

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: P923986

Luminaire Tested: DFN2DIP-4P2F0-040D020US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923986
REPORT IS A COMBINATION OF REPORTS P899015 AND P895899
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-040D020US950-FLLFLL
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

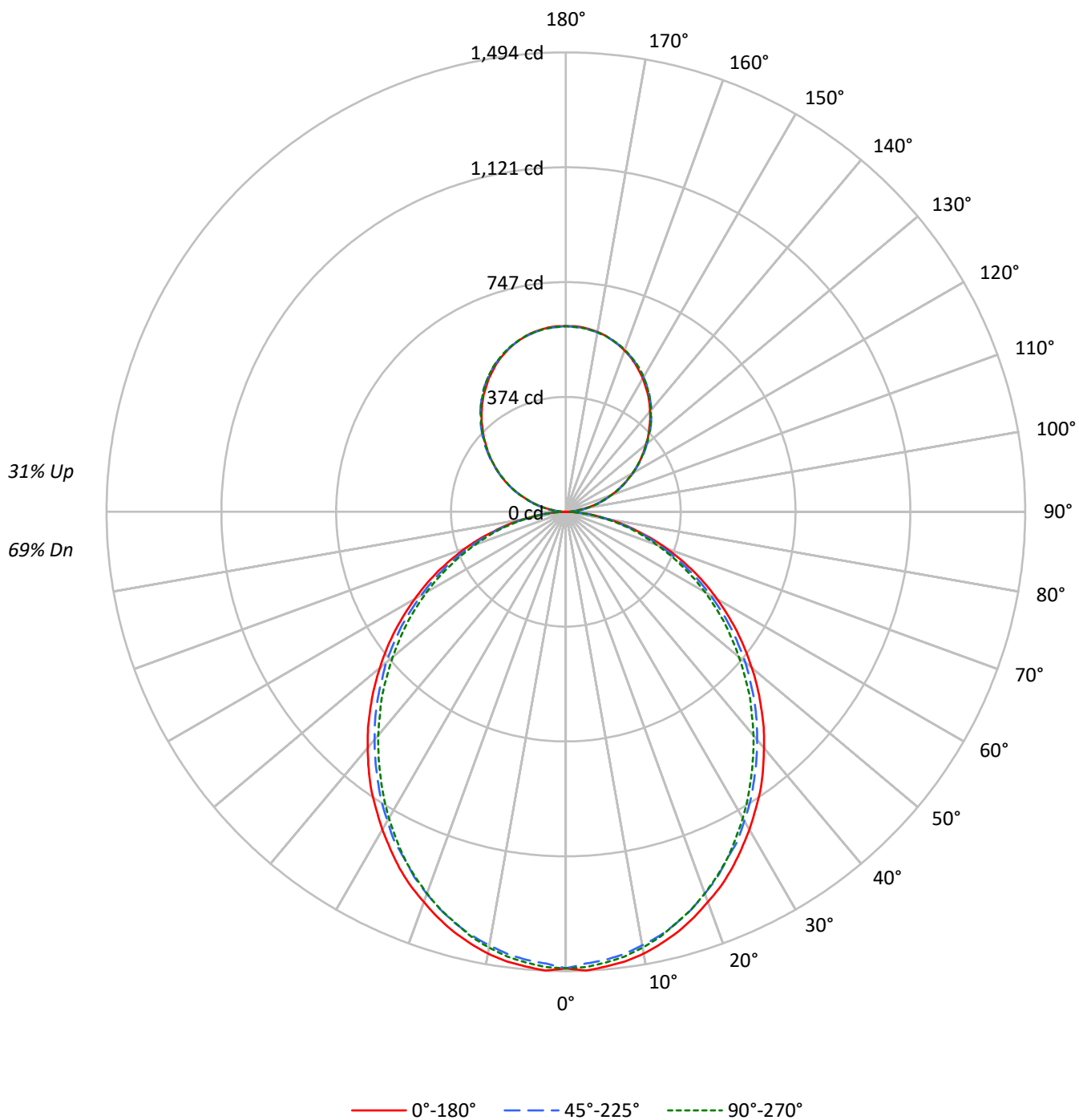
Lumens per Lamp: N/A
Luminaire Lumens: 5466.4 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 56.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P923986

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US950-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P923986

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US950-FLLFLL

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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3718	3718	3718
5°	3716	3657	3685
10°	3679	3598	3628
15°	3617	3529	3545
20°	3537	3438	3459
25°	3456	3330	3360
30°	3358	3229	3237
35°	3264	3112	3107
40°	3149	2993	2983
45°	3034	2873	2855
50°	2908	2747	2708
55°	2776	2602	2572
60°	2626	2430	2415
65°	2461	2251	2232
70°	2252	2033	2031
75°	1966	1772	1838
80°	1617	1439	1488
85°	1083	899	926

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3034 cd/sqm

TEST NUMBER: P923986

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.8	2.6
10°-20°	393.2	7.2
20°-30°	577.9	10.6
30°-40°	671.2	12.3
40°-50°	670.3	12.3
50°-60°	584.5	10.7
60°-70°	432.1	7.9
70°-80°	244.5	4.5
80°-90°	66.2	1.2
90°-100°	37.3	0.7
100°-110°	118.7	2.2
110°-120°	203.0	3.7
120°-130°	267.0	4.9
130°-140°	299.7	5.5
140°-150°	293.9	5.4
150°-160°	246.5	4.5
160°-170°	163.5	3.0
170°-180°	57.1	1.0
0°-30°	1110.8	20.3
0°-40°	1782.0	32.6
0°-60°	3036.8	55.6
0°-90°	3779.5	69.1
90°-120°	359.0	6.6
90°-150°	1219.7	22.3
90°-180°	1687.0	30.9
0°-180°	5466.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1485	1485	1485	1485	1485	
5°	1485	1479	1463	1475	1472	141
15°	1413	1405	1386	1392	1385	398
25°	1279	1268	1244	1246	1244	589
35°	1104	1090	1067	1058	1051	689
45°	898	888	867	851	845	693
55°	680	671	654	637	630	608
65°	458	450	436	423	416	453
75°	240	237	230	221	224	256
85°	58	57	56	51	50	65
90°	1	7	18	17	17	5
95°	26	32	32	32	32	30
105°	110	111	112	113	113	116
115°	204	207	206	205	204	202
125°	296	301	300	298	297	265
135°	383	389	390	390	388	296
145°	465	469	472	472	470	291
155°	532	534	535	538	536	245
165°	579	578	578	582	580	163
175°	602	601	600	603	600	57
180°	603	603	603	603	603	

TEST NUMBER: P923986

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US950-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1484.8	1484.8	1484.8	1484.8	1484.8
2.5°	1493.5	1486.3	1470.6	1484.8	1482.1
5°	1484.8	1479.2	1463.4	1474.8	1472.1
7.5°	1474.8	1466.3	1450.6	1462.1	1459.2
10°	1459.2	1449.2	1432.1	1443.5	1439.2
12.5°	1437.7	1429.2	1412.1	1419.3	1416.3
15°	1413.4	1405.0	1386.4	1392.1	1385.0
17.5°	1383.5	1375.0	1356.4	1363.5	1356.4
20°	1350.6	1342.1	1322.1	1326.3	1320.8
22.5°	1317.9	1305.0	1286.4	1286.4	1283.5
25°	1279.2	1267.9	1243.6	1246.4	1243.6
27.5°	1236.4	1226.4	1208.0	1203.7	1196.6
30°	1193.6	1182.2	1160.8	1156.5	1150.8
32.5°	1147.9	1139.5	1116.6	1108.0	1102.2
35°	1103.7	1089.5	1066.6	1058.0	1050.8
37.5°	1053.7	1040.8	1017.9	1008.0	1000.8
40°	1002.4	990.8	967.9	955.2	949.5
42.5°	952.4	940.8	918.1	903.7	895.2
45°	898.1	888.2	866.6	851.1	845.2
47.5°	845.2	835.2	812.4	796.7	788.2
50°	789.5	782.4	762.4	742.4	735.2
52.5°	735.2	725.3	706.8	691.1	681.1
55°	679.7	671.0	654.0	636.8	629.7
57.5°	623.9	616.9	598.2	581.1	575.4
60°	568.2	562.6	542.6	526.9	522.6
62.5°	514.0	504.0	489.8	475.5	469.7
65°	458.4	449.7	435.5	422.6	415.6
67.5°	401.3	394.0	381.3	371.3	365.6
70°	348.4	342.7	329.8	319.8	314.2
72.5°	294.2	288.4	281.3	271.3	267.0
75°	239.8	237.1	229.8	221.3	224.2
77.5°	191.3	185.6	182.7	178.4	174.2
80°	142.8	141.3	138.4	134.2	131.4
82.5°	97.1	97.1	95.8	90.0	90.0
85°	58.5	57.1	55.7	51.3	50.0
87.5°	25.8	22.9	20.0	15.7	14.2
90°	0.6	6.6	17.8	16.7	17.3
92.5°	11.3	15.3	15.8	16.4	16.4
95°	26.5	31.7	32.5	32.5	31.7
97.5°	44.2	48.9	50.9	50.9	50.9
100°	64.6	68.8	70.2	70.2	69.6
102.5°	86.1	89.1	91.1	91.7	91.1
105°	109.5	111.0	112.1	113.0	113.0
107.5°	132.8	135.0	135.0	135.4	132.8
110°	155.4	158.3	158.3	158.3	156.8

TEST NUMBER: P923986

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	179.7	182.8	182.3	180.8	179.7
115°	203.8	206.6	205.8	205.2	203.8
117.5°	227.6	231.6	229.1	227.6	226.1
120°	251.6	255.6	251.6	251.6	249.9
122.5°	273.4	278.5	276.0	274.6	273.4
125°	296.3	300.9	299.5	297.8	297.3
127.5°	318.7	324.4	322.4	320.2	318.7
130°	339.6	346.2	345.3	344.2	342.2
132.5°	363.1	368.2	368.5	366.0	364.5
135°	383.3	388.9	390.0	389.5	388.0
137.5°	405.8	410.4	411.4	411.0	408.8
140°	425.7	430.3	432.8	432.8	430.8
142.5°	446.1	450.6	452.1	452.6	450.6
145°	465.4	469.0	471.9	472.4	470.4
147.5°	482.6	487.2	489.4	490.3	488.3
150°	500.5	503.5	505.5	507.1	505.5
152.5°	516.3	519.4	521.9	523.9	521.9
155°	532.1	533.6	535.2	537.8	536.1
157.5°	545.8	546.8	547.8	551.4	548.8
160°	558.0	559.0	559.6	562.7	560.5
162.5°	569.3	569.3	569.7	573.3	570.7
165°	578.9	578.3	578.3	581.9	579.5
167.5°	587.6	585.9	585.9	589.6	587.1
170°	594.2	592.7	592.1	595.8	592.7
172.5°	598.7	597.2	596.7	600.4	597.2
175°	602.4	600.9	599.8	603.4	600.4
177.5°	604.4	602.9	601.8	604.8	601.8
180°	603.4	603.4	603.4	603.4	603.4

TEST NUMBER: P923986

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US950-FLLFLL

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	13.30	14.37	14.08	15.16	16.13	12.86	13.92	13.63	14.72	15.69
	3H	14.96	15.91	15.74	16.72	17.72	14.47	15.42	15.25	16.23	17.23
	4H	15.54	16.44	16.34	17.25	18.26	15.04	15.95	15.85	16.76	17.77
	6H	15.93	16.76	16.75	17.59	18.61	15.43	16.26	16.25	17.09	18.11
	8H	16.03	16.83	16.86	17.67	18.69	15.53	16.32	16.36	17.17	18.19
	12H	16.08	16.84	16.91	17.67	18.72	15.57	16.33	16.40	17.16	18.21
4H	2H	13.78	14.68	14.58	15.49	16.50	13.42	14.32	14.23	15.14	16.15
	3H	15.63	16.39	16.45	17.23	18.26	15.22	15.98	16.04	16.83	17.85
	4H	16.34	17.02	17.17	17.87	18.92	15.91	16.60	16.75	17.45	18.50
	6H	16.84	17.44	17.69	18.31	19.36	16.41	17.00	17.26	17.87	18.93
	8H	16.99	17.54	17.84	18.41	19.48	16.55	17.10	17.40	17.97	19.04
	12H	17.06	17.56	17.93	18.44	19.52	16.61	17.11	17.48	18.00	19.07
8H	4H	16.54	17.09	17.39	17.96	19.03	16.16	16.71	17.01	17.58	18.65
	6H	17.15	17.61	18.03	18.52	19.59	16.76	17.22	17.64	18.13	19.20
	8H	17.36	17.76	18.25	18.67	19.75	16.96	17.37	17.85	18.27	19.36
	12H	17.48	17.84	18.38	18.73	19.88	17.07	17.43	17.97	18.32	19.47
12H	4H	16.53	17.03	17.40	17.92	18.99	16.16	16.66	17.03	17.54	18.62
	6H	17.17	17.58	18.07	18.48	19.57	16.80	17.21	17.69	18.11	19.20
	8H	17.41	17.77	18.30	18.66	19.80	17.03	17.39	17.92	18.28	19.42