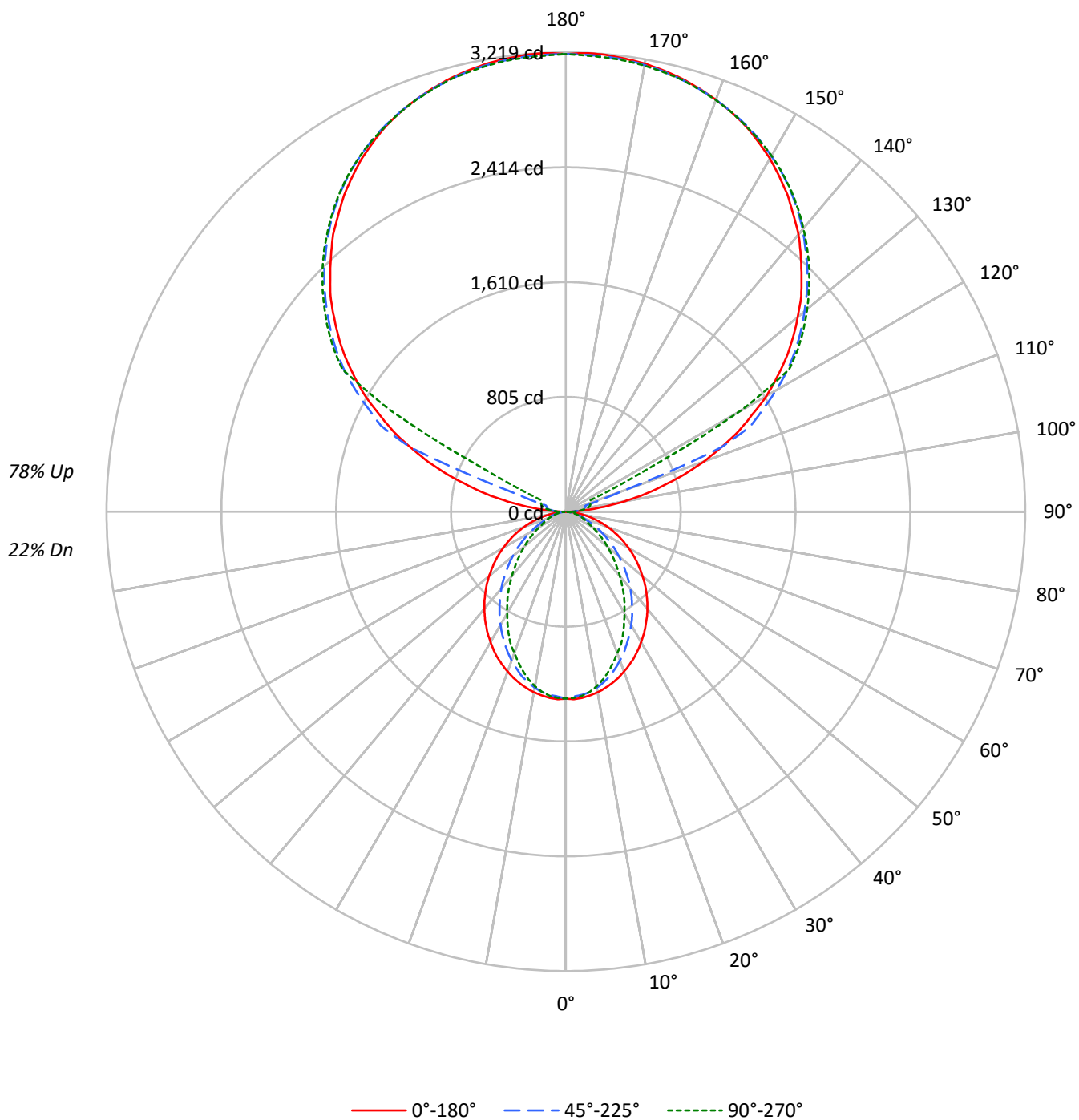
Lumens per Lamp: N/A
Luminaire Lumens: 12101.8 lumens
Efficiency: N/A
Efficacy: 93.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 129.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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°	974	974	974
5°	975	958	964
10°	966	940	933
15°	952	909	884
20°	935	866	825
25°	917	818	768
30°	893	769	695
35°	869	716	631
40°	845	661	557
45°	817	601	491
50°	788	539	426
55°	758	474	363
60°	723	406	299
65°	683	336	269
70°	635	271	244
75°	574	239	222
80°	485	201	193
85°	339	135	145

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1648 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°	473.0	3.9
30°-40°	515.5	4.3
40°-50°	473.8	3.9
50°-60°	372.1	3.1
60°-70°	242.2	2.0
70°-80°	124.7	1.0
80°-90°	37.5	0.3
90°-100°	105.8	0.9
100°-110°	394.3	3.3
110°-120°	1045.7	8.6
120°-130°	1734.3	14.3
130°-140°	1842.3	15.2
140°-150°	1712.2	14.1
150°-160°	1376.5	11.4
160°-170°	887.0	7.3
170°-180°	305.3	2.5
0°-30°	932.5	7.7
0°-40°	1448.1	12.0
0°-60°	2294.1	19.0
0°-90°	2698.4	22.3
90°-120°	1545.7	12.8
90°-150°	6834.5	56.5
90°-180°	9403.0	77.7
0°-180°	12101.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1309	1309	1309	1309	1309	
5°	1309	1303	1288	1299	1295	124
15°	1245	1232	1192	1170	1158	351
25°	1130	1092	1014	966	948	520
35°	974	914	809	735	708	610
45°	796	717	592	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	775	142	167	176	754
115°	1334	1374	1432	357	190	1314
125°	1887	1917	1961	1978	1984	1683
135°	2335	2372	2393	2416	2412	1804
145°	2709	2706	2746	2762	2750	1694
155°	2982	2962	2990	3003	2985	1374
165°	3142	3129	3136	3152	3136	888
175°	3214	3198	3203	3219	3196	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1309.3	1309.3	1309.3	1309.3	1309.3
2.5°	1315.3	1309.3	1296.3	1308.2	1305.8
5°	1309.3	1303.4	1288.0	1298.6	1295.2
7.5°	1298.6	1291.6	1275.0	1279.6	1273.8
10°	1284.5	1276.1	1252.5	1248.8	1241.9
12.5°	1266.7	1256.0	1224.0	1216.9	1203.8
15°	1245.3	1232.3	1192.0	1169.5	1157.7
17.5°	1220.5	1201.5	1151.6	1125.7	1106.7
20°	1192.0	1168.3	1109.0	1079.5	1053.4
22.5°	1161.2	1134.0	1065.2	1024.9	1007.3
25°	1130.4	1092.5	1014.2	965.8	947.9
27.5°	1093.8	1053.4	966.9	911.2	883.9
30°	1054.6	1009.5	914.7	854.3	822.3
32.5°	1016.7	962.1	865.0	793.9	764.2
35°	974.1	913.6	809.3	734.7	708.5
37.5°	932.6	867.3	757.2	675.3	645.8
40°	888.7	817.7	702.7	618.6	587.7
42.5°	843.6	767.8	648.2	560.4	530.9
45°	796.3	716.8	592.5	508.3	479.9
47.5°	751.3	667.2	539.2	455.0	428.9
50°	701.5	617.4	487.0	405.2	380.4
52.5°	652.8	564.0	437.3	359.0	336.5
55°	605.5	513.1	385.1	314.0	291.5
57.5°	556.9	462.1	338.9	272.5	253.6
60°	507.1	412.3	290.3	229.9	211.0
62.5°	458.6	363.8	248.8	192.0	182.6
65°	408.8	312.8	206.2	165.9	162.3
67.5°	361.5	265.4	165.9	145.7	142.2
70°	311.7	219.2	137.4	125.6	120.8
72.5°	264.3	176.5	114.9	105.5	103.1
75°	218.0	135.0	94.8	86.5	85.4
77.5°	171.9	95.9	74.7	69.9	67.5
80°	129.1	68.7	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°	150.7	74.1	90.4	102.2	99.8
97.5°	271.5	81.3	118.2	125.4	127.6
100°	410.9	92.9	132.3	150.7	155.5
102.5°	563.9	559.5	136.9	162.4	169.5
105°	705.5	775.3	141.7	167.0	176.4
107.5°	870.3	928.2	146.4	171.7	181.1
110°	1028.3	1076.8	406.2	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1176.8	1218.4	1179.1	178.6	185.7
115°	1334.4	1373.9	1432.0	357.4	190.5
117.5°	1471.5	1517.8	1557.5	1225.3	617.4
120°	1624.7	1659.4	1701.3	1729.2	1415.8
122.5°	1754.5	1791.7	1838.3	1852.1	1854.5
125°	1886.8	1917.1	1961.2	1977.5	1984.4
127.5°	2007.5	2040.0	2075.0	2098.2	2100.4
130°	2121.3	2158.5	2183.9	2209.5	2207.3
132.5°	2237.3	2267.7	2293.0	2314.0	2311.8
135°	2334.9	2372.1	2392.8	2416.2	2411.6
137.5°	2436.9	2464.7	2488.1	2511.3	2504.4
140°	2536.7	2555.4	2580.7	2601.7	2590.2
142.5°	2620.4	2636.7	2666.7	2685.2	2673.6
145°	2708.6	2706.2	2745.5	2761.9	2750.2
147.5°	2785.0	2778.1	2817.5	2829.1	2820.0
150°	2859.4	2843.1	2880.3	2894.1	2882.6
152.5°	2921.9	2903.5	2938.2	2952.3	2936.0
155°	2982.3	2961.6	2989.5	3003.3	2984.8
157.5°	3031.1	3012.6	3033.6	3049.8	3031.1
160°	3073.0	3058.9	3073.0	3086.7	3070.5
162.5°	3109.9	3096.2	3107.7	3124.0	3103.1
165°	3142.4	3128.6	3135.5	3151.8	3135.5
167.5°	3168.1	3154.0	3161.2	3177.4	3156.5
170°	3189.0	3175.0	3179.6	3195.9	3175.0
172.5°	3202.8	3189.0	3193.7	3210.0	3189.0
175°	3214.3	3198.1	3202.8	3219.1	3195.9
177.5°	3219.1	3202.8	3205.3	3221.5	3200.6
180°	3207.5	3207.5	3207.5	3207.5	3207.5

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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	3.63	4.28	4.80	5.42	7.04	0.00	0.25	0.77	1.40	3.02
	3H	5.29	5.87	6.47	7.03	8.66	0.78	1.36	1.95	2.51	4.15
	4H	5.89	6.44	7.08	7.60	9.24	1.22	1.77	2.40	2.93	4.57
	6H	6.31	6.81	7.50	7.97	9.62	1.53	2.04	2.72	3.20	4.85
	8H	6.43	6.91	7.62	8.08	9.72	1.62	2.10	2.81	3.27	4.92
	12H	6.48	6.94	7.68	8.11	9.77	1.66	2.11	2.85	3.28	4.95
4H	2H	3.62	4.17	4.82	5.33	6.97	0.17	0.72	1.37	1.88	3.52
	3H	5.44	5.90	6.63	7.08	8.73	1.51	1.97	2.70	3.15	4.80
	4H	6.12	6.55	7.32	7.72	9.38	2.05	2.47	3.25	3.64	5.31
	6H	6.63	6.99	7.83	8.18	9.84	2.46	2.82	3.66	4.02	5.67
	8H	6.80	7.14	8.00	8.32	10.00	2.59	2.93	3.79	4.11	5.79
	12H	6.89	7.19	8.10	8.39	10.07	2.65	2.95	3.86	4.15	5.83
8H	4H	6.08	6.41	7.28	7.60	9.27	2.32	2.66	3.52	3.84	5.51
	6H	6.64	6.92	7.86	8.14	9.81	2.83	3.11	4.05	4.34	6.01
	8H	6.86	7.10	8.08	8.30	9.99	3.03	3.27	4.25	4.47	6.16
	12H	6.99	7.20	8.21	8.40	10.12	3.14	3.35	4.36	4.55	6.27
12H	4H	6.02	6.33	7.24	7.52	9.20	2.32	2.62	3.53	3.82	5.50
	6H	6.61	6.85	7.84	8.06	9.75	2.88	3.12	4.10	4.33	6.02
	8H	6.83	7.04	8.05	8.24	9.96	3.09	3.30	4.31	4.50	6.22

END OF REPORT