

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: FAIL-SAFE

Report Number: 29685-RW-QA

Luminaire Tested: **FFL-13L-56**

Issue Date: 3/3/2020



**Test Information**

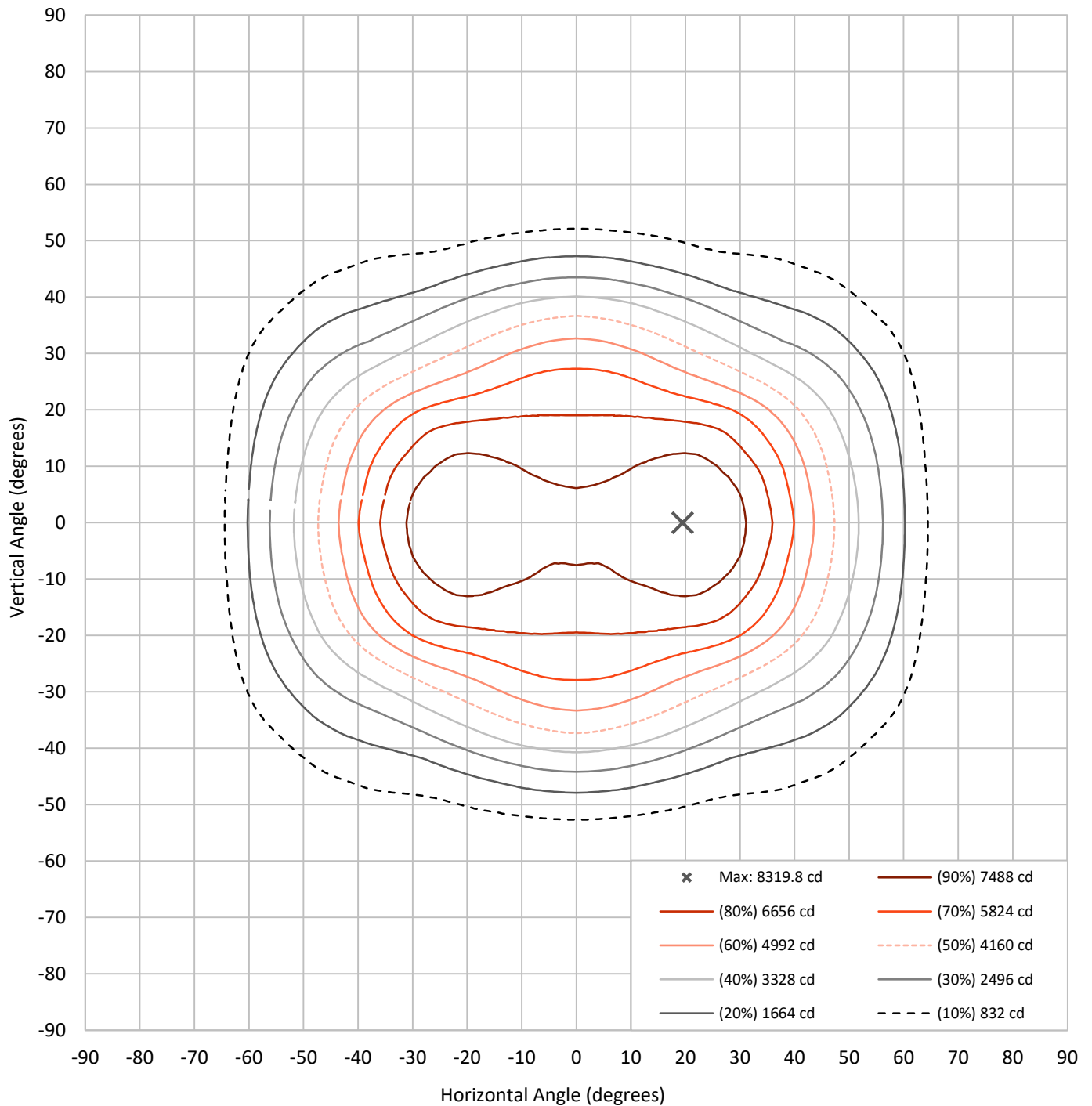
Test Method: LM-79-08  
Report Number: 29685-RW-QA  
Test Lab: LUMINAIRE TESTING LABORATORY, INC.  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FFL-13L-56  
Description: CAST GRAY ENAMEL ALUMINUM HEATSINK HOUSING, MOLDED SPECULAR PLASTIC REFLECTORS, CLEAR GLASS ENCLOSURE.  
Light Source: 12 WHITE LEDS  
  
Ballast/Driver: LED POWER SUPPLIES: FOUR THOMAS RESEARCH PRODUCTS TRC-050S110SC

**Summary**

Lumens per Lamp:	N/A	NEMA Type:	6H x 6V
Luminaire Lumens:	13260.1 lumens	Max Intensity:	8319.8 candela
Efficiency:	N/A	Max Intensity Angle:	19.5°H x 0°V
Efficacy:	74.0 lumens/watt		
Luminous Opening:	Rectangular (W 1.29' x L: 0.83' x H: 0')		
Beam Angle (50%):	94.5°H x 63.5°V	Field Angle (10%):	128.6°H x 100.1°V
Beam Lumens:	9607.3 lumens	Field Lumens:	12855.4 lumens
Beam Efficiency:	72.5%	Field Efficiency:	96.9%
Input Watts (W):	179.3		
Input Voltage (V):	NR		
Input Current (A <sub>in</sub> ):	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:	25 FT		

REPORT NUMBER: 29685-RW-QA  
CATALOG NUMBER: FFL-13L-56

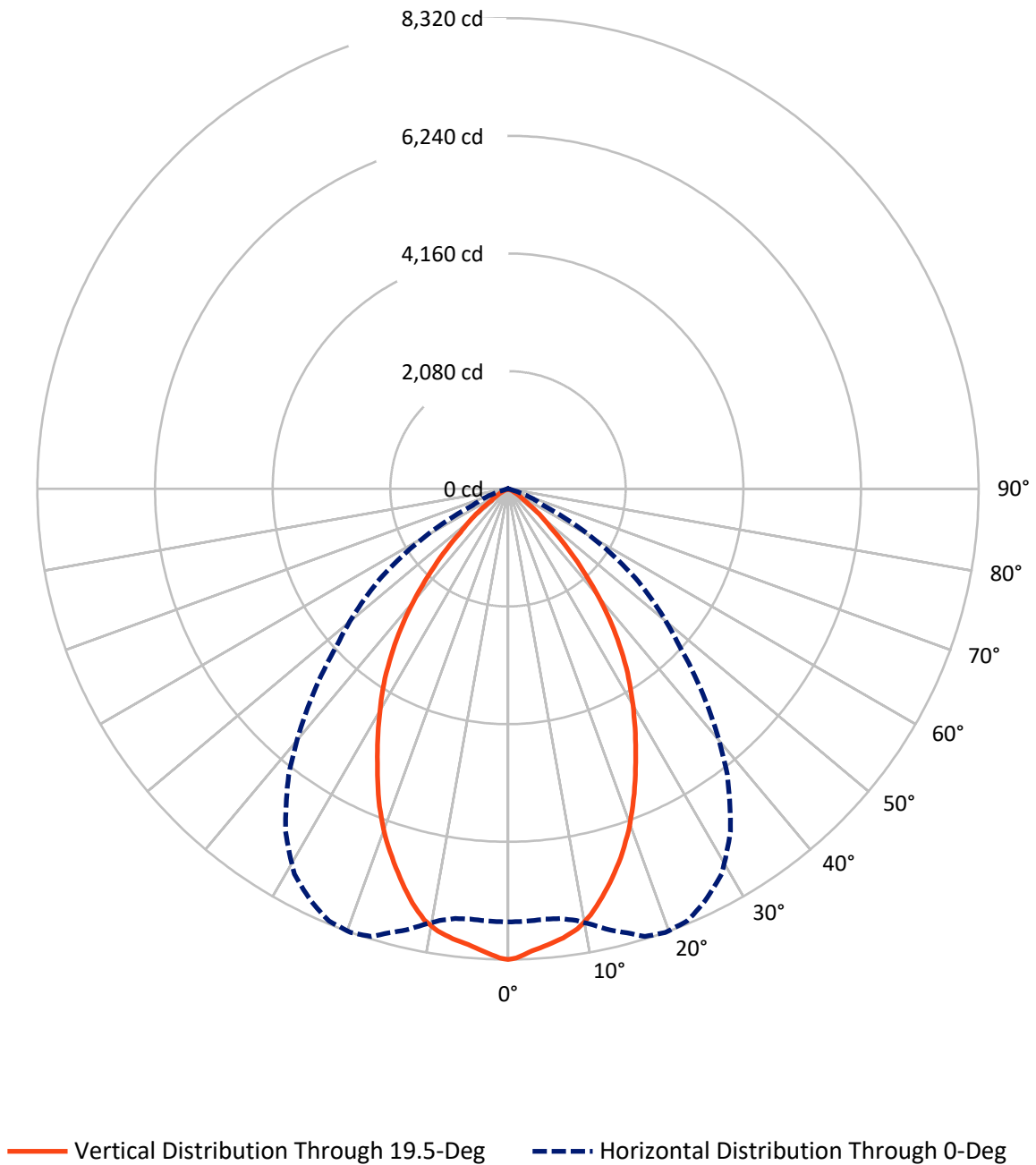
### Iso-Candela Plot





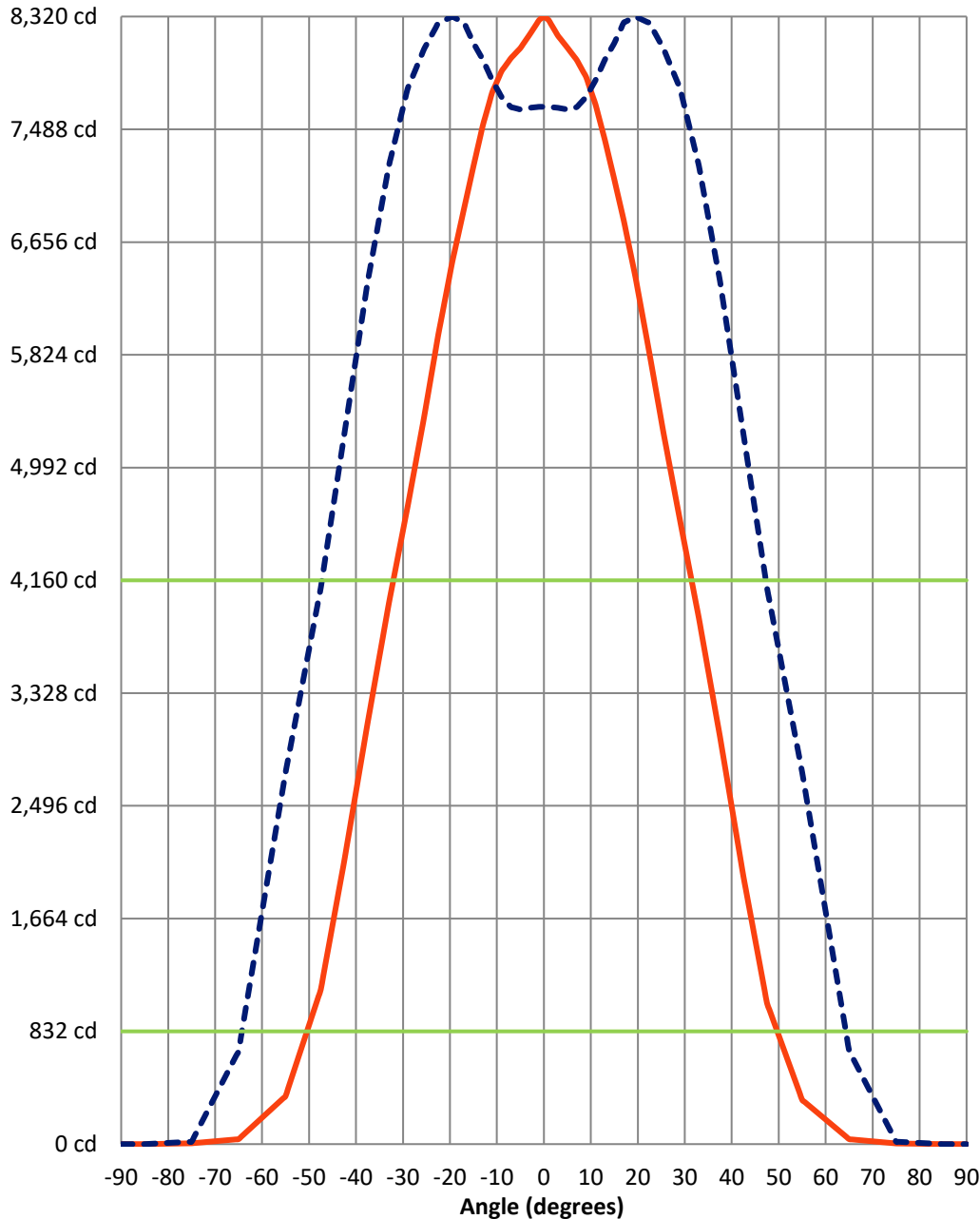
REPORT NUMBER: 29685-RW-QA  
CATALOG NUMBER: FFL-13L-56

### Luminous Intensity Polar Plot



REPORT NUMBER: 29685-RW-QA  
 CATALOG NUMBER: FFL-13L-56

### Luminous Intensity Plot



**Beam:**  
 H Angle: 94.5°  
 V Angle: 63.5°  
 Lumens: 9607.3  
 Efficiency: 72.5%

**Field:**  
 H Angle: 128.6°  
 V Angle: 100.1°  
 Lumens: 12855.4  
 Efficiency: 96.9%

**Spill:**  
 Lumens: 404.7  
 Efficiency: 3.1%

— Vertical Distribution through 19.5-Deg  
 - - - Horizontal Distribution through 0-Deg



REPORT NUMBER: 29685-RW-QA  
 CATALOG NUMBER: FFL-13L-56

FIELD  
 BEAM

**CANDELA DISTRIBUTION:**

	0°	1°	3°	5°	7°	9°	11°	13°	15°	17°	19.5°
90°	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
75°	13.9	14.2	14.8	15.2	15.3	14.7	13.1	11.1	9.7	7.7	4.9
65°	38.3	38.8	39.3	40.2	41.3	42.1	42.0	41.2	40.2	38.7	36.3
55°	366.6	364.8	358.1	343.4	330.8	320.5	316.1	314.3	315.5	320.5	326.0
47.5°	1587.3	1581.9	1571.4	1543.8	1502.6	1448.7	1374.7	1296.0	1221.3	1140.9	1041.3
42.5°	2720.2	2714.1	2703.9	2673.7	2611.6	2535.2	2449.4	2358.6	2251.2	2127.1	1971.8
37.5°	3991.4	3979.1	3941.2	3878.4	3809.3	3720.4	3607.0	3473.6	3329.1	3185.9	3004.7
33°	4955.3	4949.3	4915.1	4849.9	4753.5	4641.4	4524.3	4394.8	4242.5	4083.0	3881.1
29°	5607.5	5605.8	5590.5	5553.8	5484.0	5381.6	5256.3	5111.9	4958.6	4792.5	4599.4
25.5°	6061.2	6057.1	6047.1	6022.7	5975.2	5901.6	5803.5	5684.3	5555.6	5414.5	5241.6
22.5°	6365.9	6364.3	6359.7	6345.3	6320.5	6274.9	6210.3	6136.4	6052.9	5954.7	5829.9
19.5°	6623.7	6622.6	6623.1	6624.3	6618.6	6603.2	6579.8	6547.3	6507.9	6460.9	6396.6
17°	6816.1	6816.7	6819.3	6828.2	6837.2	6849.0	6856.2	6861.4	6858.0	6845.0	6816.6
15°	6965.0	6963.9	6969.7	6983.3	7000.3	7032.8	7067.2	7098.4	7114.5	7123.1	7117.1
13°	7099.1	7098.5	7111.1	7130.4	7157.5	7202.4	7258.1	7306.3	7347.0	7380.7	7407.2
11°	7232.3	7233.8	7247.5	7272.6	7302.0	7357.1	7424.9	7488.0	7545.1	7608.3	7670.3
9°	7358.6	7358.3	7378.8	7402.5	7434.4	7487.2	7568.0	7644.0	7717.4	7798.7	7873.2
7°	7449.1	7454.5	7475.9	7503.9	7539.5	7595.5	7682.3	7777.7	7864.1	7947.5	7999.1
5°	7539.7	7541.9	7555.2	7569.3	7601.7	7669.4	7760.9	7877.1	7984.9	8062.6	8090.2
3°	7613.7	7607.2	7617.3	7620.4	7641.0	7706.7	7815.0	7950.3	8078.2	8153.3	8177.9
1°	7646.8	7645.5	7645.0	7638.0	7654.2	7720.1	7841.3	7990.3	8119.0	8253.6	8294.2
0°	7653.7	7653.7	7646.3	7634.1	7652.0	7726.0	7850.1	8001.6	8124.4	8274.6	8319.8
-1°	7660.7	7655.9	7644.6	7625.9	7649.5	7731.3	7861.0	8004.5	8125.5	8254.1	8294.1
-3°	7642.4	7637.2	7620.7	7604.4	7641.2	7730.5	7853.1	7979.5	8072.4	8149.2	8188.1
-5°	7589.3	7585.8	7568.6	7563.0	7616.6	7708.1	7814.8	7902.3	7975.6	8036.9	8087.1
-7°	7517.9	7509.6	7497.9	7503.0	7564.2	7655.2	7740.9	7800.4	7857.6	7931.4	8013.3
-9°	7419.5	7412.6	7403.9	7419.7	7478.9	7551.1	7617.2	7661.1	7719.5	7809.6	7917.3
-11°	7273.2	7277.7	7281.8	7304.5	7356.2	7417.4	7468.2	7512.6	7574.9	7661.7	7760.8
-13°	7133.0	7133.8	7146.7	7167.9	7214.0	7261.6	7305.9	7352.1	7408.8	7465.2	7516.5
-15°	6990.2	6991.0	7002.7	7025.6	7062.5	7094.2	7129.2	7158.2	7196.2	7216.8	7214.7
-17°	6843.1	6847.4	6856.9	6876.6	6899.0	6916.2	6933.7	6945.8	6954.0	6940.4	6902.3
-19.5°	6655.9	6653.4	6665.4	6676.8	6681.5	6675.8	6663.5	6639.0	6605.5	6562.6	6510.2
-22.5°	6406.9	6408.9	6409.7	6404.6	6386.1	6352.9	6300.0	6235.1	6162.7	6078.2	5969.1
-25.5°	6111.7	6113.2	6109.8	6088.6	6047.9	5980.5	5891.9	5787.0	5670.1	5533.0	5364.7
-29°	5692.9	5690.1	5673.9	5641.2	5576.8	5479.5	5359.3	5211.8	5058.4	4895.8	4706.2
-33°	5071.1	5069.1	5034.0	4975.3	4877.8	4760.9	4635.0	4496.7	4352.0	4198.6	3991.3
-37.5°	4138.6	4137.5	4090.2	4021.6	3934.0	3843.0	3731.8	3599.6	3451.3	3297.4	3113.1
-42.5°	2875.2	2878.8	2860.6	2823.2	2755.9	2677.7	2581.9	2484.8	2371.1	2257.5	2089.9
-47.5°	1724.1	1721.8	1705.4	1671.1	1627.0	1573.9	1497.7	1413.2	1330.8	1246.3	1140.6
-55°	429.3	429.6	424.1	408.5	391.3	373.8	361.4	353.0	350.4	351.9	353.9
-65°	38.3	38.7	38.9	39.5	41.0	41.4	41.7	41.6	40.2	38.6	36.5
-75°	12.2	12.5	13.1	14.0	14.4	13.8	12.2	11.0	10.0	8.3	6.0
-85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: 29685-RW-QA  
 CATALOG NUMBER: FFL-13L-56

**CANDELA DISTRIBUTION (continued):**

	22.5°	25.5°	29°	33°	37.5°	42.5°	47.5°	55°	65°	75°	85°
90°	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
75°	4.4	3.6	1.8	2.3	2.4	0.9	0.4	1.1	0.9	0.0	0.0
65°	32.8	30.0	25.7	21.4	18.9	14.1	12.1	7.0	3.2	1.7	0.0
55°	332.3	328.7	316.3	279.7	198.9	175.2	139.0	40.9	6.9	4.7	0.0
47.5°	943.6	880.3	838.5	812.8	758.8	600.6	499.2	134.0	70.8	7.1	0.0
42.5°	1788.8	1600.8	1415.2	1303.3	1223.8	1062.5	861.3	424.5	126.9	8.6	0.0
37.5°	2771.1	2530.4	2247.0	1987.5	1783.8	1601.7	1328.1	770.7	195.1	10.3	0.0
33°	3631.4	3374.3	3059.3	2714.4	2388.1	2154.9	1806.6	1116.4	265.4	11.4	0.0
29°	4363.0	4117.6	3802.0	3425.8	3025.6	2658.2	2245.8	1434.6	333.8	12.8	0.0
25.5°	5045.7	4820.3	4523.8	4131.6	3654.3	3137.6	2624.6	1704.1	395.9	13.6	0.0
22.5°	5681.7	5493.5	5208.4	4793.1	4219.3	3556.9	2931.4	1914.7	450.6	14.3	0.0
19.5°	6317.1	6186.0	5915.5	5435.6	4754.6	3954.5	3209.9	2108.6	505.5	14.8	0.0
17°	6767.9	6658.6	6378.1	5852.9	5133.2	4250.1	3409.7	2250.2	547.8	15.4	0.0
15°	7075.6	6950.3	6628.4	6107.9	5389.4	4458.7	3549.4	2352.4	578.4	16.1	0.0
13°	7368.1	7190.1	6842.9	6333.5	5613.3	4641.4	3671.4	2442.4	605.1	16.4	0.0
11°	7630.6	7421.0	7067.0	6567.1	5804.5	4792.6	3777.6	2520.1	628.4	16.7	0.0
9°	7823.3	7628.0	7297.3	6785.9	5956.7	4918.4	3869.8	2586.1	647.9	17.1	0.0
7°	7939.2	7786.5	7499.6	6951.8	6062.9	5015.6	3949.6	2642.3	663.5	17.2	0.0
5°	8032.0	7916.3	7641.8	7068.6	6160.0	5103.8	4018.1	2687.5	674.3	17.5	0.0
3°	8130.0	8010.4	7733.6	7152.9	6267.9	5183.0	4068.6	2719.6	682.1	17.8	0.0
1°	8244.0	8061.9	7779.0	7205.3	6351.0	5230.4	4100.2	2737.2	686.5	17.9	0.0
0°	8271.1	8080.8	7788.7	7219.2	6366.8	5236.1	4105.5	2741.9	687.4	17.9	0.0
-1°	8259.2	8082.2	7791.3	7215.2	6359.6	5228.8	4104.1	2742.0	687.6	17.9	0.0
-3°	8175.1	8064.4	7771.3	7162.3	6289.4	5187.3	4086.3	2731.1	686.7	17.8	0.0
-5°	8082.0	8004.5	7712.0	7062.7	6167.7	5111.9	4047.7	2705.6	681.4	17.8	0.0
-7°	8009.3	7894.2	7581.7	6938.1	6045.8	5026.9	3988.5	2666.9	672.4	17.7	0.0
-9°	7909.4	7729.8	7383.1	6793.6	5936.5	4931.7	3912.5	2615.2	658.1	17.5	0.0
-11°	7727.2	7508.7	7151.3	6618.8	5815.6	4823.0	3821.6	2551.5	641.1	17.1	0.0
-13°	7464.0	7258.6	6919.6	6413.1	5659.6	4694.5	3718.0	2475.8	617.9	16.8	0.0
-15°	7160.6	7012.3	6708.2	6198.6	5465.9	4529.6	3599.1	2386.3	592.1	16.3	0.0
-17°	6857.4	6751.1	6477.2	5964.9	5231.2	4331.3	3463.8	2285.0	562.2	15.9	0.0
-19.5°	6450.7	6338.4	6067.2	5563.6	4866.3	4039.8	3266.4	2142.9	521.5	15.6	0.0
-22.5°	5842.8	5677.3	5385.7	4932.3	4335.5	3642.8	2993.4	1951.6	468.3	14.7	0.0
-25.5°	5176.4	4976.6	4675.1	4270.3	3772.2	3221.6	2684.8	1740.3	413.8	14.2	0.0
-29°	4485.4	4246.2	3929.9	3556.1	3142.7	2739.1	2306.6	1470.6	349.3	13.4	0.0
-33°	3741.0	3485.7	3170.0	2822.3	2500.0	2230.7	1868.5	1152.1	278.3	12.3	0.0
-37.5°	2880.1	2625.7	2339.0	2082.6	1879.4	1681.3	1385.2	802.4	204.8	11.0	0.0
-42.5°	1892.0	1694.7	1490.0	1372.4	1293.3	1131.0	908.9	449.8	134.4	9.1	0.0
-47.5°	1021.4	938.9	885.7	862.2	810.8	658.0	538.1	150.9	75.6	7.6	0.0
-55°	356.6	355.7	347.1	314.5	225.8	202.6	154.0	47.5	6.9	5.0	0.0
-65°	33.8	30.7	26.9	22.7	20.2	14.9	12.1	5.9	2.9	1.8	0.0
-75°	5.0	3.8	1.3	2.6	3.0	0.9	0.0	0.2	0.7	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
-90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





REPORT NUMBER: 29685-RW-QA

CATALOG NUMBER: FFL-13L-56

**CANDELA DISTRIBUTION (continued):**

	90°
90°	0.0
85°	0.0
75°	0.0
65°	0.0
55°	0.0
47.5°	0.0
42.5°	0.0
37.5°	0.0
33°	0.0
29°	0.0
25.5°	0.0
22.5°	0.0
19.5°	0.0
17°	0.0
15°	0.0
13°	0.0
11°	0.0
9°	0.0
7°	0.0
5°	0.0
3°	0.0
1°	0.0
0°	0.0
-1°	0.0
-3°	0.0
-5°	0.0
-7°	0.0
-9°	0.0
-11°	0.0
-13°	0.0
-15°	0.0
-17°	0.0
-19.5°	0.0
-22.5°	0.0
-25.5°	0.0
-29°	0.0
-33°	0.0
-37.5°	0.0
-42.5°	0.0
-47.5°	0.0
-55°	0.0
-65°	0.0
-75°	0.0
-85°	0.0
-90°	0.0

(END OF REPORT)