NATA LIGHTING CO.,LTD
www.nata.cn
Email:info@nata.cn
Tel:+86 0750-377 0000(10 lines) Fax:+86 0750-377 1111
Address:380JinOu Road,Gaoxin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 3-1548-A3
Luminaire: TE 2213382-1+92.76.365.00

Report No: GC2017060106	Voltage(V): 218.2000
Test No: NT-0010	Current(A): 0.1020
LampCAT: NICHIA NFCLL060B	Power (W): 20.3000
Lamp flux(lm): 2136.0	PF: 0.9070
Number of Lamps: 1	Ballast type: DC
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1949.77
Efficiency(%): 91.28%
Lumens(lm)/Power(W): 96.05
Central intensity(cd): 18369.570
Maximum intensity(cd): 18369.570
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=13.0
[C90/270]Total=13.0
Field angle(10%Imax): [C0/180]Total=26.3
[C90/270]Total=26.3
Maximum s/h(1/2): C0_180=0.22 C90_270=0.22
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(%): 91.28%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.785%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	18369.568	0.000	0	.000%	.000%
1.0	17982.797	17.394	17.394	.814%	.892%
2.0	17128.047	50.394	67.788	2.359%	3.477%
3.0	15419.508	77.843	145.631	3.644%	7.469%
4.0	13637.608	97.263	242.895	4.554%	12.458%
5.0	12129.475	110.849	353.744	5.190%	18.143%
6.0	10111.521	116.882	470.626	5.472%	24.137%
7.0	8222.260	113.797	584.423	5.328%	29.974%
8.0	6507.942	105.421	689.845	4.935%	35.381%
9.0	4949.433	92.856	782.7	4.347%	40.143%
10.0	3826.282	79.417	862.117	3.718%	44.216%
11.0	3024.110	68.449	930.567	3.205%	47.727%
12.0	2328.473	58.511	989.078	2.739%	50.728%
13.0	1878.800	49.930	1039.008	2.338%	53.289%
14.0	1632.739	44.947	1083.955	2.104%	55.594%
15.0	1383.815	41.413	1125.368	1.939%	57.718%
16.0	1211.227	38.025	1163.393	1.780%	59.668%
17.0	1123.206	36.353	1199.746	1.702%	61.533%
18.0	1031.977	35.534	1235.28	1.664%	63.355%
19.0	969.832	34.827	1270.108	1.630%	65.141%
20.0	915.932	34.515	1304.622	1.616%	66.911%
21.0	874.020	34.371	1338.993	1.609%	68.674%
22.0	843.271	34.510	1373.503	1.616%	70.444%
23.0	814.105	34.776	1408.279	1.628%	72.228%
24.0	786.536	34.996	1443.275	1.638%	74.023%
25.0	764.403	35.265	1478.54	1.651%	75.831%
26.0	744.803	35.625	1514.165	1.668%	77.658%
27.0	727.240	36.014	1550.179	1.686%	79.506%
28.0	711.398	36.423	1586.602	1.705%	81.374%
29.0	696.918	36.846	1623.447	1.725%	83.263%
30.0	683.333	37.266	1660.714	1.745%	85.175%
31.0	664.090	37.497	1698.211	1.755%	87.098%
32.0	629.474	37.059	1735.27	1.735%	88.999%
33.0	575.683	35.504	1770.774	1.662%	90.819%
34.0	506.753	32.758	1803.532	1.534%	92.500%
35.0	425.283	28.946	1832.477	1.355%	93.984%
36.0	332.458	24.127	1856.604	1.130%	95.222%
37.0	255.283	19.169	1875.773	.897%	96.205%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	166.394	14.075	1889.848	.659%	96.927%
39.0	107.346	9.344	1899.191	.437%	97.406%
40.0	60.135	5.841	1905.033	.273%	97.705%
41.0	37.672	3.483	1908.515	.163%	97.884%
42.0	23.399	2.219	1910.734	.104%	97.998%
43.0	18.926	1.568	1912.302	.073%	98.078%
44.0	16.696	1.344	1913.647	.063%	98.147%
45.0	14.026	1.181	1914.827	.055%	98.208%
46.0	11.410	0.995	1915.822	.047%	98.259%
47.0	10.557	0.874	1916.696	.041%	98.304%
48.0	9.222	0.800	1917.495	.037%	98.345%
49.0	8.506	0.728	1918.223	.034%	98.382%
50.0	8.382	0.704	1918.927	.033%	98.418%
51.0	8.300	0.706	1919.633	.033%	98.454%
52.0	8.162	0.706	1920.34	.033%	98.490%
53.0	8.093	0.707	1921.047	.033%	98.527%
54.0	7.997	0.709	1921.756	.033%	98.563%
55.0	7.928	0.711	1922.467	.033%	98.599%
56.0	7.901	0.715	1923.182	.033%	98.636%
57.0	7.846	0.720	1923.902	.034%	98.673%
58.0	7.804	0.724	1924.626	.034%	98.710%
59.0	7.790	0.729	1925.355	.034%	98.748%
60.0	7.735	0.733	1926.088	.034%	98.785%
61.0	7.694	0.736	1926.825	.034%	98.823%
62.0	7.680	0.741	1927.565	.035%	98.861%
63.0	7.694	0.748	1928.313	.035%	98.899%
64.0	7.653	0.753	1929.066	.035%	98.938%
65.0	7.667	0.758	1929.824	.035%	98.977%
66.0	7.653	0.764	1930.589	.036%	99.016%
67.0	7.653	0.770	1931.358	.036%	99.056%
68.0	7.639	0.775	1932.133	.036%	99.095%
69.0	7.625	0.779	1932.912	.036%	99.135%
70.0	7.612	0.783	1933.694	.037%	99.175%
71.0	7.598	0.786	1934.48	.037%	99.216%
72.0	7.612	0.791	1935.271	.037%	99.256%
73.0	7.584	0.795	1936.066	.037%	99.297%
74.0	7.584	0.797	1936.863	.037%	99.338%
75.0	7.570	0.801	1937.664	.037%	99.379%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.543	0.802	1938.466	.038%	99.420%
77.0	7.515	0.803	1939.269	.038%	99.461%
78.0	7.529	0.805	1940.074	.038%	99.503%
79.0	7.515	0.808	1940.883	.038%	99.544%
80.0	7.501	0.810	1941.692	.038%	99.586%
81.0	7.488	0.811	1942.503	.038%	99.627%
82.0	7.474	0.811	1943.314	.038%	99.669%
83.0	7.460	0.812	1944.126	.038%	99.710%
84.0	7.446	0.812	1944.938	.038%	99.752%
85.0	7.405	0.811	1945.749	.038%	99.794%
86.0	7.391	0.809	1946.557	.038%	99.835%
87.0	7.336	0.806	1947.363	.038%	99.876%
88.0	7.336	0.804	1948.167	.038%	99.918%
89.0	7.323	0.803	1948.971	.038%	99.959%
90.0	7.323	0.803	1949.774	.038%	100.000%

Zonal flux distribution table

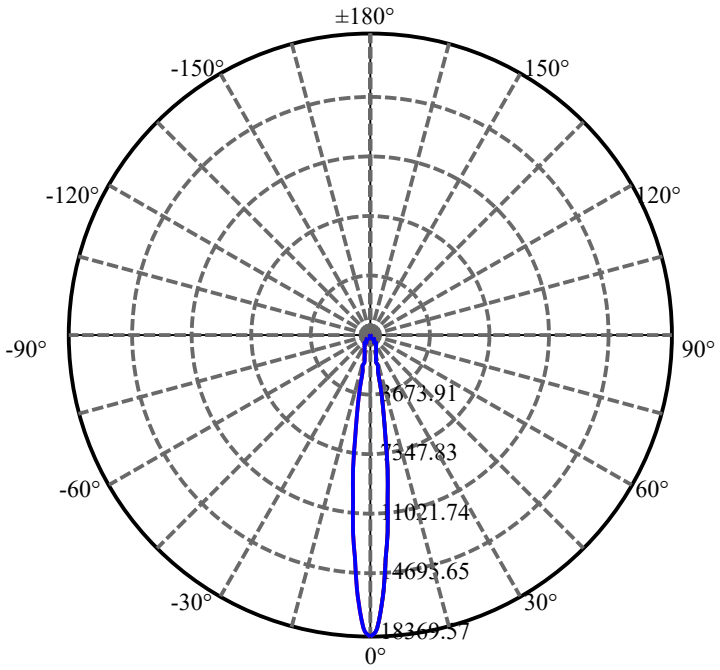
ZONAL LUMEN SUMMARY

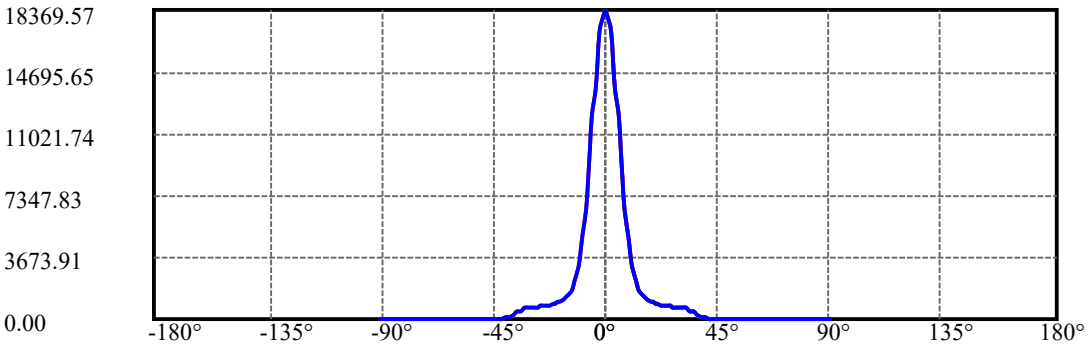
Zone	Lumens	%Lamp	%Fixt
0-30	1660.71	77.75%	85.17%
0-40	1905.03	89.19%	97.71%
0-60	1926.09	90.17%	98.79%
0-90	1948.97	91.24%	99.96%
0-120	1948.97	91.24%	99.96%
0-180	1949.77	91.28%	100.00%
60-90	23.62	1.11%	1.21%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.26	1559.82	73.03%	80.00%

ZONAL LUMEN SUMMARY

0-10	862.12
10-20	442.51
20-30	356.09
30-40	244.32
40-50	13.89
50-60	7.16
60-70	7.61
70-80	8.00
80-90	7.28
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:13.2 Right:13.2
:C90/270Left:13.2 Right:13.2

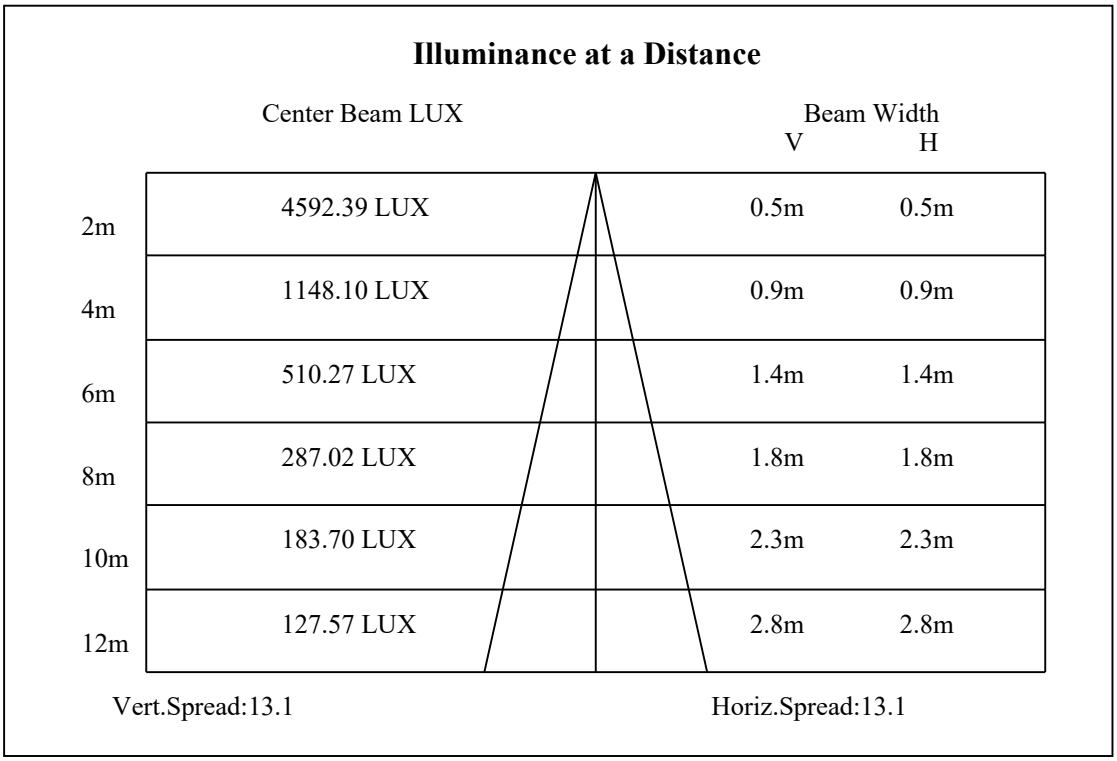
Beam Angle(50%Imax):C0/180Left:6.5 Right:6.5
:C90/270Left:6.5 Right:6.5

Equipment: gms1980
Temperature(°C): 25.0

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

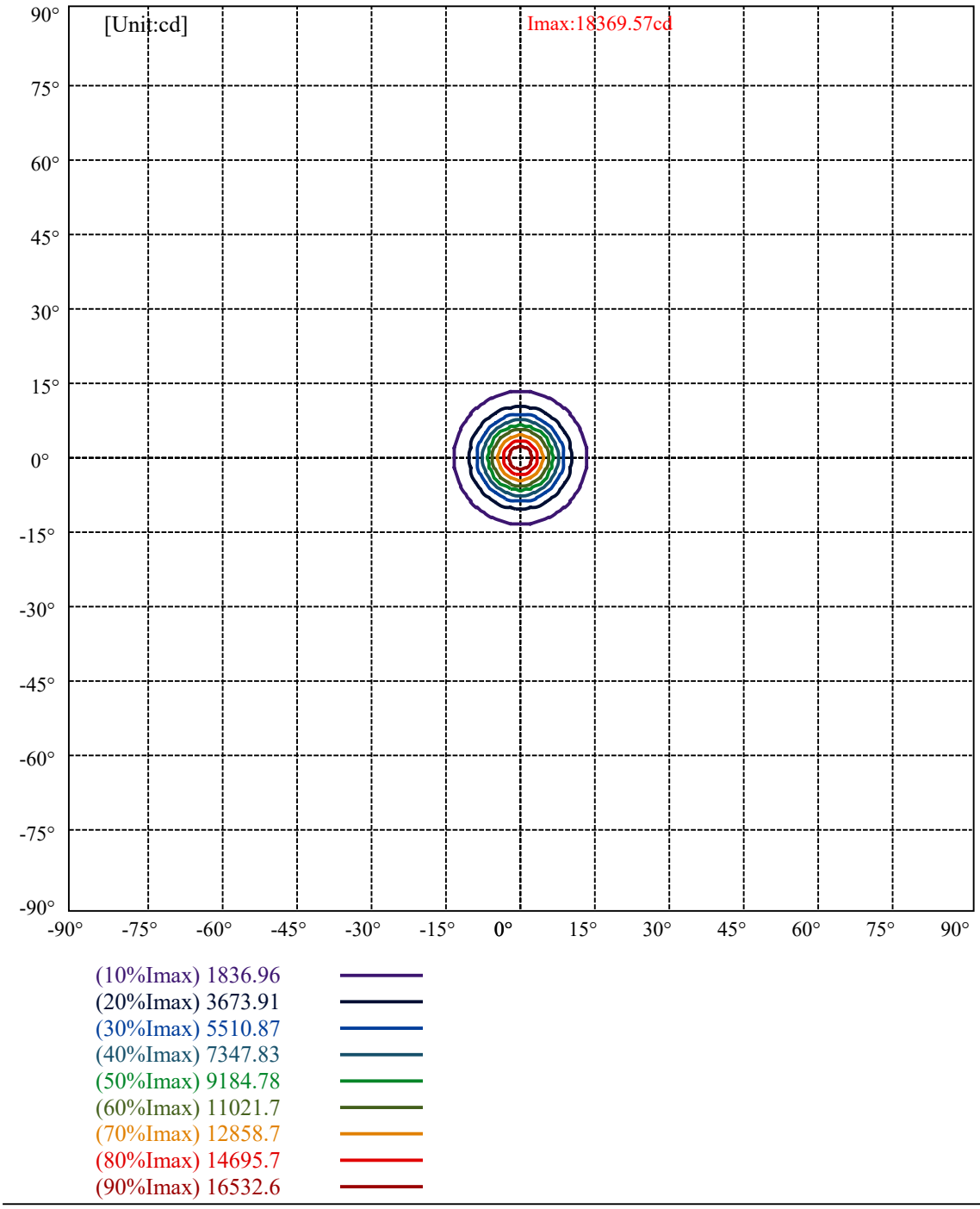
Operator: NT07
Distance(m): 7.42

Lux distance Curve



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

ISO-Intensity(V-H)



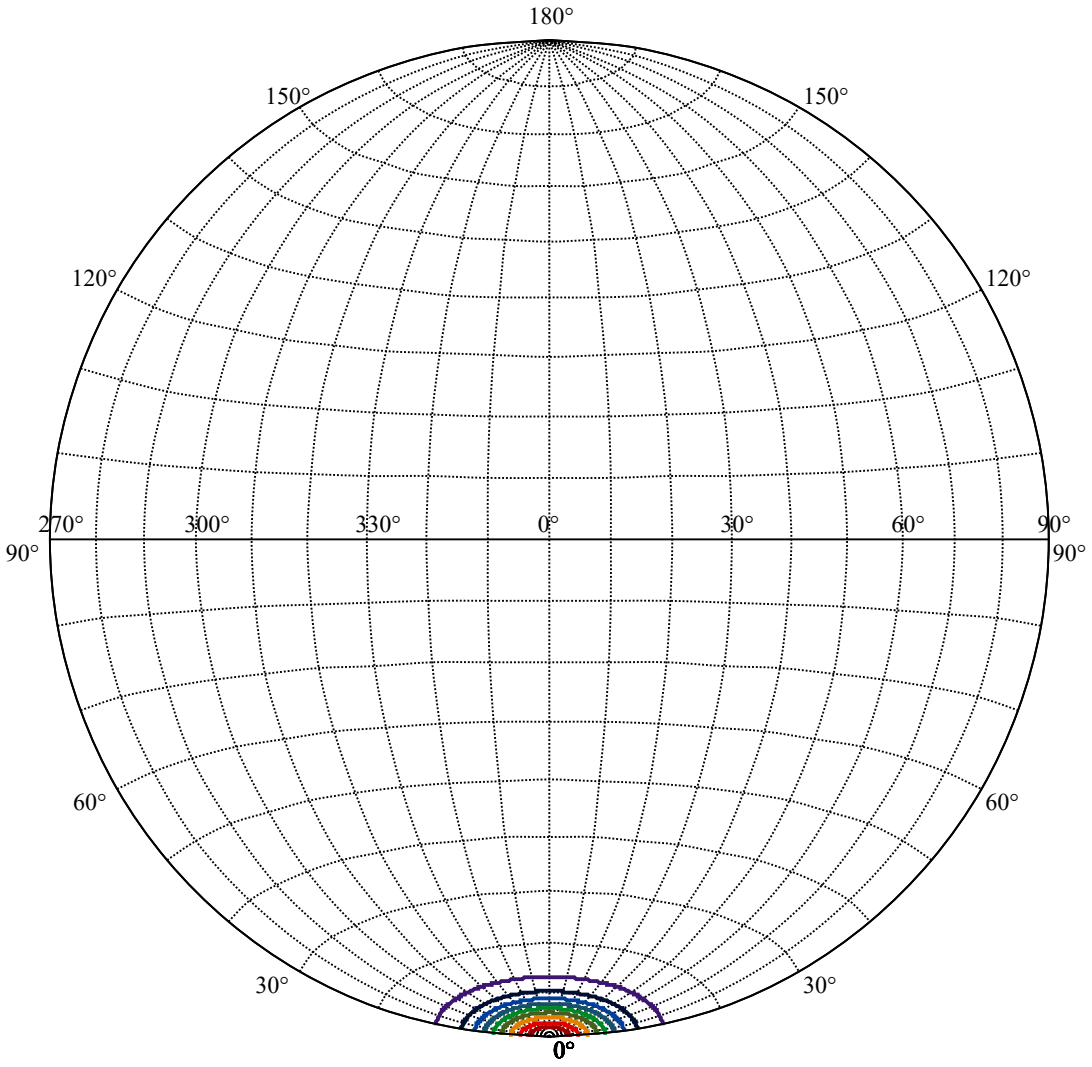
(10%Imax) 1836.96
(20%Imax) 3673.91
(30%Imax) 5510.87
(40%Imax) 7347.83
(50%Imax) 9184.78
(60%Imax) 11021.7
(70%Imax) 12858.7
(80%Imax) 14695.7
(90%Imax) 16532.6

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



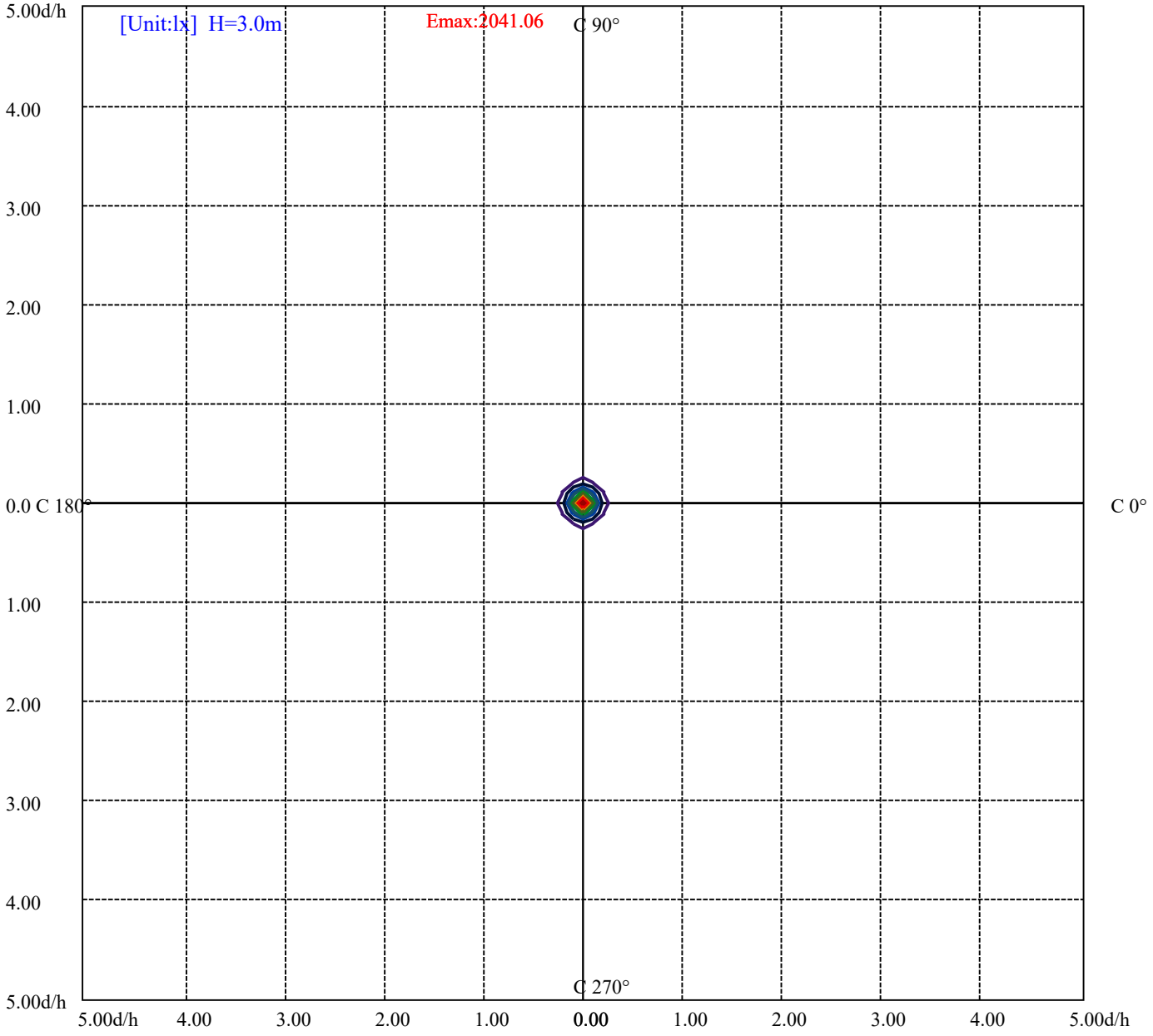
House [Unit:cd] Road

Imax:18369.57

(10%Imax) 1836.96
(20%Imax) 3673.91
(30%Imax) 5510.87
(40%Imax) 7347.83
(50%Imax) 9184.78
(60%Imax) 11021.7
(70%Imax) 12858.7
(80%Imax) 14695.7
(90%Imax) 16532.6

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

ISO illuminance diagram

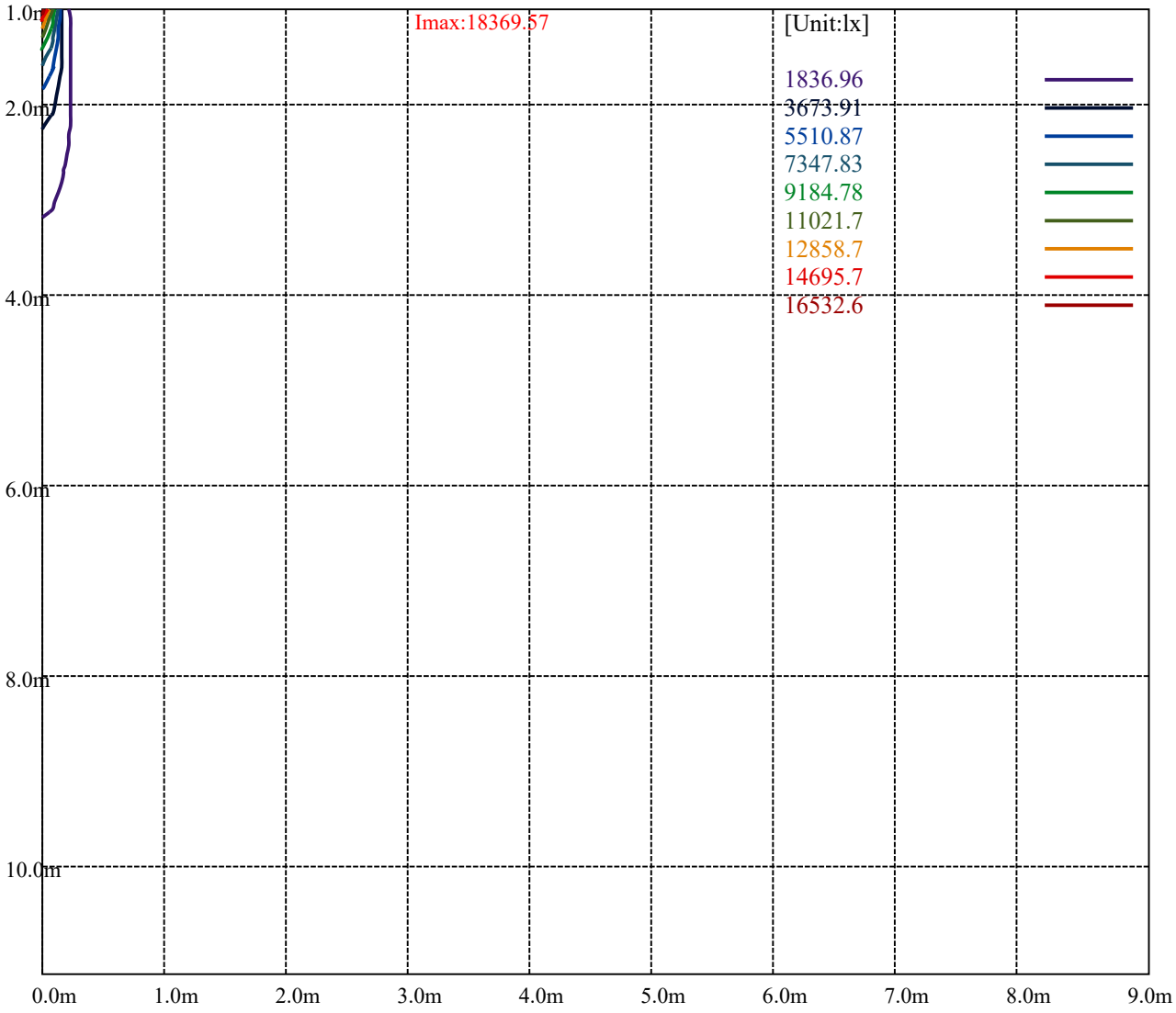


Equipment: gms1980
Temperature(°C): 25.0

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

Luminance Limitting Curve(no luminous side)

Luminance Table

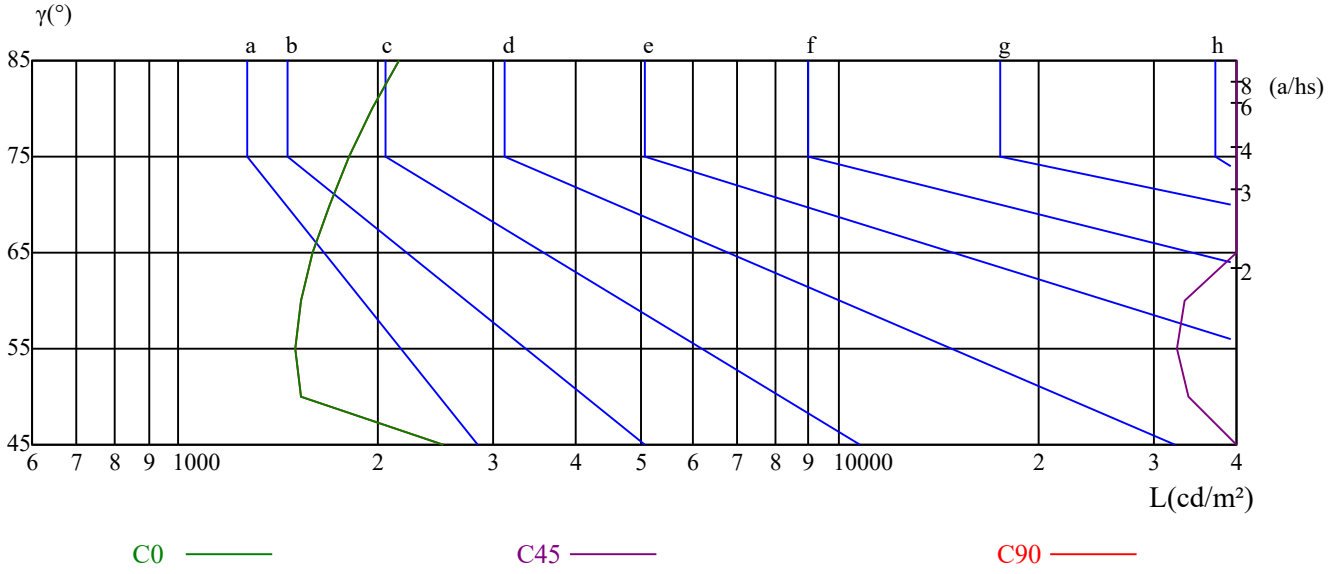
γ	45	50	55	60	65	70	75	80	85
C0	2508	1537	1503	1530	1598	1690	1813	1966	2162
C45	40892	33863	32457	33295	41836	58033	76922	79705	46218
C90	2508	1537	1503	1530	1598	1690	1813	1966	2162

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3702	3702	119776	5969	5969	326316	17340	17340	505152

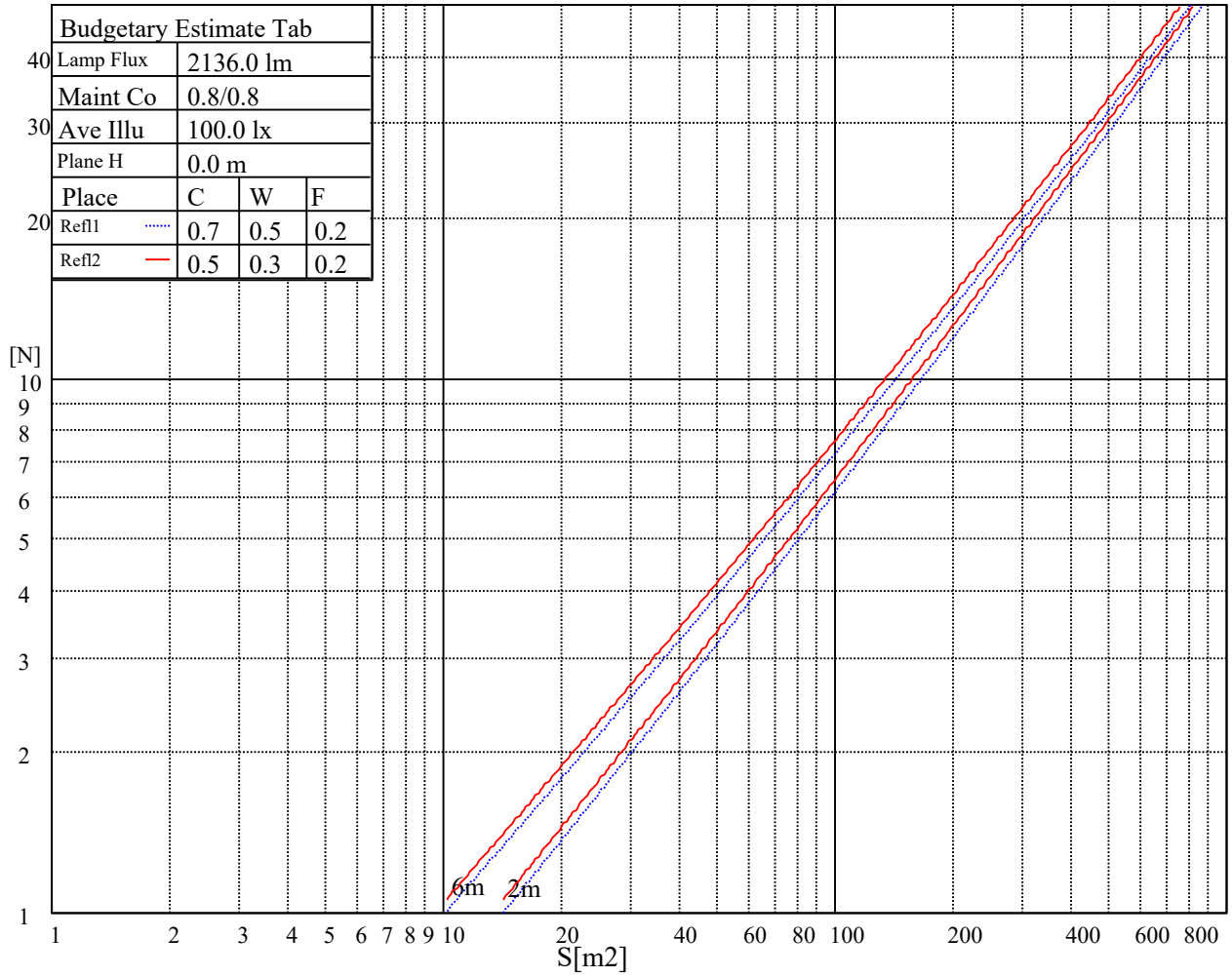
Glare Table

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

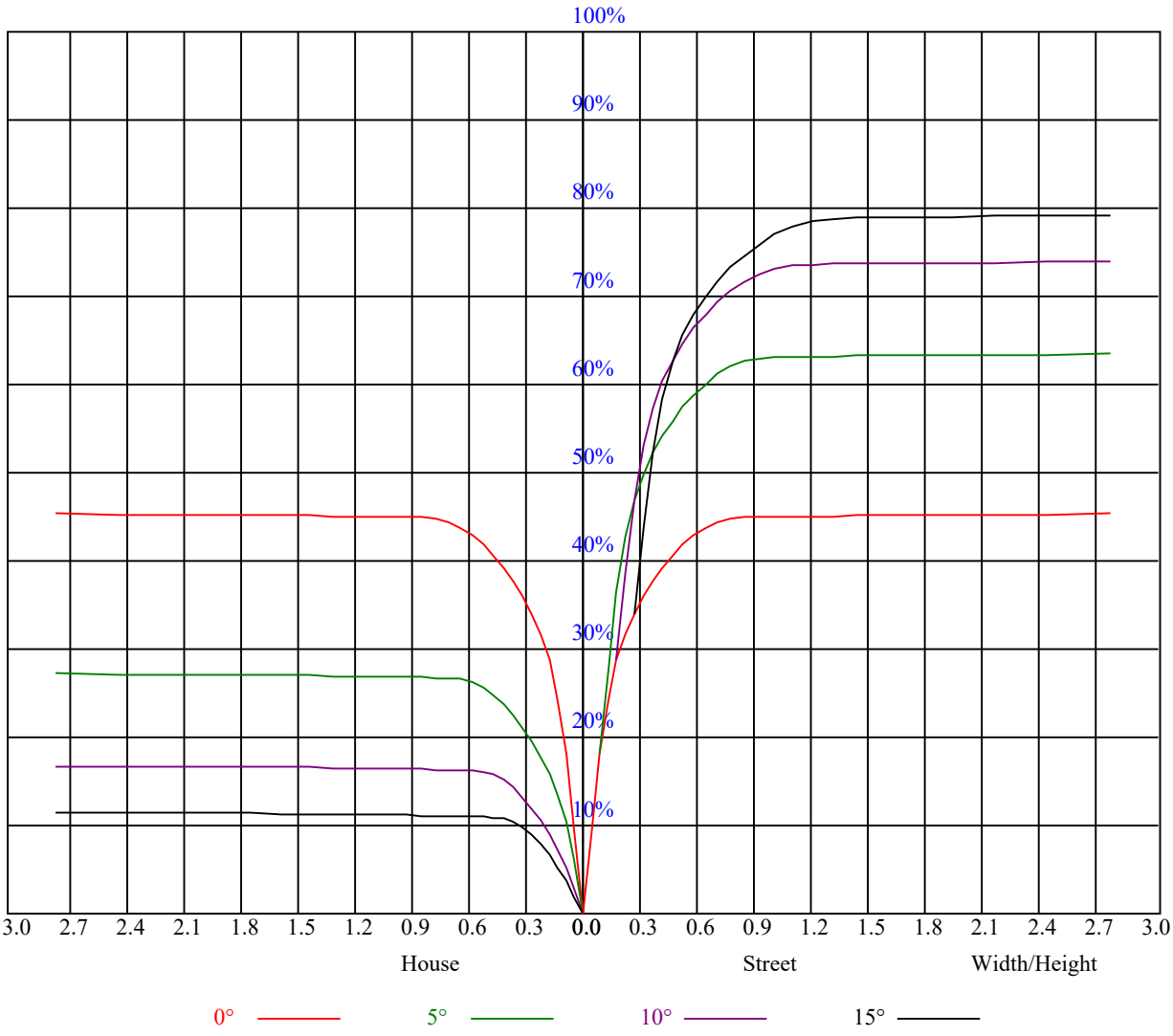


Equipment: gms1980 Date: 2017/5/11 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.03	1.01	0.99	1.01	0.99	0.97	0.97	0.96	0.94	0.94	0.93	0.92	0.91	0.90	0.89	0.87
2	0.97	0.95	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	0.87	0.92	0.89	0.86	0.89	0.87	0.85	0.87	0.85	0.83	0.85	0.84	0.82	0.81
4	0.89	0.85	0.82	0.88	0.85	0.82	0.86	0.83	0.81	0.85	0.82	0.80	0.83	0.81	0.79	0.78
5	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.75
6	0.83	0.79	0.76	0.82	0.78	0.75	0.81	0.77	0.75	0.79	0.77	0.74	0.78	0.76	0.74	0.73
7	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.74	0.72	0.71
8	0.77	0.73	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.69
9	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.70	0.68	0.67
10	0.73	0.69	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65

Coefficient Utilization Curve



Equipment: gms1980	Date: 2017/5/11	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	18724.68	20062.55	20778.29	20525.03	19478.95	17893.33	15465.34	13340.17	11198.47
90.0	18014.45	18019.96	17205.13	15993.88	14413.77	12134.43	10234.98	8335.54	6359.01
180.0	18724.68	16450.85	14617.47	10816.93	9786.28	7852.14	6117.32	4445.80	3192.17
270.0	18014.45	17397.82	15911.30	14342.19	10871.44	10638.00	8628.44	6767.53	5282.11
360.0	18724.68	20062.55	20778.29	20525.03	19478.95	17893.33	15465.34	13340.17	11198.47

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	8693.41	6887.56	5290.92	3820.91	2802.37	2465.98	1822.37	1539.93	1364.85
90.0	4707.32	3540.13	2791.36	2115.27	1749.14	1510.75	1357.14	1224.45	1109.94
180.0	2468.73	1919.82	1640.13	1442.48	1293.27	1094.14	1054.22	992.01	940.75
270.0	3928.27	2957.63	2374.03	1935.23	1670.41	1460.10	1301.53	1088.52	1077.29
360.0	8693.41	6887.56	5290.92	3820.91	2802.37	2465.98	1822.37	1539.93	1364.85

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1217.30	1113.24	1017.99	947.52	898.52	857.78	817.59	792.26	772.44
90.0	1025.15	965.14	916.69	885.86	858.33	828.60	801.62	779.60	758.13
180.0	898.14	866.31	835.32	808.06	787.31	764.40	745.57	726.74	708.41
270.0	987.33	934.64	893.73	854.64	828.93	805.64	781.36	759.01	740.23
360.0	1217.30	1113.24	1017.99	947.52	898.52	857.78	817.59	792.26	772.44

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	750.97	737.21	725.64	712.98	697.01	685.45	671.69	658.47	637.00
90.0	742.16	726.74	711.33	698.12	682.15	667.28	625.44	545.61	447.06
180.0	694.32	679.07	664.15	650.66	618.56	530.25	437.15	333.97	218.79
270.0	721.51	702.57	686.55	671.58	658.64	634.91	568.46	488.96	398.28
360.0	750.97	737.21	725.64	712.98	697.01	685.45	671.69	658.47	637.00

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	574.79	489.45	374.93	281.89	157.74	82.75	34.80	26.54	24.28
90.0	354.01	283.54	150.19	83.14	39.26	30.67	27.47	24.72	22.08
180.0	118.37	55.17	27.91	23.56	20.54	17.23	14.53	10.63	8.81
270.0	282.66	192.97	112.54	40.80	23.01	20.04	16.79	13.82	11.62
360.0	574.79	489.45	374.93	281.89	157.74	82.75	34.80	26.54	24.28

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	21.75	19.21	16.46	11.56	9.03	8.86	8.70	8.48	8.42
90.0	16.30	9.08	8.81	8.64	8.48	8.37	8.31	8.15	8.09
180.0	8.64	8.53	8.37	8.26	8.20	8.15	8.09	8.04	7.93
270.0	9.41	8.81	8.59	8.42	8.31	8.15	8.09	7.98	7.93
360.0	21.75	19.21	16.46	11.56	9.03	8.86	8.70	8.48	8.42

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.31	8.20	8.15	8.04	8.04	7.98	7.93	7.82	7.82
90.0	7.98	7.87	7.87	7.82	7.76	7.76	7.71	7.71	7.65
180.0	7.87	7.87	7.82	7.82	7.76	7.76	7.71	7.71	7.71
270.0	7.82	7.76	7.76	7.71	7.65	7.65	7.60	7.54	7.54
360.0	8.31	8.20	8.15	8.04	8.04	7.98	7.93	7.82	7.82

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.82	7.76	7.76	7.82	7.82	7.82	7.82	7.82	7.76
90.0	7.65	7.60	7.65	7.65	7.65	7.60	7.54	7.54	7.54
180.0	7.71	7.71	7.71	7.65	7.65	7.65	7.65	7.60	7.60
270.0	7.60	7.54	7.54	7.49	7.49	7.49	7.49	7.49	7.49
360.0	7.82	7.76	7.76	7.82	7.82	7.82	7.82	7.82	7.76

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	7.76	7.76	7.76	7.76	7.71	7.71	7.71	7.71	7.71
90.0	7.60	7.54	7.54	7.49	7.49	7.43	7.49	7.43	7.43
180.0	7.65	7.60	7.60	7.60	7.54	7.54	7.54	7.54	7.49
270.0	7.43	7.43	7.43	7.43	7.43	7.38	7.38	7.38	7.38
360.0	7.76	7.76	7.76	7.76	7.71	7.71	7.71	7.71	7.71

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.65	7.65	7.60	7.60	7.60	7.60	7.49	7.43	7.43
90.0	7.38	7.38	7.32	7.32	7.32	7.32	7.21	7.27	7.21
180.0	7.54	7.54	7.49	7.54	7.43	7.43	7.43	7.43	7.43
270.0	7.38	7.32	7.43	7.32	7.27	7.21	7.21	7.21	7.21
360.0	7.65	7.65	7.60	7.60	7.60	7.60	7.49	7.43	7.43

C/γ(°)	90.0
0.0	7.43
90.0	7.21
180.0	7.43
270.0	7.21
360.0	7.43