

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: P832482

Luminaire Tested: S123RDP-S775D935-4F0-1E-UDD-G

Issue Date: 05/03/2024

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

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Test Information

Test Method: LM-79-2019
 Report Number: P832482
 Test Lab: INNOVATION CENTER
 Issue Date: 05/03/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: NEO-RAY
 Catalog Number: S123RDP-S775D935-4F0-1E-UDD-G
 Description: DEFINE 3 DIRECT PENDANT LED LUMINAIRE
 DOWNLIGHT 775 LUMENS PER FOOT, GRAZE OPTIC

Light Source: -
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 2849.9 lumens
 Efficiency: N/A
 Efficacy: 110.0 lumens/watt
 Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.8
 Luminous Opening: Rectangular (W 4' x L: 0.25' x H: 0')
 CIE Type: Direct

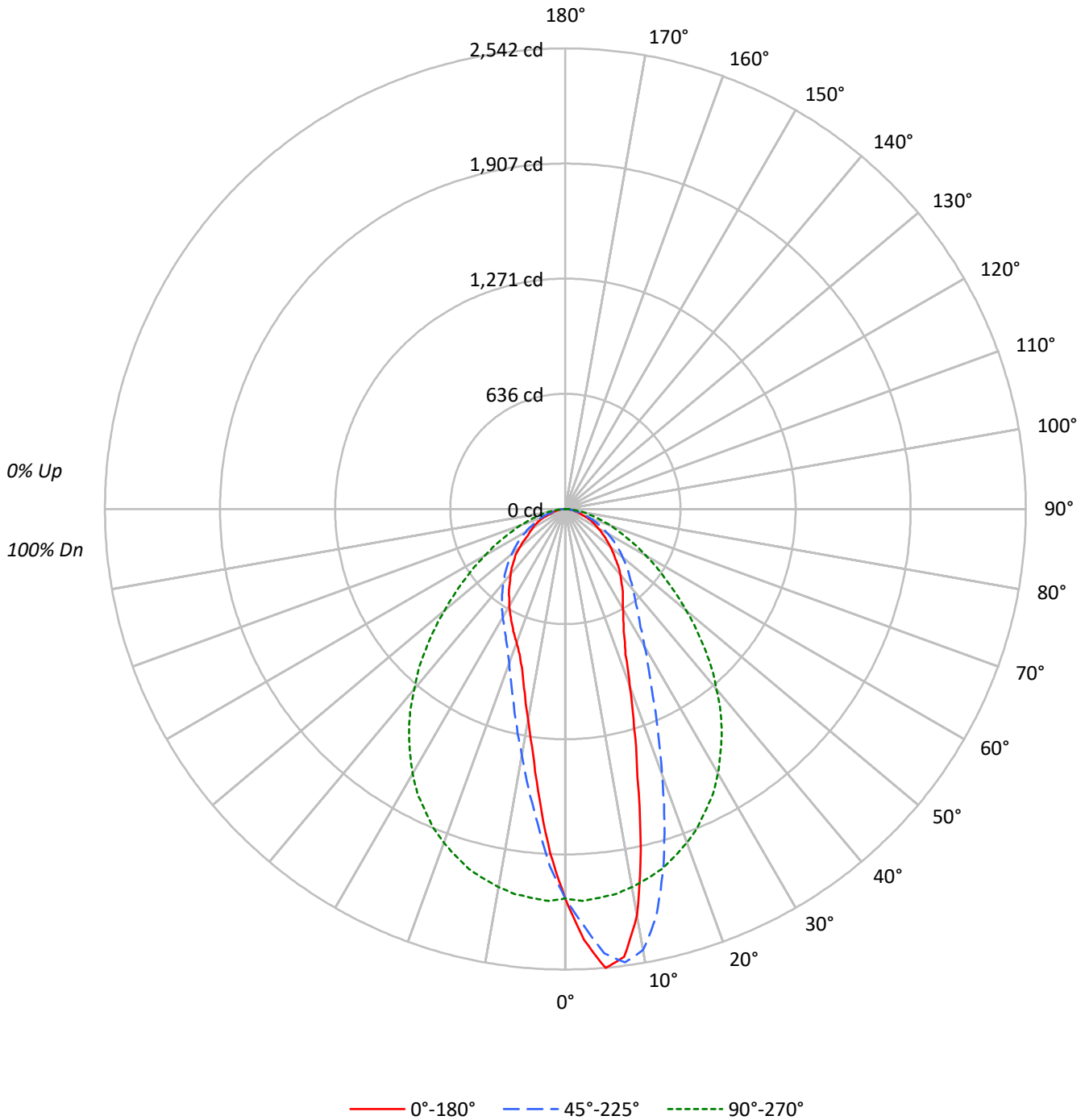
Input Watts (W): 25.9
 Input Voltage (V): 120
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 24 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	P3	10/30/2015	4/30/2016
Power Meter	IN0214	1/12/2016	1/12/2017
AC Power Source	IN0062	1/12/2016	1/12/2017
DC Power Supply	--	--	--
Room Thermometer	IN0145	1/13/2016	1/13/2017

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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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76				
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69	67				
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59				
5	82	70	62	56	80	69	62	56	67	61	56	65	60	55	63	58	54	53				
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49	47				
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45	43				
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	51	45	41	39				
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38	36				
10	60	47	40	35	58	47	40	35	46	40	35	45	39	35	44	39	35	33				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	23137	23137	23137	23137	23137
5°	27472	26596	23282	18821	17474
10°	24890	27015	23166	15080	12937
15°	17137	23162	22921	12325	10233
20°	11922	17833	22462	10393	8994
25°	9086	13592	21791	9236	8290
30°	7909	10866	20954	8576	7679
35°	7261	9165	19768	8020	7122
40°	6625	8185	18216	7474	6613
45°	5984	7486	16541	6955	6104
50°	5431	6906	14565	6449	5476
55°	4911	6343	12669	5955	4697
60°	4402	5767	11003	5408	4439
65°	4062	5117	9472	4860	4197
70°	3301	4425	8264	4397	3412
75°	2895	3518	6999	3647	3007
80°	2622	2975	5734	3062	2839
85°	2396	2618	4360	2779	2618

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 17454 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	6.9
10°-20°	453.4	15.9
20°-30°	520.2	18.3
30°-40°	512.7	18.0
40°-50°	452.1	15.9
50°-60°	347.8	12.2
60°-70°	228.7	8.0
70°-80°	111.1	3.9
80°-90°	28.0	1.0
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°	1169.4	41.0
0°-40°	1682.1	59.0
0°-60°	2482.1	87.1
0°-90°	2849.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2849.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2150	2150	2150	2150	2150	
5°	2542	2461	2155	1742	1617	232
15°	1538	2078	2057	1106	918	434
25°	765	1144	1835	778	698	361
35°	553	698	1504	610	542	344
45°	393	492	1087	457	401	305
55°	262	338	675	317	250	235
65°	160	201	372	191	165	156
75°	70	85	168	88	72	75
85°	19	21	35	22	21	22
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5
2.5°	2382.1	2374.6	2367.1	2364.9	2362.7	2355.7	2348.6	2332.8	2316.9	2300.6	2284.3
5°	2542.5	2543.4	2544.3	2542.1	2539.9	2530.6	2521.4	2502.0	2482.6	2461.4	2440.3
7.5°	2493.2	2507.3	2521.4	2524.0	2526.6	2533.7	2540.7	2536.3	2531.9	2524.0	2516.1
10°	2277.2	2276.4	2275.5	2291.3	2307.2	2354.4	2401.5	2425.7	2450.0	2471.6	2493.2
12.5°	1924.7	1926.1	1927.4	1979.4	2031.4	2075.9	2120.4	2182.1	2243.8	2310.3	2376.8
15°	1537.8	1559.4	1581.0	1627.3	1673.6	1740.5	1807.5	1890.4	1973.2	2078.5	2183.8
17.5°	1262.9	1272.1	1281.4	1325.9	1370.4	1433.9	1497.3	1591.2	1685.0	1820.7	1956.5
20°	1040.8	1049.2	1057.5	1089.7	1121.9	1182.7	1243.5	1332.9	1422.4	1556.8	1691.2
22.5°	868.9	885.3	901.6	923.1	944.7	988.8	1032.9	1124.1	1215.3	1337.8	1460.3
25°	765.0	772.4	779.9	798.4	817.0	859.3	901.6	961.9	1022.3	1144.4	1266.4
27.5°	694.5	696.7	698.9	712.5	726.2	753.5	780.8	836.8	892.7	993.2	1093.7
30°	636.3	640.3	644.2	654.8	665.4	685.2	705.0	744.7	784.3	874.2	964.1
32.5°	591.3	593.5	595.7	604.6	613.4	627.9	642.5	673.7	705.0	773.8	842.5
35°	552.6	553.0	553.4	560.1	566.7	580.8	594.9	620.9	646.9	697.5	748.2
37.5°	508.5	511.6	514.7	519.5	524.4	536.7	549.0	570.2	591.3	633.2	675.1
40°	471.5	474.1	476.8	482.5	488.2	497.9	507.6	527.0	546.4	582.5	618.7
42.5°	434.5	436.2	438.0	443.7	449.5	461.4	473.3	488.7	504.1	534.1	564.0
45°	393.1	397.5	401.9	408.0	414.2	424.3	434.5	450.3	466.2	491.8	517.3
47.5°	358.7	360.9	363.1	368.4	373.7	386.0	398.3	412.4	426.5	450.3	474.1
50°	324.3	325.2	326.1	330.9	335.8	346.8	357.8	374.1	390.4	412.4	434.5
52.5°	291.7	293.9	296.1	301.0	305.8	313.3	320.8	337.5	354.3	375.9	397.5
55°	261.7	263.1	264.4	267.9	271.4	280.2	289.1	303.6	318.1	338.0	357.8
57.5°	233.5	235.3	237.1	239.7	242.4	250.3	258.2	271.0	283.8	303.6	323.4
60°	204.5	206.7	208.9	211.9	215.0	221.2	227.4	238.8	250.3	267.9	285.5
62.5°	183.3	183.7	184.2	186.8	189.5	193.9	198.3	207.5	216.8	234.4	252.0
65°	159.5	160.8	162.2	163.5	164.8	168.3	171.9	179.8	187.7	200.9	214.2
67.5°	134.8	136.2	137.5	139.7	141.9	145.0	148.1	153.3	158.6	171.0	183.3
70°	104.9	104.9	104.9	108.4	111.9	117.2	122.5	126.5	130.4	140.6	150.7
72.5°	85.5	85.9	86.4	86.8	87.2	90.3	93.4	100.0	106.6	112.8	119.0
75°	69.6	70.1	70.5	70.9	71.4	72.3	73.1	75.3	77.6	84.6	91.7
77.5°	55.5	56.0	56.4	56.8	57.3	58.2	59.0	59.9	60.8	63.5	66.1
80°	42.3	42.7	43.2	43.6	44.1	44.5	44.9	45.8	46.7	48.0	49.4
82.5°	30.8	30.8	30.8	30.8	30.8	31.7	32.6	32.6	32.6	33.5	34.4
85°	19.4	19.4	19.4	19.8	20.3	20.3	20.3	20.7	21.2	21.2	21.2
87.5°	8.8	8.4	7.9	8.4	8.8	8.8	8.8	9.3	9.7	9.7	9.7
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5
2.5°	2282.1	2279.9	2258.7	2237.6	2216.9	2196.2	2180.7	2165.3	2139.3	2113.3	2097.0
5°	2423.5	2406.8	2373.3	2339.8	2289.6	2239.3	2197.0	2154.7	2101.0	2047.2	2002.3
7.5°	2502.4	2488.8	2448.2	2407.7	2341.1	2274.6	2208.5	2142.4	2063.1	1983.8	1915.9
10°	2504.6	2516.1	2482.6	2449.1	2374.2	2299.3	2209.4	2119.5	2012.9	1906.2	1818.5
12.5°	2426.2	2475.5	2468.5	2461.4	2385.2	2309.0	2199.7	2090.4	1959.5	1828.7	1718.9
15°	2279.4	2375.1	2403.3	2431.5	2368.5	2305.4	2181.2	2056.9	1903.1	1749.4	1623.3
17.5°	2090.4	2224.4	2298.8	2373.3	2327.5	2281.7	2145.5	2009.3	1836.2	1663.0	1525.9
20°	1866.6	2041.9	2158.7	2275.5	2258.7	2242.0	2101.4	1960.9	1774.0	1587.2	1438.7
22.5°	1645.4	1830.4	1991.7	2153.0	2170.2	2187.4	2045.5	1903.6	1699.1	1494.7	1343.5
25°	1454.6	1642.7	1834.8	2027.0	2065.7	2104.5	1969.7	1834.8	1622.9	1410.9	1260.7
27.5°	1272.6	1451.5	1663.0	1874.5	1945.0	2015.5	1892.1	1768.7	1548.0	1327.2	1177.4
30°	1124.1	1284.0	1499.9	1715.9	1814.1	1912.4	1799.1	1685.9	1466.9	1247.9	1101.2
32.5°	985.7	1128.9	1345.7	1562.5	1676.6	1790.8	1693.0	1595.1	1384.5	1173.9	1028.9
35°	876.4	1004.7	1206.9	1409.2	1537.0	1664.7	1584.6	1504.4	1298.6	1092.8	955.8
37.5°	782.6	890.1	1080.0	1269.9	1405.7	1541.4	1474.4	1407.4	1214.0	1020.5	891.0
40°	705.0	791.4	968.1	1144.8	1277.9	1410.9	1353.7	1296.4	1123.2	950.0	828.8
42.5°	638.5	713.0	871.6	1030.2	1152.3	1274.3	1236.4	1198.5	1041.7	884.8	772.4
45°	579.9	642.5	782.1	921.8	1034.2	1146.6	1116.6	1086.6	951.3	816.1	713.0
47.5°	527.9	581.6	706.4	831.1	932.0	1032.9	1005.1	977.3	865.4	753.5	659.6
50°	480.3	526.1	630.1	734.1	824.9	915.7	892.7	869.8	777.3	684.8	603.7
52.5°	435.4	473.3	566.7	660.1	733.2	806.4	788.8	771.1	699.7	628.4	554.8
55°	392.6	427.4	506.3	585.2	647.7	710.3	692.7	675.1	619.5	564.0	499.2
57.5°	353.8	384.2	448.1	512.0	561.8	611.6	603.2	594.9	548.6	502.3	449.0
60°	312.9	340.2	395.3	450.3	490.4	530.5	520.8	511.1	478.1	445.0	399.2
62.5°	276.3	300.5	344.6	388.6	421.3	453.9	446.8	439.8	414.6	389.5	351.6
65°	237.9	261.7	297.4	333.1	358.7	384.2	378.1	371.9	353.0	334.0	303.6
67.5°	203.1	223.0	253.8	284.7	301.8	319.0	315.5	312.0	297.4	282.9	259.1
70°	167.9	185.1	210.6	236.2	248.1	260.0	261.3	262.6	249.4	236.2	218.6
72.5°	132.6	146.3	170.1	193.9	203.1	212.4	211.9	211.5	203.6	195.6	179.8
75°	101.8	111.9	130.4	148.9	156.9	164.8	166.6	168.3	160.8	153.3	144.5
77.5°	73.1	80.2	94.3	108.4	117.2	126.0	126.9	127.8	124.3	120.7	112.4
80°	51.6	53.8	62.6	71.4	80.6	89.9	91.2	92.5	89.0	85.5	80.2
82.5°	35.7	37.0	40.1	43.2	50.7	58.2	59.9	61.7	59.9	58.2	52.4
85°	21.6	22.0	23.4	24.7	28.2	31.7	33.5	35.3	34.4	33.5	30.4
87.5°	9.7	9.7	10.1	10.6	11.5	12.3	14.5	16.7	15.4	14.1	12.8
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5	2149.5
2.5°	2080.7	2055.6	2030.5	2012.4	1994.4	1971.9	1949.4	1948.5	1947.6	1930.9	1914.2
5°	1957.3	1913.7	1870.1	1827.3	1784.6	1741.9	1699.1	1689.4	1679.7	1665.2	1650.6
7.5°	1848.1	1778.4	1708.8	1654.2	1599.5	1556.8	1514.0	1485.0	1455.9	1433.4	1410.9
10°	1730.8	1644.5	1558.1	1492.0	1425.9	1379.7	1333.4	1299.9	1266.4	1250.5	1234.7
12.5°	1609.2	1515.4	1421.5	1356.7	1292.0	1236.4	1180.9	1150.5	1120.1	1098.1	1076.1
15°	1497.3	1396.4	1295.5	1226.8	1158.0	1106.0	1054.0	1023.6	993.2	971.2	949.1
17.5°	1388.9	1287.1	1185.3	1115.7	1046.1	998.9	951.8	922.3	892.7	879.1	865.4
20°	1290.2	1187.5	1084.9	1019.2	953.6	907.3	861.0	845.2	829.3	816.5	803.7
22.5°	1192.4	1093.7	995.0	932.0	868.9	835.5	802.0	789.2	776.4	766.7	757.0
25°	1110.4	1012.2	913.9	858.8	803.7	777.7	751.7	743.4	735.0	725.3	715.6
27.5°	1027.6	934.2	840.7	796.7	752.6	731.5	710.3	699.7	689.2	681.2	673.3
30°	954.4	868.1	781.7	745.1	708.6	690.0	671.5	660.1	648.6	641.1	633.6
32.5°	883.9	807.3	730.6	699.3	668.0	649.9	631.9	620.9	609.9	601.0	592.2
35°	818.7	752.2	685.6	657.0	628.4	610.3	592.2	581.2	570.2	561.4	552.6
37.5°	761.4	701.1	640.7	613.8	586.9	571.1	555.2	543.8	532.3	523.0	513.8
40°	707.7	654.4	601.0	575.0	549.0	531.9	514.7	504.5	494.4	486.0	477.7
42.5°	660.1	611.2	562.3	536.7	511.1	494.8	478.5	466.6	454.7	449.9	445.0
45°	609.9	566.7	523.5	498.8	474.1	456.9	439.8	429.6	419.5	415.1	410.7
47.5°	565.8	525.7	485.6	461.4	437.1	421.7	406.3	398.3	390.4	384.2	378.1
50°	522.6	483.8	445.0	421.7	398.3	385.1	371.9	362.2	352.5	348.1	343.7
52.5°	481.2	445.9	410.7	386.9	363.1	350.3	337.5	329.2	320.8	311.5	302.3
55°	434.5	403.6	372.8	351.6	330.5	317.3	304.0	294.3	284.7	275.0	265.3
57.5°	395.7	365.3	334.9	315.9	297.0	284.2	271.4	260.9	250.3	242.4	234.4
60°	353.4	327.0	300.5	282.0	263.5	251.2	238.8	228.7	218.6	214.6	210.6
62.5°	313.7	289.1	264.4	248.1	231.8	219.9	208.0	201.4	194.8	192.1	189.5
65°	273.2	252.0	230.9	215.9	200.9	190.8	180.7	177.6	174.5	172.3	170.1
67.5°	235.3	217.2	199.2	186.0	172.7	165.7	158.6	155.1	151.6	148.9	146.3
70°	200.9	185.1	169.2	157.8	146.3	139.7	133.1	130.0	126.9	122.1	117.2
72.5°	163.9	151.6	139.2	130.4	121.6	115.9	110.2	104.0	97.8	93.4	89.0
75°	135.7	123.4	111.0	102.7	94.3	87.7	81.1	78.9	76.7	75.3	74.0
77.5°	104.0	93.4	82.8	76.2	69.6	66.5	63.5	62.1	60.8	60.4	59.9
80°	74.9	66.1	57.3	53.8	50.2	49.4	48.5	47.6	46.7	46.3	45.8
82.5°	46.7	42.3	37.9	37.0	36.1	35.7	35.3	34.8	34.4	33.9	33.5
85°	27.3	25.6	23.8	23.4	22.9	22.5	22.0	22.0	22.0	22.0	22.0
87.5°	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.0	10.6
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):

	165°	170°	175°	180°
0°	2149.5	2149.5	2149.5	2149.5
2.5°	1909.7	1905.3	1903.6	1901.8
5°	1637.0	1623.3	1620.2	1617.2
7.5°	1405.2	1399.5	1380.5	1361.6
10°	1217.1	1199.4	1191.5	1183.6
12.5°	1059.7	1043.4	1040.8	1038.2
15°	937.7	926.2	922.3	918.3
17.5°	857.5	849.6	844.7	839.9
20°	798.0	792.3	788.8	785.2
22.5°	752.6	748.2	745.6	742.9
25°	709.0	702.4	700.2	698.0
27.5°	667.6	661.8	659.6	657.4
30°	628.8	624.0	620.9	617.8
32.5°	586.5	580.8	579.0	577.2
35°	549.0	545.5	543.8	542.0
37.5°	509.4	505.0	502.3	499.7
40°	475.5	473.3	471.9	470.6
42.5°	441.1	437.1	436.7	436.2
45°	406.7	402.7	401.9	401.0
47.5°	374.5	371.0	370.6	370.1
50°	338.9	334.0	330.5	327.0
52.5°	297.9	293.5	290.4	287.3
55°	260.4	255.6	252.9	250.3
57.5°	232.2	230.0	228.7	227.4
60°	209.3	208.0	207.1	206.2
62.5°	188.2	186.8	186.8	186.8
65°	168.8	167.4	166.1	164.8
67.5°	143.6	141.0	140.6	140.1
70°	113.2	109.3	108.8	108.4
72.5°	88.6	88.1	87.2	86.4
75°	73.1	72.3	72.3	72.3
77.5°	59.0	58.2	58.2	58.2
80°	45.4	44.9	45.4	45.8
82.5°	33.5	33.5	33.0	32.6
85°	21.6	21.2	21.2	21.2
87.5°	10.6	10.6	10.6	10.6
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P832482

CATALOG NUMBER: S123RDP-S775D935-4F0-1E-UDD-G

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	15.62	17.07	15.98	17.39	17.70	20.28	21.74	20.65	22.05	22.37
	3H	16.88	18.19	17.26	18.51	18.88	21.82	23.13	22.20	23.46	23.82
	4H	17.29	18.51	17.69	18.86	19.24	22.34	23.56	22.74	23.91	24.29
	6H	17.60	18.73	18.01	19.09	19.49	22.68	23.81	23.09	24.17	24.57
	8H	17.70	18.77	18.13	19.16	19.57	22.78	23.85	23.20	24.24	24.64
	12H	17.77	18.80	18.21	19.18	19.61	22.83	23.85	23.26	24.23	24.66
4H	2H	16.41	17.63	16.81	17.98	18.36	20.35	21.57	20.75	21.92	22.30
	3H	17.83	18.84	18.24	19.24	19.64	22.06	23.07	22.47	23.47	23.87
	4H	18.31	19.22	18.74	19.63	20.07	22.68	23.59	23.12	24.01	24.45
	6H	18.71	19.49	19.16	19.94	20.40	23.15	23.94	23.61	24.38	24.85
	8H	18.84	19.58	19.31	20.02	20.49	23.29	24.03	23.76	24.47	24.94
	12H	18.94	19.60	19.43	20.08	20.55	23.38	24.04	23.87	24.52	24.99
8H	4H	18.66	19.40	19.13	19.84	20.31	22.69	23.43	23.16	23.87	24.34
	6H	19.15	19.75	19.64	20.24	20.72	23.21	23.81	23.71	24.31	24.78
	8H	19.34	19.88	19.86	20.39	20.88	23.40	23.94	23.91	24.45	24.94
	12H	19.50	19.98	20.02	20.48	21.04	23.54	24.02	24.05	24.51	25.08
12H	4H	18.70	19.36	19.18	19.84	20.31	22.67	23.32	23.15	23.80	24.28
	6H	19.20	19.75	19.72	20.26	20.75	23.18	23.73	23.70	24.24	24.73
	8H	19.45	19.93	19.96	20.42	20.99	23.40	23.88	23.91	24.37	24.94