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: 2-1746-N
Luminaire: 92.70.124.00

Report No: 200406-B031	Voltage(V): 220.4000
Test No: 200406-C031	Current(A): 0.0410
LampCAT: SAMSUNG LC013D	Power (W): 8.2600
Lamp flux(lm): 931.0	PF: 0.8960
Number of Lamps: 1	Ballast type: AC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 764.55
Efficiency(%): 82.12%
Lumens(lm)/Power(W): 92.56
Central intensity(cd): 2553.506
Maximum intensity(cd): 2553.506
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=24.8
[C90/270]Total=24.8
Field angle(10%Imax): [C0/180]Total=61.4
[C90/270]Total=61.4
Maximum s/h(1/2): C0_180=0.42 C90_270=0.42
Maximum s/h(1/4): C0_180=0.45 C90_270=0.45
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.12%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.076%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2553.506	0.000	0	.000%	.000%
1.0	2542.196	2.438	2.438	.262%	.319%
2.0	2507.973	7.248	9.687	.779%	1.267%
3.0	2445.097	11.846	21.533	1.272%	2.816%
4.0	2362.325	16.092	37.625	1.728%	4.921%
5.0	2266.328	19.912	57.537	2.139%	7.526%
6.0	2148.115	23.199	80.736	2.492%	10.560%
7.0	2024.276	25.898	106.634	2.782%	13.947%
8.0	1892.781	28.034	134.668	3.011%	17.614%
9.0	1763.141	29.629	164.297	3.183%	21.489%
10.0	1608.966	30.516	194.813	3.278%	25.481%
11.0	1457.616	30.641	225.455	3.291%	29.488%
12.0	1325.564	30.424	255.879	3.268%	33.468%
13.0	1207.560	30.062	285.941	3.229%	37.400%
14.0	1095.131	29.474	315.415	3.166%	41.255%
15.0	964.140	28.271	343.685	3.037%	44.952%
16.0	856.362	26.675	370.361	2.865%	48.441%
17.0	784.066	25.546	395.907	2.744%	51.783%
18.0	704.722	24.547	420.454	2.637%	54.993%
19.0	636.903	23.342	443.795	2.507%	58.046%
20.0	578.394	22.243	466.039	2.389%	60.956%
21.0	527.223	21.230	487.269	2.280%	63.732%
22.0	483.639	20.314	507.582	2.182%	66.389%
23.0	446.580	19.519	527.101	2.097%	68.942%
24.0	414.399	18.824	545.925	2.022%	71.404%
25.0	390.287	18.297	564.222	1.965%	73.798%
26.0	366.012	17.853	582.074	1.918%	76.133%
27.0	342.689	17.339	599.413	1.862%	78.400%
28.0	324.678	16.896	616.309	1.815%	80.610%
29.0	300.908	16.367	632.676	1.758%	82.751%
30.0	275.276	15.557	648.233	1.671%	84.786%
31.0	247.405	14.545	662.779	1.562%	86.688%
32.0	220.828	13.414	676.193	1.441%	88.443%
33.0	180.886	11.835	688.028	1.271%	89.991%
34.0	150.643	10.033	698.061	1.078%	91.303%
35.0	114.297	8.228	706.289	.884%	92.379%
36.0	91.966	6.567	712.856	.705%	93.238%
37.0	64.866	5.115	717.971	.549%	93.907%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	48.712	3.791	721.762	.407%	94.403%
39.0	37.076	2.928	724.69	.315%	94.786%
40.0	29.861	2.335	727.025	.251%	95.091%
41.0	24.924	1.951	728.976	.210%	95.347%
42.0	21.966	1.704	730.679	.183%	95.569%
43.0	19.901	1.551	732.23	.167%	95.772%
44.0	17.970	1.429	733.66	.154%	95.959%
45.0	16.757	1.335	734.994	.143%	96.134%
46.0	15.586	1.265	736.259	.136%	96.299%
47.0	14.594	1.200	737.459	.129%	96.456%
48.0	13.706	1.144	738.603	.123%	96.606%
49.0	12.935	1.094	739.697	.118%	96.749%
50.0	12.390	1.056	740.753	.113%	96.887%
51.0	11.804	1.024	741.777	.110%	97.021%
52.0	11.340	0.993	742.77	.107%	97.151%
53.0	10.847	0.965	743.735	.104%	97.277%
54.0	10.429	0.938	744.673	.101%	97.400%
55.0	10.064	0.915	745.588	.098%	97.519%
56.0	9.716	0.894	746.481	.096%	97.636%
57.0	9.350	0.872	747.353	.094%	97.750%
58.0	9.043	0.851	748.204	.091%	97.862%
59.0	8.701	0.830	749.033	.089%	97.970%
60.0	8.411	0.808	749.842	.087%	98.076%
61.0	8.138	0.790	750.631	.085%	98.179%
62.0	7.877	0.772	751.403	.083%	98.280%
63.0	7.610	0.753	752.156	.081%	98.379%
64.0	7.372	0.735	752.891	.079%	98.475%
65.0	7.071	0.715	753.606	.077%	98.568%
66.0	6.798	0.692	754.298	.074%	98.659%
67.0	6.543	0.671	754.969	.072%	98.746%
68.0	6.288	0.650	755.619	.070%	98.831%
69.0	5.992	0.626	756.245	.067%	98.913%
70.0	5.731	0.602	756.847	.065%	98.992%
71.0	5.470	0.579	757.426	.062%	99.068%
72.0	5.220	0.556	757.982	.060%	99.141%
73.0	4.965	0.533	758.515	.057%	99.210%
74.0	4.756	0.511	759.026	.055%	99.277%
75.0	4.548	0.492	759.518	.053%	99.341%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.316	0.470	759.988	.051%	99.403%
77.0	4.130	0.450	760.438	.048%	99.462%
78.0	3.944	0.432	760.87	.046%	99.518%
79.0	3.724	0.412	761.282	.044%	99.572%
80.0	3.538	0.392	761.674	.042%	99.623%
81.0	3.353	0.373	762.047	.040%	99.672%
82.0	3.179	0.354	762.401	.038%	99.719%
83.0	3.016	0.337	762.738	.036%	99.763%
84.0	2.819	0.318	763.055	.034%	99.804%
85.0	2.651	0.299	763.354	.032%	99.843%
86.0	2.425	0.277	763.631	.030%	99.879%
87.0	2.245	0.256	763.887	.027%	99.913%
88.0	2.065	0.236	764.123	.025%	99.944%
89.0	1.949	0.220	764.343	.024%	99.973%
90.0	1.879	0.210	764.553	.023%	100.000%

Zonal flux distribution table

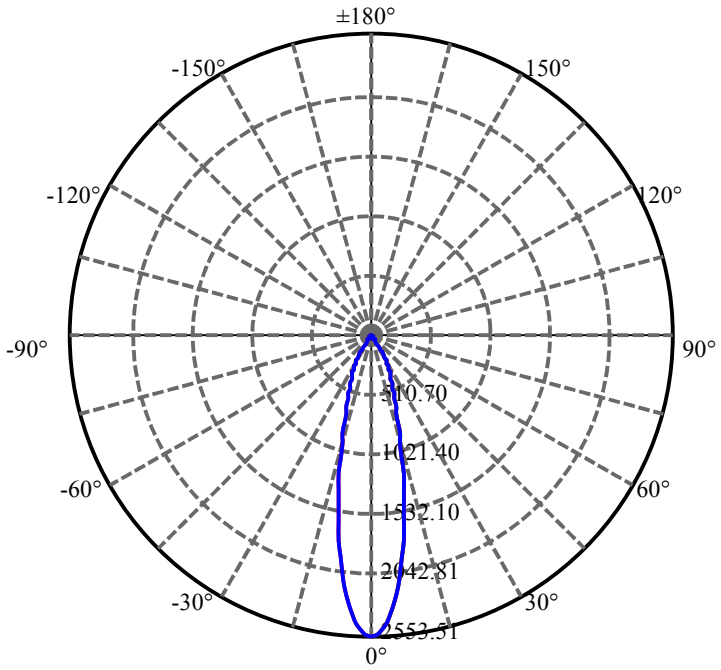
ZONAL LUMEN SUMMARY

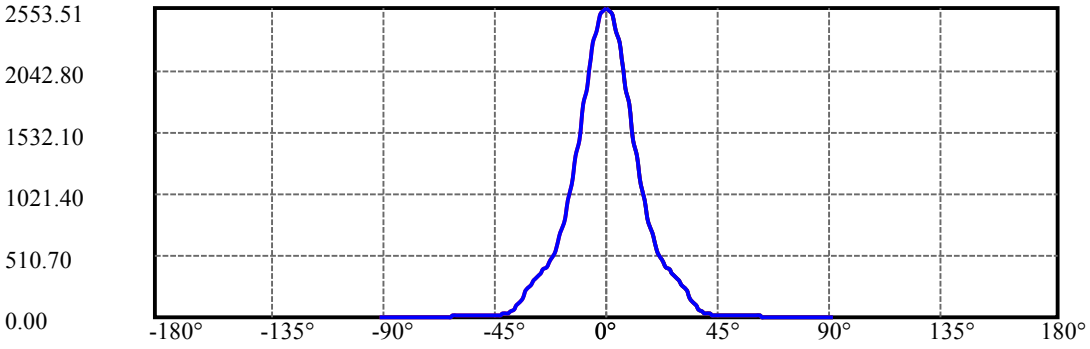
Zone	Lumens	%Lamp	%Fixt
0-30	648.23	69.63%	84.79%
0-40	727.02	78.09%	95.09%
0-60	749.84	80.54%	98.08%
0-90	764.34	82.10%	99.97%
0-120	764.34	82.10%	99.97%
0-180	764.55	82.12%	100.00%
60-90	15.31	1.64%	2.00%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.72	611.64	65.70%	80.00%

ZONAL LUMEN SUMMARY

0-10	194.81
10-20	271.23
20-30	182.19
30-40	78.79
40-50	13.73
50-60	9.09
60-70	7.01
70-80	4.83
80-90	2.67
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):

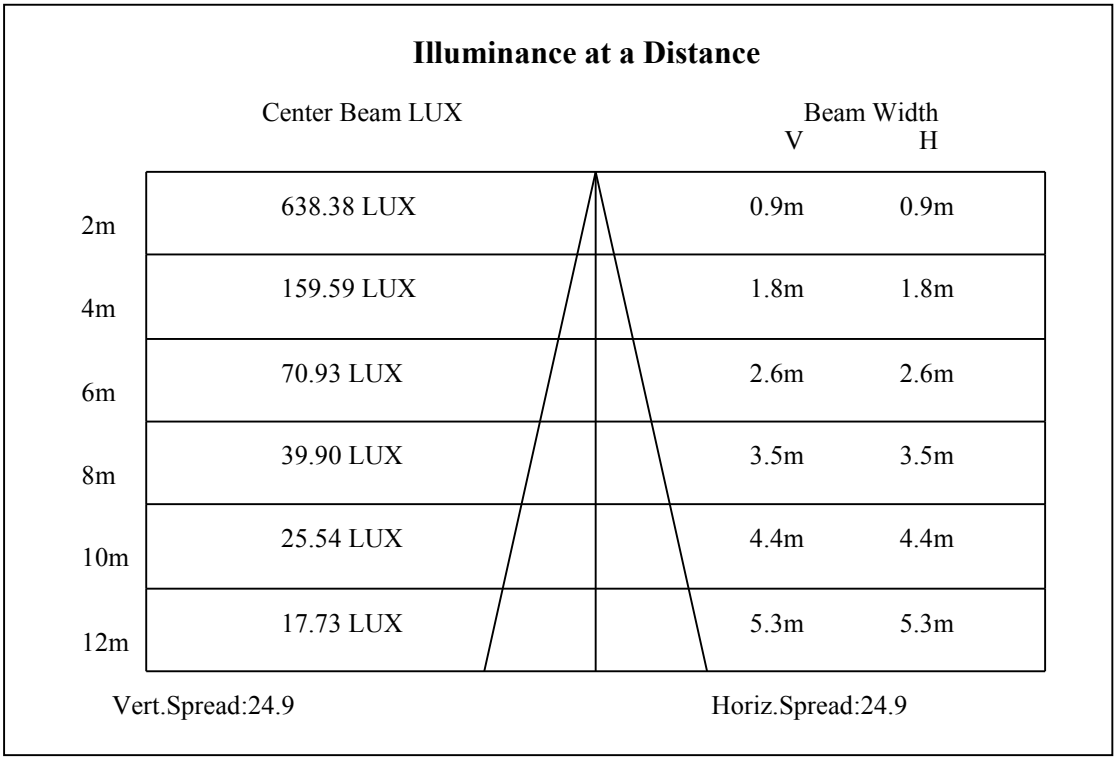
C0/C180:

C90/C270:

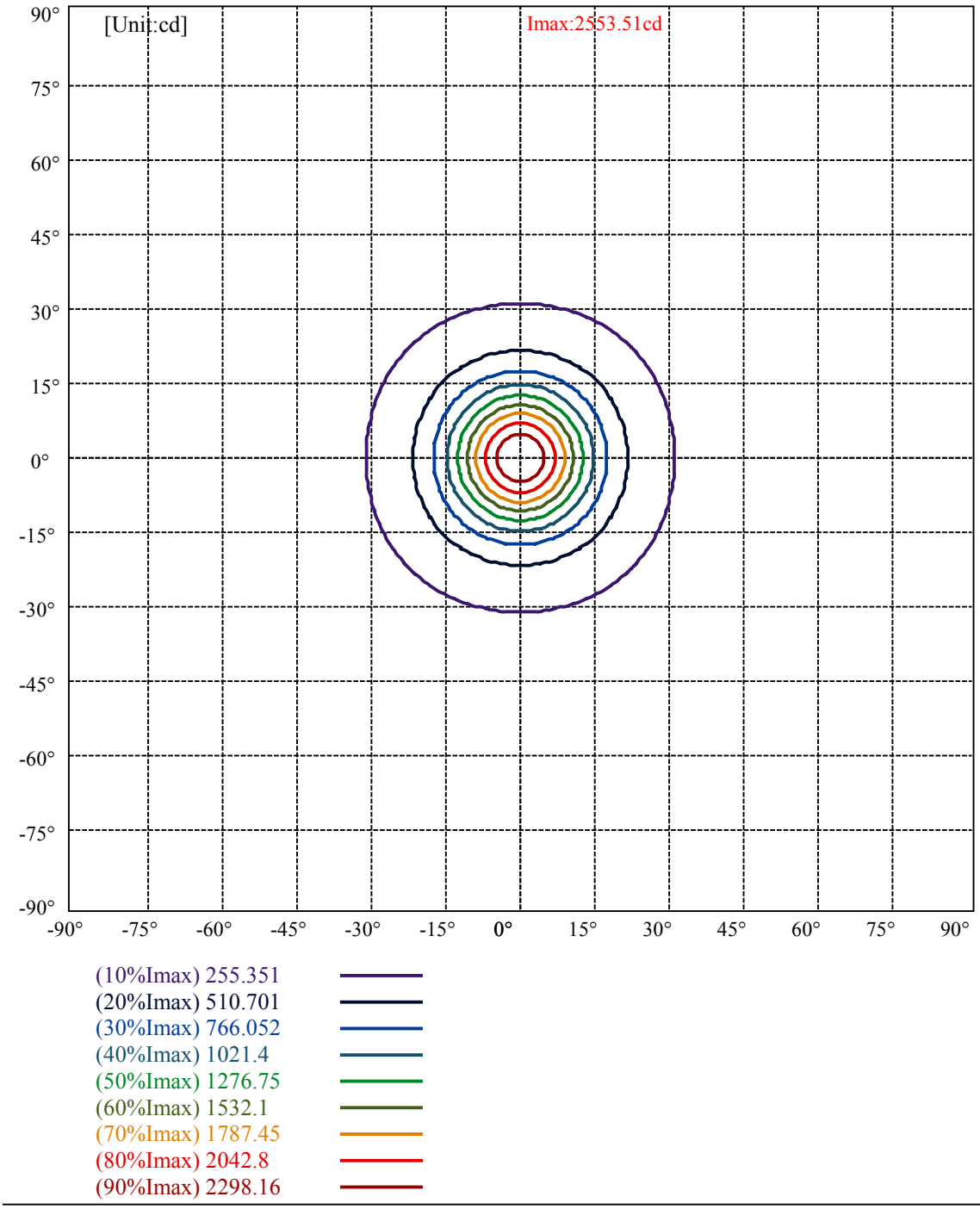
Field angle(10%Imax):C0/180Left:30.7 Right:30.7
:C90/270Left:30.7 Right:30.7

Beam Angle(50%Imax):C0/180Left:12.4 Right:12.4
:C90/270Left:12.4 Right:12.4

Lux distance Curve



ISO-Intensity(V-H)

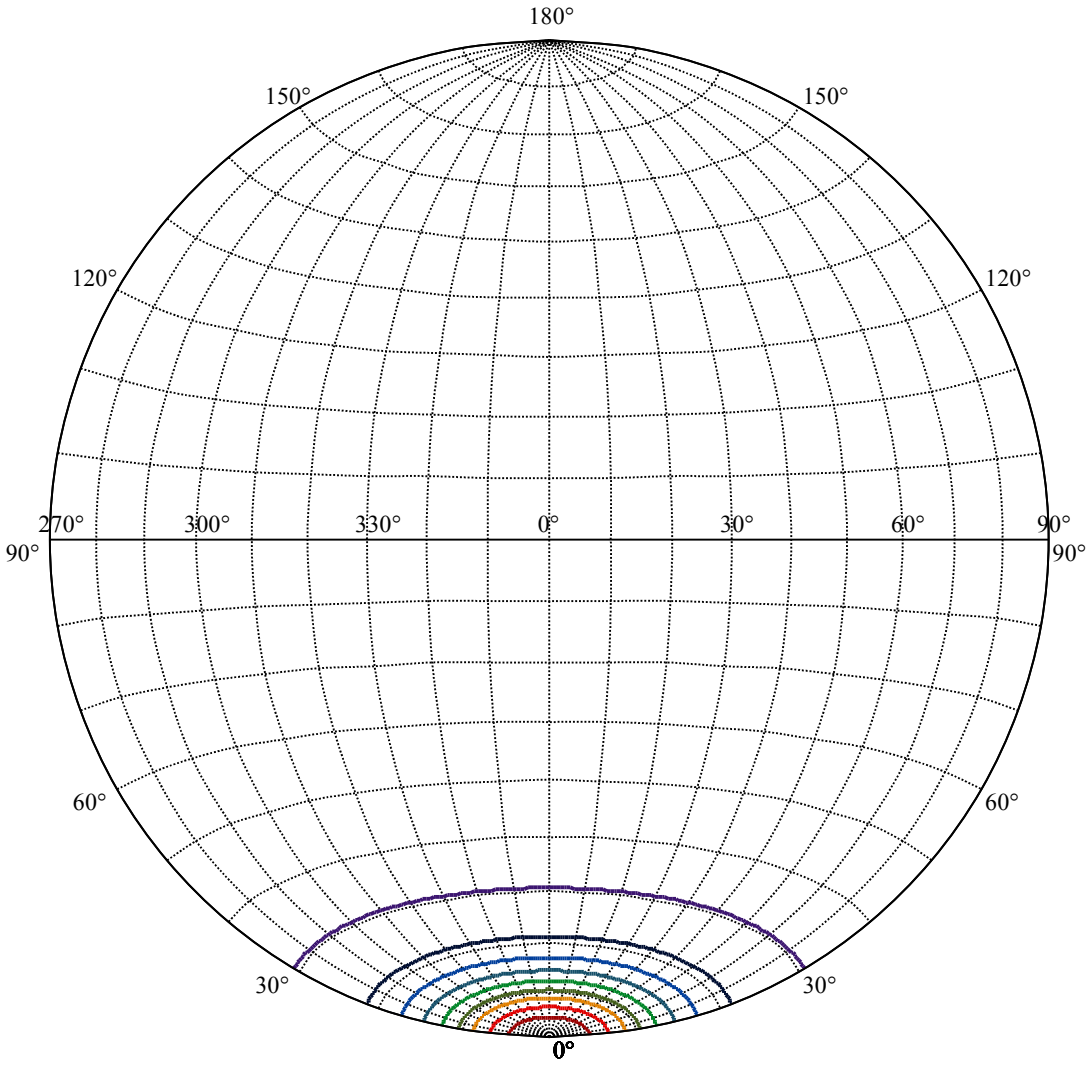


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:2553.51

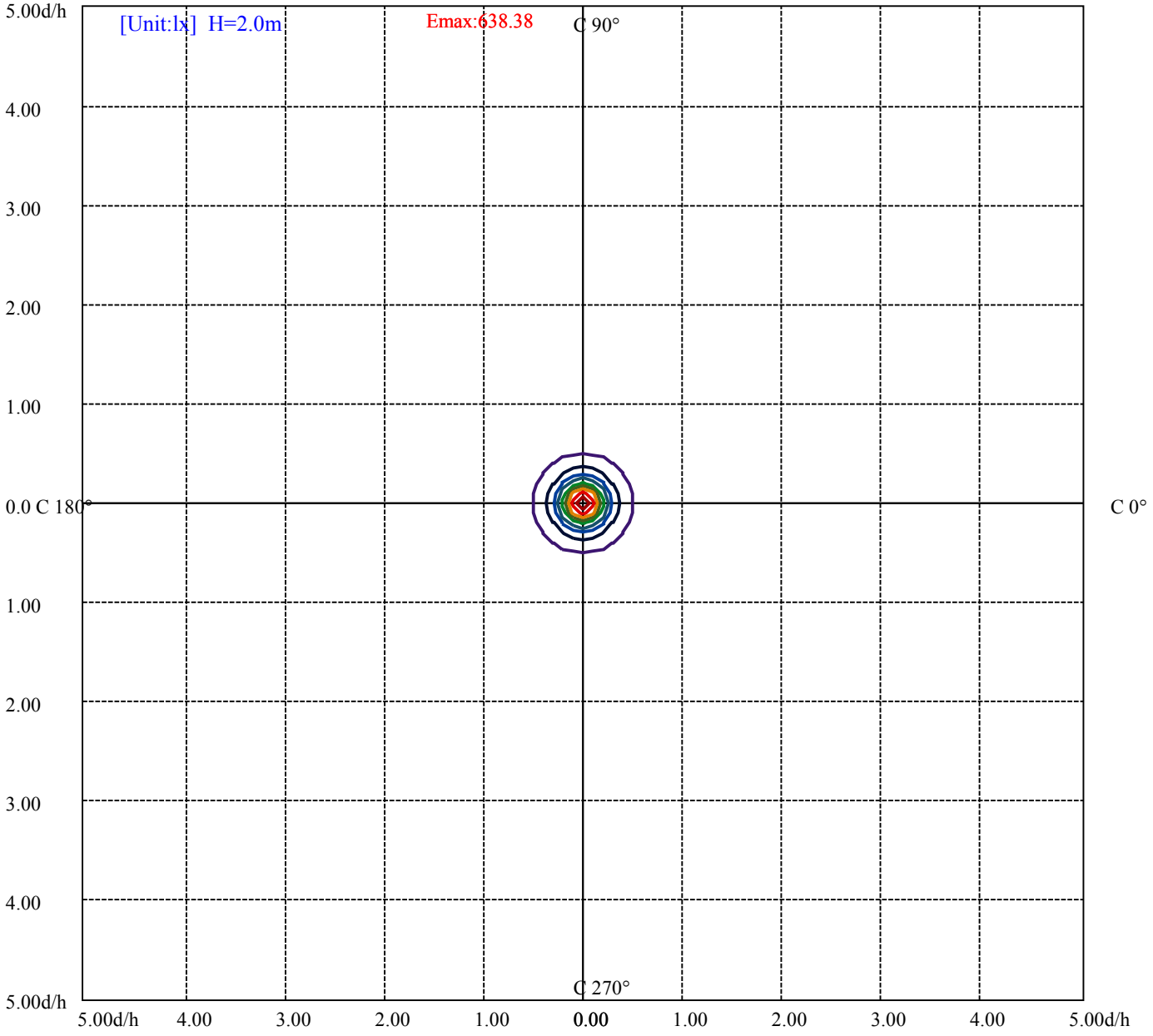
(10%Imax) 255.351
(20%Imax) 510.701
(30%Imax) 766.052
(40%Imax) 1021.4
(50%Imax) 1276.75
(60%Imax) 1532.1
(70%Imax) 1787.45
(80%Imax) 2042.8
(90%Imax) 2298.16

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO illuminance diagram



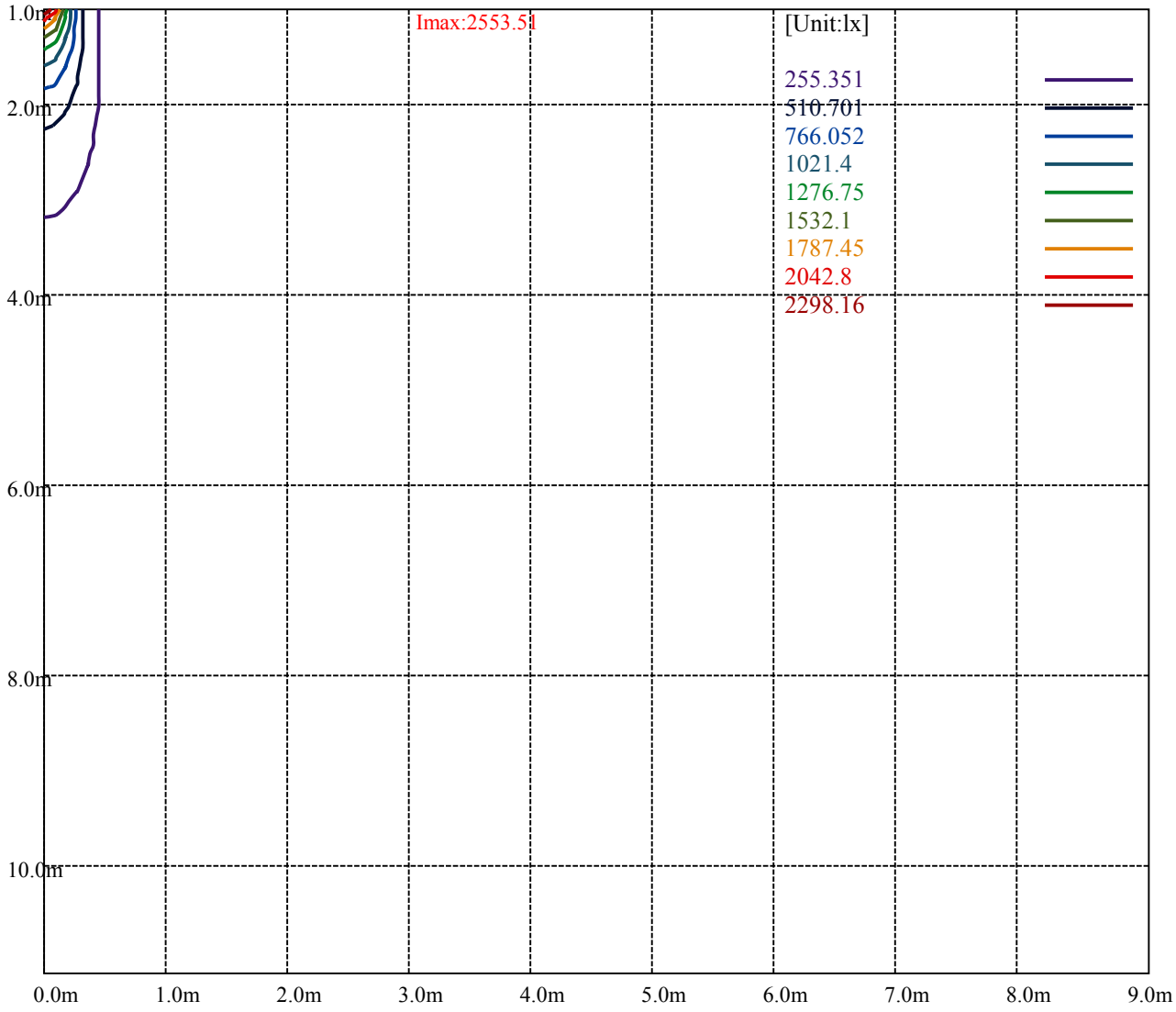
(10%Emax) 63.8375
(20%Emax) 127.6752
(30%Emax) 191.5128
(40%Emax) 255.35
(50%Emax) 319.1875
(60%Emax) 383.025
(70%Emax) 446.8625
(80%Emax) 510.7
(90%Emax) 574.5375

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Nata 2-1746-N

Luminance Limitting Curve(no luminous side)

Luminance Table

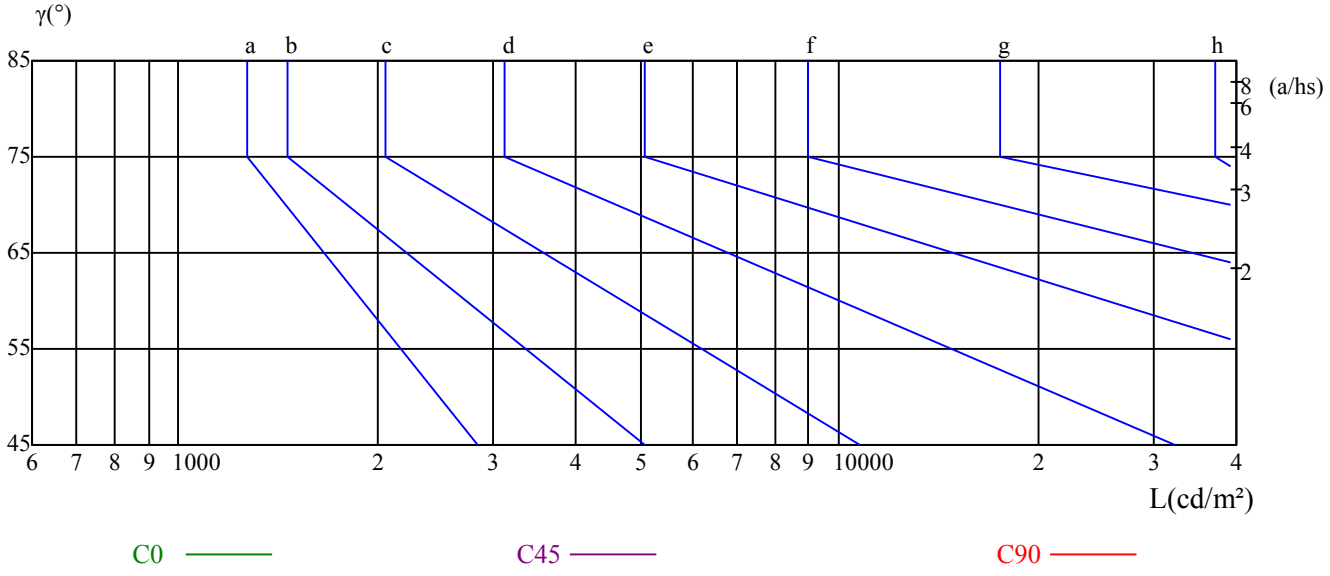
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

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

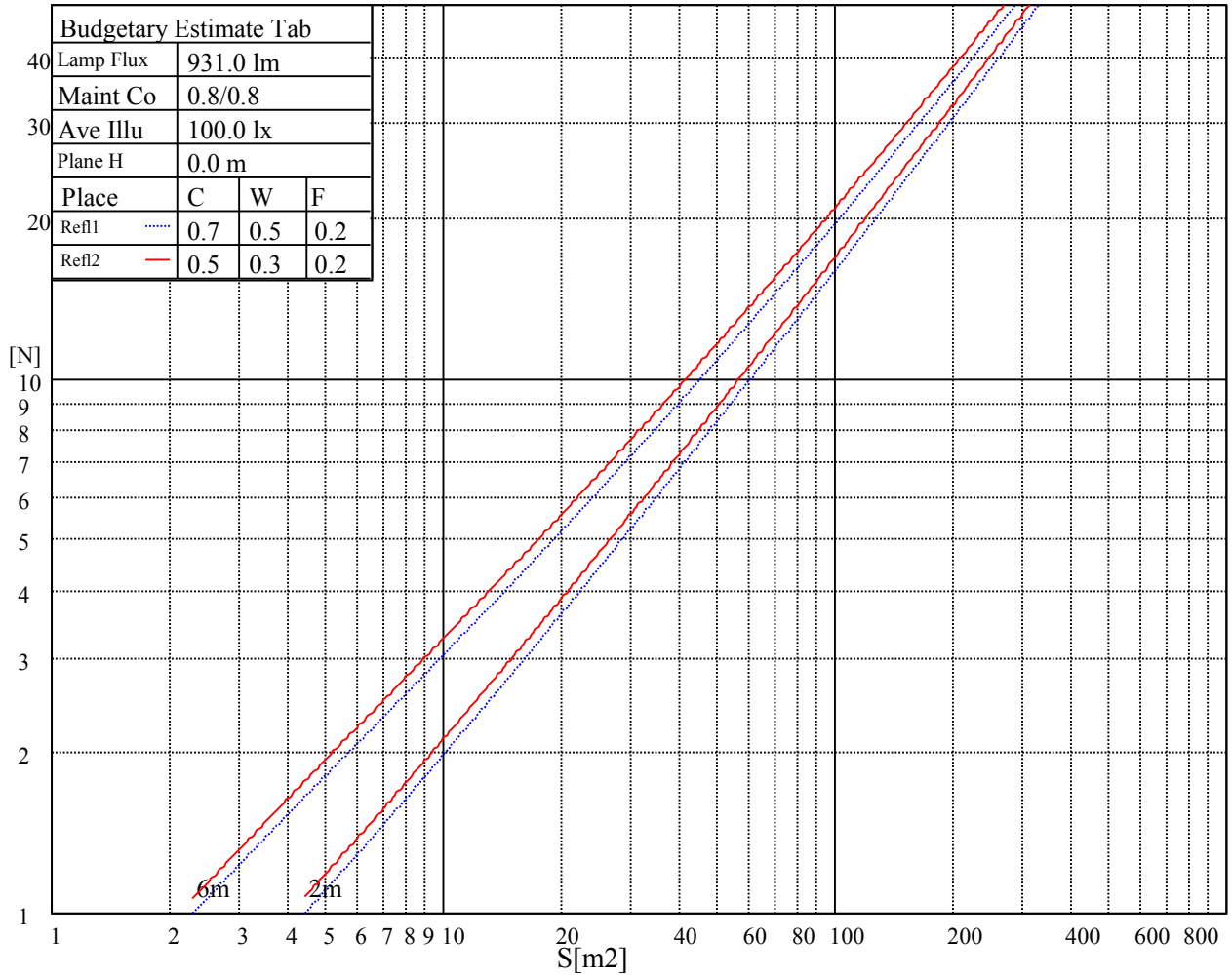


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Budgetary Estimate Table

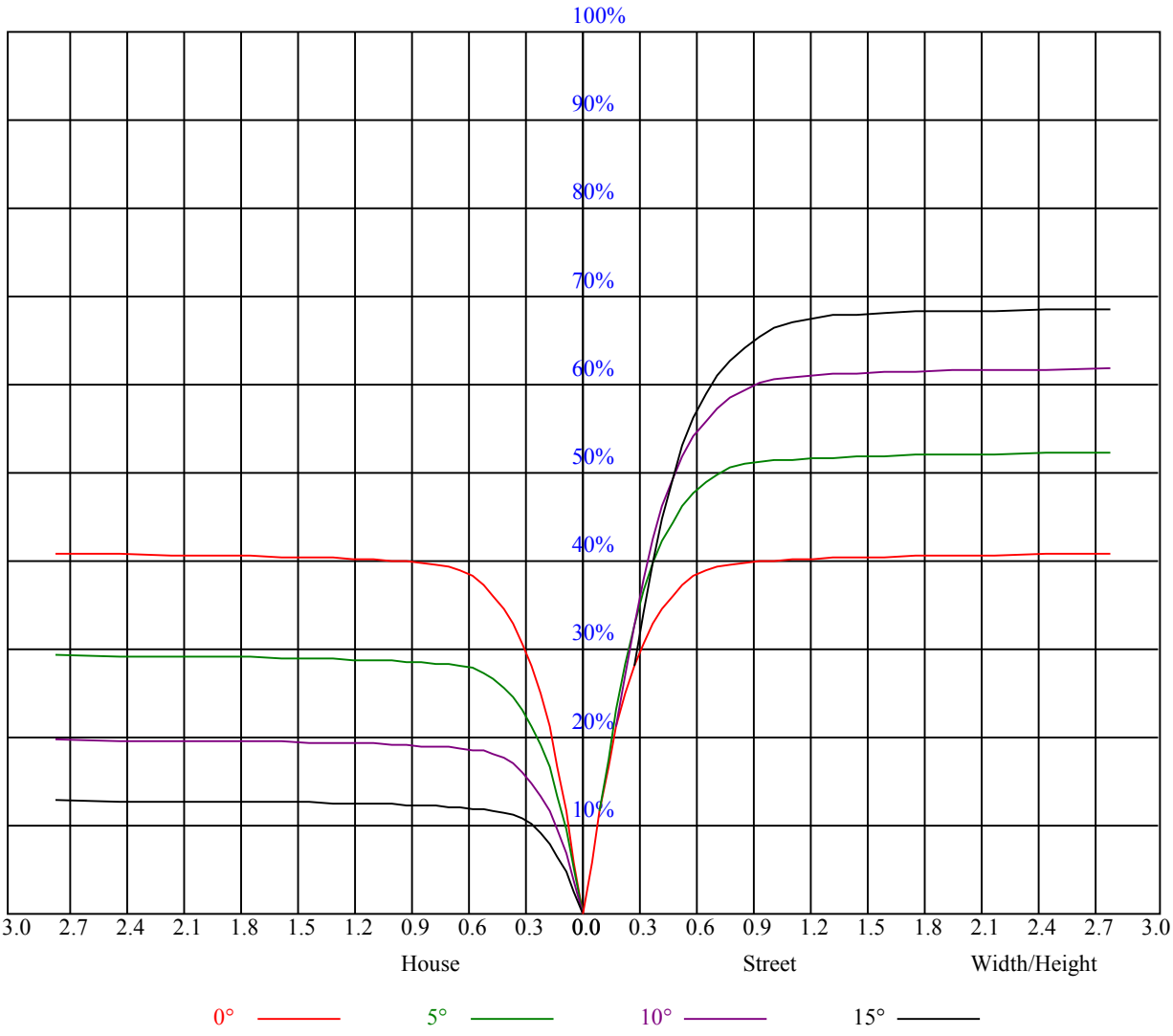


Equipment: GMS 1800 Date: 2020/4/6 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 6.81

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	0.98	0.98	0.98	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.82
1	0.92	0.90	0.88	0.90	0.88	0.87	0.87	0.85	0.84	0.84	0.82	0.82	0.81	0.80	0.79	0.78
2	0.86	0.83	0.81	0.85	0.82	0.80	0.82	0.80	0.78	0.80	0.78	0.77	0.78	0.76	0.75	0.74
3	0.82	0.78	0.75	0.81	0.77	0.75	0.78	0.76	0.73	0.76	0.74	0.72	0.75	0.73	0.71	0.70
4	0.77	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.69	0.73	0.71	0.69	0.72	0.70	0.68	0.67
5	0.74	0.70	0.67	0.73	0.69	0.66	0.72	0.68	0.66	0.70	0.68	0.65	0.69	0.67	0.65	0.64
6	0.71	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.61
7	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.64	0.62	0.59	0.58
8	0.65	0.61	0.58	0.64	0.60	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.62	0.59	0.57	0.56
9	0.62	0.58	0.56	0.62	0.58	0.55	0.61	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.55	0.54
10	0.60	0.56	0.53	0.60	0.56	0.53	0.59	0.56	0.53	0.58	0.55	0.53	0.58	0.55	0.53	0.52

Coefficient Utilization Curve



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

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	2533.67	2497.94	2429.26	2330.42	2216.73	2090.52	1951.77	1808.85	1657.57
45.0	2586.57	2529.49	2452.93	2351.30	2225.55	2090.05	1940.63	1785.65	1629.27
90.0	2512.32	2417.66	2297.94	2155.02	2003.74	1853.40	1702.12	1548.06	1428.81
135.0	2581.46	2541.56	2485.87	2399.10	2289.12	2171.26	2026.02	1880.77	1742.03
180.0	2533.67	2552.23	2549.91	2520.21	2470.56	2411.63	2298.40	2203.74	2075.20
225.0	2586.57	2622.76	2629.26	2607.91	2565.22	2507.68	2420.44	2307.68	2172.65
270.0	2512.32	2582.86	2638.54	2655.71	2648.29	2615.80	2559.19	2494.69	2396.78
315.0	2581.46	2593.07	2580.07	2541.09	2479.38	2390.28	2286.34	2164.76	2039.94
360.0	2533.67	2497.94	2429.26	2330.42	2216.73	2090.52	1951.77	1808.85	1657.57

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1507.69	1361.06	1214.42	921.80	900.22	900.22	807.60	728.53	659.11
45.0	1535.07	1312.33	1155.95	1065.47	930.43	817.67	723.01	644.12	576.84
90.0	1253.86	1114.19	869.04	869.04	815.72	740.41	675.73	618.70	566.68
135.0	1658.04	1466.86	1330.43	1247.37	1115.12	945.28	885.42	793.08	715.59
180.0	1936.46	1800.50	1651.54	1506.30	1359.66	1216.28	1079.39	961.06	863.61
225.0	2028.80	1878.45	1787.97	1574.05	1477.06	1318.83	1167.55	885.98	885.98
270.0	2279.84	2149.45	2011.17	1926.71	1713.72	1623.24	1468.71	1313.73	1159.67
315.0	1905.37	1788.90	1640.40	1493.77	1348.53	1199.11	905.70	905.70	845.05
360.0	1507.69	1361.06	1214.42	921.80	900.22	900.22	807.60	728.53	659.11

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	605.47	555.54	512.25	473.59	438.70	410.99	387.93	367.70	349.93
45.0	521.16	474.29	428.35	385.19	352.71	327.19	305.38	286.36	273.36
90.0	519.30	478.28	443.15	412.99	388.21	364.87	344.41	329.51	319.77
135.0	648.77	590.30	539.25	496.10	458.51	426.03	397.72	374.06	354.10
180.0	778.23	707.70	646.91	592.15	542.97	499.35	461.76	429.28	411.64
225.0	784.31	701.02	632.94	570.58	519.62	475.50	435.36	414.47	373.04
270.0	1025.56	910.02	811.64	729.51	658.97	598.19	545.29	500.27	462.69
315.0	754.98	678.09	612.66	557.68	509.42	470.53	437.35	420.65	383.57
360.0	605.47	555.54	512.25	473.59	438.70	410.99	387.93	367.70	349.93

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	332.11	314.61	288.49	253.92	213.22	180.32	131.41	96.47	71.09
45.0	264.08	249.23	230.67	230.67	175.50	143.62	113.36	82.88	57.59
90.0	283.43	261.62	221.85	180.60	140.79	103.25	69.51	46.73	36.15
135.0	336.93	320.23	296.10	261.30	245.52	245.52	146.31	108.49	74.25
180.0	375.91	363.85	343.43	317.91	305.84	272.43	249.23	249.23	150.53
225.0	349.79	336.52	318.09	293.32	282.60	261.07	231.46	197.31	161.48
270.0	429.28	400.97	376.84	355.50	335.08	315.59	302.13	260.83	238.56
315.0	369.97	350.39	331.78	309.00	280.69	244.82	203.66	163.20	124.73
360.0	332.11	314.61	288.49	253.92	213.22	180.32	131.41	96.47	71.09

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	47.70	36.33	30.25	25.57	22.64	20.46	18.65	17.17	15.87
45.0	42.55	34.90	29.14	25.34	22.69	20.51	18.75	17.31	16.10
90.0	29.65	25.06	22.32	20.19	18.38	16.94	15.68	14.62	13.69
135.0	49.65	37.08	31.14	26.45	23.57	21.44	19.77	18.33	17.12
180.0	112.16	78.79	51.18	35.96	30.77	24.87	21.95	20.32	18.33
225.0	125.89	93.60	66.77	45.57	34.80	29.23	24.83	22.04	19.95
270.0	238.56	151.32	114.11	81.21	55.64	39.67	32.71	27.47	23.62
315.0	89.56	61.86	44.78	36.33	30.39	26.26	23.39	21.95	19.07
360.0	47.70	36.33	30.25	25.57	22.64	20.46	18.65	17.17	15.87

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	14.76	13.83	13.09	12.39	11.74	11.18	10.72	10.39	9.98
45.0	15.45	14.15	13.36	12.90	12.02	11.74	11.18	10.81	10.44
90.0	12.95	12.30	11.79	11.09	10.72	10.39	10.07	9.70	9.28
135.0	16.15	15.31	14.57	14.20	13.36	12.95	12.67	12.25	11.88
180.0	17.22	16.06	15.03	14.06	13.22	12.62	11.97	11.32	10.86
225.0	18.28	17.35	16.15	14.71	14.25	13.46	12.90	12.34	11.74
270.0	21.21	19.12	17.35	15.96	14.76	14.11	12.90	12.48	11.79
315.0	18.05	16.57	15.41	14.34	13.41	12.67	12.02	11.42	10.81
360.0	14.76	13.83	13.09	12.39	11.74	11.18	10.72	10.39	9.98

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.65	9.37	9.10	8.72	8.49	8.21	7.89	7.61	7.42
45.0	10.21	9.61	9.14	8.82	8.45	8.07	7.80	7.52	7.19
90.0	8.86	8.49	8.17	7.84	7.66	7.29	7.01	6.82	6.54
135.0	11.46	11.18	10.81	10.39	10.12	9.84	9.70	9.47	9.23
180.0	10.49	10.16	9.79	9.51	9.14	8.68	8.35	8.07	7.84
225.0	11.23	10.86	10.58	10.21	9.84	9.37	8.96	8.63	8.31
270.0	11.09	10.72	10.35	9.93	9.65	9.37	9.10	8.63	8.35
315.0	10.44	10.12	9.79	9.37	9.00	8.77	8.49	8.35	8.12
360.0	9.65	9.37	9.10	8.72	8.49	8.21	7.89	7.61	7.42

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.10	6.77	6.54	6.26	5.94	5.61	5.34	5.10	4.87
45.0	6.82	6.59	6.26	5.94	5.66	5.34	5.10	4.78	4.50
90.0	6.22	5.94	5.71	5.43	5.15	5.01	4.69	4.41	4.32
135.0	9.05	8.82	8.54	8.31	8.12	7.93	7.75	7.56	7.24
180.0	7.56	7.47	7.15	6.77	6.64	6.36	5.99	5.75	5.48
225.0	8.03	7.75	7.42	7.10	6.77	6.54	6.17	5.94	5.57
270.0	8.17	7.93	7.66	7.38	7.15	6.87	6.50	6.22	6.03
315.0	7.93	7.70	7.29	7.19	6.91	6.64	6.40	6.08	5.75
360.0	7.10	6.77	6.54	6.26	5.94	5.61	5.34	5.10	4.87

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.59	4.32	4.13	3.94	3.67	3.57	3.34	3.06	2.88
45.0	4.32	4.13	3.90	3.71	3.43	3.25	3.06	2.83	2.60
90.0	4.08	3.85	3.67	3.48	3.29	3.06	2.92	2.78	2.60
135.0	7.15	7.01	6.73	6.68	6.54	6.45	6.36	6.22	6.13
180.0	5.20	4.87	4.69	4.45	4.22	3.94	3.76	3.57	3.39
225.0	5.29	5.01	4.78	4.50	4.22	4.04	3.85	3.57	3.34
270.0	5.66	5.29	5.20	4.87	4.64	4.41	4.18	3.90	3.71
315.0	5.48	5.24	4.97	4.73	4.50	4.32	4.08	3.85	3.67
360.0	4.59	4.32	4.13	3.94	3.67	3.57	3.34	3.06	2.88

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.60	2.51	2.37	2.13	2.04	1.86	1.76	1.62	1.48
45.0	2.41	2.27	2.04	1.86	1.67	1.48	1.39	1.30	1.25
90.0	2.41	2.23	2.13	2.04	1.90	1.72	1.62	1.48	1.44
135.0	6.08	5.99	5.85	5.57	5.29	4.78	4.32	3.99	3.76
180.0	3.16	2.97	2.78	2.69	2.51	2.32	2.18	2.00	1.90
225.0	3.11	2.97	2.74	2.55	2.32	2.13	1.95	1.76	1.62
270.0	3.53	3.20	3.06	2.78	2.69	2.41	2.23	2.09	1.95
315.0	3.53	3.29	3.16	2.92	2.78	2.69	2.51	2.27	2.18
360.0	2.60	2.51	2.37	2.13	2.04	1.86	1.76	1.62	1.48

Intensity data(cd)

C/γ(°)	90.0
0.0	1.35
45.0	1.25
90.0	1.39
135.0	3.71
180.0	1.81
225.0	1.58
270.0	1.86
315.0	2.09
360.0	1.35