

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: P33916

Luminaire Tested: **S124DW-135-0048-1D-UDD-4-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P33916  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DW-135-0048-1D-UDD-4-W  
Description: NEORAY DIRECT- INDIRECT 4" FIXTURE WITH A DROP DIFFUSE  
LENS.LL1  
Light Source: [117] NICHIA 3500K LED  
Nichia 757D  
Ballast/Driver: [1] OSRAM SYLVANIA ELECTRONIC DRIVER  
OT50WPRG1400C

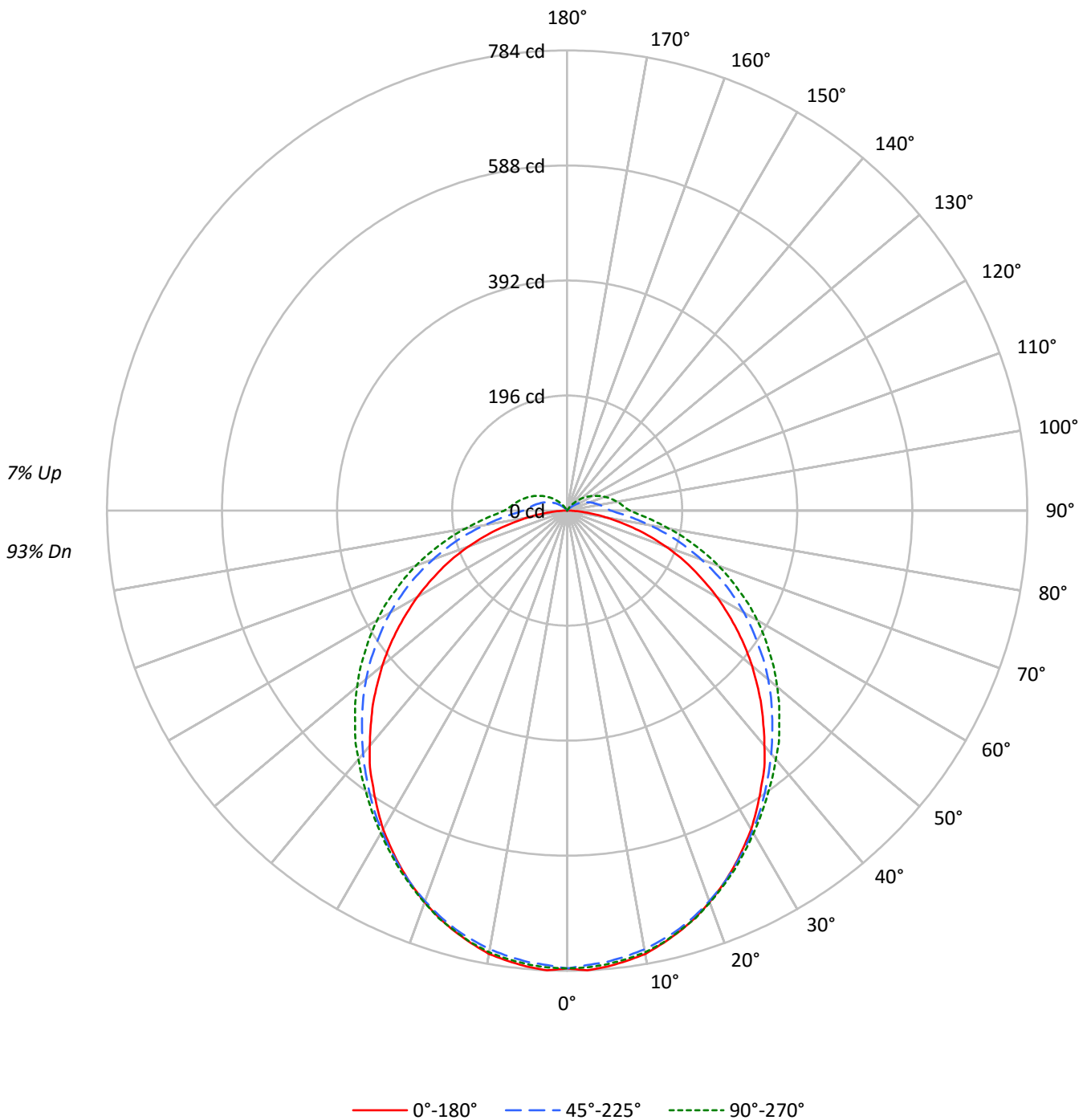
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2441.5 lumens  
Efficiency: N/A  
Efficacy: 87.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.21 / 1.34  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.17')  
CIE Type: Direct

Input Watts (W): 27.9  
Input Voltage (V): 120.03  
Input Current (A<sub>in</sub>): 0.2336  
Voltage Rise (V): NR  
Power Factor: 0.997  
Total Harmonic Distortion (THDi): 7.47  
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	114	114	114	114	107	107	107	101	101	101	96	96	96	93
1	106	101	96	92	103	98	93	90	92	89	86	87	84	82	82	80	78	76
2	96	87	80	74	93	85	78	72	80	75	70	76	71	67	72	68	65	62
3	87	76	68	61	84	74	66	60	70	64	58	67	61	56	63	58	54	52
4	80	67	58	51	77	66	57	51	62	55	49	59	53	48	56	51	47	44
5	73	60	51	44	71	59	50	44	56	48	43	53	47	41	51	45	40	38
6	68	54	45	38	65	53	44	38	50	43	37	48	41	36	46	40	35	33
7	63	49	40	34	61	48	40	34	46	38	33	44	37	32	42	36	31	29
8	58	45	36	30	56	44	36	30	42	35	29	40	34	29	38	33	28	26
9	55	41	33	27	53	40	32	27	39	31	26	37	31	26	35	30	25	24
10	51	38	30	25	50	37	30	24	36	29	24	34	28	24	33	27	23	21

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

	0°	45°	90°
0°	6297	6297	6297
5°	6298	6053	6025
10°	6242	5828	5755
15°	6133	5594	5461
20°	6009	5338	5168
25°	5863	5079	4876
30°	5707	4817	4593
35°	5516	4562	4336
40°	5325	4315	4105
45°	5129	4078	3889
50°	4918	3855	3675
55°	4689	3612	3457
60°	4442	3378	3236
65°	4156	3104	2977
70°	3770	2795	2725
75°	3266	2465	2427
80°	2557	2081	2133
85°	1631	1757	1876



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	73.7	3.0
10°-20°	208.9	8.6
20°-30°	310.4	12.7
30°-40°	367.5	15.1
40°-50°	380.3	15.6
50°-60°	352.0	14.4
60°-70°	286.5	11.7
70°-80°	194.4	8.0
80°-90°	104.5	4.3
90°-100°	62.2	2.5
100°-110°	45.8	1.9
110°-120°	30.3	1.2
120°-130°	17.0	0.7
130°-140°	6.9	0.3
140°-150°	1.1	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	593.0	24.3
0°-40°	960.5	39.3
0°-60°	1692.8	69.3
0°-90°	2278.2	93.3
90°-120°	138.3	5.7
90°-150°	163.3	6.7
90°-180°	163.0	6.7
0°-180°	2441.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	780	780	780	780	780	
5°	780	778	772	777	776	74
15°	742	742	738	743	741	209
25°	671	674	672	677	675	309
35°	576	582	587	593	594	361
45°	468	480	494	507	511	361
55°	353	374	397	416	421	315
65°	237	264	296	317	323	234
75°	121	154	192	215	223	128
85°	26	64	102	128	136	30
90°	0	36	74	98	107	2
95°	0	28	64	88	95	0
105°	0	17	48	70	77	0
115°	0	7	33	52	59	0
125°	0	0	19	35	41	0
135°	0	0	6	18	23	0
145°	0	0	0	2	6	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



TEST NUMBER: P33916

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	780	780	780	780	780	780	780	780	780	780	780
2.5°	784	782	780	779	780	781	780	779	777	775	775
5°	780	778	776	776	778	778	777	776	774	772	772
7.5°	774	772	771	771	772	772	772	771	769	766	768
10°	767	765	763	763	764	764	764	763	761	759	760
12.5°	755	753	752	752	753	754	753	753	751	749	750
15°	742	741	739	740	741	742	742	741	739	738	739
17.5°	727	726	725	725	726	727	727	727	725	724	725
20°	710	708	708	709	710	711	711	710	709	708	710
22.5°	691	690	689	690	693	693	694	692	691	691	692
25°	671	670	669	671	673	674	674	674	673	672	674
27.5°	649	649	647	649	652	653	653	653	652	652	653
30°	627	626	624	627	629	632	632	632	631	631	633
32.5°	602	602	601	604	607	609	609	609	608	610	612
35°	576	575	576	578	581	584	585	585	585	587	589
37.5°	552	549	550	553	556	559	561	560	561	564	566
40°	523	522	524	528	531	534	535	536	538	541	544
42.5°	495	496	497	502	505	509	510	512	514	517	521
45°	468	467	470	473	478	482	485	486	490	494	497
47.5°	439	441	441	447	453	457	459	462	466	471	474
50°	411	411	415	420	425	430	433	437	442	447	451
52.5°	382	383	386	392	398	403	408	413	417	423	427
55°	353	354	359	365	371	377	382	387	393	397	402
57.5°	323	325	331	337	344	349	356	362	368	373	379
60°	295	296	301	309	314	322	329	335	341	348	353
62.5°	265	267	273	280	287	295	302	309	315	322	327
65°	237	239	244	251	260	269	276	282	289	296	301
67.5°	209	211	216	223	232	240	249	256	263	270	276
70°	178	181	187	196	204	213	221	229	236	243	249
72.5°	149	152	160	168	177	186	195	202	211	217	223
75°	121	125	132	140	149	159	167	177	185	192	197
77.5°	93	98	105	114	123	133	142	150	159	167	173
80°	68	72	80	89	100	109	118	127	135	142	150
82.5°	46	50	58	67	77	87	97	105	113	121	128
85°	26	31	39	48	59	68	77	86	94	102	109
87.5°	11	16	24	33	42	52	61	70	78	86	92
90°	0	5	12	21	31	40	49	58	66	74	80
92.5°	0	3	9	18	27	36	44	53	60	68	74
95°	0	2	7	15	24	32	41	49	57	64	70
97.5°	0	1	6	13	21	29	38	46	53	60	66
100°	0	0	4	11	18	26	34	42	49	56	62
102.5°	0	1	2	9	16	24	31	39	46	52	58
105°	0	0	1	6	13	21	28	35	42	48	54
107.5°	0	0	0	4	11	18	25	32	38	45	50
110°	0	0	0	2	8	15	22	28	35	41	46



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	0	0	0	1	6	12	19	25	31	37	42
115°	0	1	1	0	4	10	16	22	28	33	38
117.5°	0	0	0	0	2	7	13	19	24	30	34
120°	0	0	0	0	1	5	10	16	21	26	31
122.5°	0	0	0	0	0	3	7	12	18	23	27
125°	0	0	0	0	0	1	5	9	14	19	23
127.5°	0	0	0	0	0	0	2	7	11	15	19
130°	0	0	0	0	0	0	1	4	8	12	16
132.5°	0	0	0	0	0	0	0	2	5	9	12
135°	0	0	0	0	0	0	0	1	2	6	9
137.5°	0	0	0	0	0	0	0	0	1	3	6
140°	1	0	0	0	0	0	0	0	0	1	3
142.5°	1	1	1	0	0	0	0	0	0	0	1
145°	0	1	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



TEST NUMBER: P33916

CATALOG NUMBER: S124DW-135-0048-1D-UDD-4-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	780	780	780	780	780	780	780	780
2.5°	777	780	780	780	780	780	780	779
5°	775	777	777	777	777	777	777	776
7.5°	770	772	773	773	773	773	772	771
10°	763	764	765	765	765	765	764	764
12.5°	753	754	755	755	755	755	754	754
15°	741	742	743	743	743	743	742	741
17.5°	728	729	729	729	729	728	727	728
20°	711	712	713	713	713	713	711	711
22.5°	695	696	696	695	696	695	694	693
25°	675	676	677	677	678	677	675	675
27.5°	655	657	656	656	657	656	655	655
30°	635	636	636	636	637	637	635	635
32.5°	613	614	615	616	616	616	615	615
35°	591	592	593	593	595	596	595	594
37.5°	568	570	572	573	573	574	574	574
40°	547	548	550	552	552	554	553	553
42.5°	523	527	528	532	532	532	532	534
45°	501	503	506	508	510	510	510	511
47.5°	479	482	483	486	488	489	489	490
50°	455	458	462	464	465	466	467	467
52.5°	431	435	438	441	442	443	443	445
55°	407	411	414	417	420	421	421	421
57.5°	384	387	390	394	395	396	398	398
60°	358	362	367	369	372	373	373	374
62.5°	333	338	341	344	347	349	349	350
65°	306	311	316	318	321	323	324	323
67.5°	281	287	290	294	296	297	299	299
70°	256	260	265	267	270	271	273	274
72.5°	230	234	238	242	245	246	249	249
75°	204	210	213	217	220	222	223	223
77.5°	179	185	189	193	196	198	199	200
80°	155	161	166	170	172	174	175	176
82.5°	135	139	144	149	151	153	154	154
85°	115	121	126	129	132	134	135	136
87.5°	98	104	108	112	115	118	119	119
90°	86	92	96	100	103	105	106	107
92.5°	80	85	90	94	96	98	100	100
95°	76	81	86	89	92	94	95	95
97.5°	72	77	81	85	88	89	90	91
100°	68	72	77	80	83	85	86	86
102.5°	64	68	73	76	78	80	81	82
105°	59	64	68	71	74	76	77	77
107.5°	55	60	64	67	70	71	72	73
110°	51	55	60	63	65	67	68	68





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	47	51	55	58	60	62	63	64
115°	43	47	51	54	56	58	59	59
117.5°	39	43	47	49	51	53	54	54
120°	35	39	42	45	47	49	49	50
122.5°	31	35	38	41	43	44	45	45
125°	27	31	34	36	38	40	40	41
127.5°	23	26	29	32	34	35	36	36
130°	19	22	25	28	29	30	31	32
132.5°	15	18	21	23	25	26	27	27
135°	12	15	17	19	21	22	22	23
137.5°	9	11	13	15	16	17	18	18
140°	5	7	9	11	12	13	14	14
142.5°	2	4	5	7	8	9	10	10
145°	0	1	2	3	4	5	6	6
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)