

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: P915789

Luminaire Tested: DFN2DIP-4P2F0-020D040US930-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915789
REPORT IS A COMBINATION OF REPORTS P900544 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D040US930-RLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

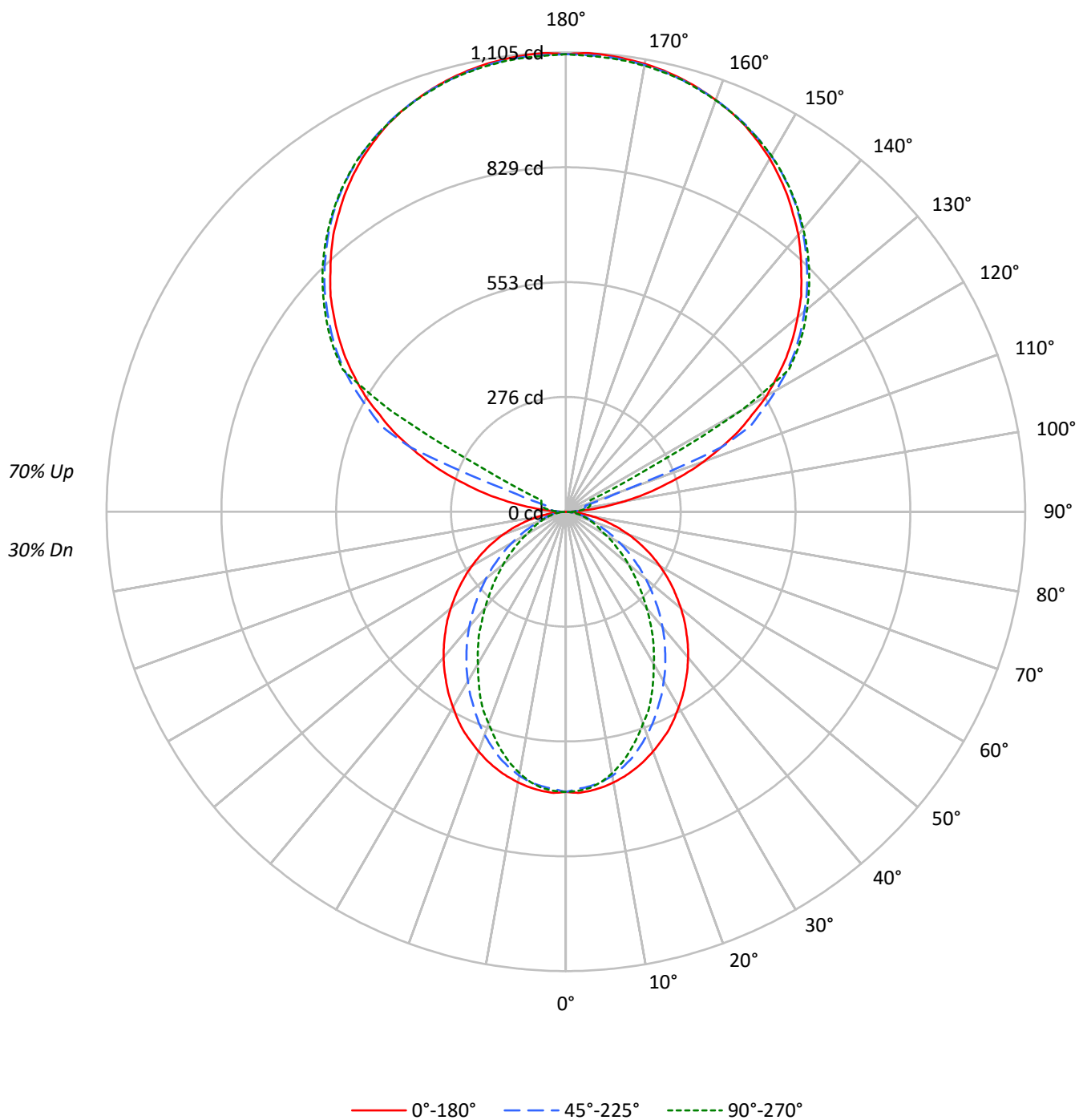
Lumens per Lamp: N/A
Luminaire Lumens: 4614.6 lumens
Efficiency: N/A
Efficacy: 93.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 49.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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
RCR																	
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1687	1687	1687
5°	1687	1656	1668
10°	1667	1620	1612
15°	1640	1562	1525
20°	1607	1484	1420
25°	1572	1398	1318
30°	1527	1310	1190
35°	1482	1215	1078
40°	1437	1118	950
45°	1385	1011	834
50°	1330	903	721
55°	1273	788	613
60°	1207	669	502
65°	1130	549	449
70°	1037	436	402
75°	920	376	360
80°	752	305	303
85°	485	187	215

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1385 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.2	1.4
10°-20°	173.4	3.8
20°-30°	243.4	5.3
30°-40°	265.4	5.8
40°-50°	243.9	5.3
50°-60°	191.5	4.2
60°-70°	124.7	2.7
70°-80°	64.2	1.4
80°-90°	18.3	0.4
90°-100°	36.3	0.8
100°-110°	135.3	2.9
110°-120°	358.8	7.8
120°-130°	595.1	12.9
130°-140°	632.1	13.7
140°-150°	587.5	12.7
150°-160°	472.3	10.2
160°-170°	304.4	6.6
170°-180°	104.8	2.3
0°-30°	480.0	10.4
0°-40°	745.3	16.2
0°-60°	1180.8	25.6
0°-90°	1388.0	30.1
90°-120°	530.4	11.5
90°-150°	2345.2	50.8
90°-180°	3227.0	69.9
0°-180°	4614.6	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	10	16	20	21	4
95°	52	25	31	35	34	61
105°	242	266	49	57	60	259
115°	458	471	491	123	65	451
125°	647	658	673	679	681	577
135°	801	814	821	829	828	619
145°	929	929	942	948	944	581
155°	1023	1016	1026	1030	1024	472
165°	1078	1074	1076	1082	1076	305
175°	1103	1097	1099	1105	1097	105
180°	1101	1101	1101	1101	1101	

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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°	0.7	9.5	15.9	20.0	21.4
92.5°	20.0	16.7	19.1	20.7	21.4
95°	51.7	25.4	31.0	35.1	34.2
97.5°	93.2	27.9	40.6	43.0	43.8
100°	141.0	31.9	45.4	51.7	53.3
102.5°	193.5	192.0	47.0	55.7	58.1
105°	242.1	266.0	48.6	57.3	60.5
107.5°	298.6	318.5	50.2	58.9	62.1
110°	352.9	369.5	139.4	59.8	62.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	403.8	418.1	404.6	61.3	63.8
115°	457.9	471.4	491.4	122.6	65.4
117.5°	504.9	520.8	534.4	420.4	211.8
120°	557.5	569.4	583.8	593.4	485.8
122.5°	602.0	614.8	630.8	635.5	636.3
125°	647.4	657.9	672.9	678.6	680.9
127.5°	688.8	700.0	712.0	720.0	720.7
130°	727.9	740.7	749.3	758.1	757.4
132.5°	767.7	778.1	786.8	794.0	793.3
135°	801.2	814.0	821.1	829.1	827.5
137.5°	836.2	845.7	853.8	861.7	859.3
140°	870.4	876.9	885.6	892.8	888.8
142.5°	899.2	904.7	915.1	921.4	917.5
145°	929.4	928.6	942.1	947.7	943.7
147.5°	955.6	953.2	966.8	970.8	967.7
150°	981.1	975.6	988.4	993.1	989.1
152.5°	1002.7	996.3	1008.2	1013.0	1007.5
155°	1023.4	1016.3	1025.8	1030.5	1024.2
157.5°	1040.1	1033.7	1041.0	1046.5	1040.1
160°	1054.4	1049.6	1054.4	1059.2	1053.6
162.5°	1067.1	1062.4	1066.4	1072.0	1064.8
165°	1078.3	1073.6	1075.9	1081.5	1075.9
167.5°	1087.1	1082.2	1084.8	1090.3	1083.1
170°	1094.3	1089.5	1091.0	1096.7	1089.5
172.5°	1099.0	1094.3	1095.9	1101.5	1094.3
175°	1102.9	1097.4	1099.0	1104.6	1096.7
177.5°	1104.6	1099.0	1099.8	1105.5	1098.3
180°	1100.7	1100.7	1100.7	1100.7	1100.7

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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	6.61	7.30	7.72	8.41	9.94	2.57	3.26	3.69	4.37	5.90
	3H	8.25	8.87	9.38	9.99	11.53	3.73	4.35	4.85	5.46	7.01
	4H	8.84	9.42	9.97	10.54	12.09	4.16	4.74	5.29	5.86	7.41
	6H	9.24	9.77	10.38	10.89	12.46	4.45	4.99	5.59	6.11	7.67
	8H	9.35	9.86	10.49	10.99	12.55	4.53	5.04	5.67	6.17	7.73
	12H	9.40	9.88	10.54	11.01	12.59	4.56	5.04	5.71	6.17	7.75
4H	2H	6.60	7.19	7.75	8.31	9.86	3.14	3.72	4.28	4.84	6.39
	3H	8.39	8.88	9.54	10.02	11.59	4.45	4.94	5.60	6.08	7.65
	4H	9.06	9.51	10.21	10.64	12.23	4.97	5.42	6.12	6.55	8.14
	6H	9.55	9.93	10.70	11.09	12.66	5.36	5.75	6.52	6.90	8.48
	8H	9.71	10.07	10.86	11.21	12.80	5.48	5.83	6.63	6.98	8.57
	12H	9.78	10.11	10.95	11.27	12.86	5.52	5.85	6.69	7.00	8.60
8H	4H	9.02	9.37	10.17	10.52	12.11	5.23	5.59	6.38	6.73	8.33
	6H	9.55	9.85	10.73	11.03	12.62	5.71	6.01	6.89	7.20	8.79
	8H	9.75	10.01	10.93	11.18	12.79	5.89	6.15	7.07	7.31	8.92
	12H	9.87	10.09	11.05	11.26	12.90	5.98	6.21	7.17	7.37	9.02
12H	4H	8.96	9.28	10.13	10.44	12.04	5.22	5.55	6.40	6.71	8.30
	6H	9.52	9.78	10.70	10.95	12.56	5.76	6.01	6.94	7.18	8.79
	8H	9.72	9.95	10.91	11.11	12.75	5.94	6.17	7.13	7.33	8.98

END OF REPORT