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Nata

LumCAT: 3-1550-A3
Luminaire: TE 2213382-1+92.76.365.00

Report No: GC2017060106	Voltage(V): 218.3000
Test No: NT-0010	Current(A): 0.1030
LampCAT: NICHIA NFCLJ060B	Power (W): 20.3000
Lamp flux(lm): 2136.0	PF: 0.9070
Number of Lamps: 1	Ballast type: DC
Length(mm): 78	Width(mm): 78
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1955.70
Efficiency(%): 91.56%
Lumens(lm)/Power(W): 96.34
Central intensity(cd): 3384.042
Maximum intensity(cd): 3384.042
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=43.0
[C90/270]Total=43.0
Field angle(10%Imax): [C0/180]Total=72.2
[C90/270]Total=72.2
Maximum s/h(1/2): C0_180=0.70 C90_270=0.70
Maximum s/h(1/4): C0_180=0.71 C90_270=0.71
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.56%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.692%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	3384.042	0.000	0	.000%	.000%
1.0	3379.775	3.236	3.236	.152%	.165%
2.0	3366.424	9.683	12.919	.453%	.661%
3.0	3340.409	16.041	28.96	.751%	1.481%
4.0	3305.586	22.246	51.206	1.041%	2.618%
5.0	3261.816	28.253	79.459	1.323%	4.063%
6.0	3215.982	34.043	113.501	1.594%	5.804%
7.0	3165.743	39.611	153.112	1.854%	7.829%
8.0	3121.147	44.994	198.106	2.106%	10.130%
9.0	3068.293	50.162	248.269	2.348%	12.695%
10.0	3006.905	54.978	303.247	2.574%	15.506%
11.0	2947.307	59.495	362.742	2.785%	18.548%
12.0	2877.798	63.677	426.418	2.981%	21.804%
13.0	2794.250	67.313	493.731	3.151%	25.246%
14.0	2705.609	70.398	564.129	3.296%	28.845%
15.0	2609.673	72.971	637.1	3.416%	32.577%
16.0	2483.319	74.627	711.726	3.494%	36.392%
17.0	2358.341	75.398	787.124	3.530%	40.248%
18.0	2204.183	75.226	862.35	3.522%	44.094%
19.0	2052.365	74.055	936.405	3.467%	47.881%
20.0	1902.061	72.377	1008.782	3.388%	51.582%
21.0	1751.757	70.161	1078.943	3.285%	55.169%
22.0	1628.293	67.924	1146.866	3.180%	58.642%
23.0	1525.338	66.172	1213.038	3.098%	62.026%
24.0	1421.143	64.421	1277.459	3.016%	65.320%
25.0	1323.418	62.405	1339.864	2.922%	68.511%
26.0	1244.137	60.607	1400.471	2.837%	71.610%
27.0	1138.222	58.285	1458.756	2.729%	74.590%
28.0	1079.601	56.151	1514.907	2.629%	77.461%
29.0	1010.257	54.677	1569.584	2.560%	80.257%
30.0	944.864	52.788	1622.372	2.471%	82.956%
31.0	877.062	50.702	1673.073	2.374%	85.548%
32.0	803.823	48.155	1721.228	2.254%	88.011%
33.0	719.271	44.871	1766.099	2.101%	90.305%
34.0	600.982	39.955	1806.054	1.871%	92.348%
35.0	476.843	33.473	1839.527	1.567%	94.060%
36.0	347.956	26.262	1865.789	1.229%	95.403%
37.0	248.208	19.444	1885.233	.910%	96.397%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	149.685	13.281	1898.514	.622%	97.076%
39.0	69.096	7.468	1905.981	.350%	97.458%
40.0	36.117	3.669	1909.651	.172%	97.645%
41.0	28.313	2.294	1911.945	.107%	97.763%
42.0	24.473	1.918	1913.863	.090%	97.861%
43.0	20.412	1.663	1915.526	.078%	97.946%
44.0	16.847	1.406	1916.932	.066%	98.018%
45.0	12.993	1.147	1918.079	.054%	98.076%
46.0	10.213	0.908	1918.986	.042%	98.123%
47.0	9.896	0.800	1919.786	.037%	98.164%
48.0	9.676	0.791	1920.577	.037%	98.204%
49.0	9.470	0.786	1921.364	.037%	98.244%
50.0	9.318	0.783	1922.147	.037%	98.284%
51.0	9.194	0.783	1922.93	.037%	98.324%
52.0	9.112	0.786	1923.716	.037%	98.364%
53.0	9.002	0.788	1924.504	.037%	98.405%
54.0	8.960	0.792	1925.295	.037%	98.445%
55.0	8.878	0.796	1926.092	.037%	98.486%
56.0	8.809	0.799	1926.891	.037%	98.527%
57.0	8.726	0.802	1927.693	.038%	98.568%
58.0	8.658	0.804	1928.496	.038%	98.609%
59.0	8.603	0.807	1929.303	.038%	98.650%
60.0	8.548	0.810	1930.114	.038%	98.692%
61.0	8.506	0.814	1930.927	.038%	98.733%
62.0	8.465	0.818	1931.745	.038%	98.775%
63.0	8.424	0.821	1932.567	.038%	98.817%
64.0	8.396	0.825	1933.392	.039%	98.859%
65.0	8.355	0.829	1934.221	.039%	98.902%
66.0	8.355	0.834	1935.055	.039%	98.944%
67.0	8.341	0.840	1935.894	.039%	98.987%
68.0	8.300	0.843	1936.737	.039%	99.030%
69.0	8.300	0.847	1937.584	.040%	99.074%
70.0	8.258	0.850	1938.434	.040%	99.117%
71.0	8.258	0.854	1939.288	.040%	99.161%
72.0	8.217	0.857	1940.145	.040%	99.205%
73.0	8.203	0.859	1941.003	.040%	99.248%
74.0	8.176	0.861	1941.864	.040%	99.292%
75.0	8.148	0.863	1942.727	.040%	99.337%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.148	0.865	1943.592	.041%	99.381%
77.0	8.093	0.866	1944.458	.041%	99.425%
78.0	8.080	0.866	1945.324	.041%	99.469%
79.0	8.052	0.867	1946.19	.041%	99.514%
80.0	8.024	0.867	1947.057	.041%	99.558%
81.0	8.024	0.868	1947.925	.041%	99.602%
82.0	8.011	0.870	1948.795	.041%	99.647%
83.0	7.969	0.869	1949.663	.041%	99.691%
84.0	7.969	0.868	1950.532	.041%	99.736%
85.0	7.942	0.868	1951.4	.041%	99.780%
86.0	7.928	0.867	1952.268	.041%	99.824%
87.0	7.832	0.863	1953.13	.040%	99.869%
88.0	7.818	0.857	1953.987	.040%	99.912%
89.0	7.818	0.857	1954.844	.040%	99.956%
90.0	7.818	0.857	1955.702	.040%	100.000%

Zonal flux distribution table

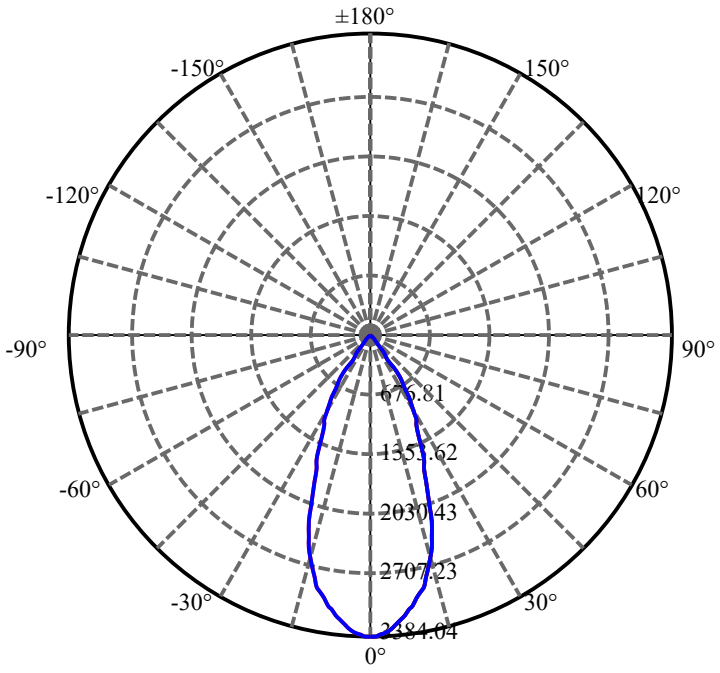
ZONAL LUMEN SUMMARY

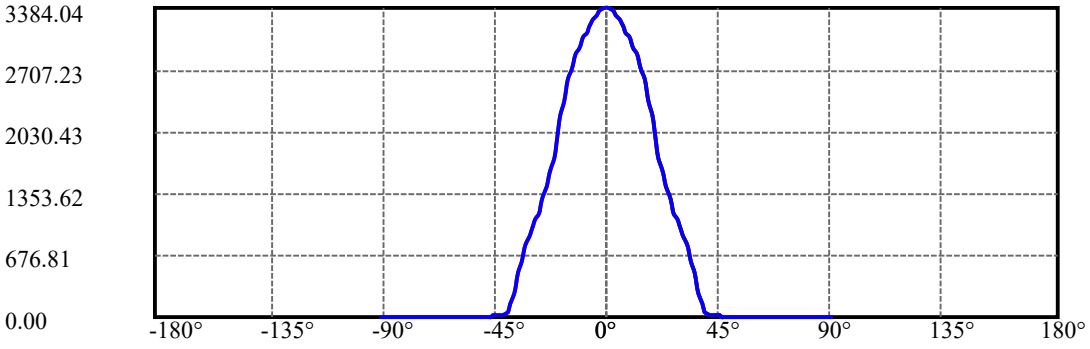
Zone	Lumens	%Lamp	%Fixt
0-30	1622.37	75.95%	82.96%
0-40	1909.65	89.40%	97.65%
0-60	1930.11	90.36%	98.69%
0-90	1954.84	91.52%	99.96%
0-120	1954.84	91.52%	99.96%
0-180	1955.70	91.56%	100.00%
60-90	25.54	1.20%	1.31%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.91	1564.56	73.25%	80.00%

ZONAL LUMEN SUMMARY

0-10	303.25
10-20	705.54
20-30	613.59
30-40	287.28
40-50	12.50
50-60	7.97
60-70	8.32
70-80	8.62
80-90	7.79
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:

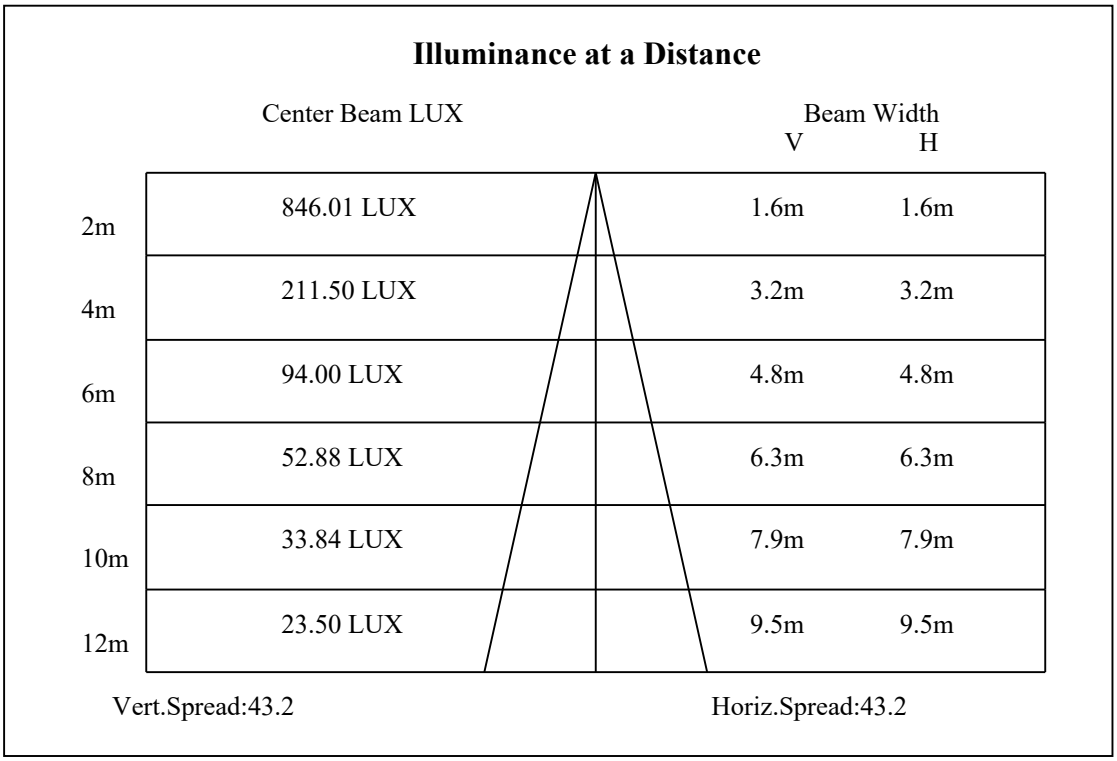
C90/C270:

Field angle(10%Imax):C0/180Left:36.1 Right:36.1
:C90/270Left:36.1 Right:36.1

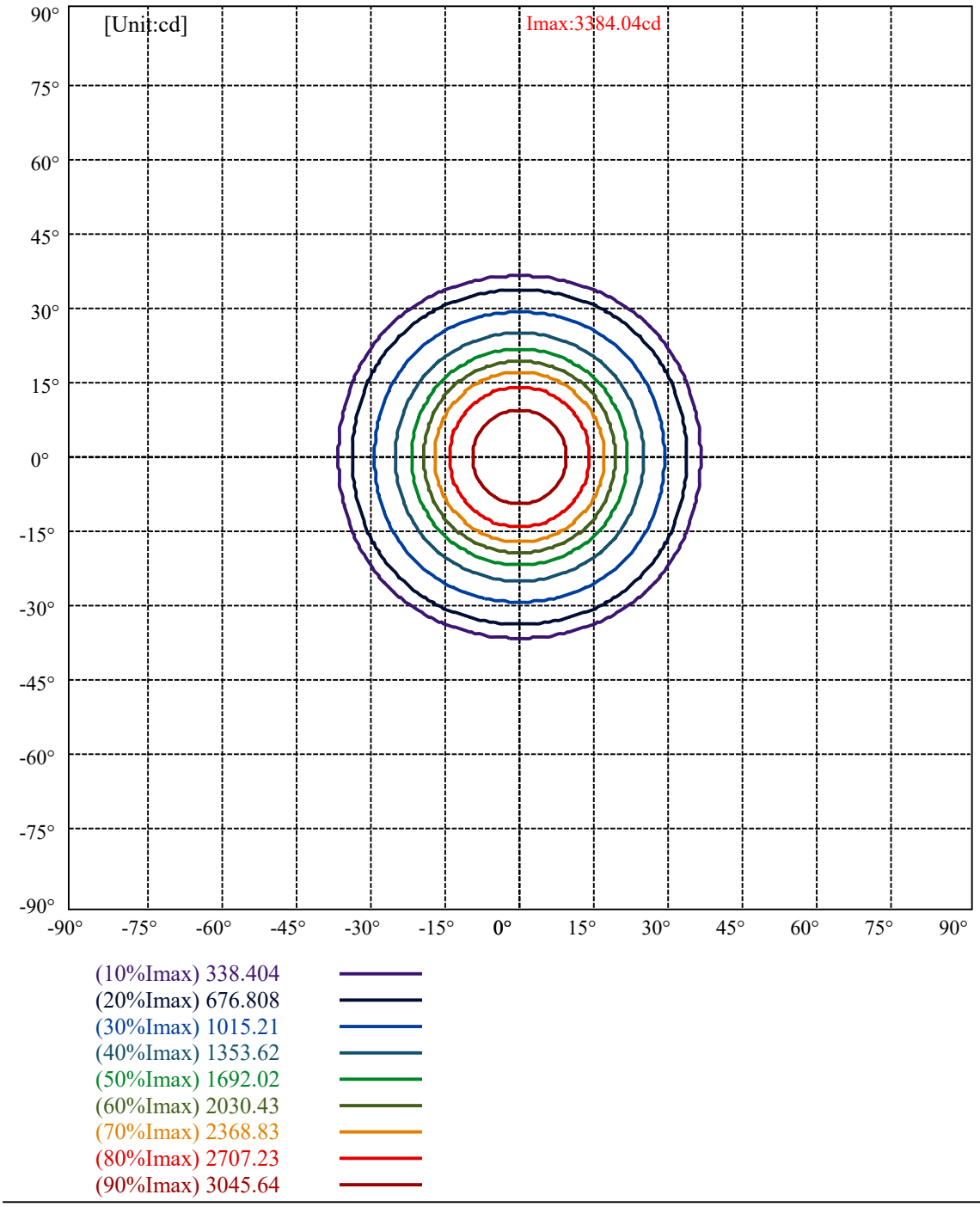
Beam Angle(50%Imax):C0/180Left:21.5 Right:21.5
:C90/270Left:21.5 Right:21.5

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

Lux distance Curve



ISO-Intensity(V-H)

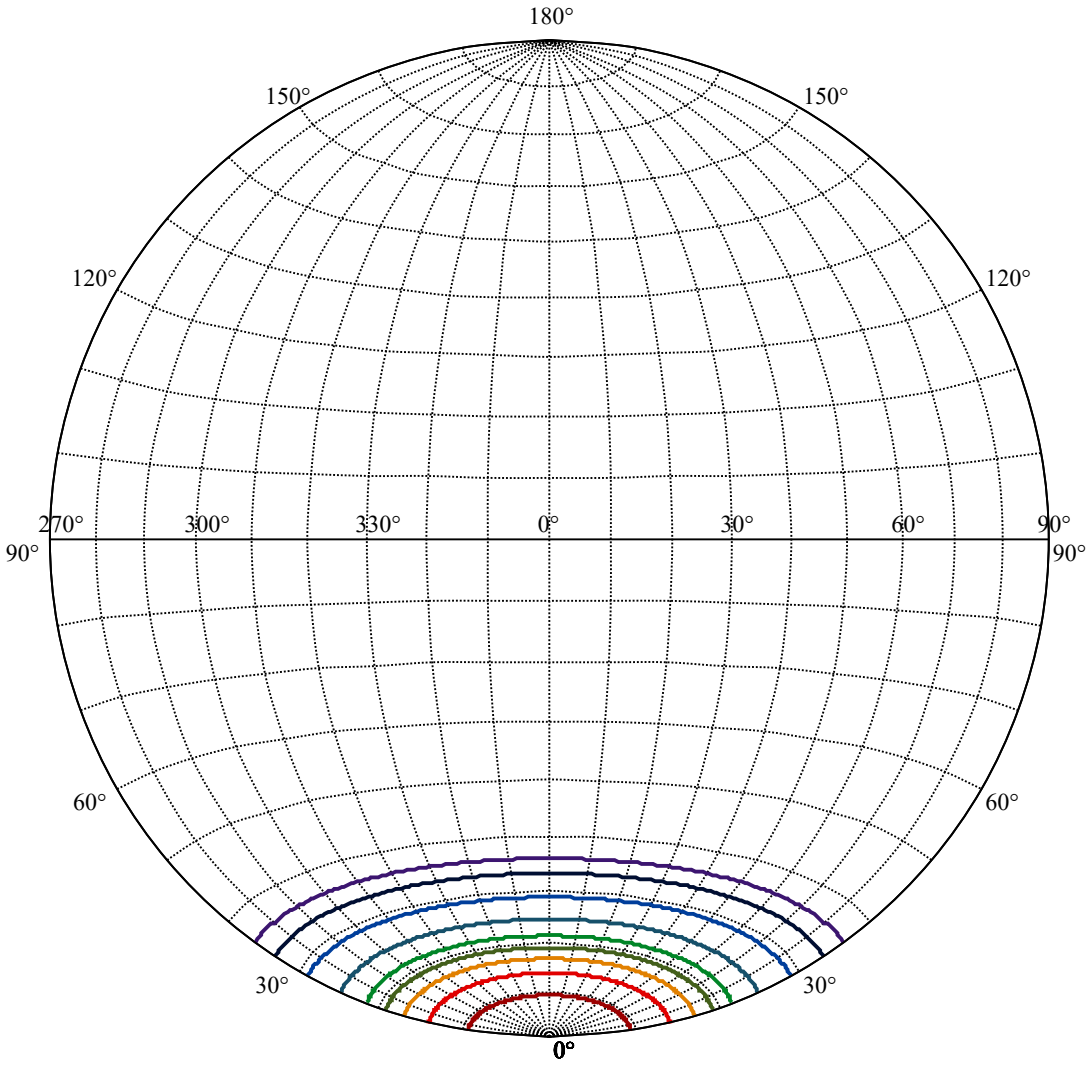


Equipment: gms1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



[Unit:cd]

Imax:3384.04

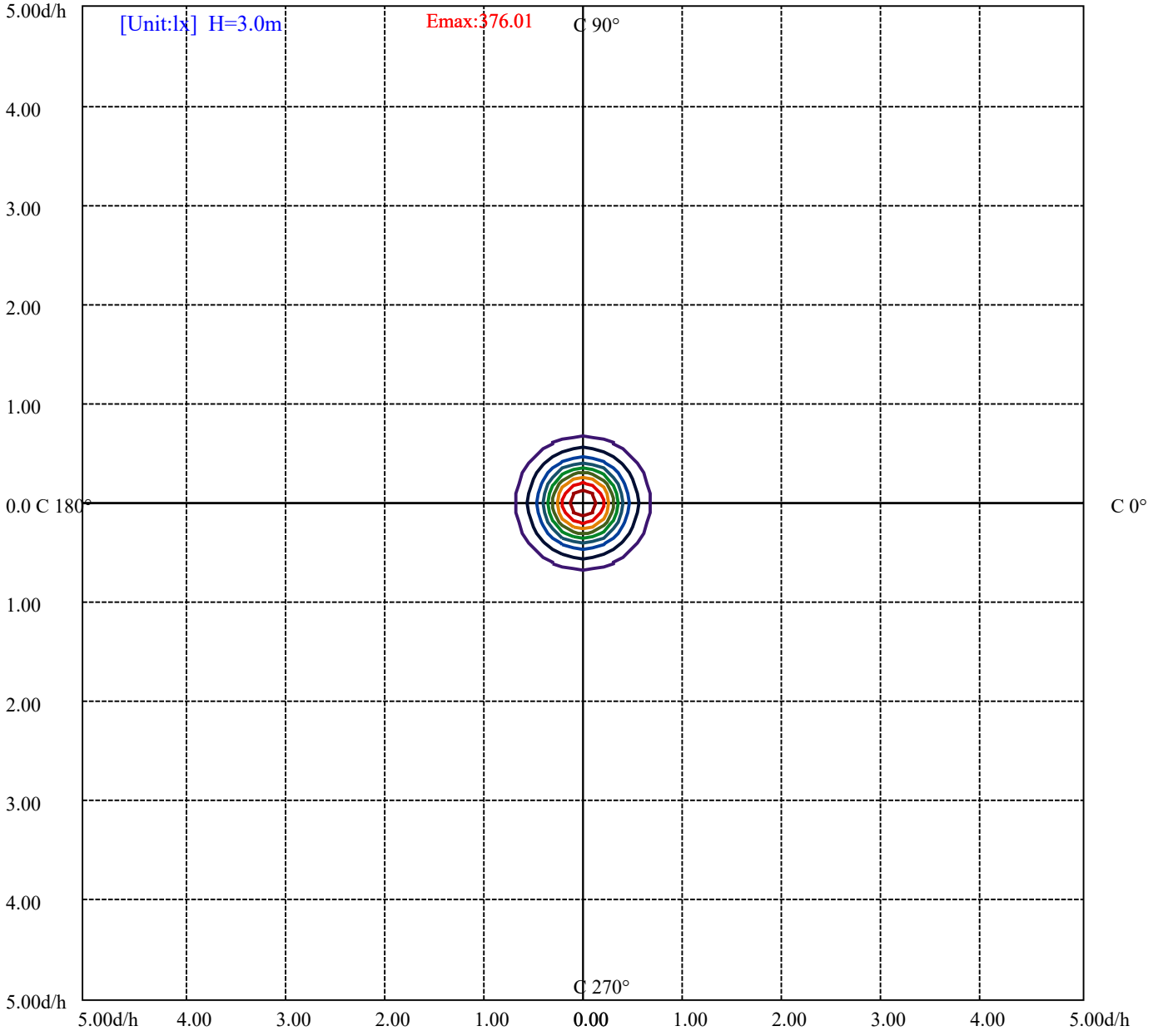
(10%Imax) 338.404
(20%Imax) 676.808
(30%Imax) 1015.21
(40%Imax) 1353.62
(50%Imax) 1692.02
(60%Imax) 2030.43
(70%Imax) 2368.83
(80%Imax) 2707.23
(90%Imax) 3045.64

Equipment: gms1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.42

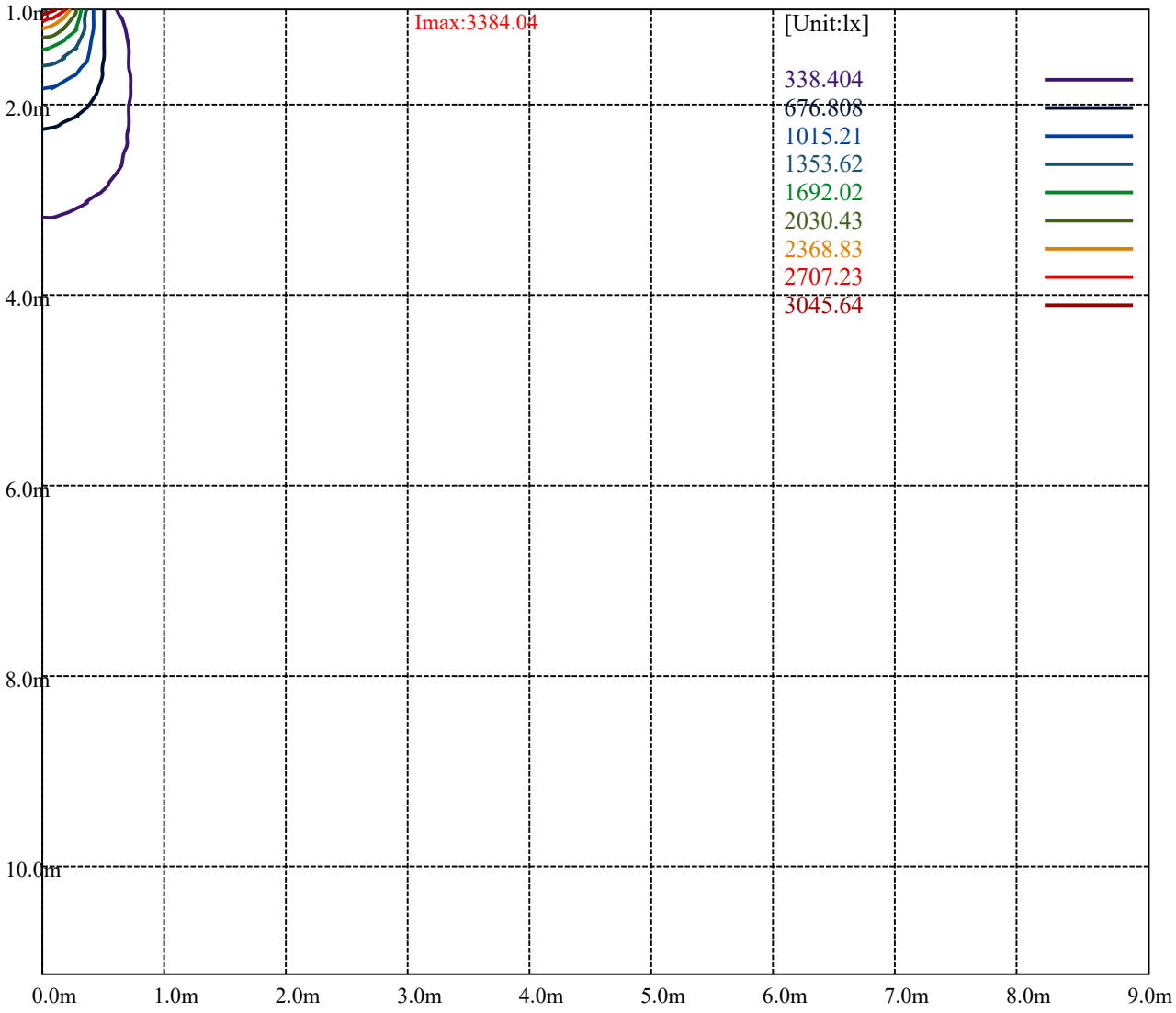
ISO illuminance diagram



(10%Emax) 37.60044
(20%Emax) 75.20089
(30%Emax) 112.8011
(40%Emax) 150.4022
(50%Emax) 188.0022
(60%Emax) 225.6022
(70%Emax) 263.2033
(80%Emax) 300.8033
(90%Emax) 338.4044

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

Nata 3-1550-A3

Luminance Limitting Curve(no luminous side)

Luminance Table

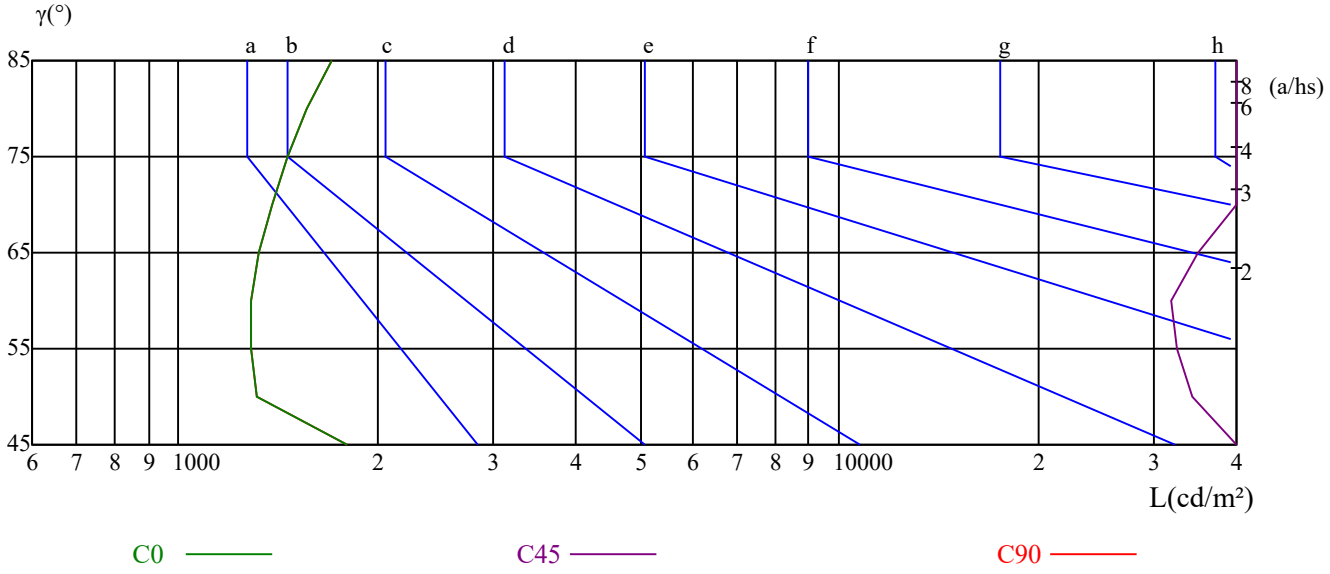
γ	45	50	55	60	65	70	75	80	85
C0	1798	1317	1291	1291	1322	1384	1463	1565	1708
C45	40463	34244	32490	31933	35057	53542	72279	78239	43069
C90	1798	1317	1291	1291	1322	1384	1463	1565	1708

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3249	3249	107300	5175	5175	331490	14977	14977	516119

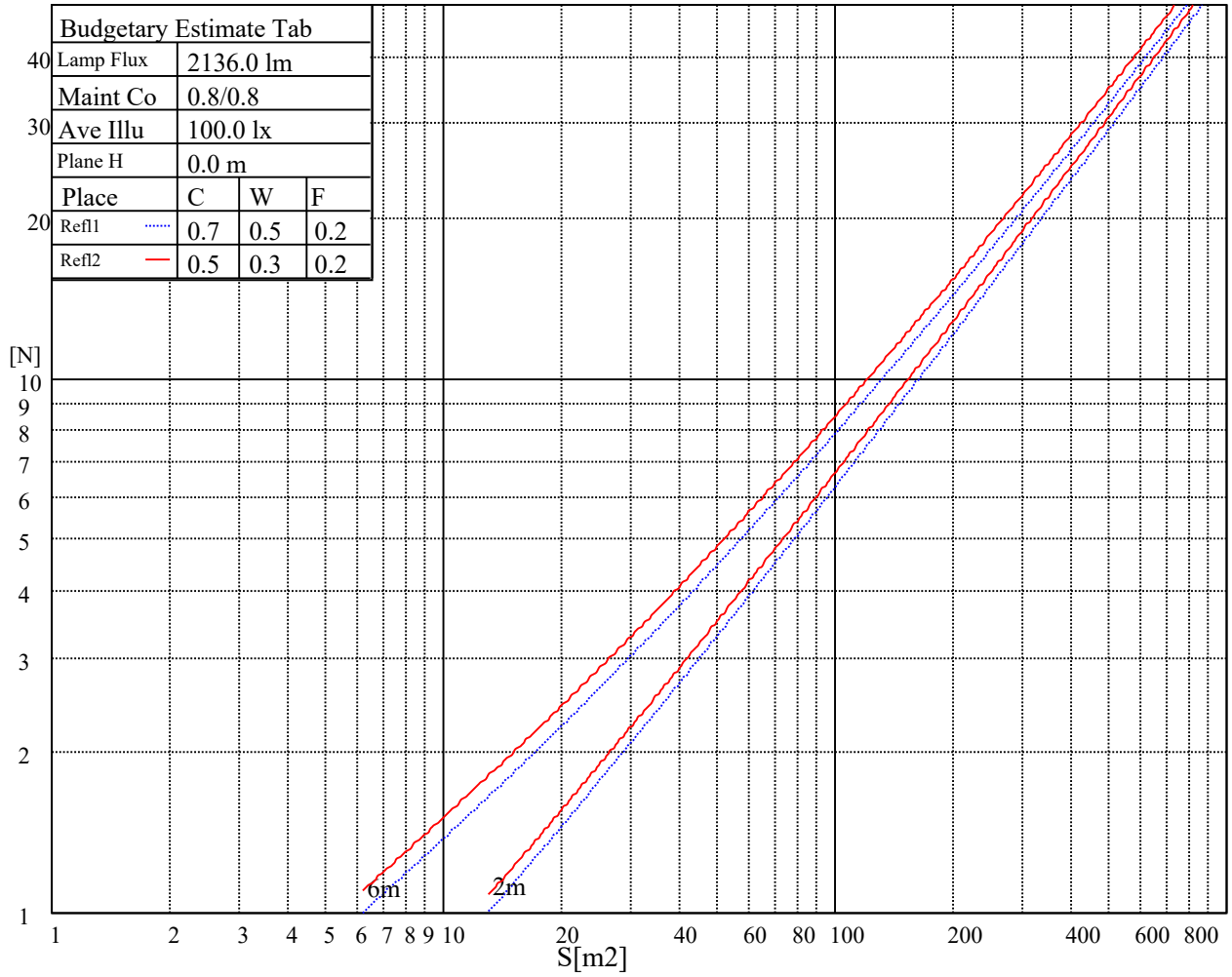
Glare Table

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

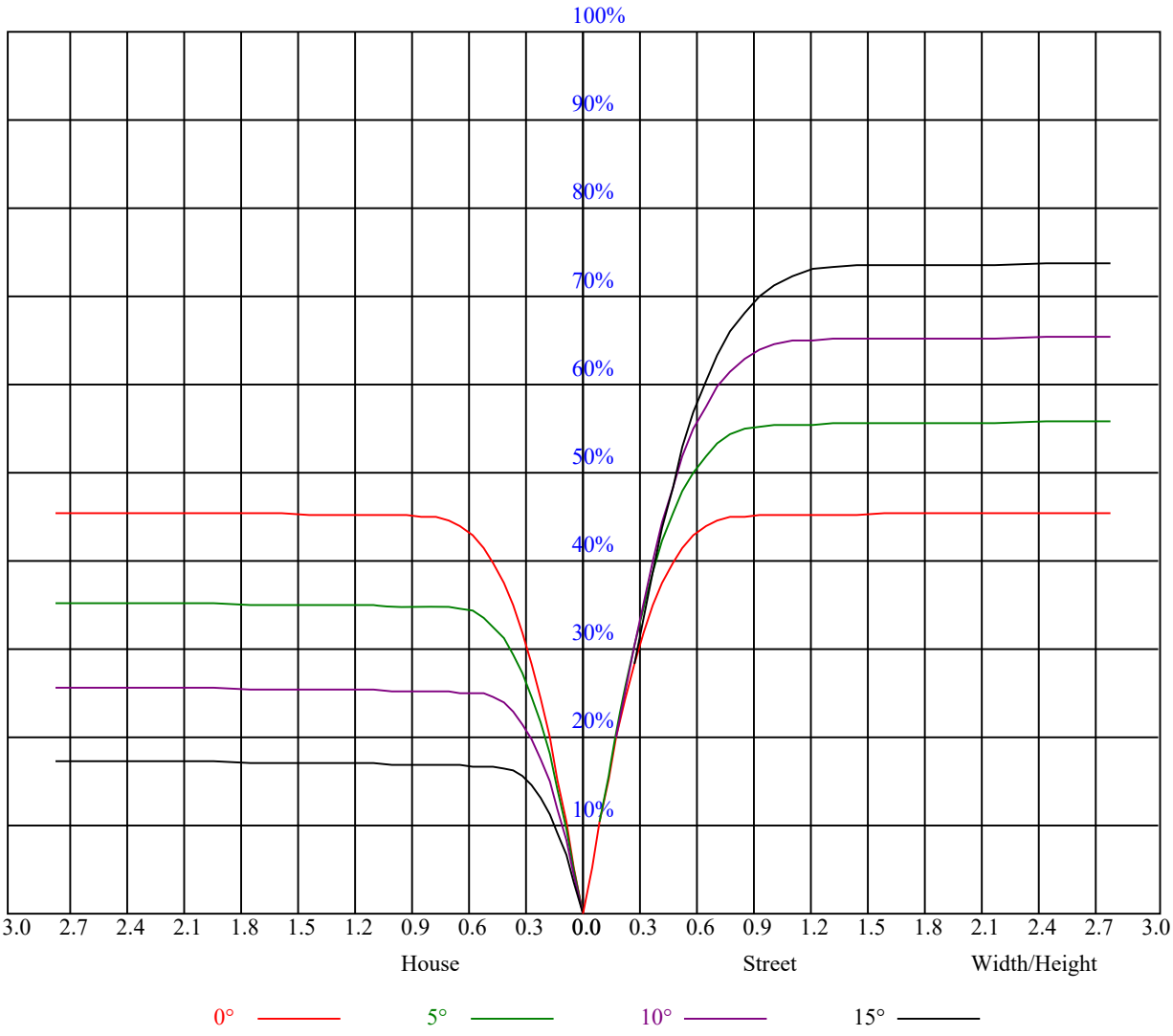


Equipment: gms1980 Date: 2017/5/11 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.06	1.06	1.06	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.92
1	1.02	1.00	0.98	1.00	0.98	0.96	0.96	0.95	0.93	0.93	0.92	0.90	0.90	0.89	0.88	0.86
2	0.96	0.92	0.89	0.94	0.91	0.88	0.91	0.89	0.86	0.88	0.86	0.84	0.86	0.84	0.83	0.81
3	0.90	0.86	0.82	0.89	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.79	0.82	0.80	0.78	0.77
4	0.85	0.80	0.77	0.84	0.80	0.76	0.82	0.78	0.76	0.80	0.77	0.75	0.79	0.76	0.74	0.73
5	0.80	0.76	0.72	0.80	0.75	0.72	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.69
6	0.76	0.71	0.68	0.76	0.71	0.68	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.65
7	0.72	0.68	0.64	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.63	0.69	0.65	0.63	0.62
8	0.69	0.64	0.61	0.68	0.64	0.61	0.68	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.59
9	0.66	0.61	0.58	0.65	0.61	0.58	0.65	0.60	0.57	0.64	0.60	0.57	0.63	0.60	0.57	0.56
10	0.63	0.58	0.55	0.62	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.54	0.53

Coefficient Utilization Curve



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/11
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	3383.77	3382.11	3375.51	3360.64	3328.16	3279.16	3234.01	3185.01	3142.62
90.0	3384.32	3387.62	3382.11	3373.31	3351.28	3316.60	3273.65	3235.11	3194.92
180.0	3383.77	3376.06	3359.54	3323.20	3294.02	3252.73	3205.93	3154.18	3111.79
270.0	3384.32	3373.31	3348.53	3304.49	3248.88	3198.78	3150.33	3088.66	3035.26
360.0	3383.77	3382.11	3375.51	3360.64	3328.16	3279.16	3234.01	3185.01	3142.62

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3089.21	3029.20	2969.19	2905.88	2817.24	2735.75	2642.71	2502.86	2368.53
90.0	3140.42	3089.21	3030.30	2958.18	2874.49	2793.56	2695.01	2590.95	2488.55
180.0	3064.44	3000.02	2943.87	2871.19	2797.42	2699.97	2603.62	2484.70	2355.31
270.0	2979.10	2909.18	2845.87	2775.94	2687.85	2593.16	2497.36	2354.76	2220.98
360.0	3089.21	3029.20	2969.19	2905.88	2817.24	2735.75	2642.71	2502.86	2368.53

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2220.98	2055.26	1895.04	1759.05	1621.41	1518.46	1408.89	1314.20	1231.61
90.0	2349.26	2208.31	2042.04	1879.07	1750.79	1635.18	1505.79	1407.79	1321.35
180.0	2176.93	2027.73	1882.93	1713.36	1596.64	1498.64	1406.14	1304.84	1229.41
270.0	2069.57	1918.16	1788.23	1655.55	1544.33	1449.08	1363.75	1266.85	1194.17
360.0	2220.98	2055.26	1895.04	1759.05	1621.41	1518.46	1408.89	1314.20	1231.61

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1146.27	1063.69	999.27	937.61	862.73	803.82	728.95	609.47	475.69
90.0	1218.95	1142.42	1068.64	994.87	926.60	870.99	797.77	683.80	570.93
180.0	1095.07	1077.95	1004.89	941.96	875.89	809.88	730.54	607.16	486.81
270.0	1092.59	1034.34	968.22	905.02	843.02	730.60	619.82	503.49	373.94
360.0	1146.27	1063.69	999.27	937.61	862.73	803.82	728.95	609.47	475.69

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	350.71	291.80	113.25	52.74	30.45	26.48	22.46	18.55	15.20
90.0	439.35	317.68	279.69	125.31	50.76	32.21	27.91	23.29	19.99
180.0	348.67	222.76	128.45	62.71	32.92	28.63	25.05	20.92	17.62
270.0	253.09	160.60	77.35	35.62	30.34	25.93	22.46	18.88	14.59
360.0	350.71	291.80	113.25	52.74	30.45	26.48	22.46	18.55	15.20

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	11.67	10.13	9.91	9.63	9.41	9.30	9.14	9.08	8.97
90.0	16.13	10.57	10.08	9.86	9.58	9.41	9.30	9.19	9.03
180.0	13.65	9.91	9.63	9.47	9.30	9.19	9.08	9.03	8.92
270.0	10.52	10.24	9.97	9.74	9.58	9.36	9.25	9.14	9.08
360.0	11.67	10.13	9.91	9.63	9.41	9.30	9.14	9.08	8.97

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.97	8.86	8.75	8.70	8.64	8.59	8.59	8.48	8.42
90.0	8.97	8.86	8.86	8.75	8.70	8.59	8.53	8.53	8.53
180.0	8.86	8.81	8.75	8.64	8.59	8.59	8.48	8.48	8.42
270.0	9.03	8.97	8.86	8.81	8.70	8.64	8.59	8.53	8.48
360.0	8.97	8.86	8.75	8.70	8.64	8.59	8.59	8.48	8.42

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.42	8.42	8.37	8.37	8.31	8.26	8.26	8.26	8.26
90.0	8.42	8.37	8.31	8.31	8.31	8.26	8.26	8.20	8.20
180.0	8.37	8.31	8.31	8.31	8.31	8.26	8.26	8.20	8.26
270.0	8.48	8.48	8.42	8.42	8.42	8.42	8.42	8.37	8.31
360.0	8.42	8.42	8.37	8.37	8.31	8.26	8.26	8.26	8.26

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	8.20	8.20	8.15	8.15	8.15	8.09	8.09	8.04	8.04
90.0	8.15	8.15	8.15	8.09	8.09	8.04	8.04	8.04	7.98
180.0	8.20	8.20	8.15	8.09	8.09	8.09	8.04	7.98	7.98
270.0	8.31	8.26	8.26	8.26	8.26	8.15	8.15	8.15	8.09
360.0	8.20	8.20	8.15	8.15	8.15	8.09	8.09	8.04	8.04

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.04	7.93	7.98	7.98	7.93	7.93	7.87	7.82	7.82
90.0	7.98	7.98	7.93	7.93	7.93	7.93	7.82	7.82	7.82
180.0	7.98	7.98	7.93	7.93	7.87	7.87	7.82	7.82	7.82
270.0	8.09	8.15	8.04	8.04	8.04	7.98	7.82	7.82	7.82
360.0	8.04	7.93	7.98	7.98	7.93	7.93	7.87	7.82	7.82

C/γ(°)	90.0
0.0	7.82
90.0	7.82
180.0	7.82
270.0	7.82
360.0	7.82