

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: P646633

Luminaire Tested: S123DR-S340D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646633
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DR-S340D840-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1526.7 lumens
Efficiency: N/A
Efficacy: 128.3 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

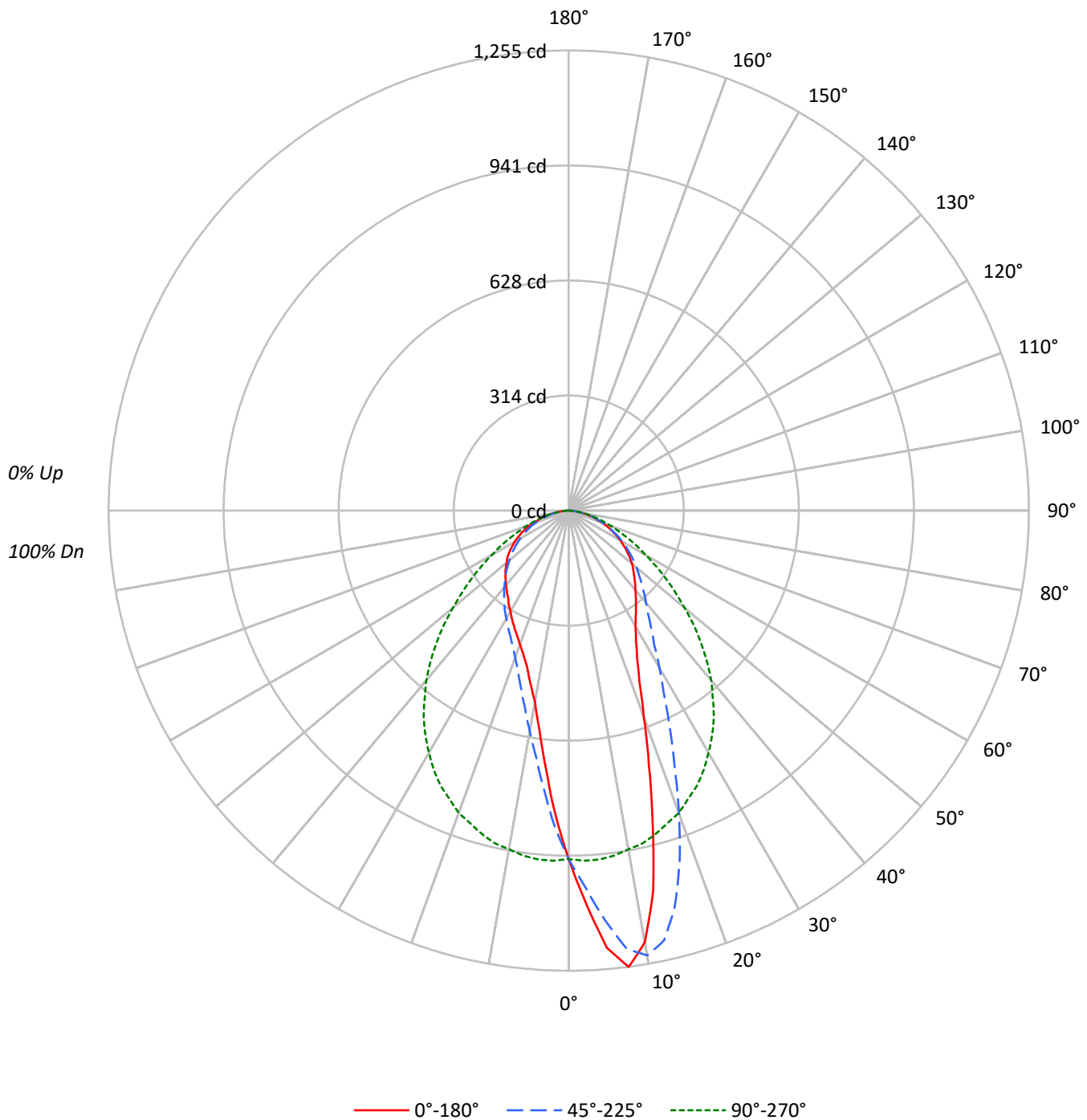
Input Watts (W): 11.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86		
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74		
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64		
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56		
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50		
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45		
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40		
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37		
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34		
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	11449	11449	11449	11449	11449
5°	14479	13541	11552	9264	8555
10°	14620	15074	11475	7483	6485
15°	11011	13949	11396	6271	5484
20°	7672	11280	11252	5467	4982
25°	5850	8652	11003	5012	4672
30°	5062	6877	10607	4736	4423
35°	4695	5759	10151	4514	4248
40°	4445	5153	9508	4307	4189
45°	4298	4787	8694	4125	4163
50°	4223	4521	7729	3966	4141
55°	4067	4271	6781	3825	4159
60°	3921	4039	5844	3687	4092
65°	3684	3783	5041	3532	4011
70°	3403	3512	4287	3340	3773
75°	3077	3180	3673	3059	3450
80°	2540	2720	2907	2665	2907
85°	2018	2198	2129	2323	2323

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 9926 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.8	5.9
10°-20°	223.5	14.6
20°-30°	264.6	17.3
30°-40°	265.9	17.4
40°-50°	243.8	16.0
50°-60°	201.3	13.2
60°-70°	142.4	9.3
70°-80°	76.1	5.0
80°-90°	19.3	1.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	577.9	37.9
0°-40°	843.8	55.3
0°-60°	1288.9	84.4
0°-90°	1526.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1526.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	950	950	950	950	950	
5°	1197	1120	955	766	707	114
15°	883	1118	914	503	440	244
25°	440	651	828	377	351	208
35°	319	392	690	307	289	201
45°	252	281	510	242	244	195
55°	194	203	323	182	198	173
65°	129	133	177	124	141	128
75°	66	68	79	66	74	70
85°	15	16	15	17	17	17
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2
2.5°	1071.0	1068.8	1057.8	1050.7	1052.5	1036.6	1026.9	1019.0	1013.7	1000.9	994.3
5°	1197.1	1203.3	1196.2	1192.7	1174.6	1146.0	1119.5	1113.8	1089.1	1058.7	1048.1
7.5°	1255.3	1258.9	1254.5	1254.5	1248.7	1223.1	1204.6	1190.1	1147.7	1108.5	1090.4
10°	1194.9	1202.9	1220.1	1228.0	1239.5	1235.9	1232.0	1226.2	1197.6	1152.2	1131.4
12.5°	1062.2	1071.9	1106.3	1111.1	1150.4	1188.3	1200.7	1214.8	1217.4	1179.1	1156.6
15°	882.7	909.6	940.9	955.9	1005.8	1085.6	1118.2	1156.6	1202.0	1186.1	1168.5
17.5°	727.1	737.2	770.7	802.5	852.3	944.5	1004.9	1062.2	1159.6	1175.5	1164.5
20°	598.3	607.6	651.7	649.5	715.6	819.3	879.7	945.8	1089.5	1141.1	1138.9
22.5°	502.7	517.2	541.9	555.6	603.2	695.3	752.7	835.1	1009.7	1091.3	1100.1
25°	440.0	450.6	465.6	477.5	514.6	590.4	650.8	718.7	909.2	1026.0	1048.1
27.5°	397.3	401.7	416.7	423.7	448.4	513.7	560.4	622.6	816.2	952.9	983.7
30°	363.8	366.9	380.1	382.3	401.7	448.9	494.3	545.0	725.3	877.5	912.7
32.5°	340.4	342.6	352.7	353.6	368.2	402.6	434.3	481.9	639.4	796.8	840.4
35°	319.2	320.6	328.1	330.3	339.5	365.5	391.5	428.1	571.0	724.0	772.1
37.5°	300.7	302.5	306.9	309.5	317.0	337.8	355.4	385.8	505.3	648.2	701.5
40°	282.6	285.7	288.8	288.8	297.2	313.1	327.6	352.7	448.9	582.0	629.2
42.5°	267.2	270.3	271.6	272.1	276.5	291.0	303.4	320.6	406.1	523.4	569.7
45°	252.2	253.5	254.9	255.7	258.8	271.6	280.9	297.2	365.5	469.2	514.1
47.5°	238.5	238.5	239.4	240.7	243.0	252.2	260.1	272.1	330.7	420.6	457.7
50°	225.3	225.3	224.0	224.9	226.2	233.3	241.2	250.9	298.1	376.1	409.2
52.5°	209.4	209.4	209.9	208.6	209.9	216.1	222.2	231.9	270.3	335.1	363.3
55°	193.6	195.3	194.0	193.1	194.9	198.9	203.3	211.6	244.3	302.5	325.0
57.5°	177.7	178.6	178.1	179.5	178.6	182.1	186.1	191.8	220.9	265.9	287.0
60°	162.7	162.7	161.8	162.7	162.7	164.5	167.6	173.3	197.1	234.6	252.2
62.5°	145.9	146.4	146.8	146.4	145.9	148.2	150.8	154.8	176.4	204.2	217.4
65°	129.2	129.6	131.0	130.5	130.1	132.3	132.7	137.1	153.4	177.3	187.0
67.5°	114.2	113.3	113.8	114.6	115.1	115.5	116.4	120.8	132.3	151.7	159.6
70°	96.6	97.4	97.0	98.3	97.4	98.8	99.7	102.7	113.8	126.5	131.8
72.5°	80.7	81.1	81.1	82.5	82.0	83.3	84.2	85.5	93.5	104.9	107.1
75°	66.1	66.1	67.0	67.5	67.5	67.5	68.3	69.2	75.8	82.9	85.1
77.5°	50.3	52.5	52.0	52.5	52.9	54.2	53.4	55.1	59.1	63.1	64.4
80°	36.6	36.6	37.0	37.5	38.4	39.2	39.2	41.0	42.8	45.0	46.3
82.5°	23.4	23.8	25.1	25.6	26.0	27.3	27.3	27.3	29.5	30.4	30.4
85°	14.6	13.7	14.6	15.0	15.4	15.9	15.9	16.8	17.2	17.6	17.6
87.5°	7.1	7.1	7.1	7.1	7.5	7.5	7.5	7.5	7.9	7.9	7.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2	950.2
2.5°	972.3	955.9	931.7	911.8	912.7	894.7	881.4	864.2	858.9	853.6	846.6
5°	992.5	955.1	904.8	864.7	852.3	822.3	784.4	765.9	754.9	735.5	728.0
7.5°	1017.7	948.9	872.2	809.6	795.9	746.1	701.1	679.0	658.3	644.6	627.9
10°	1034.0	937.9	839.1	756.2	743.0	686.1	627.4	611.6	585.6	568.8	552.9
12.5°	1046.3	929.5	805.1	708.6	687.0	631.9	572.8	551.2	532.2	508.0	496.5
15°	1057.4	913.6	770.3	658.8	636.3	576.7	522.1	502.7	485.5	464.3	454.2
17.5°	1053.4	894.2	731.9	614.7	592.2	533.5	481.1	459.0	447.5	429.0	422.0
20°	1048.5	877.5	695.8	572.8	548.1	493.4	442.3	426.4	414.9	403.0	396.8
22.5°	1033.1	851.0	659.2	534.4	511.0	456.4	412.7	399.5	390.7	382.3	377.0
25°	1007.1	827.6	623.5	496.0	477.5	426.4	389.3	377.0	371.3	362.9	358.0
27.5°	974.9	796.8	587.8	464.7	443.6	398.2	366.4	358.5	352.3	345.7	340.8
30°	934.3	762.4	552.9	434.3	414.9	374.8	347.5	340.4	334.7	328.1	322.3
32.5°	882.7	727.5	520.3	406.1	389.8	354.9	329.8	324.1	319.2	311.3	308.2
35°	825.0	690.1	488.1	379.2	363.8	333.3	312.6	306.9	302.0	295.4	292.8
37.5°	766.3	645.5	456.4	356.3	342.6	315.3	295.4	289.7	285.3	279.6	278.2
40°	704.2	604.5	425.1	332.9	321.0	297.6	278.2	273.8	269.4	265.9	265.0
42.5°	641.6	557.3	397.7	313.5	300.7	279.1	261.5	256.6	254.0	252.2	252.7
45°	582.5	510.2	369.5	291.0	282.2	262.4	246.0	242.1	239.9	238.5	240.3
47.5°	518.5	462.1	343.0	272.1	263.2	245.6	230.2	226.6	225.8	225.3	228.4
50°	462.1	412.3	314.4	252.7	245.2	227.1	214.7	211.6	210.8	212.1	216.5
52.5°	408.7	366.0	288.4	234.6	227.1	210.8	199.3	197.1	196.7	199.7	204.2
55°	355.8	322.8	260.1	214.7	207.2	193.1	184.3	182.1	181.7	187.8	191.8
57.5°	310.9	280.9	233.7	195.8	190.0	176.8	168.9	167.1	168.4	174.2	178.1
60°	266.8	242.5	209.4	175.5	171.1	159.6	153.4	153.0	154.3	160.9	164.9
62.5°	227.1	208.6	183.4	157.0	153.9	143.7	138.0	138.9	140.2	146.8	150.4
65°	193.1	176.8	157.9	138.5	134.5	127.4	123.5	123.9	126.5	132.3	135.8
67.5°	160.1	146.8	136.2	120.8	117.7	111.6	108.5	110.2	111.6	117.3	120.8
70°	132.3	121.7	113.8	102.3	100.1	94.8	92.6	94.8	96.1	101.0	105.4
72.5°	106.3	99.7	93.5	85.1	82.9	79.4	78.9	79.8	82.0	86.9	88.6
75°	82.5	78.9	73.6	68.3	67.0	65.3	64.8	65.7	67.9	70.5	72.3
77.5°	62.6	59.5	55.6	53.4	51.6	50.7	51.1	52.5	53.4	56.0	57.3
80°	45.4	41.9	41.0	37.9	37.5	37.0	37.9	38.4	39.7	41.4	42.3
82.5°	30.0	27.3	26.5	26.0	25.6	25.1	26.5	26.9	27.8	29.1	29.5
85°	16.3	15.4	15.4	15.0	15.4	16.3	16.3	16.8	16.8	17.2	16.8
87.5°	7.5	6.6	7.1	7.1	7.1	7.5	7.5	7.9	7.9	7.9	7.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	950.2	950.2	950.2
2.5°	846.1	843.1	830.7
5°	721.4	710.8	707.3
7.5°	626.1	625.2	606.7
10°	545.4	546.8	530.0
12.5°	494.7	483.7	482.4
15°	451.5	441.4	439.6
17.5°	419.3	413.2	411.4
20°	395.1	391.5	388.5
22.5°	375.7	371.3	368.6
25°	356.3	352.3	351.4
27.5°	339.5	334.7	334.7
30°	322.3	319.2	317.9
32.5°	306.9	304.2	304.2
35°	291.9	290.6	288.8
37.5°	278.2	278.2	277.3
40°	265.0	266.3	266.3
42.5°	253.5	254.9	254.9
45°	241.2	243.4	244.3
47.5°	228.8	232.4	233.3
50°	217.8	220.5	220.9
52.5°	205.9	209.0	211.2
55°	193.6	196.7	198.0
57.5°	180.3	183.4	183.9
60°	165.8	168.9	169.8
62.5°	152.6	154.3	155.2
65°	136.2	138.9	140.7
67.5°	121.3	123.5	123.5
70°	104.9	105.8	107.1
72.5°	89.5	90.0	90.0
75°	72.8	73.6	74.1
77.5°	57.3	57.8	57.8
80°	42.3	41.9	41.9
82.5°	29.5	28.2	28.2
85°	16.8	16.3	16.8
87.5°	7.5	7.5	7.5
90°	0.0	0.0	0.0

(END OF REPORT)