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Nata

LumCAT: 1-0919-M
Luminaire: 99.02.73.179+92.76.853.00

Report No: 220609-B013	Voltage(V): 37.1800
Test No: 220609-C013	Current(A): 0.3610
LampCAT: Bridgelux C10-(30C2000C)	Power (W): 13.4210
Lamp flux(lm): 1182.2	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 43	Width(mm): 43
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 840.73
Efficiency(%): 71.12%
Lumens(lm)/Power(W): 62.64
Central intensity(cd): 5480.686
Maximum intensity(cd): 5480.686
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=20.2
[C90/270]Total=20.2
Field angle(10%Imax): [C0/180]Total=39.6
[C90/270]Total=39.6
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
Maximum s/h(1/4): C0_180=0.35 C90_270=0.35
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 71.12%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.498%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5480.685	0.000	0	.000%	.000%
1.0	5448.045	5.229	5.229	.442%	.622%
2.0	5345.943	15.493	20.722	1.310%	2.465%
3.0	5167.879	25.146	45.867	2.127%	5.456%
4.0	4954.561	33.883	79.75	2.866%	9.486%
5.0	4665.880	41.387	121.137	3.501%	14.409%
6.0	4330.965	47.281	168.418	3.999%	20.032%
7.0	3966.323	51.501	219.919	4.356%	26.158%
8.0	3584.203	54.038	273.957	4.571%	32.586%
9.0	3171.535	54.752	328.708	4.631%	39.098%
10.0	2777.165	53.834	382.542	4.554%	45.501%
11.0	2406.697	51.797	434.339	4.381%	51.662%
12.0	2071.260	48.950	483.29	4.141%	57.485%
13.0	1761.142	45.481	528.771	3.847%	62.894%
14.0	1487.197	41.578	570.349	3.517%	67.840%
15.0	1273.618	37.902	608.251	3.206%	72.348%
16.0	1096.600	34.730	642.981	2.938%	76.479%
17.0	938.778	31.696	674.677	2.681%	80.249%
18.0	783.189	28.391	703.069	2.402%	83.626%
19.0	652.442	24.977	728.046	2.113%	86.597%
20.0	519.424	21.448	749.494	1.814%	89.148%
21.0	394.571	17.551	767.045	1.485%	91.236%
22.0	313.509	14.229	781.274	1.204%	92.928%
23.0	209.270	10.969	792.243	.928%	94.233%
24.0	141.151	7.661	799.905	.648%	95.144%
25.0	81.197	5.056	804.961	.428%	95.746%
26.0	49.505	3.085	808.046	.261%	96.113%
27.0	31.228	1.975	810.021	.167%	96.347%
28.0	22.639	1.364	811.385	.115%	96.510%
29.0	18.075	1.065	812.45	.090%	96.636%
30.0	15.483	0.906	813.356	.077%	96.744%
31.0	13.781	0.814	814.17	.069%	96.841%
32.0	12.488	0.753	814.923	.064%	96.931%
33.0	11.443	0.705	815.628	.060%	97.014%
34.0	10.531	0.665	816.293	.056%	97.093%
35.0	9.747	0.630	816.923	.053%	97.168%
36.0	9.030	0.598	817.521	.051%	97.240%
37.0	8.463	0.571	818.091	.048%	97.307%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	7.932	0.547	818.638	.046%	97.372%
39.0	7.469	0.526	819.164	.044%	97.435%
40.0	7.066	0.507	819.671	.043%	97.495%
41.0	6.722	0.491	820.162	.042%	97.554%
42.0	6.408	0.477	820.639	.040%	97.610%
43.0	6.125	0.464	821.103	.039%	97.666%
44.0	5.893	0.454	821.557	.038%	97.720%
45.0	5.677	0.445	822.002	.038%	97.772%
46.0	5.490	0.437	822.438	.037%	97.824%
47.0	5.296	0.429	822.867	.036%	97.875%
48.0	5.154	0.422	823.29	.036%	97.926%
49.0	5.012	0.417	823.707	.035%	97.975%
50.0	4.870	0.412	824.119	.035%	98.024%
51.0	4.765	0.408	824.527	.034%	98.073%
52.0	4.668	0.405	824.932	.034%	98.121%
53.0	4.579	0.402	825.334	.034%	98.169%
54.0	4.489	0.400	825.733	.034%	98.216%
55.0	4.414	0.397	826.131	.034%	98.264%
56.0	4.347	0.396	826.527	.033%	98.311%
57.0	4.287	0.395	826.922	.033%	98.358%
58.0	4.228	0.394	827.315	.033%	98.405%
59.0	4.175	0.393	827.708	.033%	98.451%
60.0	4.153	0.393	828.102	.033%	98.498%
61.0	4.115	0.395	828.496	.033%	98.545%
62.0	4.086	0.395	828.891	.033%	98.592%
63.0	4.056	0.396	829.287	.033%	98.639%
64.0	4.033	0.397	829.684	.034%	98.686%
65.0	4.018	0.398	830.083	.034%	98.734%
66.0	3.996	0.400	830.483	.034%	98.781%
67.0	3.989	0.401	830.884	.034%	98.829%
68.0	3.981	0.404	831.288	.034%	98.877%
69.0	3.951	0.405	831.692	.034%	98.925%
70.0	3.944	0.405	832.098	.034%	98.973%
71.0	3.929	0.407	832.505	.034%	99.022%
72.0	3.959	0.410	832.915	.035%	99.071%
73.0	3.966	0.414	833.329	.035%	99.120%
74.0	3.974	0.417	833.747	.035%	99.170%
75.0	4.063	0.425	834.171	.036%	99.220%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.130	0.435	834.606	.037%	99.272%
77.0	4.257	0.447	835.053	.038%	99.325%
78.0	4.354	0.461	835.514	.039%	99.380%
79.0	4.437	0.472	835.987	.040%	99.436%
80.0	4.340	0.473	836.46	.040%	99.492%
81.0	4.250	0.465	836.924	.039%	99.547%
82.0	4.153	0.456	837.38	.039%	99.602%
83.0	4.048	0.446	837.826	.038%	99.655%
84.0	4.086	0.443	838.269	.037%	99.707%
85.0	4.063	0.445	838.714	.038%	99.760%
86.0	4.003	0.441	839.155	.037%	99.813%
87.0	3.563	0.414	839.569	.035%	99.862%
88.0	3.533	0.389	839.958	.033%	99.908%
89.0	3.510	0.386	840.344	.033%	99.954%
90.0	3.518	0.385	840.729	.033%	100.000%

Zonal flux distribution table

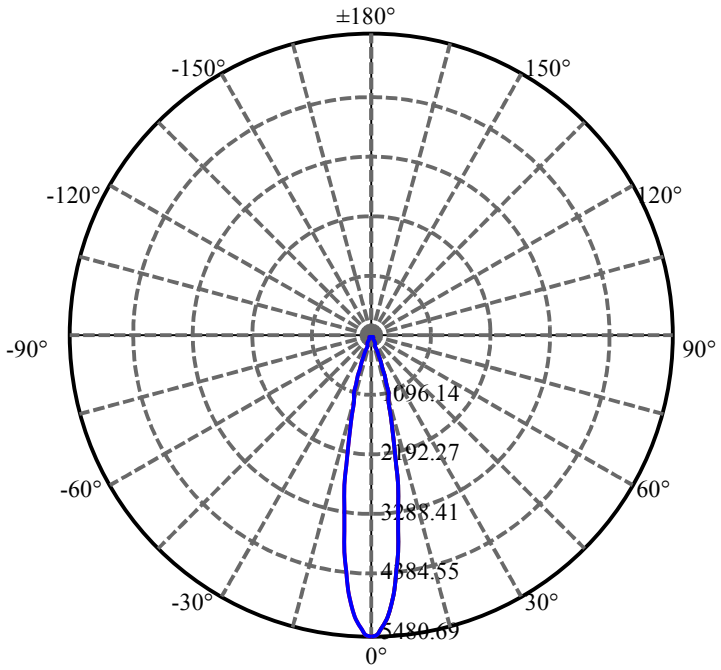
ZONAL LUMEN SUMMARY

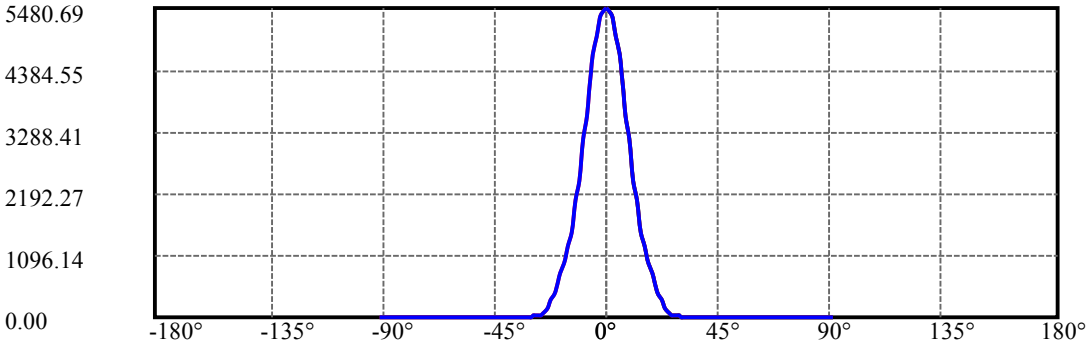
Zone	Lumens	%Lamp	%Fixt
0-30	813.36	68.80%	96.74%
0-40	819.67	69.33%	97.50%
0-60	828.10	70.05%	98.50%
0-90	840.34	71.08%	99.95%
0-120	840.34	71.08%	99.95%
0-180	840.73	71.12%	100.00%
60-90	12.64	1.07%	1.50%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.93	672.58	56.89%	80.00%

ZONAL LUMEN SUMMARY

0-10	382.54
10-20	366.95
20-30	63.86
30-40	6.31
40-50	4.45
50-60	3.98
60-70	4.00
70-80	4.36
80-90	3.88
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):

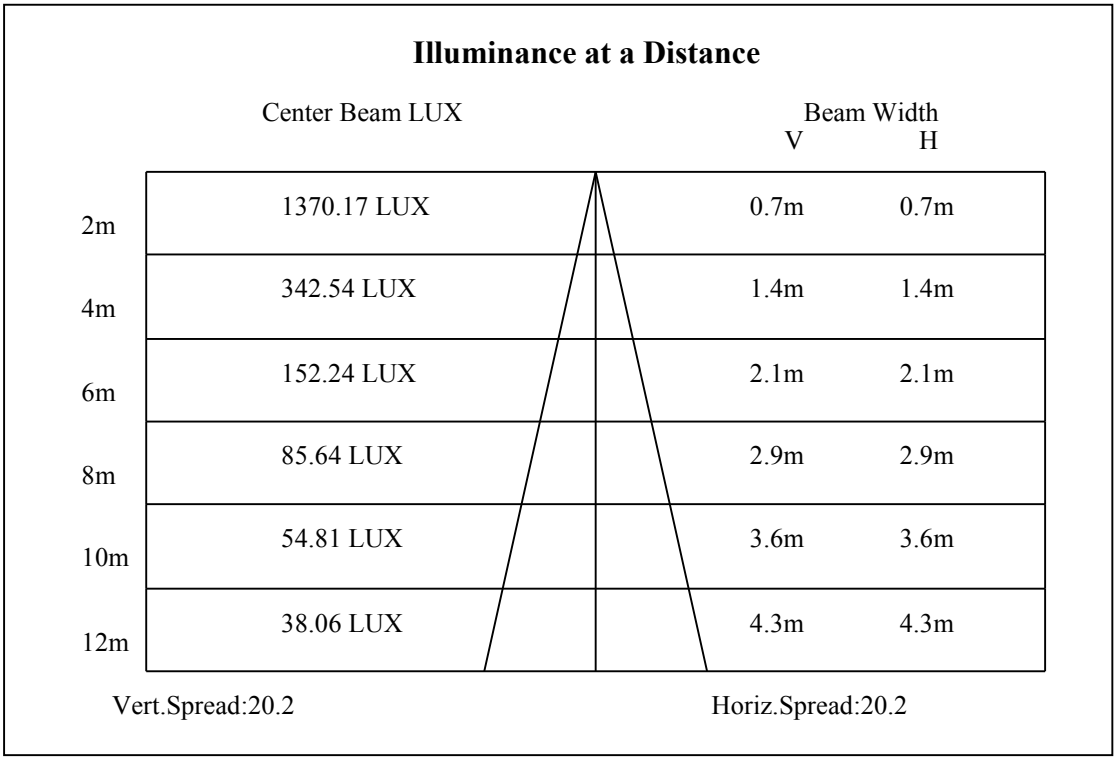
C0/C180:

C90/C270:

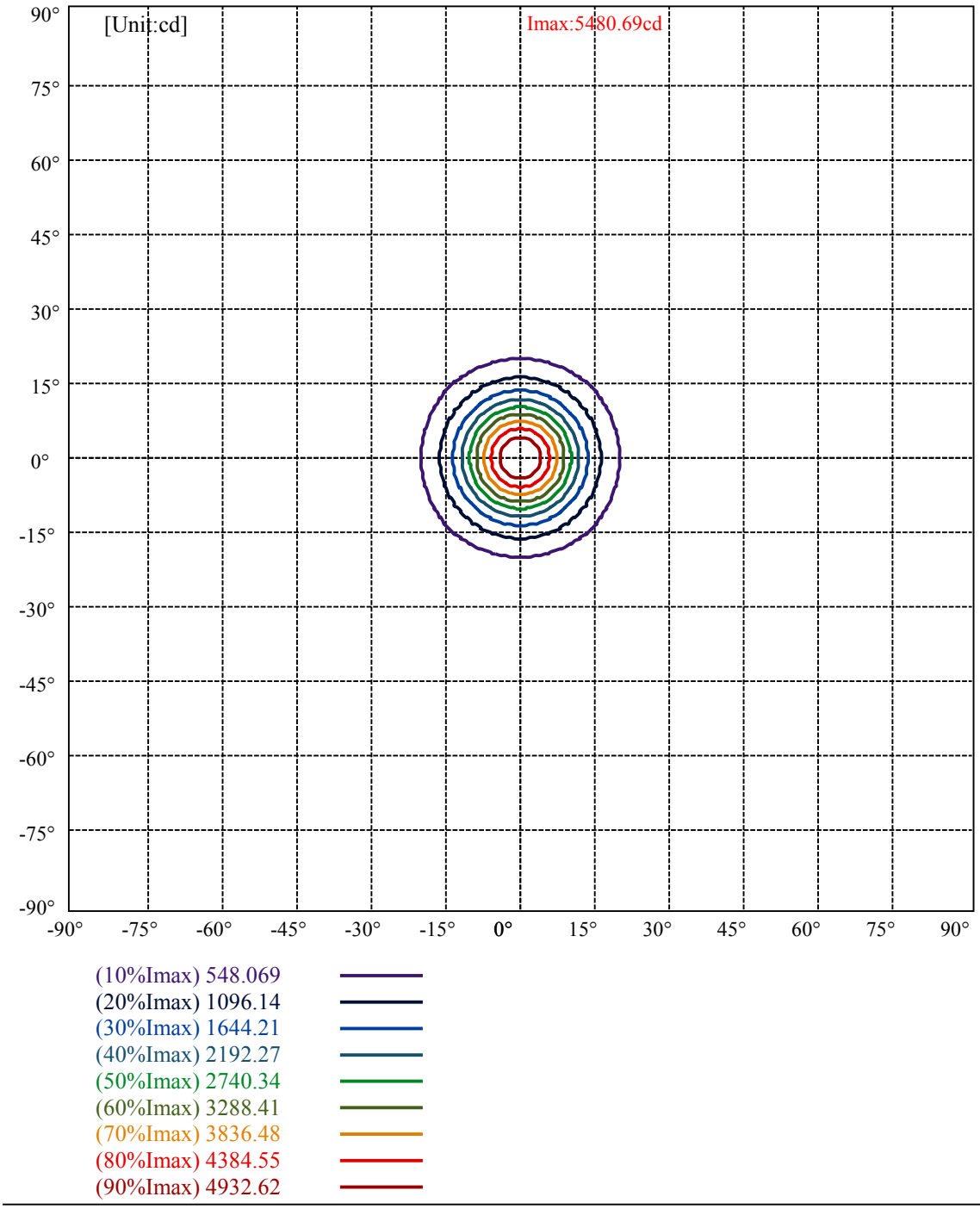
Field angle(10%Imax):C0/180Left:19.8 Right:19.8
:C90/270Left:19.8 Right:19.8

Beam Angle(50%Imax):C0/180Left:10.1 Right:10.1
:C90/270Left:10.1 Right:10.1

Lux distance Curve



ISO-Intensity(V-H)

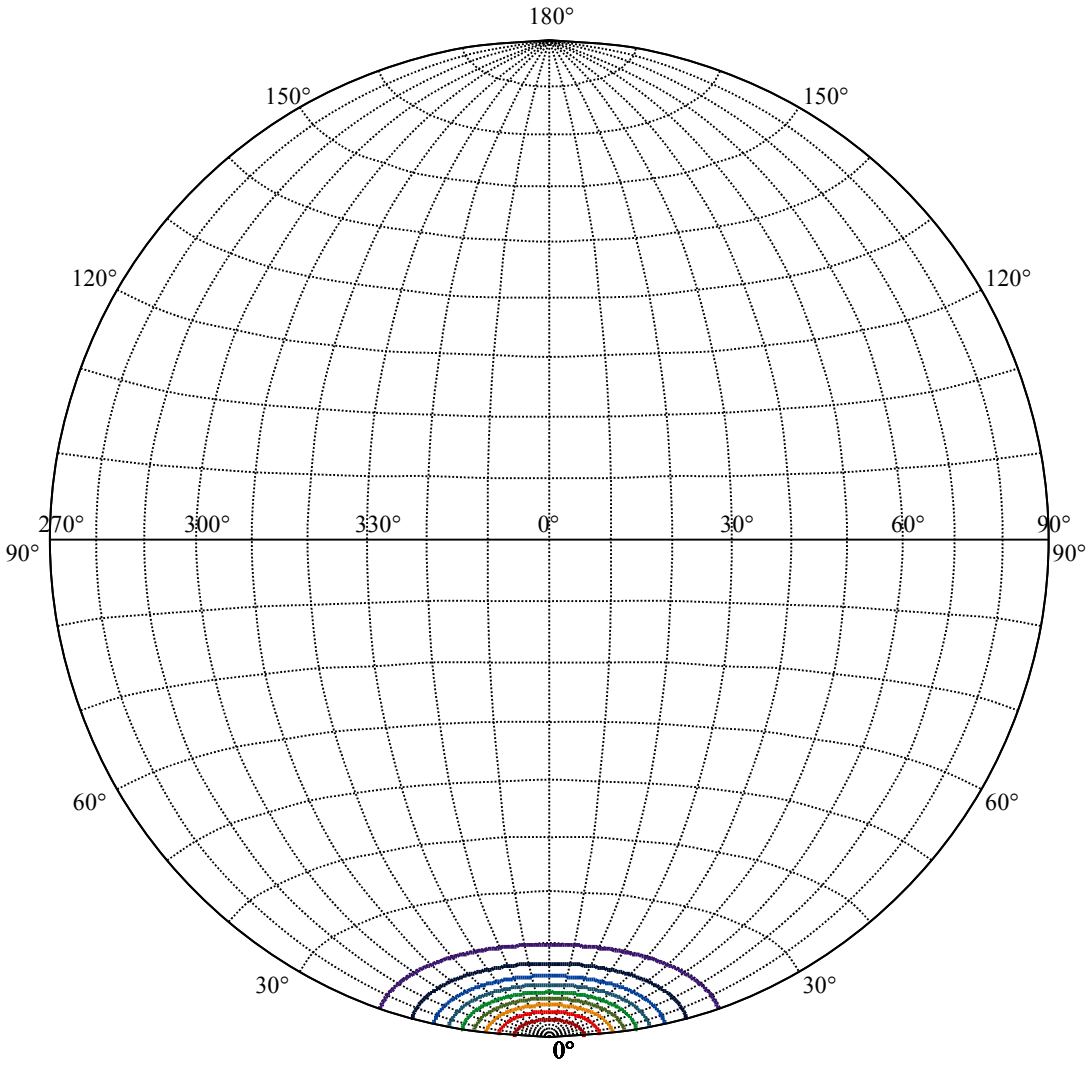


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:5480.69

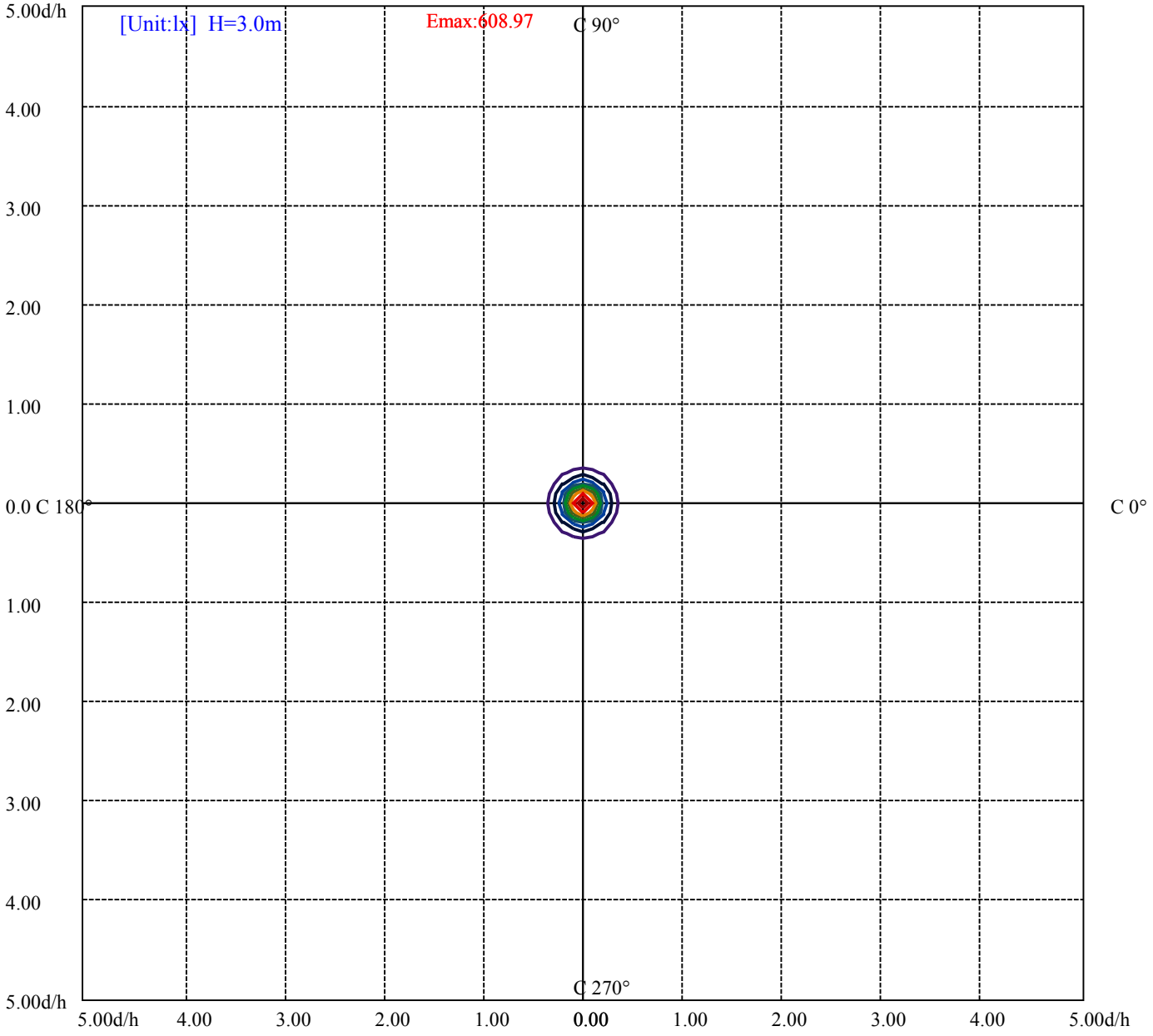
(10%Imax) 548.069
(20%Imax) 1096.14
(30%Imax) 1644.21
(40%Imax) 2192.27
(50%Imax) 2740.34
(60%Imax) 3288.41
(70%Imax) 3836.48
(80%Imax) 4384.55
(90%Imax) 4932.62

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

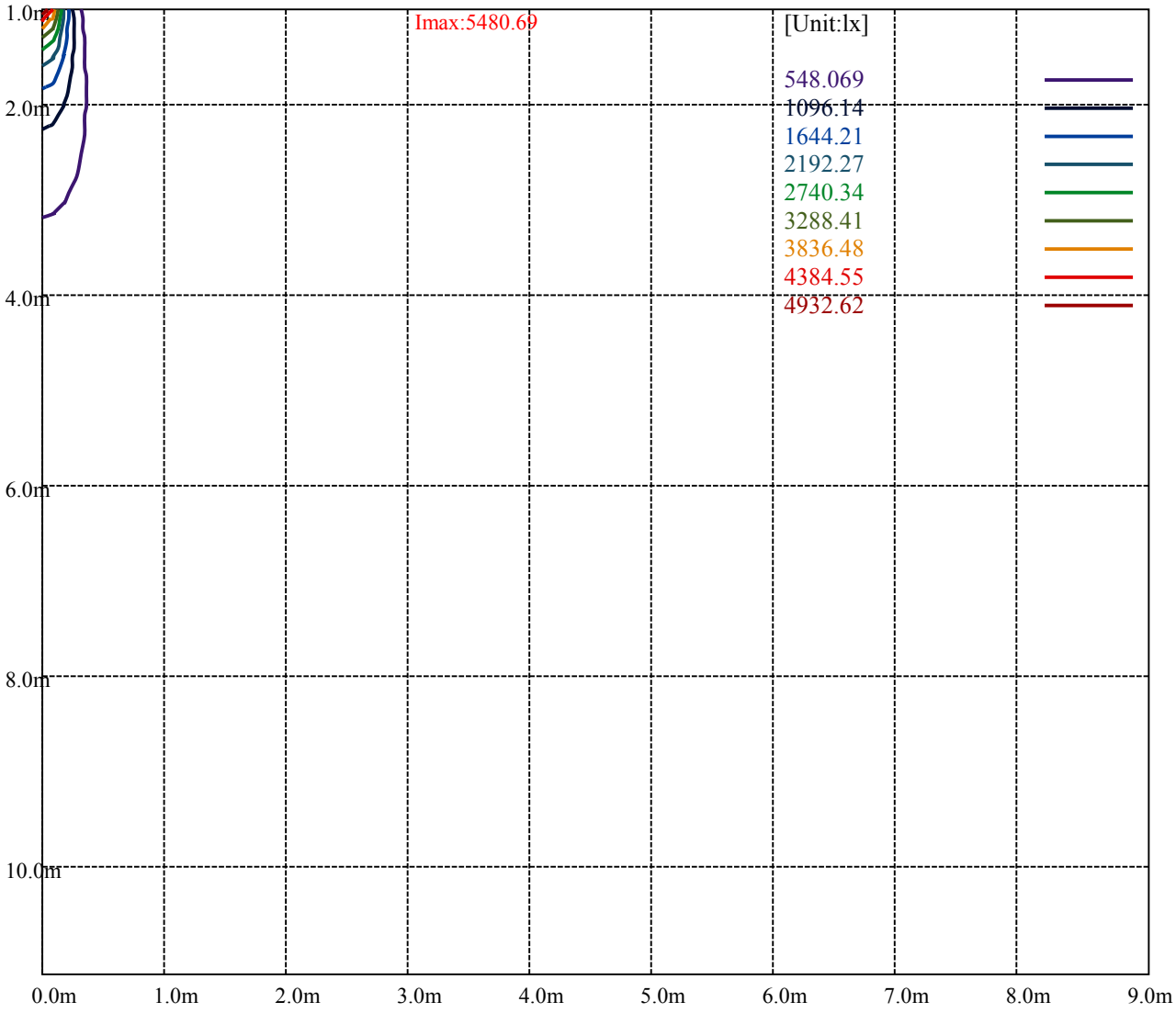
ISO illuminance diagram



(10%Emax) 60.89644
(20%Emax) 121.7933
(30%Emax) 182.6889
(40%Emax) 243.5856
(50%Emax) 304.4822
(60%Emax) 365.3789
(70%Emax) 426.2755
(80%Emax) 487.1711
(90%Emax) 548.0677

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2022/6/09
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/09
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Luminance Limitting Curve(no luminous side)

Luminance Table

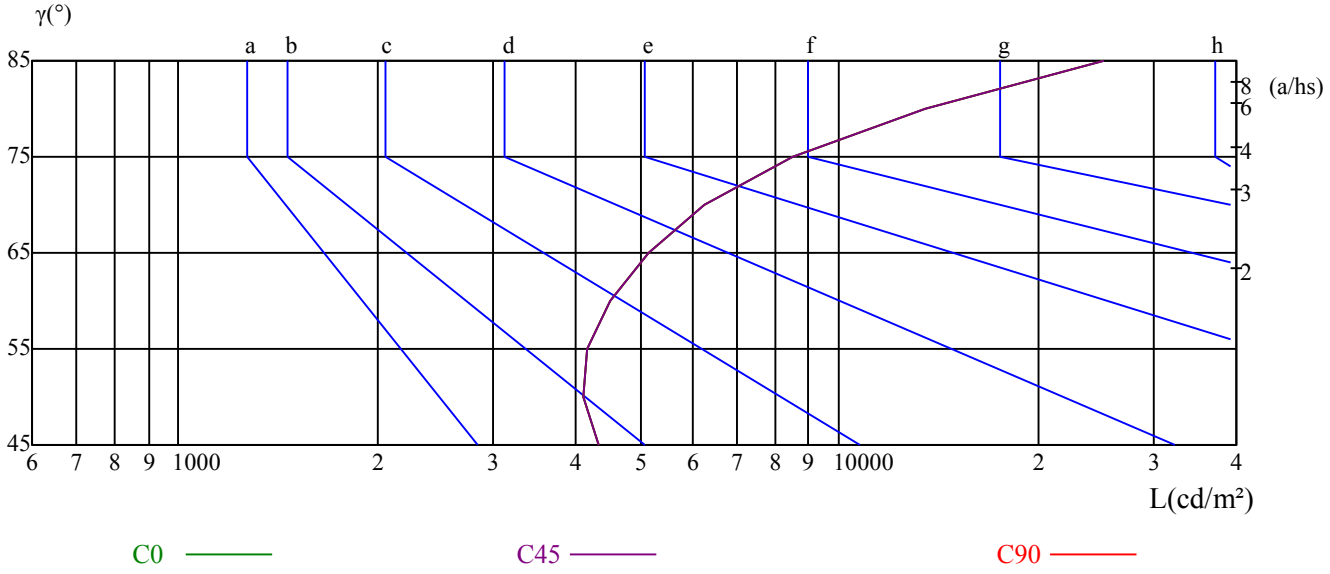
γ	45	50	55	60	65	70	75	80	85
C0	4342	4097	4162	4492	5142	6236	8491	13516	25214
C45	4342	4097	4162	4492	5142	6236	8491	13516	25214
C90	4342	4097	4162	4492	5142	6236	8491	13516	25214

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5142	5142	5142	8491	8491	8491	25214	25214	25214

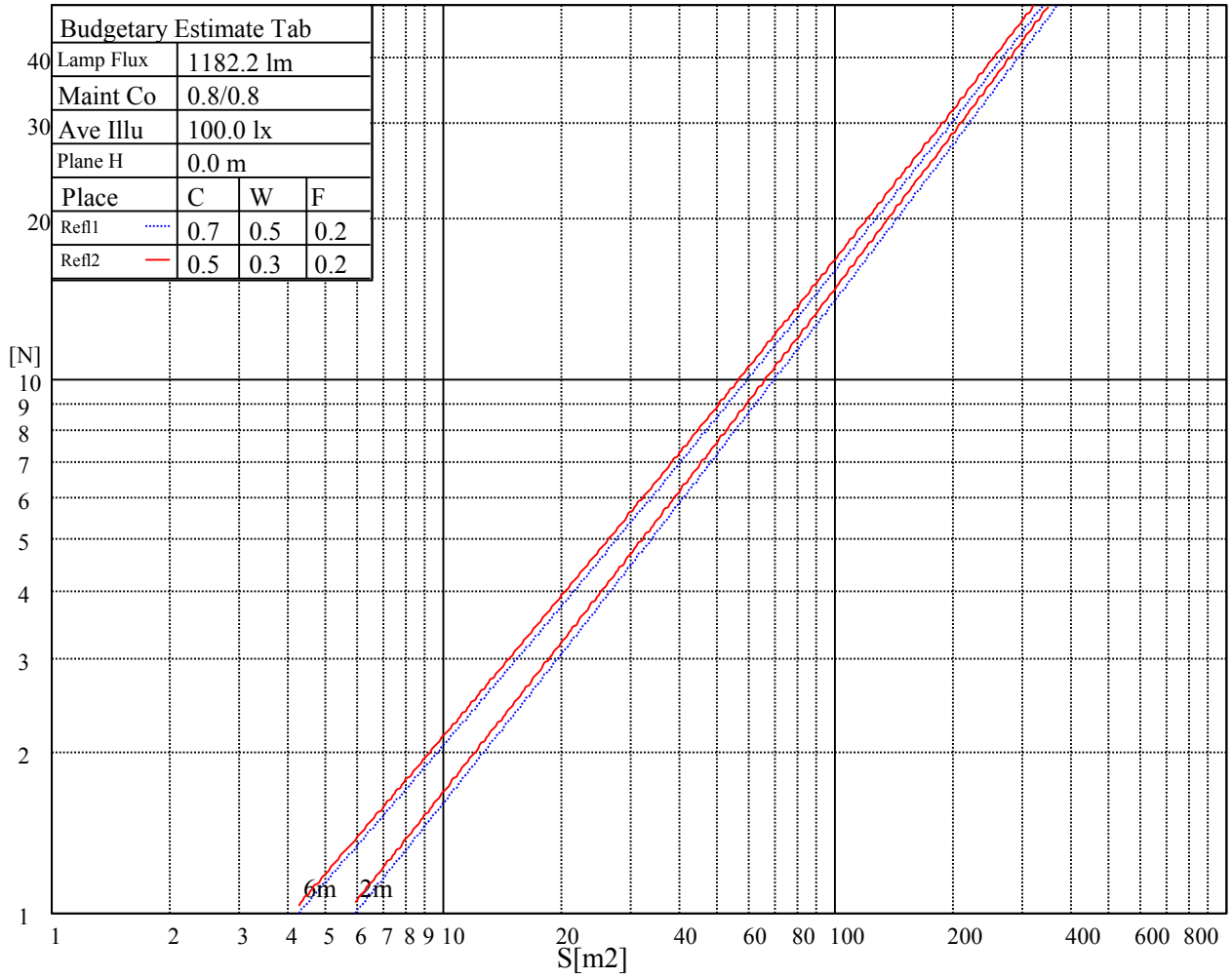
Glare Table

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

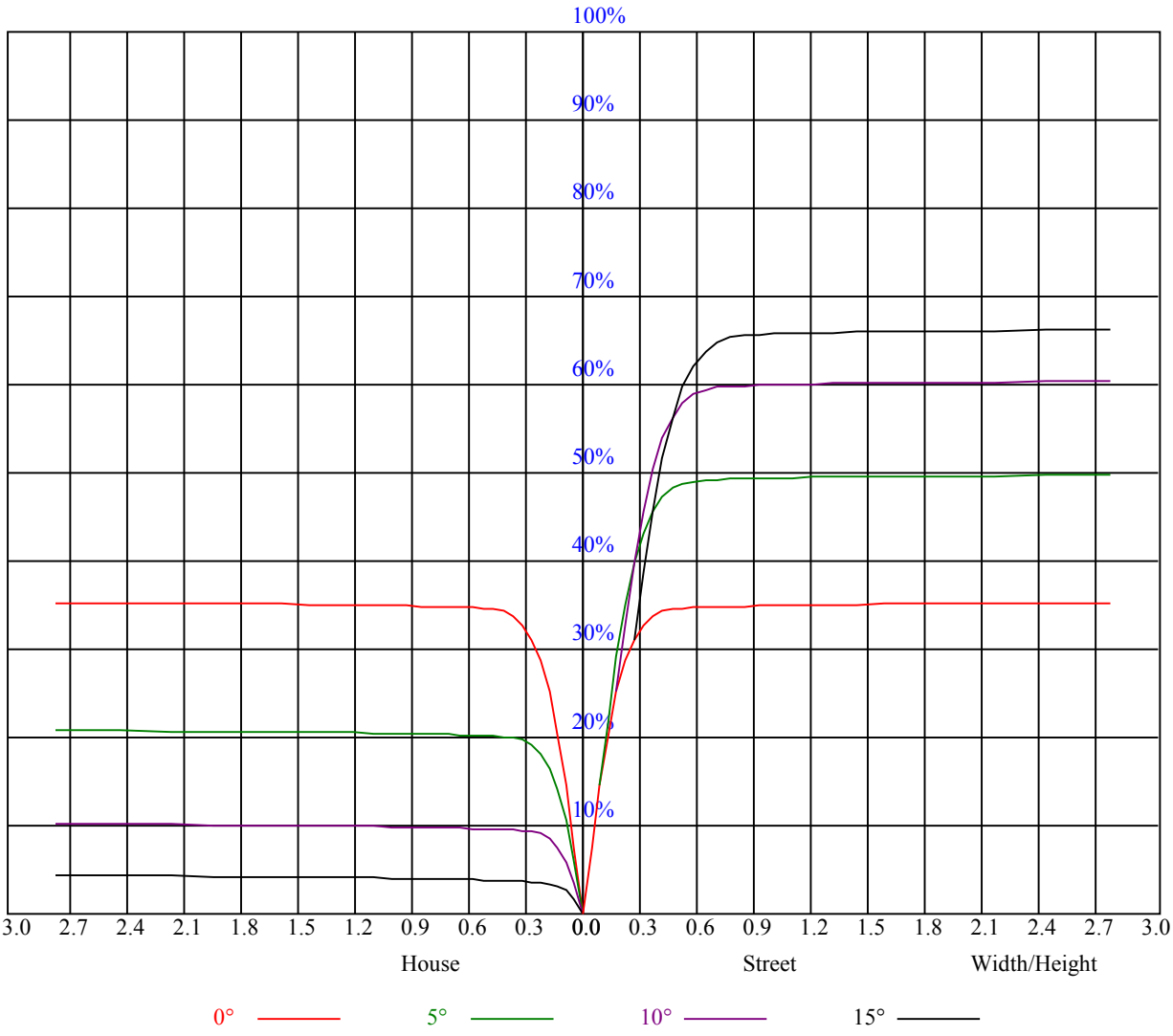


Equipment: GMS1980 Date: 2022/6/09 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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	0.85	0.85	0.85	0.83	0.83	0.83	0.79	0.79	0.79	0.76	0.76	0.76	0.73	0.73	0.73	0.71
1	0.80	0.79	0.78	0.79	0.78	0.77	0.76	0.75	0.74	0.73	0.73	0.72	0.71	0.70	0.70	0.69
2	0.77	0.75	0.73	0.76	0.74	0.72	0.73	0.72	0.71	0.71	0.70	0.69	0.70	0.69	0.68	0.67
3	0.74	0.72	0.70	0.73	0.71	0.69	0.71	0.70	0.68	0.70	0.68	0.67	0.68	0.67	0.66	0.65
4	0.71	0.69	0.67	0.71	0.68	0.67	0.69	0.67	0.66	0.68	0.66	0.65	0.67	0.65	0.64	0.64
5	0.69	0.67	0.65	0.69	0.66	0.64	0.68	0.65	0.64	0.67	0.65	0.63	0.66	0.64	0.63	0.62
6	0.67	0.65	0.63	0.67	0.64	0.63	0.66	0.64	0.62	0.65	0.63	0.62	0.64	0.63	0.61	0.61
7	0.66	0.63	0.61	0.65	0.63	0.61	0.64	0.62	0.61	0.64	0.62	0.60	0.63	0.61	0.60	0.59
8	0.64	0.61	0.60	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.61	0.59	0.62	0.60	0.59	0.58
9	0.63	0.60	0.58	0.62	0.60	0.58	0.62	0.60	0.58	0.61	0.59	0.58	0.61	0.59	0.58	0.57
10	0.61	0.59	0.57	0.61	0.59	0.57	0.61	0.58	0.57	0.60	0.58	0.57	0.60	0.58	0.57	0.56

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2022/6/09	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.73

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	5436.92	5498.46	5485.91	5416.00	5266.62	5035.97	4785.01	4453.98	4122.95
45.0	5505.63	5470.98	5328.76	5153.09	4951.13	4613.52	4246.64	3943.69	3483.00
90.0	5484.12	5396.88	5252.88	4992.95	4743.19	4440.84	4049.45	3635.96	3245.18
135.0	5496.07	5424.37	5277.97	5083.78	4813.10	4493.42	4152.23	3745.31	3372.45
180.0	5436.92	5312.03	5136.96	4845.36	4563.93	4240.66	3831.36	3403.53	3018.12
225.0	5505.63	5490.69	5399.27	5235.55	5033.58	4746.77	4407.37	4074.55	3662.85
270.0	5484.12	5502.05	5449.46	5341.91	5174.00	4893.16	4623.08	4278.31	3929.35
315.0	5496.07	5488.90	5436.32	5274.39	5090.95	4862.69	4552.57	4195.25	3839.72
360.0	5436.92	5498.46	5485.91	5416.00	5266.62	5035.97	4785.01	4453.98	4122.95

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3724.40	3318.68	2952.99	2589.69	2174.41	1878.03	1618.71	1351.61	1172.35
45.0	3060.54	2736.68	2298.10	1984.99	1708.34	1422.72	1231.51	1073.76	889.72
90.0	2819.14	2414.61	2088.36	1763.31	1518.92	1181.26	1099.81	948.70	809.29
135.0	2941.64	2521.57	2176.80	1869.07	1539.83	1329.50	1147.85	961.42	823.39
180.0	2597.46	2212.05	1907.91	1609.74	1391.05	1185.14	1027.27	863.91	728.45
225.0	3288.80	2865.15	2459.43	2123.02	1791.99	1545.81	1183.11	1140.86	966.38
270.0	3514.67	3143.60	2729.51	2378.76	2020.25	1708.34	1476.49	1258.40	1070.17
315.0	3425.63	3004.97	2640.48	2251.49	1944.36	1646.79	1404.19	1174.14	1050.46
360.0	3724.40	3318.68	2952.99	2589.69	2174.41	1878.03	1618.71	1351.61	1172.35

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1010.42	847.30	698.51	576.02	445.76	326.25	302.35	150.88	95.19
45.0	751.69	623.82	475.04	359.71	308.32	172.75	105.34	60.65	36.45
90.0	643.54	521.52	410.86	288.19	208.90	140.24	79.89	44.34	32.21
135.0	687.16	551.52	425.44	314.90	304.74	139.40	84.55	48.82	32.86
180.0	587.19	458.24	351.17	244.57	159.30	99.43	56.53	33.16	26.11
225.0	810.61	678.97	559.41	420.84	318.66	226.88	134.32	80.49	45.53
270.0	921.39	803.68	626.21	504.31	411.10	308.92	191.21	125.30	67.16
315.0	853.51	734.48	608.76	448.03	351.29	260.28	175.02	105.94	60.53
360.0	1010.42	847.30	698.51	576.02	445.76	326.25	302.35	150.88	95.19

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	51.57	32.63	25.10	19.24	15.95	14.40	13.15	11.83	10.93
45.0	27.90	19.24	15.77	14.04	12.67	11.47	10.58	9.86	9.08
90.0	23.84	17.51	14.94	13.32	12.19	11.11	10.16	9.44	8.84
135.0	24.74	18.58	15.60	14.10	12.79	11.59	10.70	9.86	9.14
180.0	19.78	16.43	14.52	13.27	12.07	11.05	10.22	9.44	8.84
225.0	29.82	22.47	18.22	15.83	14.40	13.09	11.89	10.93	10.04
270.0	36.63	27.19	20.38	17.27	15.18	13.62	12.55	11.47	10.58
315.0	35.55	27.07	20.08	16.79	15.00	13.56	12.31	11.41	10.52
360.0	51.57	32.63	25.10	19.24	15.95	14.40	13.15	11.83	10.93

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	10.16	9.44	8.78	8.25	7.71	7.35	6.99	6.63	6.39
45.0	8.48	8.01	7.47	7.11	6.81	6.45	6.15	5.98	5.68
90.0	8.13	7.71	7.29	6.87	6.45	6.21	5.92	5.68	5.50
135.0	8.54	8.07	7.53	7.11	6.81	6.45	6.15	5.92	5.68
180.0	8.25	7.71	7.35	6.99	6.57	6.27	6.04	5.74	5.62
225.0	9.26	8.66	8.19	7.65	7.23	6.93	6.51	6.21	5.98
270.0	9.80	9.14	8.43	7.95	7.47	7.05	6.75	6.45	6.15
315.0	9.62	8.96	8.43	7.83	7.47	7.05	6.75	6.39	6.15
360.0	10.16	9.44	8.78	8.25	7.71	7.35	6.99	6.63	6.39

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	6.15	5.92	5.74	5.62	5.44	5.32	5.20	5.08	4.96
45.0	5.50	5.38	5.20	5.02	4.90	4.78	4.72	4.60	4.54
90.0	5.32	5.14	4.96	4.84	4.72	4.60	4.48	4.42	4.30
135.0	5.44	5.32	5.08	4.96	4.84	4.66	4.60	4.48	4.42
180.0	5.44	5.20	5.08	4.90	4.78	4.66	4.54	4.48	4.42
225.0	5.74	5.56	5.38	5.20	5.08	4.90	4.78	4.66	4.60
270.0	5.86	5.68	5.44	5.32	5.14	4.96	4.84	4.78	4.66
315.0	5.98	5.74	5.50	5.38	5.20	5.08	4.96	4.84	4.72
360.0	6.15	5.92	5.74	5.62	5.44	5.32	5.20	5.08	4.96

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	4.90	4.84	4.78	4.78	4.66	4.66	4.66	4.66	4.66
45.0	4.48	4.36	4.36	4.24	4.24	4.18	4.12	4.12	4.06
90.0	4.24	4.18	4.12	4.06	4.00	3.94	3.94	3.88	3.88
135.0	4.36	4.30	4.18	4.12	4.06	4.00	4.00	4.00	3.88
180.0	4.30	4.24	4.18	4.12	4.06	4.00	4.00	3.94	3.94
225.0	4.48	4.42	4.36	4.24	4.18	4.18	4.12	4.06	4.06
270.0	4.54	4.42	4.36	4.30	4.24	4.12	4.12	4.06	4.06
315.0	4.60	4.54	4.42	4.42	4.36	4.30	4.24	4.18	4.12
360.0	4.90	4.84	4.78	4.78	4.66	4.66	4.66	4.66	4.66

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.72
45.0	4.06	4.06	4.00	4.00	4.00	3.94	3.94	3.94	3.94
90.0	3.82	3.82	3.82	3.76	3.76	3.76	3.76	3.76	3.70
135.0	3.88	3.82	3.88	3.82	3.82	3.82	3.76	3.76	3.76
180.0	3.88	3.88	3.82	3.82	3.82	3.82	3.76	3.70	3.70
225.0	4.00	3.94	3.94	3.94	3.94	3.94	3.88	3.88	3.82
270.0	4.00	3.94	3.94	3.88	3.88	3.88	3.82	3.82	3.82
315.0	4.12	4.12	4.06	4.06	4.00	4.00	4.00	4.00	3.94
360.0	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.72

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.84	5.02	5.20	5.86	6.63	7.59	8.31	8.78	8.13
45.0	3.94	3.94	3.88	3.88	3.88	3.88	3.88	3.88	3.88
90.0	3.70	3.70	3.70	3.70	3.64	3.64	3.64	3.64	3.59
135.0	3.76	3.76	3.76	3.76	3.70	3.76	3.70	3.70	3.70
180.0	3.76	3.70	3.70	3.70	3.70	3.70	3.70	3.76	3.76
225.0	3.88	3.88	3.82	3.88	3.82	3.82	3.82	3.88	3.88
270.0	3.82	3.76	3.76	3.76	3.70	3.70	3.76	3.76	3.70
315.0	3.94	3.94	3.94	3.94	3.94	3.94	4.00	4.06	4.06
360.0	4.84	5.02	5.20	5.86	6.63	7.59	8.31	8.78	8.13

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.29	6.33	5.44	5.56	5.56	5.44	3.82	3.53	3.53
45.0	3.88	3.88	3.94	3.94	3.94	3.53	3.53	3.53	3.53
90.0	3.59	3.64	3.59	3.64	3.53	3.53	3.47	3.53	3.47
135.0	3.70	3.70	3.64	3.64	3.70	3.53	3.53	3.53	3.53
180.0	3.82	3.88	3.88	3.88	3.59	3.53	3.53	3.59	3.53
225.0	3.88	3.94	4.00	4.06	4.18	4.30	3.53	3.53	3.53
270.0	3.70	3.70	3.70	3.76	3.76	3.82	3.59	3.53	3.53
315.0	4.12	4.12	4.18	4.18	4.24	4.36	3.53	3.53	3.47
360.0	7.29	6.33	5.44	5.56	5.56	5.44	3.82	3.53	3.53

Intensity data(cd)

C/γ(°)	90.0
0.0	3.59
45.0	3.53
90.0	3.47
135.0	3.53
180.0	3.53
225.0	3.53
270.0	3.53
315.0	3.47
360.0	3.59