

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: P905559

Luminaire Tested: DFN2DIP-HX4F0-120D040US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905559
REPORT IS A COMBINATION OF REPORTS P899316 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D040US835-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

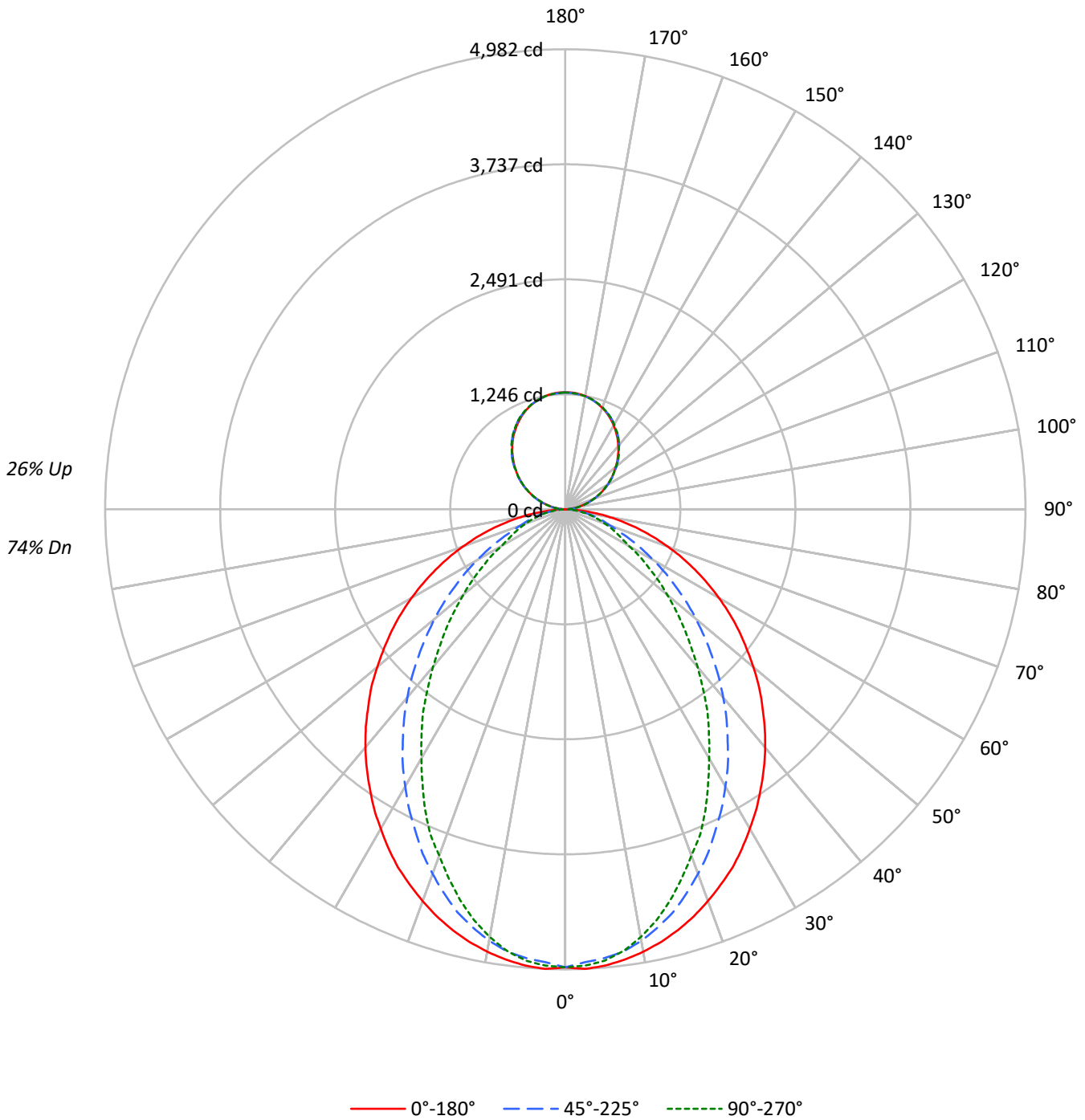
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13740.0 lumens
Efficiency: N/A
Efficacy: 91.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 149.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P905559
CATALOG NUMBER: DFN2DIP-HX4F0-120D040US835-RLFL

Luminous Intensity Polar Plot





TEST NUMBER: P905559

CATALOG NUMBER: DFN2DIP-HX4F0-120D040US835-RLFL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	74	74	74	74
1	104	100	96	93	99	95	92	89	86	84	81	78	76	74	70	69	68	64	64	64	64
2	95	88	82	77	90	84	79	74	76	72	68	69	66	63	63	60	58	55	55	55	55
3	87	78	71	65	83	75	68	63	68	63	58	62	58	54	56	53	50	47	47	47	47
4	80	70	62	56	76	67	60	54	61	55	51	56	51	47	51	47	44	41	41	41	41
5	74	63	54	48	70	60	53	47	55	49	44	51	45	42	46	42	39	36	36	36	36
6	69	57	48	43	65	54	47	41	50	44	39	46	41	37	42	38	35	32	32	32	32
7	64	51	43	38	61	49	42	37	46	39	35	42	37	33	39	34	31	29	29	29	29
8	59	47	39	34	57	45	38	33	42	36	31	39	34	30	36	31	28	26	26	26	26
9	56	43	36	31	53	42	35	30	39	33	28	36	31	27	33	29	26	24	24	24	24
10	52	40	33	28	50	39	32	27	36	30	26	33	28	25	31	27	23	22	22	22	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3688	3688	3688
5°	3694	3630	3653
10°	3658	3559	3534
15°	3608	3441	3350
20°	3541	3280	3125
25°	3473	3098	2907
30°	3382	2912	2631
35°	3293	2712	2389
40°	3202	2505	2111
45°	3096	2275	1859
50°	2987	2043	1613
55°	2873	1795	1376
60°	2741	1536	1133
65°	2589	1272	1020
70°	2405	1026	923
75°	2174	906	840
80°	1839	761	729
85°	1286	510	549

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3096 cd/sqm



TEST NUMBER: P905559

CATALOG NUMBER: DFN2DIP-HX4F0-120D040US835-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	464.8	3.4
10°-20°	1276.0	9.3
20°-30°	1791.5	13.0
30°-40°	1952.8	14.2
40°-50°	1794.9	13.1
50°-60°	1409.6	10.3
60°-70°	917.5	6.7
70°-80°	472.3	3.4
80°-90°	124.2	0.9
90°-100°	78.3	0.6
100°-110°	248.7	1.8
110°-120°	425.6	3.1
120°-130°	559.8	4.1
130°-140°	628.3	4.6
140°-150°	616.2	4.5
150°-160°	516.9	3.8
160°-170°	342.8	2.5
170°-180°	119.8	0.9
0°-30°	3532.3	25.7
0°-40°	5485.2	39.9
0°-60°	8689.6	63.2
0°-90°	10203.6	74.3
90°-120°	752.7	5.5
90°-150°	2556.9	18.6
90°-180°	3536.0	25.7
0°-180°	13740.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4960	4960	4960	4960	4960	
5°	4960	4937	4879	4919	4906	470
15°	4717	4668	4515	4430	4385	1329
25°	4282	4138	3842	3658	3590	1969
35°	3690	3460	3066	2783	2684	2309
45°	3016	2715	2244	1925	1818	2329
55°	2293	1943	1459	1190	1104	2049
65°	1549	1185	781	629	615	1535
75°	826	511	359	328	323	873
85°	193	99	85	85	85	221
90°	1	14	37	35	36	13
95°	56	66	68	68	66	62
105°	230	233	235	237	237	242
115°	427	433	431	430	427	422
125°	621	631	628	624	623	555
135°	804	815	818	816	814	621
145°	976	983	989	990	986	610
155°	1116	1119	1122	1127	1124	513
165°	1214	1212	1212	1220	1215	342
175°	1263	1260	1257	1265	1259	120
180°	1265	1265	1265	1265	1265	



TEST NUMBER: P905559

CATALOG NUMBER: DFN2DIP-HX4F0-120D040US835-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4959.6	4959.6	4959.6	4959.6	4959.6
2.5°	4982.0	4959.6	4910.1	4955.3	4946.2
5°	4959.6	4937.2	4878.6	4919.1	4905.8
7.5°	4919.1	4892.4	4829.6	4847.2	4824.8
10°	4865.3	4833.9	4744.3	4730.5	4703.9
12.5°	4798.1	4757.7	4636.2	4609.6	4560.1
15°	4717.2	4667.7	4515.3	4430.0	4385.3
17.5°	4622.9	4551.0	4362.4	4263.9	4192.0
20°	4515.3	4425.3	4201.0	4089.1	3990.0
22.5°	4398.6	4295.3	4034.8	3882.4	3815.3
25°	4282.0	4138.1	3841.9	3658.1	3590.5
27.5°	4142.9	3990.0	3662.4	3451.5	3348.1
30°	3994.8	3823.9	3464.8	3236.2	3114.8
32.5°	3851.0	3644.3	3276.7	3007.2	2894.8
35°	3689.6	3460.5	3065.7	2782.9	2683.8
37.5°	3532.4	3285.3	2868.1	2558.1	2446.2
40°	3366.2	3097.2	2661.5	2342.9	2226.2
42.5°	3195.7	2908.6	2455.3	2122.9	2011.0
45°	3016.2	2715.3	2244.3	1925.3	1817.6
47.5°	2845.7	2527.2	2042.4	1723.4	1624.8
50°	2657.2	2338.6	1844.8	1534.8	1441.0
52.5°	2472.9	2136.2	1656.2	1360.0	1274.8
55°	2293.4	1943.4	1458.6	1189.5	1104.3
57.5°	2109.5	1750.5	1283.8	1032.4	960.5
60°	1921.0	1561.9	1099.5	871.0	799.1
62.5°	1737.2	1378.1	942.4	727.2	691.4
65°	1548.6	1184.8	781.0	628.6	614.8
67.5°	1369.1	1005.2	628.6	551.9	538.6
70°	1180.5	830.5	520.5	475.7	457.6
72.5°	1001.0	668.6	435.2	399.5	390.5
75°	825.7	511.4	359.1	327.6	323.3
77.5°	651.0	363.3	282.9	264.8	255.7
80°	489.1	260.5	215.2	197.6	197.6
82.5°	341.0	175.2	148.1	139.0	139.0
85°	192.9	98.6	85.2	85.2	85.2
87.5°	71.9	35.7	35.7	31.4	31.4
90°	1.1	13.7	37.4	35.1	36.2
92.5°	23.6	32.0	33.2	34.3	34.3
95°	55.7	66.4	68.3	68.3	66.4
97.5°	92.7	102.6	106.8	106.8	106.8
100°	135.4	144.2	147.2	147.2	146.1
102.5°	180.4	186.9	191.1	192.2	191.1
105°	229.6	232.6	234.9	236.8	236.8
107.5°	278.4	283.0	283.0	283.7	278.4
110°	325.7	331.8	331.8	331.8	328.8



TEST NUMBER: P905559

CATALOG NUMBER: DFN2DIP-HX4F0-120D040US835-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	376.8	383.3	382.1	379.1	376.8
115°	427.1	433.3	431.3	430.2	427.1
117.5°	477.1	485.5	480.2	477.1	474.1
120°	527.5	535.8	527.5	527.5	524.0
122.5°	573.2	583.9	578.6	575.5	573.2
125°	621.3	630.8	627.8	624.3	623.2
127.5°	668.2	680.0	675.8	671.2	668.2
130°	712.0	725.8	723.9	721.6	717.4
132.5°	761.2	771.9	772.7	767.3	764.3
135°	803.6	815.4	817.7	816.5	813.5
137.5°	850.9	860.4	862.3	861.5	857.0
140°	892.4	902.0	907.3	907.3	903.1
142.5°	935.2	944.7	947.7	948.9	944.7
145°	975.6	983.2	989.3	990.5	986.3
147.5°	1011.8	1021.3	1025.9	1027.8	1023.6
150°	1049.2	1055.7	1059.9	1063.3	1059.9
152.5°	1082.4	1088.8	1094.2	1098.4	1094.2
155°	1115.5	1118.6	1122.0	1127.4	1123.9
157.5°	1144.2	1146.4	1148.3	1156.0	1150.6
160°	1169.7	1172.0	1173.1	1179.6	1175.0
162.5°	1193.3	1193.3	1194.5	1201.7	1196.4
165°	1213.6	1212.4	1212.4	1220.0	1214.7
167.5°	1231.9	1228.4	1228.4	1236.1	1230.7
170°	1245.6	1242.5	1241.4	1249.0	1242.5
172.5°	1255.1	1252.1	1250.9	1258.6	1252.1
175°	1262.8	1259.7	1257.4	1265.0	1258.6
177.5°	1267.0	1263.9	1261.6	1268.1	1261.6
180°	1265.0	1265.0	1265.0	1265.0	1265.0



TEST NUMBER: P905559
 CATALOG NUMBER: DFN2DIP-HX4F0-120D040US835-RLLFLL

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	13.70	14.78	14.43	15.52	16.40	9.68	10.75	10.40	11.49	12.37
	3H	15.40	16.36	16.14	17.11	18.02	10.88	11.85	11.62	12.60	13.51
	4H	16.02	16.93	16.78	17.69	18.61	11.35	12.25	12.10	13.01	13.94
	6H	16.45	17.29	17.22	18.06	19.00	11.68	12.52	12.45	13.29	14.22
	8H	16.59	17.38	17.37	18.17	19.11	11.78	12.58	12.56	13.36	14.30
	12H	16.66	17.42	17.44	18.20	19.16	11.83	12.59	12.62	13.37	14.34
4H	2H	13.75	14.66	14.51	15.42	16.34	10.30	11.21	11.06	11.97	12.89
	3H	15.60	16.36	16.37	17.15	18.09	11.67	12.43	12.45	13.22	14.16
	4H	16.31	16.99	17.09	17.78	18.75	12.23	12.92	13.02	13.71	14.68
	6H	16.83	17.42	17.64	18.24	19.22	12.67	13.26	13.47	14.08	15.05
	8H	17.02	17.57	17.82	18.38	19.37	12.80	13.35	13.61	14.17	15.16
	12H	17.12	17.62	17.95	18.45	19.45	12.88	13.38	13.71	14.21	15.21
8H	4H	16.29	16.84	17.10	17.66	18.65	12.53	13.08	13.34	13.90	14.89
	6H	16.87	17.32	17.70	18.18	19.17	13.06	13.52	13.90	14.37	15.36
	8H	17.09	17.49	17.93	18.35	19.35	13.26	13.66	14.10	14.52	15.52
	12H	17.24	17.59	18.09	18.44	19.50	13.39	13.74	14.24	14.59	15.65
12H	4H	16.25	16.75	17.08	17.59	18.58	12.55	13.04	13.38	13.88	14.87
	6H	16.84	17.25	17.69	18.10	19.11	13.11	13.52	13.96	14.37	15.38
	8H	17.08	17.43	17.93	18.28	19.34	13.34	13.69	14.18	14.54	15.60