

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: NEO-RAY

Report Number: P33913

Luminaire Tested: **S123DW-135-0048-1D-UDD-4-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P33913
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DW-135-0048-1D-UDD-4-W
Description: NEORAY DIRECT- INDIRECT 3" FIXTURE WITH A DROP DIFFUSE
LENS.LL1
Light Source: [117] NICHIA 3500K LED
Nichia 757D
Ballast/Driver: [1] OSRAM SYLVANIA ELECTRONIC DRIVER
OT50WPRG1400C

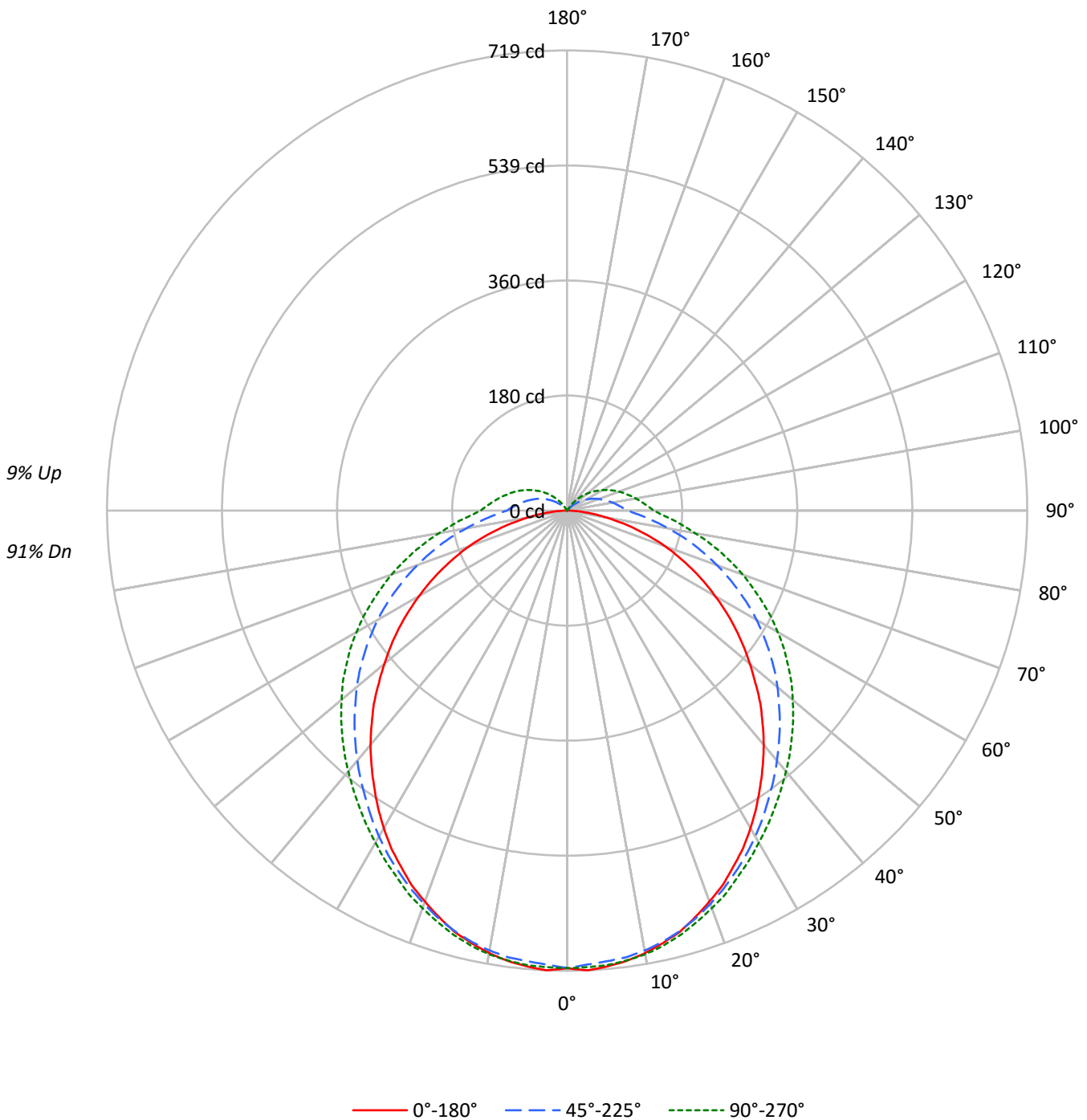
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2417.0 lumens
Efficiency: N/A
Efficacy: 86.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.25 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.17')
CIE Type: Direct

Input Watts (W): 28
Input Voltage (V): 120.01
Input Current (A_{in}): 0.2348
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 7.52
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: HR
Ambient Temperature (°C): NR
Test Distance: 25 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	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	117	117	117	117	113	113	113	113	106	106	106	100	100	100	94	94	94	91
1	105	100	95	90	101	96	92	88	90	87	84	85	82	79	80	78	76	73
2	95	86	79	72	91	83	76	71	78	73	68	74	69	65	69	66	62	59
3	86	75	66	59	83	73	65	58	68	62	56	64	59	54	61	56	52	49
4	79	66	57	50	76	64	56	49	61	53	48	57	51	46	54	49	44	42
5	72	59	50	43	70	57	49	42	54	47	41	51	45	40	49	43	38	36
6	67	53	44	37	64	52	43	37	49	41	36	46	40	35	44	38	34	31
7	62	48	39	33	59	47	38	32	44	37	31	42	36	31	40	34	30	28
8	57	44	35	29	55	43	34	29	41	33	28	39	32	27	37	31	27	25
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	22
10	50	37	29	24	49	36	28	23	35	28	23	33	27	22	32	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7696	7696	7696
5°	7698	7318	7279
10°	7617	7010	6885
15°	7505	6681	6486
20°	7334	6336	6093
25°	7153	5998	5717
30°	6955	5669	5376
35°	6716	5341	5070
40°	6490	5046	4794
45°	6240	4767	4539
50°	5951	4499	4293
55°	5686	4223	4047
60°	5361	3942	3797
65°	5003	3623	3522
70°	4603	3298	3245
75°	3959	2957	2945
80°	3109	2582	2632
85°	2008	2259	2378



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.6	2.8
10°-20°	192.6	8.0
20°-30°	287.8	11.9
30°-40°	343.9	14.2
40°-50°	360.5	14.9
50°-60°	340.0	14.1
60°-70°	284.7	11.8
70°-80°	204.7	8.5
80°-90°	123.5	5.1
90°-100°	79.7	3.3
100°-110°	58.5	2.4
110°-120°	39.3	1.6
120°-130°	22.5	0.9
130°-140°	9.7	0.4
140°-150°	1.8	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	548.0	22.7
0°-40°	892.0	36.9
0°-60°	1592.5	65.9
0°-90°	2205.5	91.2
90°-120°	177.5	7.3
90°-150°	211.5	8.8
90°-180°	212.0	8.8
0°-180°	2417.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	715	715	715	715	715	
5°	715	712	707	714	713	68
15°	681	681	680	688	686	192
25°	614	620	623	632	631	283
35°	526	538	549	564	566	329
45°	427	446	470	491	497	329
55°	321	350	386	414	421	287
65°	214	252	295	327	336	212
75°	110	154	204	235	247	117
85°	24	72	123	154	166	28
90°	0	45	94	124	135	1
95°	0	36	82	112	121	0
105°	0	22	62	89	97	0
115°	0	10	44	67	75	0
125°	0	1	26	46	53	0
135°	0	0	10	25	31	0
145°	1	0	0	6	10	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	715	715	715	715	715	715	715	715	715	715	715
2.5°	719	717	715	715	716	716	716	714	713	710	710
5°	715	713	711	712	712	713	713	712	710	707	709
7.5°	710	708	706	706	707	708	708	707	706	704	705
10°	702	700	698	698	699	701	702	701	700	698	699
12.5°	692	690	688	690	691	693	693	693	692	690	692
15°	681	678	677	678	680	682	683	682	682	680	682
17.5°	666	664	663	665	667	669	671	670	670	668	670
20°	650	648	648	650	652	655	656	656	656	654	657
22.5°	634	631	631	633	637	639	640	640	640	639	643
25°	614	612	613	615	618	621	623	623	623	623	626
27.5°	595	592	593	596	600	602	605	605	605	606	609
30°	573	571	573	576	580	583	585	587	587	588	592
32.5°	550	549	551	555	557	562	564	565	567	569	572
35°	526	525	528	532	536	540	543	544	547	549	554
37.5°	502	502	505	508	513	518	521	523	525	530	535
40°	478	477	480	484	489	495	498	501	504	510	515
42.5°	452	452	456	461	467	473	476	478	484	490	495
45°	427	427	431	437	443	449	454	458	464	470	475
47.5°	399	401	405	411	418	425	430	436	443	449	455
50°	373	374	381	387	394	402	408	414	422	429	436
52.5°	347	349	355	362	370	377	386	393	400	408	415
55°	321	322	330	338	345	354	362	371	379	386	393
57.5°	294	297	303	311	320	330	339	347	355	364	372
60°	267	271	278	286	295	306	316	325	333	342	350
62.5°	241	244	252	260	270	281	292	301	310	319	328
65°	214	220	226	235	246	257	268	278	287	295	304
67.5°	188	192	201	210	221	233	243	254	264	272	280
70°	163	167	175	185	197	209	220	229	240	249	258
72.5°	136	141	150	160	172	184	196	207	217	226	235
75°	110	116	125	136	149	160	172	183	194	204	212
77.5°	85	91	101	113	125	138	149	161	171	182	191
80°	62	69	79	91	103	116	128	139	150	160	170
82.5°	43	49	59	71	84	96	108	120	130	141	150
85°	24	31	42	53	66	78	90	102	112	123	132
87.5°	10	18	28	39	51	63	75	86	97	107	116
90°	0	7	16	27	39	51	62	73	84	94	102
92.5°	0	4	12	23	34	46	58	68	78	88	96
95°	0	2	10	20	31	42	53	63	73	82	90
97.5°	0	1	8	17	27	38	49	59	68	77	85
100°	0	0	6	14	24	34	44	54	63	72	80
102.5°	0	0	3	11	21	30	40	50	59	67	75
105°	0	0	2	9	17	27	36	45	54	62	70
107.5°	0	0	0	6	15	23	32	41	50	57	65
110°	0	0	0	4	12	20	29	37	45	53	60



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	0	0	0	2	9	17	25	33	41	48	55
115°	0	0	0	0	6	14	21	29	37	44	50
117.5°	0	0	0	0	4	11	18	25	32	39	45
120°	0	0	0	0	1	8	14	21	28	34	41
122.5°	0	0	0	0	0	5	11	18	24	30	36
125°	0	0	0	0	0	2	8	14	20	26	31
127.5°	0	0	0	0	0	0	5	10	16	21	27
130°	0	0	0	0	0	0	2	7	12	17	22
132.5°	0	0	0	0	0	0	0	4	9	13	18
135°	0	0	0	0	0	0	0	1	5	10	14
137.5°	0	0	0	0	0	0	0	0	2	6	10
140°	0	0	0	0	0	0	0	0	0	2	6
142.5°	0	0	0	0	0	0	0	0	0	0	2
145°	1	0	0	0	0	0	0	0	0	0	0
147.5°	0	0	0	0	0	0	0	0	0	0	0
150°	0	0	0	0	0	0	0	0	0	0	0
152.5°	0	0	0	0	0	0	0	0	0	0	0
155°	0	0	0	0	0	0	0	0	0	0	0
157.5°	0	0	0	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0	0	0	0



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CATALOG NUMBER: S123DW-135-0048-1D-UDD-4-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	715	715	715	715	715	715	715	715
2.5°	713	714	715	715	715	715	714	714
5°	711	713	713	714	714	714	713	713
7.5°	708	709	710	710	711	711	710	709
10°	702	704	705	705	705	705	705	704
12.5°	695	696	697	697	697	698	697	696
15°	685	687	687	688	688	688	687	686
17.5°	673	675	676	676	676	676	675	674
20°	660	661	663	662	663	663	662	661
22.5°	645	646	648	647	649	649	648	648
25°	629	631	632	632	632	632	632	631
27.5°	612	613	615	616	616	616	616	616
30°	594	596	598	598	600	601	600	599
32.5°	575	578	580	581	583	584	583	583
35°	556	560	563	564	566	566	567	566
37.5°	538	542	544	547	549	551	550	549
40°	520	524	527	529	531	532	532	532
42.5°	500	505	508	511	514	515	515	515
45°	480	485	489	493	496	497	497	497
47.5°	461	466	470	474	477	478	479	479
50°	442	447	452	455	458	460	460	460
52.5°	421	426	431	435	439	440	442	442
55°	400	406	412	416	418	420	421	421
57.5°	379	384	389	395	398	400	401	402
60°	357	363	369	374	376	379	380	380
62.5°	334	340	347	351	355	357	358	359
65°	312	318	324	330	332	334	336	336
67.5°	289	295	301	306	309	312	314	313
70°	266	273	278	284	287	289	291	292
72.5°	243	250	256	261	264	266	268	269
75°	221	227	233	237	241	244	245	247
77.5°	198	206	211	217	219	222	223	225
80°	178	184	190	195	199	202	202	203
82.5°	158	164	170	176	179	182	183	183
85°	139	146	152	157	161	163	165	166
87.5°	124	130	136	140	144	146	148	148
90°	110	116	122	127	130	132	134	135
92.5°	104	110	116	120	124	126	127	128
95°	98	104	110	114	117	120	121	121
97.5°	92	98	104	108	111	113	115	115
100°	87	93	98	102	105	107	109	109
102.5°	81	87	92	96	99	101	103	103
105°	76	82	87	91	94	96	97	97
107.5°	71	77	82	85	88	90	92	92
110°	66	71	76	80	83	85	86	86



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	61	66	71	74	77	79	80	81
115°	56	61	65	69	72	73	75	75
117.5°	51	56	60	63	66	68	69	70
120°	46	50	55	58	61	62	64	64
122.5°	41	45	50	52	55	57	58	58
125°	36	41	44	47	50	51	52	53
127.5°	31	35	39	42	44	46	47	47
130°	26	30	34	37	39	40	41	42
132.5°	22	26	29	31	34	35	36	36
135°	17	21	24	26	28	30	30	31
137.5°	13	16	19	21	23	24	25	25
140°	9	12	14	16	18	19	20	20
142.5°	5	7	10	11	13	14	15	15
145°	1	3	5	7	8	9	10	10
147.5°	0	0	0	0	0	0	0	0
150°	0	0	0	0	0	0	0	0
152.5°	0	0	0	0	0	0	0	0
155°	0	0	0	0	0	0	0	0
157.5°	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0

(END OF REPORT)