NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 4-2273-M
Luminaire: 92.70.134.00
Report No: NATA0100
Test No: GC2018082414
LampCAT: CREE CXA2520
Lamp flux(lm): 2645.0
Number of Lamps: 1
Length(mm): 100
Phm Type: C

Voltage(V): 36.5000
Current(A): 0.6000
Power (W): 21.9000
PF: 0.0000
Ballast type: DC
Width(mm): 100
Height(mm): 0

Photometric Results

Lumens(lm): 2333.66
Efficiency(%): 88.23%
Lumens(lm)/Power(W): 106.56
Central intensity(cd): 21591.740
Maximum intensity(cd): 21591.740
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=13.1
[C90/270]Total=13.1
Field angle(10%Imax): [C0/180]Total=26.7
[C90/270]Total=26.7
Maximum s/h(1/2): C0_180=0.23 C90_270=0.23
Maximum s/h(1/4): C0_180=0.23 C90_270=0.23
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.42%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.384%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	21591.744	5.166	5.166	.195%	.221%
1.0	21421.068	40.997	46.162	1.550%	1.978%
2.0	20667.484	79.097	125.259	2.990%	5.367%
3.0	19227.070	110.348	235.607	4.172%	10.096%
4.0	17332.443	132.585	368.193	5.013%	15.777%
5.0	14314.664	136.813	505.006	5.173%	21.640%
6.0	12132.641	139.073	644.079	5.258%	27.600%
7.0	9730.118	130.036	774.115	4.916%	33.172%
8.0	7659.515	116.898	891.013	4.420%	38.181%
9.0	5910.993	101.402	992.415	3.834%	42.526%
10.0	4612.625	87.836	1080.25	3.321%	46.290%
11.0	3577.634	74.859	1155.11	2.830%	49.498%
12.0	2847.723	64.927	1220.037	2.455%	52.280%
13.0	2335.837	57.621	1277.658	2.178%	54.749%
14.0	1817.618	48.220	1325.879	1.823%	56.815%
15.0	1553.141	44.082	1369.96	1.667%	58.704%
16.0	1365.123	41.263	1411.224	1.560%	60.473%
17.0	1218.515	39.068	1450.291	1.477%	62.147%
18.0	1124.204	38.096	1488.387	1.440%	63.779%
19.0	1059.127	37.813	1526.2	1.430%	65.399%
20.0	1009.198	37.851	1564.051	1.431%	67.021%
21.0	971.876	38.194	1602.245	1.444%	68.658%
22.0	946.364	38.876	1641.122	1.470%	70.324%
23.0	926.365	39.693	1680.814	1.501%	72.025%
24.0	905.086	40.370	1721.184	1.526%	73.755%
25.0	889.856	41.240	1762.424	1.559%	75.522%
26.0	876.897	42.154	1804.578	1.594%	77.328%
27.0	863.484	42.989	1847.567	1.625%	79.170%
28.0	850.346	43.778	1891.345	1.655%	81.046%
29.0	837.477	44.524	1935.869	1.683%	82.954%
30.0	825.261	45.249	1981.119	1.711%	84.893%
31.0	810.134	45.756	2026.875	1.730%	86.854%
32.0	777.286	45.169	2072.044	1.708%	88.789%
33.0	723.386	43.205	2115.249	1.633%	90.641%
34.0	648.227	39.750	2154.999	1.503%	92.344%
35.0	557.460	35.064	2190.062	1.326%	93.847%
36.0	446.686	28.792	2218.855	1.089%	95.080%
37.0	351.122	23.173	2242.027	.876%	96.073%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	254.161	17.159	2259.186	.649%	96.809%
39.0	165.500	11.421	2270.608	.432%	97.298%
40.0	85.668	6.039	2276.646	.228%	97.557%
41.0	47.851	3.443	2280.089	.130%	97.704%
42.0	29.586	2.171	2282.26	.082%	97.797%
43.0	21.892	1.637	2283.897	.062%	97.868%
44.0	16.242	1.237	2285.135	.047%	97.921%
45.0	12.807	0.993	2286.128	.038%	97.963%
46.0	12.525	0.988	2287.116	.037%	98.005%
47.0	12.278	0.985	2288.1	.037%	98.048%
48.0	12.057	0.983	2289.083	.037%	98.090%
49.0	11.865	0.982	2290.065	.037%	98.132%
50.0	11.679	0.981	2291.046	.037%	98.174%
51.0	11.500	0.980	2292.026	.037%	98.216%
52.0	11.355	0.981	2293.007	.037%	98.258%
53.0	11.218	0.982	2293.99	.037%	98.300%
54.0	11.094	0.984	2294.974	.037%	98.342%
55.0	10.984	0.987	2295.961	.037%	98.385%
56.0	10.901	0.991	2296.952	.037%	98.427%
57.0	10.805	0.994	2297.945	.038%	98.470%
58.0	10.729	0.998	2298.943	.038%	98.512%
59.0	10.674	1.003	2299.946	.038%	98.555%
60.0	10.591	1.006	2300.952	.038%	98.598%
61.0	10.530	1.010	2301.962	.038%	98.642%
62.0	10.495	1.016	2302.978	.038%	98.685%
63.0	10.440	1.020	2303.999	.039%	98.729%
64.0	10.399	1.025	2305.023	.039%	98.773%
65.0	10.364	1.030	2306.054	.039%	98.817%
66.0	10.323	1.034	2307.088	.039%	98.861%
67.0	10.302	1.040	2308.128	.039%	98.906%
68.0	10.275	1.045	2309.172	.039%	98.951%
69.0	10.275	1.052	2310.224	.040%	98.996%
70.0	10.268	1.058	2311.282	.040%	99.041%
71.0	10.282	1.066	2312.348	.040%	99.087%
72.0	10.289	1.073	2313.422	.041%	99.133%
73.0	10.296	1.080	2314.501	.041%	99.179%
74.0	10.323	1.088	2315.589	.041%	99.226%
75.0	10.351	1.096	2316.686	.041%	99.273%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.399	1.106	2317.792	.042%	99.320%
77.0	10.468	1.118	2318.911	.042%	99.368%
78.0	10.550	1.132	2320.042	.043%	99.416%
79.0	10.667	1.148	2321.191	.043%	99.466%
80.0	10.770	1.163	2322.354	.044%	99.515%
81.0	10.894	1.180	2323.534	.045%	99.566%
82.0	11.046	1.199	2324.733	.045%	99.617%
83.0	11.163	1.215	2325.948	.046%	99.670%
84.0	11.314	1.234	2327.182	.047%	99.722%
85.0	11.452	1.251	2328.433	.047%	99.776%
86.0	11.679	1.278	2329.711	.048%	99.831%
87.0	11.025	1.207	2330.918	.046%	99.882%
88.0	10.007	1.097	2332.015	.041%	99.929%
89.0	10.007	1.097	2333.112	.041%	99.976%
90.0	10.007	0.549	2333.661	.021%	100.000%

Zonal flux distribution table

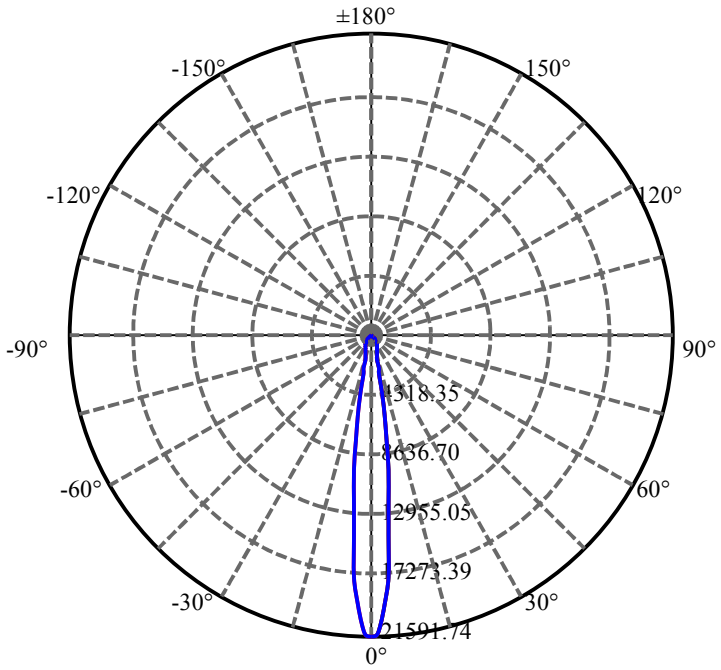
ZONAL LUMEN SUMMARY

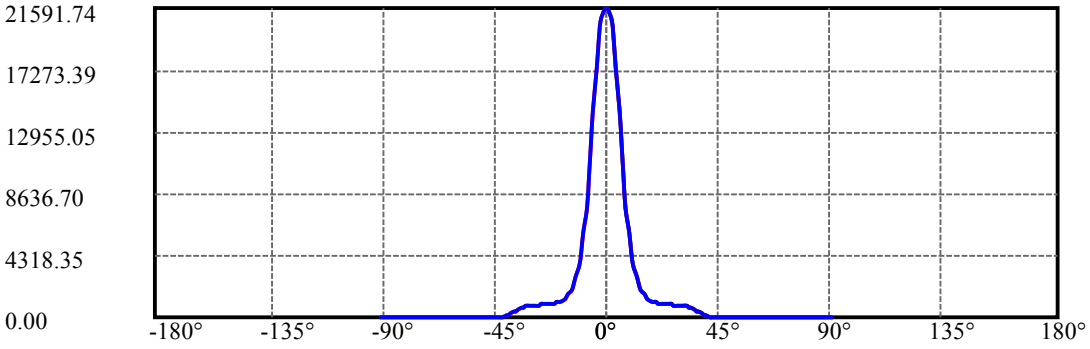
Zone	Lumens	%Lamp	%Fixt
0-30	1981.12	74.90%	84.89%
0-40	2276.65	86.07%	97.56%
0-60	2300.95	86.99%	98.60%
0-90	2333.11	88.21%	99.98%
0-120	2333.11	88.21%	99.98%
0-180	2333.66	88.23%	100.00%
60-90	33.17	1.25%	1.42%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.44	1866.93	70.58%	80.00%

ZONAL LUMEN SUMMARY

0-10	1080.25
10-20	483.80
20-30	417.07
30-40	295.53
40-50	14.40
50-60	9.91
60-70	10.33
70-80	11.07
80-90	10.76
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):

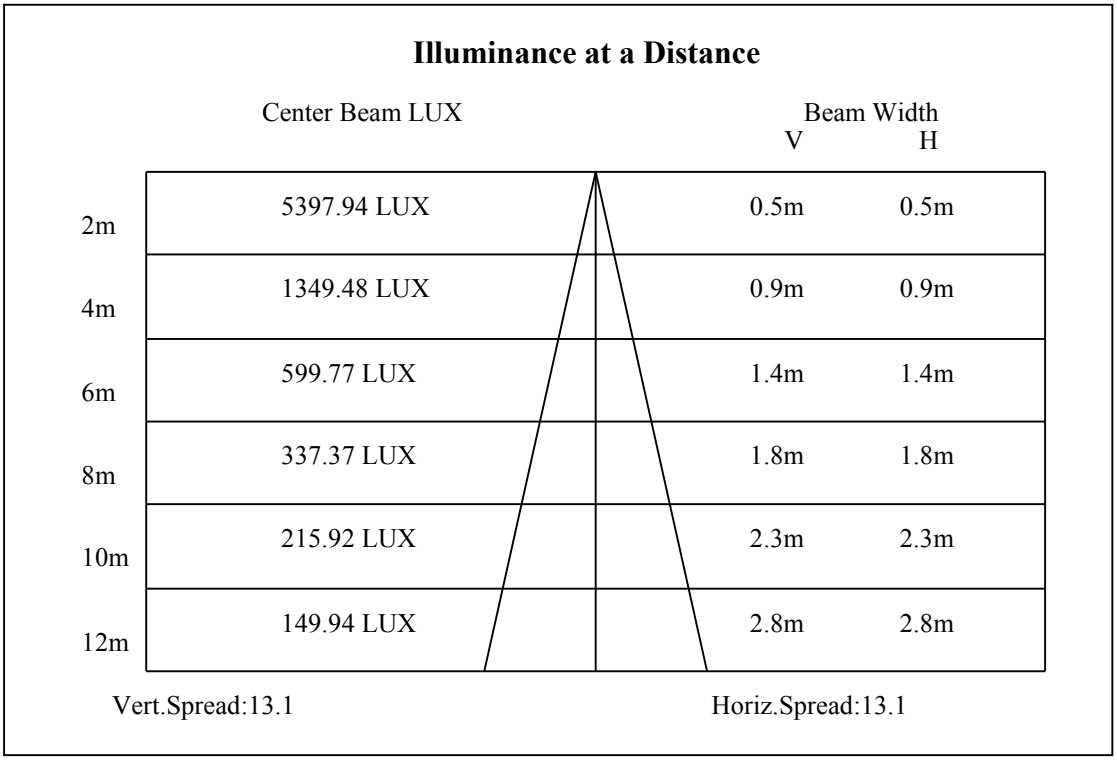
C0/C180:

C90/C270:

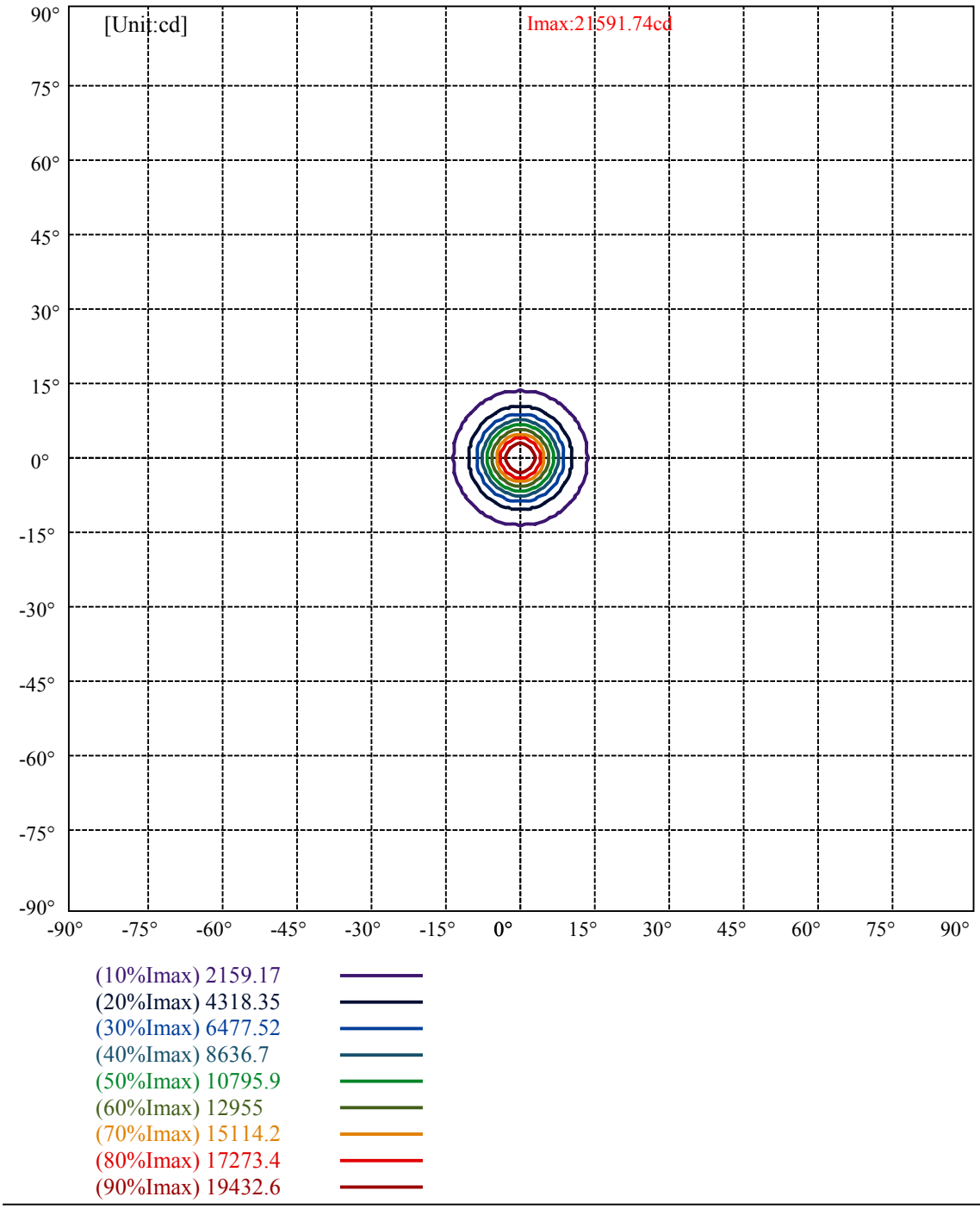
Field angle(10%Imax):C0/180Left:13.3 Right:13.3
:C90/270Left:13.3 Right:13.3

Beam Angle(50%Imax):C0/180Left:6.6 Right:6.6
:C90/270Left:6.6 Right:6.6

Lux distance Curve



ISO-Intensity(V-H)

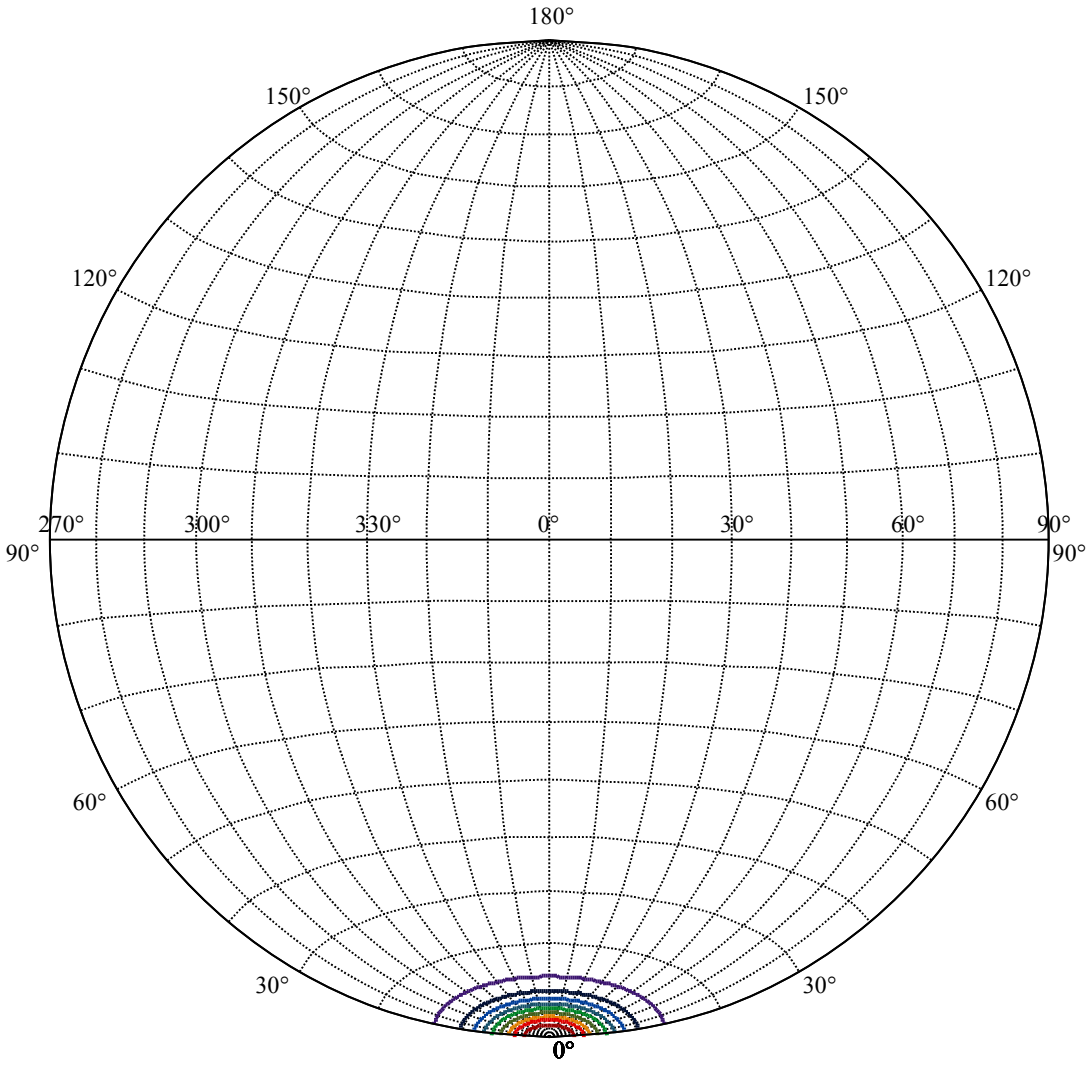


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/24
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:21591.74

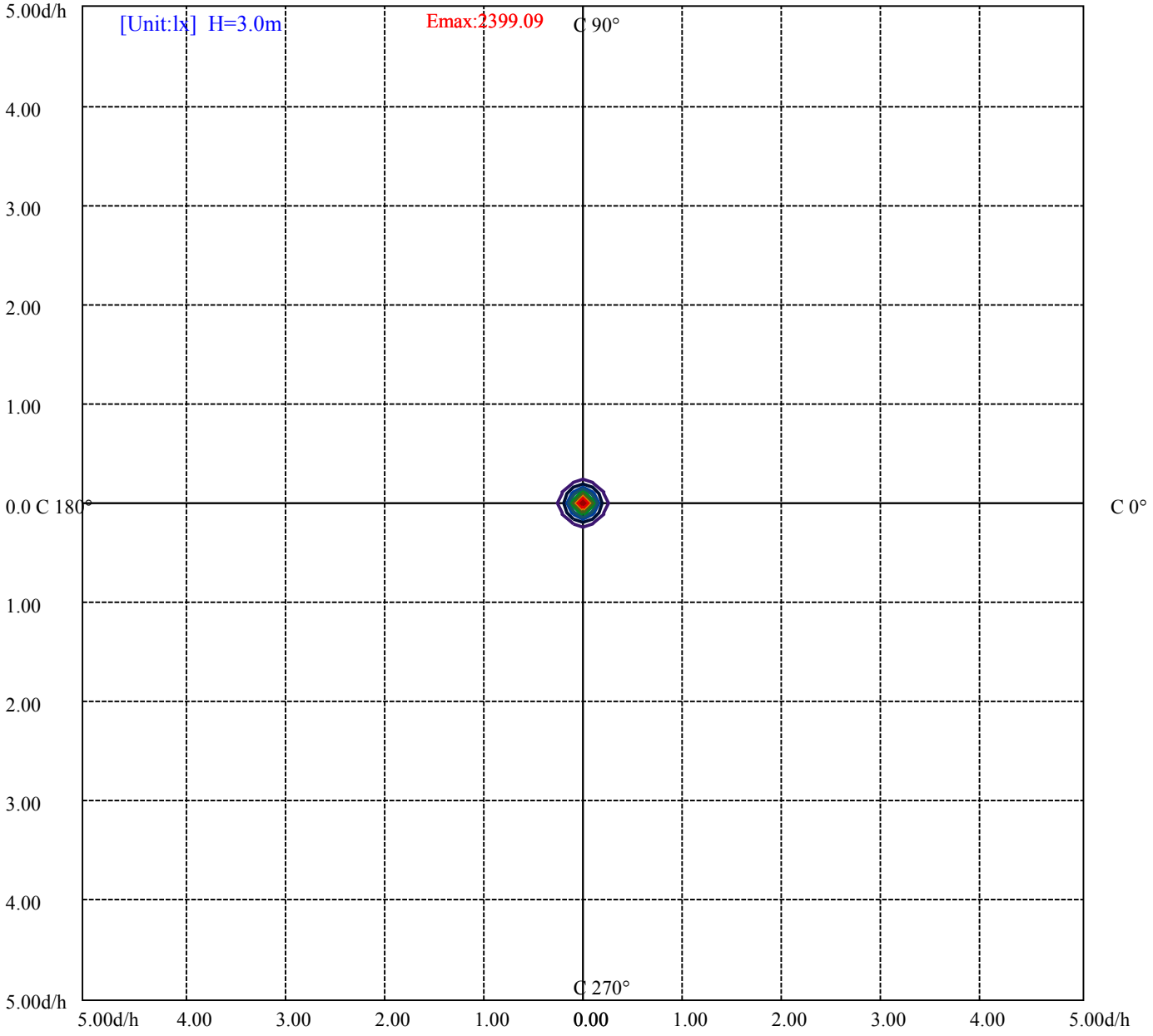
(10%Imax) 2159.17
(20%Imax) 4318.35
(30%Imax) 6477.52
(40%Imax) 8636.7
(50%Imax) 10795.9
(60%Imax) 12955
(70%Imax) 15114.2
(80%Imax) 17273.4
(90%Imax) 19432.6

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/24
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

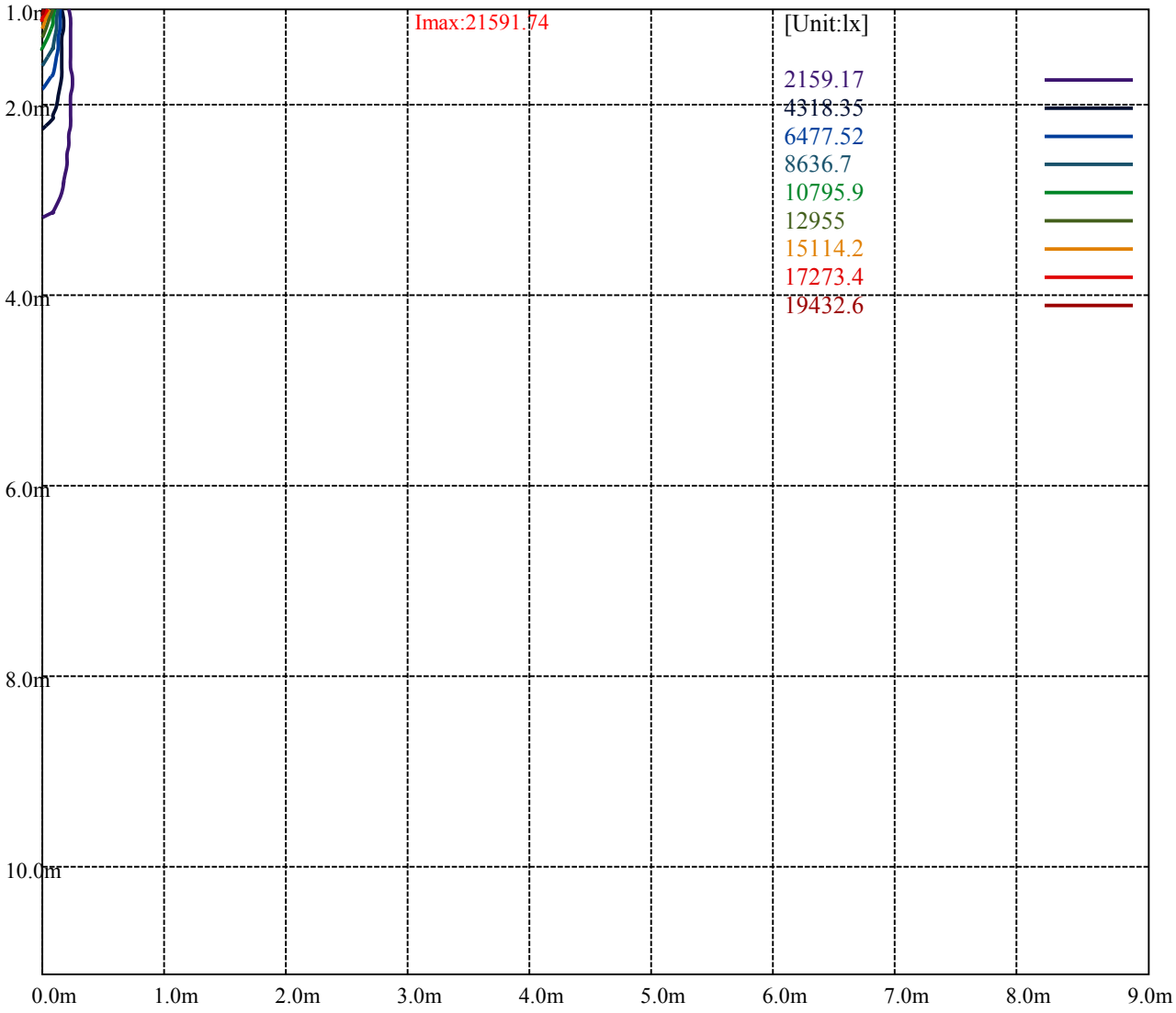
ISO illuminance diagram



(10%Emax) 239.9078
(20%Emax) 479.8156
(30%Emax) 719.7244
(40%Emax) 959.6323
(50%Emax) 1199.544
(60%Emax) 1439.444
(70%Emax) 1679.356
(80%Emax) 1919.267
(90%Emax) 2159.167

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2018/8/24
Humidity(%): 60.0%
Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/24
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Nata 4-2273-M

Luminance Limitting Curve(no luminous side)

Luminance Table

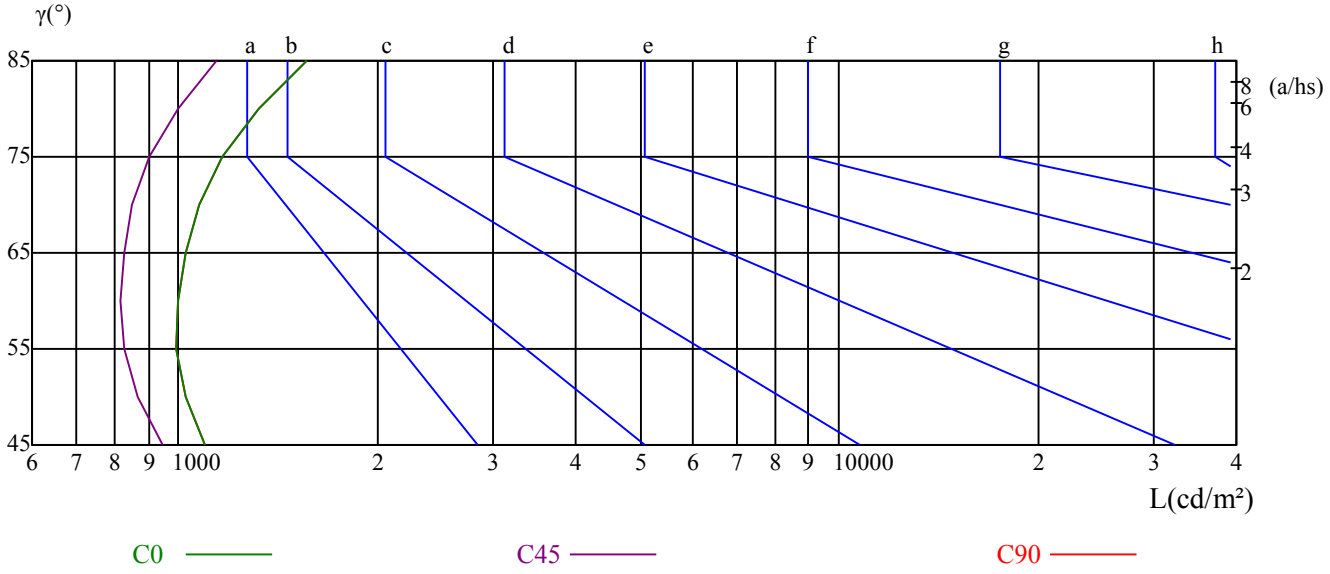
γ	45	50	55	60	65	70	75	80	85
C0	1098	1024	993	996	1024	1078	1167	1324	1559
C45	944	867	828	817	825	852	903	998	1142
C90	1098	1024	993	996	1024	1078	1167	1324	1559

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2452	2452	2452	3999	3999	3999	13139	13139	13139

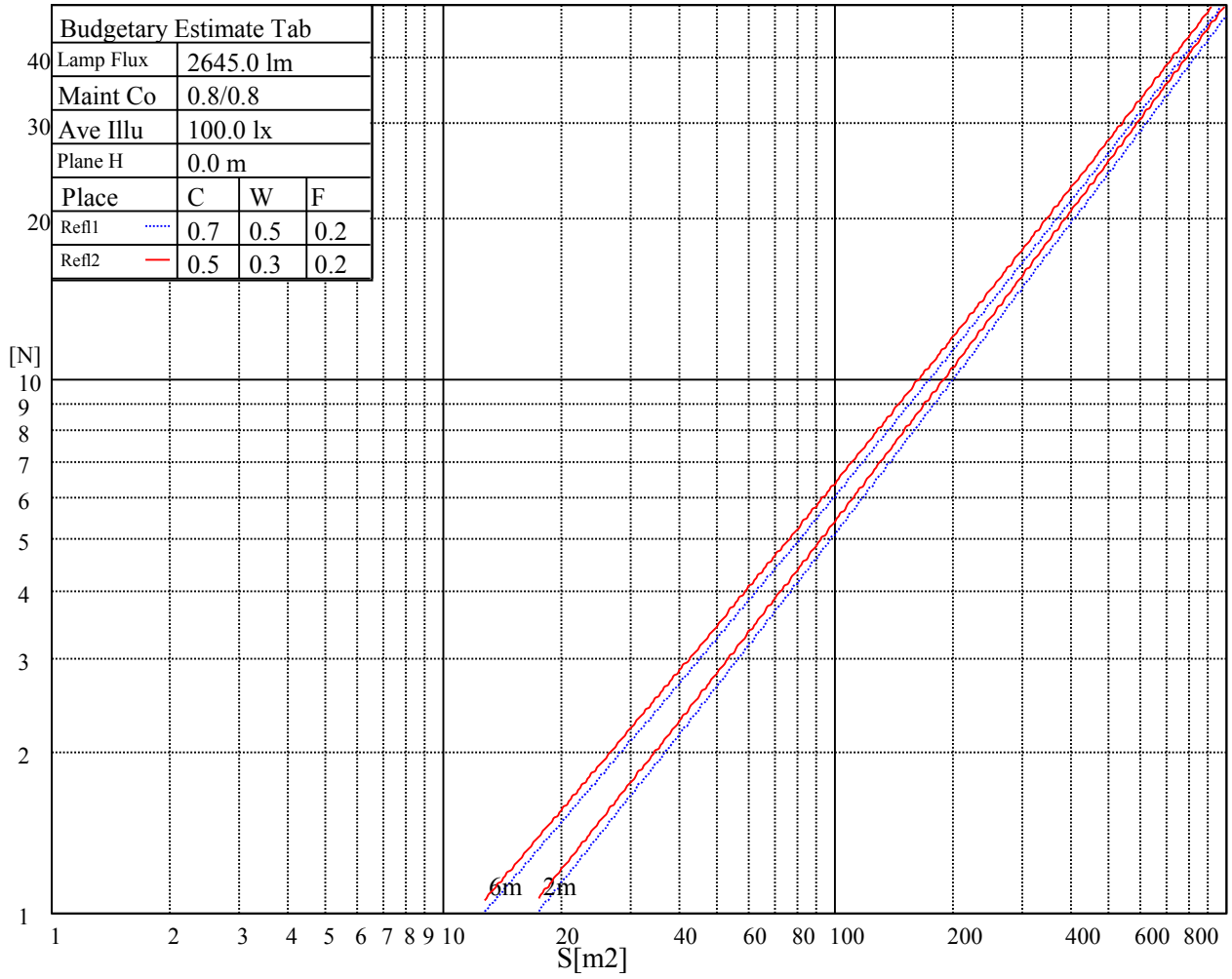
Glare Table

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

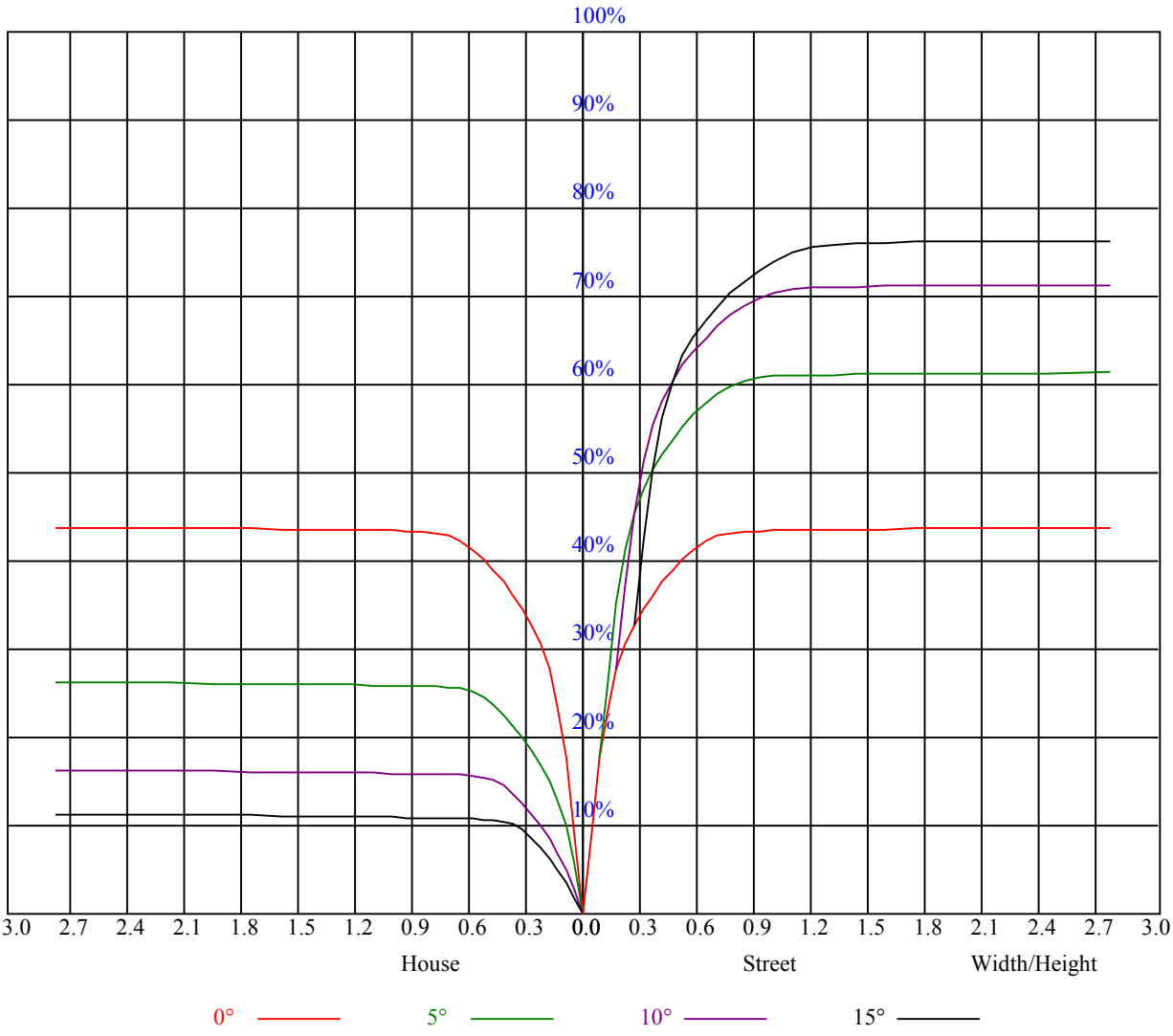


Equipment: GMS1980 Date: 2018/8/24 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.99	0.97	0.96	0.97	0.96	0.94	0.94	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.84
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.84	0.89	0.86	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.83	0.81	0.79	0.78
4	0.86	0.82	0.80	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	0.79	0.76	0.82	0.78	0.76	0.81	0.78	0.75	0.79	0.77	0.75	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.72	0.71
7	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.69
8	0.75	0.71	0.68	0.74	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.68	0.67
9	0.73	0.69	0.66	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65
10	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63

Coefficient Utilization Curve



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/8/24
Humidity(%): 60.0%

Operator: NT07
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	21598.63	21703.23	21438.96	20728.73	19242.21	16924.34	14193.54	11693.98	9684.42
45.0	21543.57	21538.06	21114.13	20090.08	18421.87	15641.52	13108.93	10598.36	8186.89
90.0	21560.09	21224.24	20238.73	18344.79	16104.00	12332.63	10705.72	8207.26	6280.83
135.0	21664.69	21433.46	20381.88	18669.63	16489.39	13411.74	10917.68	8687.90	6722.39
180.0	21598.63	21125.14	19803.79	17684.12	15415.79	10802.07	10225.07	7932.53	6091.99
225.0	21543.57	21196.71	20117.61	18295.24	16258.15	13620.95	10927.04	8842.06	6847.36
270.0	21560.09	21532.56	21048.06	20001.99	18410.86	15834.22	13450.28	11082.85	8990.71
315.0	21664.69	21615.14	21196.71	20001.99	18317.26	15949.84	13532.86	10796.01	8471.53
360.0	21598.63	21703.23	21438.96	20728.73	19242.21	16924.34	14193.54	11693.98	9684.42

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7118.79	5654.29	4619.23	3463.05	2796.87	2138.94	1764.56	1503.04	1338.97
45.0	6292.95	4955.08	3782.37	2967.54	2791.36	1813.56	1546.53	1340.07	1212.89
90.0	4934.71	3776.87	2904.23	2297.50	1882.93	1506.89	1345.03	1216.20	1093.86
135.0	5191.82	4074.17	3198.78	2818.89	1926.97	1666.01	1409.44	1258.59	1157.29
180.0	4808.08	3694.28	2802.92	2271.08	1900.00	1571.31	1386.87	1257.49	1091.16
225.0	5436.27	4164.47	3169.60	2528.19	2083.88	1705.10	1494.78	1335.12	1201.33
270.0	6788.45	5412.04	4173.28	3303.38	2785.85	2174.73	1760.70	1507.44	1346.68
315.0	6716.88	5169.80	3970.67	3132.16	2518.83	1964.41	1717.21	1503.04	1305.94
360.0	7118.79	5654.29	4619.23	3463.05	2796.87	2138.94	1764.56	1503.04	1338.97

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1209.04	1122.60	1055.43	1009.73	978.35	957.43	927.70	911.73	897.97
45.0	1108.29	1043.87	994.32	965.69	943.12	925.50	899.62	884.76	873.75
90.0	1034.23	993.49	956.33	934.03	915.97	897.80	882.28	868.85	856.79
135.0	1076.35	1028.45	991.57	956.33	932.10	913.94	893.57	882.00	868.79
180.0	1063.08	1013.37	972.13	941.41	923.02	906.28	892.68	877.10	863.50
225.0	1095.02	1045.63	1003.40	961.84	937.45	919.77	903.31	888.22	875.56
270.0	1212.89	1127.56	1059.29	1008.63	975.60	948.62	921.64	904.58	891.91
315.0	1194.72	1098.04	1041.12	997.35	965.30	941.57	919.88	901.60	886.90
360.0	1209.04	1122.60	1055.43	1009.73	978.35	957.43	927.70	911.73	897.97

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	882.55	872.09	861.63	846.77	835.21	819.79	792.81	726.19	647.46
45.0	858.33	846.77	836.31	823.64	808.78	792.26	737.21	667.83	586.90
90.0	846.77	831.90	817.97	807.68	787.03	731.92	657.87	570.77	464.02
135.0	855.58	843.46	829.70	818.69	799.97	760.33	678.85	594.61	493.31
180.0	854.09	838.12	821.06	812.47	793.42	715.95	648.51	564.71	462.53
225.0	862.95	848.09	834.27	819.84	809.66	780.86	714.58	631.99	538.78
270.0	873.75	862.73	851.72	838.51	824.74	812.08	786.76	721.79	641.96
315.0	873.86	859.60	847.15	834.49	822.27	805.09	770.51	707.92	624.72
360.0	882.55	872.09	861.63	846.77	835.21	819.79	792.81	726.19	647.46

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	546.71	449.81	337.50	280.24	147.39	82.25	40.14	32.98	25.44
45.0	464.68	370.53	280.79	158.51	86.27	44.27	30.78	24.94	13.93
90.0	355.28	258.32	158.95	81.37	41.90	29.46	23.62	14.76	12.88
135.0	384.84	289.60	220.61	103.62	51.42	33.86	26.37	16.19	12.83
180.0	358.58	268.51	170.67	89.41	43.49	28.57	22.85	13.65	12.72
225.0	416.34	318.06	224.58	120.35	61.50	34.08	25.66	19.49	13.16
270.0	537.90	439.90	323.73	286.84	128.06	65.19	33.97	27.86	21.42
315.0	509.16	414.24	316.46	203.65	125.31	65.13	33.31	25.27	17.56
360.0	546.71	449.81	337.50	280.24	147.39	82.25	40.14	32.98	25.44

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	13.05	12.72	12.39	12.17	11.95	11.78	11.56	11.40	11.29
45.0	12.66	12.39	12.17	11.95	11.78	11.62	11.45	11.34	11.18
90.0	12.61	12.39	12.17	12.00	11.78	11.62	11.45	11.29	11.18
135.0	12.50	12.28	12.11	11.89	11.78	11.56	11.45	11.29	11.18
180.0	12.44	12.22	12.00	11.84	11.67	11.51	11.34	11.23	11.12
225.0	12.77	12.50	12.22	12.00	11.78	11.56	11.40	11.29	11.12
270.0	13.38	13.05	12.77	12.50	12.28	12.06	11.84	11.62	11.45
315.0	13.05	12.66	12.39	12.11	11.89	11.73	11.51	11.40	11.23
360.0	13.05	12.72	12.39	12.17	11.95	11.78	11.56	11.40	11.29

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.12	11.07	10.96	10.85	10.79	10.74	10.63	10.57	10.57
45.0	11.07	10.96	10.90	10.79	10.74	10.68	10.57	10.52	10.52
90.0	11.07	10.96	10.85	10.79	10.74	10.68	10.63	10.52	10.46
135.0	11.07	10.96	10.90	10.79	10.74	10.68	10.57	10.52	10.52
180.0	11.01	10.90	10.85	10.79	10.68	10.63	10.57	10.52	10.46
225.0	11.01	10.85	10.79	10.68	10.63	10.57	10.52	10.46	10.41
270.0	11.34	11.18	11.07	10.96	10.85	10.79	10.68	10.63	10.57
315.0	11.07	11.01	10.90	10.79	10.68	10.63	10.57	10.52	10.46
360.0	11.12	11.07	10.96	10.85	10.79	10.74	10.63	10.57	10.57

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.46	10.46	10.41	10.41	10.35	10.35	10.35	10.35	10.41
45.0	10.46	10.35	10.35	10.30	10.30	10.24	10.24	10.24	10.30
90.0	10.41	10.41	10.35	10.30	10.30	10.24	10.24	10.19	10.19
135.0	10.46	10.41	10.35	10.35	10.30	10.30	10.30	10.30	10.24
180.0	10.41	10.41	10.35	10.30	10.30	10.24	10.24	10.24	10.19
225.0	10.35	10.30	10.30	10.24	10.24	10.19	10.24	10.24	10.24
270.0	10.52	10.46	10.46	10.41	10.35	10.35	10.35	10.35	10.46
315.0	10.46	10.41	10.35	10.30	10.30	10.30	10.24	10.24	10.24
360.0	10.46	10.46	10.41	10.41	10.35	10.35	10.35	10.35	10.41

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.46	10.46	10.57	10.63	10.74	10.90	11.07	11.34	11.51
45.0	10.30	10.30	10.35	10.41	10.46	10.57	10.74	10.85	10.96
90.0	10.19	10.19	10.19	10.13	10.13	10.13	10.19	10.24	10.24
135.0	10.24	10.24	10.24	10.30	10.24	10.30	10.30	10.35	10.41
180.0	10.19	10.19	10.19	10.19	10.19	10.13	10.19	10.13	10.19
225.0	10.24	10.30	10.30	10.30	10.41	10.52	10.57	10.79	10.90
270.0	10.46	10.52	10.52	10.63	10.74	10.90	11.07	11.29	11.51
315.0	10.24	10.19	10.24	10.24	10.30	10.30	10.30	10.35	10.46
360.0	10.46	10.46	10.57	10.63	10.74	10.90	11.07	11.34	11.51

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.73	11.95	12.00	12.06	12.11	12.39	10.35	10.08	10.08
45.0	11.07	11.29	11.40	11.62	11.78	12.06	10.02	9.97	9.97
90.0	10.30	10.41	10.57	10.68	10.74	10.74	9.97	9.97	9.97
135.0	10.46	10.57	10.68	10.79	10.90	11.01	10.08	10.02	10.02
180.0	10.19	10.19	10.24	10.35	10.41	10.46	10.02	10.02	10.02
225.0	11.01	11.29	11.51	11.78	12.11	12.55	12.99	9.97	9.97
270.0	11.78	12.00	12.17	12.39	12.66	13.21	13.76	10.02	10.02
315.0	10.63	10.68	10.74	10.85	10.90	11.01	11.01	10.02	10.02
360.0	11.73	11.95	12.00	12.06	12.11	12.39	10.35	10.08	10.08

Intensity data(cd)

C/γ(°)	90.0
0.0	10.08
45.0	9.97
90.0	9.97
135.0	10.02
180.0	10.02
225.0	9.97
270.0	10.02
315.0	10.02
360.0	10.08