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: 2-1674-M
Luminaire: 92.70.129.00
Report No: NT2017061904
Test No: GC2017061904
LampCAT: CREE CXA1830
Lamp flux(lm): 2036.0
Number of Lamps: 1
Length(mm): 70
Phm Type: C

Voltage(V): 218.3000
Current(A): 0.1000
Power (W): 19.8000
PF: 0.9010
Ballast type: DC
Width(mm): 70
Height(mm): 0

Photometric Results

Lumens(lm): 1843.51
Efficiency(%): 90.55%
Lumens(lm)/Power(W): 93.11
Central intensity(cd): 12294.090
Maximum intensity(cd): 12294.090
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=15.9
[C90/270]Total=15.9
Field angle(10%Imax): [C0/180]Total=32.3
[C90/270]Total=32.3
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
Maximum s/h(1/4): C0_180=0.27 C90_270=0.27
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.55%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.803%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12294.094	0.000	0	.000%	.000%
1.0	12223.897	11.731	11.731	.576%	.636%
2.0	11884.612	34.603	46.334	1.700%	2.513%
3.0	11391.032	55.668	102.002	2.734%	5.533%
4.0	10641.026	73.748	175.75	3.622%	9.533%
5.0	9696.120	87.489	263.24	4.297%	14.279%
6.0	8542.000	95.846	359.086	4.708%	19.478%
7.0	7311.077	98.400	457.486	4.833%	24.816%
8.0	6058.544	95.684	553.169	4.700%	30.006%
9.0	4893.138	88.757	641.927	4.359%	34.821%
10.0	3847.892	79.103	721.03	3.885%	39.112%
11.0	3084.122	69.265	790.295	3.402%	42.869%
12.0	2446.982	60.463	850.758	2.970%	46.149%
13.0	2000.750	52.783	903.541	2.593%	49.012%
14.0	1636.001	46.550	950.091	2.286%	51.537%
15.0	1400.084	41.681	991.772	2.047%	53.798%
16.0	1250.468	38.838	1030.61	1.908%	55.905%
17.0	1118.319	36.888	1067.498	1.812%	57.906%
18.0	1028.715	35.400	1102.898	1.739%	59.826%
19.0	960.211	34.603	1137.502	1.700%	61.703%
20.0	900.268	34.052	1171.554	1.672%	63.550%
21.0	853.209	33.670	1205.224	1.654%	65.377%
22.0	818.207	33.588	1238.812	1.650%	67.199%
23.0	787.651	33.695	1272.507	1.655%	69.026%
24.0	763.288	33.909	1306.416	1.665%	70.866%
25.0	741.954	34.226	1340.642	1.681%	72.722%
26.0	725.368	34.636	1375.278	1.701%	74.601%
27.0	707.392	35.053	1410.331	1.722%	76.503%
28.0	691.316	35.412	1445.743	1.739%	78.423%
29.0	677.758	35.819	1481.562	1.759%	80.366%
30.0	664.462	36.240	1517.802	1.780%	82.332%
31.0	648.303	36.532	1554.334	1.794%	84.314%
32.0	623.885	36.447	1590.781	1.790%	86.291%
33.0	588.057	35.704	1626.485	1.754%	88.228%
34.0	536.015	34.018	1660.503	1.671%	90.073%
35.0	475.825	31.424	1691.927	1.543%	91.778%
36.0	402.861	27.978	1719.905	1.374%	93.295%
37.0	337.757	24.155	1744.059	1.186%	94.605%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	270.602	20.306	1764.366	.997%	95.707%
39.0	192.711	15.814	1780.18	.777%	96.565%
40.0	142.169	11.679	1791.859	.574%	97.198%
41.0	83.342	8.030	1799.89	.394%	97.634%
42.0	44.554	4.647	1804.536	.228%	97.886%
43.0	25.560	2.597	1807.133	.128%	98.027%
44.0	17.329	1.619	1808.752	.080%	98.115%
45.0	13.957	1.202	1809.955	.059%	98.180%
46.0	11.947	1.013	1810.968	.050%	98.235%
47.0	10.612	0.897	1811.865	.044%	98.283%
48.0	9.731	0.822	1812.687	.040%	98.328%
49.0	9.305	0.782	1813.469	.038%	98.370%
50.0	8.823	0.756	1814.225	.037%	98.411%
51.0	8.603	0.737	1814.962	.036%	98.451%
52.0	8.437	0.731	1815.693	.036%	98.491%
53.0	8.258	0.726	1816.419	.036%	98.531%
54.0	8.121	0.722	1817.141	.035%	98.570%
55.0	7.983	0.719	1817.86	.035%	98.609%
56.0	7.859	0.716	1818.576	.035%	98.648%
57.0	7.790	0.716	1819.292	.035%	98.686%
58.0	7.708	0.717	1820.008	.035%	98.725%
59.0	7.612	0.716	1820.725	.035%	98.764%
60.0	7.543	0.716	1821.44	.035%	98.803%
61.0	7.446	0.715	1822.156	.035%	98.842%
62.0	7.391	0.715	1822.871	.035%	98.880%
63.0	7.323	0.716	1823.586	.035%	98.919%
64.0	7.281	0.717	1824.303	.035%	98.958%
65.0	7.254	0.719	1825.022	.035%	98.997%
66.0	7.199	0.721	1825.743	.035%	99.036%
67.0	7.171	0.723	1826.466	.035%	99.075%
68.0	7.130	0.724	1827.19	.036%	99.115%
69.0	7.116	0.727	1827.917	.036%	99.154%
70.0	7.089	0.730	1828.647	.036%	99.194%
71.0	7.061	0.731	1829.378	.036%	99.233%
72.0	7.020	0.732	1830.11	.036%	99.273%
73.0	6.992	0.733	1830.843	.036%	99.313%
74.0	6.978	0.734	1831.577	.036%	99.353%
75.0	7.006	0.739	1832.316	.036%	99.393%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.978	0.742	1833.058	.036%	99.433%
77.0	6.965	0.743	1833.802	.037%	99.473%
78.0	6.923	0.743	1834.545	.037%	99.514%
79.0	6.896	0.742	1835.288	.036%	99.554%
80.0	6.896	0.744	1836.031	.037%	99.594%
81.0	6.896	0.746	1836.777	.037%	99.635%
82.0	6.896	0.748	1837.525	.037%	99.675%
83.0	6.882	0.749	1838.274	.037%	99.716%
84.0	6.896	0.751	1839.025	.037%	99.757%
85.0	6.855	0.750	1839.775	.037%	99.797%
86.0	6.827	0.748	1840.523	.037%	99.838%
87.0	6.813	0.747	1841.269	.037%	99.879%
88.0	6.799	0.746	1842.015	.037%	99.919%
89.0	6.813	0.746	1842.761	.037%	99.959%
90.0	6.827	0.748	1843.509	.037%	100.000%

Zonal flux distribution table

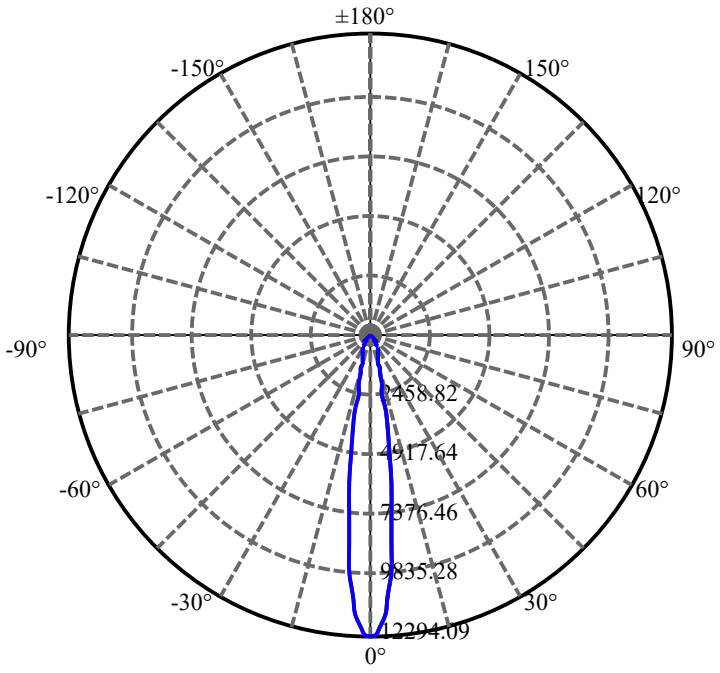
ZONAL LUMEN SUMMARY

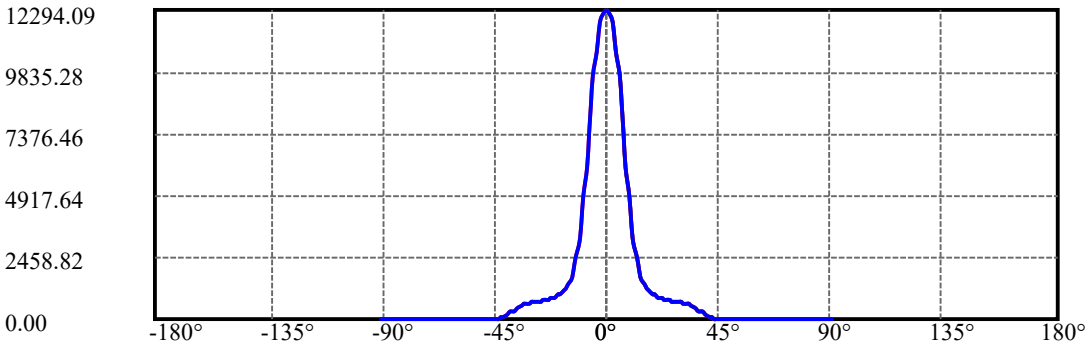
Zone	Lumens	%Lamp	%Fixt
0-30	1517.80	74.55%	82.33%
0-40	1791.86	88.01%	97.20%
0-60	1821.44	89.46%	98.80%
0-90	1842.76	90.51%	99.96%
0-120	1842.76	90.51%	99.96%
0-180	1843.51	90.55%	100.00%
60-90	22.04	1.08%	1.20%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.81	1474.81	72.44%	80.00%

ZONAL LUMEN SUMMARY

0-10	721.03
10-20	450.52
20-30	346.25
30-40	274.06
40-50	22.37
50-60	7.22
60-70	7.21
70-80	7.38
80-90	6.73
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):

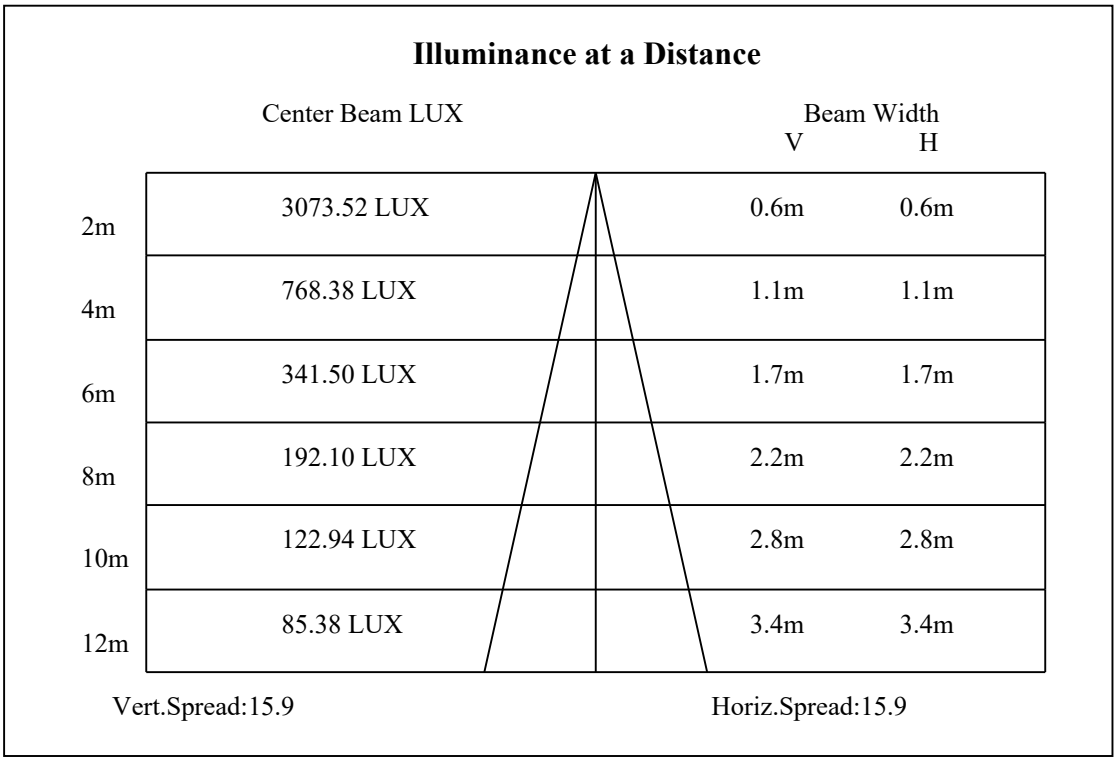
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:16.2 Right:16.2
:C90/270Left:16.2 Right:16.2

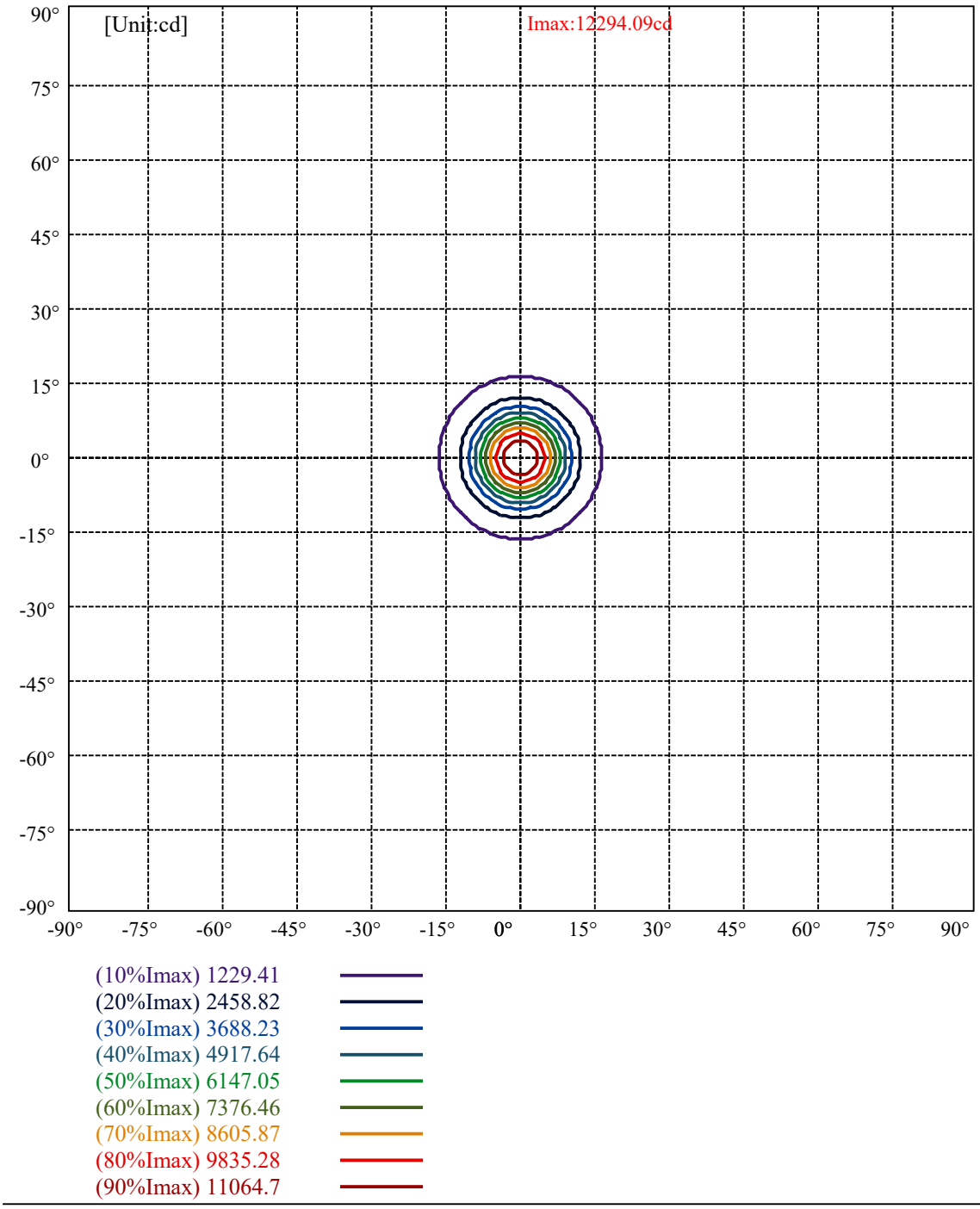
Beam Angle(50%Imax):C0/180Left:7.9 Right:7.9
:C90/270Left:7.9 Right:7.9

Lux distance Curve



Equipment: gms1980 Date: 2017/6/3 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)

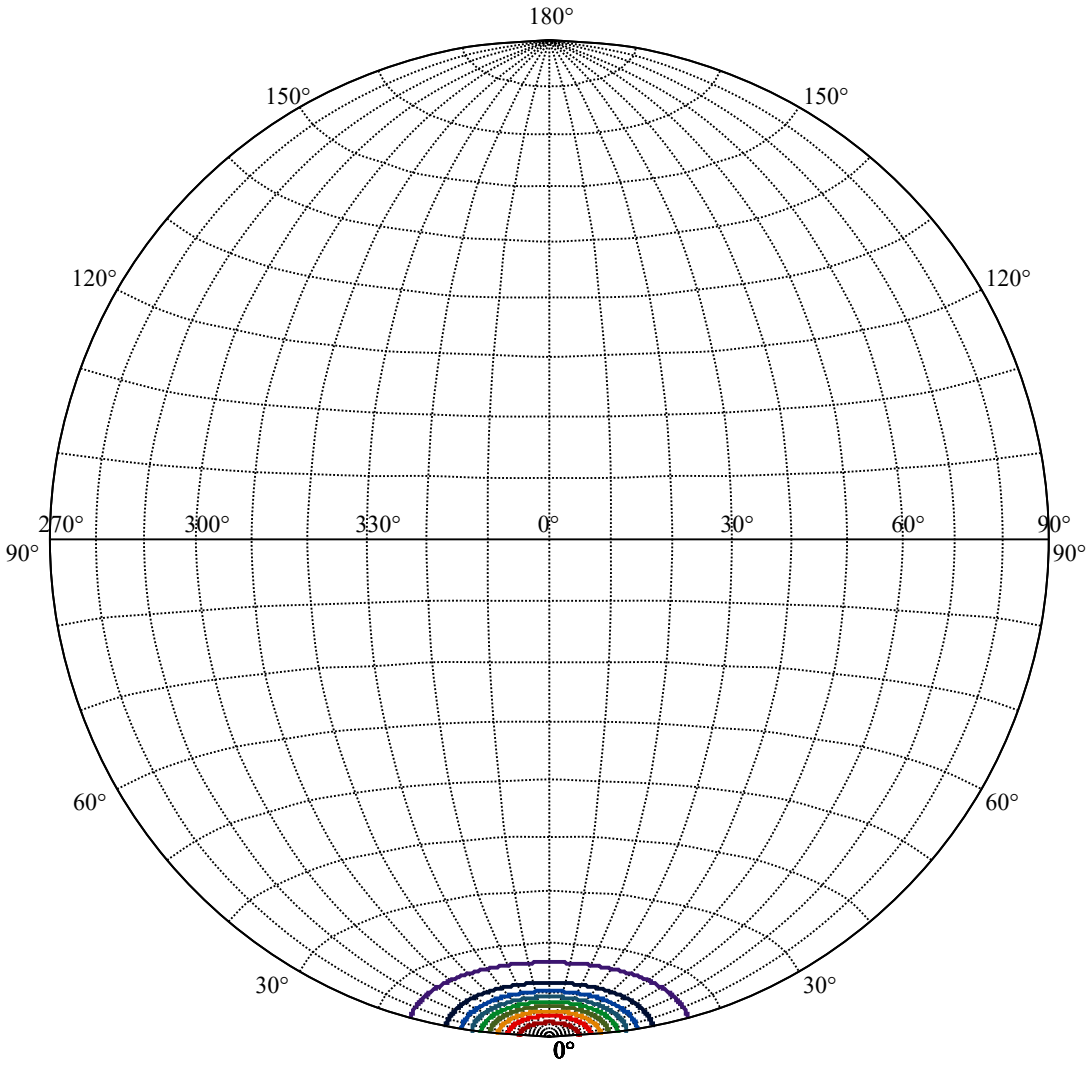


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



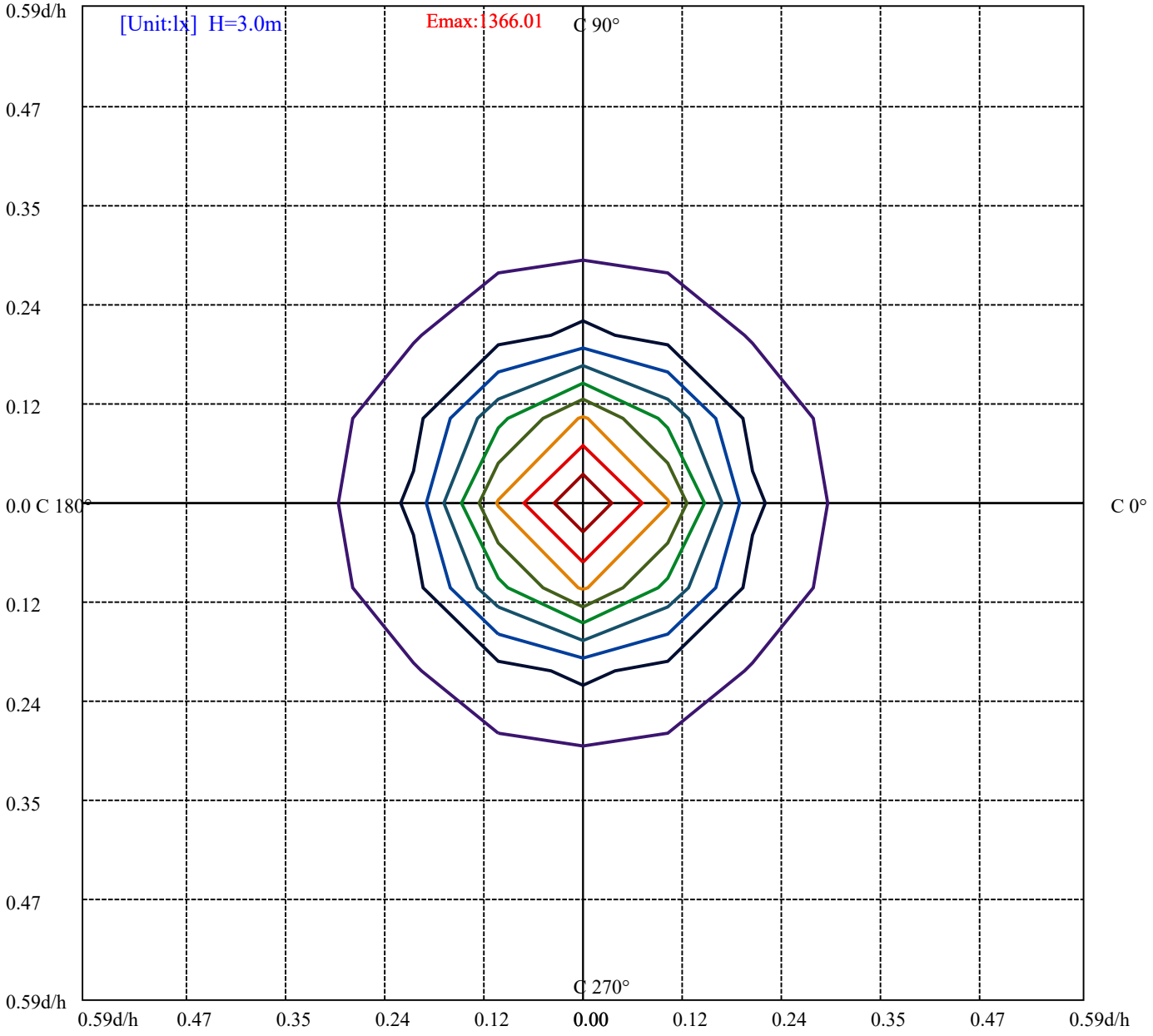
House [Unit:cd] Road

Imax:12294.09

(10%Imax) 1229.41
(20%Imax) 2458.82
(30%Imax) 3688.23
(40%Imax) 4917.64
(50%Imax) 6147.05
(60%Imax) 7376.46
(70%Imax) 8605.87
(80%Imax) 9835.28
(90%Imax) 11064.7

Equipment: gms1980 Date: 2017/6/3 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

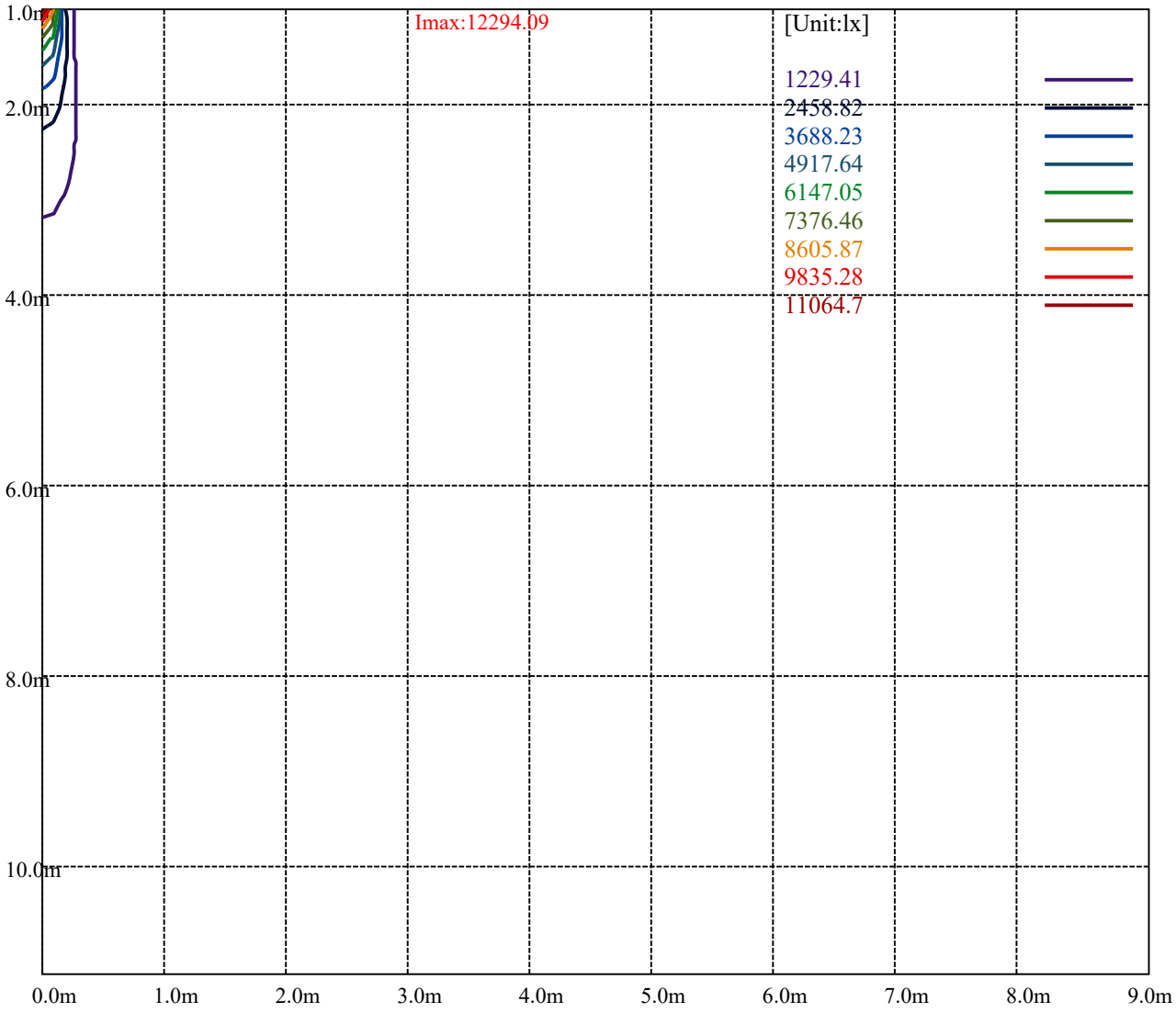
ISO illuminance diagram



(10%Emax) 136.6011
(20%Emax) 273.2022
(30%Emax) 409.8022
(40%Emax) 546.4033
(50%Emax) 683.0045
(60%Emax) 819.6056
(70%Emax) 956.2067
(80%Emax) 1092.808
(90%Emax) 1229.411

Equipment: gms1980
Temperature(°C): 25.0
Date: 2017/6/3
Humidity(%): 60.0%
Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Nata 2-1674-M

Luminance Limitting Curve(no luminous side)

Luminance Table

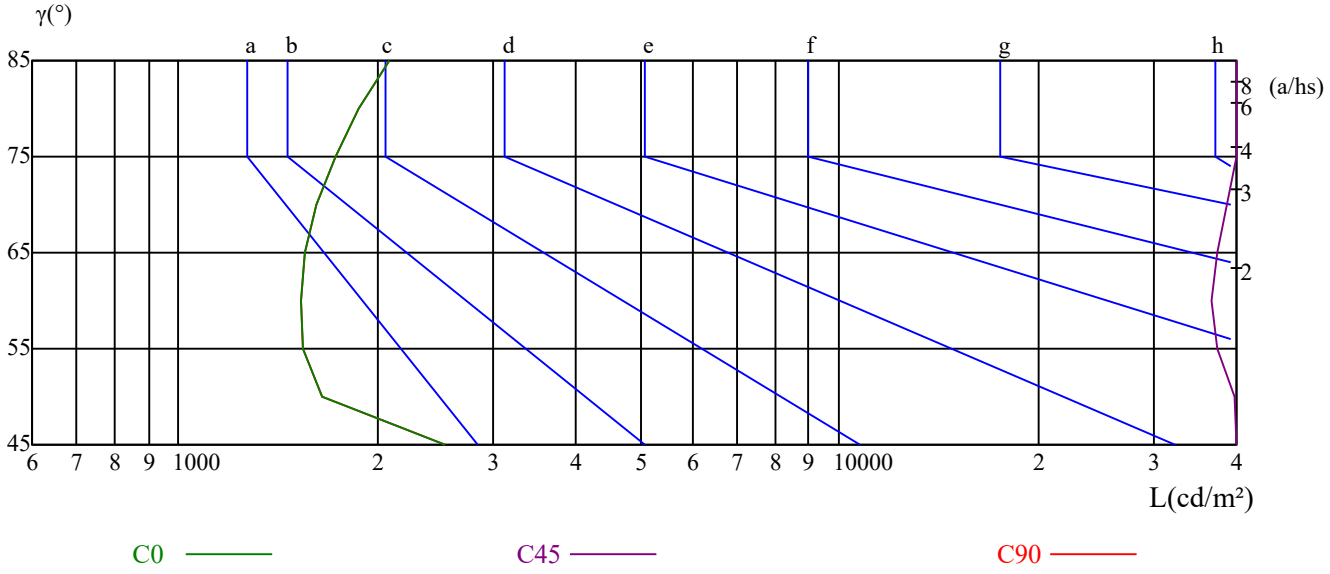
γ	45	50	55	60	65	70	75	80	85
C0	2540	1650	1547	1528	1553	1621	1734	1875	2086
C45	67111	39721	37328	36753	37311	38674	40561	43204	46778
C90	2540	1650	1547	1528	1553	1621	1734	1875	2086

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3503	3503	103588	5524	5524	165950	16050	16050	489665

Glare Table

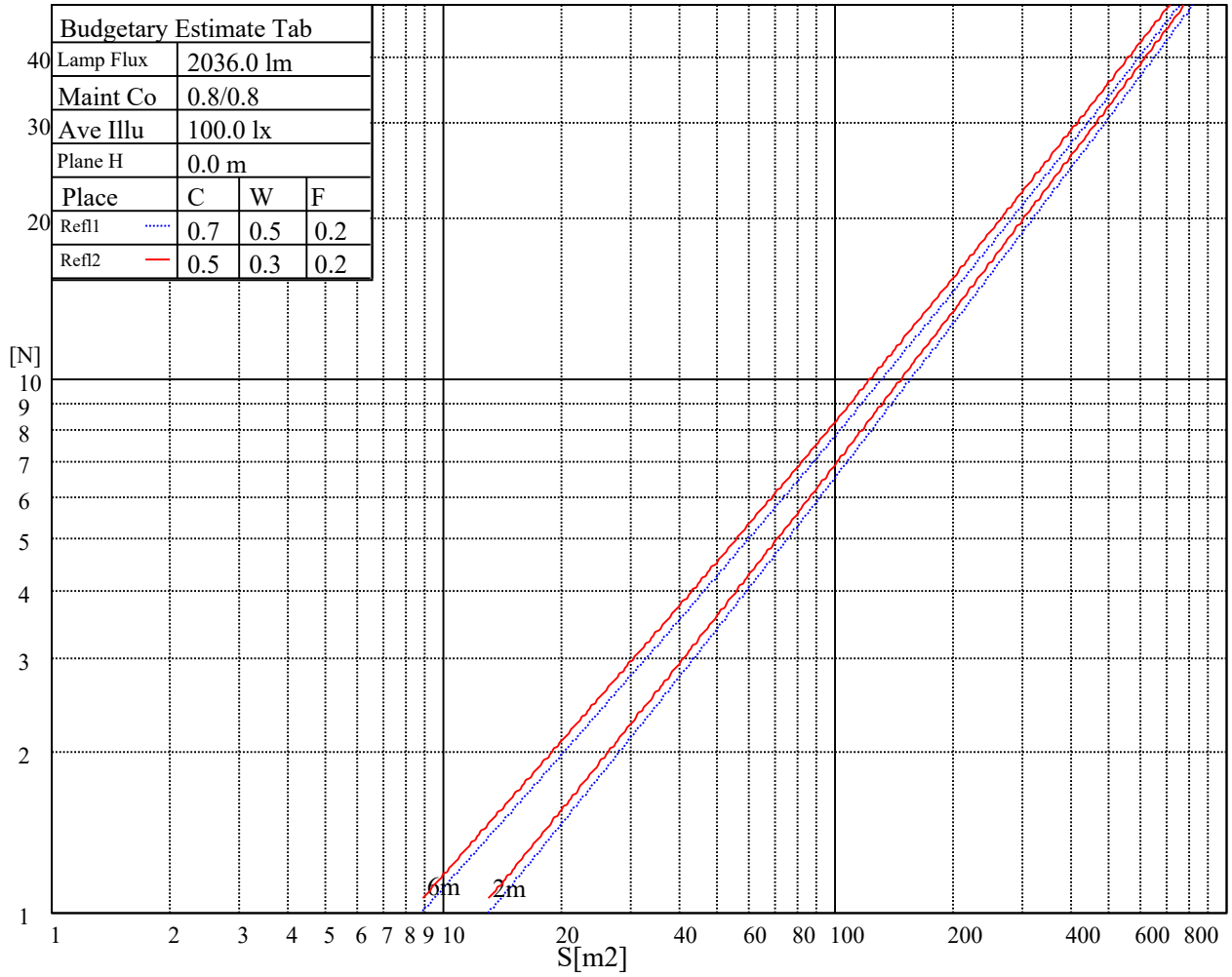
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve



Equipment: gms1980 Date: 2017/6/3 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Budgetary Estimate Table

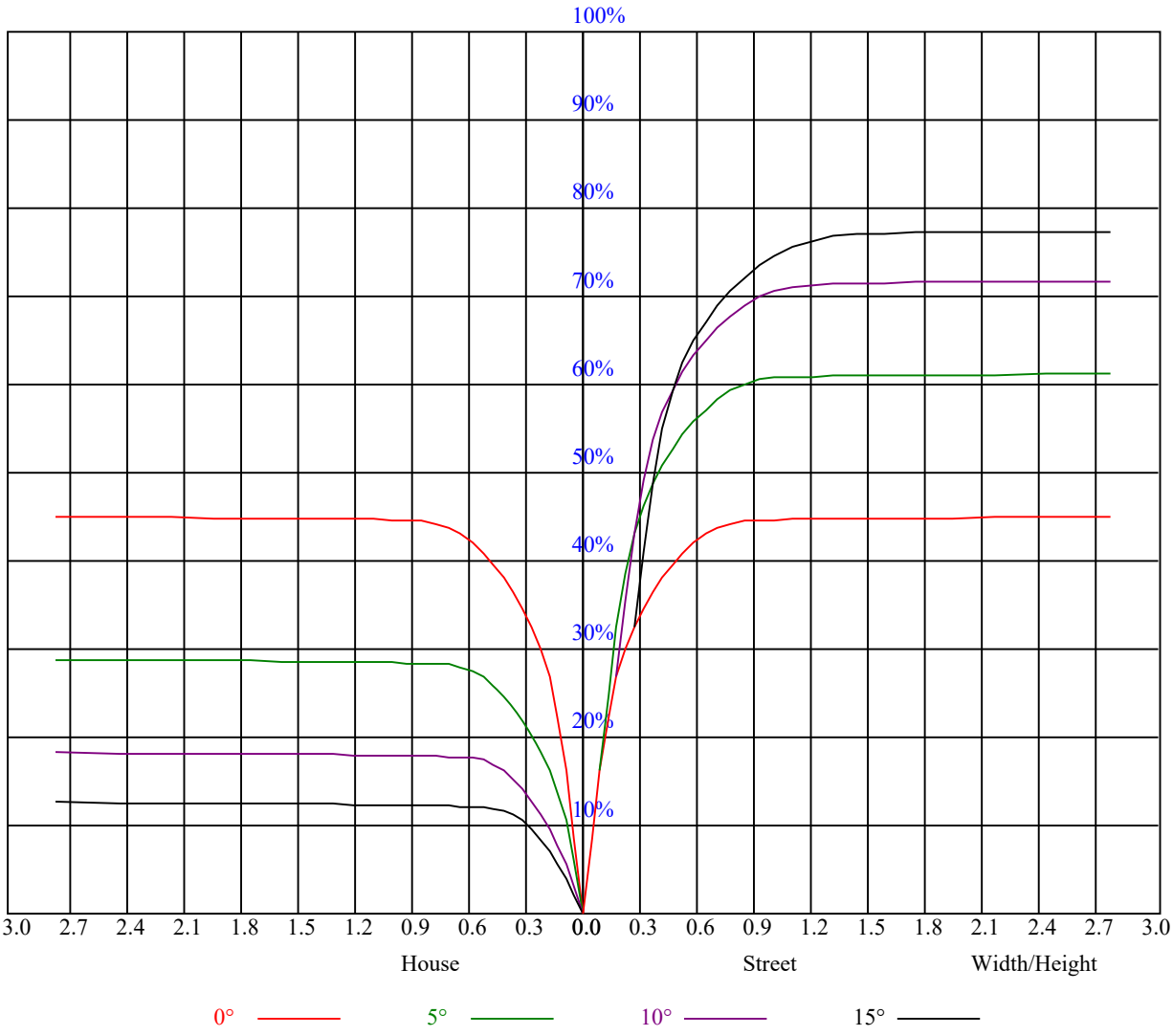


Equipment: gms1980 Date: 2017/6/3 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.91
1	1.02	1.00	0.98	1.00	0.98	0.96	0.96	0.95	0.93	0.93	0.92	0.91	0.90	0.89	0.88	0.86
2	0.96	0.93	0.91	0.95	0.92	0.90	0.92	0.90	0.88	0.89	0.87	0.86	0.87	0.85	0.84	0.83
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.83	0.80	0.84	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.84	0.79	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.73
6	0.80	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.74	0.72	0.70
7	0.77	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.66
9	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62

Coefficient Utilization Curve



Equipment: gms1980	Date: 2017/6/3	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	12387.69	12255.55	11831.62	11253.53	10460.72	9194.42	8038.23	6815.98	5467.10
90.0	12200.50	12470.27	12558.36	12503.31	12244.54	11793.08	11000.27	9871.61	8682.39
180.0	12387.69	12393.20	12222.52	11809.60	10983.20	10166.71	9056.23	7650.64	6185.04
270.0	12200.50	11776.56	10925.94	9997.69	8875.64	7630.27	6073.27	4906.08	3899.64
360.0	12387.69	12255.55	11831.62	11253.53	10460.72	9194.42	8038.23	6815.98	5467.10

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4277.88	3424.51	2840.91	2231.44	1837.78	1556.99	1373.11	1215.09	1111.59
90.0	7399.58	5797.44	4619.23	3611.70	2835.40	2161.51	1785.48	1518.46	1287.77
180.0	4951.22	3775.22	2887.71	2314.57	1901.65	1547.08	1351.63	1208.49	1090.61
270.0	2943.87	2394.40	1988.64	1630.22	1428.16	1278.41	1090.12	1059.84	983.31
360.0	4277.88	3424.51	2840.91	2231.44	1837.78	1556.99	1373.11	1215.09	1111.59

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1022.95	959.08	900.72	852.82	818.14	786.76	761.43	742.71	728.40
90.0	1160.04	1066.44	987.16	923.85	879.25	838.51	807.13	780.15	760.88
180.0	1005.33	944.77	888.11	844.29	814.45	786.21	765.17	744.36	726.47
270.0	926.54	870.55	825.08	791.88	760.99	739.13	719.42	700.59	685.73
360.0	1022.95	959.08	900.72	852.82	818.14	786.76	761.43	742.71	728.40

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	704.72	689.86	678.29	662.33	648.01	634.80	601.22	545.06	485.05
90.0	742.71	725.64	706.92	693.71	681.60	665.63	652.97	624.34	581.95
180.0	709.07	690.68	677.63	664.37	650.93	633.92	595.77	544.95	484.99
270.0	673.06	659.08	648.18	637.44	612.67	561.19	502.28	429.72	351.31
360.0	704.72	689.86	678.29	662.33	648.01	634.80	601.22	545.06	485.05

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	410.72	342.45	281.34	185.37	124.87	72.78	30.83	19.21	16.57
90.0	523.04	461.37	382.64	305.01	279.14	166.16	96.62	49.66	24.33
180.0	403.78	338.16	271.43	197.16	126.41	73.00	33.03	19.49	17.18
270.0	273.91	209.05	147.00	83.30	38.26	21.42	17.73	13.87	11.23
360.0	410.72	342.45	281.34	185.37	124.87	72.78	30.83	19.21	16.57

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	12.99	10.74	9.74	9.25	8.92	8.70	8.53	8.37	8.20
90.0	18.55	15.86	13.05	11.40	10.74	9.47	9.14	8.92	8.64
180.0	14.15	11.89	10.63	9.52	9.03	8.75	8.53	8.37	8.26
270.0	10.13	9.30	9.03	8.75	8.53	8.37	8.20	8.09	7.93
360.0	12.99	10.74	9.74	9.25	8.92	8.70	8.53	8.37	8.20

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.04	7.93	7.76	7.71	7.65	7.54	7.43	7.38	7.32
90.0	8.53	8.37	8.26	8.15	8.04	7.93	7.82	7.71	7.60
180.0	8.09	7.93	7.82	7.76	7.65	7.60	7.54	7.43	7.38
270.0	7.82	7.71	7.60	7.54	7.49	7.38	7.38	7.27	7.27
360.0	8.04	7.93	7.76	7.71	7.65	7.54	7.43	7.38	7.32

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.27	7.27	7.21	7.16	7.10	7.05	7.10	7.05	7.05
90.0	7.54	7.49	7.49	7.38	7.32	7.27	7.27	7.21	7.16
180.0	7.27	7.21	7.21	7.16	7.16	7.10	7.05	7.05	7.05
270.0	7.21	7.16	7.10	7.10	7.10	7.10	7.05	7.05	6.99
360.0	7.27	7.27	7.21	7.16	7.10	7.05	7.10	7.05	7.05

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	6.99	6.94	6.94	6.99	6.94	6.94	6.83	6.83	6.88
90.0	7.10	7.10	7.10	7.10	7.05	7.05	6.99	6.94	6.94
180.0	6.99	6.94	6.94	6.94	6.94	6.88	6.88	6.88	6.83
270.0	6.99	6.99	6.94	6.99	6.99	6.99	6.99	6.94	6.94
360.0	6.99	6.94	6.94	6.99	6.94	6.94	6.83	6.83	6.88

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.88	6.88	6.83	6.83	6.83	6.77	6.77	6.77	6.83
90.0	6.94	6.94	6.88	6.94	6.94	6.88	6.88	6.83	6.88
180.0	6.83	6.83	6.83	6.88	6.83	6.83	6.77	6.77	6.72
270.0	6.94	6.94	6.99	6.94	6.83	6.83	6.83	6.83	6.83
360.0	6.88	6.88	6.83	6.83	6.83	6.77	6.77	6.77	6.83

C/γ(°)	90.0
0.0	6.83
90.0	6.83
180.0	6.83
270.0	6.83
360.0	6.83