

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: P902143

Luminaire Tested: DFN2DIP-4P2F0-020D030US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902143
REPORT IS A COMBINATION OF REPORTS P900537 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D030US830-FLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

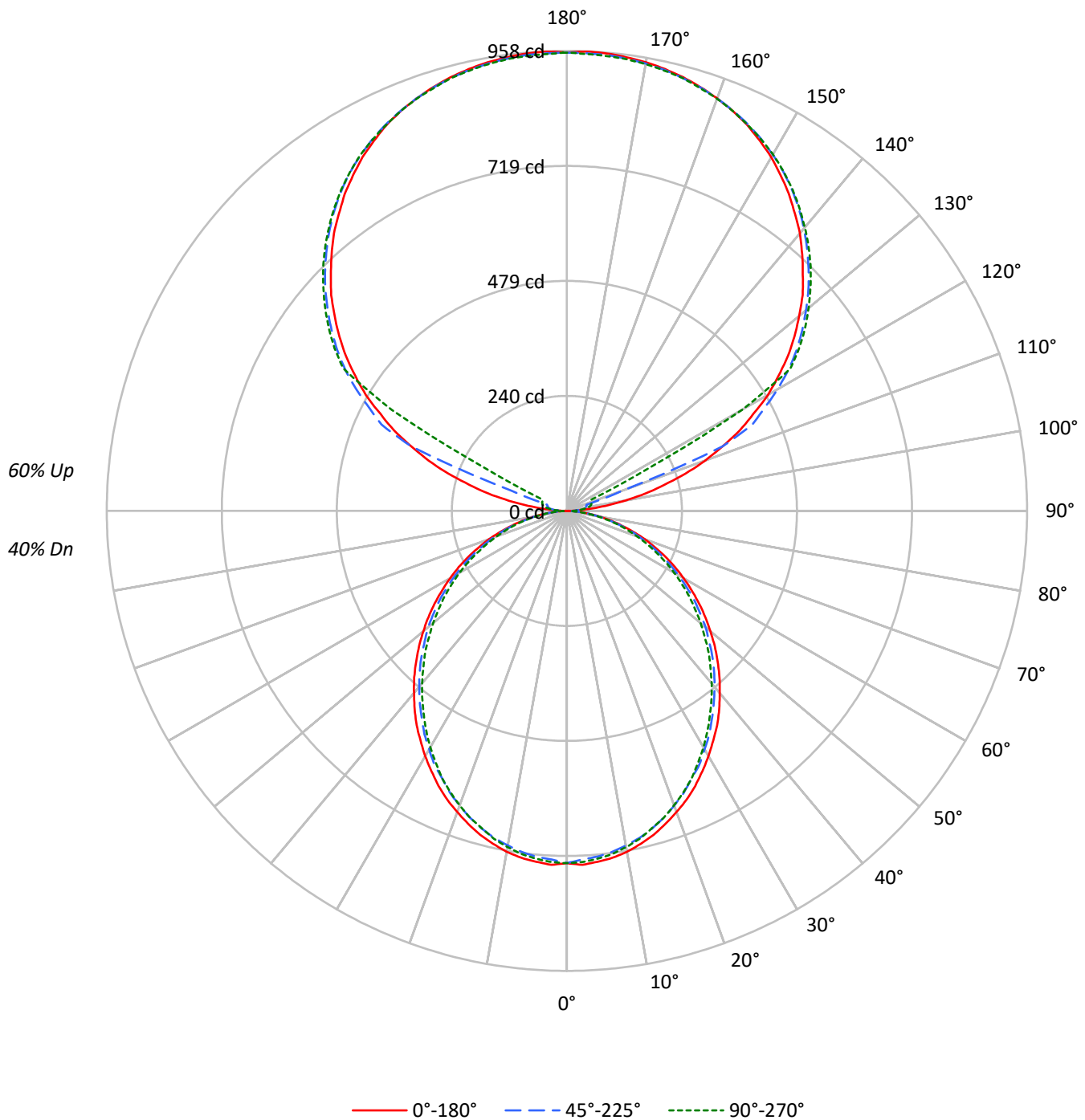
Lumens per Lamp: N/A
Luminaire Lumens: 4665.6 lumens
Efficiency: N/A
Efficacy: 116.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 40
Input Voltage (V): 120
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

TEST NUMBER: P902143

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US830-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P902143

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US830-FLONL

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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40	40	40	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33	33	33	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28	28	28	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24	24	24	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21	21	21	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19	19	19	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17	17	17	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15	15	15	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13	13	13	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1837	1837	1837
5°	1836	1806	1820
10°	1818	1778	1793
15°	1787	1744	1751
20°	1747	1698	1708
25°	1708	1645	1660
30°	1659	1595	1599
35°	1612	1537	1535
40°	1555	1478	1473
45°	1499	1419	1410
50°	1437	1357	1338
55°	1371	1285	1270
60°	1297	1201	1193
65°	1216	1112	1102
70°	1113	1004	1003
75°	972	875	908
80°	799	711	734
85°	533	444	457

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1499 cd/sqm

TEST NUMBER: P902143

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US830-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	69.0	1.5
10°-20°	194.2	4.2
20°-30°	285.5	6.1
30°-40°	331.5	7.1
40°-50°	331.1	7.1
50°-60°	288.7	6.2
60°-70°	213.4	4.6
70°-80°	120.8	2.6
80°-90°	33.6	0.7
90°-100°	31.5	0.7
100°-110°	117.3	2.5
110°-120°	311.1	6.7
120°-130°	516.0	11.1
130°-140°	548.1	11.7
140°-150°	509.4	10.9
150°-160°	409.6	8.8
160°-170°	263.9	5.7
170°-180°	90.8	1.9
0°-30°	548.7	11.8
0°-40°	880.3	18.9
0°-60°	1500.2	32.2
0°-90°	1867.9	40.0
90°-120°	459.9	9.9
90°-150°	2033.4	43.6
90°-180°	2798.0	60.0
0°-180°	4665.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	734	734	734	734	734	
5°	734	731	723	729	727	70
15°	698	694	685	688	684	197
25°	632	626	614	616	614	291
35°	545	538	527	523	519	340
45°	444	439	428	420	418	342
55°	336	332	323	315	311	300
65°	226	222	215	209	205	224
75°	118	117	114	109	111	126
85°	29	28	28	25	25	32
90°	1	8	14	17	19	4
95°	45	22	27	30	30	53
105°	210	231	42	50	52	224
115°	397	409	426	106	57	391
125°	561	570	584	588	590	501
135°	695	706	712	719	718	537
145°	806	805	817	822	818	504
155°	887	881	889	894	888	409
165°	935	931	933	938	933	264
175°	956	952	953	958	951	91
180°	954	954	954	954	954	

TEST NUMBER: P902143

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US830-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	733.5	733.5	733.5	733.5	733.5
2.5°	737.7	734.2	726.4	733.5	732.2
5°	733.5	730.8	722.9	728.6	727.2
7.5°	728.6	724.3	716.6	722.3	720.9
10°	720.9	716.0	707.5	713.0	711.0
12.5°	710.2	706.1	697.6	701.1	699.6
15°	698.2	694.1	684.9	687.7	684.2
17.5°	683.4	679.3	670.1	673.5	670.1
20°	667.2	663.0	653.1	655.3	652.4
22.5°	651.0	644.7	635.5	635.5	634.0
25°	632.0	626.3	614.3	615.7	614.3
27.5°	610.8	605.9	596.7	594.6	591.1
30°	589.7	584.0	573.4	571.4	568.4
32.5°	567.0	562.9	551.6	547.3	544.5
35°	545.3	538.2	526.9	522.6	519.1
37.5°	520.6	514.2	502.8	497.9	494.4
40°	495.1	489.5	478.2	471.9	469.0
42.5°	470.4	464.8	453.6	446.5	442.2
45°	443.7	438.8	428.1	420.4	417.5
47.5°	417.5	412.6	401.3	393.5	389.4
50°	390.0	386.5	376.6	366.7	363.3
52.5°	363.3	358.3	349.1	341.4	336.5
55°	335.7	331.5	323.0	314.6	311.0
57.5°	308.2	304.7	295.5	287.1	284.2
60°	280.7	278.0	268.1	260.2	258.2
62.5°	253.9	248.9	242.0	234.9	232.1
65°	226.4	222.2	215.2	208.8	205.3
67.5°	198.2	194.6	188.3	183.4	180.6
70°	172.1	169.3	162.9	158.0	155.2
72.5°	145.3	142.5	138.9	134.0	132.0
75°	118.5	117.2	113.5	109.3	110.7
77.5°	94.5	91.7	90.2	88.1	86.1
80°	70.6	69.8	68.4	66.3	64.8
82.5°	48.0	48.0	47.3	44.5	44.5
85°	28.8	28.2	27.5	25.4	24.7
87.5°	12.7	11.3	9.9	7.8	7.1
90°	0.7	8.3	13.8	17.3	18.6
92.5°	17.3	14.5	16.6	18.0	18.6
95°	44.9	22.1	26.9	30.4	29.7
97.5°	80.8	24.2	35.2	37.3	38.0
100°	122.2	27.6	39.4	44.9	46.3
102.5°	167.8	166.5	40.7	48.3	50.4
105°	209.9	230.6	42.1	49.7	52.5
107.5°	258.9	276.2	43.5	51.1	53.9
110°	305.9	320.4	120.8	51.8	54.6

TEST NUMBER: P902143

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US830-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	350.2	362.5	350.8	53.2	55.2
115°	397.0	408.8	426.0	106.3	56.6
117.5°	437.8	451.6	463.4	364.6	183.7
120°	483.3	493.7	506.1	514.4	421.2
122.5°	522.0	533.1	547.0	551.0	551.8
125°	561.4	570.3	583.5	588.3	590.4
127.5°	597.3	606.9	617.4	624.2	624.9
130°	631.1	642.2	649.8	657.3	656.8
132.5°	665.6	674.7	682.2	688.4	687.8
135°	694.7	705.8	711.9	718.9	717.5
137.5°	725.0	733.3	740.3	747.2	745.1
140°	754.7	760.3	767.8	774.0	770.6
142.5°	779.7	784.5	793.4	798.9	795.5
145°	805.9	805.1	816.9	821.7	818.2
147.5°	828.6	826.5	838.3	841.7	839.0
150°	850.7	845.9	857.0	861.0	857.6
152.5°	869.3	863.8	874.2	878.4	873.5
155°	887.3	881.2	889.4	893.5	888.1
157.5°	901.8	896.4	902.6	907.4	901.8
160°	914.3	910.1	914.3	918.4	913.5
162.5°	925.3	921.1	924.6	929.4	923.2
165°	934.9	930.9	932.9	937.7	932.9
167.5°	942.5	938.4	940.5	945.4	939.1
170°	948.8	944.6	946.0	950.8	944.6
172.5°	952.9	948.8	950.2	955.0	948.8
175°	956.3	951.5	952.9	957.7	950.8
177.5°	957.7	952.9	953.7	958.5	952.3
180°	954.3	954.3	954.3	954.3	954.3

TEST NUMBER: P902143

CATALOG NUMBER: DFN2DIP-4P2F0-020D030US830-FLONL

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	8.25	9.03	9.29	10.07	11.48	7.81	8.59	8.85	9.63	11.04
	3H	9.88	10.58	10.93	11.63	13.06	9.39	10.09	10.44	11.15	12.57
	4H	10.45	11.11	11.51	12.17	13.60	9.96	10.62	11.02	11.68	13.11
	6H	10.83	11.44	11.90	12.50	13.94	10.33	10.94	11.40	12.00	13.44
	8H	10.92	11.50	12.00	12.58	14.02	10.42	11.00	11.50	12.08	13.52
	12H	10.96	11.51	12.04	12.58	14.04	10.45	11.00	11.53	12.07	13.54
4H	2H	8.69	9.35	9.76	10.41	11.84	8.34	9.00	9.40	10.05	11.49
	3H	10.52	11.07	11.60	12.16	13.60	10.12	10.67	11.19	11.75	13.20
	4H	11.22	11.72	12.30	12.80	14.26	10.79	11.30	11.87	12.37	13.84
	6H	11.70	12.14	12.79	13.24	14.70	11.27	11.71	12.36	12.80	14.26
	8H	11.84	12.25	12.93	13.34	14.81	11.40	11.81	12.49	12.90	14.38
	12H	11.90	12.27	13.01	13.37	14.85	11.45	11.82	12.56	12.92	14.40
8H	4H	11.39	11.80	12.48	12.89	14.36	11.01	11.42	12.10	12.51	13.99
	6H	11.99	12.33	13.10	13.46	14.93	11.61	11.94	12.72	13.07	14.55
	8H	12.20	12.49	13.31	13.60	15.10	11.80	12.10	12.92	13.21	14.70
	12H	12.31	12.57	13.43	13.68	15.21	11.90	12.16	13.02	13.27	14.80
12H	4H	11.37	11.74	12.48	12.84	14.32	11.00	11.37	12.11	12.47	13.95
	6H	12.02	12.31	13.13	13.42	14.92	11.64	11.94	12.76	13.05	14.54
	8H	12.24	12.49	13.36	13.60	15.14	11.85	12.11	12.98	13.22	14.75

END OF REPORT