



Bell-Southcn Testing Laboratory(Shenzhen)

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HAWKO LIGHTING

LumCAT: hyperFLEX-IP20-4000K-Samsung

Luminaire: LED Strip light

Report No: BSR1507210101-10

Voltage(V): 24.0300

Test No: BSR1507210101-10

Current(A): 0.8740

LampCAT:

Power (W): 21.0000

Lamp flux(lm)

PF: 1.0000

Number of Lamps: 120

Ballast type:

Length(mm): 0

Width(mm): 0

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2766.95

Lumens(lm)/Power(W): 131.76

Central intensity(cd): 932.420

Maximum intensity(cd): 941.165

Angle of maximum intensity: C=180.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=114.5

[C90/270]Total=115.1

Field angle(10%Imax): [C0/180]Total=162.4

[C90/270]Total=161.8

Maximum s/h(1/2): C0_180=1.28 C90_270=1.24

Maximum s/h(1/4): C0_180=2.58 C90_270=1.92

Up flux rate of LUM(%): 1.34%

Down flux rate of LUM(%): 98.66%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 77.038%

HAWKO LIGHTING hyperFLEX-IP20-4000K-22W-mtr

Zonal flux distribution table

Page: 2 Total:11

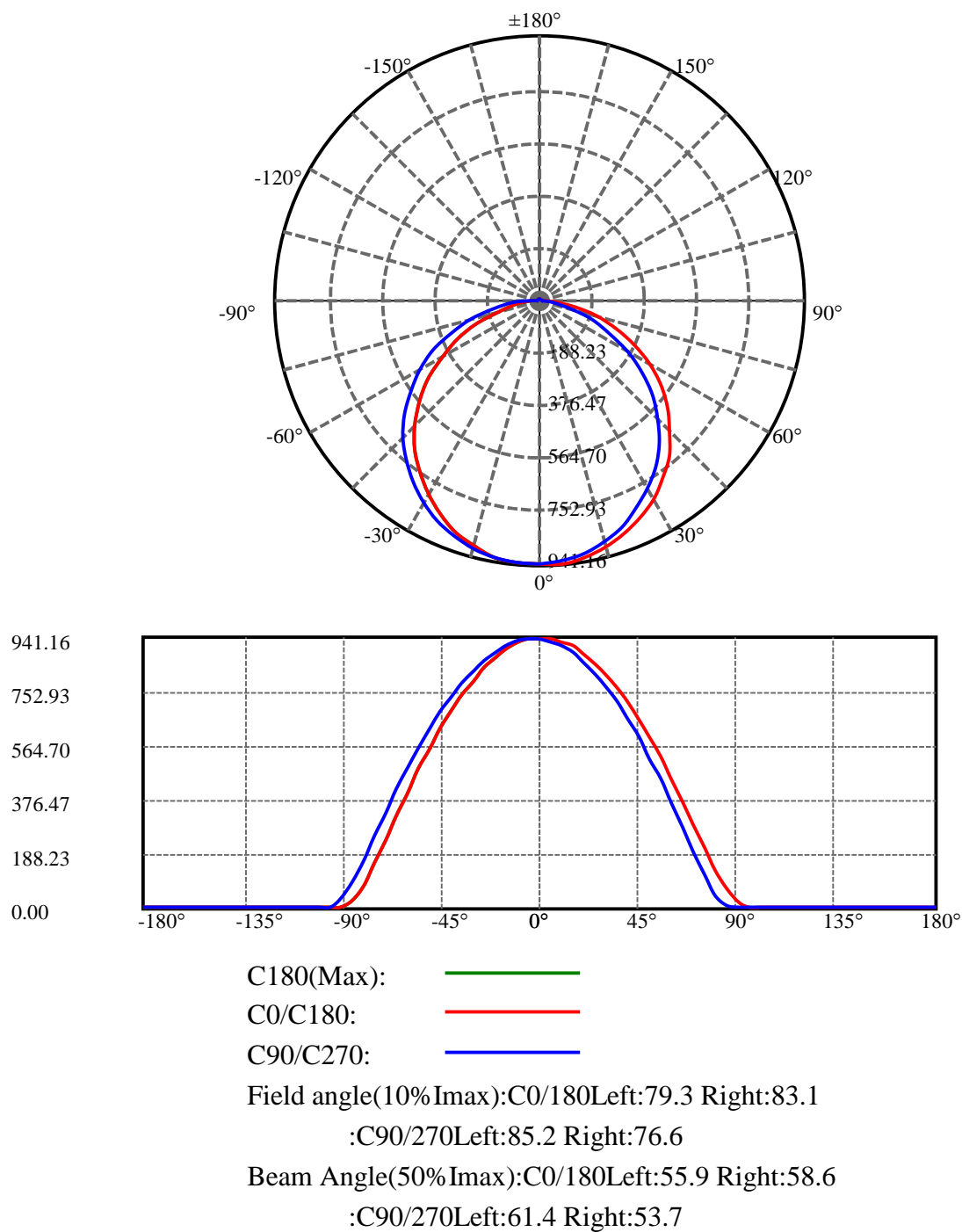
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	932.420	.000	.000	.000%	.000%
5.0	928.653	22.249	22.249	.804%	.804%
10.0	915.593	65.974	88.223	2.384%	3.188%
15.0	896.411	107.487	195.710	3.885%	7.073%
20.0	869.570	145.542	341.252	5.260%	12.333%
25.0	835.484	178.829	520.080	6.463%	18.796%
30.0	795.324	206.380	726.460	7.459%	26.255%
35.0	748.782	227.380	953.841	8.218%	34.473%
40.0	696.350	241.109	1194.950	8.714%	43.187%
45.0	635.682	246.637	1441.587	8.914%	52.100%
50.0	570.978	243.823	1685.410	8.812%	60.912%
55.0	499.682	232.797	1918.207	8.413%	69.326%
60.0	423.580	213.409	2131.617	7.713%	77.038%
65.0	342.981	186.352	2317.969	6.735%	83.773%
70.0	261.165	152.974	2470.943	5.529%	89.302%
75.0	183.082	116.119	2587.062	4.197%	93.499%
80.0	111.366	78.786	2665.848	2.847%	96.346%
85.0	52.386	44.495	2710.343	1.608%	97.954%
90.0	19.402	19.656	2729.999	.710%	98.665%
95.0	6.099	6.982	2736.981	.252%	98.917%
100.0	4.583	2.902	2739.883	.105%	99.022%
105.0	4.568	2.448	2742.332	.088%	99.110%
110.0	4.873	2.468	2744.800	.089%	99.199%
115.0	4.968	2.492	2747.292	.090%	99.290%
120.0	5.080	2.443	2749.734	.088%	99.378%
125.0	5.248	2.387	2752.121	.086%	99.464%
130.0	5.432	2.322	2754.443	.084%	99.548%
135.0	5.554	2.220	2756.663	.080%	99.628%
140.0	5.615	2.068	2758.731	.075%	99.703%
145.0	5.586	1.869	2760.600	.068%	99.770%
150.0	5.589	1.646	2762.246	.059%	99.830%
155.0	5.584	1.414	2763.660	.051%	99.881%
160.0	5.584	1.171	2764.831	.042%	99.923%
165.0	5.580	.920	2765.751	.033%	99.957%
170.0	5.594	.663	2766.414	.024%	99.981%
175.0	5.600	.400	2766.814	.014%	99.995%
180.0	5.622	.134	2766.948	.005%	100.000%

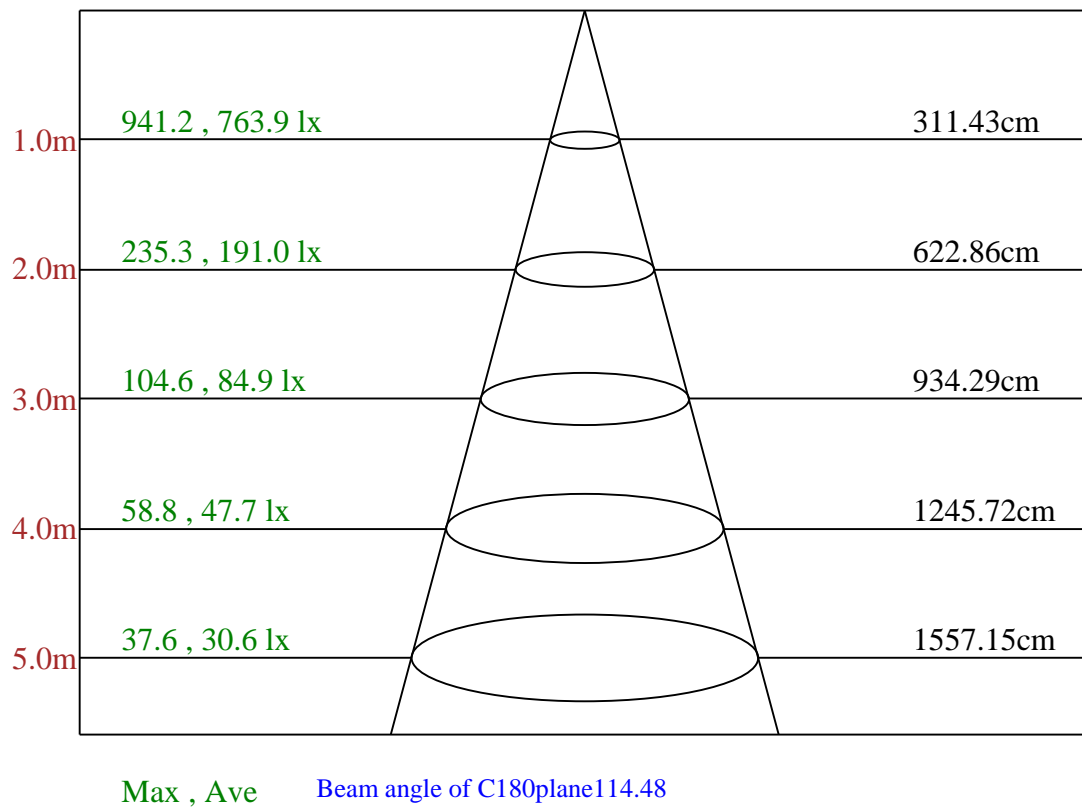
ZONAL LUMEN SUMMARY

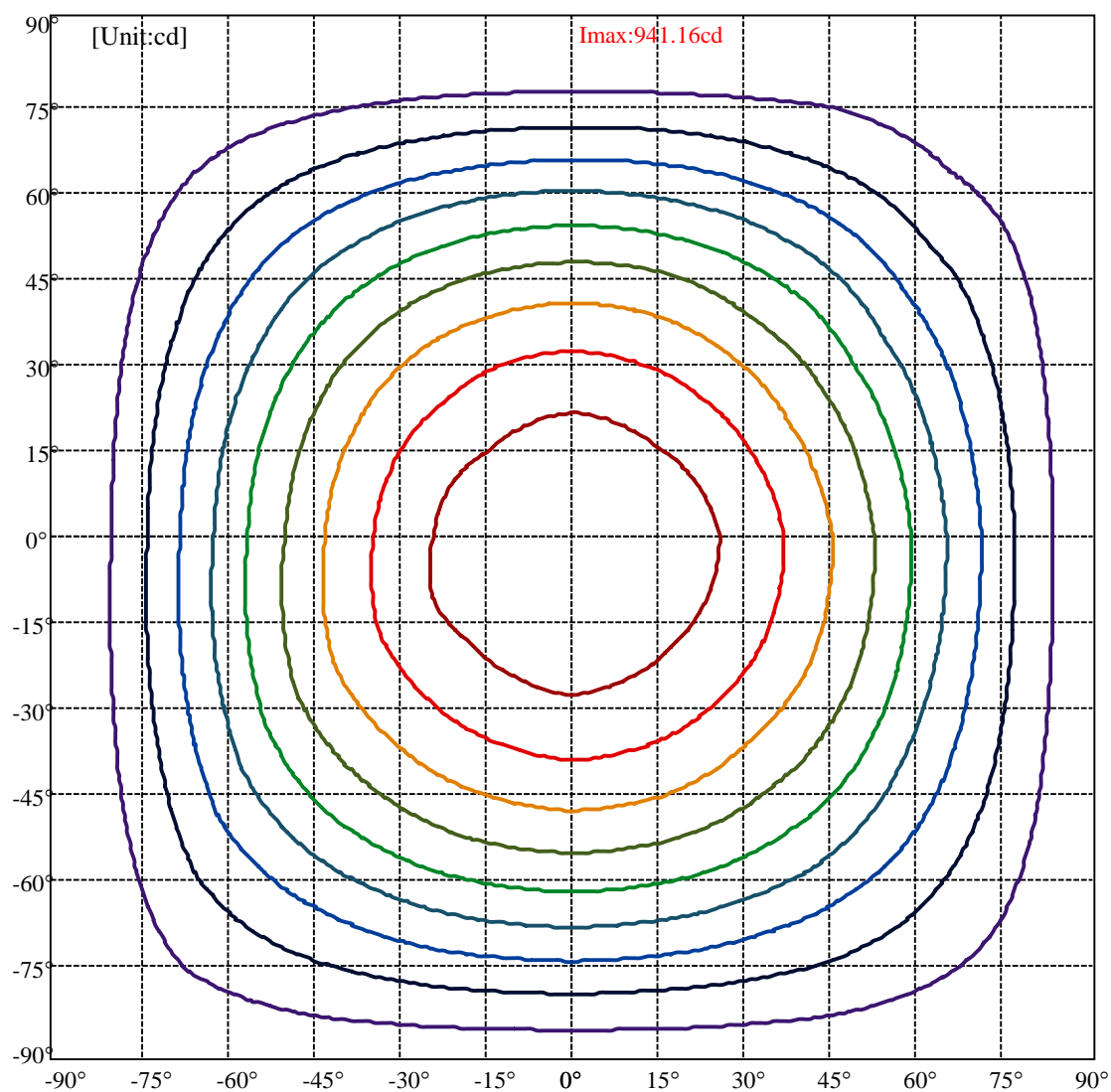
Zone	Lumens	%Fixt
0-30	726.46	26.25%
0-40	1194.95	43.19%
0-60	2131.62	77.04%
0-90	2730.00	98.66%
0-120	2749.73	99.38%
0-180	2766.95	100.00%
60-90	811.79	29.34%
90-120	39.39	1.42%
90-130	44.10	1.59%
90-150	51.90	1.88%
90-180	56.47	2.04%
0-62.20	2213.56	80.00%

ZONAL LUMEN SUMMARY

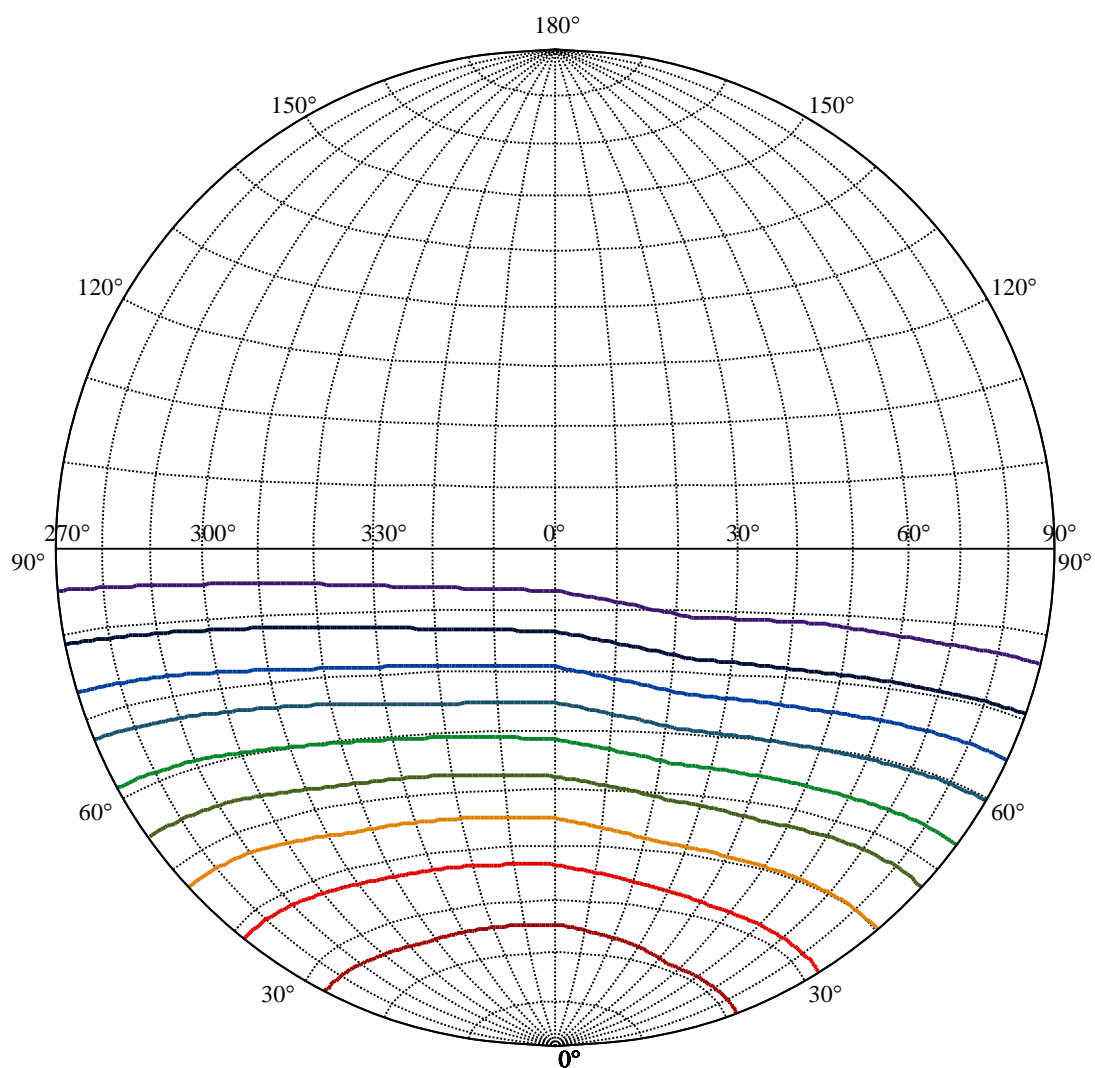
0-10	88.22
10-20	253.03
20-30	385.21
30-40	468.49
40-50	490.46
50-60	446.21
60-70	339.33
70-80	194.91
80-90	64.15
90-100	9.88
100-110	4.92
110-120	4.93
120-130	4.71
130-140	4.29
140-150	3.51
150-160	2.59
160-170	1.58
170-180	0.40







(10% Imax) 93.809	—
(20% Imax) 187.618	—
(30% Imax) 281.427	—
(40% Imax) 375.236	—
(50% Imax) 469.045	—
(60% Imax) 562.854	—
(70% Imax) 656.663	—
(80% Imax) 750.472	—
(90% Imax) 844.281	—



House

[Unit:cd]

Road

Imax:941.16

(10%Imax) 93.809

(20%Imax) 187.618

(30%Imax) 281.427

(40%Imax) 375.236

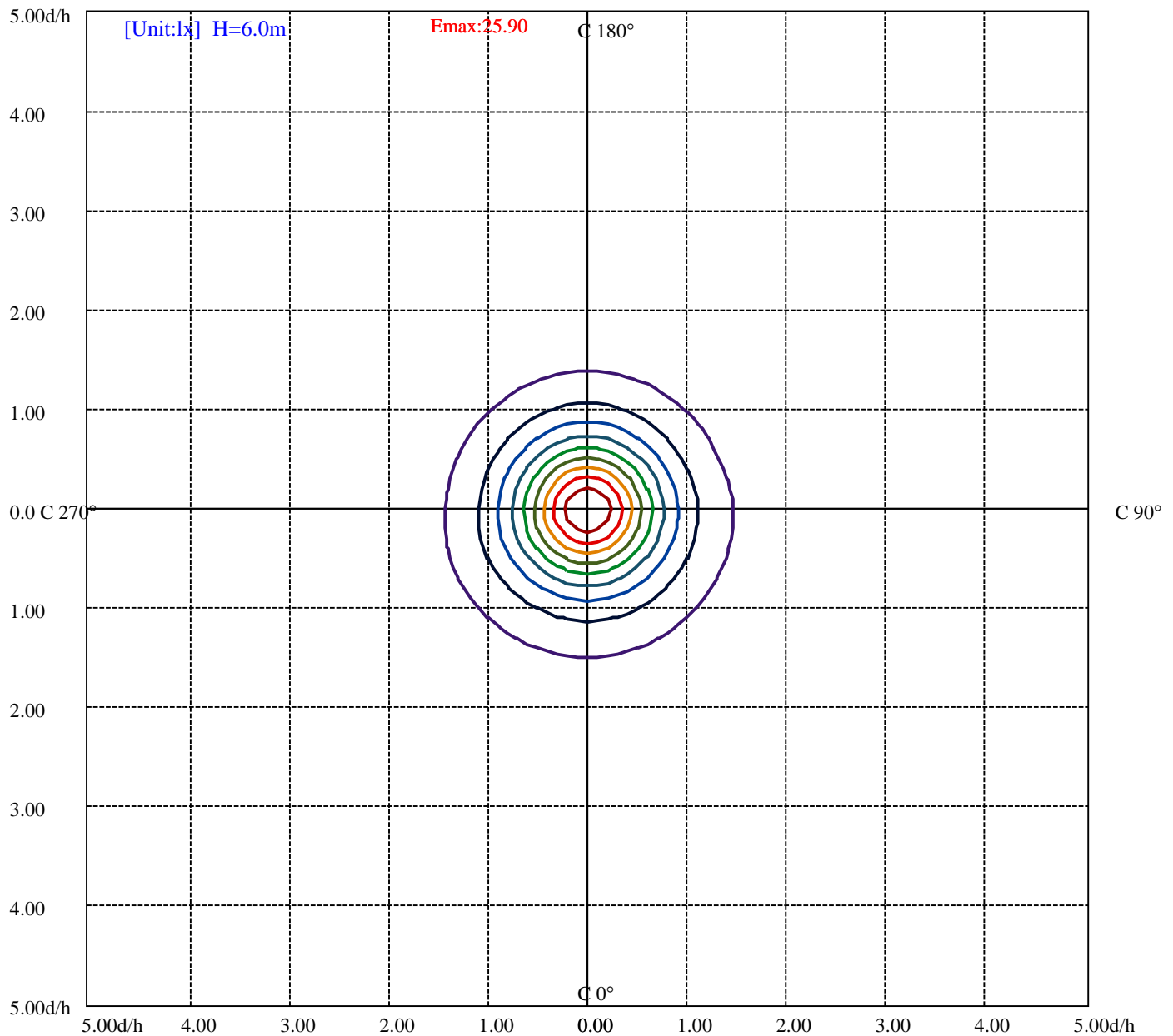
(50%Imax) 469.045

(60%Imax) 562.854

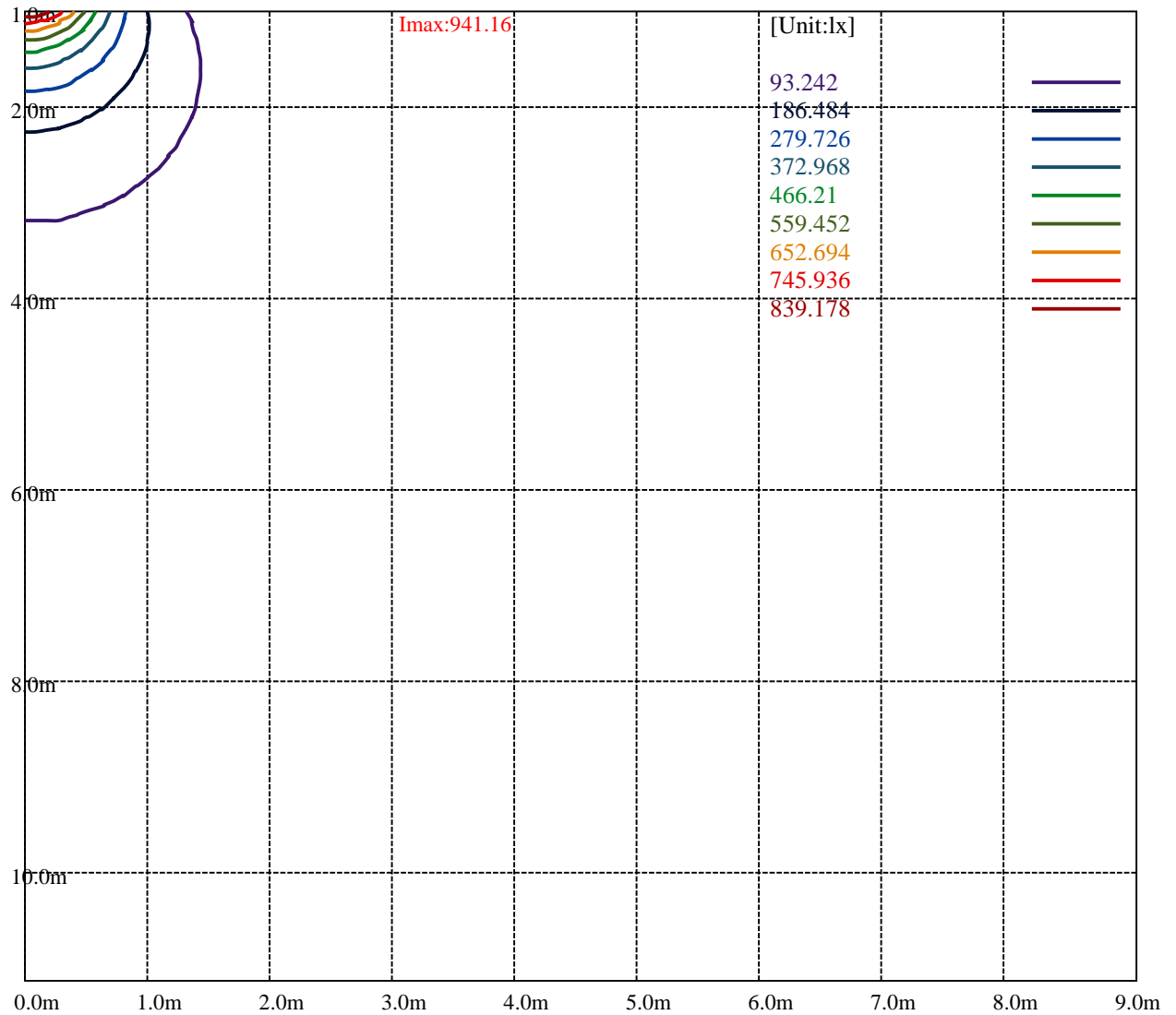
(70%Imax) 656.663

(80%Imax) 750.472

(90%Imax) 844.281



(10%Emax) 2.590055	—
(20%Emax) 5.180111	—
(30%Emax) 7.770167	—
(40%Emax) 10.36022	—
(50%Emax) 12.95028	—
(60%Emax) 15.54033	—
(70%Emax) 18.13039	—
(80%Emax) 20.72044	—
(90%Emax) 23.3105	—



HAWKO LIGHTING hyperFLEX-IP20-4000K-22W-mtr

Intensity data(cd)									Page: 10 Total:11	
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	
0.0	932.42	938.09	922.56	909.03	881.04	848.14	811.85	767.11	716.83	
22.5	932.42	933.17	918.87	898.73	870.13	831.38	788.02	740.05	679.47	
45.0	932.42	921.94	904.72	883.35	851.37	815.39	772.49	723.13	664.86	
67.5	932.42	923.48	905.65	882.12	851.83	814.01	768.95	719.90	659.63	
90.0	932.42	926.25	910.72	886.43	854.60	815.39	770.80	716.52	659.17	
112.5	932.42	917.02	903.03	880.43	849.06	811.39	769.26	714.22	657.32	
135.0	932.42	920.10	904.57	880.43	846.76	810.32	763.73	715.91	663.01	
157.5	932.42	929.48	911.03	889.50	863.21	826.46	779.26	728.05	671.01	
180.0	932.42	934.40	923.48	898.11	872.43	835.53	791.86	741.74	688.69	
202.5	932.42	936.71	924.71	906.72	881.35	854.14	811.70	765.42	718.67	
225.0	932.42	926.56	918.25	899.19	874.74	843.99	811.85	766.34	720.37	
247.5	932.42	931.48	921.64	904.11	880.74	851.83	816.00	773.57	727.75	
270.0	932.42	934.25	926.56	912.10	889.35	861.36	826.00	785.71	736.20	
292.5	932.42	925.48	916.26	904.11	884.43	853.37	819.69	780.64	730.36	
315.0	932.42	927.33	917.02	902.57	880.58	846.45	811.08	771.57	723.90	
337.5	932.42	932.71	920.41	905.65	881.51	848.60	812.62	770.65	724.36	
360.0	932.42	938.09	922.56	909.03	881.04	848.14	811.85	767.11	716.83	
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	
0.0	657.02	593.36	525.24	447.60	370.87	293.04	209.02	134.25	68.47	
22.5	613.35	550.46	470.04	388.71	307.67	223.41	147.15	79.96	26.60	
45.0	596.44	526.47	457.13	374.41	292.76	207.88	132.54	79.80	19.87	
67.5	595.97	529.55	446.37	368.41	285.53	200.50	122.09	55.91	14.50	
90.0	596.13	522.48	447.75	368.26	280.30	196.81	114.86	49.05	10.04	
112.5	594.74	520.48	446.52	366.87	278.61	196.35	120.09	51.33	12.13	
135.0	597.97	526.17	449.13	368.87	285.99	205.12	129.31	59.29	14.93	
157.5	607.51	536.93	463.13	380.25	299.22	221.41	141.92	79.49	23.13	
180.0	623.50	554.46	482.65	403.62	321.97	240.02	156.22	84.26	27.80	
202.5	662.24	603.97	533.24	459.13	378.71	299.77	219.28	146.39	79.26	
225.0	664.09	602.28	539.08	470.97	390.70	306.97	234.44	157.19	90.40	
247.5	674.08	614.27	550.77	481.42	403.47	328.12	246.62	166.49	93.70	
270.0	683.46	625.03	556.92	488.19	415.15	333.20	253.53	169.03	95.45	
292.5	677.62	620.11	553.54	482.50	407.93	322.74	246.91	164.32	94.04	
315.0	663.01	604.89	538.01	468.20	395.47	304.74	235.50	159.16	90.15	
337.5	663.78	604.74	535.39	459.90	373.33	298.56	219.85	145.93	77.71	
360.0	657.02	593.36	525.24	447.60	370.87	293.04	209.02	134.25	68.47	
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0	
0.0	22.86	4.78	4.69	4.83	5.03	5.21	5.43	5.64	5.84	
22.5	11.95	9.35	4.18	4.35	5.86	5.40	4.98	5.15	5.32	
45.0	9.87	4.14	6.46	4.38	4.55	4.77	4.94	5.12	5.27	
67.5	6.61	4.12	4.21	4.43	4.57	4.77	4.94	5.10	5.26	
90.0	4.38	4.12	4.20	4.35	4.55	4.75	4.95	5.14	5.30	
112.5	4.75	4.27	4.37	4.54	4.74	4.90	5.07	5.23	5.40	
135.0	5.50	4.55	4.64	4.83	5.01	5.17	5.34	5.50	5.69	
157.5	4.80	4.49	4.57	4.74	4.94	5.14	5.32	5.54	5.70	
180.0	4.74	4.38	4.47	4.67	4.89	5.10	5.30	5.46	5.66	
202.5	25.99	4.80	4.07	4.15	4.32	4.52	4.72	4.94	5.14	
225.0	33.15	7.07	4.29	4.15	4.29	4.51	4.69	4.90	5.10	
247.5	36.00	8.33	4.15	4.15	4.27	4.49	4.69	4.87	5.07	
270.0	36.56	8.26	4.18	4.29	4.38	4.58	4.80	5.01	5.23	
292.5	37.75	10.15	4.37	4.58	4.57	4.77	5.00	5.21	5.44	
315.0	35.60	9.75	5.70	5.78	4.81	5.01	5.24	5.46	5.66	
337.5	29.92	5.01	4.77	4.86	7.20	6.41	5.87	5.69	5.81	
360.0	22.86	4.78	4.69	4.83	5.03	5.21	5.43	5.64	5.84	

HAWKO LIGHTING hyperFLEX-IP20-4000K-22W-mtr

Intensity data(cd)										Page: 11 Total:11
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0	
0.0	5.95	6.01	5.97	5.94	5.92	5.90	5.87	5.86	5.81	
22.5	5.41	5.47	5.41	5.38	5.34	5.30	5.29	5.30	5.34	
45.0	5.37	5.41	5.37	5.40	5.35	5.35	5.35	5.37	5.40	
67.5	5.35	5.40	5.37	5.37	5.38	5.40	5.40	5.44	5.47	
90.0	5.41	5.44	5.43	5.44	5.44	5.47	5.46	5.52	5.54	
112.5	5.52	5.57	5.57	5.58	5.57	5.57	5.58	5.61	5.69	
135.0	5.80	5.83	5.80	5.78	5.75	5.72	5.70	5.74	5.78	
157.5	5.81	5.83	5.77	5.75	5.70	5.66	5.67	5.67	5.75	
180.0	5.77	5.80	5.72	5.70	5.67	5.64	5.66	5.67	5.75	
202.5	5.27	5.37	5.35	5.35	5.38	5.37	5.34	5.32	5.30	
225.0	5.26	5.35	5.35	5.38	5.40	5.40	5.40	5.40	5.35	
247.5	5.23	5.32	5.32	5.37	5.41	5.46	5.49	5.52	5.50	
270.0	5.40	5.50	5.52	5.55	5.58	5.63	5.63	5.64	5.61	
292.5	5.58	5.69	5.67	5.69	5.72	5.77	5.75	5.77	5.72	
315.0	5.80	5.87	5.84	5.84	5.84	5.84	5.84	5.84	5.80	
337.5	5.94	5.98	5.94	5.90	5.89	5.87	5.84	5.83	5.78	
360.0	5.95	6.01	5.97	5.94	5.92	5.90	5.87	5.86	5.81	
C/γ(°)										
0.0	180.0									
22.5	5.62									
45.0	5.62									
67.5	5.62									
90.0	5.62									
112.5	5.62									
135.0	5.62									
157.5	5.62									
180.0	5.62									
202.5	5.62									
225.0	5.62									
247.5	5.62									
270.0	5.62									
292.5	5.62									
315.0	5.62									
337.5	5.62									
360.0	5.62									