NATA LIGHTING CO.,LTD
www.nata.cn
Email:info@nata.cn
Tel:+86 0750-377 0000(10 lines) Fax:+86 0750-377 1111
Address:380JinOu Road,Gaoxin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 3-2044-M
Luminaire: 92.76.129.00
Report No: GC2017061708
Test No: NT-0010
LampCAT: CREE CXA1820
Lamp flux(lm): 2283.0
Number of Lamps: 1
Length(mm): 84
Phm Type: C

Voltage(V): 36.0000
Current(A): 0.5000
Power (W): 18.0000
PF: 0.0000
Ballast type: DC
Width(mm): 84
Height(mm): 0

Photometric Results

Lumens(lm): 2046.30
Efficiency(%): 89.63%
Lumens(lm)/Power(W): 113.68
Central intensity(cd): 8181.381
Maximum intensity(cd): 8181.381
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=23.9
[C90/270]Total=23.9
Field angle(10%Imax): [C0/180]Total=49.8
[C90/270]Total=49.8
Maximum s/h(1/2): C0_180=0.41 C90_270=0.41
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(%): 89.63%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.759%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8181.381	0.000	0	.000%	.000%
1.0	8145.594	7.812	7.812	.342%	.382%
2.0	8070.442	23.275	31.087	1.019%	1.519%
3.0	7930.186	38.268	69.355	1.676%	3.389%
4.0	7711.888	52.359	121.714	2.293%	5.948%
5.0	7465.097	65.291	187.005	2.860%	9.139%
6.0	7120.582	76.652	263.656	3.357%	12.885%
7.0	6709.448	85.843	349.499	3.760%	17.080%
8.0	6261.977	92.834	442.333	4.066%	21.616%
9.0	5722.975	97.132	539.465	4.255%	26.363%
10.0	5166.630	98.547	638.012	4.317%	31.179%
11.0	4635.336	97.942	735.953	4.290%	35.965%
12.0	4055.317	95.001	830.955	4.161%	40.608%
13.0	3495.256	89.606	920.561	3.925%	44.987%
14.0	3020.394	83.400	1003.961	3.653%	49.062%
15.0	2570.170	76.750	1080.711	3.362%	52.813%
16.0	2190.557	69.758	1150.468	3.056%	56.222%
17.0	1885.957	63.482	1213.951	2.781%	59.324%
18.0	1638.616	58.113	1272.063	2.545%	62.164%
19.0	1385.673	52.616	1324.68	2.305%	64.735%
20.0	1237.723	48.015	1372.695	2.103%	67.082%
21.0	1092.415	44.743	1417.439	1.960%	69.268%
22.0	966.845	41.382	1458.82	1.813%	71.291%
23.0	908.733	39.355	1498.175	1.724%	73.214%
24.0	852.438	38.506	1536.681	1.687%	75.095%
25.0	815.041	37.915	1574.595	1.661%	76.948%
26.0	786.508	37.805	1612.4	1.656%	78.796%
27.0	765.325	37.966	1650.366	1.663%	80.651%
28.0	746.826	38.284	1688.651	1.677%	82.522%
29.0	728.575	38.601	1727.251	1.691%	84.408%
30.0	713.930	38.947	1766.199	1.706%	86.312%
31.0	686.457	38.971	1805.169	1.707%	88.216%
32.0	641.118	38.033	1843.203	1.666%	90.075%
33.0	586.034	36.152	1879.355	1.584%	91.841%
34.0	501.578	32.914	1912.269	1.442%	93.450%
35.0	416.860	28.523	1940.793	1.249%	94.844%
36.0	299.218	22.800	1963.593	.999%	95.958%
37.0	198.822	16.243	1979.836	.711%	96.752%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	149.753	11.635	1991.471	.510%	97.320%
39.0	73.418	7.617	1999.089	.334%	97.693%
40.0	33.612	3.733	2002.821	.164%	97.875%
41.0	18.816	1.867	2004.688	.082%	97.966%
42.0	15.526	1.248	2005.936	.055%	98.027%
43.0	13.516	1.076	2007.012	.047%	98.080%
44.0	11.782	0.955	2007.967	.042%	98.127%
45.0	10.887	0.871	2008.838	.038%	98.169%
46.0	10.337	0.830	2009.668	.036%	98.210%
47.0	10.048	0.811	2010.479	.036%	98.249%
48.0	9.841	0.804	2011.283	.035%	98.289%
49.0	9.649	0.800	2012.083	.035%	98.328%
50.0	9.470	0.797	2012.88	.035%	98.367%
51.0	9.346	0.796	2013.676	.035%	98.406%
52.0	9.222	0.797	2014.473	.035%	98.444%
53.0	9.126	0.798	2015.271	.035%	98.483%
54.0	9.043	0.801	2016.072	.035%	98.523%
55.0	8.878	0.800	2016.872	.035%	98.562%
56.0	8.823	0.800	2017.672	.035%	98.601%
57.0	8.740	0.803	2018.475	.035%	98.640%
58.0	8.671	0.805	2019.28	.035%	98.679%
59.0	8.630	0.809	2020.089	.035%	98.719%
60.0	8.561	0.812	2020.901	.036%	98.759%
61.0	8.492	0.814	2021.715	.036%	98.798%
62.0	8.437	0.816	2022.53	.036%	98.838%
63.0	8.410	0.819	2023.35	.036%	98.878%
64.0	8.369	0.823	2024.173	.036%	98.919%
65.0	8.314	0.826	2024.999	.036%	98.959%
66.0	8.286	0.828	2025.827	.036%	98.999%
67.0	8.217	0.830	2026.657	.036%	99.040%
68.0	8.190	0.831	2027.488	.036%	99.081%
69.0	8.176	0.835	2028.323	.037%	99.121%
70.0	8.148	0.838	2029.161	.037%	99.162%
71.0	8.121	0.841	2030.002	.037%	99.203%
72.0	8.093	0.843	2030.845	.037%	99.245%
73.0	8.052	0.844	2031.689	.037%	99.286%
74.0	8.066	0.847	2032.537	.037%	99.327%
75.0	8.011	0.849	2033.386	.037%	99.369%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.024	0.851	2034.237	.037%	99.410%
77.0	8.011	0.855	2035.092	.037%	99.452%
78.0	7.969	0.855	2035.948	.037%	99.494%
79.0	7.969	0.856	2036.804	.038%	99.536%
80.0	7.969	0.859	2037.663	.038%	99.578%
81.0	7.969	0.862	2038.525	.038%	99.620%
82.0	7.956	0.864	2039.389	.038%	99.662%
83.0	7.956	0.865	2040.254	.038%	99.704%
84.0	7.956	0.867	2041.121	.038%	99.747%
85.0	7.901	0.865	2041.986	.038%	99.789%
86.0	7.887	0.863	2042.849	.038%	99.831%
87.0	7.901	0.864	2043.713	.038%	99.873%
88.0	7.846	0.863	2044.576	.038%	99.916%
89.0	7.901	0.863	2045.439	.038%	99.958%
90.0	7.873	0.865	2046.304	.038%	100.000%

Zonal flux distribution table

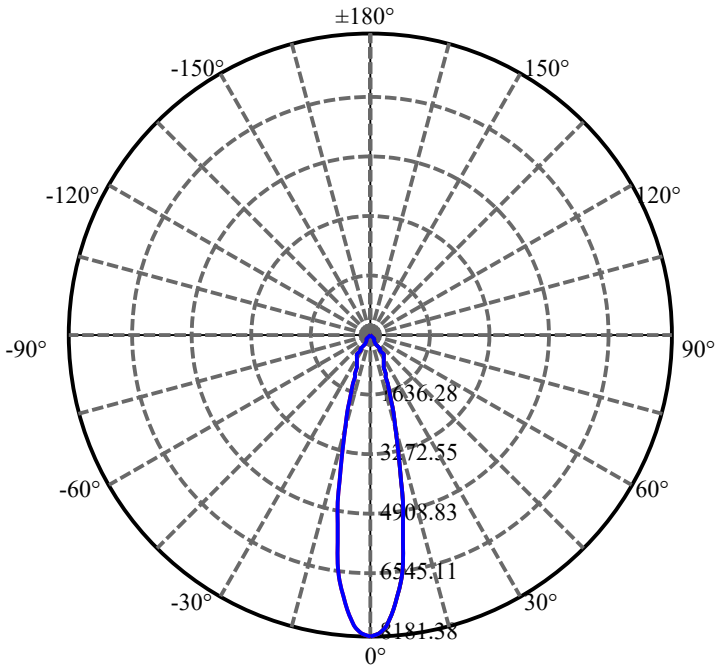
ZONAL LUMEN SUMMARY

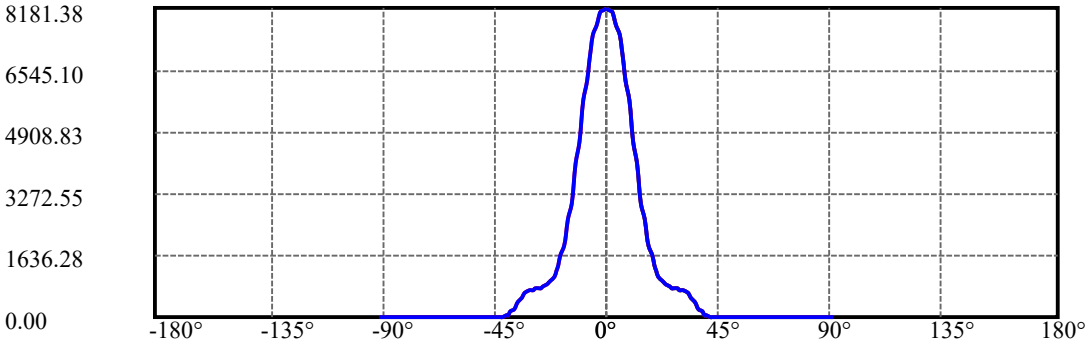
Zone	Lumens	%Lamp	%Fixt
0-30	1766.20	77.36%	86.31%
0-40	2002.82	87.73%	97.88%
0-60	2020.90	88.52%	98.76%
0-90	2045.44	89.59%	99.96%
0-120	2045.44	89.59%	99.96%
0-180	2046.30	89.63%	100.00%
60-90	25.35	1.11%	1.24%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.65	1637.04	71.71%	80.00%

ZONAL LUMEN SUMMARY

0-10	638.01
10-20	734.68
20-30	393.50
30-40	236.62
40-50	10.06
50-60	8.02
60-70	8.26
70-80	8.50
80-90	7.78
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):

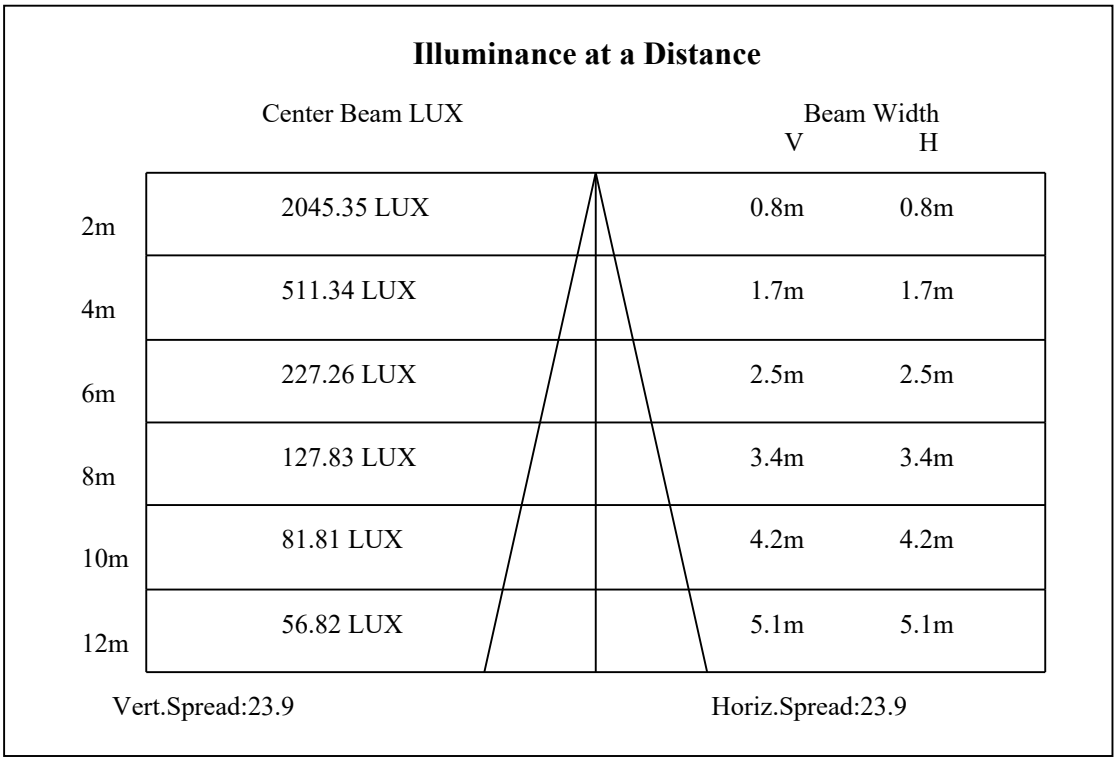
C0/C180:

C90/C270:

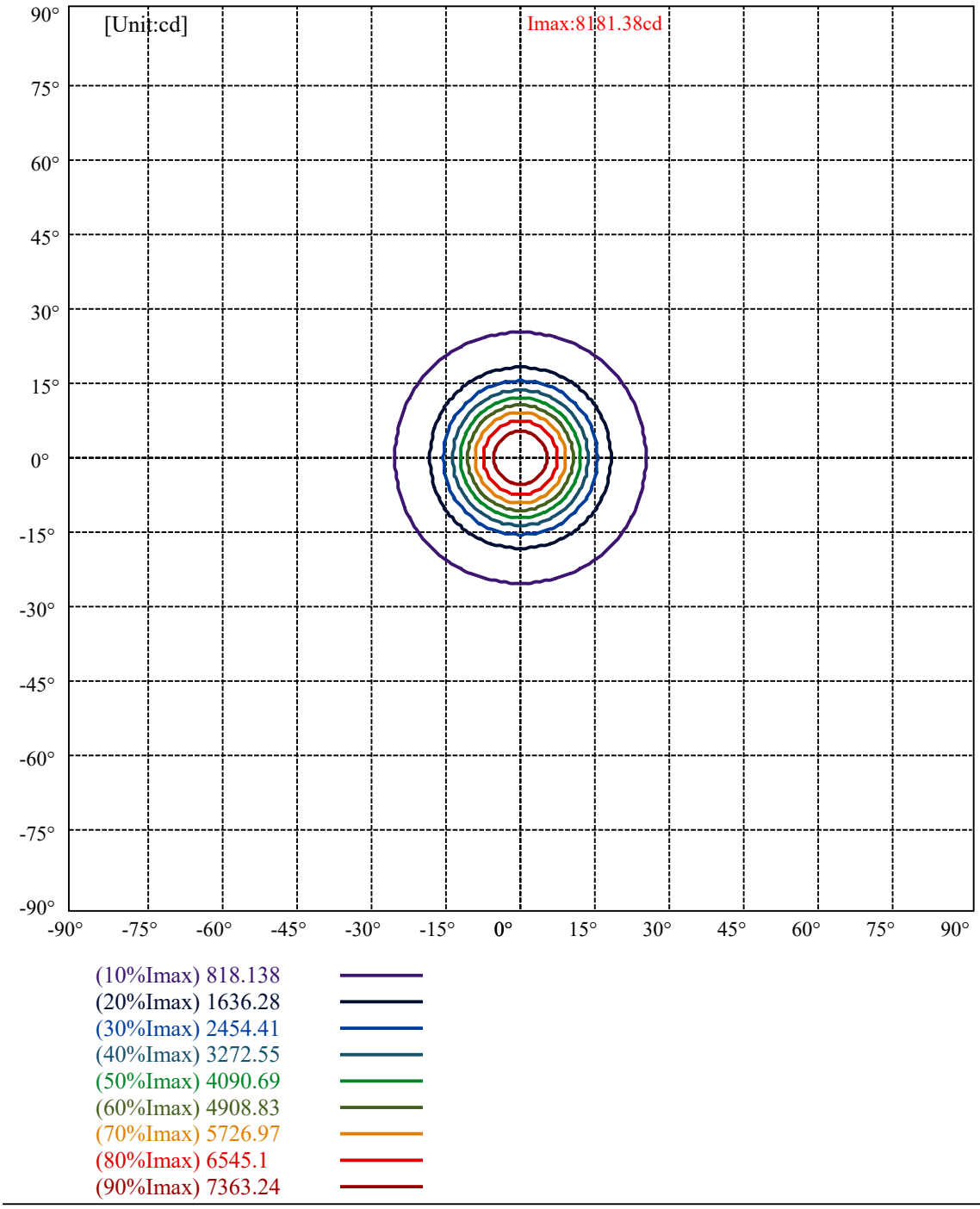
Field angle(10%Imax):C0/180Left:24.9 Right:24.9
:C90/270Left:24.9 Right:24.9

Beam Angle(50%Imax):C0/180Left:11.9 Right:11.9
:C90/270Left:11.9 Right:11.9

Lux distance Curve



ISO-Intensity(V-H)

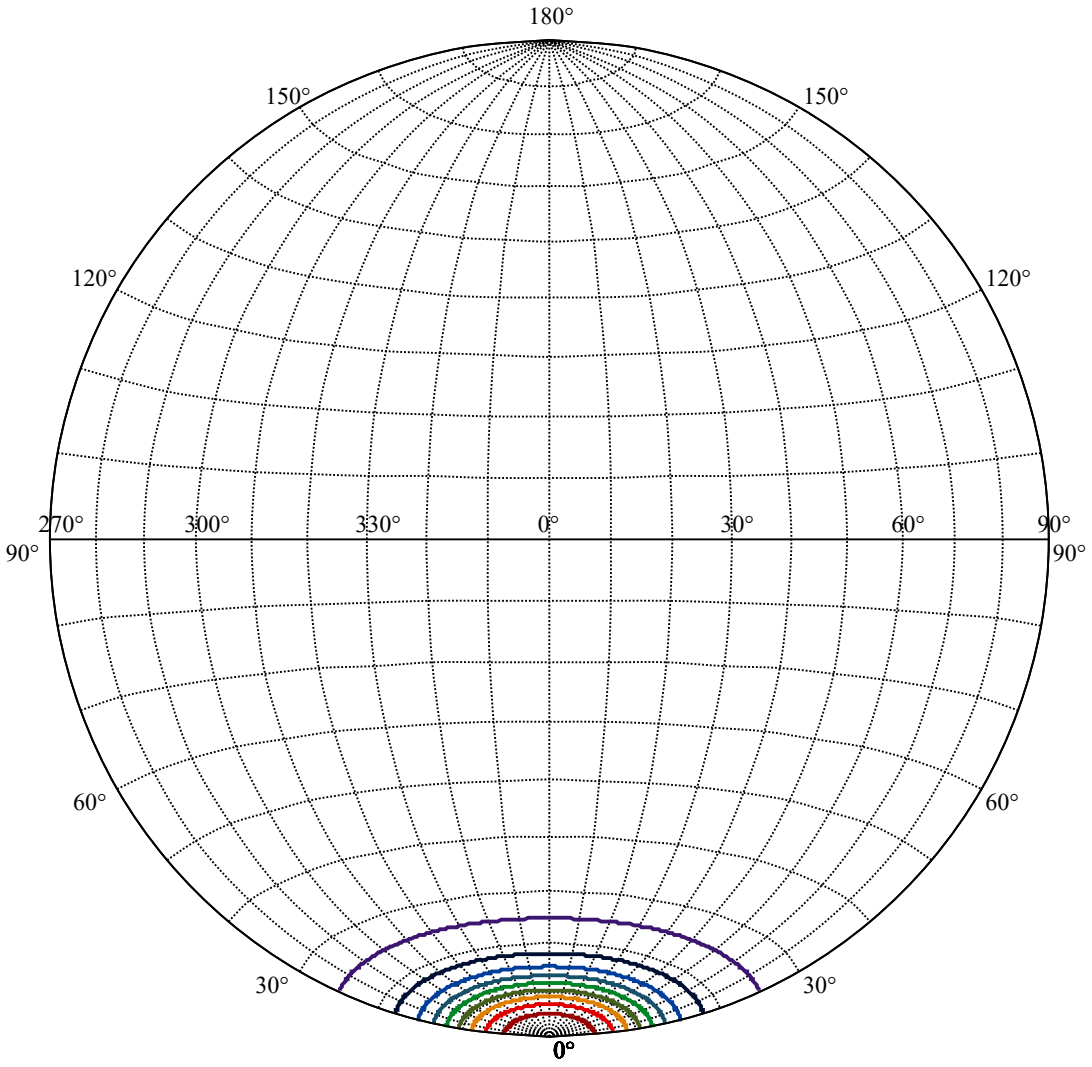


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/13
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



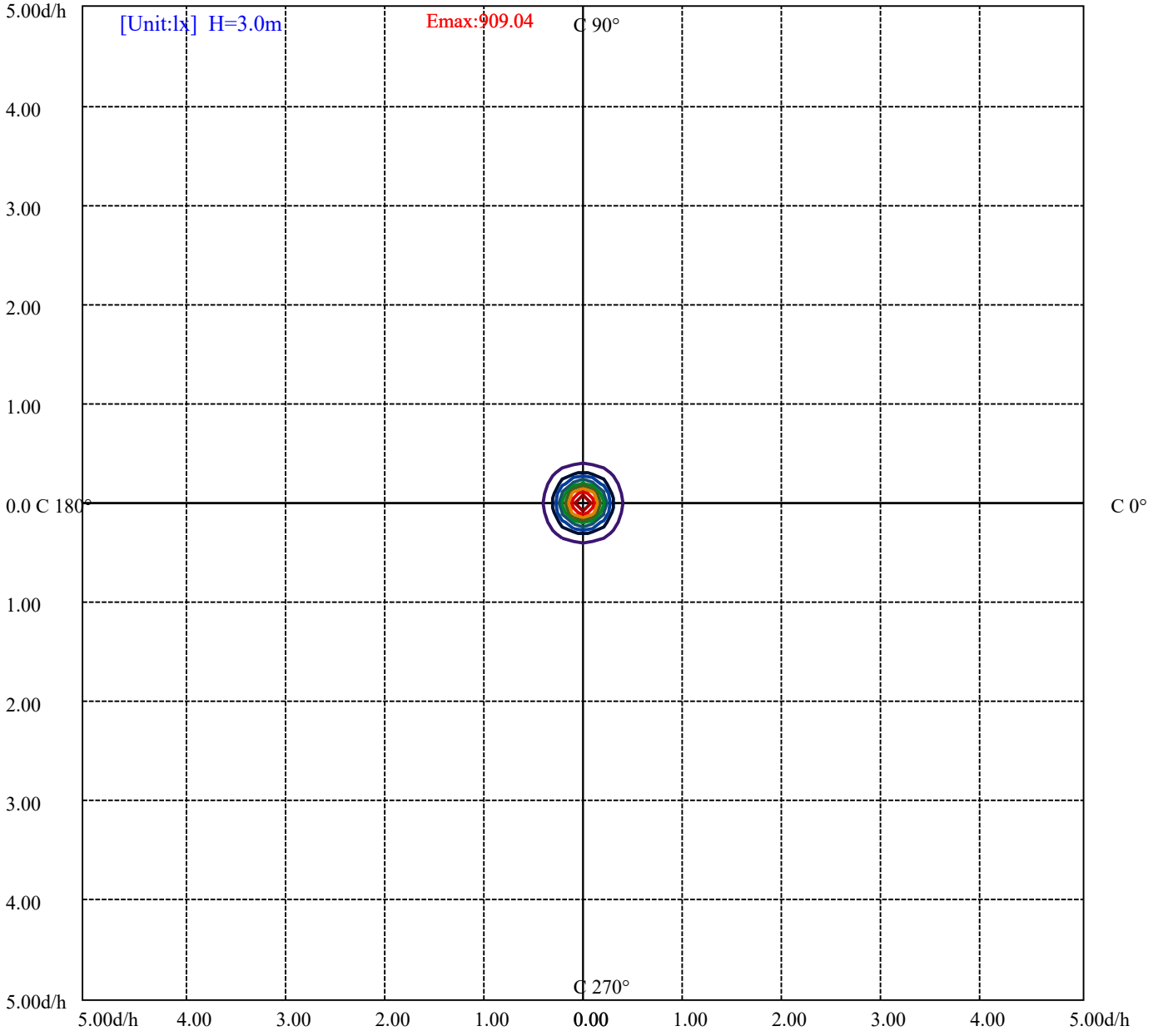
[Unit:cd]

Imax:8181.38

(10%Imax) 818.138
(20%Imax) 1636.28
(30%Imax) 2454.41
(40%Imax) 3272.55
(50%Imax) 4090.69
(60%Imax) 4908.83
(70%Imax) 5726.97
(80%Imax) 6545.1
(90%Imax) 7363.24

Equipment: gms1980	Date: 2017/6/13	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

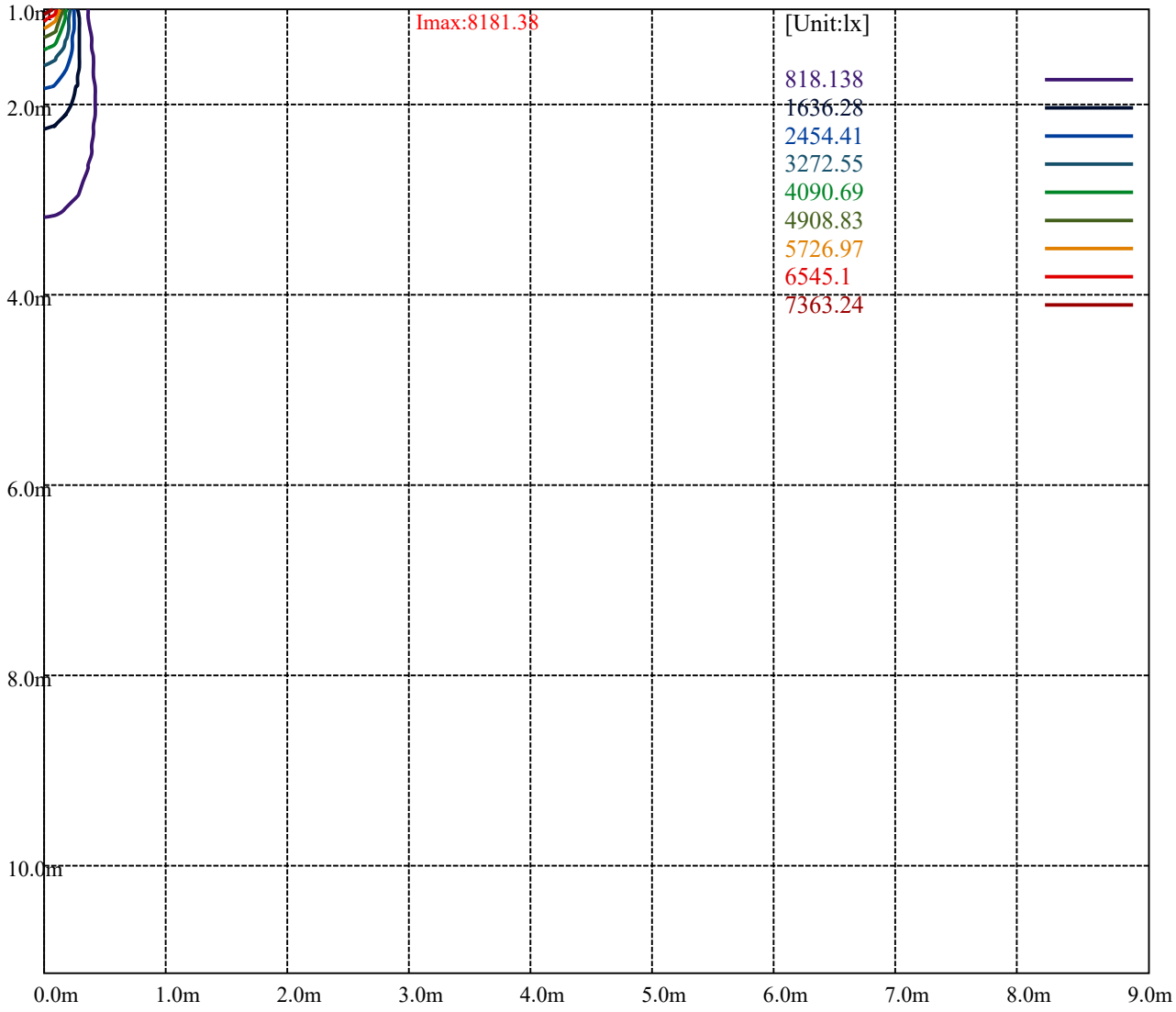
ISO illuminance diagram



(10%Emax) 90.90422
(20%Emax) 181.8089
(30%Emax) 272.7122
(40%Emax) 363.6167
(50%Emax) 454.5211
(60%Emax) 545.4255
(70%Emax) 636.3289
(80%Emax) 727.2333
(90%Emax) 818.1378

Equipment: gms1980
Temperature(°C): 25.0
Date: 2017/6/13
Humidity(%): 60.0%
Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/13
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Nata 3-2044-M

Luminance Limitting Curve(no luminous side)

Luminance Table

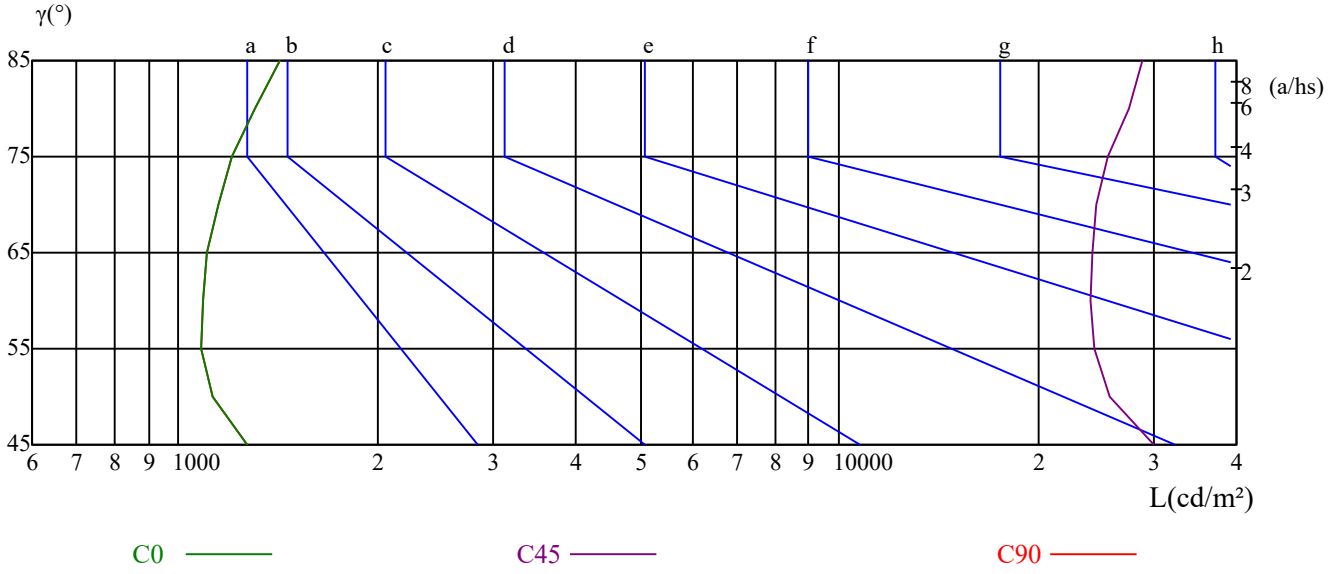
γ	45	50	55	60	65	70	75	80	85
C0	1267	1125	1085	1086	1105	1147	1208	1304	1426
C45	29997	25715	24448	23998	24130	24575	25553	27514	28754
C90	1267	1125	1085	1086	1105	1147	1208	1304	1426

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2723	2723	74065	4284	4284	117578	12547	12547	345906

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

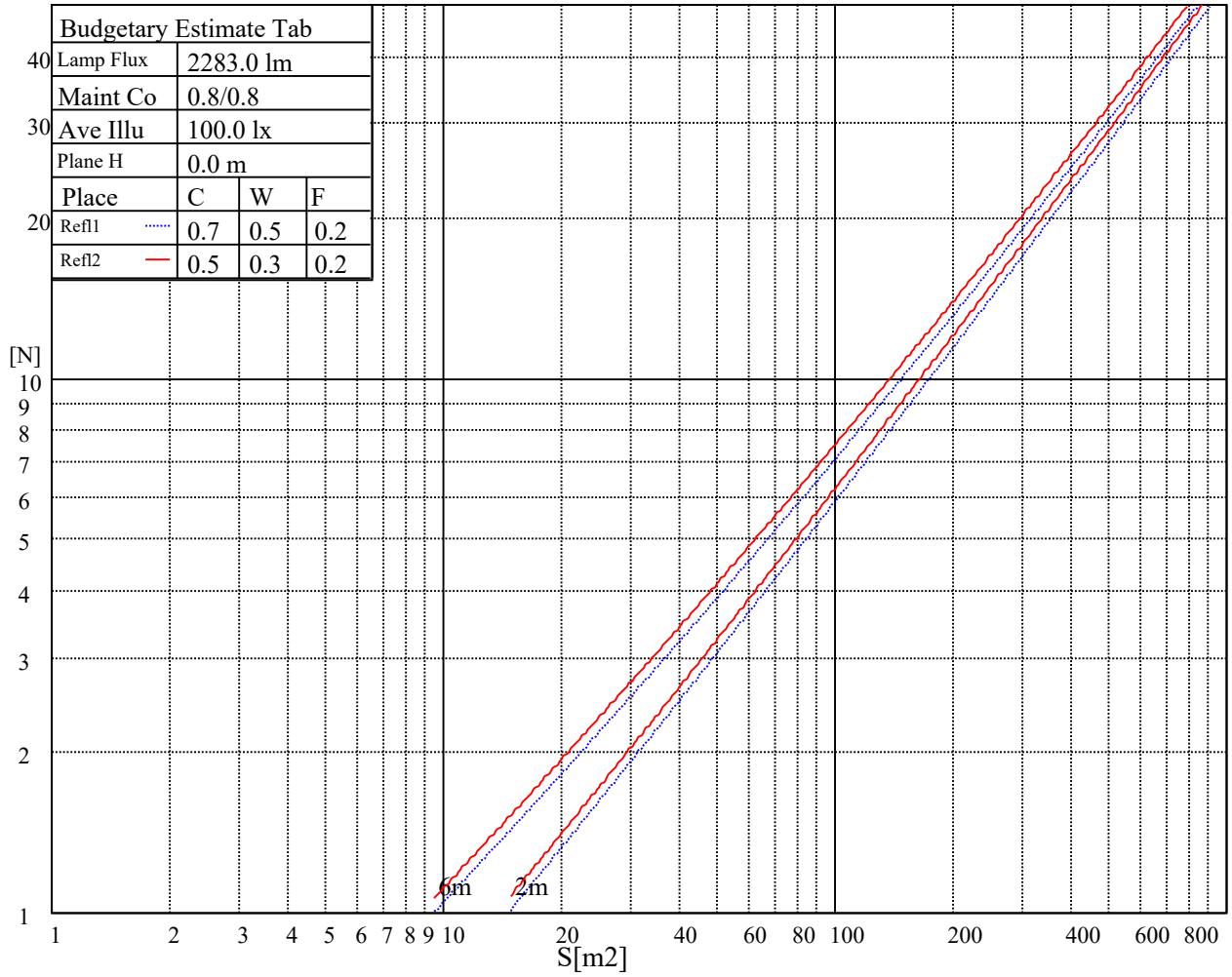


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/13
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Budgetary Estimate Table

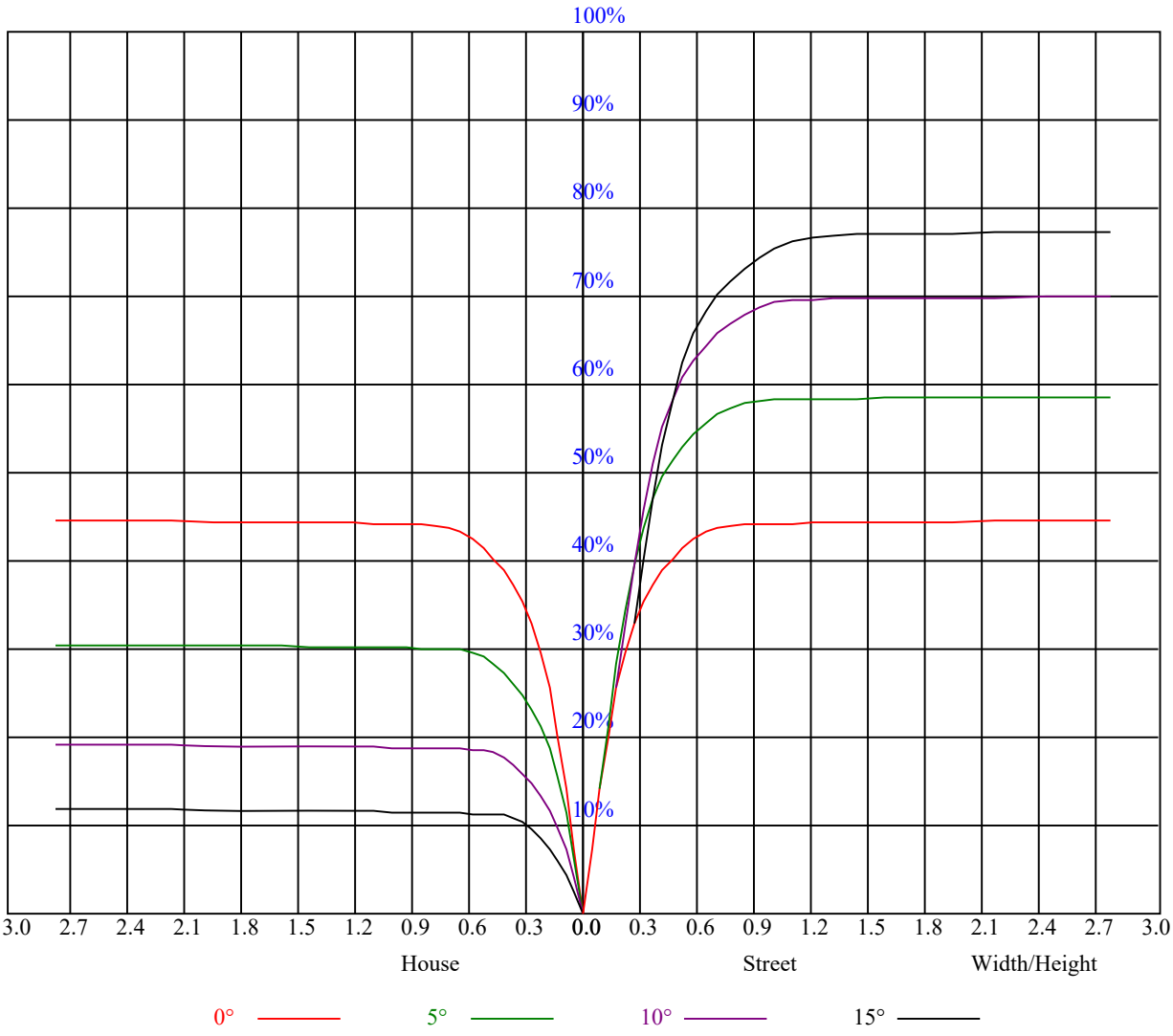


Equipment: gms1980 Date: 2017/6/13 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.90
1	1.00	0.98	0.97	0.98	0.97	0.95	0.95	0.94	0.92	0.92	0.91	0.90	0.89	0.88	0.87	0.85
2	0.95	0.92	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.88	0.86	0.85	0.86	0.84	0.83	0.82
3	0.90	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.83	0.81	0.83	0.81	0.79	0.78
4	0.86	0.82	0.79	0.85	0.82	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.78	0.75	0.82	0.78	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.72
6	0.79	0.75	0.72	0.79	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
7	0.76	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
8	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
9	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.62
10	0.68	0.64	0.62	0.68	0.64	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.66	0.63	0.61	0.60

Coefficient Utilization Curve



Equipment: gms1980	Date: 2017/6/13	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	8172.02	8082.28	7907.75	7642.93	7338.47	6985.56	6526.39	5995.09	5470.95
90.0	8190.74	8233.13	8239.19	8180.28	8047.59	7894.54	7583.47	7269.65	6904.07
180.0	8172.02	8207.81	8210.01	8176.43	8094.94	7967.76	7749.74	7435.37	7083.56
270.0	8190.74	8059.16	7924.82	7721.11	7366.55	7012.53	6622.73	6137.69	5589.33
360.0	8172.02	8082.28	7907.75	7642.93	7338.47	6985.56	6526.39	5995.09	5470.95

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4781.65	4226.13	3671.71	3150.33	2595.91	2231.44	1928.08	1643.43	1407.79
90.0	6366.72	5873.42	5347.63	4663.28	4104.45	3559.40	2934.51	2519.38	2177.48
180.0	6681.64	6117.32	5620.71	5088.86	4465.07	3847.89	3334.22	2819.44	2394.40
270.0	5061.89	4449.66	3901.30	3318.80	2815.58	2442.85	2083.88	1779.97	1564.15
360.0	4781.65	4226.13	3671.71	3150.33	2595.91	2231.44	1928.08	1643.43	1407.79

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1234.92	1081.31	965.14	891.91	839.06	808.23	784.00	761.98	741.61
90.0	1863.11	1596.09	1390.72	1196.38	1057.63	966.24	893.57	850.62	818.14
180.0	2076.18	1772.27	1547.64	1332.92	1089.18	1030.60	929.08	863.89	829.53
270.0	1380.26	1093.03	1047.39	948.46	881.51	829.87	803.11	783.67	756.75
360.0	1234.92	1081.31	965.14	891.91	839.06	808.23	784.00	761.98	741.61

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	724.54	711.33	700.87	692.06	634.25	552.22	469.08	342.45	287.39
90.0	793.91	770.24	748.22	731.15	716.83	705.27	683.80	618.28	528.54
180.0	805.37	782.02	757.36	739.24	723.83	710.72	699.11	654.51	575.83
270.0	737.48	723.72	707.86	693.27	670.92	596.26	492.15	391.07	275.67
360.0	724.54	711.33	700.87	692.06	634.25	552.22	469.08	342.45	287.39

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	125.86	47.84	21.47	18.83	15.42	12.77	11.18	10.52	10.19
90.0	414.02	298.96	285.74	98.61	34.36	21.36	18.00	15.20	12.33
180.0	479.76	363.92	261.63	155.64	66.51	26.21	19.99	16.57	13.87
270.0	177.23	84.57	30.17	20.59	18.17	14.92	12.94	11.78	10.74
360.0	125.86	47.84	21.47	18.83	15.42	12.77	11.18	10.52	10.19

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	10.02	9.80	9.63	9.47	9.25	9.14	9.03	8.92	8.86
90.0	10.85	10.63	10.35	10.13	9.97	9.74	9.58	9.47	9.36
180.0	12.22	10.68	10.19	9.97	9.74	9.52	9.41	9.25	9.14
270.0	10.46	10.24	10.02	9.80	9.63	9.47	9.36	9.25	9.14
360.0	10.02	9.80	9.63	9.47	9.25	9.14	9.03	8.92	8.86

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.81	8.64	8.59	8.53	8.48	8.48	8.42	8.31	8.26
90.0	9.25	9.08	9.03	8.92	8.86	8.81	8.75	8.64	8.53
180.0	9.03	8.86	8.81	8.70	8.59	8.59	8.48	8.48	8.42
270.0	9.08	8.92	8.86	8.81	8.75	8.64	8.59	8.53	8.53
360.0	8.81	8.64	8.59	8.53	8.48	8.48	8.42	8.31	8.26

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.26	8.26	8.20	8.20	8.09	8.04	8.04	8.04	8.04
90.0	8.53	8.48	8.42	8.42	8.37	8.31	8.26	8.26	8.20
180.0	8.37	8.31	8.26	8.20	8.15	8.15	8.15	8.09	8.09
270.0	8.48	8.42	8.37	8.31	8.26	8.26	8.26	8.20	8.15
360.0	8.26	8.26	8.20	8.20	8.09	8.04	8.04	8.04	8.04

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	8.04	7.98	7.98	7.93	7.93	7.93	7.93	7.93	7.93
90.0	8.20	8.15	8.15	8.09	8.09	8.09	8.09	8.04	8.04
180.0	7.98	7.98	7.98	7.93	7.98	7.98	7.87	7.87	7.87
270.0	8.15	8.09	8.15	8.09	8.09	8.04	7.98	8.04	8.04
360.0	8.04	7.98	7.98	7.93	7.93	7.93	7.93	7.93	7.93

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.93	7.93	7.98	7.98	7.82	7.82	7.82	7.76	7.87
90.0	8.04	8.04	8.04	7.98	7.98	7.98	7.98	7.93	7.98
180.0	7.87	7.87	7.82	7.87	7.82	7.82	7.82	7.76	7.76
270.0	8.04	7.98	7.98	7.98	7.98	7.93	7.98	7.93	7.98
360.0	7.93	7.93	7.98	7.98	7.82	7.82	7.82	7.76	7.87

C/γ(°)	90.0
0.0	7.82
90.0	7.93
180.0	7.82
270.0	7.93
360.0	7.82