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Nata

LumCAT: 3-1549-A3
Luminaire: TE 2213130-1+92.76.365.00

Report No: GC20170511506	Voltage(V): 219.9000
Test No: NT-0010	Current(A): 0.1360
LampCAT: LUMILEDS LUXEON CoB 1208	Power (W): 28.1000
Lamp flux(lm): 3194.0	PF: 0.9420
Number of Lamps: 1	Ballast type: DC
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2838.55
Efficiency(%): 88.87%
Lumens(lm)/Power(W): 101.02
Central intensity(cd): 11187.460
Maximum intensity(cd): 11187.460
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=22.7
[C90/270]Total=22.7
Field angle(10%Imax): [C0/180]Total=54.0
[C90/270]Total=54.0
Maximum s/h(1/2): C0_180=0.38 C90_270=0.38
Maximum s/h(1/4): C0_180=0.40 C90_270=0.40
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.87%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.691%

Equipment: gms1980	Date: 2017/5/15	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11187.460	0.000	0	.000%	.000%
1.0	11029.586	10.630	10.63	.333%	.375%
2.0	10793.394	31.322	41.953	.981%	1.478%
3.0	10397.676	50.682	92.635	1.587%	3.263%
4.0	9958.326	68.138	160.773	2.133%	5.664%
5.0	9462.956	83.549	244.322	2.616%	8.607%
6.0	8919.687	96.606	340.928	3.025%	12.011%
7.0	8329.896	107.068	447.996	3.352%	15.783%
8.0	7738.452	114.998	562.994	3.600%	19.834%
9.0	7115.764	120.385	683.379	3.769%	24.075%
10.0	6434.166	122.622	806.001	3.839%	28.395%
11.0	5810.377	122.348	928.349	3.831%	32.705%
12.0	5217.007	120.545	1048.894	3.774%	36.952%
13.0	4595.833	116.454	1165.348	3.646%	41.054%
14.0	4059.859	110.792	1276.14	3.469%	44.957%
15.0	3588.576	105.001	1381.141	3.287%	48.657%
16.0	3135.875	98.532	1479.673	3.085%	52.128%
17.0	2792.323	92.318	1571.991	2.890%	55.380%
18.0	2489.513	87.086	1659.077	2.727%	58.448%
19.0	2158.073	80.858	1739.936	2.532%	61.297%
20.0	1912.384	74.501	1814.437	2.333%	63.921%
21.0	1725.330	69.851	1884.288	2.187%	66.382%
22.0	1581.357	66.449	1950.737	2.080%	68.723%
23.0	1461.885	63.855	2014.593	1.999%	70.973%
24.0	1352.736	61.538	2076.13	1.927%	73.141%
25.0	1262.168	59.457	2135.588	1.862%	75.235%
26.0	1190.870	57.904	2193.492	1.813%	77.275%
27.0	1117.081	56.465	2249.956	1.768%	79.264%
28.0	1081.404	55.661	2305.617	1.743%	81.225%
29.0	1045.741	55.652	2361.27	1.742%	83.186%
30.0	1017.153	55.698	2416.967	1.744%	85.148%
31.0	981.050	55.607	2472.574	1.741%	87.107%
32.0	913.578	54.279	2526.853	1.699%	89.019%
33.0	826.039	51.250	2578.103	1.605%	90.825%
34.0	718.458	46.741	2624.844	1.463%	92.471%
35.0	606.267	41.141	2665.985	1.288%	93.921%
36.0	488.047	34.843	2700.828	1.091%	95.148%
37.0	373.929	28.113	2728.941	.880%	96.139%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	271.882	21.556	2750.498	.675%	96.898%
39.0	172.519	15.169	2765.666	.475%	97.432%
40.0	82.130	8.881	2774.547	.278%	97.745%
41.0	36.585	4.227	2778.775	.132%	97.894%
42.0	21.747	2.119	2780.894	.066%	97.969%
43.0	19.394	1.524	2782.418	.048%	98.023%
44.0	17.480	1.392	2783.81	.044%	98.072%
45.0	15.636	1.273	2785.083	.040%	98.116%
46.0	14.246	1.169	2786.251	.037%	98.158%
47.0	13.461	1.102	2787.353	.035%	98.196%
48.0	13.172	1.077	2788.43	.034%	98.234%
49.0	12.911	1.071	2789.501	.034%	98.272%
50.0	12.677	1.067	2790.568	.033%	98.310%
51.0	12.539	1.067	2791.635	.033%	98.347%
52.0	12.401	1.070	2792.705	.034%	98.385%
53.0	12.278	1.074	2793.778	.034%	98.423%
54.0	12.112	1.075	2794.853	.034%	98.461%
55.0	12.016	1.077	2795.93	.034%	98.499%
56.0	11.920	1.082	2797.012	.034%	98.537%
57.0	11.837	1.086	2798.098	.034%	98.575%
58.0	11.782	1.092	2799.19	.034%	98.613%
59.0	11.672	1.096	2800.287	.034%	98.652%
60.0	11.617	1.100	2801.387	.034%	98.691%
61.0	11.589	1.107	2802.495	.035%	98.730%
62.0	11.548	1.115	2803.61	.035%	98.769%
63.0	11.493	1.121	2804.73	.035%	98.809%
64.0	11.438	1.125	2805.855	.035%	98.848%
65.0	11.438	1.132	2806.987	.035%	98.888%
66.0	11.424	1.141	2808.128	.036%	98.928%
67.0	11.410	1.148	2809.276	.036%	98.969%
68.0	11.383	1.155	2810.431	.036%	99.009%
69.0	11.397	1.162	2811.593	.036%	99.050%
70.0	11.438	1.173	2812.766	.037%	99.092%
71.0	11.589	1.190	2813.956	.037%	99.134%
72.0	11.810	1.217	2815.173	.038%	99.176%
73.0	11.989	1.244	2816.417	.039%	99.220%
74.0	12.140	1.268	2817.686	.040%	99.265%
75.0	12.401	1.297	2818.982	.041%	99.311%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	12.608	1.328	2820.31	.042%	99.357%
77.0	12.801	1.355	2821.665	.042%	99.405%
78.0	12.952	1.379	2823.043	.043%	99.454%
79.0	13.131	1.401	2824.445	.044%	99.503%
80.0	13.214	1.420	2825.865	.044%	99.553%
81.0	13.186	1.428	2827.293	.045%	99.603%
82.0	12.594	1.398	2828.691	.044%	99.653%
83.0	12.057	1.340	2830.031	.042%	99.700%
84.0	11.424	1.279	2831.31	.040%	99.745%
85.0	11.066	1.227	2832.537	.038%	99.788%
86.0	11.011	1.207	2833.744	.038%	99.831%
87.0	10.998	1.205	2834.949	.038%	99.873%
88.0	10.956	1.203	2836.151	.038%	99.916%
89.0	10.915	1.199	2837.35	.038%	99.958%
90.0	10.942	1.198	2838.548	.038%	100.000%

Zonal flux distribution table

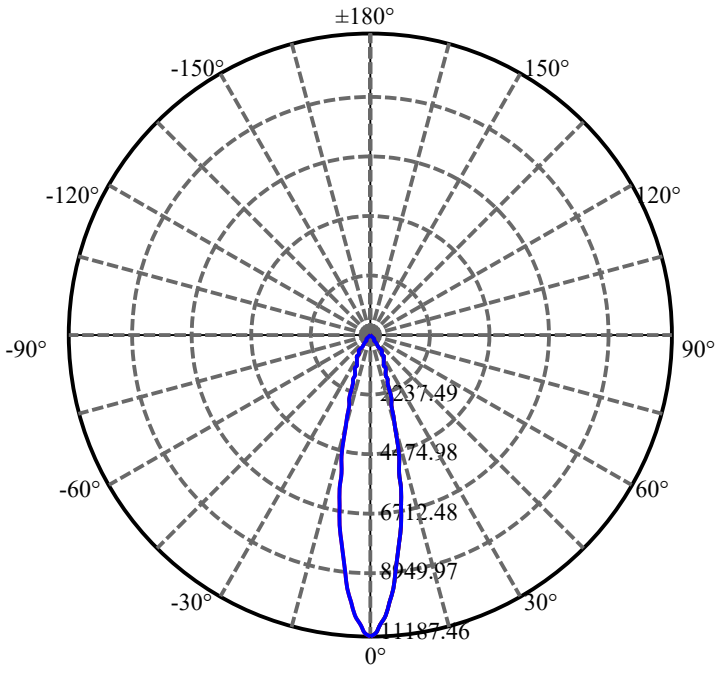
ZONAL LUMEN SUMMARY

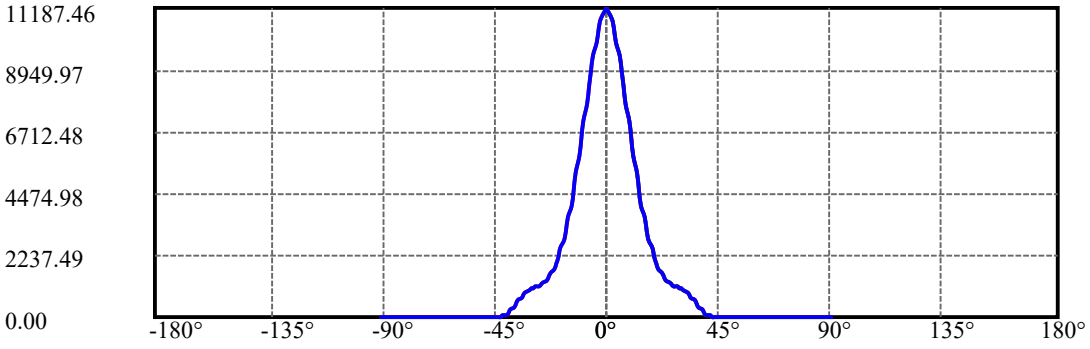
Zone	Lumens	%Lamp	%Fixt
0-30	2416.97	75.67%	85.15%
0-40	2774.55	86.87%	97.75%
0-60	2801.39	87.71%	98.69%
0-90	2837.35	88.83%	99.96%
0-120	2837.35	88.83%	99.96%
0-180	2838.55	88.87%	100.00%
60-90	37.06	1.16%	1.31%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.38	2270.84	71.10%	80.00%

ZONAL LUMEN SUMMARY

0-10	806.00
10-20	1008.44
20-30	602.53
30-40	357.58
40-50	16.02
50-60	10.82
60-70	11.38
70-80	13.10
80-90	11.49
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

Light Distribution Curve [Unit:cd]





C0(Max):

C0/C180:

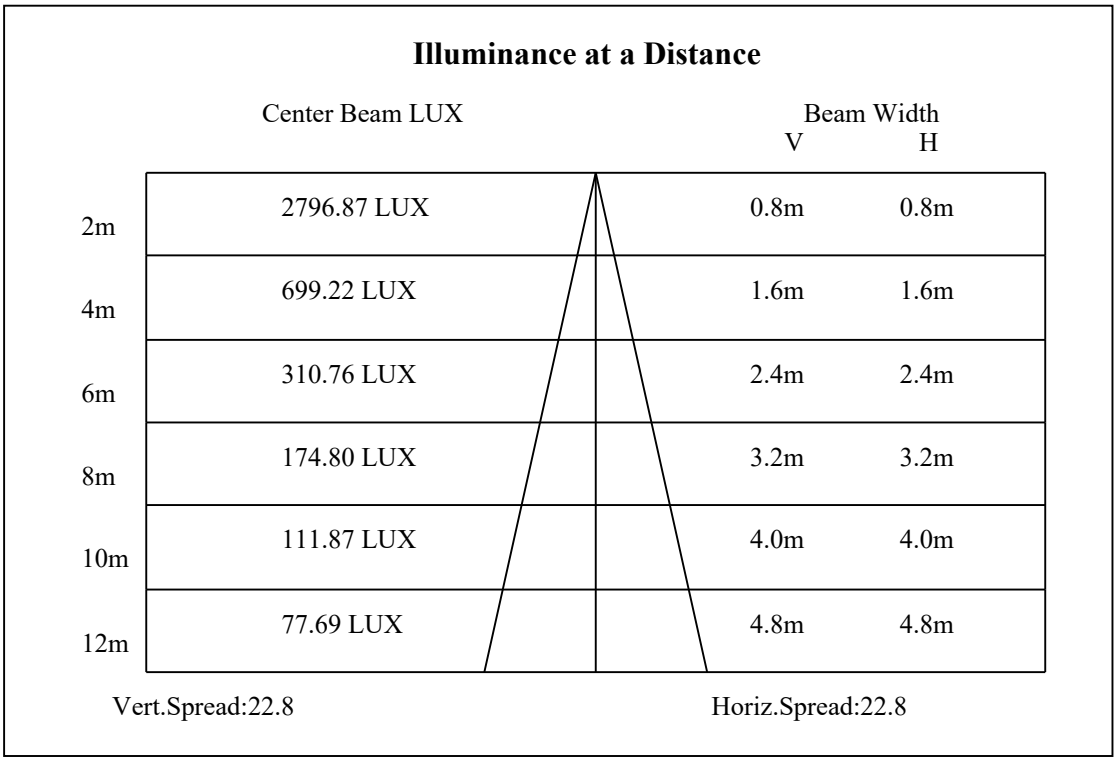
C90/C270:

Field angle(10%Imax):C0/180Left:27.0 Right:27.0
:C90/270Left:27.0 Right:27.0

Beam Angle(50%Imax):C0/180Left:11.4 Right:11.4
:C90/270Left:11.4 Right:11.4

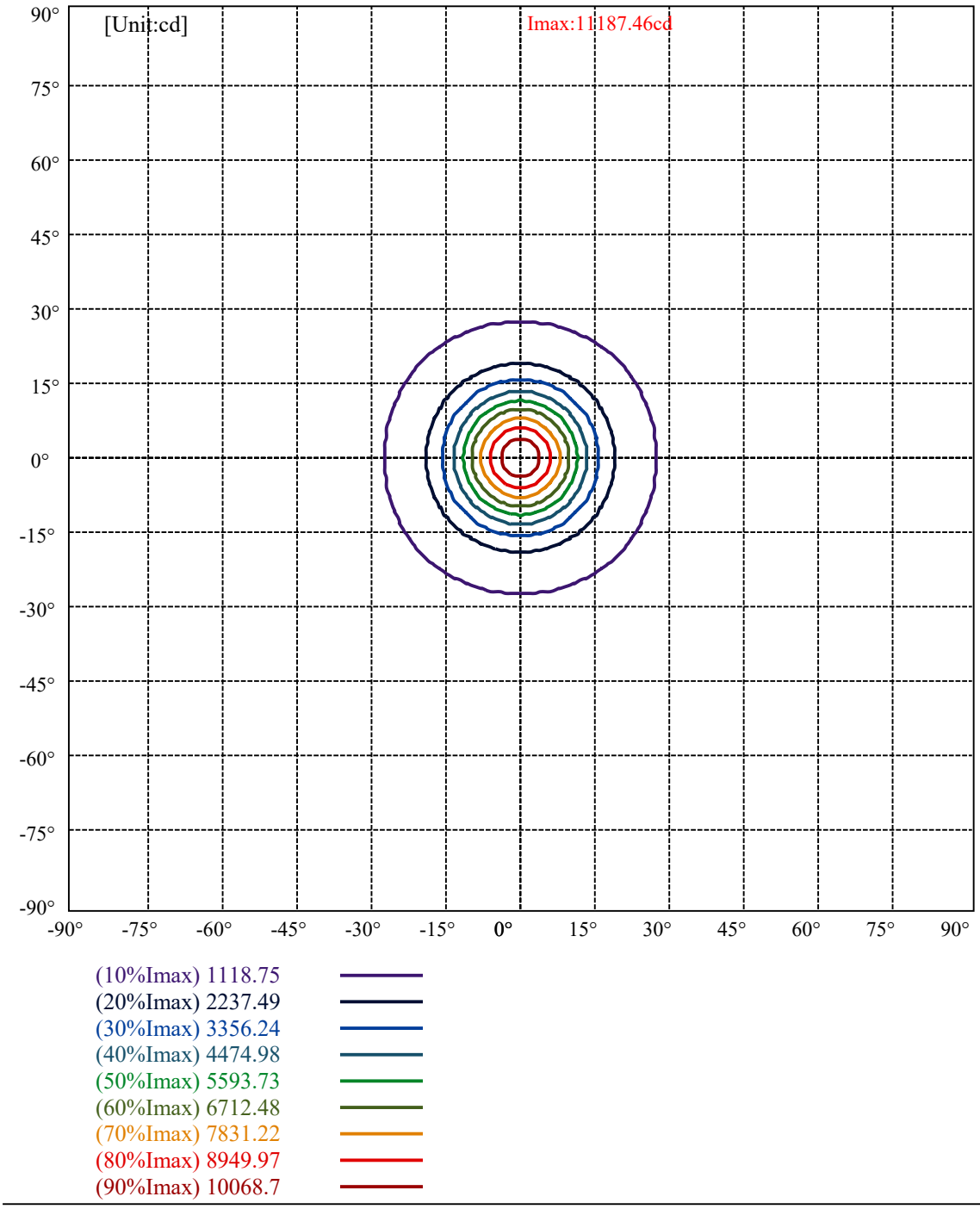
Equipment: gms1980 Date: 2017/5/15 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Lux distance Curve



Equipment: gms1980 Date: 2017/5/15 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)

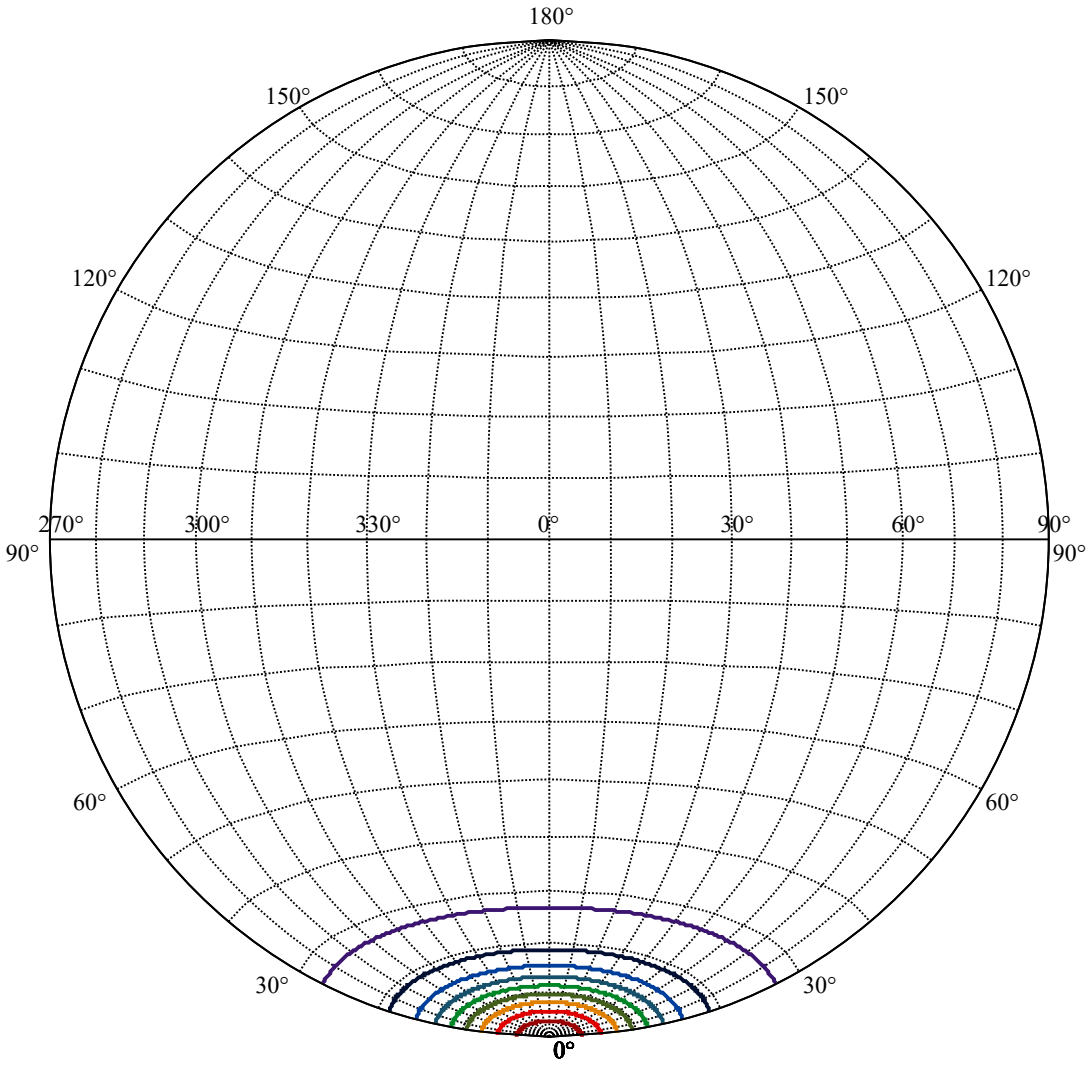


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/15
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:11187.46

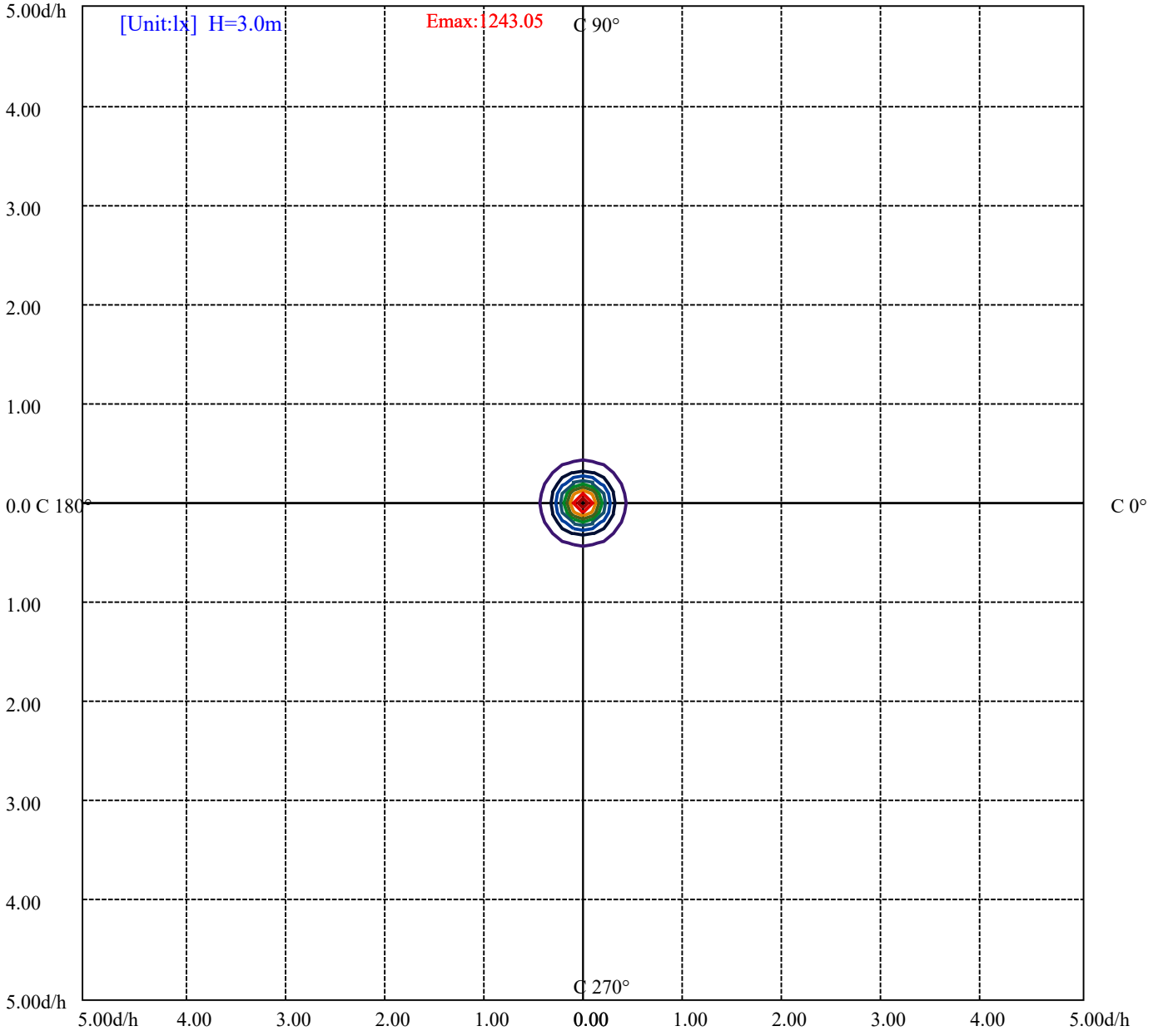
(10%Imax) 1118.75
(20%Imax) 2237.49
(30%Imax) 3356.24
(40%Imax) 4474.98
(50%Imax) 5593.73
(60%Imax) 6712.48
(70%Imax) 7831.22
(80%Imax) 8949.97
(90%Imax) 10068.7

Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/15
Humidity(%): 60.0%

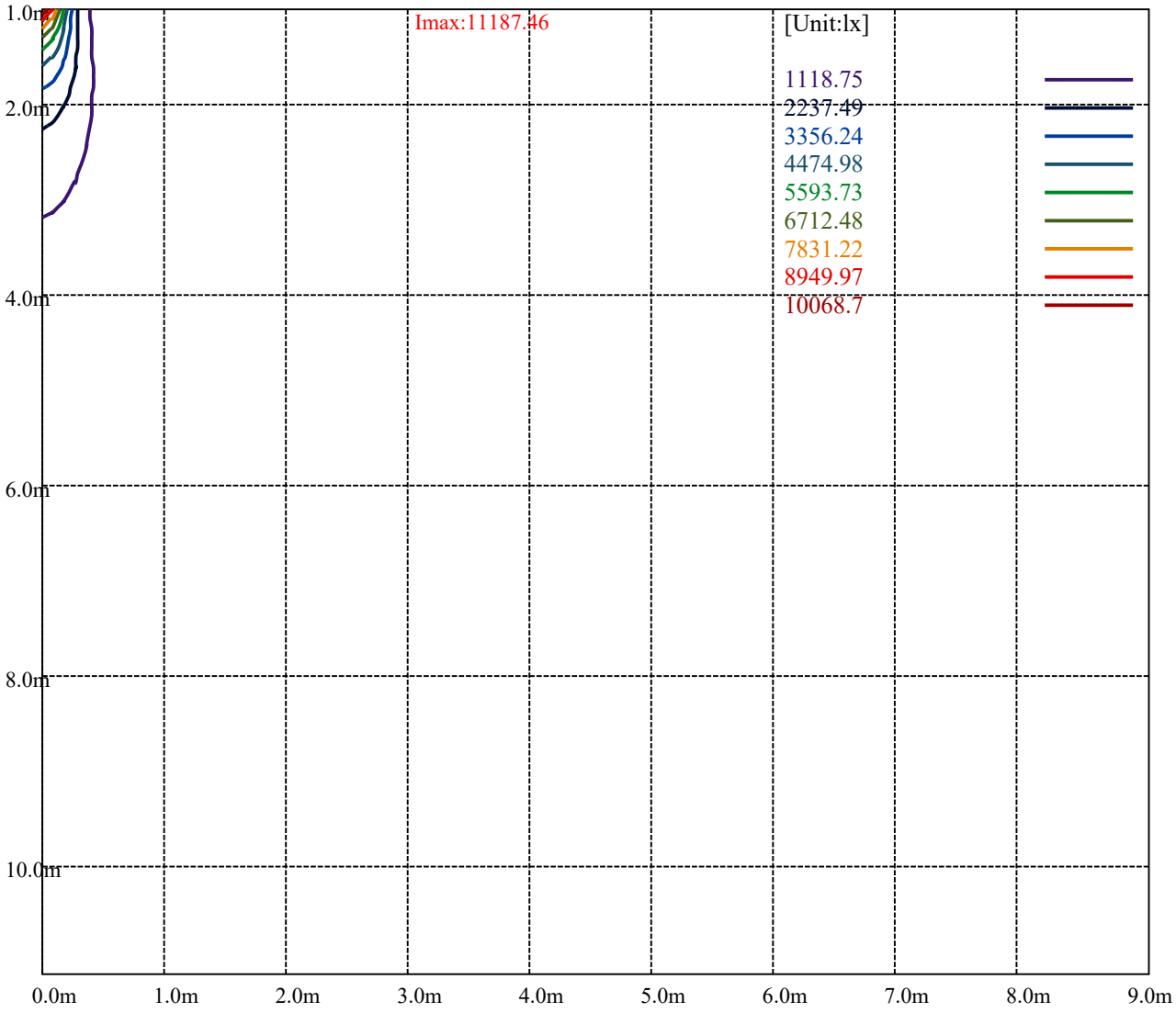
Operator: NT07
Distance(m): 7.42

ISO illuminance diagram



Equipment: gms1980 Date: 2017/5/15 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/15
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Luminance Limitting Curve(no luminous side)

Luminance Table

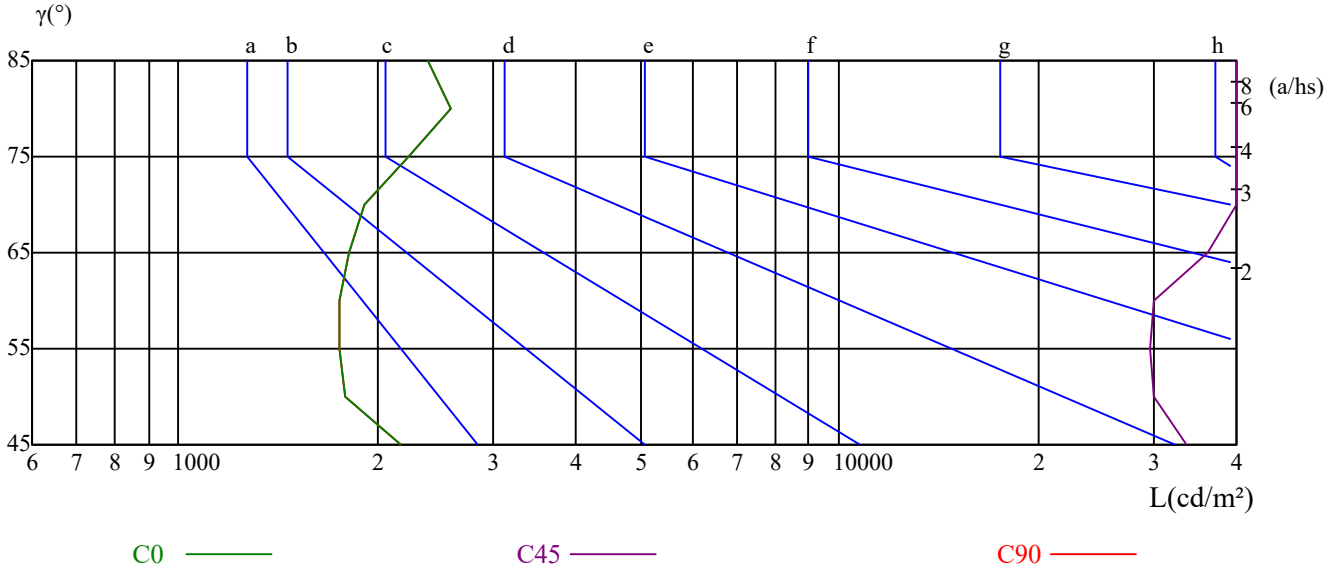
γ	45	50	55	60	65	70	75	80	85
C0	2164	1791	1748	1754	1810	1917	2227	2577	2381
C45	33634	30052	29532	29972	36206	59103	81998	88745	39958
C90	2164	1791	1748	1754	1810	1917	2227	2577	2381

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4448	4448	110817	7876	7876	376067	20870	20870	478838

Glare Table

Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve

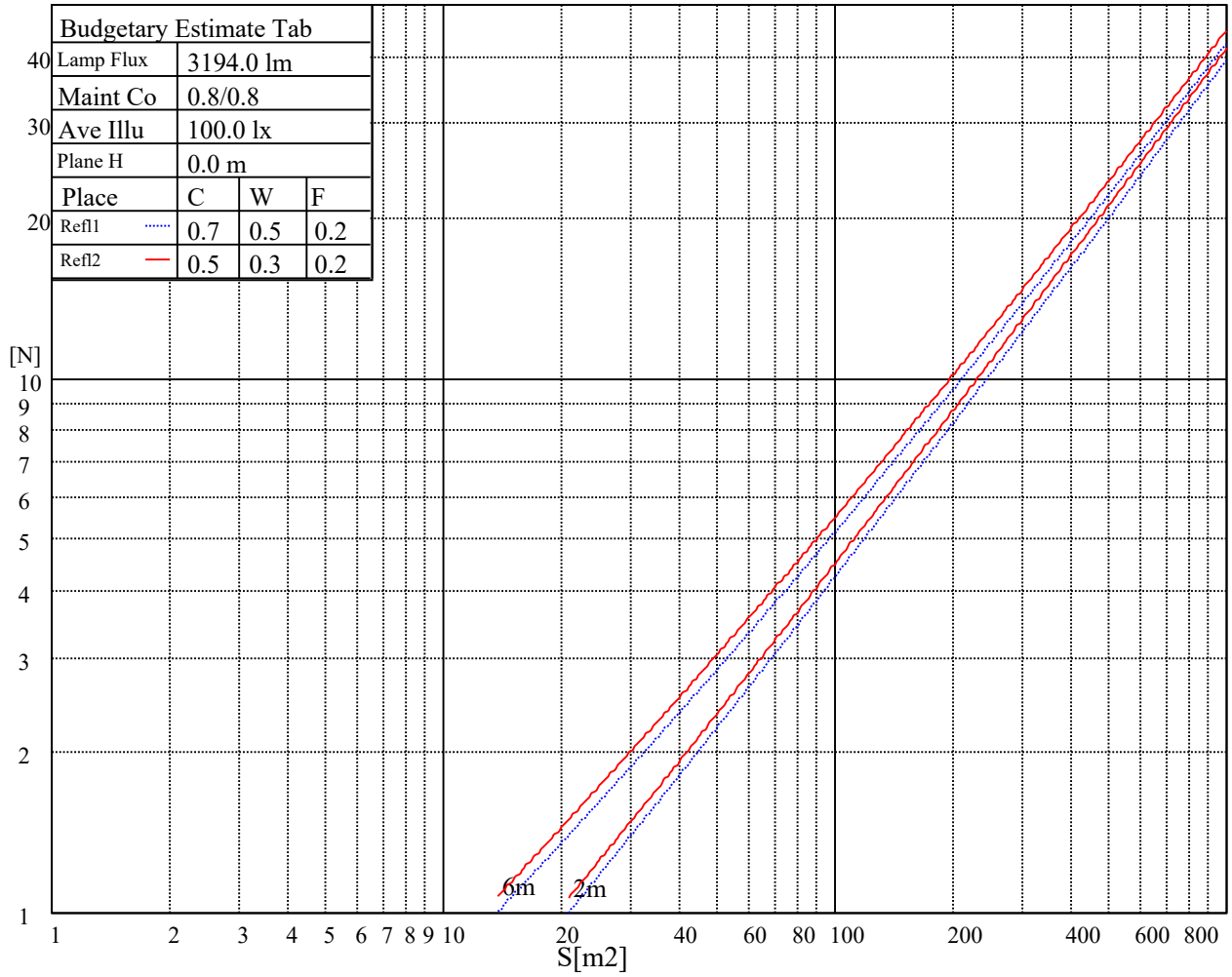


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/15
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Budgetary Estimate Table

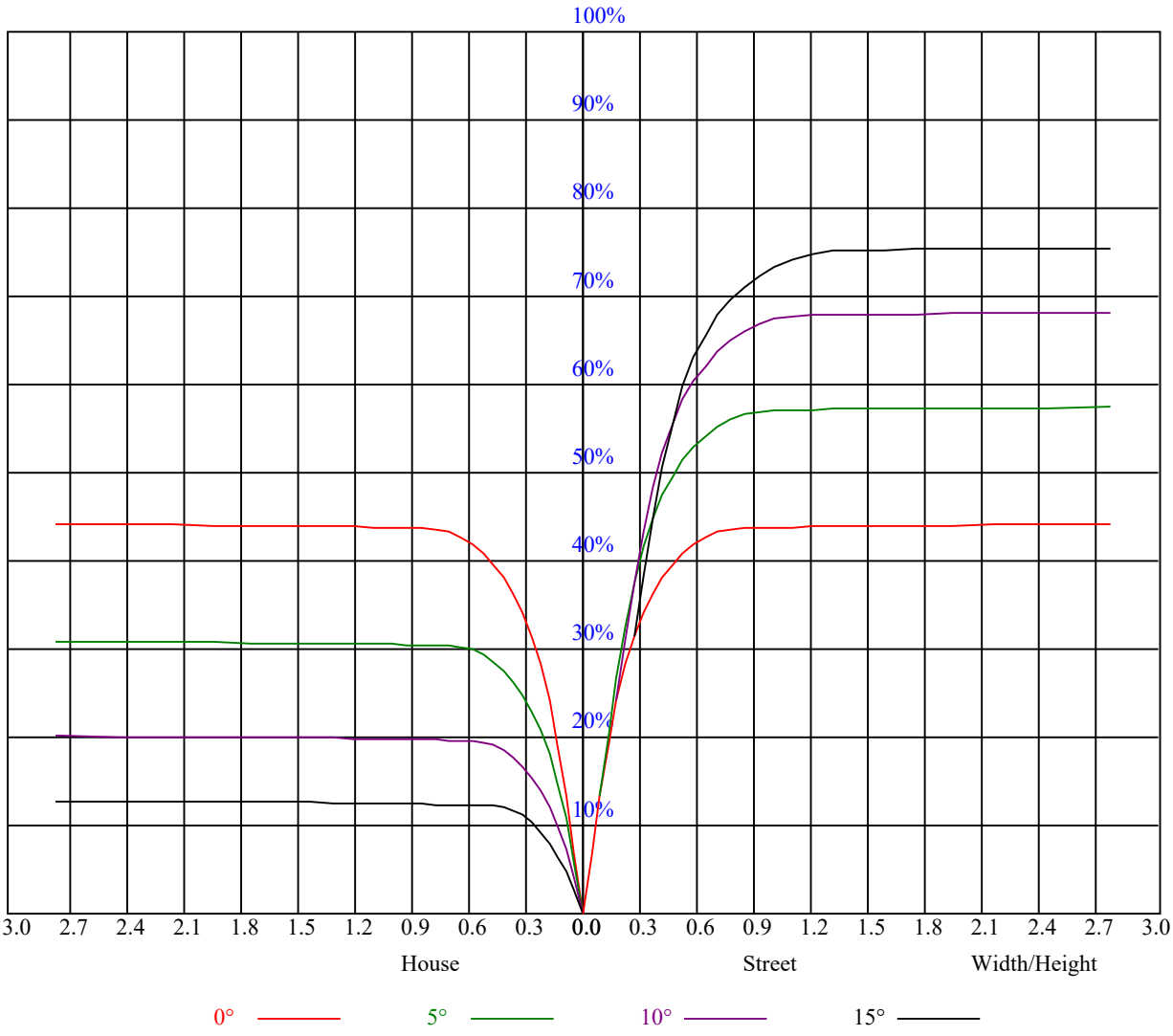


Equipment: gms1980 Date: 2017/5/15 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Utilization factor table for indoor luminaire

RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.99	0.97	0.96	0.97	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.88	0.92	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.84	0.85	0.83	0.82	0.81
3	0.89	0.85	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.81	0.79	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.76	0.80	0.78	0.76	0.79	0.77	0.75	0.74
5	0.81	0.77	0.74	0.80	0.76	0.73	0.79	0.75	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.70
6	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.71	0.69	0.73	0.71	0.69	0.68
7	0.74	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
8	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63
9	0.69	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60
10	0.67	0.62	0.60	0.66	0.62	0.60	0.66	0.62	0.59	0.65	0.62	0.59	0.64	0.61	0.59	0.58

Coefficient Utilization Curve



Equipment: gms1980	Date: 2017/5/15	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	11137.91	11016.79	10680.94	10295.55	9855.10	9315.54	8742.96	8203.40	7559.24
90.0	11237.01	11132.40	10928.70	10614.87	10168.92	9673.41	9199.92	8610.82	8054.75
180.0	11137.91	10984.85	10885.75	10501.46	10085.23	9626.06	9004.47	8461.62	7884.08
270.0	11237.01	10984.30	10678.19	10178.83	9724.06	9236.81	8731.39	8043.74	7455.74
360.0	11137.91	11016.79	10680.94	10295.55	9855.10	9315.54	8742.96	8203.40	7559.24

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6981.15	6325.98	5681.82	5114.74	4503.61	3947.54	3496.08	3055.63	2796.87
90.0	7405.09	6744.41	6144.29	5560.70	4844.96	4310.92	3826.42	3297.88	2923.49
180.0	7215.69	6542.35	5881.12	5307.44	4684.75	4169.97	3651.34	3241.72	2831.55
270.0	6861.13	6123.92	5534.27	4885.15	4350.01	3811.00	3380.46	2948.27	2617.38
360.0	6981.15	6325.98	5681.82	5114.74	4503.61	3947.54	3496.08	3055.63	2796.87

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2400.46	2154.36	1895.59	1727.67	1591.13	1461.20	1352.74	1269.60	1190.87
90.0	2796.87	2271.63	2000.20	1810.80	1632.42	1502.49	1383.57	1282.81	1208.49
180.0	2469.28	2188.49	1930.83	1729.32	1588.93	1472.21	1351.08	1266.30	1194.72
270.0	2291.45	2017.82	1822.92	1633.52	1512.95	1411.65	1323.56	1229.96	1169.40
360.0	2400.46	2154.36	1895.59	1727.67	1591.13	1461.20	1352.74	1269.60	1190.87

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1136.36	1087.36	1051.03	1022.95	989.36	915.59	829.15	730.60	609.47
90.0	1140.22	1090.67	1055.43	1027.90	998.72	966.24	897.42	781.25	679.95
180.0	1096.89	1075.25	1039.96	1008.08	979.18	905.90	805.31	706.65	590.42
270.0	1094.85	1072.33	1036.55	1009.68	956.94	866.59	772.28	655.34	545.22
360.0	1136.36	1087.36	1051.03	1022.95	989.36	915.59	829.15	730.60	609.47

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	485.05	373.83	280.24	144.63	70.91	31.77	21.31	19.38	17.62
90.0	574.24	450.36	334.74	282.99	136.71	61.17	24.72	22.08	19.88
180.0	471.67	367.94	269.01	154.71	78.90	30.39	19.93	17.84	16.02
270.0	421.24	303.58	203.54	107.75	42.01	23.01	21.03	18.28	16.41
360.0	485.05	373.83	280.24	144.63	70.91	31.77	21.31	19.38	17.62

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	15.31	13.98	13.65	13.27	13.05	12.77	12.61	12.44	12.33
90.0	17.89	15.47	13.54	13.27	12.88	12.66	12.50	12.44	12.28
180.0	14.53	13.82	13.49	13.21	12.99	12.77	12.66	12.50	12.39
270.0	14.81	13.71	13.16	12.94	12.72	12.50	12.39	12.22	12.11
360.0	15.31	13.98	13.65	13.27	13.05	12.77	12.61	12.44	12.33

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.17	12.06	11.95	11.89	11.84	11.73	11.62	11.62	11.56
90.0	12.11	12.00	11.89	11.78	11.78	11.62	11.62	11.56	11.51
180.0	12.22	12.11	12.06	11.95	11.89	11.78	11.73	11.73	11.67
270.0	11.95	11.89	11.78	11.73	11.62	11.56	11.51	11.45	11.45
360.0	12.17	12.06	11.95	11.89	11.84	11.73	11.62	11.62	11.56

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.51	11.45	11.45	11.40	11.40	11.34	11.29	11.23	11.23
90.0	11.45	11.45	11.40	11.34	11.34	11.29	11.29	11.23	11.29
180.0	11.62	11.51	11.56	11.62	11.62	11.62	11.73	12.06	12.61
270.0	11.40	11.34	11.34	11.34	11.29	11.29	11.29	11.23	11.23
360.0	11.51	11.45	11.45	11.40	11.40	11.34	11.29	11.23	11.23

Intensity data(cd)

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	11.23	11.23	11.18	11.12	11.12	11.07	11.07	11.12	11.07
90.0	11.23	11.23	11.18	11.12	11.12	11.12	11.12	11.18	11.29
180.0	13.60	14.26	14.92	15.91	16.52	17.12	17.56	18.00	18.11
270.0	11.18	11.23	11.29	11.45	11.67	11.89	12.06	12.22	12.39
360.0	11.23	11.23	11.18	11.12	11.12	11.07	11.07	11.12	11.07

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.07	11.01	11.01	11.01	11.01	10.96	10.96	11.01	10.96
90.0	11.34	11.40	11.34	11.12	11.01	11.01	11.01	10.96	10.85
180.0	17.89	16.63	14.87	12.55	11.23	11.12	11.12	10.96	10.96
270.0	12.44	11.34	11.01	11.01	11.01	10.96	10.90	10.90	10.90
360.0	11.07	11.01	11.01	11.01	11.01	10.96	10.96	11.01	10.96

C/γ(°)	90.0
0.0	11.01
90.0	10.90
180.0	10.96
270.0	10.90
360.0	11.01