

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: P906693

Luminaire Tested: DFN2DIP-SQ4F0-060D140US835-FLLONL

Issue Date: 11/21/2024

**Test Information**

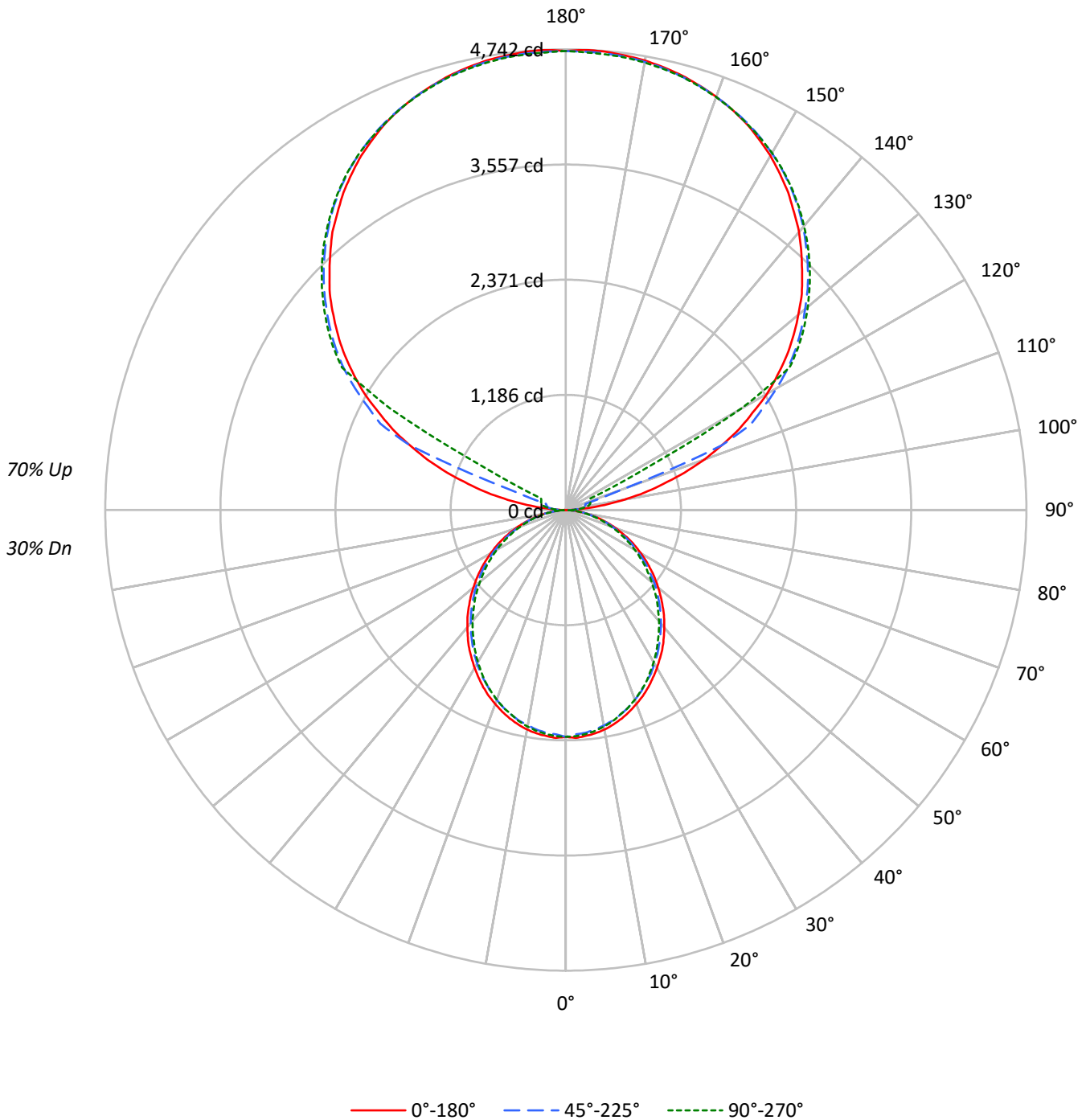
Test Method: LM-79-2019  
Report Number: P906693  
REPORT IS A COMBINATION OF REPORTS P901705 AND P898471  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-060D140US835-FLLONL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 19800.0 lumens  
Efficiency: N/A  
Efficacy: 127.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 155.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	30
1	93	89	85	82	84	80	77	74	63	61	59	48	46	45	33	33	32	33	33	32	25
2	85	78	72	67	76	70	65	61	55	52	49	42	40	38	29	28	27	29	28	27	21
3	77	68	61	56	69	62	56	51	49	45	41	37	34	32	26	24	23	26	24	23	18
4	71	60	53	47	63	54	48	43	43	39	35	33	30	27	23	21	20	23	21	20	15
5	65	54	46	40	58	48	42	37	39	34	30	29	26	23	21	19	17	21	19	17	13
6	60	48	40	35	53	43	37	32	35	30	26	27	23	20	19	17	15	19	17	15	12
7	55	43	35	30	49	39	32	28	31	26	23	24	21	18	17	15	13	17	15	13	10
8	51	39	32	26	46	35	29	24	28	24	20	22	19	16	16	14	12	16	14	12	9
9	47	36	28	23	42	32	26	22	26	21	18	20	17	14	15	12	11	15	12	11	8
10	44	32	26	21	40	30	23	19	24	19	16	19	15	13	14	11	10	14	11	10	8

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1638	1638	1638
5°	1641	1616	1627
10°	1627	1594	1605
15°	1603	1568	1571
20°	1571	1532	1536
25°	1539	1489	1496
30°	1499	1449	1445
35°	1460	1401	1390
40°	1413	1353	1339
45°	1366	1305	1286
50°	1315	1255	1225
55°	1261	1196	1169
60°	1201	1127	1104
65°	1134	1055	1028
70°	1050	968	947
75°	933	863	873
80°	793	730	729
85°	573	499	490

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2534 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	219.7	1.1
10°-20°	618.3	3.1
20°-30°	908.6	4.6
30°-40°	1055.3	5.3
40°-50°	1054.0	5.3
50°-60°	919.0	4.6
60°-70°	679.4	3.4
70°-80°	384.4	1.9
80°-90°	109.8	0.6
90°-100°	155.8	0.8
100°-110°	580.8	2.9
110°-120°	1540.3	7.8
120°-130°	2554.8	12.9
130°-140°	2713.8	13.7
140°-150°	2522.1	12.7
150°-160°	2027.7	10.2
160°-170°	1306.6	6.6
170°-180°	449.7	2.3
0°-30°	1746.6	8.8
0°-40°	2801.8	14.2
0°-60°	4774.8	24.1
0°-90°	5948.3	30.0
90°-120°	2276.9	11.5
90°-150°	10067.6	50.8
90°-180°	13852.0	70.0
0°-180°	19800.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2335	2335	2335	2335	2335	
5°	2335	2326	2301	2319	2315	222
15°	2222	2209	2180	2189	2178	626
25°	2011	1994	1955	1960	1955	926
35°	1735	1713	1677	1663	1652	1084
45°	1412	1396	1363	1338	1329	1090
55°	1069	1055	1028	1001	990	955
65°	721	707	685	664	653	713
75°	377	373	361	348	352	402
85°	92	90	88	81	79	103
90°	3	41	68	86	92	18
95°	222	109	133	151	147	263
105°	1039	1142	209	246	260	1110
115°	1966	2024	2110	527	280	1935
125°	2779	2824	2889	2913	2923	2479
135°	3440	3494	3525	3559	3552	2657
145°	3990	3986	4044	4068	4051	2495
155°	4393	4363	4404	4424	4397	2024
165°	4629	4609	4619	4643	4619	1308
175°	4735	4711	4718	4742	4708	451
180°	4725	4725	4725	4725	4725	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2334.6	2334.6	2334.6	2334.6	2334.6
2.5°	2348.2	2337.0	2312.2	2334.6	2330.3
5°	2334.6	2325.8	2301.0	2318.9	2314.6
7.5°	2318.9	2305.6	2280.8	2298.9	2294.4
10°	2294.4	2278.7	2251.7	2269.6	2262.9
12.5°	2260.6	2247.2	2220.3	2231.5	2227.0
15°	2222.4	2209.1	2179.8	2188.9	2177.7
17.5°	2175.3	2162.0	2132.7	2143.8	2132.7
20°	2123.6	2110.3	2078.8	2085.5	2076.7
22.5°	2072.2	2051.9	2022.6	2022.6	2018.1
25°	2011.4	1993.6	1955.4	1959.7	1955.4
27.5°	1944.0	1928.3	1899.2	1892.6	1881.4
30°	1876.9	1858.7	1825.2	1818.5	1809.4
32.5°	1804.9	1791.6	1755.6	1742.0	1733.0
35°	1735.4	1713.0	1677.0	1663.4	1652.2
37.5°	1656.8	1636.5	1600.6	1584.8	1573.6
40°	1576.0	1557.9	1522.0	1502.0	1492.9
42.5°	1497.4	1479.3	1443.6	1421.0	1407.6
45°	1412.2	1396.4	1362.6	1338.1	1329.0
47.5°	1329.0	1313.3	1277.4	1252.6	1239.2
50°	1241.4	1230.2	1198.8	1167.3	1156.1
52.5°	1156.1	1140.4	1111.3	1086.6	1070.9
55°	1068.7	1055.1	1028.2	1001.3	990.1
57.5°	981.1	969.9	940.6	913.7	904.6
60°	893.4	884.6	853.2	828.4	821.7
62.5°	808.1	792.4	770.0	747.6	738.6
65°	720.7	707.2	684.8	664.5	653.3
67.5°	630.9	619.5	599.5	583.8	574.7
70°	547.8	538.8	518.5	502.8	494.0
72.5°	462.5	453.5	442.3	426.6	419.9
75°	377.0	372.8	361.3	348.0	352.5
77.5°	300.8	291.8	287.2	280.6	273.9
80°	224.6	222.2	217.7	211.0	206.5
82.5°	152.7	152.7	150.5	141.5	141.5
85°	91.9	89.8	87.6	80.7	78.6
87.5°	40.5	36.0	31.4	24.8	22.4
90°	3.2	41.0	68.2	85.7	92.2
92.5°	85.7	71.9	82.0	88.9	92.2
95°	222.1	109.2	133.2	150.6	147.0
97.5°	399.9	119.8	174.2	184.7	188.0
100°	605.3	136.8	194.9	222.1	229.0
102.5°	830.6	824.1	201.8	239.1	249.7
105°	1039.3	1142.0	208.7	246.0	259.8
107.5°	1282.1	1367.3	215.6	252.9	266.7
110°	1514.7	1586.2	598.4	256.6	270.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1733.5	1794.8	1736.8	263.1	273.6
115°	1965.8	2023.8	2109.5	526.6	280.5
117.5°	2167.5	2235.7	2294.2	1805.0	909.4
120°	2393.3	2444.4	2506.1	2547.1	2085.5
122.5°	2584.5	2639.3	2707.9	2728.2	2731.9
125°	2779.4	2824.0	2889.0	2912.9	2923.1
127.5°	2957.2	3005.1	3056.6	3090.7	3094.0
130°	3124.8	3179.7	3217.0	3254.8	3251.5
132.5°	3295.8	3340.4	3377.8	3408.6	3405.4
135°	3439.5	3494.3	3524.7	3559.2	3552.3
137.5°	3589.7	3630.7	3665.2	3699.3	3689.2
140°	3736.7	3764.3	3801.6	3832.5	3815.4
142.5°	3860.1	3884.0	3928.3	3955.5	3938.4
145°	3990.0	3986.3	4044.4	4068.4	4051.3
147.5°	4102.5	4092.3	4150.4	4167.4	4154.0
150°	4212.1	4188.1	4242.9	4263.2	4246.2
152.5°	4304.2	4277.0	4328.2	4348.9	4324.9
155°	4393.1	4362.7	4403.7	4424.0	4396.8
157.5°	4465.0	4437.8	4468.7	4492.6	4465.0
160°	4526.7	4506.0	4526.7	4547.0	4523.1
162.5°	4581.1	4560.8	4577.9	4601.8	4571.0
165°	4629.0	4608.7	4618.9	4642.8	4618.9
167.5°	4666.8	4646.1	4656.6	4680.6	4649.7
170°	4697.6	4676.9	4683.8	4707.8	4676.9
172.5°	4717.9	4697.6	4704.5	4728.5	4697.6
175°	4735.0	4711.0	4717.9	4741.9	4707.8
177.5°	4741.9	4717.9	4721.6	4745.5	4714.7
180°	4724.8	4724.8	4724.8	4724.8	4724.8



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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	6.79	7.50	7.90	8.60	10.14	6.35	7.05	7.46	8.16	9.69
	3H	8.44	9.08	9.56	10.19	11.74	7.95	8.59	9.07	9.70	11.25
	4H	9.03	9.63	10.16	10.74	12.30	8.53	9.13	9.66	10.25	11.80
	6H	9.42	9.98	10.56	11.09	12.66	8.92	9.48	10.06	10.59	12.16
	8H	9.52	10.05	10.67	11.18	12.74	9.02	9.55	10.16	10.68	12.24
	12H	9.57	10.07	10.72	11.20	12.78	9.06	9.56	10.21	10.69	12.27
4H	2H	7.23	7.84	8.37	8.95	10.50	6.88	7.48	8.02	8.60	10.15
	3H	9.09	9.59	10.23	10.73	12.30	8.68	9.18	9.83	10.33	11.89
	4H	9.80	10.26	10.95	11.39	12.98	9.38	9.84	10.52	10.97	12.55
	6H	10.31	10.71	11.46	11.86	13.44	9.88	10.27	11.03	11.43	13.00
	8H	10.46	10.83	11.61	11.97	13.57	10.02	10.39	11.17	11.54	13.13
	12H	10.53	10.86	11.70	12.02	13.62	10.08	10.41	11.25	11.57	13.17
8H	4H	9.99	10.35	11.14	11.50	13.09	9.61	9.98	10.76	11.12	12.72
	6H	10.62	10.92	11.79	12.11	13.70	10.23	10.54	11.40	11.72	13.31
	8H	10.84	11.10	12.02	12.27	13.88	10.45	10.71	11.62	11.88	13.49
	12H	10.96	11.20	12.15	12.36	14.00	10.55	10.79	11.74	11.95	13.59
12H	4H	9.96	10.30	11.13	11.46	13.05	9.60	9.93	10.76	11.09	12.68
	6H	10.64	10.91	11.82	12.08	13.69	10.27	10.54	11.45	11.70	13.31
	8H	10.88	11.12	12.06	12.28	13.92	10.50	10.74	11.68	11.90	13.54