

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: P832480

Luminaire Tested: S123RDP-S775D927-4F0-1E-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: P832480
 Test Lab: INNOVATION CENTER
 Issue Date: 05/03/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: NEO-RAY
 Catalog Number: S123RDP-S775D927-4F0-1E-UDD-G
 Description: DEFINE 3 DIRECT PENDANT LED LUMINAIRE
 DOWNLIGHT 775 LUMENS PER FOOT, GRAZE OPTIC

Light Source: -
 Ballast/Driver: -

Summary

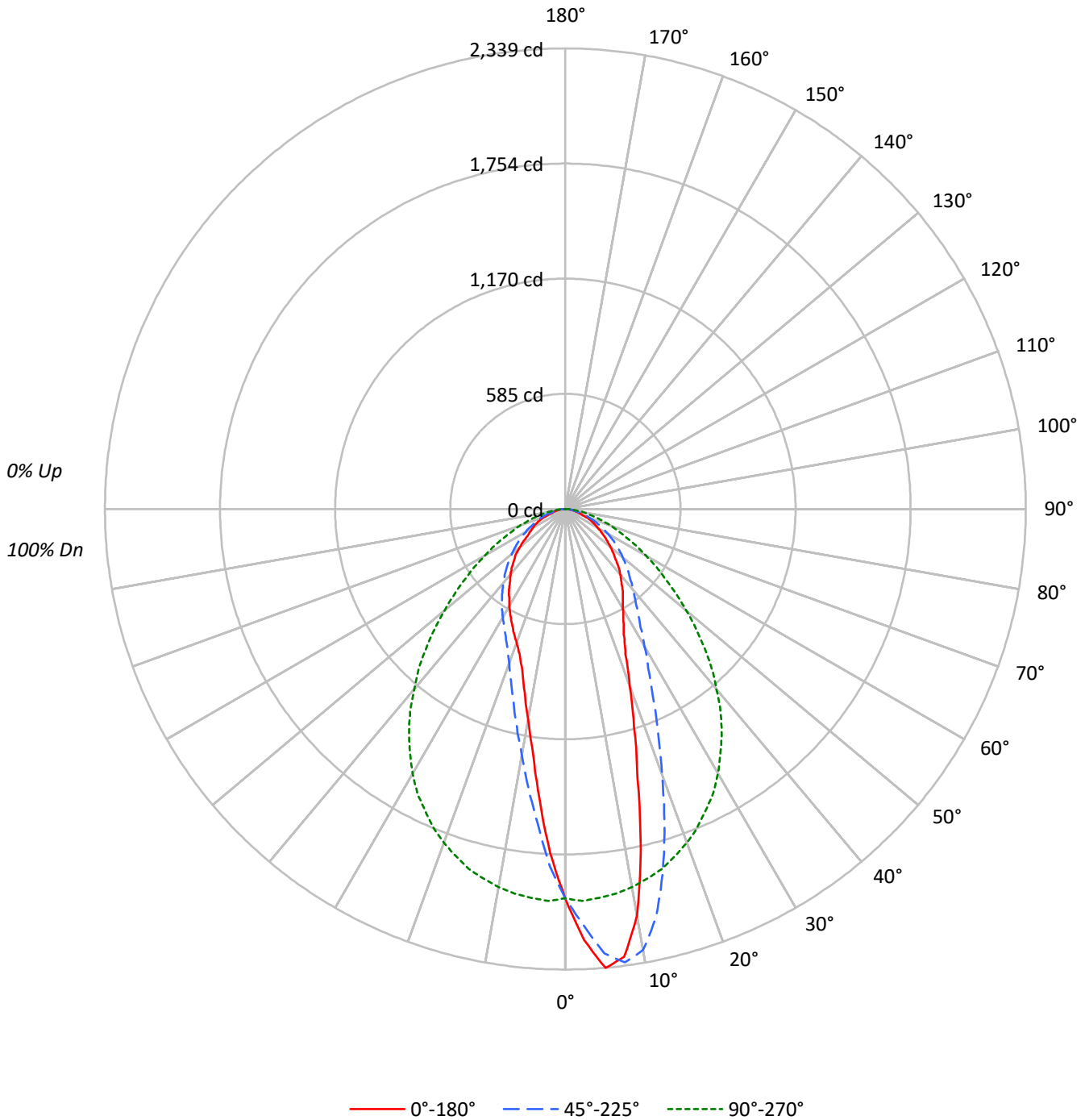
Lumens per Lamp: N/A
 Luminaire Lumens: 2622.1 lumens
 Efficiency: N/A
 Efficacy: 101.2 lumens/watt
 Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.8
 Luminous Opening: Rectangular (W 4' x L: 0.25' x H: 0')
 CIE Type: Direct

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	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°	21288	21288	21288	21288	21288
5°	25276	24470	21421	17316	16077
10°	22900	24855	21315	13874	11903
15°	15767	21311	21089	11340	9415
20°	10969	16408	20665	9562	8276
25°	8359	12505	20050	8499	7627
30°	7276	9998	19280	7891	7065
35°	6681	8433	18188	7378	6553
40°	6095	7531	16760	6875	6084
45°	5504	6888	15219	6400	5616
50°	4997	6355	13402	5933	5037
55°	4519	5836	11656	5478	4322
60°	4049	5307	10125	4975	4084
65°	3739	4709	8716	4470	3861
70°	3037	4069	7604	4044	3138
75°	2666	3236	6442	3356	2766
80°	2411	2740	5275	2814	2616
85°	2198	2408	4001	2556	2408

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 16058 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	180.3	6.9
10°-20°	417.1	15.9
20°-30°	478.6	18.3
30°-40°	471.7	18.0
40°-50°	416.0	15.9
50°-60°	320.0	12.2
60°-70°	210.4	8.0
70°-80°	102.2	3.9
80°-90°	25.8	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°	1076.0	41.0
0°-40°	1547.7	59.0
0°-60°	2283.7	87.1
0°-90°	2622.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2622.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1978	1978	1978	1978	1978	
5°	2339	2265	1982	1603	1488	214
15°	1415	1912	1892	1018	845	399
25°	704	1053	1688	716	642	332
35°	508	642	1384	562	499	317
45°	362	452	1000	420	369	281
55°	241	311	621	292	230	216
65°	147	185	342	176	152	144
75°	64	78	155	81	66	69
85°	18	20	32	21	20	20
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°	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7
2.5°	2191.7	2184.8	2177.9	2175.9	2173.9	2167.4	2160.9	2146.3	2131.7	2116.7	2101.7
5°	2339.3	2340.1	2340.9	2338.9	2336.9	2328.4	2319.8	2302.0	2284.2	2264.7	2245.2
7.5°	2293.9	2306.9	2319.8	2322.3	2324.7	2331.2	2337.7	2333.6	2329.6	2322.3	2315.0
10°	2095.2	2094.4	2093.6	2108.2	2122.8	2166.2	2209.6	2231.9	2254.2	2274.0	2293.9
12.5°	1770.9	1772.1	1773.3	1821.2	1869.0	1910.0	1950.9	2007.7	2064.4	2125.6	2186.9
15°	1414.9	1434.8	1454.7	1497.2	1539.8	1601.4	1663.0	1739.3	1815.5	1912.4	2009.3
17.5°	1161.9	1170.5	1179.0	1219.9	1260.9	1319.2	1377.6	1464.0	1550.3	1675.2	1800.1
20°	957.6	965.3	973.0	1002.6	1032.2	1088.2	1144.1	1226.4	1308.7	1432.4	1556.0
22.5°	799.5	814.5	829.5	849.4	869.2	909.8	950.3	1034.2	1118.2	1230.9	1343.6
25°	703.8	710.7	717.6	734.6	751.7	790.6	829.5	885.0	940.6	1052.9	1165.2
27.5°	638.9	641.0	643.0	655.6	668.1	693.3	718.4	769.9	821.4	913.8	1006.3
30°	585.4	589.1	592.7	602.5	612.2	630.4	648.7	685.2	721.7	804.4	887.1
32.5°	544.1	546.1	548.1	556.2	564.4	577.7	591.1	619.9	648.7	711.9	775.2
35°	508.4	508.8	509.2	515.3	521.4	534.3	547.3	571.2	595.2	641.8	688.4
37.5°	467.9	470.7	473.5	478.0	482.5	493.8	505.2	524.6	544.1	582.6	621.1
40°	433.8	436.2	438.7	443.9	449.2	458.1	467.0	484.9	502.7	536.0	569.2
42.5°	399.7	401.4	403.0	408.3	413.5	424.5	435.4	449.6	463.8	491.4	518.9
45°	361.6	365.7	369.7	375.4	381.1	390.4	399.7	414.3	428.9	452.5	476.0
47.5°	330.0	332.0	334.1	338.9	343.8	355.2	366.5	379.5	392.5	414.3	436.2
50°	298.4	299.2	300.0	304.5	308.9	319.1	329.2	344.2	359.2	379.5	399.7
52.5°	268.4	270.4	272.4	276.9	281.4	288.3	295.1	310.6	326.0	345.8	365.7
55°	240.8	242.0	243.3	246.5	249.7	257.8	266.0	279.3	292.7	311.0	329.2
57.5°	214.9	216.5	218.1	220.6	223.0	230.3	237.6	249.3	261.1	279.3	297.6
60°	188.1	190.1	192.2	195.0	197.8	203.5	209.2	219.7	230.3	246.5	262.7
62.5°	168.7	169.1	169.5	171.9	174.3	178.4	182.4	191.0	199.5	215.7	231.9
65°	146.8	148.0	149.2	150.4	151.6	154.9	158.1	165.4	172.7	184.9	197.0
67.5°	124.1	125.3	126.5	128.5	130.5	133.4	136.2	141.1	146.0	157.3	168.7
70°	96.5	96.5	96.5	99.7	103.0	107.8	112.7	116.4	120.0	129.3	138.7
72.5°	78.7	79.1	79.5	79.9	80.3	83.1	85.9	92.0	98.1	103.8	109.5
75°	64.1	64.5	64.9	65.3	65.7	66.5	67.3	69.3	71.4	77.8	84.3
77.5°	51.1	51.5	51.9	52.3	52.7	53.5	54.3	55.1	55.9	58.4	60.8
80°	38.9	39.3	39.7	40.1	40.5	40.9	41.4	42.2	43.0	44.2	45.4
82.5°	28.4	28.4	28.4	28.4	28.4	29.2	30.0	30.0	30.0	30.8	31.6
85°	17.8	17.8	17.8	18.2	18.6	18.6	18.6	19.1	19.5	19.5	19.5
87.5°	8.1	7.7	7.3	7.7	8.1	8.1	8.1	8.5	8.9	8.9	8.9
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7
2.5°	2099.7	2097.7	2078.2	2058.7	2039.7	2020.6	2006.4	1992.3	1968.3	1944.4	1929.4
5°	2229.8	2214.4	2183.6	2152.8	2106.6	2060.4	2021.4	1982.5	1933.1	1883.6	1842.2
7.5°	2302.4	2289.8	2252.5	2215.2	2154.0	2092.8	2032.0	1971.2	1898.2	1825.2	1762.8
10°	2304.4	2315.0	2284.2	2253.3	2184.4	2115.5	2032.8	1950.1	1852.0	1753.9	1673.2
12.5°	2232.3	2277.7	2271.2	2264.7	2194.6	2124.4	2023.9	1923.3	1802.9	1682.5	1581.6
15°	2097.3	2185.2	2211.2	2237.1	2179.2	2121.2	2006.8	1892.5	1751.0	1609.5	1493.6
17.5°	1923.3	2046.6	2115.1	2183.6	2141.4	2099.3	1974.0	1848.7	1689.4	1530.1	1404.0
20°	1717.4	1878.7	1986.2	2093.6	2078.2	2062.8	1933.5	1804.1	1632.2	1460.3	1323.7
22.5°	1513.9	1684.1	1832.5	1980.9	1996.7	2012.5	1882.0	1751.4	1563.3	1375.2	1236.1
25°	1338.3	1511.4	1688.2	1865.0	1900.6	1936.3	1812.2	1688.2	1493.2	1298.2	1159.9
27.5°	1170.9	1335.5	1530.1	1724.7	1789.5	1854.4	1740.9	1627.4	1424.3	1221.1	1083.3
30°	1034.2	1181.4	1380.1	1578.7	1669.1	1759.5	1655.3	1551.2	1349.7	1148.2	1013.2
32.5°	906.9	1038.7	1238.2	1437.6	1542.6	1647.6	1557.6	1467.6	1273.8	1080.0	946.7
35°	806.4	924.4	1110.5	1296.5	1414.1	1531.7	1457.9	1384.1	1194.8	1005.5	879.4
37.5°	720.0	819.0	993.7	1168.4	1293.3	1418.2	1356.5	1294.9	1116.9	939.0	819.8
40°	648.7	728.1	890.7	1053.3	1175.7	1298.2	1245.5	1192.8	1033.4	874.1	762.6
42.5°	587.5	656.0	801.9	947.9	1060.2	1172.5	1137.6	1102.8	958.4	814.1	710.7
45°	533.5	591.1	719.6	848.1	951.5	1054.9	1027.3	999.8	875.3	750.8	656.0
47.5°	485.7	535.2	649.9	764.6	857.5	950.3	924.8	899.2	796.3	693.3	606.9
50°	441.9	484.1	579.8	675.4	759.0	842.5	821.4	800.3	715.2	630.0	555.4
52.5°	400.6	435.4	521.4	607.3	674.6	741.9	725.7	709.5	643.8	578.1	510.4
55°	361.2	393.3	465.8	538.4	596.0	653.5	637.3	621.1	570.0	518.9	459.3
57.5°	325.6	353.5	412.3	471.1	516.9	562.7	555.0	547.3	504.8	462.2	413.1
60°	287.9	313.0	363.7	414.3	451.2	488.1	479.2	470.3	439.9	409.5	367.3
62.5°	254.2	276.5	317.0	357.6	387.6	417.6	411.1	404.6	381.5	358.4	323.5
65°	218.9	240.8	273.7	306.5	330.0	353.5	347.9	342.2	324.7	307.3	279.3
67.5°	186.9	205.1	233.5	261.9	277.7	293.5	290.3	287.0	273.7	260.3	238.4
70°	154.5	170.3	193.8	217.3	228.3	239.2	240.4	241.6	229.5	217.3	201.1
72.5°	122.0	134.6	156.5	178.4	186.9	195.4	195.0	194.6	187.3	180.0	165.4
75°	93.7	103.0	120.0	137.0	144.3	151.6	153.3	154.9	148.0	141.1	133.0
77.5°	67.3	73.8	86.8	99.7	107.8	116.0	116.8	117.6	114.3	111.1	103.4
80°	47.4	49.5	57.6	65.7	74.2	82.7	83.9	85.1	81.9	78.7	73.8
82.5°	32.8	34.1	36.9	39.7	46.6	53.5	55.1	56.8	55.1	53.5	48.2
85°	19.9	20.3	21.5	22.7	25.9	29.2	30.8	32.4	31.6	30.8	28.0
87.5°	8.9	8.9	9.3	9.7	10.5	11.4	13.4	15.4	14.2	13.0	11.8
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°	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7	1977.7
2.5°	1914.4	1891.3	1868.2	1851.6	1834.9	1814.3	1793.6	1792.8	1792.0	1776.6	1761.2
5°	1800.9	1760.8	1720.6	1681.3	1642.0	1602.6	1563.3	1554.4	1545.5	1532.1	1518.7
7.5°	1700.3	1636.3	1572.2	1522.0	1471.7	1432.4	1393.0	1366.3	1339.5	1318.8	1298.2
10°	1592.5	1513.0	1433.6	1372.8	1312.0	1269.4	1226.8	1196.0	1165.2	1150.6	1136.0
12.5°	1480.6	1394.3	1307.9	1248.3	1188.7	1137.6	1086.5	1058.6	1030.6	1010.3	990.0
15°	1377.6	1284.8	1191.9	1128.7	1065.5	1017.6	969.8	941.8	913.8	893.6	873.3
17.5°	1277.9	1184.2	1090.6	1026.5	962.5	919.1	875.7	848.6	821.4	808.8	796.3
20°	1187.1	1092.6	998.2	937.7	877.3	834.8	792.2	777.6	763.0	751.3	739.5
22.5°	1097.1	1006.3	915.4	857.5	799.5	768.7	737.9	726.1	714.4	705.4	696.5
25°	1021.7	931.3	840.8	790.2	739.5	715.6	691.7	684.0	676.2	667.3	658.4
27.5°	945.4	859.5	773.5	733.0	692.5	673.0	653.5	643.8	634.1	626.8	619.5
30°	878.1	798.7	719.2	685.6	651.9	634.9	617.9	607.3	596.8	589.9	583.0
32.5°	813.3	742.7	672.2	643.4	614.6	598.0	581.4	571.2	561.1	553.0	544.9
35°	753.3	692.1	630.8	604.5	578.1	561.5	544.9	534.8	524.6	516.5	508.4
37.5°	700.6	645.0	589.5	564.8	540.0	525.4	510.8	500.3	489.8	481.2	472.7
40°	651.1	602.1	553.0	529.1	505.2	489.3	473.5	464.2	454.9	447.2	439.5
42.5°	607.3	562.3	517.3	493.8	470.3	455.3	440.3	429.3	418.4	413.9	409.5
45°	561.1	521.4	481.6	458.9	436.2	420.4	404.6	395.3	386.0	381.9	377.9
47.5°	520.6	483.7	446.8	424.5	402.2	388.0	373.8	366.5	359.2	353.5	347.9
50°	480.8	445.2	409.5	388.0	366.5	354.3	342.2	333.3	324.3	320.3	316.2
52.5°	442.7	410.3	377.9	356.0	334.1	322.3	310.6	302.9	295.1	286.6	278.1
55°	399.7	371.4	343.0	323.5	304.1	291.9	279.7	270.8	261.9	253.0	244.1
57.5°	364.1	336.1	308.1	290.7	273.3	261.5	249.7	240.0	230.3	223.0	215.7
60°	325.2	300.8	276.5	259.5	242.4	231.1	219.7	210.4	201.1	197.4	193.8
62.5°	288.7	266.0	243.3	228.3	213.3	202.3	191.4	185.3	179.2	176.8	174.3
65°	251.4	231.9	212.4	198.7	184.9	175.5	166.2	163.4	160.5	158.5	156.5
67.5°	216.5	199.9	183.3	171.1	158.9	152.4	146.0	142.7	139.5	137.0	134.6
70°	184.9	170.3	155.7	145.1	134.6	128.5	122.4	119.6	116.8	112.3	107.8
72.5°	150.8	139.5	128.1	120.0	111.9	106.6	101.4	95.7	90.0	85.9	81.9
75°	124.9	113.5	102.2	94.5	86.8	80.7	74.6	72.6	70.5	69.3	68.1
77.5°	95.7	85.9	76.2	70.1	64.1	61.2	58.4	57.2	55.9	55.5	55.1
80°	68.9	60.8	52.7	49.5	46.2	45.4	44.6	43.8	43.0	42.6	42.2
82.5°	43.0	38.9	34.9	34.1	33.2	32.8	32.4	32.0	31.6	31.2	30.8
85°	25.1	23.5	21.9	21.5	21.1	20.7	20.3	20.3	20.3	20.3	20.3
87.5°	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.1	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

TEST NUMBER: P832480

CATALOG NUMBER: S123RDP-S775D927-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1977.7	1977.7	1977.7	1977.7
2.5°	1757.1	1753.1	1751.4	1749.8
5°	1506.2	1493.6	1490.7	1487.9
7.5°	1292.9	1287.6	1270.2	1252.8
10°	1119.8	1103.6	1096.3	1089.0
12.5°	975.0	960.0	957.6	955.2
15°	862.7	852.2	848.6	844.9
17.5°	789.0	781.7	777.2	772.7
20°	734.2	729.0	725.7	722.5
22.5°	692.5	688.4	686.0	683.5
25°	652.3	646.2	644.2	642.2
27.5°	614.2	608.9	606.9	604.9
30°	578.5	574.1	571.2	568.4
32.5°	539.6	534.3	532.7	531.1
35°	505.2	501.9	500.3	498.7
37.5°	468.7	464.6	462.2	459.8
40°	437.5	435.4	434.2	433.0
42.5°	405.8	402.2	401.8	401.4
45°	374.2	370.6	369.7	368.9
47.5°	344.6	341.4	341.0	340.6
50°	311.8	307.3	304.1	300.8
52.5°	274.1	270.0	267.2	264.3
55°	239.6	235.1	232.7	230.3
57.5°	213.7	211.6	210.4	209.2
60°	192.6	191.4	190.5	189.7
62.5°	173.1	171.9	171.9	171.9
65°	155.3	154.1	152.8	151.6
67.5°	132.2	129.7	129.3	128.9
70°	104.2	100.5	100.1	99.7
72.5°	81.5	81.1	80.3	79.5
75°	67.3	66.5	66.5	66.5
77.5°	54.3	53.5	53.5	53.5
80°	41.8	41.4	41.8	42.2
82.5°	30.8	30.8	30.4	30.0
85°	19.9	19.5	19.5	19.5
87.5°	9.7	9.7	9.7	9.7
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P832480

CATALOG NUMBER: S123RDP-S775D927-4F0-1E-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	15.33	16.79	15.70	17.10	17.41	19.99	21.45	20.36	21.76	22.08
	3H	16.59	17.90	16.97	18.22	18.59	21.54	22.84	21.91	23.17	23.53
	4H	17.00	18.22	17.40	18.57	18.95	22.05	23.27	22.45	23.62	24.00
	6H	17.31	18.44	17.73	18.81	19.20	22.39	23.52	22.81	23.89	24.28
	8H	17.42	18.49	17.84	18.88	19.28	22.49	23.56	22.92	23.95	24.35
	12H	17.48	18.51	17.92	18.89	19.32	22.54	23.56	22.97	23.94	24.37
4H	2H	16.12	17.34	16.52	17.69	18.07	20.06	21.28	20.46	21.63	22.01
	3H	17.54	18.55	17.95	18.95	19.35	21.77	22.78	22.18	23.18	23.58
	4H	18.02	18.93	18.45	19.34	19.78	22.40	23.30	22.83	23.72	24.16
	6H	18.42	19.20	18.88	19.65	20.11	22.86	23.65	23.32	24.09	24.56
	8H	18.55	19.29	19.02	19.73	20.20	23.00	23.74	23.47	24.18	24.65
	12H	18.65	19.31	19.14	19.79	20.26	23.09	23.75	23.58	24.23	24.70
8H	4H	18.37	19.11	18.84	19.55	20.02	22.40	23.14	22.87	23.58	24.05
	6H	18.86	19.46	19.36	19.96	20.43	22.92	23.52	23.42	24.02	24.50
	8H	19.05	19.59	19.57	20.10	20.59	23.11	23.65	23.62	24.16	24.65
	12H	19.22	19.69	19.73	20.19	20.75	23.25	23.73	23.76	24.22	24.79
12H	4H	18.41	19.07	18.90	19.55	20.02	22.38	23.04	22.86	23.51	23.99
	6H	18.92	19.46	19.43	19.97	20.46	22.89	23.44	23.41	23.95	24.44
	8H	19.16	19.64	19.67	20.13	20.70	23.11	23.59	23.63	24.09	24.65