

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: HALO COMMERCIAL

Report Number: P776263

Luminaire Tested: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

Issue Date: 2/13/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P776263  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B049)  
Test Lab:  
Issue Date: 2/13/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL3040CSD-HCD42TRC-4000lm-4000K  
Description: 4 INCH ROUND NARROW SPECULAR CLEAR TRIM  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

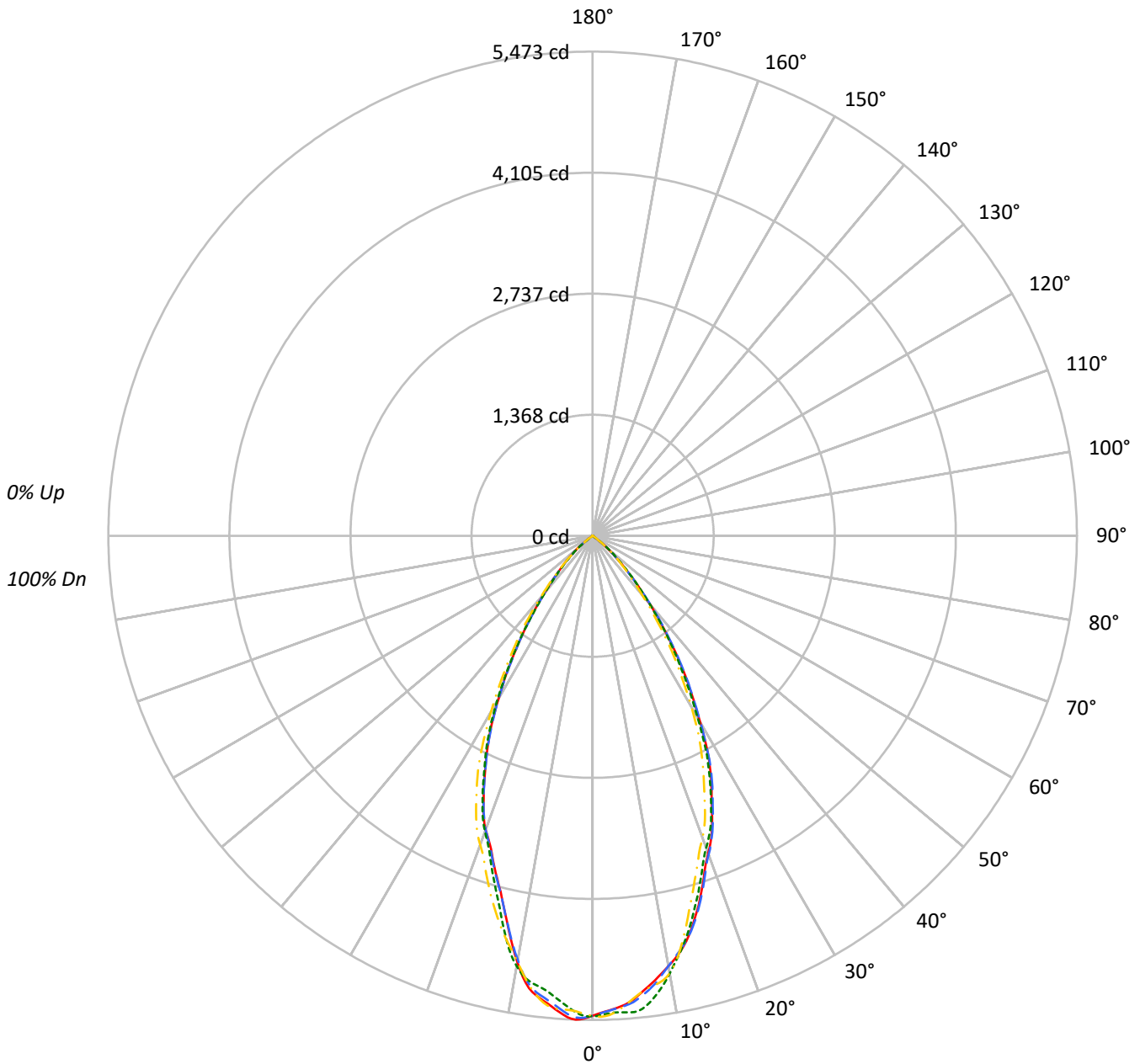
Lumens per Lamp: N/A  
Luminaire Lumens: 4466.0 lumens  
Efficiency: N/A  
Efficacy: 116.0 lumens/watt  
Spacing Criteria (0/90/45): 0.82 / 0.81 / 0.84  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 38.5  
Input Voltage (V): NR  
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										
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	50	30	10	0		
RCR	0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100	100	100	100		
	1	114	111	108	106	111	109	106	104	105	103	101	101	99	98	97	96	95	93	93	93	93	93	93		
	2	108	103	99	96	106	101	98	94	98	95	92	95	93	90	92	90	89	87	87	87	87	87	87		
	3	102	96	91	87	100	95	90	86	92	88	85	89	86	84	87	85	82	81	81	81	81	81	81		
	4	97	90	84	80	95	88	83	79	86	82	78	84	80	77	82	79	76	75	75	75	75	75	75		
	5	92	84	78	74	90	83	77	73	81	76	73	79	75	72	78	74	71	70	70	70	70	70	70		
	6	87	78	72	68	86	78	72	68	76	71	67	75	70	67	73	70	66	65	65	65	65	65	65		
	7	83	74	68	63	82	73	67	63	72	67	63	71	66	63	69	65	62	61	61	61	61	61	61		
	8	79	69	63	59	78	69	63	59	68	62	59	67	62	59	66	61	58	57	57	57	57	57	57		
	9	75	65	59	55	74	65	59	55	64	59	55	63	58	55	62	58	55	53	53	53	53	53	53		
	10	72	62	56	52	71	61	56	52	61	55	52	60	55	52	59	55	52	50	50	50	50	50	50		

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

	0°	90°	180°	270°
0°	683025	683025	683025	683025
5°	664903	682880	674580	658485
10°	631161	641729	625602	631634
15°	582510	574472	533352	545743
20°	511198	502506	473497	476578
25°	441616	437811	397611	401763
30°	352892	345103	309529	314107
35°	257307	250009	218038	219528
40°	164466	163070	139823	136718
45°	91855	94364	83596	81229
50°	41761	44600	41448	39862
55°	2479	2392	1953	2216
60°	705	906	805	805
65°	357	476	476	476
70°	294	294	294	294
75°	194	194	194	194
80°	0	0	0	0
85°	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 45°  
 Luminance: 94364 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	495.2	11.1
10°-20°	1198.3	26.8
20°-30°	1374.6	30.8
30°-40°	960.8	21.5
40°-50°	391.9	8.8
50°-60°	43.1	1.0
60°-70°	1.7	0.0
70°-80°	0.4	0.0
80°-90°	0.0	0.0
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°	3068.1	68.7
0°-40°	4028.9	90.2
0°-60°	4464.0	100.0
0°-90°	4466.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4466.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	5427	5427	5427	5427	5427	
5°	5263	5406	5340	5212	5263	491
15°	4471	4409	4094	4189	4471	1239
25°	3180	3153	2863	2893	3180	1448
35°	1675	1627	1419	1429	1675	1040
45°	516	530	470	456	516	413
55°	11	11	9	10	11	42
65°	1	2	2	2	1	1
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	5427.3	5427.3	5427.3	5427.3	5427.3	5427.3	5427.3	5427.3	5427.3	5427.3	5427.3
0.5°	5410.0	5409.6	5409.6	5410.8	5429.7	5431.3	5436.2	5441.0	5443.0	5442.6	5437.4
1°	5395.4	5394.2	5396.2	5399.5	5420.0	5426.9	5438.2	5450.3	5458.3	5457.9	5447.9
1.5°	5381.3	5379.7	5383.3	5389.8	5411.2	5418.4	5433.3	5452.7	5469.2	5470.0	5452.7
2°	5368.0	5364.4	5371.2	5382.9	5402.3	5406.7	5420.8	5446.2	5473.3	5476.5	5448.7
2.5°	5355.1	5348.3	5359.2	5378.9	5396.6	5393.4	5401.5	5429.3	5465.6	5473.3	5435.0
3°	5341.8	5329.3	5348.3	5378.9	5394.6	5378.9	5377.7	5405.5	5449.1	5458.3	5412.8
3.5°	5327.3	5307.5	5336.6	5383.7	5396.2	5364.0	5349.9	5377.3	5425.7	5437.4	5386.2
4°	5310.8	5284.2	5324.1	5390.2	5401.5	5347.5	5318.8	5345.8	5398.7	5410.4	5357.9
4.5°	5289.4	5255.1	5308.8	5397.5	5405.5	5328.1	5286.2	5313.6	5369.6	5382.1	5328.5
5°	5263.2	5223.7	5290.6	5400.3	5405.5	5303.9	5253.5	5281.7	5339.8	5354.3	5299.9
5.5°	5232.6	5190.6	5266.4	5394.6	5396.2	5275.7	5221.7	5253.1	5312.4	5325.7	5273.3
6°	5200.3	5157.6	5238.2	5378.9	5376.1	5242.6	5193.0	5227.7	5287.0	5297.5	5249.1
6.5°	5166.8	5128.1	5208.0	5351.5	5348.3	5212.0	5168.8	5206.7	5262.0	5269.6	5225.3
7°	5135.8	5103.5	5176.5	5313.6	5313.6	5182.2	5150.7	5188.6	5234.2	5239.0	5199.5
7.5°	5103.9	5081.8	5143.0	5266.0	5272.9	5153.5	5136.6	5172.1	5203.1	5200.7	5168.0
8°	5073.3	5062.4	5106.8	5209.2	5230.1	5127.3	5123.3	5152.3	5163.2	5152.7	5127.7
8.5°	5039.0	5045.5	5066.0	5143.4	5183.4	5099.9	5109.2	5126.1	5110.0	5093.5	5076.1
9°	5005.6	5029.7	5023.7	5073.7	5134.2	5070.1	5087.0	5090.2	5047.1	5022.9	5016.4
9.5°	4971.3	5014.8	4981.4	5003.9	5078.5	5039.4	5057.2	5043.5	4972.5	4941.9	4944.7
10°	4939.0	5001.9	4939.0	4935.0	5021.7	5005.2	5019.3	4987.0	4895.5	4854.8	4870.5
10.5°	4905.2	4989.0	4898.3	4873.3	4963.6	4966.4	4970.5	4923.7	4814.4	4759.6	4793.9
11°	4872.1	4974.1	4859.6	4816.5	4906.0	4921.7	4913.6	4854.8	4730.6	4663.7	4716.1
11.5°	4835.4	4951.9	4820.9	4766.1	4851.1	4870.1	4845.9	4783.0	4643.5	4567.3	4634.2
12°	4796.3	4918.9	4782.6	4720.1	4793.9	4810.8	4774.1	4709.2	4558.4	4469.7	4551.2
12.5°	4751.6	4873.7	4742.3	4677.8	4735.4	4743.1	4693.9	4632.6	4472.1	4375.8	4466.5
13°	4704.8	4818.5	4701.6	4635.4	4677.0	4671.7	4612.9	4554.0	4386.7	4288.3	4387.9
13.5°	4650.8	4756.0	4654.4	4589.1	4613.7	4593.1	4528.6	4470.1	4305.2	4205.6	4307.6
14°	4594.7	4687.8	4603.6	4537.5	4545.9	4513.3	4445.5	4392.7	4228.2	4131.0	4232.2
14.5°	4534.2	4616.9	4547.5	4483.8	4477.8	4430.6	4363.3	4312.9	4156.4	4060.5	4162.9
15°	4470.9	4541.9	4488.3	4427.4	4409.2	4350.8	4286.3	4238.7	4093.6	3995.2	4100.4
15.5°	4408.4	4470.9	4426.2	4371.3	4340.7	4275.8	4212.1	4165.7	4030.3	3935.5	4039.1
16°	4343.5	4398.4	4362.5	4312.1	4273.0	4202.8	4138.7	4095.2	3969.4	3876.6	3978.6
16.5°	4276.6	4323.4	4296.8	4250.0	4205.2	4129.4	4064.1	4021.8	3905.7	3817.4	3915.3
17°	4205.6	4248.0	4228.2	4183.5	4134.7	4056.1	3994.0	3948.4	3843.2	3758.1	3853.3
17.5°	4135.5	4170.2	4158.5	4116.5	4062.9	3982.3	3923.4	3875.8	3779.5	3699.6	3790.0
18°	4062.9	4093.6	4085.9	4048.4	3994.0	3909.3	3854.5	3807.7	3719.4	3644.8	3731.1
18.5°	3992.4	4019.8	4014.1	3980.7	3924.2	3840.8	3788.7	3740.8	3666.2	3596.0	3675.4
19°	3926.6	3951.2	3946.8	3917.4	3860.9	3778.7	3730.7	3684.7	3619.8	3553.7	3629.5
19.5°	3869.0	3890.7	3886.7	3862.5	3802.0	3725.8	3679.9	3633.9	3577.9	3513.4	3582.3
20°	3817.0	3835.9	3833.5	3813.3	3752.1	3676.7	3631.9	3584.7	3535.5	3470.6	3535.5
20.5°	3770.2	3784.3	3784.3	3768.6	3705.3	3627.9	3581.5	3530.7	3486.8	3420.6	3481.9
21°	3717.0	3729.5	3729.5	3721.8	3658.1	3574.6	3522.2	3469.4	3430.3	3364.2	3422.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	3529.1	3542.0	3548.4	3560.9	3494.8	3394.4	3317.0	3245.6	3219.8	3164.2	3220.7
23°	3454.5	3472.2	3477.9	3496.4	3427.9	3326.3	3240.8	3165.8	3148.5	3098.9	3148.1
23.5°	3381.9	3404.1	3408.9	3431.1	3358.9	3260.6	3163.4	3092.4	3077.1	3033.2	3075.9
24°	3311.8	3336.4	3338.8	3361.4	3290.8	3196.5	3096.9	3019.1	3006.2	2967.9	3003.7
24.5°	3244.8	3273.1	3273.5	3289.2	3221.1	3128.7	3030.3	2945.7	2934.8	2902.1	2931.6
25°	3180.3	3210.6	3205.7	3212.6	3152.9	3063.4	2963.8	2872.3	2863.4	2836.4	2859.0
25.5°	3118.6	3149.7	3142.4	3138.8	3082.4	2998.5	2897.3	2803.8	2795.3	2772.3	2786.8
26°	3053.7	3088.4	3074.7	3060.2	3011.8	2933.2	2830.8	2737.6	2728.4	2703.8	2719.5
26.5°	2987.2	3023.9	3006.6	2983.2	2940.8	2867.9	2764.2	2669.9	2657.8	2633.2	2648.5
27°	2917.5	2954.5	2932.8	2901.3	2869.9	2792.5	2696.1	2603.0	2587.2	2560.6	2576.8
27.5°	2844.5	2882.8	2857.0	2823.9	2798.9	2717.9	2625.1	2533.2	2514.3	2486.0	2504.2
28°	2766.3	2807.4	2776.3	2742.9	2714.7	2640.1	2552.6	2457.4	2439.7	2409.8	2428.4
28.5°	2684.0	2729.6	2692.1	2665.5	2628.4	2560.6	2472.7	2380.8	2361.1	2329.2	2350.2
29°	2597.3	2653.0	2606.2	2585.2	2542.9	2482.0	2392.5	2303.4	2284.1	2249.4	2274.0
29.5°	2513.5	2571.9	2521.1	2507.4	2458.2	2400.6	2311.1	2222.8	2207.0	2169.5	2195.8
30°	2428.4	2490.1	2438.1	2429.2	2374.8	2319.1	2230.4	2143.7	2130.0	2093.7	2118.7
30.5°	2344.9	2408.2	2356.6	2351.4	2292.5	2238.5	2149.4	2068.3	2053.4	2014.7	2041.3
31°	2264.3	2324.8	2278.0	2271.1	2217.1	2162.3	2071.6	1995.8	1979.2	1939.3	1969.2
31.5°	2186.1	2244.1	2203.4	2193.3	2133.7	2084.5	1997.8	1923.6	1905.9	1865.9	1895.0
32°	2110.7	2163.9	2129.6	2115.1	2058.3	2007.9	1924.8	1854.7	1832.5	1799.4	1823.2
32.5°	2036.5	2083.7	2057.1	2038.5	1982.5	1928.4	1853.0	1784.1	1757.9	1728.9	1752.2
33°	1965.1	2005.9	1986.5	1963.5	1913.1	1853.9	1781.3	1716.0	1687.3	1661.9	1681.3
33.5°	1893.0	1928.8	1912.7	1890.5	1836.1	1777.6	1711.9	1649.0	1616.0	1595.0	1612.7
34°	1820.8	1852.2	1839.7	1819.6	1763.5	1705.9	1641.8	1581.3	1550.7	1533.3	1544.2
34.5°	1747.4	1774.4	1766.4	1750.2	1694.2	1631.7	1572.0	1511.1	1483.3	1468.0	1478.9
35°	1674.8	1698.2	1693.8	1679.7	1627.3	1561.1	1500.3	1443.8	1419.2	1405.5	1414.4
35.5°	1603.1	1623.6	1621.6	1610.7	1557.9	1491.0	1430.5	1378.1	1356.3	1343.4	1351.1
36°	1531.7	1550.7	1549.0	1541.0	1490.6	1425.7	1360.8	1313.6	1296.2	1284.6	1287.8
36.5°	1458.7	1478.9	1478.9	1468.8	1424.9	1355.5	1291.4	1246.7	1233.8	1223.3	1226.5
37°	1391.4	1412.4	1411.6	1401.9	1362.8	1289.8	1223.7	1181.7	1173.3	1167.6	1166.0
37.5°	1324.1	1345.8	1344.2	1334.9	1295.8	1225.3	1159.6	1121.7	1114.0	1112.0	1107.6
38°	1256.7	1278.9	1277.3	1267.6	1233.8	1165.2	1097.1	1061.6	1058.0	1058.0	1049.9
38.5°	1189.4	1212.4	1210.0	1200.7	1171.7	1104.7	1037.8	1002.3	1003.5	1005.5	995.5
39°	1122.1	1145.9	1142.6	1133.8	1113.2	1046.7	980.1	944.7	950.7	955.6	942.6
39.5°	1059.6	1082.6	1079.3	1073.3	1049.9	991.0	924.1	889.4	899.1	905.6	892.3
40°	1001.1	1022.1	1016.4	1014.8	992.6	937.8	870.1	835.4	851.1	858.4	842.7
40.5°	942.6	964.0	954.3	958.8	936.6	886.2	818.1	785.0	805.6	812.8	797.1
41°	884.6	908.4	896.7	903.1	883.8	837.4	769.3	736.2	761.6	770.1	752.7
41.5°	829.8	853.5	841.0	849.5	831.4	789.8	723.3	692.7	719.7	728.6	710.4
42°	780.6	802.7	789.0	797.1	784.6	745.1	680.2	651.1	678.6	689.0	670.1
42.5°	732.2	752.7	738.2	745.1	737.0	702.4	640.3	614.1	641.1	651.1	631.0
43°	685.4	704.0	690.3	696.7	692.7	660.8	603.2	579.4	604.0	614.5	594.3
43.5°	638.6	655.6	644.7	648.7	649.5	620.9	568.1	547.5	568.1	578.6	559.2



TEST NUMBER: P776263

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	516.1	524.5	520.5	522.5	530.2	513.7	474.1	457.6	469.7	478.2	463.7
45.5°	476.2	485.0	482.2	486.2	494.7	478.6	445.5	430.6	439.9	446.7	434.6
46°	441.9	449.1	446.3	451.2	458.8	445.9	417.3	404.0	410.8	416.1	406.4
46.5°	406.4	413.3	411.3	416.5	426.2	415.3	391.1	379.0	384.2	388.7	380.2
47°	374.6	379.4	378.6	384.6	394.3	387.5	365.3	354.0	358.0	361.7	354.4
47.5°	341.5	346.3	346.3	353.6	364.9	359.2	339.5	329.0	331.4	334.2	328.2
48°	312.5	316.5	316.1	323.4	335.5	331.4	313.7	304.0	304.8	306.8	302.4
48.5°	284.6	288.3	288.3	295.5	306.0	303.2	287.9	279.4	278.6	279.4	276.6
49°	260.5	262.5	262.5	268.9	277.0	275.4	264.5	256.4	255.6	256.8	254.0
49.5°	236.7	237.5	237.9	242.7	251.6	250.8	242.3	234.7	233.0	234.7	232.2
50°	213.3	213.3	213.7	218.5	227.8	227.0	218.5	212.5	211.7	212.9	210.1
50.5°	188.7	188.7	188.3	192.7	202.8	202.0	195.1	189.1	189.1	189.9	187.1
51°	162.1	161.7	160.9	164.5	175.4	175.0	168.5	163.3	163.7	163.7	160.9
51.5°	132.6	132.2	131.8	132.2	146.4	146.0	141.5	137.1	137.5	136.7	134.3
52°	108.5	108.1	108.1	108.5	116.5	114.9	111.7	109.3	109.7	108.1	105.6
52.5°	84.3	83.9	84.7	84.7	89.1	86.7	84.3	83.1	82.3	81.4	79.4
53°	60.1	60.1	60.9	60.5	73.4	71.4	68.9	68.1	67.3	66.9	65.3
53.5°	35.9	36.3	37.5	37.1	57.7	56.0	54.0	53.2	52.8	52.4	50.8
54°	21.8	22.2	23.0	23.0	41.5	40.3	39.1	38.3	38.3	37.9	36.7
54.5°	12.9	13.3	14.1	13.7	25.8	25.0	24.2	23.8	23.8	23.4	22.2
55°	11.3	11.3	11.7	11.7	10.9	10.1	9.3	8.9	8.9	8.9	8.9
55.5°	9.3	9.3	9.7	9.7	8.5	8.1	7.3	7.3	6.9	6.9	7.3
56°	7.3	7.3	7.7	8.1	7.3	6.9	6.5	6.0	6.0	6.0	6.5
56.5°	5.2	5.2	5.6	6.0	6.5	6.0	5.6	5.6	5.2	5.6	5.6
57°	4.8	4.8	5.2	5.6	6.0	5.6	5.2	4.8	4.8	4.8	5.2
57.5°	4.4	4.4	4.8	5.2	5.2	5.2	4.8	4.4	4.4	4.4	4.8
58°	4.0	4.0	4.4	4.8	4.8	4.8	4.4	4.4	4.0	4.0	4.4
58.5°	3.6	3.6	4.0	4.4	4.4	4.4	4.0	4.0	3.6	4.0	4.0
59°	3.2	3.6	3.6	4.0	4.4	4.0	3.6	3.6	3.6	3.6	3.6
59.5°	3.2	3.2	3.6	3.6	4.0	3.6	3.6	3.2	3.2	3.2	3.6
60°	2.8	2.8	3.2	3.6	3.6	3.6	3.2	3.2	3.2	3.2	3.2
60.5°	2.8	2.8	2.8	3.2	3.2	3.2	2.8	2.8	2.8	2.8	2.8
61°	2.4	2.4	2.8	2.8	3.2	2.8	2.8	2.8	2.4	2.8	2.8
61.5°	2.4	2.4	2.4	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.4
62°	2.0	2.0	2.4	2.4	2.8	2.4	2.4	2.4	2.4	2.4	2.4
62.5°	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.0	2.0	2.0	2.4
63°	2.0	2.0	2.0	2.0	2.4	2.4	2.0	2.0	2.0	2.0	2.0
63.5°	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
64°	1.6	1.6	1.6	2.0	2.0	2.0	1.6	1.6	1.6	1.6	2.0
64.5°	1.6	1.6	1.6	1.6	2.0	1.6	1.6	1.6	1.6	1.6	1.6
65°	1.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
65.5°	1.2	1.2	1.6	1.6	1.6	1.6	1.6	1.2	1.2	1.6	1.6
66°	1.2	1.2	1.2	1.6	1.6	1.6	1.2	1.2	1.2	1.2	1.2





TEST NUMBER: P776263  
 CATALOG NUMBER: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
68°	0.8	0.8	0.8	1.2	1.2	1.2	1.2	0.8	0.8	0.8	1.2
68.5°	0.8	0.8	0.8	0.8	1.2	1.2	0.8	0.8	0.8	0.8	0.8
69°	0.8	0.8	0.8	0.8	1.2	0.8	0.8	0.8	0.8	0.8	0.8
69.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
70.5°	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
71°	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
71.5°	0.4	0.4	0.4	0.8	0.8	0.8	0.8	0.4	0.4	0.4	0.8
72°	0.4	0.4	0.4	0.4	0.8	0.8	0.4	0.4	0.4	0.4	0.4
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
73°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
73.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
74°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
74.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
76.5°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.0	0.4	0.4
77.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.4
78°	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0
78.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776263  
CATALOG NUMBER: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
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: P776263

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	5427.3	5427.3	5427.3	5427.3	5427.3	5427.3
0.5°	5429.7	5434.5	5422.9	5416.8	5412.8	5410.0
1°	5432.9	5427.3	5412.0	5403.9	5399.1	5395.4
1.5°	5428.5	5412.4	5397.9	5391.0	5387.0	5381.3
2°	5414.8	5391.4	5380.1	5379.7	5376.9	5368.0
2.5°	5391.8	5364.4	5362.0	5371.7	5370.0	5355.1
3°	5363.6	5334.6	5344.2	5366.8	5366.0	5341.8
3.5°	5331.3	5303.5	5326.1	5364.8	5364.8	5327.3
4°	5299.5	5273.7	5307.1	5363.6	5364.8	5310.8
4.5°	5267.6	5243.0	5285.0	5361.2	5362.4	5289.4
5°	5238.2	5212.4	5260.0	5352.7	5353.9	5263.2
5.5°	5211.2	5184.2	5229.7	5334.2	5337.4	5232.6
6°	5187.4	5160.4	5198.3	5306.7	5312.0	5200.3
6.5°	5168.8	5140.6	5166.0	5271.7	5278.1	5166.8
7°	5153.5	5123.7	5134.6	5230.9	5237.8	5135.8
7.5°	5139.0	5108.4	5103.1	5183.8	5185.0	5103.9
8°	5122.5	5089.8	5069.7	5135.4	5132.6	5073.3
8.5°	5097.5	5064.8	5036.2	5078.5	5070.1	5039.0
9°	5063.2	5032.6	4998.7	5017.3	5007.6	5005.6
9.5°	5016.8	4991.4	4958.0	4952.7	4941.5	4971.3
10°	4960.4	4942.7	4914.0	4891.5	4881.4	4939.0
10.5°	4894.3	4889.8	4866.9	4831.8	4826.1	4905.2
11°	4823.3	4827.3	4815.3	4777.4	4774.5	4872.1
11.5°	4749.9	4753.6	4758.0	4724.1	4726.1	4835.4
12°	4670.5	4674.5	4695.9	4672.5	4683.0	4796.3
12.5°	4588.3	4592.3	4629.0	4618.9	4640.3	4751.6
13°	4507.2	4507.2	4559.2	4565.3	4597.9	4704.8
13.5°	4423.0	4422.1	4483.8	4506.0	4551.6	4650.8
14°	4336.3	4339.9	4405.6	4445.9	4503.2	4594.7
14.5°	4255.6	4262.5	4329.0	4384.2	4450.4	4534.2
15°	4178.6	4188.7	4253.2	4323.0	4396.7	4470.9
15.5°	4105.2	4117.3	4180.2	4261.7	4342.7	4408.4
16°	4033.1	4046.4	4107.3	4198.8	4285.1	4343.5
16.5°	3960.9	3977.4	4034.7	4133.1	4224.6	4276.6
17°	3887.5	3907.7	3964.1	4066.5	4160.1	4205.6
17.5°	3814.5	3837.5	3891.6	4000.0	4094.8	4135.5
18°	3744.0	3769.8	3821.4	3932.7	4028.2	4062.9
18.5°	3677.9	3710.5	3755.7	3866.6	3961.7	3992.4
19°	3620.6	3655.3	3699.2	3808.1	3901.2	3926.6
19.5°	3569.0	3607.3	3649.2	3759.7	3850.0	3869.0
20°	3519.0	3558.5	3599.6	3716.2	3805.3	3817.0
20.5°	3464.2	3508.9	3549.7	3671.4	3760.5	3770.2
21°	3403.3	3452.1	3495.2	3621.4	3712.1	3717.0

TEST NUMBER: P776263

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	3192.0	3252.5	3315.0	3441.2	3534.3	3529.1
23°	3120.3	3180.3	3247.7	3371.8	3463.0	3454.5
23.5°	3048.9	3108.6	3181.5	3300.5	3392.0	3381.9
24°	2977.1	3034.8	3115.0	3230.7	3318.2	3311.8
24.5°	2905.8	2963.4	3048.9	3161.8	3246.9	3244.8
25°	2834.0	2893.3	2977.9	3093.2	3174.7	3180.3
25.5°	2769.9	2826.7	2911.8	3024.3	3102.1	3118.6
26°	2704.2	2759.4	2842.1	2951.7	3026.7	3053.7
26.5°	2636.0	2692.1	2771.5	2876.7	2952.1	2987.2
27°	2567.5	2623.5	2695.3	2798.1	2873.1	2917.5
27.5°	2494.5	2550.6	2620.7	2715.9	2793.3	2844.5
28°	2420.3	2476.4	2540.5	2628.0	2712.6	2766.3
28.5°	2340.5	2399.4	2459.0	2543.3	2636.8	2684.0
29°	2260.7	2321.9	2375.6	2458.6	2554.6	2597.3
29.5°	2182.0	2240.1	2294.1	2376.0	2475.6	2513.5
30°	2106.6	2161.5	2214.3	2294.1	2394.1	2428.4
30.5°	2032.5	2082.1	2132.9	2215.9	2314.7	2344.9
31°	1962.7	2003.8	2055.8	2136.9	2235.3	2264.3
31.5°	1892.2	1927.2	1980.5	2060.3	2157.0	2186.1
32°	1826.4	1851.4	1906.3	1984.9	2078.4	2110.7
32.5°	1756.7	1779.7	1832.5	1907.1	2001.4	2036.5
33°	1690.2	1708.7	1761.1	1832.9	1928.0	1965.1
33.5°	1621.2	1639.8	1688.9	1760.3	1856.3	1893.0
34°	1551.9	1569.6	1617.2	1688.9	1784.5	1820.8
34.5°	1484.1	1498.2	1548.2	1620.8	1714.8	1747.4
35°	1418.4	1428.9	1477.7	1551.5	1644.6	1674.8
35.5°	1353.1	1362.8	1413.2	1486.5	1577.3	1603.1
36°	1290.6	1296.2	1348.7	1441.4	1507.1	1531.7
36.5°	1227.3	1230.1	1284.6	1374.1	1430.9	1458.7
37°	1168.8	1164.0	1220.0	1305.9	1364.8	1391.4
37.5°	1106.7	1102.3	1155.9	1238.2	1299.1	1324.1
38°	1047.1	1044.7	1096.3	1170.4	1232.9	1256.7
38.5°	988.6	987.8	1039.8	1110.0	1167.2	1189.4
39°	930.2	935.4	985.4	1051.5	1106.3	1122.1
39.5°	873.7	881.0	932.2	994.3	1045.5	1059.6
40°	820.1	832.2	880.2	937.4	988.2	1001.1
40.5°	769.3	783.0	832.2	884.2	932.2	942.6
41°	723.3	739.0	785.4	832.6	878.1	884.6
41.5°	680.6	695.9	741.1	784.2	826.1	829.8
42°	640.7	655.2	701.1	737.8	774.5	780.6
42.5°	604.8	618.5	660.0	694.3	726.5	732.2
43°	570.9	582.2	620.9	649.9	679.4	685.4
43.5°	539.5	548.3	583.4	608.0	634.2	638.6



TEST NUMBER: P776263

CATALOG NUMBER: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	452.8	456.4	481.4	493.9	509.6	516.1
45.5°	425.8	428.2	449.1	459.2	472.9	476.2
46°	399.6	400.8	417.7	426.6	439.1	441.9
46.5°	374.6	372.9	387.1	394.3	405.6	406.4
47°	350.0	346.7	357.6	363.3	373.8	374.6
47.5°	325.4	320.9	328.6	333.8	343.5	341.5
48°	300.8	295.9	302.4	306.0	314.5	312.5
48.5°	275.8	272.6	277.0	279.4	286.7	284.6
49°	254.0	250.0	254.0	255.2	262.1	260.5
49.5°	232.2	227.4	231.0	231.0	237.9	236.7
50°	209.7	203.6	207.2	207.6	214.1	213.3
50.5°	186.3	178.6	182.6	182.6	189.1	188.7
51°	160.1	150.8	154.4	156.0	162.5	162.1
51.5°	133.9	127.0	130.2	131.4	133.1	132.6
52°	104.8	103.2	105.6	106.8	108.5	108.5
52.5°	80.2	79.4	81.4	82.3	83.9	84.3
53°	65.7	55.6	56.8	57.7	59.7	60.1
53.5°	51.6	31.9	32.7	33.5	35.1	35.9
54°	37.1	18.9	19.8	20.2	21.4	21.8
54.5°	23.0	11.3	12.1	12.1	12.5	12.9
55°	9.3	10.1	10.5	10.1	10.5	11.3
55.5°	7.7	8.9	8.9	8.9	8.9	9.3
56°	6.9	7.3	7.3	7.3	7.3	7.3
56.5°	6.0	6.0	5.6	5.6	5.2	5.2
57°	5.6	5.2	5.2	4.8	4.8	4.8
57.5°	5.2	4.8	4.8	4.4	4.4	4.4
58°	4.8	4.4	4.4	4.0	4.0	4.0
58.5°	4.4	4.4	4.0	4.0	3.6	3.6
59°	4.0	4.0	3.6	3.6	3.6	3.2
59.5°	3.6	3.6	3.6	3.2	3.2	3.2
60°	3.6	3.2	3.2	3.2	2.8	2.8
60.5°	3.2	3.2	3.2	2.8	2.8	2.8
61°	2.8	2.8	2.8	2.8	2.4	2.4
61.5°	2.8	2.8	2.8	2.4	2.4	2.4
62°	2.4	2.4	2.4	2.4	2.0	2.0
62.5°	2.4	2.4	2.4	2.0	2.0	2.0
63°	2.4	2.4	2.0	2.0	2.0	2.0
63.5°	2.0	2.0	2.0	2.0	1.6	1.6
64°	2.0	2.0	2.0	1.6	1.6	1.6
64.5°	2.0	2.0	1.6	1.6	1.6	1.6
65°	1.6	1.6	1.6	1.6	1.2	1.2
65.5°	1.6	1.6	1.6	1.2	1.2	1.2
66°	1.6	1.6	1.2	1.2	1.2	1.2



TEST NUMBER: P776263  
 CATALOG NUMBER: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	1.2	1.2	1.2	1.2	0.8	0.8
68°	1.2	1.2	1.2	0.8	0.8	0.8
68.5°	1.2	1.2	0.8	0.8	0.8	0.8
69°	0.8	0.8	0.8	0.8	0.8	0.8
69.5°	0.8	0.8	0.8	0.8	0.8	0.8
70°	0.8	0.8	0.8	0.8	0.8	0.8
70.5°	0.8	0.8	0.8	0.8	0.8	0.4
71°	0.8	0.8	0.8	0.8	0.4	0.4
71.5°	0.8	0.8	0.8	0.4	0.4	0.4
72°	0.8	0.8	0.4	0.4	0.4	0.4
72.5°	0.4	0.4	0.4	0.4	0.4	0.4
73°	0.4	0.4	0.4	0.4	0.4	0.4
73.5°	0.4	0.4	0.4	0.4	0.4	0.4
74°	0.4	0.4	0.4	0.4	0.4	0.4
74.5°	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4
75.5°	0.4	0.4	0.4	0.4	0.4	0.4
76°	0.4	0.4	0.4	0.4	0.4	0.0
76.5°	0.4	0.4	0.4	0.4	0.0	0.0
77°	0.4	0.4	0.4	0.4	0.0	0.0
77.5°	0.4	0.4	0.4	0.0	0.0	0.0
78°	0.4	0.4	0.0	0.0	0.0	0.0
78.5°	0.4	0.0	0.0	0.0	0.0	0.0
79°	0.0	0.0	0.0	0.0	0.0	0.0
79.5°	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0
80.5°	0.0	0.0	0.0	0.0	0.0	0.0
81°	0.0	0.0	0.0	0.0	0.0	0.0
81.5°	0.0	0.0	0.0	0.0	0.0	0.0
82°	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0
83°	0.0	0.0	0.0	0.0	0.0	0.0
83.5°	0.0	0.0	0.0	0.0	0.0	0.0
84°	0.0	0.0	0.0	0.0	0.0	0.0
84.5°	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0
85.5°	0.0	0.0	0.0	0.0	0.0	0.0
86°	0.0	0.0	0.0	0.0	0.0	0.0
86.5°	0.0	0.0	0.0	0.0	0.0	0.0
87°	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0
88°	0.0	0.0	0.0	0.0	0.0	0.0
88.5°	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P776263  
CATALOG NUMBER: HCDJBL3040CSD-HCD42TRC-4000lm-4000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.0	0.0



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Scaled Data Report





— 0°-180°    - - 45°-225°    - - - - 90°-270°    - · - 135°-315°

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Scaled Data Report



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Scaled Data Report





21.5°	3658.5	3671.4	3672.6	3674.6	3607.3	3519.0	3459.3	3400.5	3365.8	3300.1	3358.9
22°	3594.0	3606.9	3610.9	3621.0	3553.7	3459.7	3390.8	3325.9	3294.8	3234.0	3291.6



44°	596.7	610.4	600.7	603.2	608.0	582.6	535.4	514.9	533.8	543.9	526.2
44.5°	556.0	566.1	559.2	561.2	567.7	547.9	505.2	486.2	500.8	510.4	494.3



66.5°	1.2	1.2	1.2	1.2	1.6	1.2	1.2	1.2	1.2	1.2	1.2	1.2
67°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2



89°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89.5°	0.0	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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21.5°	3338.8	3390.8	3439.2	3566.6	3658.9	3658.5
22°	3267.0	3323.1	3376.3	3507.7	3598.4	3594.0



44°	508.8	515.7	548.7	568.1	590.3	596.7
44.5°	480.2	485.8	513.7	530.2	548.3	556.0

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66.5°	1.2	1.2	1.2	1.2	1.2	1.2
67°	1.2	1.2	1.2	1.2	1.2	1.2

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89°	0.0	0.0	0.0	0.0	0.0	0.0
89.5°	0.0	0.0	0.0	0.0	0.0	0.0

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(END OF REPORT)