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Nata

LumCAT: 3-1546-A3
Luminaire: TE 2213382-1+92.76.365.00

Report No: GC2017060101	Voltage(V): 218.3000
Test No: NT-0010	Current(A): 0.1030
LampCAT: NICHIA NFCLJ060B	Power (W): 20.4000
Lamp flux(lm): 2136.0	PF: 0.9070
Number of Lamps: 1	Ballast type: DC
Length(mm): 84	Width(mm): 84
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1963.52
Efficiency(%): 91.93%
Lumens(lm)/Power(W): 96.25
Central intensity(cd): 7693.856
Maximum intensity(cd): 7693.856
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=24.0
[C90/270]Total=24.0
Field angle(10%Imax): [C0/180]Total=51.3
[C90/270]Total=51.3
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(%): 91.93%
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	7693.857	0.000	0	.000%	.000%
1.0	7663.851	7.348	7.348	.344%	.374%
2.0	7582.505	21.883	29.231	1.024%	1.489%
3.0	7451.196	35.956	65.187	1.683%	3.320%
4.0	7246.386	49.198	114.385	2.303%	5.825%
5.0	6996.567	61.272	175.657	2.869%	8.946%
6.0	6670.496	71.824	247.481	3.363%	12.604%
7.0	6287.028	80.427	327.908	3.765%	16.700%
8.0	5886.080	87.121	415.029	4.079%	21.137%
9.0	5394.977	91.427	506.456	4.280%	25.793%
10.0	4860.792	92.811	599.267	4.345%	30.520%
11.0	4370.515	92.240	691.506	4.318%	35.218%
12.0	3846.378	89.822	781.329	4.205%	39.792%
13.0	3310.817	84.938	866.267	3.976%	44.118%
14.0	2883.992	79.293	945.56	3.712%	48.156%
15.0	2508.094	74.025	1019.585	3.466%	51.926%
16.0	2152.843	68.296	1087.88	3.197%	55.405%
17.0	1868.339	62.621	1150.501	2.932%	58.594%
18.0	1597.461	57.144	1207.644	2.675%	61.504%
19.0	1368.482	51.601	1259.246	2.416%	64.132%
20.0	1185.020	46.736	1305.982	2.188%	66.512%
21.0	1051.715	42.950	1348.932	2.011%	68.700%
22.0	946.062	40.146	1389.078	1.880%	70.744%
23.0	875.424	38.220	1427.298	1.789%	72.691%
24.0	820.863	37.087	1464.385	1.736%	74.580%
25.0	784.512	36.503	1500.887	1.709%	76.439%
26.0	760.618	36.473	1537.36	1.708%	78.296%
27.0	739.476	36.700	1574.06	1.718%	80.165%
28.0	719.628	36.941	1611.002	1.729%	82.047%
29.0	704.226	37.252	1648.254	1.744%	83.944%
30.0	688.990	37.617	1685.871	1.761%	85.860%
31.0	670.945	37.845	1723.716	1.772%	87.787%
32.0	642.605	37.632	1761.347	1.762%	89.704%
33.0	597.073	36.521	1797.869	1.710%	91.564%
34.0	511.791	33.557	1831.426	1.571%	93.273%
35.0	417.520	28.861	1860.287	1.351%	94.743%
36.0	315.501	23.340	1883.626	1.093%	95.931%
37.0	194.693	16.640	1900.266	.779%	96.779%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	133.429	10.952	1911.218	.513%	97.336%
39.0	58.250	6.543	1917.761	.306%	97.670%
40.0	31.850	3.142	1920.903	.147%	97.830%
41.0	24.184	1.995	1922.899	.093%	97.931%
42.0	21.252	1.651	1924.549	.077%	98.015%
43.0	17.219	1.425	1925.974	.067%	98.088%
44.0	13.530	1.161	1927.135	.054%	98.147%
45.0	11.176	0.950	1928.085	.044%	98.195%
46.0	9.139	0.795	1928.879	.037%	98.236%
47.0	8.988	0.721	1929.6	.034%	98.273%
48.0	8.837	0.721	1930.321	.034%	98.309%
49.0	8.671	0.719	1931.04	.034%	98.346%
50.0	8.561	0.718	1931.758	.034%	98.382%
51.0	8.479	0.721	1932.479	.034%	98.419%
52.0	8.424	0.725	1933.204	.034%	98.456%
53.0	8.327	0.729	1933.933	.034%	98.493%
54.0	8.300	0.733	1934.666	.034%	98.531%
55.0	8.231	0.738	1935.404	.035%	98.568%
56.0	8.190	0.742	1936.146	.035%	98.606%
57.0	8.135	0.746	1936.892	.035%	98.644%
58.0	8.107	0.751	1937.643	.035%	98.682%
59.0	8.052	0.755	1938.399	.035%	98.721%
60.0	7.997	0.758	1939.157	.035%	98.759%
61.0	7.997	0.763	1939.92	.036%	98.798%
62.0	7.969	0.769	1940.689	.036%	98.837%
63.0	7.942	0.774	1941.463	.036%	98.877%
64.0	7.901	0.777	1942.241	.036%	98.916%
65.0	7.873	0.781	1943.021	.037%	98.956%
66.0	7.846	0.784	1943.806	.037%	98.996%
67.0	7.804	0.787	1944.592	.037%	99.036%
68.0	7.804	0.791	1945.383	.037%	99.076%
69.0	7.818	0.797	1946.18	.037%	99.117%
70.0	7.804	0.802	1946.982	.038%	99.158%
71.0	7.790	0.806	1947.788	.038%	99.199%
72.0	7.777	0.809	1948.598	.038%	99.240%
73.0	7.777	0.813	1949.411	.038%	99.282%
74.0	7.777	0.818	1950.229	.038%	99.323%
75.0	7.777	0.822	1951.051	.038%	99.365%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.777	0.826	1951.876	.039%	99.407%
77.0	7.735	0.827	1952.703	.039%	99.449%
78.0	7.735	0.828	1953.532	.039%	99.491%
79.0	7.708	0.830	1954.361	.039%	99.534%
80.0	7.708	0.831	1955.192	.039%	99.576%
81.0	7.680	0.832	1956.025	.039%	99.618%
82.0	7.680	0.833	1956.858	.039%	99.661%
83.0	7.667	0.834	1957.692	.039%	99.703%
84.0	7.639	0.834	1958.526	.039%	99.746%
85.0	7.653	0.835	1959.36	.039%	99.788%
86.0	7.598	0.834	1960.194	.039%	99.831%
87.0	7.612	0.832	1961.026	.039%	99.873%
88.0	7.556	0.831	1961.857	.039%	99.915%
89.0	7.584	0.830	1962.687	.039%	99.958%
90.0	7.584	0.832	1963.519	.039%	100.000%

Zonal flux distribution table

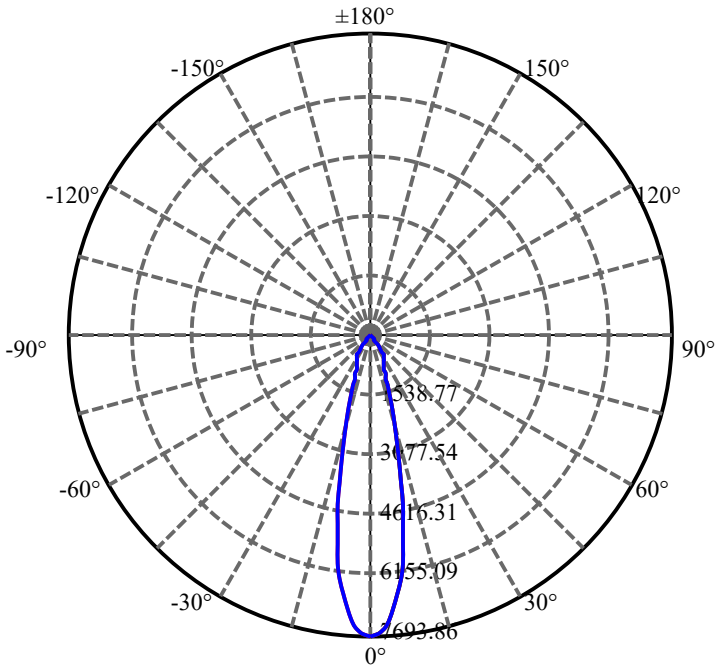
ZONAL LUMEN SUMMARY

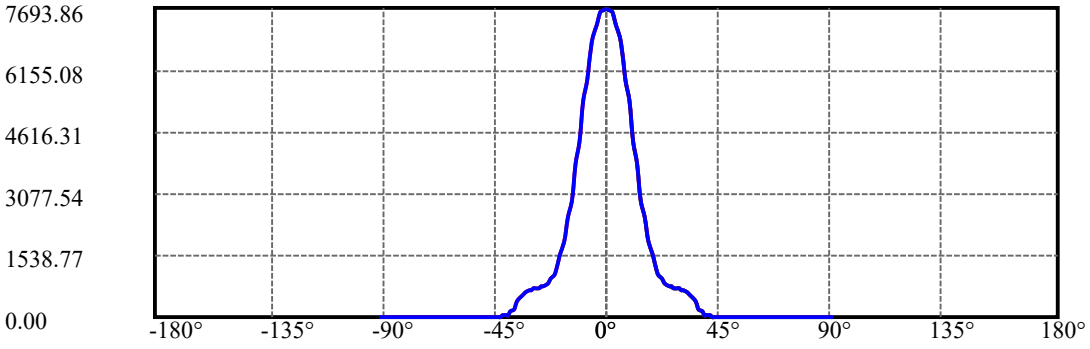
Zone	Lumens	%Lamp	%Fixt
0-30	1685.87	78.93%	85.86%
0-40	1920.90	89.93%	97.83%
0-60	1939.16	90.78%	98.76%
0-90	1962.69	91.89%	99.96%
0-120	1962.69	91.89%	99.96%
0-180	1963.52	91.93%	100.00%
60-90	24.29	1.14%	1.24%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.91	1570.82	73.54%	80.00%

ZONAL LUMEN SUMMARY

0-10	599.27
10-20	706.72
20-30	379.89
30-40	235.03
40-50	10.85
50-60	7.40
60-70	7.83
70-80	8.21
80-90	7.49
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):

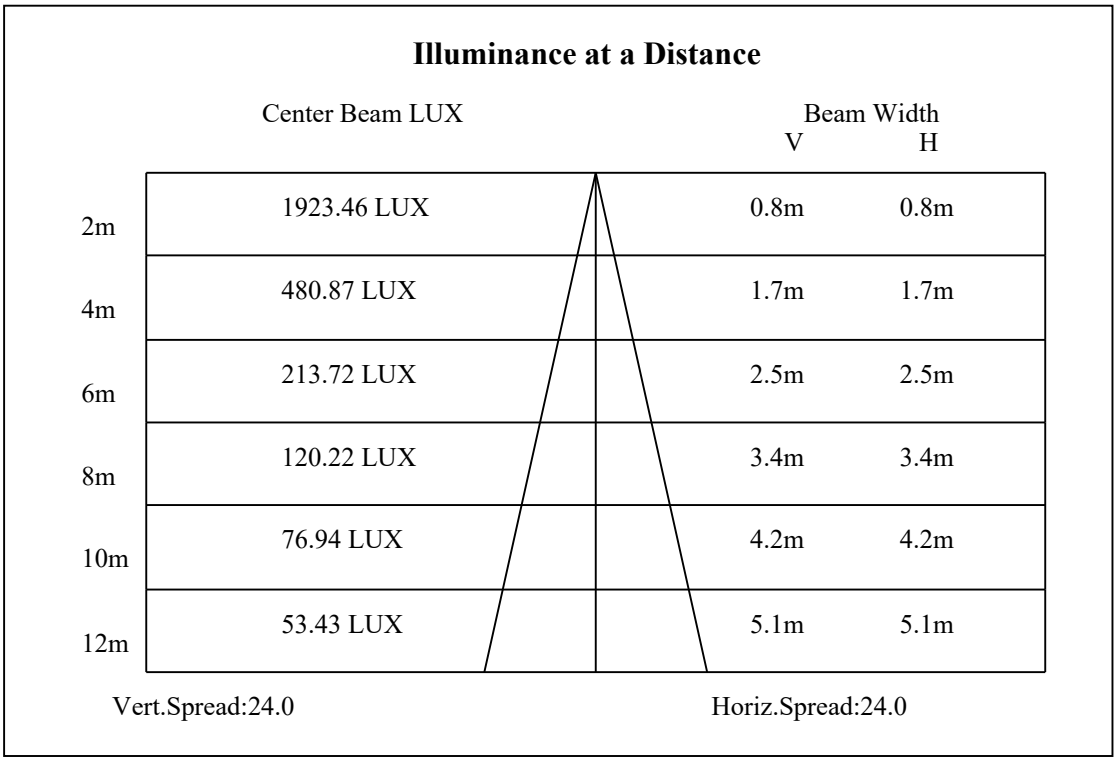
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:25.6 Right:25.6
:C90/270Left:25.6 Right:25.6

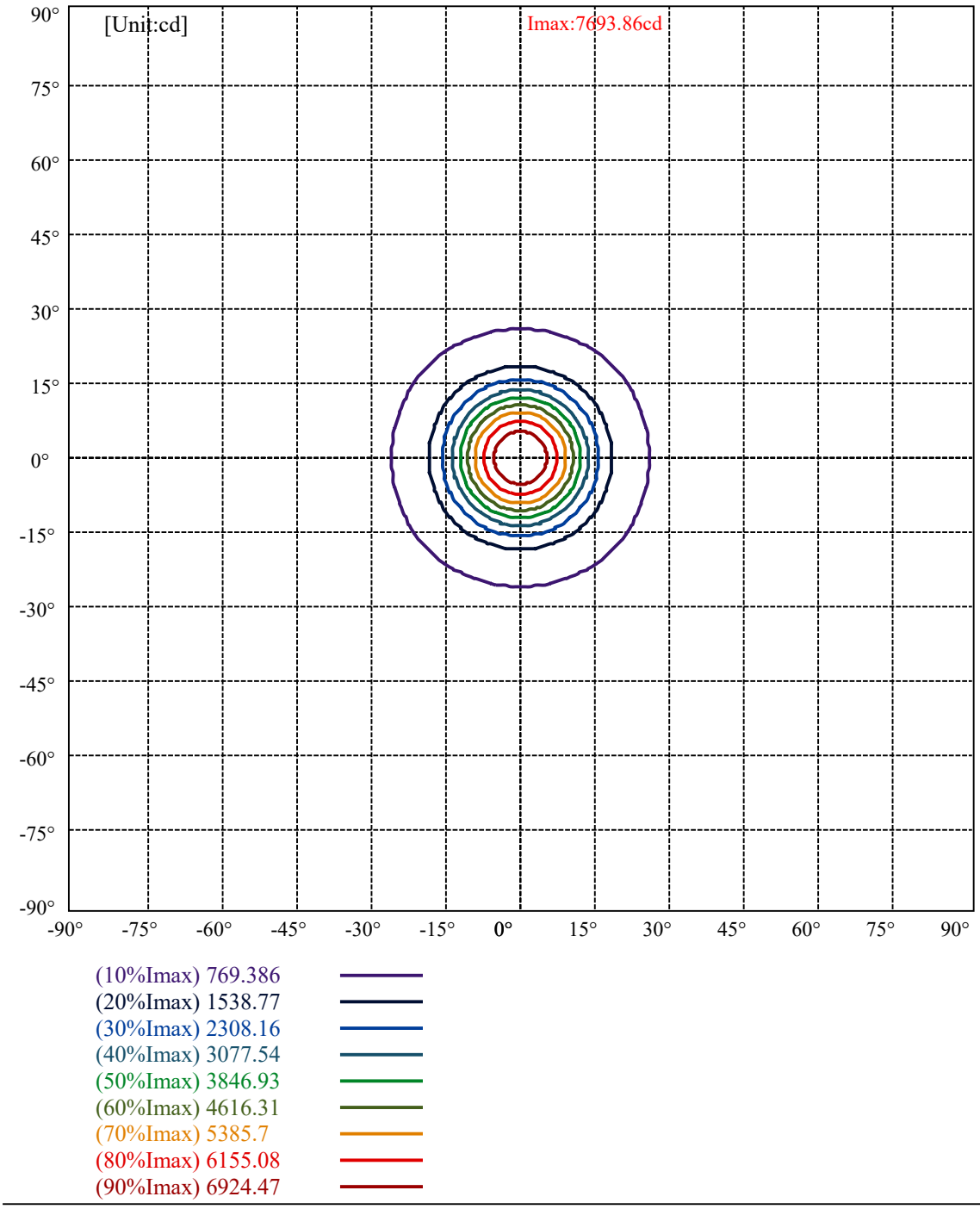
Beam Angle(50%Imax):C0/180Left:12.0 Right:12.0
:C90/270Left:12.0 Right:12.0

Lux distance Curve



Equipment: gms1980 Date: 2017/5/11 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)

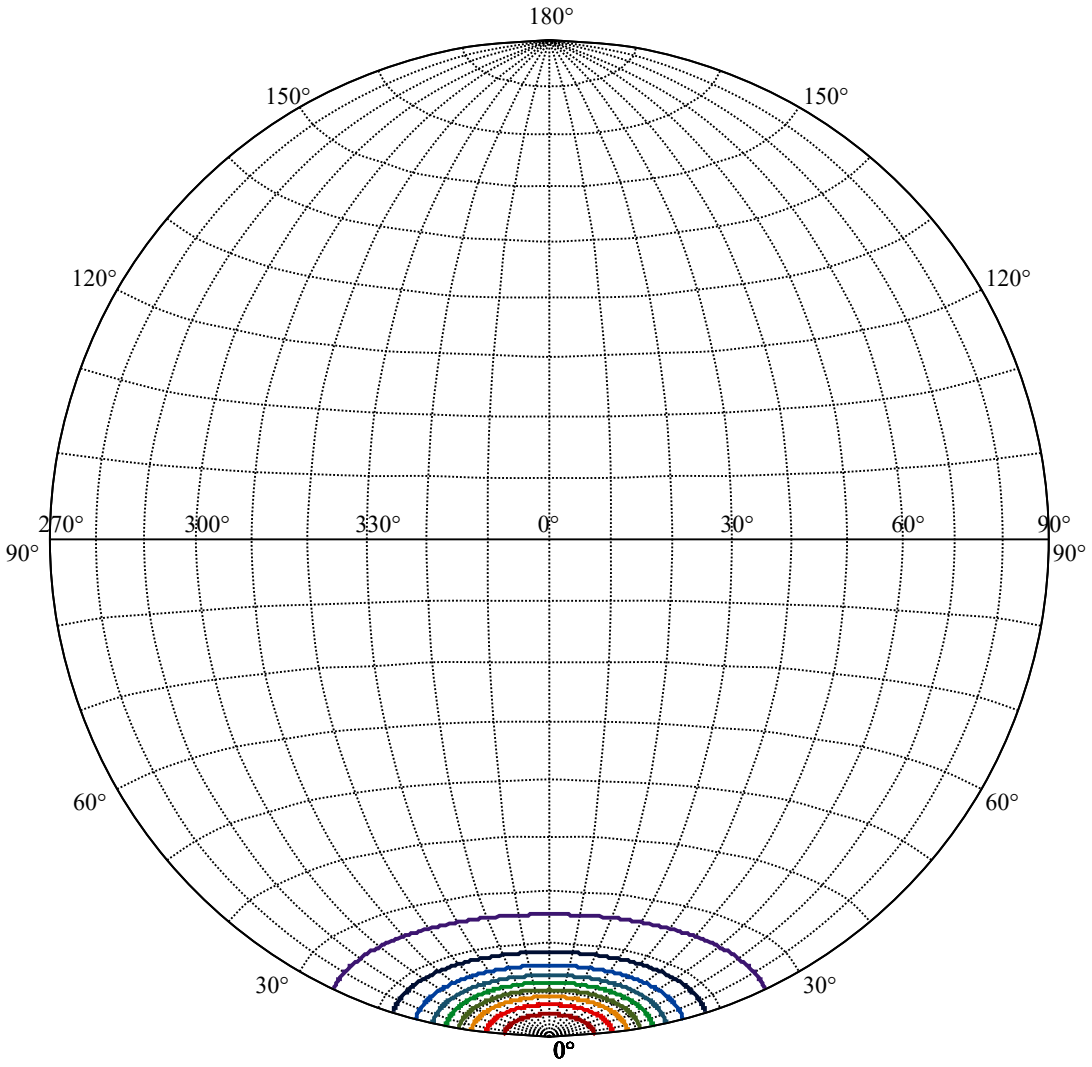


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/11
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



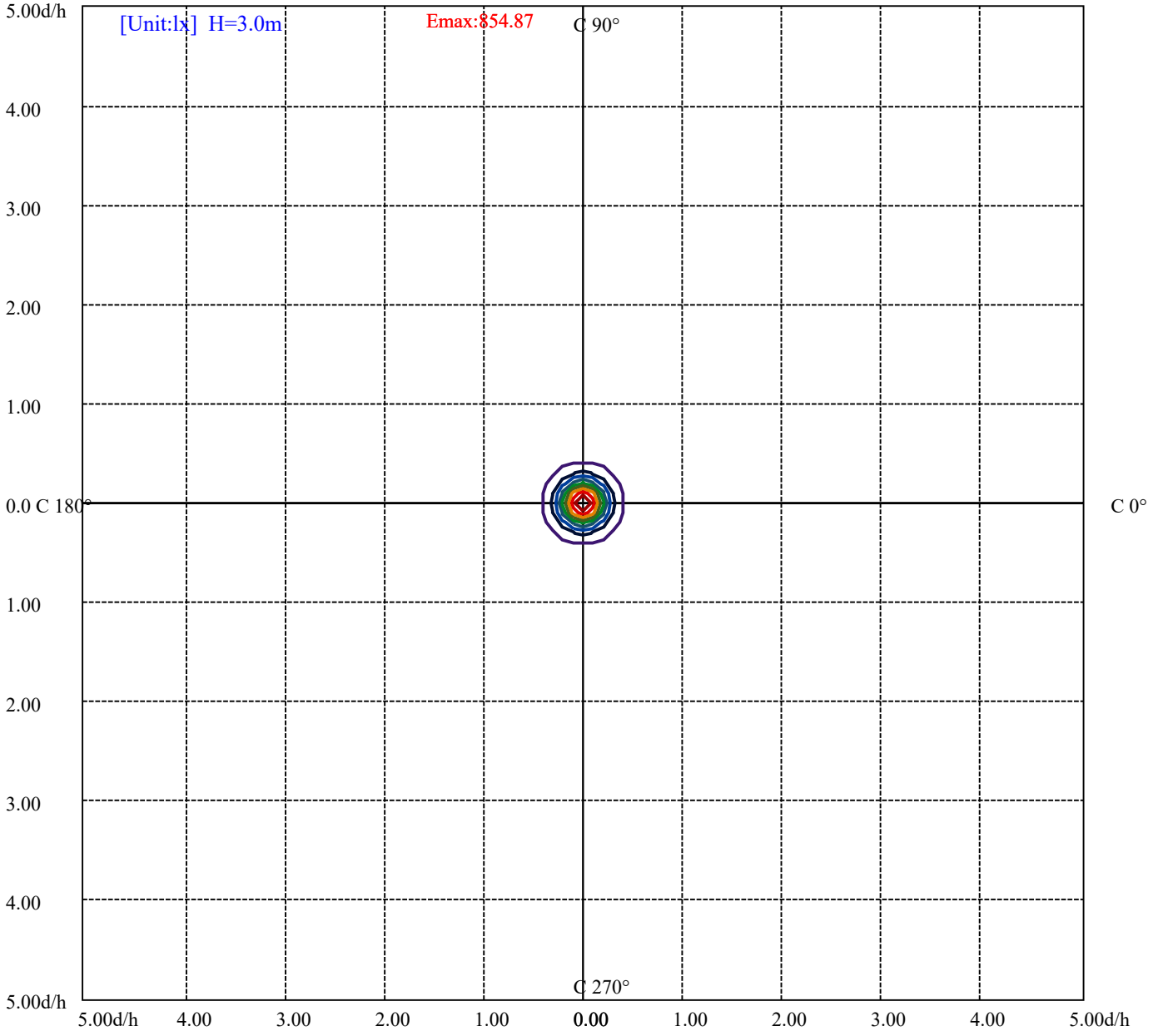
House [Unit:cd] Road

Imax:7693.86

(10%Imax) 769.386
(20%Imax) 1538.77
(30%Imax) 2308.16
(40%Imax) 3077.54
(50%Imax) 3846.93
(60%Imax) 4616.31
(70%Imax) 5385.7
(80%Imax) 6155.08
(90%Imax) 6924.47

Equipment: gms1980	Date: 2017/5/11	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

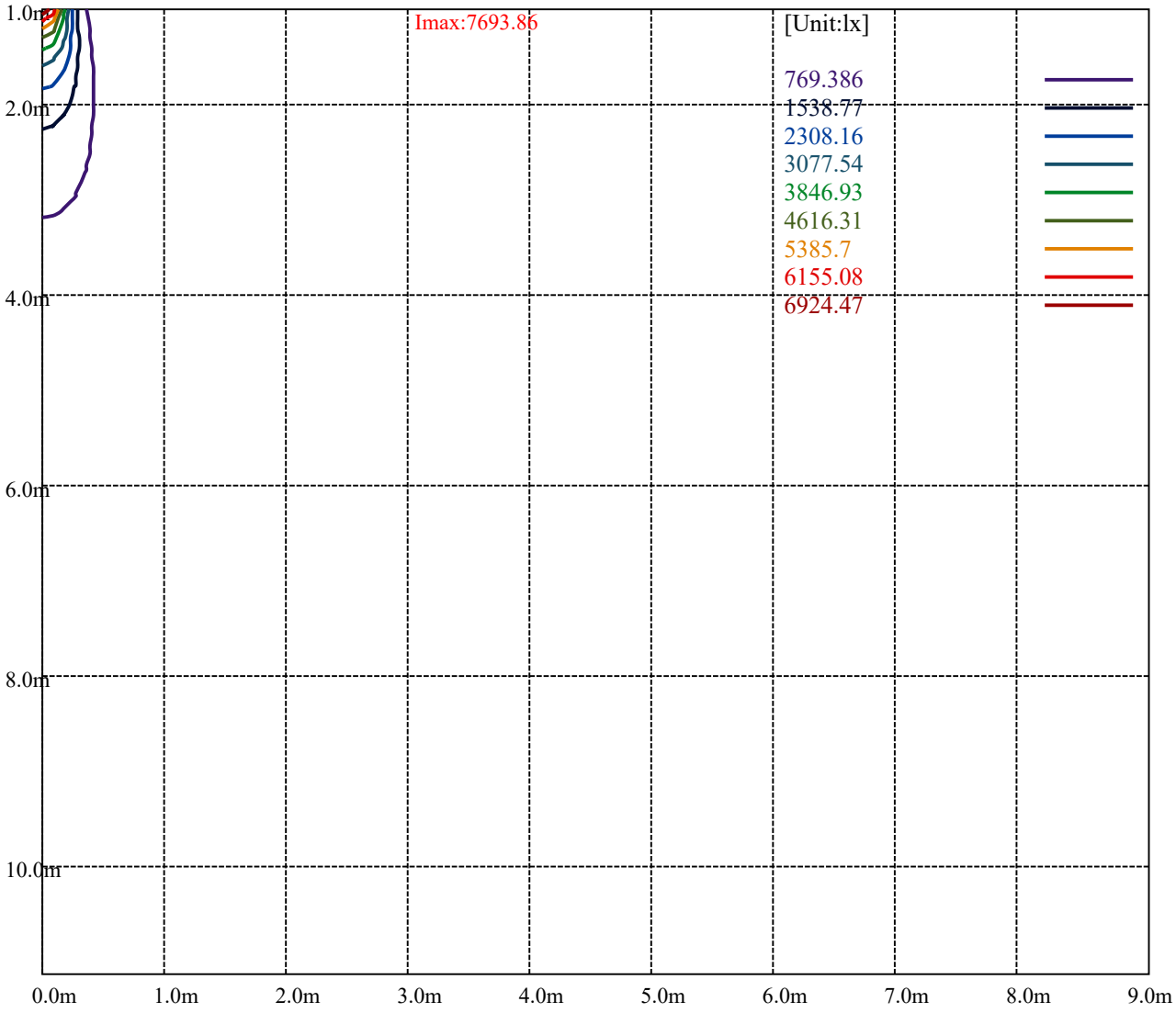
ISO illuminance diagram



(10%Emax) 85.48722
(20%Emax) 170.9744
(30%Emax) 256.4622
(40%Emax) 341.9489
(50%Emax) 427.4366
(60%Emax) 512.9233
(70%Emax) 598.4111
(80%Emax) 683.8978
(90%Emax) 769.3856

Equipment: gms1980
Temperature(°C): 25.0
Date: 2017/5/11
Humidity(%): 60.0%
Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/11
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Luminance Limitting Curve(no luminous side)

Luminance Table

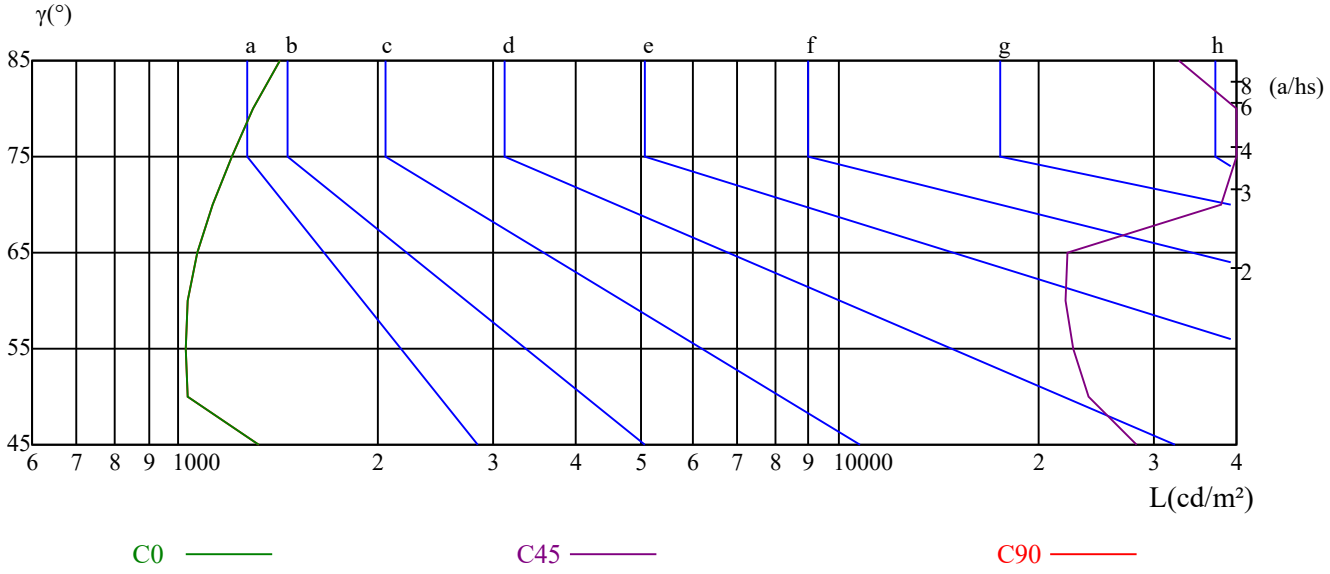
γ	45	50	55	60	65	70	75	80	85
C0	1319	1033	1023	1034	1069	1124	1202	1297	1425
C45	28156	23900	22623	21999	22128	37927	66064	65047	32703
C90	1319	1033	1023	1034	1069	1124	1202	1297	1425

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2578	2578	66341	4159	4159	295782	12153	12153	380977

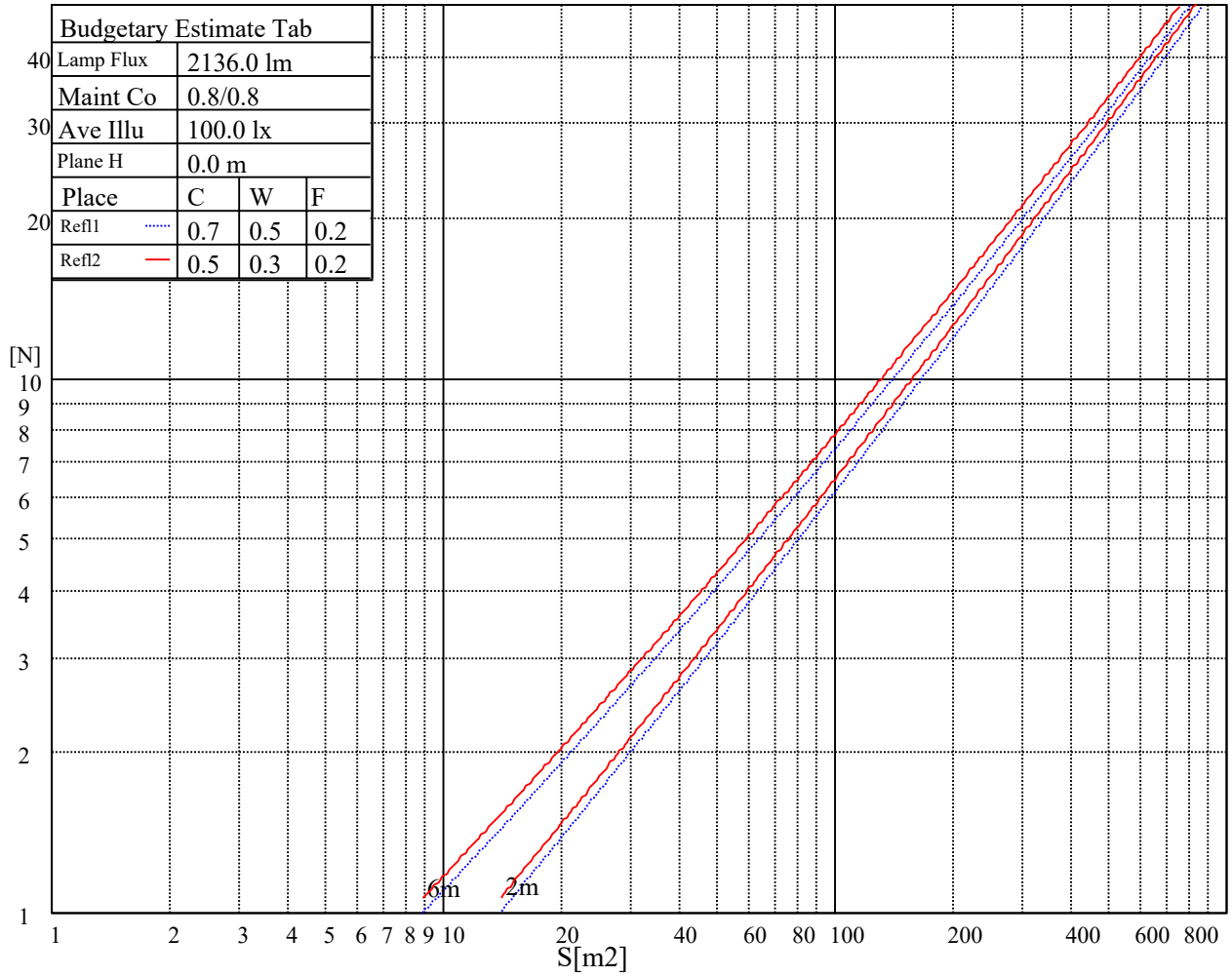
Glare Table

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



Budgetary Estimate Table

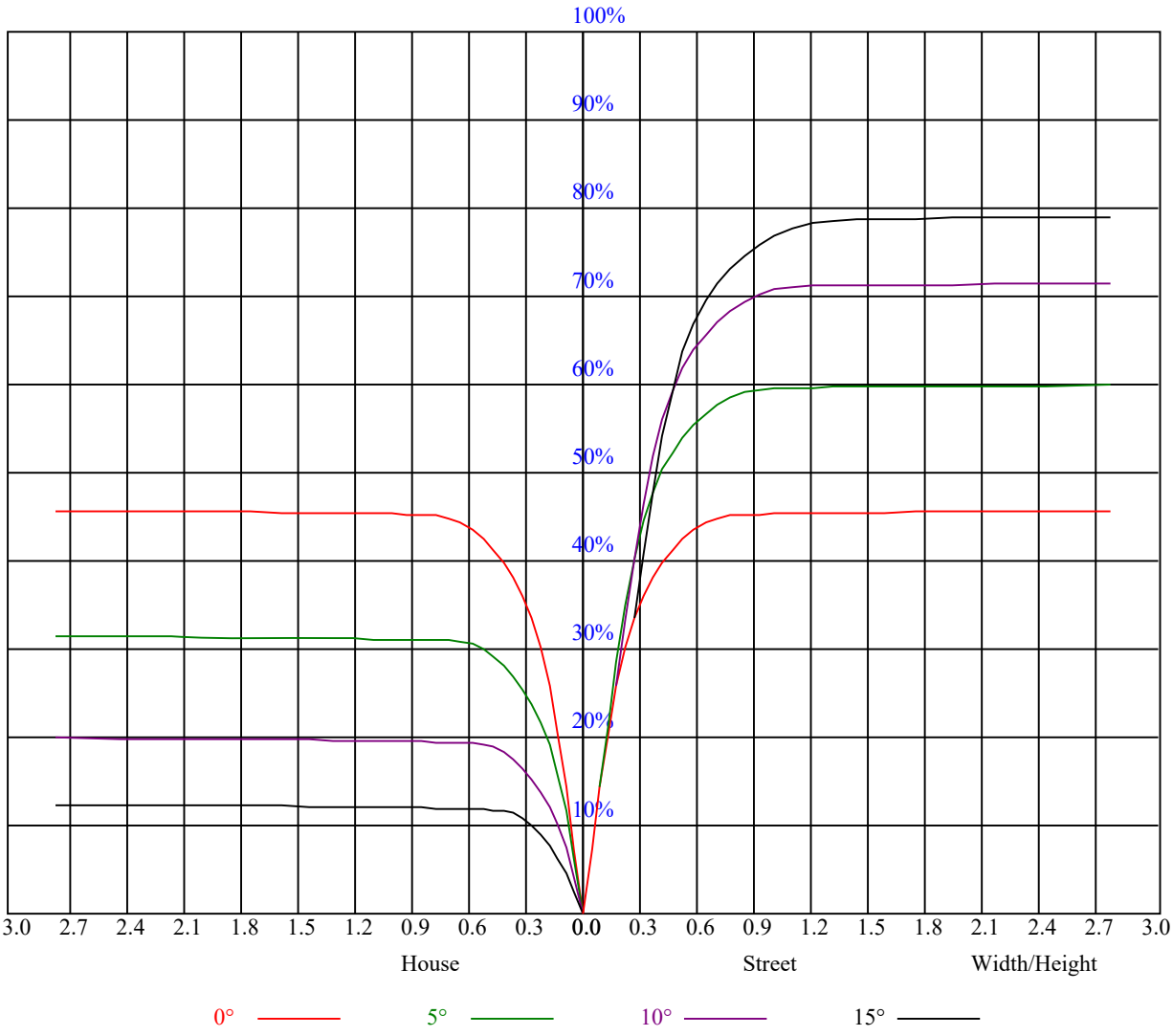


Equipment: gms1980 Date: 2017/5/11 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.09	1.09	1.09	1.07	1.07	1.07	1.02	1.02	1.02	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.03	1.01	0.99	1.01	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88
2	0.97	0.94	0.92	0.96	0.93	0.91	0.93	0.91	0.89	0.90	0.88	0.87	0.88	0.86	0.85	0.84
3	0.93	0.89	0.86	0.91	0.88	0.85	0.89	0.86	0.84	0.87	0.85	0.83	0.85	0.83	0.81	0.80
4	0.88	0.84	0.81	0.87	0.84	0.81	0.85	0.82	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.77
5	0.84	0.80	0.77	0.84	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.74
6	0.81	0.77	0.74	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
7	0.78	0.74	0.70	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.75	0.70	0.68	0.74	0.70	0.67	0.73	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	0.62	0.62

Coefficient Utilization Curve



Equipment: gms1980	Date: 2017/5/11	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	7703.49	7622.56	7473.36	7307.64	7002.07	6674.49	6338.09	5903.70	5473.71
90.0	7684.22	7711.20	7708.45	7648.99	7539.42	7369.85	7081.35	6789.56	6450.41
180.0	7703.49	7727.17	7704.59	7592.83	7458.49	7247.62	6942.61	6574.28	6187.24
270.0	7684.22	7594.48	7443.63	7255.33	6985.56	6694.31	6319.92	5880.57	5432.97
360.0	7703.49	7622.56	7473.36	7307.64	7002.07	6674.49	6338.09	5903.70	5473.71

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4953.42	4410.02	3921.12	3443.78	2907.53	2546.36	2233.09	1882.93	1642.88
90.0	5975.27	5550.79	5093.82	4547.11	3980.58	3502.14	3022.60	2649.86	2277.13
180.0	5692.83	5147.22	4639.60	4066.47	3583.62	3089.21	2699.42	2314.57	2018.37
270.0	4958.38	4335.14	3827.52	3328.16	2771.54	2398.26	2077.28	1764.01	1534.97
360.0	4953.42	4410.02	3921.12	3443.78	2907.53	2546.36	2233.09	1882.93	1642.88

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1433.67	1233.26	1071.40	962.39	878.70	831.35	794.46	768.04	748.22
90.0	1946.24	1684.73	1441.93	1239.87	1096.17	980.55	881.45	833.00	798.87
180.0	1690.23	1458.99	1200.78	1078.06	950.38	873.30	823.20	782.79	760.33
270.0	1319.70	1096.94	1025.98	926.54	858.99	816.49	784.33	754.22	735.06
360.0	1433.67	1233.26	1071.40	962.39	878.70	831.35	794.46	768.04	748.22

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	728.95	709.13	694.26	679.95	663.43	639.20	576.99	460.82	350.71
90.0	770.79	749.32	732.25	711.33	694.26	679.95	662.33	616.08	526.34
180.0	742.11	723.33	707.09	693.93	679.12	665.41	647.19	588.94	500.24
270.0	716.06	696.74	683.30	670.75	646.97	585.86	501.78	381.32	292.79
360.0	728.95	709.13	694.26	679.95	663.43	639.20	576.99	460.82	350.71

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	279.14	122.39	47.79	26.54	23.12	20.65	18.11	15.69	11.40
90.0	417.33	313.82	286.29	107.08	45.26	25.05	21.64	18.39	15.64
180.0	381.10	256.95	156.36	68.05	31.66	26.37	23.67	20.37	17.62
270.0	184.44	85.61	43.27	31.33	27.36	24.67	21.58	14.42	9.47
360.0	279.14	122.39	47.79	26.54	23.12	20.65	18.11	15.69	11.40

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	9.30	9.03	8.92	8.75	8.59	8.48	8.42	8.37	8.31
90.0	13.21	9.36	9.14	9.03	8.81	8.70	8.59	8.59	8.42
180.0	12.99	9.19	9.03	8.81	8.64	8.53	8.48	8.37	8.26
270.0	9.19	8.97	8.86	8.75	8.64	8.53	8.42	8.37	8.31
360.0	9.30	9.03	8.92	8.75	8.59	8.48	8.42	8.37	8.31

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.26	8.15	8.15	8.09	8.09	8.04	7.98	7.93	7.93
90.0	8.42	8.31	8.26	8.20	8.20	8.15	8.09	8.09	8.04
180.0	8.26	8.20	8.15	8.09	8.04	7.98	7.93	7.93	7.93
270.0	8.26	8.26	8.20	8.15	8.09	8.04	7.98	8.04	7.98
360.0	8.26	8.15	8.15	8.09	8.09	8.04	7.98	7.93	7.93

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.87	7.87	7.87	7.82	7.76	7.76	7.76	7.76	7.76
90.0	8.04	7.93	7.93	7.87	7.87	7.87	7.87	7.82	7.82
180.0	7.87	7.87	7.82	7.82	7.76	7.76	7.76	7.76	7.76
270.0	7.98	7.93	7.87	7.87	7.82	7.82	7.87	7.87	7.82
360.0	7.87	7.87	7.87	7.82	7.76	7.76	7.76	7.76	7.76

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	7.76	7.71	7.71	7.76	7.76	7.71	7.65	7.65	7.65
90.0	7.82	7.87	7.87	7.82	7.82	7.76	7.82	7.76	7.82
180.0	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.65	7.65
270.0	7.82	7.82	7.82	7.82	7.82	7.76	7.76	7.76	7.71
360.0	7.76	7.71	7.71	7.76	7.76	7.71	7.65	7.65	7.65

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.65	7.60	7.65	7.60	7.60	7.54	7.54	7.54	7.60
90.0	7.76	7.76	7.71	7.71	7.76	7.71	7.71	7.60	7.60
180.0	7.60	7.65	7.60	7.60	7.60	7.54	7.54	7.49	7.54
270.0	7.71	7.71	7.71	7.65	7.65	7.60	7.65	7.60	7.60
360.0	7.65	7.60	7.65	7.60	7.60	7.54	7.54	7.54	7.60

C/γ(°)	90.0
0.0	7.54
90.0	7.65
180.0	7.54
270.0	7.60
360.0	7.54