NATA LIGHTING CO.,LTD
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Address:380JinOu Road,Gaoxin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 3-1548-A3
Luminaire: TE 2213130-1+92.76.365.00

Report No: GC20170511505	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: C
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2929.80
Efficiency(%): 91.73%
Lumens(lm)/Power(W): 104.26
Central intensity(cd): 19856.090
Maximum intensity(cd): 19856.090
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.0
[C90/270]Total=16.0
Field angle(10%Imax): [C0/180]Total=32.8
[C90/270]Total=32.8
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(%): 91.73%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.676%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	19856.092	0.000	0	.000%	.000%
1.0	19693.674	18.924	18.924	.592%	.646%
2.0	19081.172	55.653	74.577	1.742%	2.545%
3.0	18149.342	89.043	163.62	2.788%	5.585%
4.0	16929.844	117.421	281.042	3.676%	9.593%
5.0	15386.887	139.025	420.066	4.353%	14.338%
6.0	13406.233	151.316	571.382	4.737%	19.502%
7.0	11589.510	155.148	726.53	4.857%	24.798%
8.0	9901.343	153.806	880.336	4.815%	30.048%
9.0	8088.611	145.799	1026.135	4.565%	35.024%
10.0	6521.844	132.219	1158.354	4.140%	39.537%
11.0	5179.293	116.918	1275.273	3.661%	43.528%
12.0	4139.691	101.870	1377.142	3.189%	47.005%
13.0	3270.625	87.942	1465.084	2.753%	50.006%
14.0	2826.320	78.040	1543.125	2.443%	52.670%
15.0	2385.456	71.550	1614.674	2.240%	55.112%
16.0	2076.177	65.375	1680.05	2.047%	57.343%
17.0	1839.847	60.983	1741.033	1.909%	59.425%
18.0	1678.670	58.013	1799.045	1.816%	61.405%
19.0	1553.416	56.232	1855.277	1.761%	63.324%
20.0	1446.607	54.909	1910.186	1.719%	65.198%
21.0	1370.904	54.102	1964.288	1.694%	67.045%
22.0	1315.022	53.975	2018.262	1.690%	68.887%
23.0	1270.426	54.250	2072.512	1.698%	70.739%
24.0	1229.272	54.652	2127.165	1.711%	72.604%
25.0	1198.165	55.195	2182.359	1.728%	74.488%
26.0	1170.361	55.909	2238.268	1.750%	76.397%
27.0	1142.971	56.596	2294.865	1.772%	78.328%
28.0	1105.078	56.916	2351.78	1.782%	80.271%
29.0	1085.588	57.314	2409.094	1.794%	82.227%
30.0	1056.119	57.826	2466.92	1.810%	84.201%
31.0	1019.163	57.752	2524.672	1.808%	86.172%
32.0	966.419	56.885	2581.557	1.781%	88.114%
33.0	881.962	54.454	2636.011	1.705%	89.972%
34.0	780.301	50.305	2686.316	1.575%	91.689%
35.0	664.489	44.870	2731.186	1.405%	93.221%
36.0	541.989	38.415	2769.6	1.203%	94.532%
37.0	429.798	31.694	2801.294	.992%	95.614%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	325.452	25.209	2826.504	.789%	96.474%
39.0	206.985	18.174	2844.677	.569%	97.095%
40.0	133.897	11.889	2856.566	.372%	97.500%
41.0	65.999	7.118	2863.684	.223%	97.743%
42.0	37.521	3.761	2867.445	.118%	97.872%
43.0	30.212	2.509	2869.954	.079%	97.957%
44.0	25.312	2.096	2872.05	.066%	98.029%
45.0	20.123	1.746	2873.796	.055%	98.088%
46.0	16.627	1.437	2875.233	.045%	98.138%
47.0	14.163	1.225	2876.458	.038%	98.179%
48.0	13.778	1.130	2877.587	.035%	98.218%
49.0	13.489	1.120	2878.707	.035%	98.256%
50.0	13.255	1.115	2879.822	.035%	98.294%
51.0	13.021	1.112	2880.934	.035%	98.332%
52.0	12.869	1.111	2882.045	.035%	98.370%
53.0	12.718	1.113	2883.158	.035%	98.408%
54.0	12.567	1.114	2884.272	.035%	98.446%
55.0	12.429	1.116	2885.388	.035%	98.484%
56.0	12.291	1.117	2886.505	.035%	98.522%
57.0	12.181	1.119	2887.624	.035%	98.560%
58.0	12.071	1.122	2888.745	.035%	98.599%
59.0	12.016	1.126	2889.872	.035%	98.637%
60.0	11.920	1.131	2891.002	.035%	98.676%
61.0	11.892	1.136	2892.139	.036%	98.715%
62.0	11.865	1.145	2893.283	.036%	98.754%
63.0	11.865	1.154	2894.438	.036%	98.793%
64.0	11.837	1.163	2895.601	.036%	98.833%
65.0	11.892	1.174	2896.775	.037%	98.873%
66.0	11.947	1.189	2897.964	.037%	98.913%
67.0	11.947	1.201	2899.166	.038%	98.954%
68.0	11.989	1.213	2900.378	.038%	98.996%
69.0	12.071	1.227	2901.606	.038%	99.038%
70.0	12.140	1.243	2902.849	.039%	99.080%
71.0	12.250	1.261	2904.11	.039%	99.123%
72.0	12.443	1.284	2905.394	.040%	99.167%
73.0	12.608	1.310	2906.704	.041%	99.212%
74.0	12.814	1.337	2908.04	.042%	99.257%
75.0	13.076	1.368	2909.408	.043%	99.304%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	13.351	1.403	2910.811	.044%	99.352%
77.0	13.613	1.438	2912.249	.045%	99.401%
78.0	13.833	1.469	2913.718	.046%	99.451%
79.0	13.998	1.495	2915.213	.047%	99.502%
80.0	14.067	1.513	2916.726	.047%	99.554%
81.0	13.860	1.510	2918.236	.047%	99.605%
82.0	13.461	1.482	2919.718	.046%	99.656%
83.0	12.704	1.422	2921.14	.045%	99.704%
84.0	11.644	1.326	2922.467	.042%	99.750%
85.0	11.397	1.258	2923.724	.039%	99.793%
86.0	11.273	1.239	2924.964	.039%	99.835%
87.0	11.108	1.225	2926.188	.038%	99.877%
88.0	10.970	1.209	2927.398	.038%	99.918%
89.0	10.956	1.202	2928.6	.038%	99.959%
90.0	10.942	1.201	2929.8	.038%	100.000%

Zonal flux distribution table

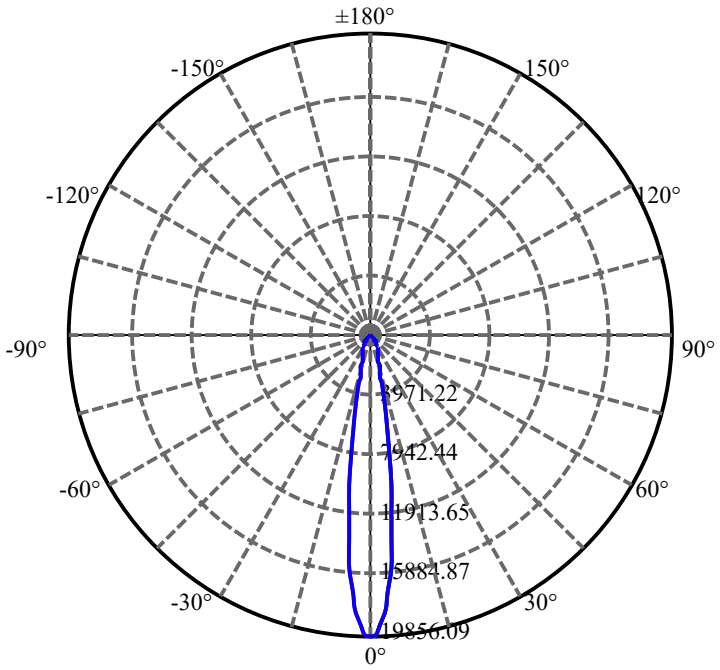
ZONAL LUMEN SUMMARY

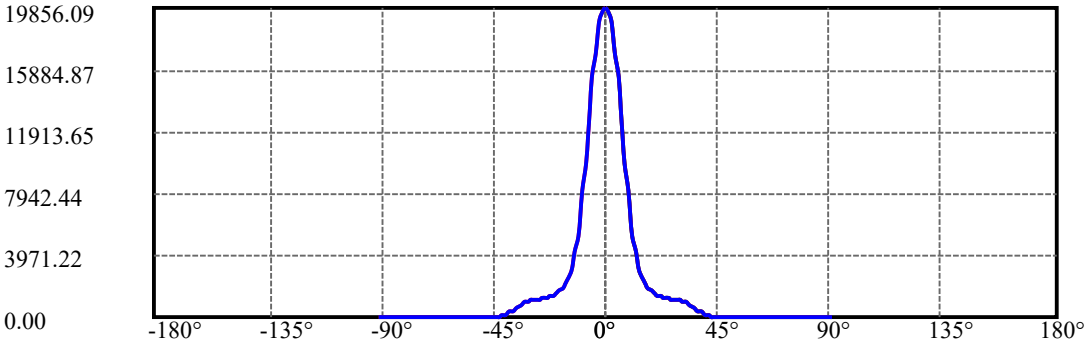
Zone	Lumens	%Lamp	%Fixt
0-30	2466.92	77.24%	84.20%
0-40	2856.57	89.44%	97.50%
0-60	2891.00	90.51%	98.68%
0-90	2928.60	91.69%	99.96%
0-120	2928.60	91.69%	99.96%
0-180	2929.80	91.73%	100.00%
60-90	38.73	1.21%	1.32%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.86	2343.84	73.38%	80.00%

ZONAL LUMEN SUMMARY

0-10	1158.35
10-20	751.83
20-30	556.73
30-40	389.65
40-50	23.26
50-60	11.18
60-70	11.85
70-80	13.88
80-90	11.87
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):

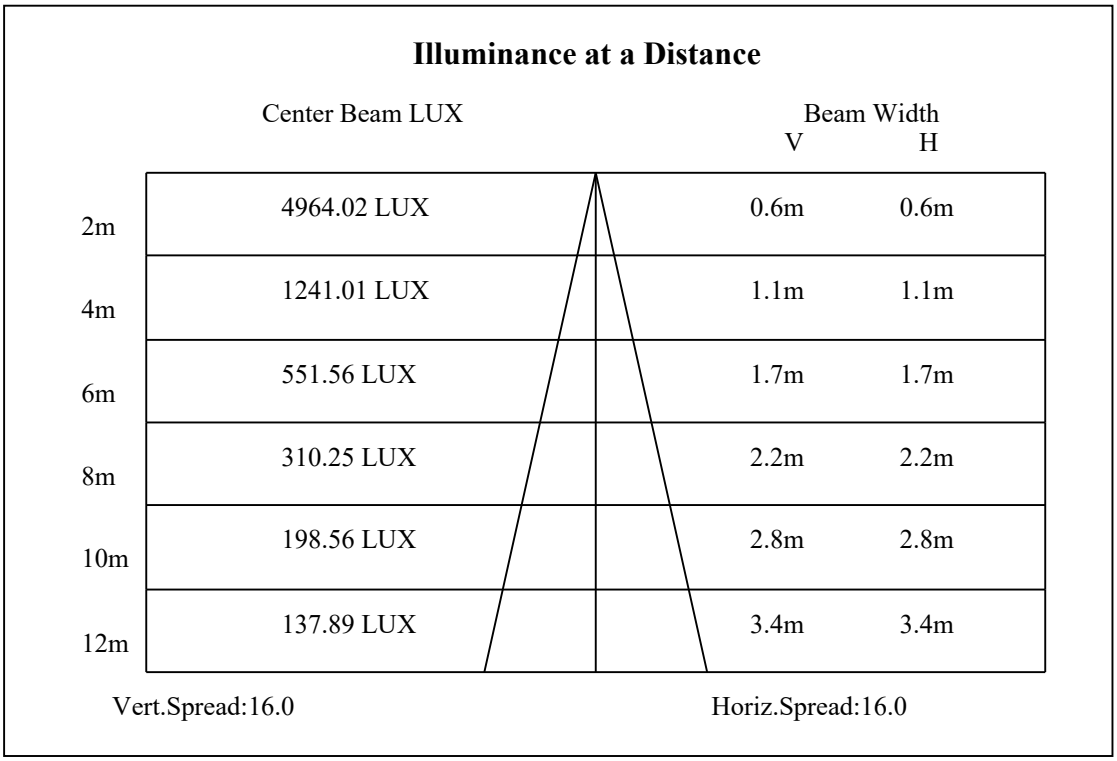
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:16.4 Right:16.4
:C90/270Left:16.4 Right:16.4

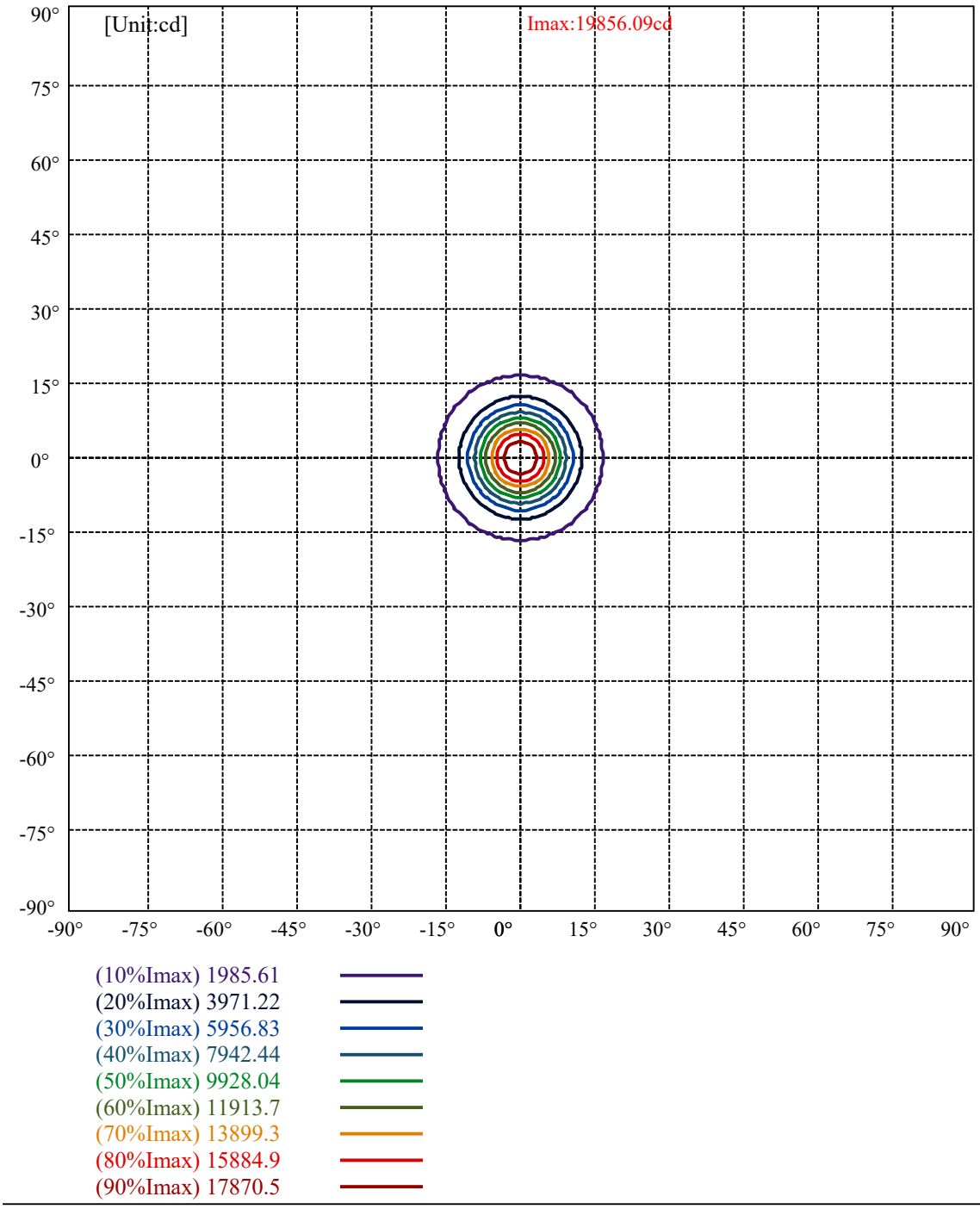
Beam Angle(50%Imax):C0/180Left:8.0 Right:8.0
:C90/270Left:8.0 Right:8.0

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)

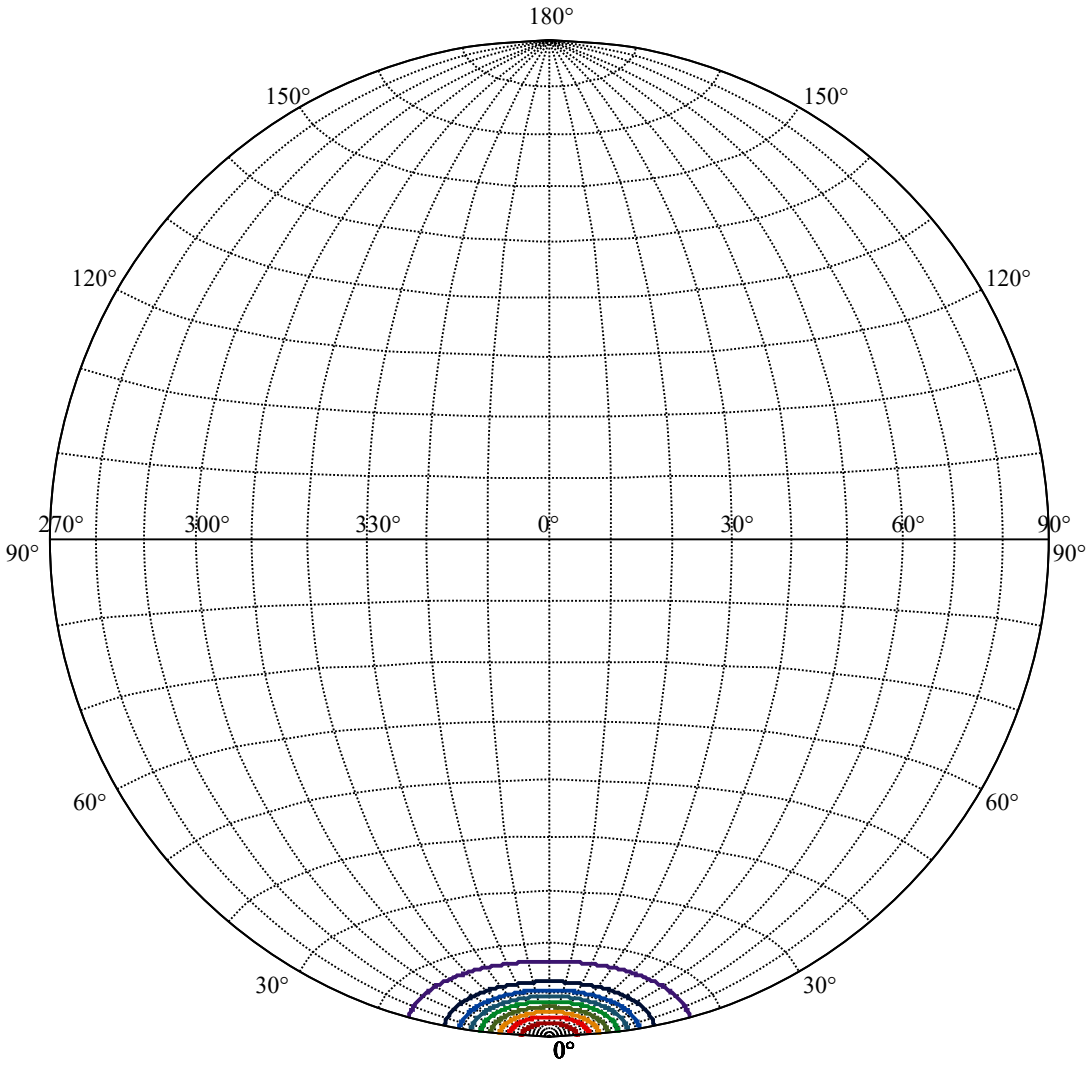


Equipment: gms1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



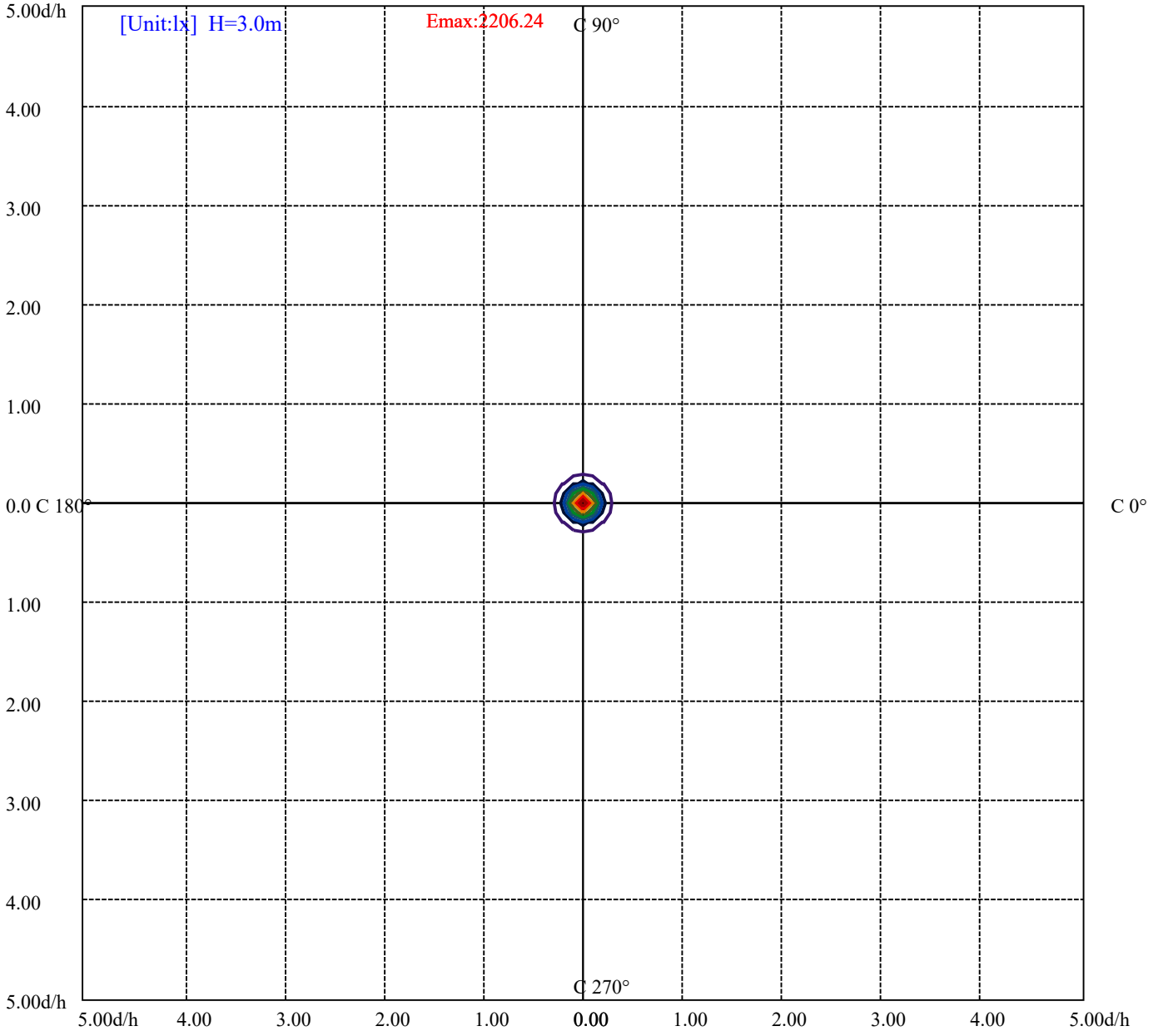
House [Unit:cd] Road

Imax:19856.09

(10%Imax) 1985.61
(20%Imax) 3971.22
(30%Imax) 5956.83
(40%Imax) 7942.44
(50%Imax) 9928.04
(60%Imax) 11913.7
(70%Imax) 13899.3
(80%Imax) 15884.9
(90%Imax) 17870.5

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

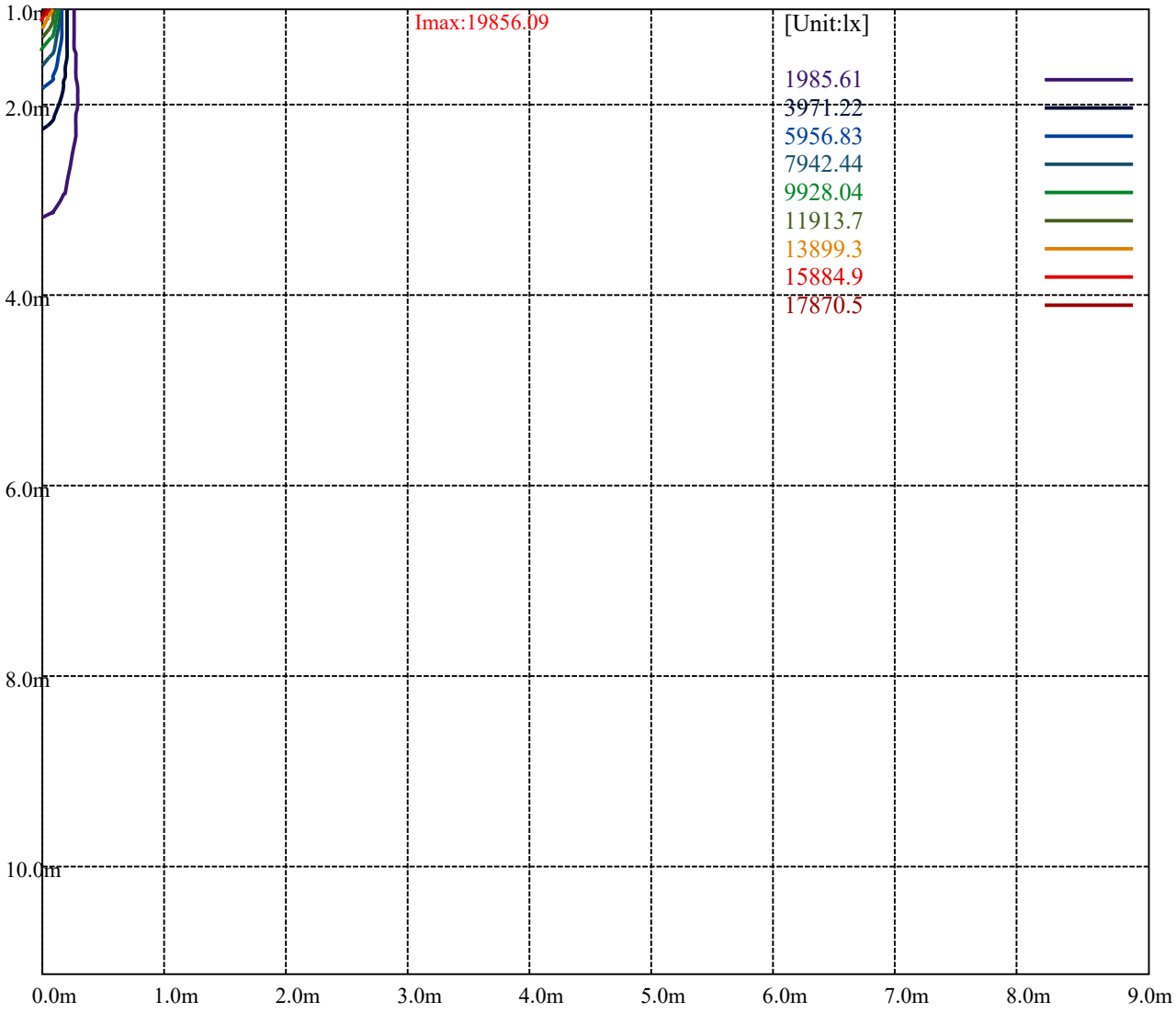
ISO illuminance diagram



(10%Emax) 220.6233
(20%Emax) 441.2455
(30%Emax) 661.8689
(40%Emax) 882.4922
(50%Emax) 1103.115
(60%Emax) 1323.733
(70%Emax) 1544.356
(80%Emax) 1764.989
(90%Emax) 1985.611

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

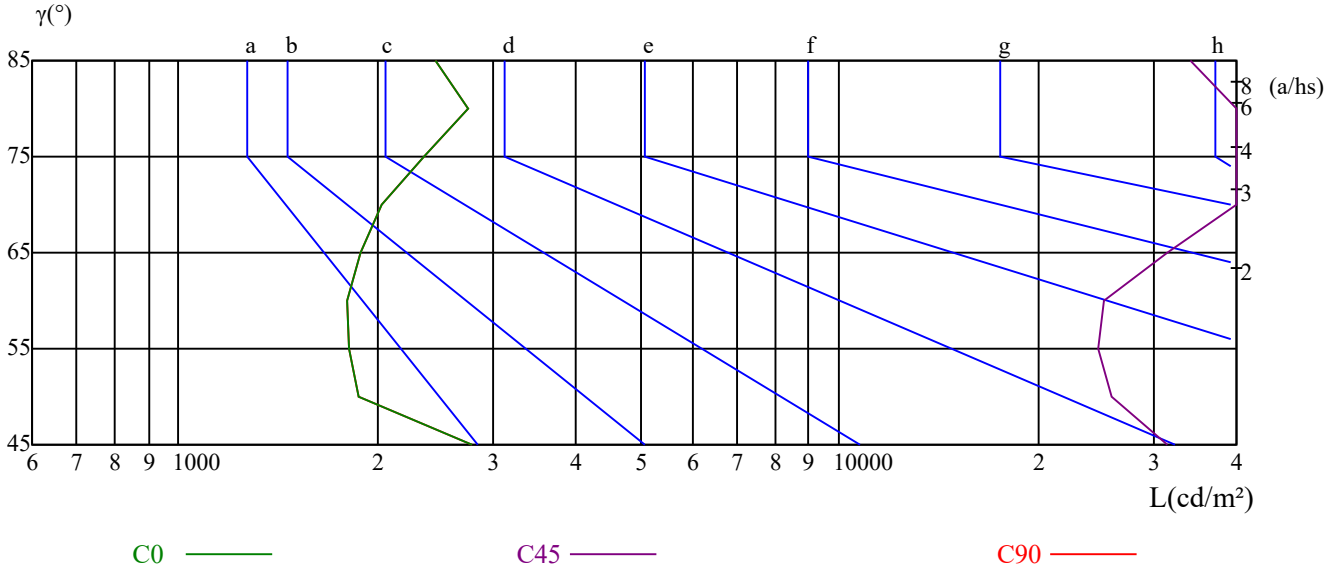
γ	45	50	55	60	65	70	75	80	85
C0	2785	1873	1808	1800	1882	2035	2348	2743	2452
C45	31385	25876	24690	25208	31517	43487	57304	58989	33950
C90	2785	1873	1808	1800	1882	2035	2348	2743	2452

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4625	4625	96467	8304	8304	262812	21493	21493	406845

Glare Table

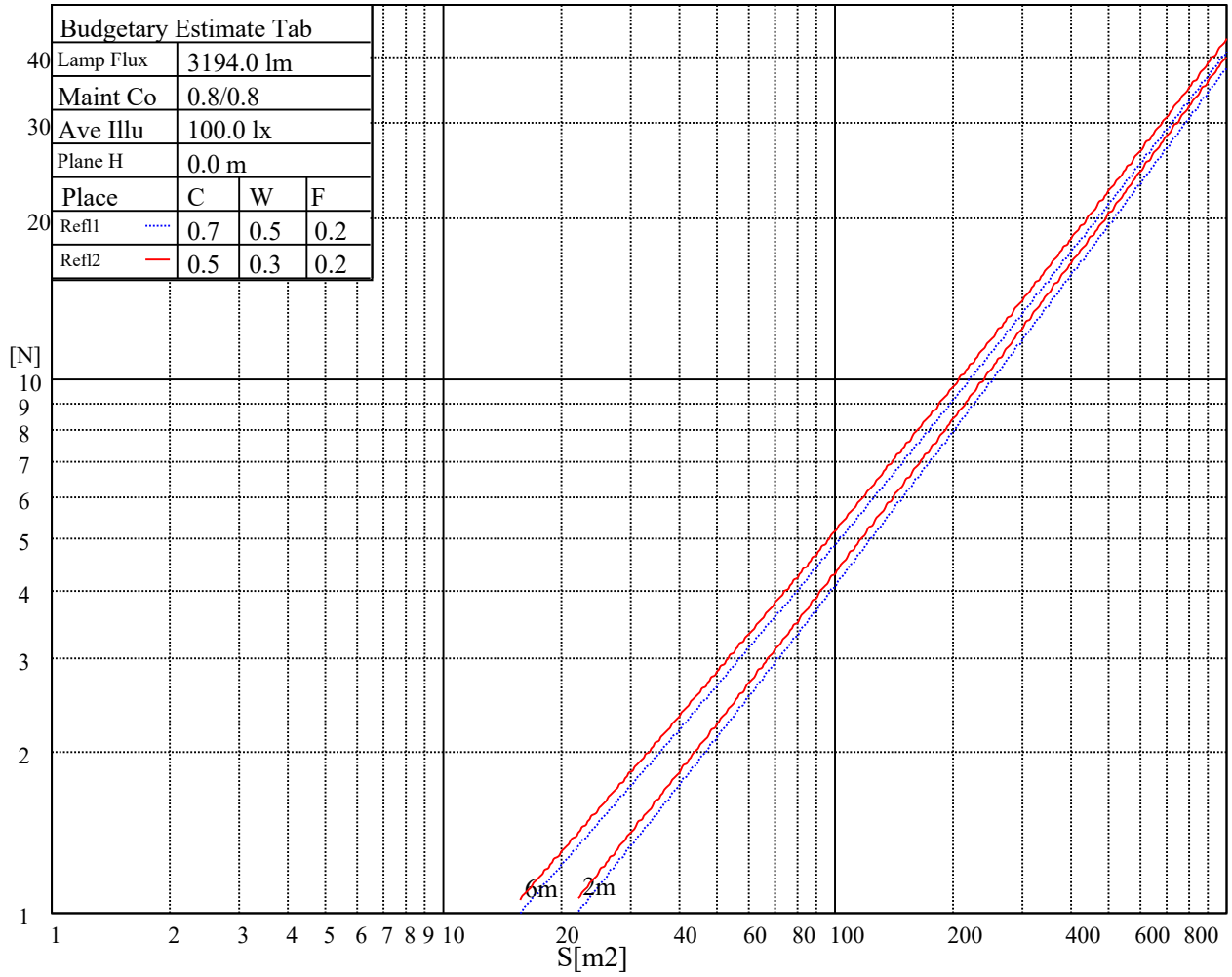
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve



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

Budgetary Estimate Table

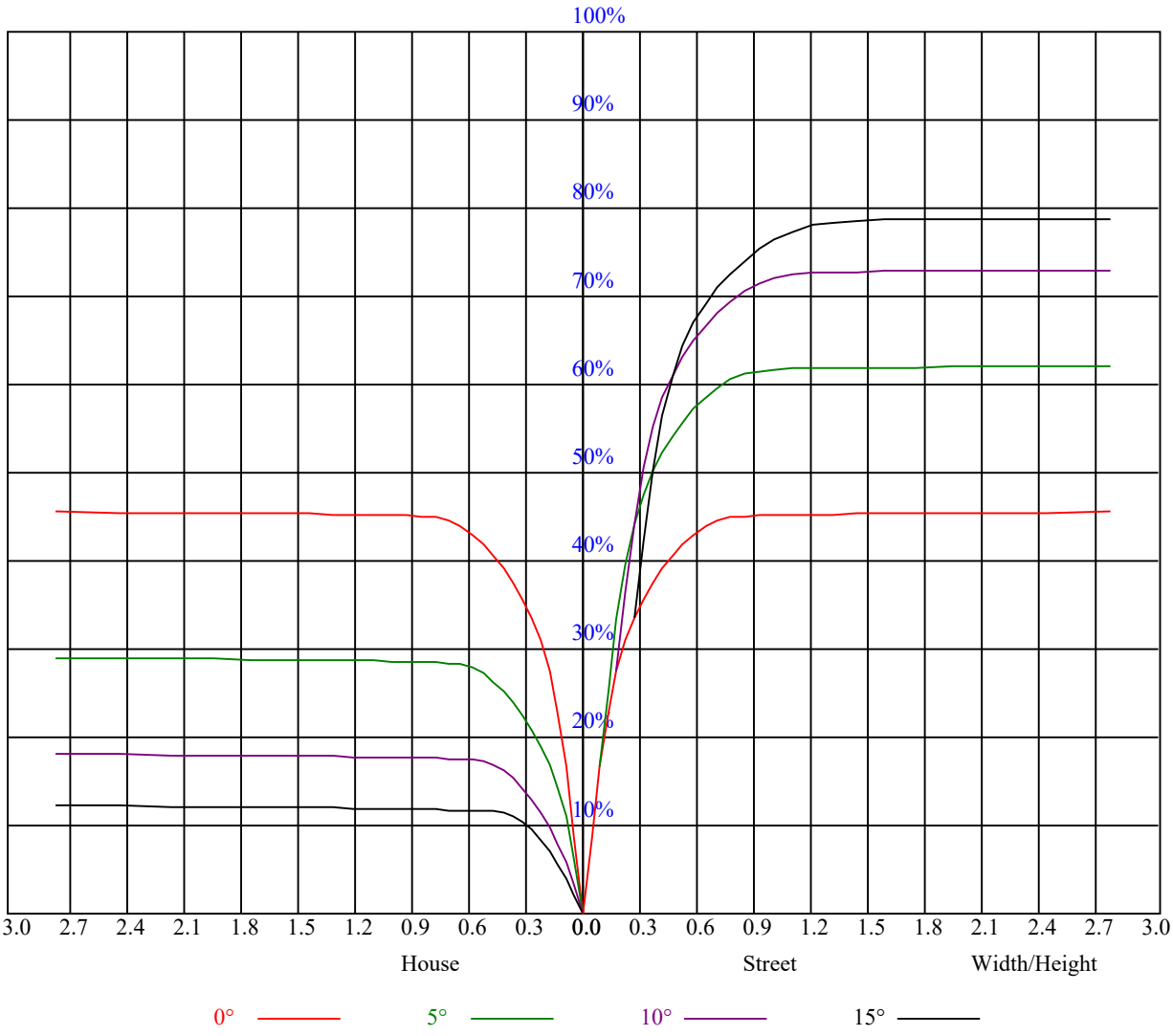


Equipment: gms1980 Date: 2017/5/15 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.09	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	0.89	0.87	0.88	0.87	0.85	0.84
3	0.93	0.89	0.86	0.92	0.88	0.86	0.89	0.87	0.84	0.87	0.85	0.83	0.85	0.83	0.82	0.81
4	0.89	0.85	0.82	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.82	0.79	0.83	0.80	0.79	0.77
5	0.85	0.81	0.78	0.84	0.80	0.78	0.83	0.79	0.77	0.81	0.79	0.76	0.80	0.78	0.76	0.75
6	0.82	0.78	0.75	0.81	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.72
7	0.79	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.73	0.71	0.70
8	0.76	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.67
9	0.74	0.70	0.67	0.73	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
10	0.72	0.68	0.65	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.64

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	19952.44	19638.62	18741.20	17651.08	16280.18	14452.31	12503.31	10747.01	8831.05
90.0	19759.74	19985.47	19842.33	19357.83	18405.35	17260.18	15685.57	13802.64	12024.32
180.0	19952.44	19941.43	19556.03	18768.73	17733.67	16241.64	14474.33	12128.92	10716.73
270.0	19759.74	19209.18	18185.13	16819.73	15300.17	13593.43	10961.73	9679.47	8033.28
360.0	19952.44	19638.62	18741.20	17651.08	16280.18	14452.31	12503.31	10747.01	8831.05

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7080.25	5692.83	4388.00	3523.61	2868.44	2813.38	2139.49	1913.21	1717.76
90.0	10064.31	8192.39	6656.32	5290.92	3942.04	3204.28	2813.38	2310.72	2022.77
180.0	9007.78	7239.92	5696.14	4554.27	3608.95	2960.38	2546.91	2233.09	1943.49
270.0	6202.10	4962.23	3976.72	3189.97	2663.08	2327.23	2042.04	1847.69	1675.37
360.0	7080.25	5692.83	4388.00	3523.61	2868.44	2813.38	2139.49	1913.21	1717.76

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1574.61	1479.37	1398.43	1337.32	1293.83	1256.94	1219.50	1190.87	1163.89
90.0	1832.83	1658.85	1518.46	1424.86	1347.78	1295.48	1249.78	1212.89	1184.26
180.0	1765.66	1623.06	1485.97	1403.94	1341.72	1286.67	1242.07	1209.04	1177.66
270.0	1541.58	1452.39	1383.57	1317.50	1276.76	1242.62	1205.74	1179.86	1155.63
360.0	1574.61	1479.37	1398.43	1337.32	1293.83	1256.94	1219.50	1190.87	1163.89

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1135.26	1104.43	1081.86	1048.27	1012.49	953.03	839.61	736.65	626.54
90.0	1157.29	1124.80	1097.82	1068.09	1033.41	1005.88	949.72	854.48	742.16
180.0	1152.88	1098.04	1094.52	1063.30	1037.76	1005.16	934.80	848.86	736.38
270.0	1126.45	1093.03	1068.15	1044.81	993.00	901.60	803.71	681.21	552.88
360.0	1135.26	1104.43	1081.86	1048.27	1012.49	953.03	839.61	736.65	626.54

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	487.25	376.04	282.44	149.92	78.90	40.03	32.15	28.02	23.12
90.0	626.54	519.18	404.66	287.94	225.24	96.84	39.03	28.90	25.05
180.0	614.59	505.42	396.41	266.75	172.49	86.71	42.94	34.58	30.12
270.0	439.57	318.56	218.30	123.33	58.97	40.41	35.95	29.35	22.96
360.0	487.25	376.04	282.44	149.92	78.90	40.03	32.15	28.02	23.12

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	17.62	14.31	13.98	13.65	13.43	13.21	12.99	12.88	12.72
90.0	21.64	17.56	14.70	14.15	13.76	13.49	13.32	13.16	12.99
180.0	25.11	20.37	14.04	13.71	13.49	13.27	12.94	12.72	12.61
270.0	16.13	14.26	13.93	13.60	13.27	13.05	12.83	12.72	12.55
360.0	17.62	14.31	13.98	13.65	13.43	13.21	12.99	12.88	12.72

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.55	12.39	12.28	12.22	12.11	12.06	11.95	11.95	12.00
90.0	12.83	12.72	12.50	12.39	12.28	12.22	12.11	12.06	12.00
180.0	12.44	12.33	12.22	12.06	11.95	11.89	11.84	11.78	11.73
270.0	12.44	12.28	12.17	12.06	11.95	11.89	11.78	11.78	11.73
360.0	12.55	12.39	12.28	12.22	12.11	12.06	11.95	11.95	12.00

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	12.11	12.17	12.28	12.28	12.33	12.44	12.77	13.16	13.60
90.0	11.95	11.95	12.00	12.17	12.17	12.22	12.28	12.22	12.22
180.0	11.62	11.56	11.56	11.62	11.62	11.56	11.51	11.51	11.51
270.0	11.78	11.67	11.73	11.73	11.67	11.73	11.73	11.67	11.67
360.0	12.11	12.17	12.28	12.28	12.33	12.44	12.77	13.16	13.60

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	14.31	14.87	15.36	15.91	16.52	17.18	17.67	18.06	18.11
90.0	12.33	12.50	12.88	13.38	13.87	14.37	14.76	15.14	15.42
180.0	11.51	11.45	11.45	11.45	11.45	11.40	11.40	11.34	11.29
270.0	11.62	11.62	11.56	11.56	11.56	11.51	11.51	11.45	11.45
360.0	14.31	14.87	15.36	15.91	16.52	17.18	17.67	18.06	18.11

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	16.96	15.20	13.43	11.62	11.56	11.40	11.12	10.96	10.96
90.0	15.80	15.91	14.81	12.44	11.67	11.51	11.40	11.07	11.01
180.0	11.29	11.34	11.29	11.29	11.18	11.12	10.96	10.90	10.90
270.0	11.40	11.40	11.29	11.23	11.18	11.07	10.96	10.96	10.96
360.0	16.96	15.20	13.43	11.62	11.56	11.40	11.12	10.96	10.96

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