

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: P916073

Luminaire Tested: DFN2DIP-HX2F0-020D050US930-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916073
REPORT IS A COMBINATION OF REPORTS P900702 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-020D050US930-RLONL
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

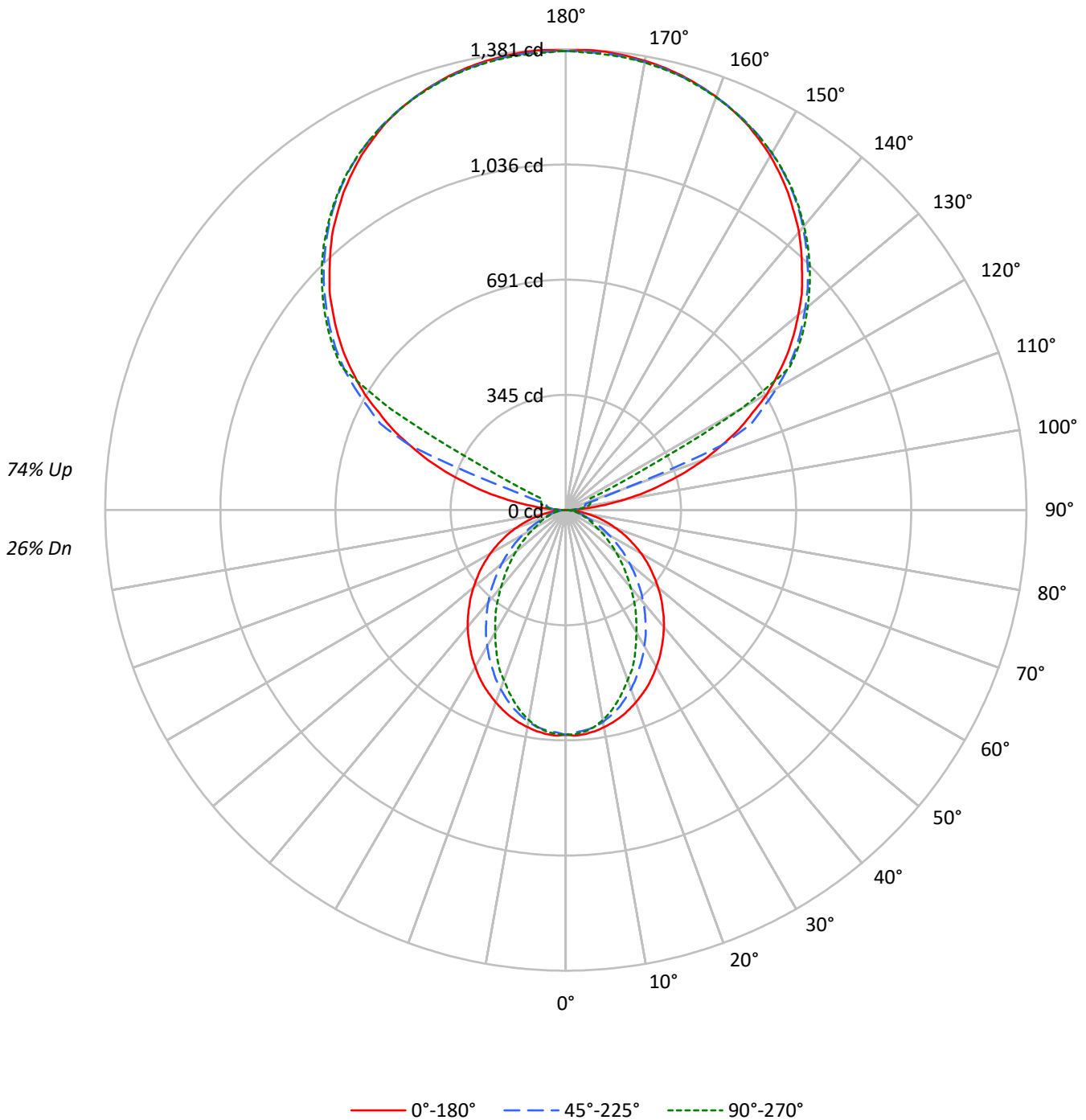
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5421.8 lumens
Efficiency: N/A
Efficacy: 101.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 53.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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				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	50	30	10	0	
RCR																						
0	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34	26				26
1	93	88	85	82	82	79	76	73	61	59	58	45	44	43	30	29	29	22				22
2	84	77	72	67	75	69	65	60	54	51	48	40	38	36	27	26	25	19				19
3	77	68	61	56	69	61	55	51	48	44	41	35	33	31	24	23	21	16				16
4	71	60	53	47	63	54	48	43	43	38	35	32	29	26	22	20	19	14				14
5	65	54	46	41	58	48	42	37	38	33	30	28	25	23	19	18	16	12				12
6	60	48	41	35	53	43	37	32	34	30	26	26	23	20	18	16	14	11				11
7	55	43	36	31	49	39	33	28	31	26	23	23	20	18	16	14	13	10				10
8	51	39	32	27	45	36	29	25	28	24	20	21	18	16	15	13	12	9				9
9	47	36	29	24	42	32	26	22	26	21	18	20	16	14	14	12	10	8				8
10	44	33	26	21	39	30	24	20	24	19	16	18	15	13	13	11	10	7				7

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1588	1588	1588
5°	1588	1559	1570
10°	1570	1525	1516
15°	1546	1470	1434
20°	1514	1398	1335
25°	1483	1316	1239
30°	1441	1234	1119
35°	1399	1145	1013
40°	1357	1054	893
45°	1309	953	784
50°	1258	852	677
55°	1205	744	575
60°	1144	631	471
65°	1073	518	421
70°	987	412	376
75°	879	356	337
80°	723	289	283
85°	473	178	199

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1309 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.2	1.2
10°-20°	173.4	3.2
20°-30°	243.4	4.5
30°-40°	265.4	4.9
40°-50°	243.9	4.5
50°-60°	191.5	3.5
60°-70°	124.7	2.3
70°-80°	64.2	1.2
80°-90°	18.8	0.3
90°-100°	45.4	0.8
100°-110°	169.1	3.1
110°-120°	448.5	8.3
120°-130°	743.9	13.7
130°-140°	790.2	14.6
140°-150°	734.4	13.5
150°-160°	590.4	10.9
160°-170°	380.5	7.0
170°-180°	130.9	2.4
0°-30°	480.0	8.9
0°-40°	745.3	13.7
0°-60°	1180.8	21.8
0°-90°	1388.4	25.6
90°-120°	663.0	12.2
90°-150°	2931.5	54.1
90°-180°	4033.0	74.4
0°-180°	5421.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	674	674	674	674	674	
5°	674	671	663	668	667	64
15°	641	634	614	602	596	181
25°	582	562	522	497	488	268
35°	501	470	417	378	365	314
45°	410	369	305	262	247	317
55°	312	264	198	162	150	278
65°	210	161	106	85	84	209
75°	112	70	49	44	44	119
85°	26	13	12	12	12	30
90°	1	12	20	25	27	5
95°	65	32	39	44	43	77
105°	303	333	61	72	76	323
115°	572	589	614	153	82	564
125°	809	822	841	848	851	722
135°	1002	1018	1026	1036	1034	774
145°	1162	1161	1178	1185	1180	727
155°	1279	1270	1282	1288	1280	589
165°	1348	1342	1345	1352	1345	381
175°	1379	1372	1374	1381	1371	131
180°	1376	1376	1376	1376	1376	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	673.9	673.9	673.9	673.9	673.9
2.5°	676.9	673.9	667.2	673.4	672.1
5°	673.9	670.9	662.9	668.5	666.6
7.5°	668.5	664.8	656.2	658.7	655.6
10°	661.1	656.8	644.7	642.8	639.2
12.5°	652.0	646.4	630.0	626.4	619.6
15°	641.0	634.2	613.5	601.9	595.9
17.5°	628.2	618.4	592.8	579.4	569.6
20°	613.5	601.3	570.9	555.6	542.2
22.5°	597.7	583.7	548.3	527.6	518.4
25°	581.9	562.3	522.0	497.1	487.9
27.5°	563.0	542.2	497.7	469.0	454.9
30°	542.8	519.6	470.8	439.8	423.2
32.5°	523.3	495.2	445.2	408.6	393.4
35°	501.3	470.3	416.6	378.1	364.7
37.5°	480.0	446.4	389.7	347.6	332.4
40°	457.4	420.9	361.7	318.4	302.5
42.5°	434.2	395.3	333.6	288.5	273.3
45°	409.9	368.9	305.0	261.6	247.0
47.5°	386.7	343.4	277.5	234.2	220.8
50°	361.1	317.8	250.7	208.6	195.8
52.5°	336.0	290.2	225.0	184.8	173.3
55°	311.6	264.1	198.2	161.7	150.0
57.5°	286.7	237.8	174.5	140.3	130.5
60°	261.1	212.2	149.4	118.4	108.6
62.5°	236.0	187.3	128.1	98.8	93.9
65°	210.4	161.0	106.2	85.4	83.6
67.5°	186.1	136.6	85.4	75.0	73.2
70°	160.4	112.8	70.7	64.7	62.2
72.5°	136.0	90.8	59.1	54.3	53.1
75°	112.2	69.5	48.8	44.5	43.9
77.5°	88.5	49.4	38.4	36.0	34.7
80°	66.4	35.4	29.3	26.8	26.8
82.5°	46.3	23.8	20.1	18.9	18.9
85°	26.2	13.4	11.6	11.6	11.6
87.5°	9.8	4.9	4.9	4.2	4.2
90°	1.0	11.9	19.9	24.9	26.8
92.5°	24.9	21.0	23.9	25.9	26.8
95°	64.7	31.8	38.8	43.9	42.8
97.5°	116.4	34.9	50.7	53.8	54.7
100°	176.3	39.9	56.7	64.7	66.7
102.5°	241.9	239.9	58.8	69.6	72.7
105°	302.6	332.6	60.7	71.7	75.7
107.5°	373.3	398.1	62.8	73.6	77.7
110°	441.1	461.9	174.2	74.7	78.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	504.8	522.6	505.7	76.6	79.7
115°	572.4	589.3	614.2	153.4	81.7
117.5°	631.1	651.0	668.1	525.5	264.8
120°	696.8	711.8	729.7	741.7	607.2
122.5°	752.5	768.5	788.5	794.4	795.5
125°	809.3	822.3	841.2	848.2	851.2
127.5°	861.0	875.0	890.1	899.9	900.9
130°	909.9	925.9	936.7	947.7	946.8
132.5°	959.7	972.7	983.5	992.5	991.6
135°	1001.5	1017.5	1026.3	1036.4	1034.4
137.5°	1045.2	1057.2	1067.2	1077.2	1074.2
140°	1088.0	1096.1	1106.9	1115.9	1111.0
142.5°	1124.0	1131.0	1143.9	1151.8	1146.8
145°	1161.8	1160.7	1177.6	1184.6	1179.7
147.5°	1194.6	1191.6	1208.5	1213.5	1209.6
150°	1226.5	1219.5	1235.4	1241.4	1236.4
152.5°	1253.3	1245.4	1260.3	1266.3	1259.3
155°	1279.2	1270.3	1282.2	1288.2	1280.3
157.5°	1300.1	1292.2	1301.1	1308.1	1300.1
160°	1318.1	1312.1	1318.1	1324.0	1317.0
162.5°	1333.9	1328.0	1332.9	1339.9	1331.0
165°	1347.9	1342.0	1344.9	1351.8	1344.9
167.5°	1358.9	1352.8	1355.9	1362.9	1353.9
170°	1367.8	1361.8	1363.8	1370.8	1361.8
172.5°	1373.8	1367.8	1369.9	1376.8	1367.8
175°	1378.8	1371.7	1373.8	1380.7	1370.8
177.5°	1380.7	1373.8	1374.8	1381.8	1372.8
180°	1375.7	1375.7	1375.7	1375.7	1375.7



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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	5.74	6.40	6.89	7.54	9.12	1.72	2.39	2.87	3.52	5.10
	3H	7.38	7.97	8.53	9.11	10.71	2.88	3.48	4.04	4.62	6.22
	4H	7.96	8.53	9.13	9.67	11.27	3.31	3.88	4.48	5.02	6.62
	6H	8.36	8.88	9.53	10.02	11.63	3.61	4.13	4.78	5.27	6.89
	8H	8.47	8.96	9.64	10.12	11.72	3.69	4.18	4.86	5.34	6.95
	12H	8.51	8.98	9.69	10.13	11.76	3.72	4.19	4.90	5.34	6.97
4H	2H	5.73	6.30	6.90	7.44	9.04	2.29	2.85	3.46	3.99	5.59
	3H	7.52	7.99	8.69	9.16	10.77	3.60	4.07	4.78	5.24	6.85
	4H	8.19	8.62	9.36	9.77	11.41	4.13	4.56	5.30	5.71	7.35
	6H	8.67	9.04	9.85	10.21	11.84	4.52	4.89	5.70	6.07	7.69
	8H	8.83	9.17	10.01	10.34	11.98	4.63	4.98	5.81	6.15	7.79
	12H	8.90	9.21	10.09	10.39	12.04	4.68	4.99	5.88	6.17	7.82
8H	4H	8.14	8.48	9.32	9.65	11.29	4.38	4.72	5.56	5.89	7.53
	6H	8.67	8.95	9.87	10.17	11.80	4.87	5.15	6.07	6.36	8.00
	8H	8.87	9.12	10.07	10.30	11.96	5.05	5.29	6.25	6.48	8.14
	12H	8.98	9.20	10.19	10.39	12.08	5.14	5.36	6.35	6.55	8.24
12H	4H	8.08	8.39	9.28	9.57	11.22	4.37	4.69	5.57	5.87	7.51
	6H	8.64	8.89	9.85	10.08	11.74	4.91	5.16	6.11	6.35	8.00
	8H	8.84	9.06	10.05	10.24	11.93	5.10	5.31	6.31	6.50	8.19