

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: P925260

Luminaire Tested: DFN2DIP-PN4F0-120D050US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925260
REPORT IS A COMBINATION OF REPORTS P899643 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D050US950-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

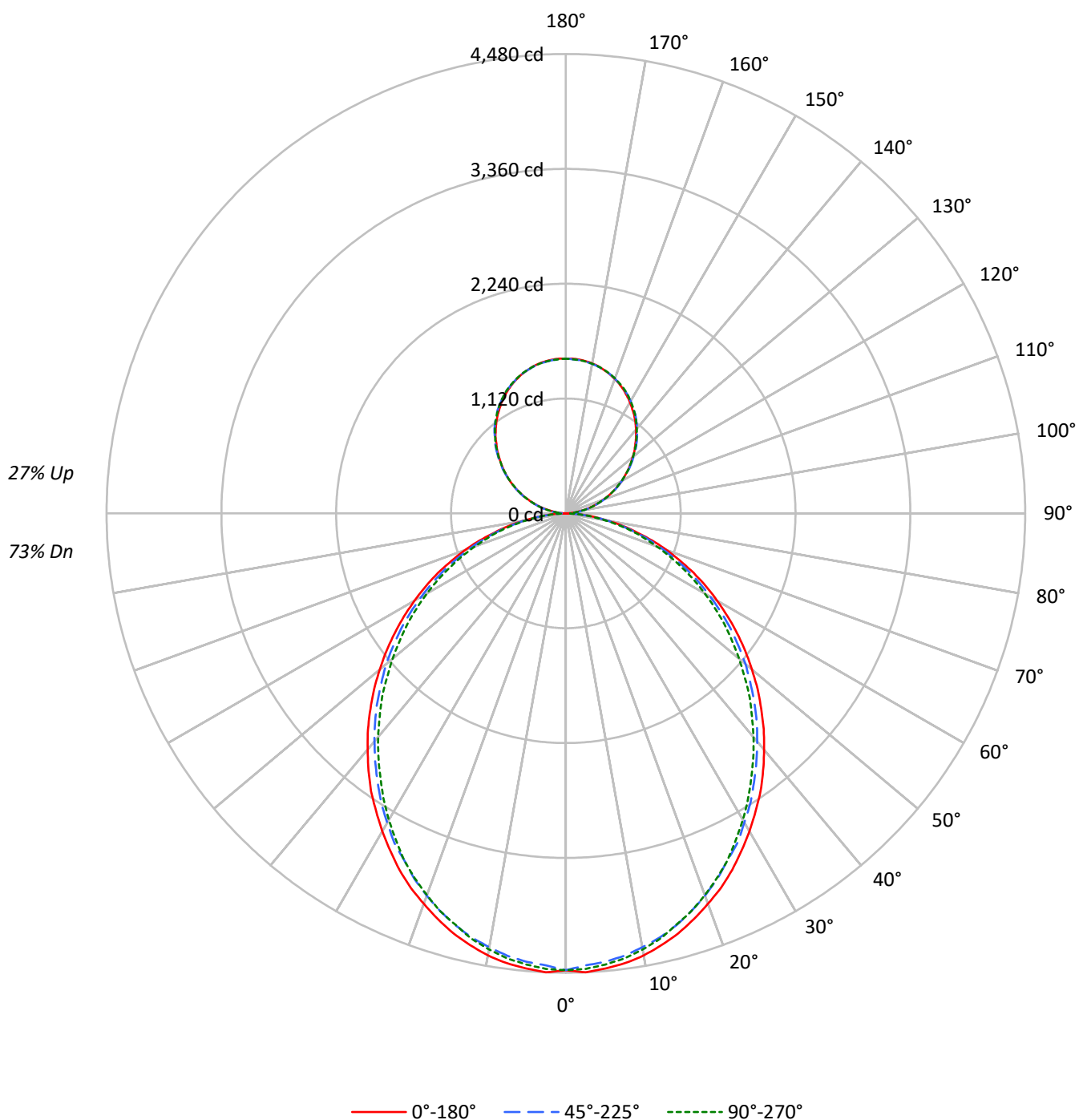
Lumens per Lamp: N/A
Luminaire Lumens: 15555.0 lumens
Efficiency: N/A
Efficacy: 94.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P925260

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US950-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P925260

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US950-FLLFL

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	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77
1	103	98	94	91	97	94	90	87	84	82	79	76	74	72	68	67	65
2	94	86	80	74	89	82	76	71	74	69	66	67	63	60	60	57	55
3	86	76	68	62	81	72	65	60	65	60	55	59	55	51	53	50	47
4	78	67	59	53	74	64	57	51	58	52	47	53	48	44	48	44	40
5	72	60	51	45	68	57	50	44	52	46	41	47	42	38	43	39	35
6	67	54	45	39	63	52	44	38	47	41	36	43	38	33	39	35	31
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	36	31	28
8	57	45	36	31	54	43	35	30	39	33	28	36	30	27	33	28	25
9	53	41	33	28	51	39	32	27	36	30	25	33	28	24	30	26	22
10	50	38	30	25	48	36	29	24	33	27	23	31	25	22	28	24	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3252	3252	3252
5°	3257	3207	3228
10°	3230	3164	3185
15°	3183	3112	3118
20°	3119	3040	3048
25°	3055	2954	2968
30°	2975	2874	2866
35°	2899	2780	2758
40°	2806	2684	2655
45°	2713	2588	2550
50°	2611	2488	2428
55°	2504	2372	2316
60°	2384	2234	2188
65°	2253	2091	2037
70°	2085	1917	1874
75°	1853	1709	1725
80°	1574	1444	1438
85°	1139	985	963

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2713 cd/sqm

TEST NUMBER: P925260

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	419.3	2.7
10°-20°	1179.6	7.6
20°-30°	1733.6	11.1
30°-40°	2013.5	12.9
40°-50°	2011.0	12.9
50°-60°	1753.5	11.3
60°-70°	1296.2	8.3
70°-80°	733.4	4.7
80°-90°	197.9	1.3
90°-100°	93.4	0.6
100°-110°	296.6	1.9
110°-120°	507.6	3.3
120°-130°	667.5	4.3
130°-140°	749.3	4.8
140°-150°	734.8	4.7
150°-160°	616.4	4.0
160°-170°	408.8	2.6
170°-180°	142.9	0.9
0°-30°	3332.5	21.4
0°-40°	5345.9	34.4
0°-60°	9110.4	58.6
0°-90°	11337.8	72.9
90°-120°	897.5	5.8
90°-150°	3049.2	19.6
90°-180°	4217.0	27.1
0°-180°	15555.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4454	4454	4454	4454	4454	
5°	4454	4438	4390	4424	4416	423
15°	4240	4215	4159	4176	4155	1194
25°	3838	3804	3731	3739	3731	1766
35°	3311	3268	3200	3174	3152	2068
45°	2694	2664	2600	2553	2536	2079
55°	2039	2013	1962	1910	1889	1823
65°	1375	1349	1306	1268	1247	1360
75°	719	711	689	664	673	768
85°	175	171	167	154	150	196
90°	1	16	45	42	43	15
95°	66	79	81	81	79	74
105°	274	277	280	282	282	289
115°	509	517	514	513	509	504
125°	741	752	749	744	743	662
135°	958	972	975	974	970	741
145°	1163	1172	1180	1181	1176	727
155°	1330	1334	1338	1344	1340	612
165°	1447	1446	1446	1455	1449	408
175°	1506	1502	1500	1509	1501	143
180°	1509	1509	1509	1509	1509	

TEST NUMBER: P925260

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US950-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4454.5	4454.5	4454.5	4454.5	4454.5
2.5°	4480.4	4459.0	4411.8	4454.5	4446.3
5°	4454.5	4437.6	4390.4	4424.5	4416.3
7.5°	4424.5	4399.0	4351.8	4386.3	4377.7
10°	4377.7	4347.7	4296.3	4330.4	4317.7
12.5°	4313.1	4287.7	4236.3	4257.7	4249.0
15°	4240.4	4215.0	4159.1	4176.3	4155.0
17.5°	4150.5	4125.0	4069.1	4090.5	4069.1
20°	4051.8	4026.4	3966.4	3979.1	3962.3
22.5°	3953.7	3915.0	3859.1	3859.1	3850.5
25°	3837.8	3803.7	3731.0	3739.2	3731.0
27.5°	3709.2	3679.2	3623.8	3611.0	3589.7
30°	3581.0	3546.5	3482.4	3469.7	3452.4
32.5°	3443.7	3418.4	3349.7	3323.8	3306.6
35°	3311.0	3268.4	3199.7	3173.9	3152.5
37.5°	3161.1	3122.5	3053.8	3023.9	3002.5
40°	3007.1	2972.6	2903.9	2865.7	2848.5
42.5°	2857.1	2822.6	2754.4	2711.3	2685.8
45°	2694.4	2664.4	2599.8	2553.1	2535.8
47.5°	2535.8	2505.8	2437.2	2390.0	2364.5
50°	2368.6	2347.2	2287.2	2227.2	2205.8
52.5°	2205.8	2175.9	2120.5	2073.1	2043.2
55°	2039.1	2013.2	1961.8	1910.5	1889.1
57.5°	1871.8	1850.5	1794.6	1743.2	1726.0
60°	1704.6	1687.8	1627.8	1580.6	1567.8
62.5°	1542.0	1511.9	1469.3	1426.5	1409.2
65°	1375.2	1349.2	1306.5	1267.9	1246.6
67.5°	1203.9	1182.0	1143.8	1113.9	1096.6
70°	1045.2	1027.9	989.3	959.3	942.6
72.5°	882.5	865.3	843.9	814.0	801.2
75°	719.4	711.2	689.4	664.0	672.6
77.5°	573.9	556.7	548.1	535.3	522.6
80°	428.5	424.0	415.4	402.7	394.0
82.5°	291.3	291.3	287.2	270.0	270.0
85°	175.4	171.3	167.2	154.1	150.0
87.5°	77.3	68.6	60.0	47.2	42.7
90°	1.3	16.4	44.6	41.9	43.2
92.5°	28.2	38.2	39.6	40.9	40.9
95°	66.4	79.2	81.4	81.4	79.2
97.5°	110.5	122.3	127.4	127.4	127.4
100°	161.4	171.9	175.5	175.5	174.2
102.5°	215.1	222.9	227.8	229.2	227.8
105°	273.8	277.4	280.2	282.4	282.4
107.5°	332.0	337.4	337.4	338.4	332.0
110°	388.4	395.7	395.7	395.7	392.0

TEST NUMBER: P925260

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	449.3	457.1	455.7	452.1	449.3
115°	509.3	516.7	514.4	513.1	509.3
117.5°	569.0	579.0	572.6	569.0	565.3
120°	629.0	639.0	629.0	629.0	624.9
122.5°	683.5	696.3	689.9	686.3	683.5
125°	740.9	752.2	748.6	744.5	743.2
127.5°	796.8	810.9	805.9	800.4	796.8
130°	849.2	865.5	863.2	860.5	855.5
132.5°	907.8	920.5	921.5	915.1	911.5
135°	958.3	972.3	975.1	973.7	970.1
137.5°	1014.7	1026.0	1028.3	1027.4	1021.9
140°	1064.2	1075.6	1081.9	1081.9	1077.0
142.5°	1115.1	1126.6	1130.2	1131.5	1126.6
145°	1163.4	1172.5	1179.7	1181.1	1176.1
147.5°	1206.6	1218.0	1223.4	1225.7	1220.6
150°	1251.2	1258.9	1263.9	1268.0	1263.9
152.5°	1290.8	1298.5	1304.8	1309.8	1304.8
155°	1330.3	1333.9	1338.0	1344.4	1340.3
157.5°	1364.4	1367.1	1369.4	1378.5	1372.1
160°	1394.8	1397.6	1398.9	1406.7	1401.2
162.5°	1423.1	1423.1	1424.4	1433.1	1426.7
165°	1447.2	1445.8	1445.8	1454.9	1448.6
167.5°	1469.0	1464.9	1464.9	1474.0	1467.6
170°	1485.4	1481.8	1480.4	1489.5	1481.8
172.5°	1496.7	1493.1	1491.8	1500.8	1493.1
175°	1505.9	1502.2	1499.5	1508.6	1500.8
177.5°	1510.8	1507.2	1504.5	1512.2	1504.5
180°	1508.6	1508.6	1508.6	1508.6	1508.6

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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	13.26	14.38	14.00	15.13	16.03	12.82	13.94	13.56	14.69	15.59
	3H	14.94	15.95	15.69	16.71	17.64	14.46	15.46	15.21	16.22	17.16
	4H	15.55	16.49	16.31	17.26	18.21	15.06	16.00	15.82	16.78	17.72
	6H	15.96	16.83	16.74	17.61	18.57	15.47	16.34	16.25	17.12	18.08
	8H	16.07	16.90	16.86	17.71	18.67	15.58	16.41	16.37	17.21	18.17
	12H	16.13	16.92	16.92	17.72	18.71	15.63	16.42	16.42	17.22	18.21
4H	2H	13.75	14.70	14.52	15.47	16.42	13.40	14.35	14.17	15.12	16.07
	3H	15.65	16.43	16.43	17.24	18.20	15.24	16.03	16.02	16.84	17.80
	4H	16.37	17.09	17.17	17.90	18.89	15.96	16.67	16.75	17.48	18.47
	6H	16.90	17.53	17.72	18.36	19.35	16.48	17.10	17.29	17.93	18.93
	8H	17.06	17.64	17.88	18.47	19.48	16.63	17.21	17.45	18.04	19.05
	12H	17.15	17.67	17.98	18.52	19.53	16.71	17.23	17.54	18.08	19.10
8H	4H	16.59	17.17	17.41	18.00	19.01	16.22	16.80	17.03	17.63	18.64
	6H	17.23	17.72	18.08	18.59	19.60	16.86	17.34	17.70	18.21	19.22
	8H	17.46	17.89	18.32	18.75	19.78	17.08	17.50	17.93	18.37	19.40
	12H	17.61	17.98	18.46	18.84	19.92	17.20	17.58	18.06	18.44	19.52
12H	4H	16.59	17.11	17.42	17.96	18.97	16.23	16.75	17.06	17.60	18.61
	6H	17.27	17.70	18.12	18.56	19.59	16.90	17.33	17.76	18.20	19.22
	8H	17.52	17.90	18.38	18.76	19.84	17.15	17.53	18.01	18.39	19.47