NATA LIGHTING CO.,LTD.
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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

LumCAT: 61.0080.000
Luminaire: 92.70.183.00
Report No: NATA0100
Test No: GC2019120606
LampCAT: LUMINUS CXM-4-AC40
Lamp flux(lm): 586.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 34.7100
Current(A): 0.1470
Power (W): 5.1000
PF: 1.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 533.35
Efficiency(%): 91.02%
Lumens(lm)/Power(W): 104.58
Central intensity(cd): 5397.890
Maximum intensity(cd): 5397.890
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=11.4
[C90/270]Total=11.4
Field angle(10%Imax): [C0/180]Total=28.7
[C90/270]Total=28.7
Maximum s/h(1/2): C0_180=0.20 C90_270=0.20
Maximum s/h(1/4): C0_180=0.19 C90_270=0.19
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.02%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 93.029%

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2019/12/6
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

61.0080.000

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5397.891	0.000	0	.000%	.000%
1.0	5308.875	5.123	5.123	.874%	.961%
2.0	5014.055	14.816	19.939	2.528%	3.739%
3.0	4542.961	22.857	42.797	3.901%	8.024%
4.0	3953.602	28.441	71.237	4.853%	13.357%
5.0	3243.797	30.963	102.2	5.284%	19.162%
6.0	2447.227	29.908	132.108	5.104%	24.770%
7.0	1822.500	26.502	158.61	4.523%	29.739%
8.0	1295.761	22.317	180.927	3.808%	33.923%
9.0	1083.776	19.285	200.212	3.291%	37.539%
10.0	913.753	18.077	218.289	3.085%	40.928%
11.0	804.452	17.168	235.457	2.930%	44.147%
12.0	723.938	16.707	252.165	2.851%	47.280%
13.0	639.802	16.184	268.349	2.762%	50.314%
14.0	561.973	15.383	283.731	2.625%	53.198%
15.0	497.911	14.551	298.282	2.483%	55.926%
16.0	427.598	13.561	311.843	2.314%	58.469%
17.0	366.420	12.365	324.208	2.110%	60.787%
18.0	318.354	11.290	335.499	1.927%	62.904%
19.0	275.351	10.329	345.828	1.763%	64.841%
20.0	238.908	9.412	355.24	1.606%	66.606%
21.0	204.363	8.512	363.752	1.453%	68.202%
22.0	179.473	7.713	371.465	1.316%	69.648%
23.0	159.293	7.108	378.574	1.213%	70.981%
24.0	141.265	6.571	385.145	1.121%	72.213%
25.0	125.627	6.069	391.213	1.036%	73.350%
26.0	113.295	5.640	396.853	.962%	74.408%
27.0	101.777	5.262	402.115	.898%	75.394%
28.0	91.357	4.890	407.005	.834%	76.311%
29.0	83.060	4.563	411.568	.779%	77.167%
30.0	75.509	4.281	415.849	.731%	77.970%
31.0	68.470	4.007	419.856	.684%	78.721%
32.0	62.381	3.749	423.605	.640%	79.424%
33.0	57.530	3.533	427.137	.603%	80.086%
34.0	53.128	3.349	430.486	.571%	80.714%
35.0	49.198	3.178	433.664	.542%	81.310%
36.0	45.766	3.024	436.688	.516%	81.877%
37.0	42.940	2.893	439.581	.494%	82.419%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	40.430	2.783	442.364	.475%	82.941%
39.0	38.398	2.691	445.054	.459%	83.445%
40.0	36.823	2.623	447.678	.448%	83.937%
41.0	35.740	2.584	450.261	.441%	84.422%
42.0	34.770	2.562	452.823	.437%	84.902%
43.0	33.982	2.547	455.37	.435%	85.379%
44.0	33.349	2.541	457.911	.434%	85.856%
45.0	32.815	2.543	460.454	.434%	86.333%
46.0	32.288	2.546	463	.434%	86.810%
47.0	31.690	2.545	465.545	.434%	87.287%
48.0	31.163	2.541	468.085	.434%	87.764%
49.0	30.551	2.534	470.62	.432%	88.239%
50.0	29.953	2.523	473.142	.430%	88.712%
51.0	29.278	2.506	475.648	.428%	89.182%
52.0	28.561	2.482	478.13	.424%	89.647%
53.0	27.830	2.453	480.583	.419%	90.107%
54.0	26.951	2.414	482.998	.412%	90.559%
55.0	26.058	2.366	485.364	.404%	91.003%
56.0	25.130	2.313	487.677	.395%	91.437%
57.0	23.934	2.243	489.92	.383%	91.857%
58.0	22.767	2.160	492.08	.369%	92.262%
59.0	21.734	2.080	494.16	.355%	92.652%
60.0	20.742	2.007	496.167	.342%	93.029%
61.0	19.807	1.935	498.102	.330%	93.391%
62.0	19.055	1.873	499.975	.320%	93.743%
63.0	18.232	1.813	501.788	.309%	94.083%
64.0	17.381	1.748	503.536	.298%	94.410%
65.0	16.608	1.682	505.218	.287%	94.726%
66.0	15.834	1.619	506.836	.276%	95.029%
67.0	15.209	1.561	508.397	.266%	95.322%
68.0	14.604	1.510	509.908	.258%	95.605%
69.0	14.063	1.462	511.37	.250%	95.879%
70.0	13.549	1.418	512.788	.242%	96.145%
71.0	13.071	1.376	514.164	.235%	96.403%
72.0	12.642	1.337	515.501	.228%	96.654%
73.0	12.291	1.304	516.805	.222%	96.898%
74.0	12.052	1.280	518.084	.218%	97.138%
75.0	11.777	1.259	519.344	.215%	97.374%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.419	1.231	520.575	.210%	97.605%
77.0	11.053	1.198	521.773	.204%	97.830%
78.0	10.610	1.160	522.933	.198%	98.047%
79.0	10.167	1.116	524.049	.191%	98.256%
80.0	9.745	1.074	525.122	.183%	98.458%
81.0	9.330	1.032	526.154	.176%	98.651%
82.0	8.993	0.994	527.148	.170%	98.837%
83.0	8.698	0.962	528.109	.164%	99.018%
84.0	8.445	0.934	529.043	.159%	99.193%
85.0	8.205	0.909	529.952	.155%	99.363%
86.0	7.868	0.879	530.831	.150%	99.528%
87.0	6.841	0.805	531.636	.137%	99.679%
88.0	5.548	0.679	532.314	.116%	99.806%
89.0	4.669	0.560	532.874	.096%	99.911%
90.0	3.980	0.474	533.348	.081%	100.000%

Zonal flux distribution table

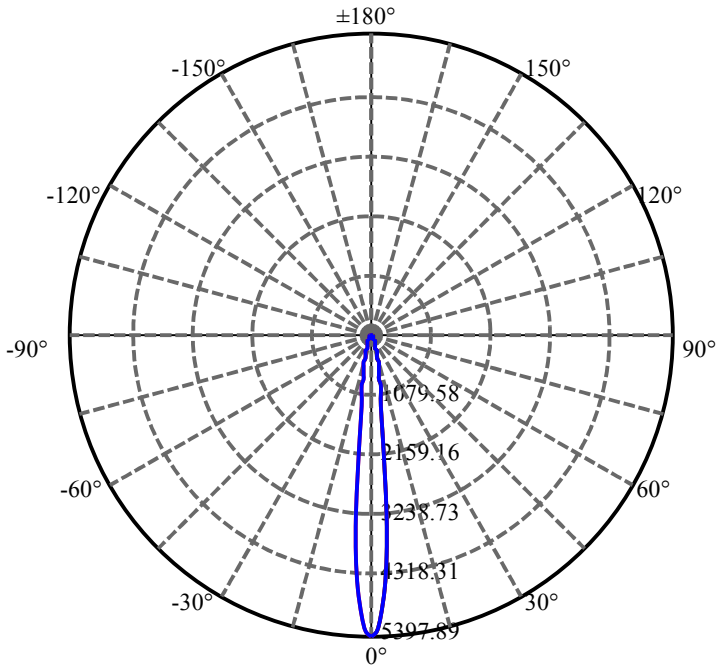
ZONAL LUMEN SUMMARY

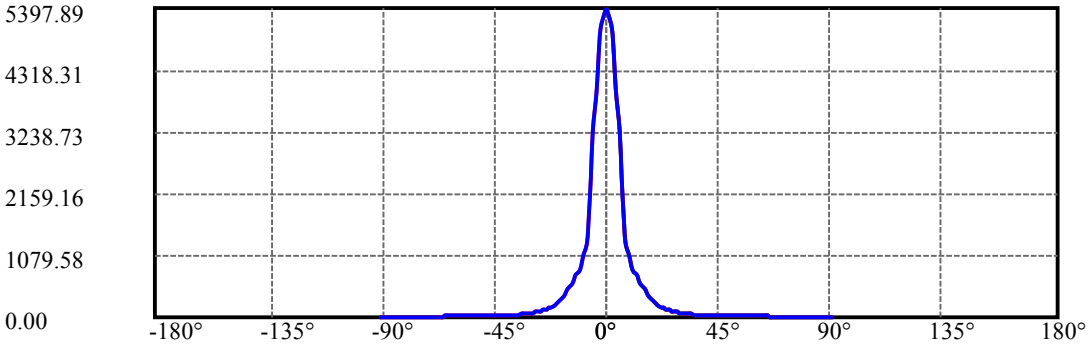
Zone	Lumens	%Lamp	%Fixt
0-30	415.85	70.96%	77.97%
0-40	447.68	76.40%	83.94%
0-60	496.17	84.67%	93.03%
0-90	532.87	90.93%	99.91%
0-120	532.87	90.93%	99.91%
0-180	533.35	91.02%	100.00%
60-90	38.71	6.61%	7.26%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-32.87	426.68	72.81%	80.00%

ZONAL LUMEN SUMMARY

0-10	218.29
10-20	136.95
20-30	60.61
30-40	31.83
40-50	25.46
50-60	23.02
60-70	16.62
70-80	12.33
80-90	7.75
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):

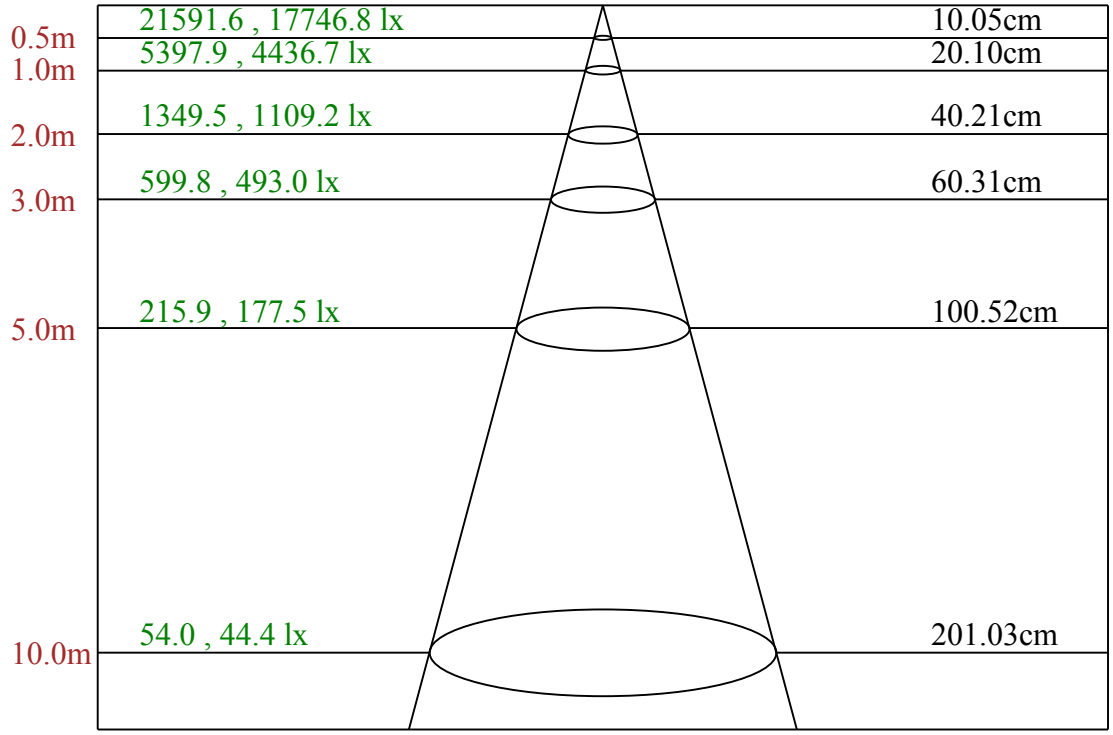
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:14.3 Right:14.3
:C90/270Left:14.3 Right:14.3

Beam Angle(50%Imax):C0/180Left:5.7 Right:5.7
:C90/270Left:5.7 Right:5.7

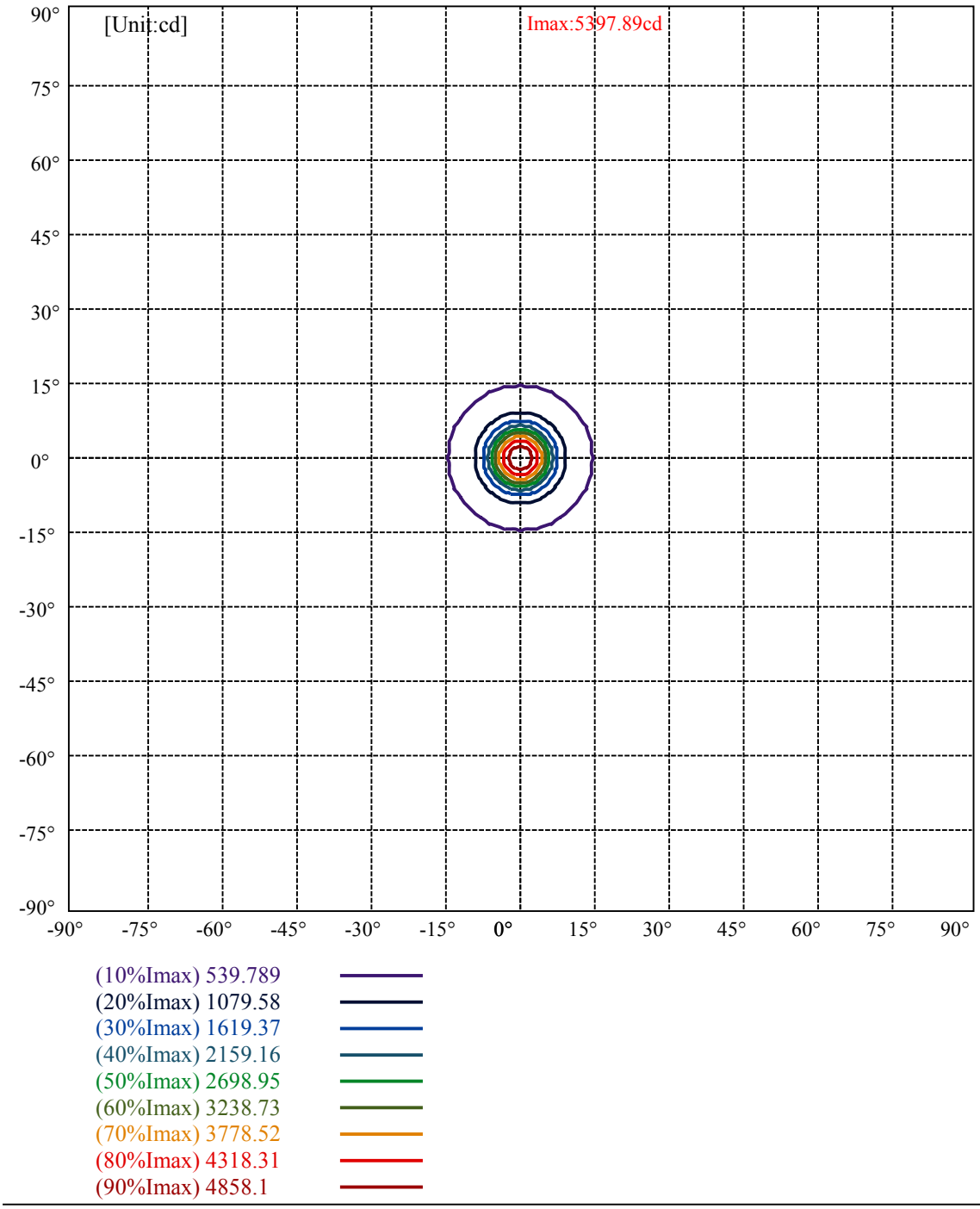
Lux distance Curve



Max , Ave

Beam angle of C0 plane 11.48

ISO-Intensity(V-H)

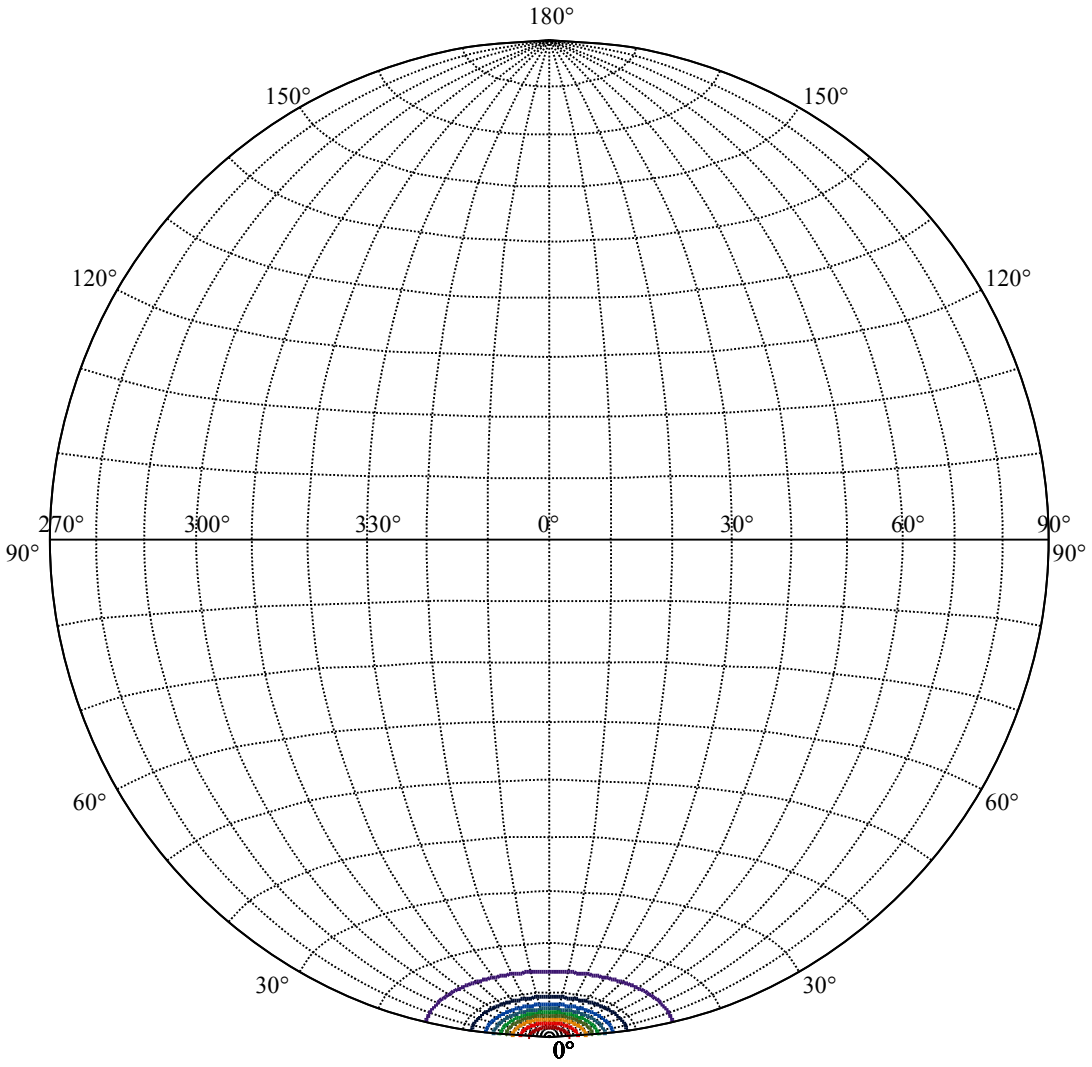


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:5397.89

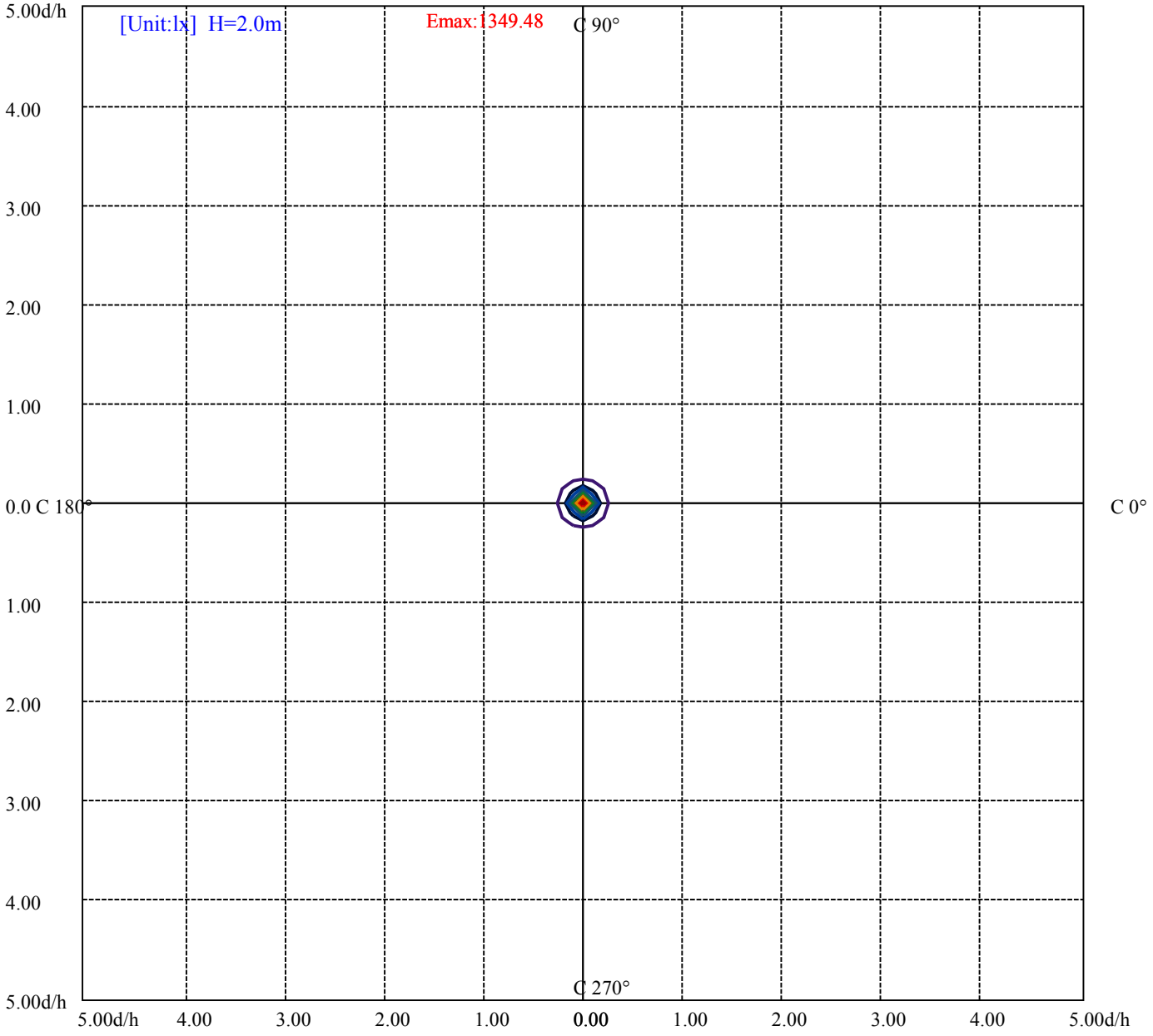
(10%Imax) 539.789
(20%Imax) 1079.58
(30%Imax) 1619.37
(40%Imax) 2159.16
(50%Imax) 2698.95
(60%Imax) 3238.73
(70%Imax) 3778.52
(80%Imax) 4318.31
(90%Imax) 4858.1

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO illuminance diagram

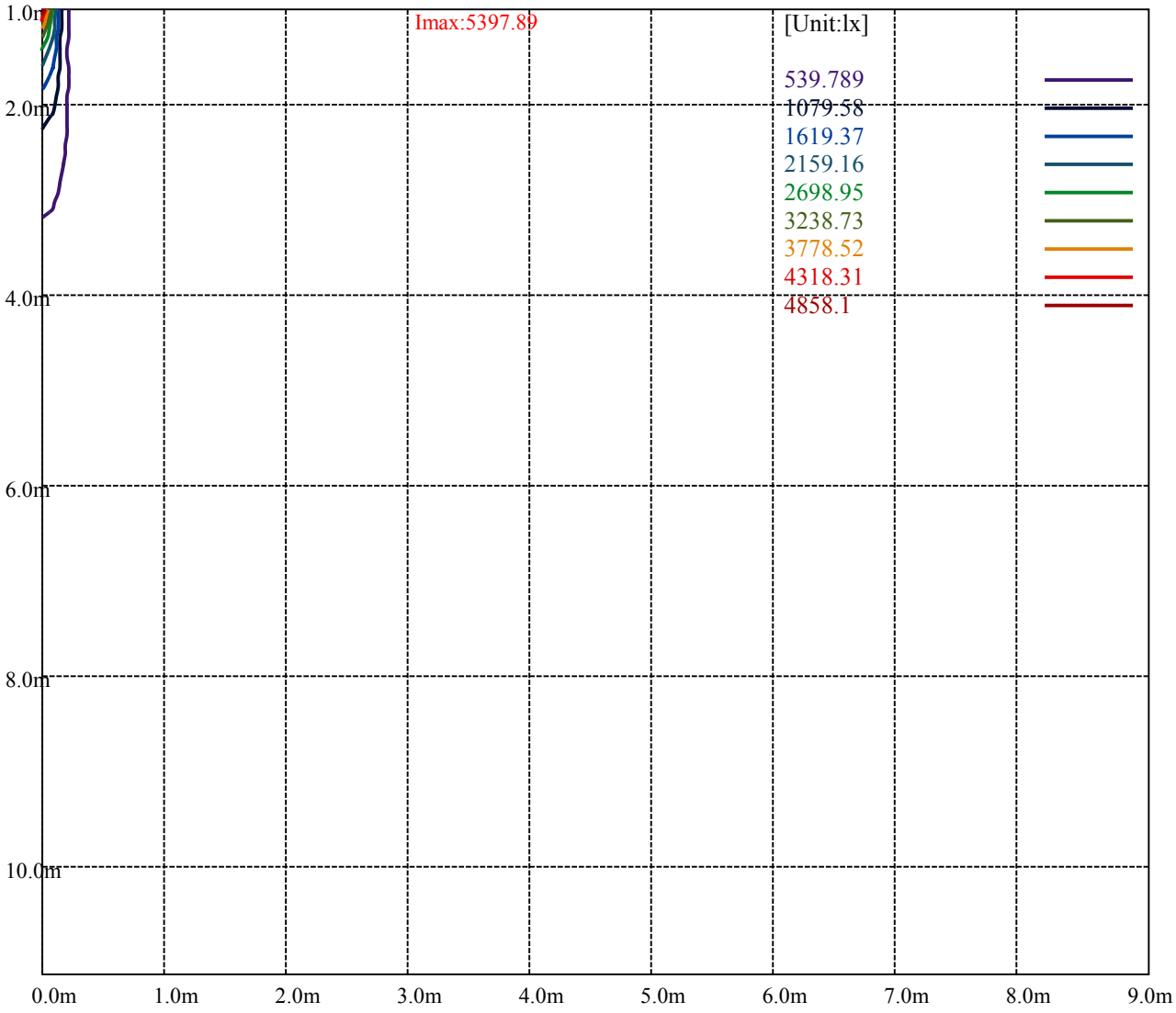


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

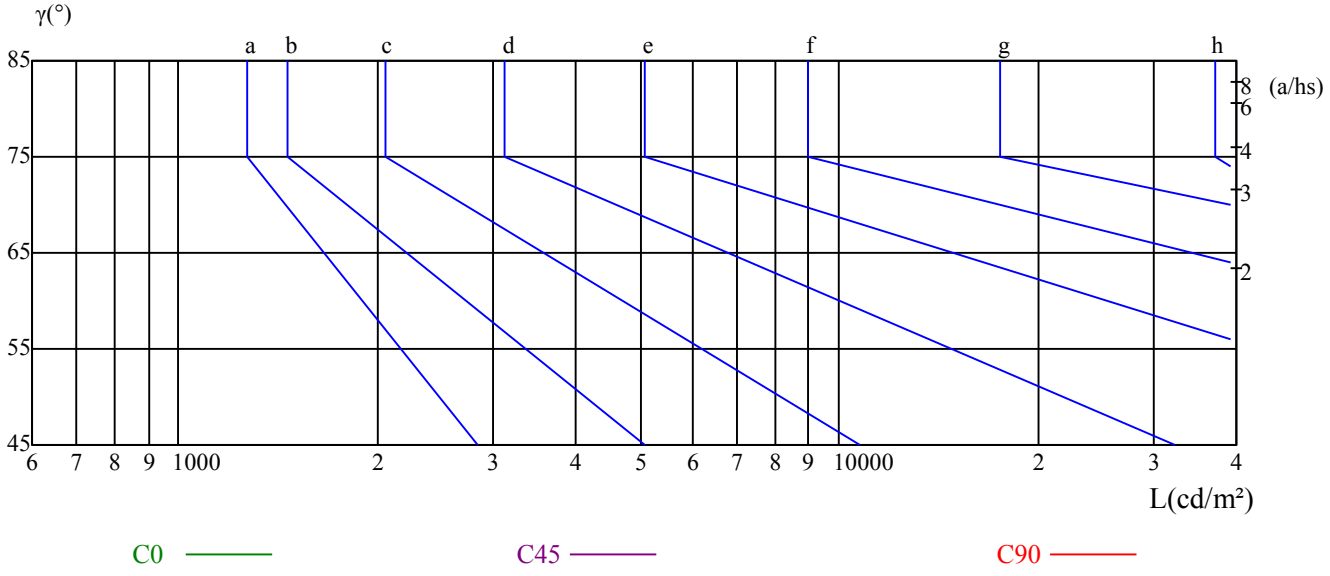
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

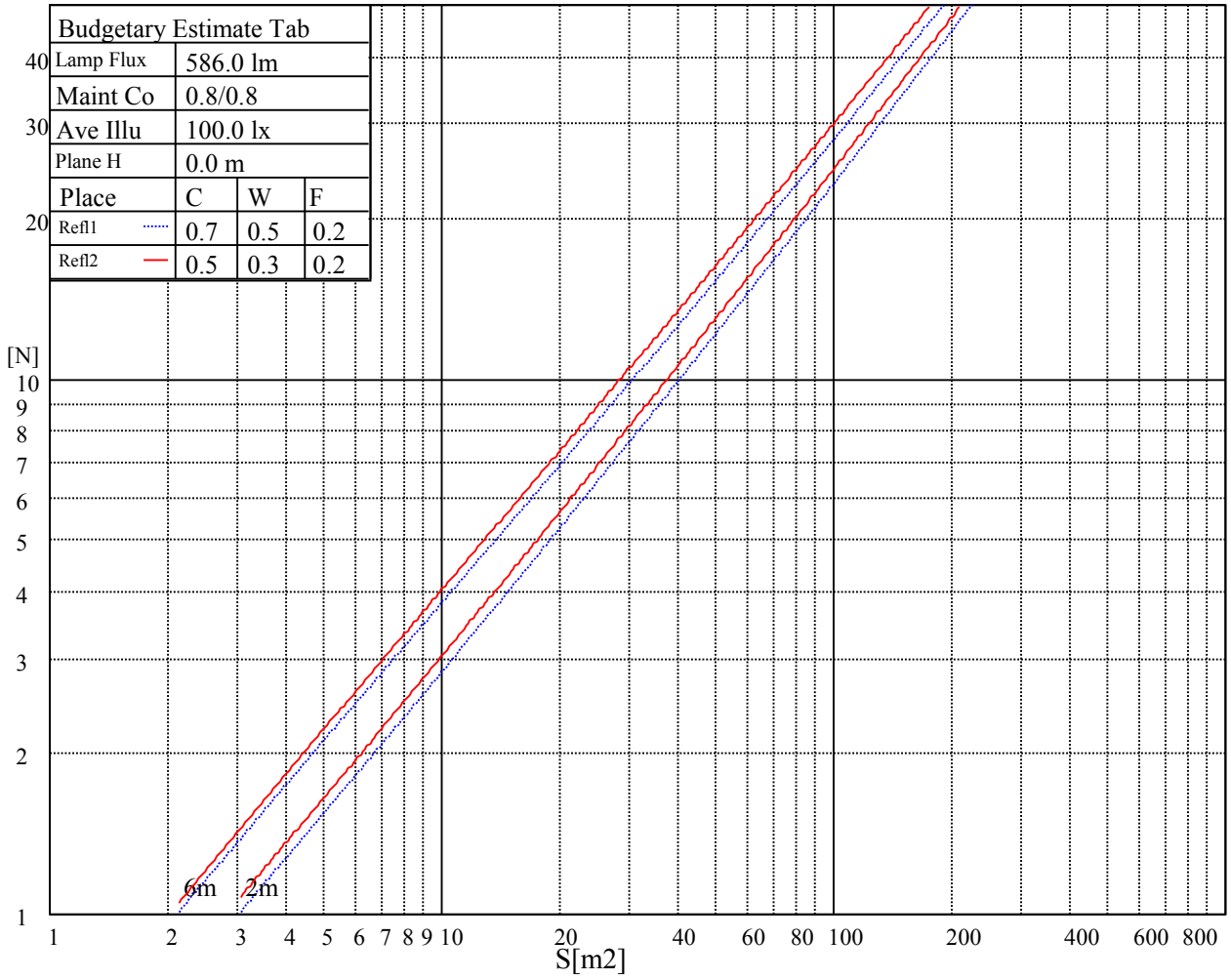
Glare Table

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



Budgetary Estimate Table

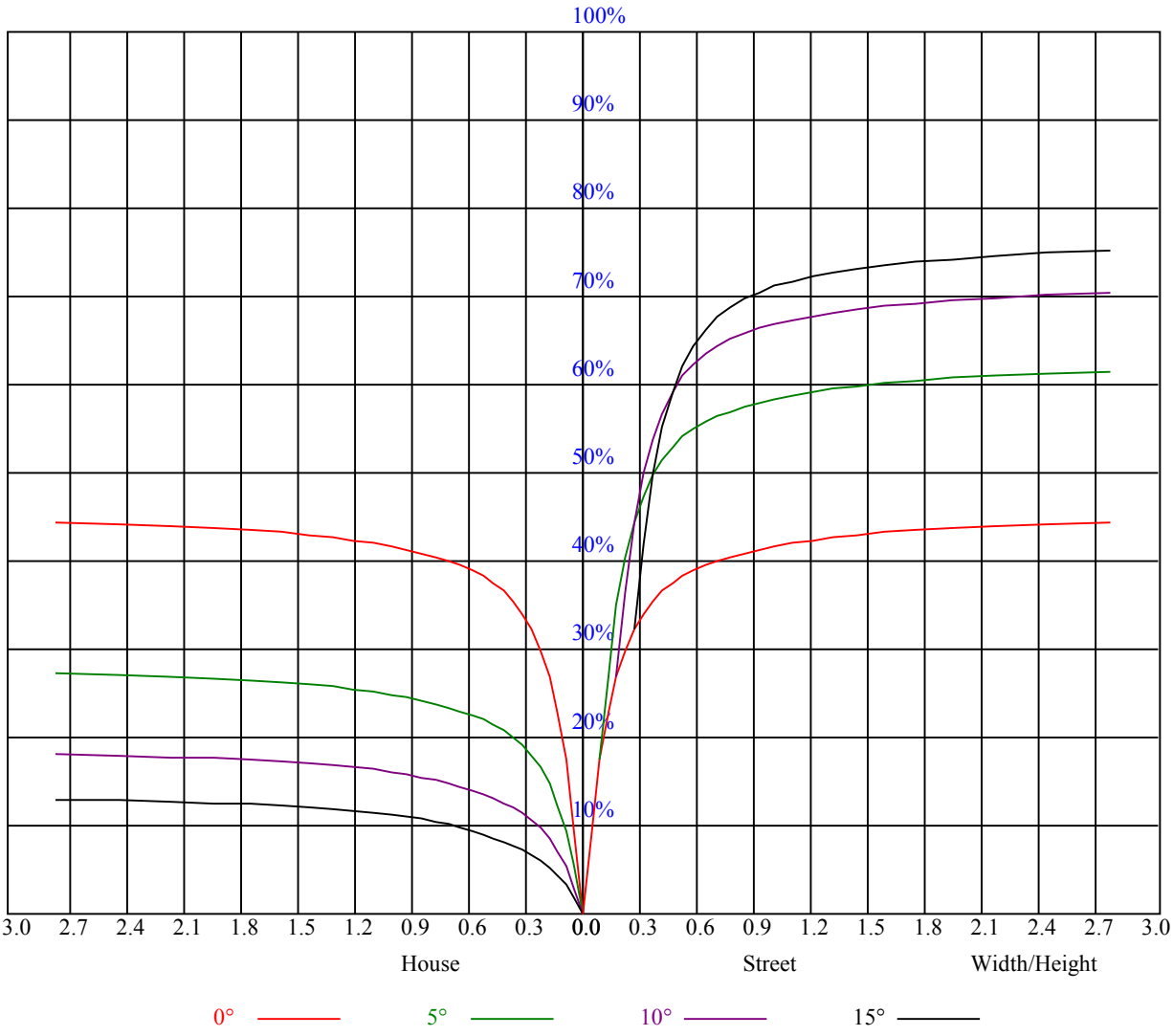


Equipment: GMS1980 Date: 2019/12/6 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.08	1.08	1.08	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	1.00	0.98	0.96	0.98	0.96	0.94	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.88	0.93	0.89	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.81	0.80
3	0.89	0.85	0.81	0.88	0.84	0.81	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
4	0.85	0.80	0.77	0.84	0.79	0.76	0.82	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.72
5	0.81	0.76	0.73	0.80	0.76	0.73	0.79	0.75	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.69
6	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.69	0.75	0.71	0.69	0.73	0.71	0.68	0.67
7	0.75	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.65
8	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
9	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.62	0.61
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.60

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/12/6	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	5360.06	5425.88	5250.94	4921.88	4363.88	3722.63	2935.13	2168.44	1625.63
45.0	5410.69	5385.38	5113.69	4730.06	4202.44	3475.69	2682.00	2017.13	1462.50
90.0	5397.19	5234.63	4932.00	4354.31	3739.50	3056.06	2183.63	1617.75	1115.66
135.0	5423.63	5319.56	4969.69	4530.38	3954.94	3212.44	2432.81	1813.50	1330.88
180.0	5360.06	5127.19	4752.00	4097.25	3456.00	2764.13	1948.50	1467.00	1100.53
225.0	5410.69	5258.81	4902.19	4368.94	3762.00	2979.00	2217.38	1662.75	1121.06
270.0	5397.19	5377.50	5139.00	4766.63	4162.50	3508.88	2724.19	1990.13	1494.00
315.0	5423.63	5342.06	5052.94	4574.25	3987.56	3231.56	2454.19	1843.31	1115.83
360.0	5360.06	5425.88	5250.94	4921.88	4363.88	3722.63	2935.13	2168.44	1625.63

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1233.00	1002.38	875.25	790.31	678.94	606.38	545.06	455.63	398.25
45.0	1130.63	957.38	825.75	740.25	653.63	572.63	510.19	441.56	379.69
90.0	1020.71	860.96	771.19	692.89	613.07	536.01	470.19	403.31	344.08
135.0	1056.38	915.19	801.56	728.44	647.44	569.25	505.13	434.81	371.81
180.0	970.71	827.83	740.59	664.03	585.68	511.65	451.46	388.52	332.55
225.0	1025.10	877.16	770.40	690.92	620.10	537.69	475.14	415.80	351.39
270.0	1143.56	947.81	841.50	756.56	663.75	593.44	525.38	444.38	387.56
315.0	1090.13	921.32	809.38	728.10	655.82	568.74	500.74	436.78	366.02
360.0	1233.00	1002.38	875.25	790.31	678.94	606.38	545.06	455.63	398.25

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	352.13	295.88	285.19	218.25	188.94	167.57	147.26	130.28	117.34
45.0	327.38	284.63	237.66	209.70	185.40	163.58	142.65	128.25	115.37
90.0	298.24	254.42	222.36	192.43	168.02	150.86	135.23	118.58	107.49
135.0	318.38	287.44	235.18	204.08	180.28	159.58	140.01	126.28	114.53
180.0	289.74	248.96	218.64	190.07	167.12	150.19	135.39	119.14	107.94
225.0	306.84	269.33	233.72	204.19	181.86	160.76	144.06	128.19	114.58
270.0	336.94	287.44	243.34	213.36	185.57	165.54	145.91	129.60	116.66
315.0	317.19	274.73	235.18	202.84	178.59	156.26	139.61	124.71	112.44
360.0	352.13	295.88	285.19	218.25	188.94	167.57	147.26	130.28	117.34

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	104.06	93.04	84.94	77.51	69.69	64.01	58.73	53.72	49.28
45.0	101.59	92.03	83.98	75.43	68.29	62.33	56.59	52.43	48.49
90.0	97.48	86.57	78.81	71.55	64.63	58.50	54.17	49.78	46.24
135.0	102.38	93.71	86.01	78.13	71.83	66.71	61.82	57.71	53.83
180.0	98.27	86.79	78.24	70.93	63.68	57.21	52.71	48.21	45.00
225.0	103.67	92.76	83.19	75.43	68.68	61.09	56.14	51.86	47.76
270.0	104.23	93.32	85.05	77.40	68.96	63.06	57.83	52.82	48.43
315.0	102.54	92.64	84.26	77.68	72.00	66.15	62.27	58.50	54.56
360.0	104.06	93.04	84.94	77.51	69.69	64.01	58.73	53.72	49.28

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	45.84	42.41	39.43	37.24	34.93	33.47	32.18	30.99	30.09
45.0	44.78	41.85	38.93	36.68	35.04	33.81	32.46	32.06	31.73
90.0	42.69	39.60	37.24	35.16	33.36	32.23	31.28	30.49	29.53
135.0	50.40	47.70	45.39	43.88	42.92	42.41	41.85	41.29	40.89
180.0	41.91	39.32	37.41	35.44	33.81	32.68	31.73	30.77	30.09
225.0	44.21	41.68	38.98	36.56	35.16	34.14	33.24	32.40	31.73
270.0	45.17	42.08	39.38	37.29	35.44	34.09	32.79	31.78	30.99
315.0	51.13	48.88	46.69	44.94	43.93	43.09	42.64	42.08	41.74
360.0	45.84	42.41	39.43	37.24	34.93	33.47	32.18	30.99	30.09

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	29.25	28.35	27.73	27.17	26.55	26.10	25.48	24.86	24.13
45.0	31.39	31.33	31.39	31.56	31.67	31.73	31.67	31.61	31.56
90.0	28.97	28.69	28.13	27.56	26.78	26.16	25.48	24.53	23.91
135.0	40.33	39.66	38.76	37.74	36.62	35.61	34.37	33.24	31.84
180.0	29.59	28.86	28.18	27.51	26.72	25.93	25.09	24.30	23.68
225.0	31.22	30.60	29.93	29.76	29.70	29.64	29.59	29.36	29.19
270.0	30.38	29.76	29.08	28.46	27.62	26.94	26.16	25.37	24.58
315.0	41.40	41.06	40.33	39.54	38.76	37.52	36.39	35.21	33.75
360.0	29.25	28.35	27.73	27.17	26.55	26.10	25.48	24.86	24.13

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	23.18	22.28	21.38	20.48	19.46	18.39	17.49	16.76	16.14
45.0	31.50	31.28	30.99	30.38	29.53	28.69	27.51	26.21	24.86
90.0	23.01	21.88	20.98	19.69	18.56	17.89	17.27	16.48	16.14
135.0	30.26	28.86	27.45	25.59	24.24	23.06	21.54	20.48	19.74
180.0	22.84	21.94	21.09	19.97	18.96	18.17	17.61	16.93	16.48
225.0	28.80	28.52	28.01	27.23	26.27	25.48	24.53	23.63	22.61
270.0	23.74	22.84	21.94	20.93	19.74	18.56	17.61	16.93	16.43
315.0	32.29	30.88	29.19	27.23	25.37	23.63	22.39	21.04	20.03
360.0	23.18	22.28	21.38	20.48	19.46	18.39	17.49	16.76	16.14

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	15.58	15.08	14.74	14.34	14.01	13.61	13.33	12.94	12.43
45.0	23.40	21.43	19.86	18.28	16.99	16.03	15.13	14.40	13.73
90.0	15.69	15.24	14.79	14.46	14.01	13.61	13.28	12.88	12.43
135.0	18.62	17.83	17.16	16.26	15.69	15.13	14.40	13.78	13.28
180.0	15.98	15.36	14.91	14.51	14.18	13.78	13.39	12.88	12.54
225.0	21.38	20.25	18.90	17.55	16.59	15.58	14.74	14.12	13.56
270.0	16.03	15.53	15.19	14.74	14.34	14.01	13.73	13.39	13.05
315.0	19.18	18.34	17.33	16.54	15.86	15.08	14.51	14.01	13.56
360.0	15.58	15.08	14.74	14.34	14.01	13.61	13.33	12.94	12.43

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	12.21	11.87	11.76	11.59	11.42	11.08	10.74	10.35	9.84
45.0	13.16	12.66	12.38	11.98	11.70	11.36	10.74	10.29	9.90
90.0	12.04	11.81	11.59	11.48	11.19	10.80	10.29	9.62	9.17
135.0	12.71	12.26	11.76	11.08	10.52	9.96	9.45	9.11	8.66
180.0	12.09	11.76	11.64	11.53	11.08	10.86	10.52	10.18	9.90
225.0	13.05	12.71	12.49	12.21	11.87	11.53	11.19	10.80	10.41
270.0	12.77	12.43	12.21	12.04	11.70	11.42	11.03	10.69	10.29
315.0	13.11	12.83	12.60	12.32	11.87	11.42	10.91	10.29	9.79
360.0	12.21	11.87	11.76	11.59	11.42	11.08	10.74	10.35	9.84

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.34	9.06	8.66	8.44	8.16	7.99	7.20	5.96	4.73
45.0	9.34	9.00	8.66	8.44	8.16	7.65	6.08	5.06	4.56
90.0	8.78	8.49	8.33	8.10	7.93	7.09	5.51	4.73	3.77
135.0	8.27	7.99	7.76	7.54	7.31	7.09	5.85	4.78	4.33
180.0	9.73	9.34	9.11	8.83	8.55	8.44	6.58	5.18	4.44
225.0	10.07	9.79	9.51	9.39	9.34	8.94	8.55	6.47	5.23
270.0	9.96	9.51	9.06	8.55	8.16	7.82	7.65	6.53	5.51
315.0	9.17	8.78	8.49	8.27	8.04	7.93	7.31	5.68	4.78
360.0	9.34	9.06	8.66	8.44	8.16	7.99	7.20	5.96	4.73

Intensity data(cd)

C/γ(°)	90.0
0.0	3.99
45.0	3.77
90.0	3.60
135.0	3.49
180.0	3.66
225.0	4.61
270.0	4.61
315.0	4.11
360.0	3.99