

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: INVUE

Report Number: P95406

Luminaire Tested: **VFS-K-B20-3-LED-E1-TS-SG**

Issue Date: 03/03/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P95406  
REPORT SCALED FROM IESNA LM79-08 TEST DATA (P22798)  
Test Lab: INNOVATION CENTER  
Issue Date: 03/03/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: VFS-K-B20-3-LED-E1-TS-SG  
Description: ARCHITECTURAL FLOOD LUMINAIRE  
TIGHT SPOT WITH SOFTENING GLASS DISTRIBUTION  
WITH 20 LED'S, 350mA DRIVE CURRENT  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp:	N/A	NEMA Type:	3H x 3V
Luminaire Lumens:	2153.4 lumens	Max Intensity:	15215.8 candela
Efficiency:	N/A	Max Intensity Angle:	0°H x 0°V
Efficacy:	90.1 lumens/watt		
Luminous Opening:	(L: 0.83 ' x W: 0 ' x H: 0.5 ')		
Beam Angle (50%):	17°H x 17.9°V	Field Angle (10%):	36.5°H x 38.1°V
Beam Lumens:	819.2 lumens	Field Lumens:	1667 lumens
Beam Efficiency:	38.0%	Field Efficiency:	77.4%

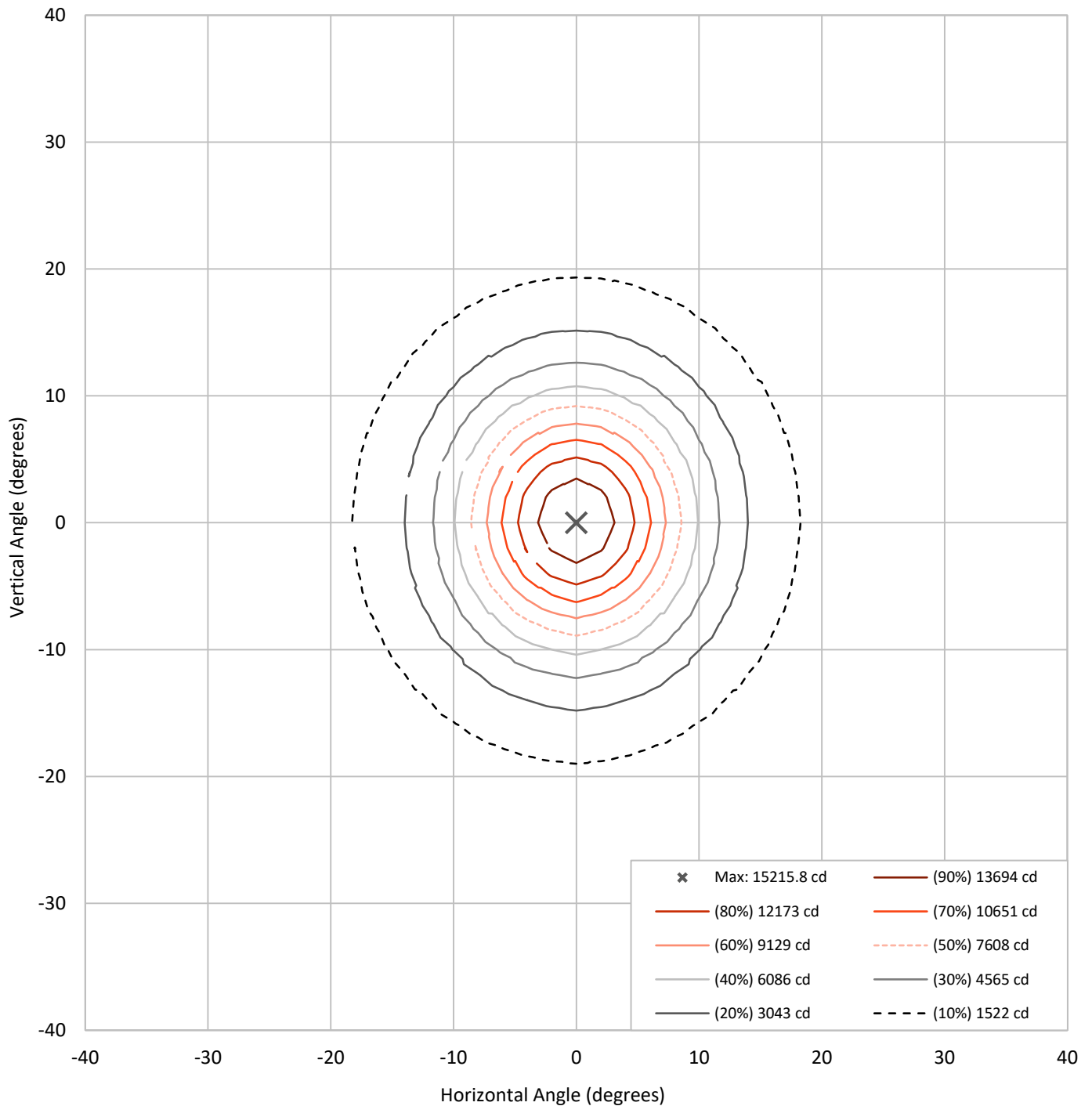
Input Watts (W): 23.9  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Iso-Candela Plot





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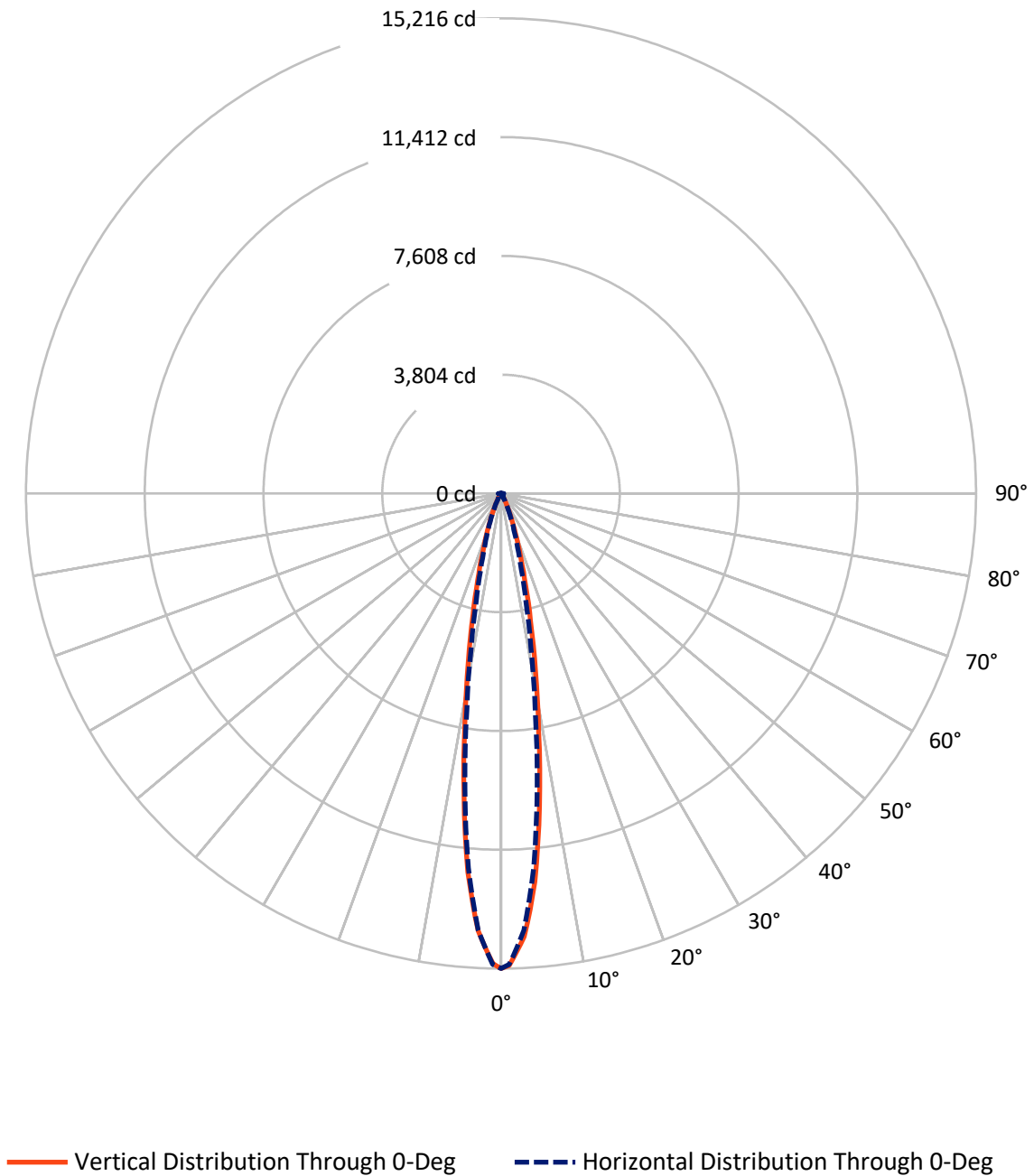
### Lumen Table

90	1.6	3.6		3.4		2.1		1.2		2.1		3.4		3.6		1.6
80	1.6	3.6		3.4		2.1		1.2		2.1		3.4		3.6		1.6
70	1.5	0.6	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.6	1.5
60		0.4	0.3	0.4	0.6	0.7	0.8	0.7	0.7	0.8	0.7	0.6	0.4	0.3	0.4	
50	1.1	0.3	0.3	0.4	0.6	0.7	0.9	0.9	0.9	0.9	0.7	0.6	0.4	0.3	0.3	1.1
40		0.2	0.2	0.4	0.6	0.9	1.6	2.5	2.5	1.6	0.9	0.6	0.4	0.2	0.2	
30	0.8	0.1	0.2	0.4	0.7	2.0	7.6	16.5	16.5	7.6	2.0	0.7	0.4	0.2	0.1	0.8
20		0.1	0.2	0.4	1.1	6.6	32.0	85.1	85.1	32.0	6.6	1.1	0.4	0.2	0.1	
10	0.8	0.1	0.2	0.5	1.7	13.0	72.9	274.9	274.9	72.9	13.0	1.7	0.5	0.2	0.1	0.8
0		0.1	0.2	0.5	1.6	12.8	71.1	266.0	266.0	71.1	12.8	1.6	0.5	0.2	0.1	
-10	0.8	0.1	0.2	0.4	1.1	6.3	30.6	79.2	79.2	30.6	6.3	1.1	0.4	0.2	0.1	0.8
-20		0.2	0.2	0.4	0.7	2.0	7.3	15.5	15.5	7.3	2.0	0.7	0.4	0.2	0.2	
-30	1.0	0.2	0.2	0.3	0.5	0.8	1.5	2.3	2.3	1.5	0.8	0.5	0.3	0.2	0.2	1.0
-40		0.2	0.2	0.3	0.4	0.5	0.7	0.8	0.8	0.7	0.5	0.4	0.3	0.2	0.2	
-50	1.5	0.5	0.4	0.4	0.5	0.6	0.7	0.7	0.7	0.7	0.6	0.5	0.4	0.4	0.5	1.5
-60		0.6	0.5	0.3	0.4	0.5	0.6	0.5	0.5	0.6	0.5	0.4	0.3	0.5	0.6	
-70	1.6	3.6		3.5		1.9		1.1		1.9		3.5		3.6		1.6
-80		3.6		3.5		1.9		1.1		1.9		3.5		3.6		
-90	1.6	3.6		3.5		1.9		1.1		1.9		3.5		3.6		1.6

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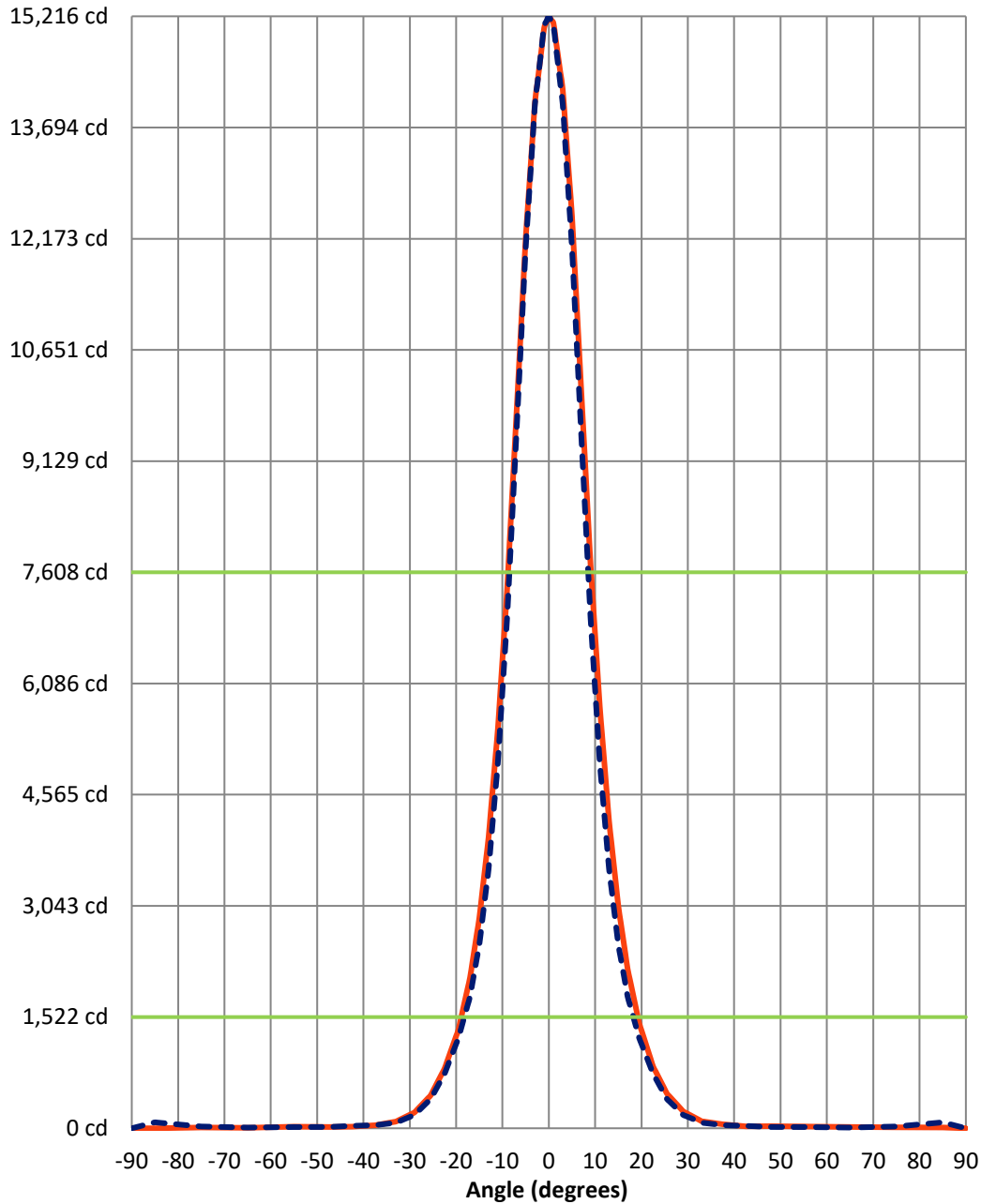
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### Luminous Intensity Polar Plot



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### Luminous Intensity Plot



**Beam:**  
H Angle: 17°  
V Angle: 17.9°  
Lumens: 819.2  
Efficiency: 38.0%

**Field:**  
H Angle: 36.5°  
V Angle: 38.1°  
Lumens: 1667  
Efficiency: 77.4%

**Spill:**  
Lumens: 486.4  
Efficiency: 22.6%

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



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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°	10.7	7.5	9.7	11.8	10.7	8.6	11.8	16.6	19.9	23.1	31.7
75°	12.9	11.8	11.8	10.7	10.7	14.0	15.0	12.9	11.8	14.0	14.0
65°	17.7	20.9	22.0	17.7	16.6	24.2	23.1	16.6	20.9	19.9	20.9
55°	24.2	25.2	19.9	23.1	25.2	23.1	24.2	27.4	25.2	27.4	26.3
47.5°	28.5	24.2	27.4	29.5	27.4	23.1	26.3	28.5	31.7	26.3	26.3
42.5°	26.3	31.7	36.0	30.6	30.6	30.6	28.5	31.7	30.6	29.5	23.1
37.5°	54.8	52.6	58.0	46.7	49.4	49.4	41.4	42.4	42.4	42.4	38.1
33°	96.1	95.1	99.4	94.0	85.4	78.4	67.7	58.0	54.8	48.3	41.4
29°	231.5	233.6	226.1	213.2	196.6	179.4	150.9	128.9	106.9	84.3	66.6
25.5°	474.2	477.4	458.6	430.2	389.9	343.2	290.5	243.8	198.7	161.6	119.2
22.5°	845.8	852.3	820.6	766.9	692.8	606.3	514.5	416.2	334.0	259.9	182.6
19.5°	1437.6	1447.3	1389.8	1283.5	1156.8	1015.0	853.4	692.8	552.6	422.6	293.8
17°	2182.5	2195.9	2091.2	1918.3	1690.1	1457.5	1220.1	1002.6	799.6	611.7	414.1
15°	3039.1	3067.5	2910.2	2633.1	2277.6	1929.0	1576.2	1272.8	1009.6	778.7	533.3
13°	4203.9	4243.1	3999.3	3576.7	3054.7	2532.1	2004.8	1569.8	1237.9	951.6	661.1
11°	5770.5	5802.1	5424.1	4803.8	4034.2	3287.2	2560.6	1946.8	1506.4	1156.8	802.9
9°	7719.4	7759.6	7182.9	6279.6	5179.2	4121.8	3149.7	2345.8	1762.0	1324.3	912.4
7°	10094.1	10141.4	9321.9	8017.4	6454.1	5026.7	3757.1	2762.0	2018.7	1492.4	1029.0
5°	12482.3	12471.6	11491.5	9815.9	7780.6	5901.5	4332.8	3134.1	2255.0	1637.4	1121.9
3°	14217.5	14163.8	13108.5	11247.1	8867.5	6599.6	4770.0	3400.0	2427.4	1745.9	1187.4
1°	15121.9	15021.4	13939.8	11984.5	9437.9	6961.1	4993.9	3532.1	2514.9	1799.1	1226.6
0°	15215.8	15087.0	14010.7	12037.7	9486.7	6988.4	5000.3	3547.1	2513.9	1803.9	1235.7
-1°	15058.5	14897.9	13843.7	11876.0	9357.9	6885.9	4947.7	3511.1	2488.6	1786.2	1216.9
-3°	14033.8	13838.3	12844.3	10973.8	8658.6	6409.5	4664.7	3337.7	2382.8	1725.0	1173.4
-5°	12167.6	11930.8	11035.0	9419.1	7495.4	5638.3	4187.3	3045.5	2192.7	1603.6	1106.8
-7°	9751.5	9513.1	8817.1	7610.3	6160.3	4739.3	3597.6	2672.3	1956.4	1454.3	1009.6
-9°	7378.3	7201.7	6735.0	5909.0	4894.0	3851.1	2981.1	2240.5	1694.3	1285.7	897.9
-11°	5460.0	5333.3	5048.1	4481.0	3778.6	3034.8	2402.2	1871.6	1440.9	1102.5	772.3
-13°	3983.2	3894.6	3701.3	3322.1	2845.8	2345.8	1905.4	1513.9	1187.4	916.7	639.1
-15°	2877.4	2866.7	2677.7	2443.0	2127.2	1793.7	1499.9	1212.6	958.1	743.8	505.9
-17°	2062.8	2016.6	1932.8	1785.1	1585.3	1368.9	1163.2	950.6	750.8	584.3	400.1
-19.5°	1350.1	1353.3	1282.4	1201.9	1087.0	955.9	817.4	664.3	526.8	410.8	284.1
-22.5°	817.4	816.3	774.4	732.0	656.8	578.9	501.6	409.8	329.7	262.1	188.0
-25.5°	450.0	453.3	423.7	401.2	361.4	314.7	275.5	227.2	185.8	147.7	107.9
-29°	216.4	221.8	211.1	197.6	184.7	163.8	142.9	117.1	102.6	82.2	61.2
-33°	91.8	90.8	90.8	84.3	81.1	72.0	62.3	55.9	50.5	48.3	39.2
-37.5°	41.4	43.5	46.7	39.2	45.6	44.6	38.1	34.9	36.0	37.1	38.1
-42.5°	22.0	24.2	24.2	23.1	26.3	25.2	27.4	26.3	28.5	23.1	24.2
-47.5°	17.7	20.9	23.1	25.2	23.1	20.9	22.0	24.2	23.1	20.9	19.9
-55°	22.0	24.2	25.2	29.5	24.2	25.2	25.2	29.5	25.2	24.2	27.4
-65°	6.4	7.5	17.7	15.0	17.7	18.8	18.8	17.7	18.8	19.9	15.0
-75°	10.7	14.0	12.9	17.7	15.0	11.8	17.7	11.8	15.0	18.8	15.0
-85°	0.0	4.3	8.6	5.4	7.5	3.2	6.4	7.5	12.9	18.8	26.3
-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):**

	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°	39.2	42.4	49.4	63.4	69.8	79.5	82.2	88.6	95.1	98.3	109.0
75°	12.9	8.6	8.6	14.0	14.0	22.0	28.5	45.6	65.5	84.3	101.5
65°	16.6	19.9	20.9	19.9	17.7	14.0	16.6	24.2	42.4	73.0	100.4
55°	25.2	25.2	23.1	22.0	23.1	19.9	17.7	15.0	28.5	61.2	100.4
47.5°	26.3	24.2	24.2	25.2	22.0	17.7	15.0	15.0	23.1	53.7	92.9
42.5°	26.3	22.0	23.1	20.9	19.9	23.1	16.6	14.0	12.9	43.5	88.6
37.5°	38.1	33.8	31.7	28.5	23.1	22.0	19.9	12.9	15.0	43.5	91.8
33°	30.6	27.4	23.1	22.0	15.0	9.7	12.9	4.3	5.4	27.4	81.1
29°	51.6	37.1	29.5	24.2	24.2	16.6	16.6	11.8	5.4	27.4	82.2
25.5°	77.3	54.8	39.2	29.5	24.2	16.6	20.9	10.7	8.6	25.2	81.1
22.5°	112.8	70.9	42.4	28.5	19.9	12.9	18.8	5.4	2.1	20.9	76.3
19.5°	180.4	109.0	63.4	37.1	30.6	20.9	17.7	8.6	6.4	24.2	82.2
17°	247.0	140.7	72.0	43.5	30.6	19.9	15.0	7.5	4.3	22.0	80.0
15°	310.4	176.1	86.5	42.4	28.5	18.8	12.9	6.4	4.3	18.8	75.2
13°	382.4	210.0	98.3	48.3	30.6	16.6	11.8	7.5	3.2	17.7	74.1
11°	481.7	264.2	131.0	68.7	46.7	31.7	28.5	19.9	12.9	29.5	84.3
9°	547.2	293.8	133.2	65.5	32.8	22.0	17.7	7.5	5.4	24.2	77.3
7°	619.2	327.6	150.9	65.5	40.3	25.2	16.6	12.9	6.4	22.0	79.5
5°	674.0	367.3	164.9	73.0	42.4	31.7	19.9	9.7	6.4	22.0	82.2
3°	718.0	386.7	172.4	74.1	41.4	28.5	22.0	12.9	7.5	25.2	81.1
1°	741.6	400.1	181.5	77.3	41.4	29.5	19.9	12.9	10.7	27.4	82.2
0°	745.9	400.1	182.6	76.3	42.4	32.8	17.7	16.6	9.7	24.2	81.1
-1°	739.5	392.0	171.3	75.2	39.2	27.4	15.0	9.7	4.3	23.1	78.4
-3°	708.9	380.2	171.3	76.3	42.4	28.5	18.8	9.7	5.4	23.1	79.5
-5°	664.3	355.0	160.6	68.7	38.1	26.3	17.7	14.0	4.3	17.7	77.3
-7°	604.2	322.2	147.7	63.4	39.2	27.4	15.0	15.0	6.4	18.8	77.3
-9°	533.3	291.6	135.3	63.4	34.9	26.3	15.0	12.9	6.4	22.0	78.4
-11°	456.5	251.3	118.1	55.9	37.1	24.2	15.0	12.9	9.7	20.9	78.4
-13°	375.9	204.1	97.2	48.3	27.4	19.9	10.7	6.4	3.2	19.9	76.3
-15°	298.1	163.8	83.2	44.6	29.5	20.9	9.7	4.3	4.3	20.9	77.3
-17°	235.8	137.5	77.3	44.6	34.9	25.2	19.9	9.7	6.4	27.4	82.2
-19.5°	174.5	103.6	58.0	41.4	30.6	20.9	22.0	7.5	11.8	29.5	82.2
-22.5°	123.5	83.2	56.9	45.6	34.9	30.6	24.2	20.9	17.7	39.2	87.5
-25.5°	73.0	50.5	36.0	27.4	20.9	15.0	16.6	9.7	5.4	26.3	78.4
-29°	49.4	38.1	31.7	22.0	16.6	12.9	14.0	8.6	7.5	27.4	81.1
-33°	31.7	26.3	25.2	18.8	20.9	12.9	14.0	5.4	7.5	29.5	82.2
-37.5°	31.7	27.4	24.2	22.0	18.8	22.0	16.6	14.0	12.9	37.1	84.3
-42.5°	18.8	22.0	16.6	10.7	14.0	14.0	9.7	7.5	10.7	37.1	82.2
-47.5°	16.6	16.6	12.9	14.0	15.0	14.0	9.7	5.4	17.7	45.6	84.3
-55°	28.5	24.2	23.1	26.3	23.1	25.2	18.8	20.9	37.1	63.4	99.4
-65°	15.0	17.7	18.8	14.0	11.8	7.5	16.6	23.1	45.6	72.0	97.2
-75°	10.7	12.9	14.0	16.6	23.1	27.4	31.7	45.6	68.7	89.7	100.4
-85°	30.6	38.1	46.7	59.1	69.8	77.3	85.4	89.7	90.8	96.1	100.4
-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):**

	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)