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Nata

LumCAT:2-2078-M
Luminaire:92.70.135.00

Report No: NATA0100	Voltage(V): 32.7800
Test No: GC2019092304	Current(A): 0.4470
LampCAT:LUMILEDS LUXEON 1208	Power (W): 14.6500
Lamp flux(lm): 1809.9	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1293.62
Efficiency(%): 71.47%
Lumens(lm)/Power(W): 88.30
Central intensity(cd): 4086.140
Maximum intensity(cd): 4086.140
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=34.5
[C90/270]Total=34.5
Field angle(10%Imax): [C0/180]Total=50.3
[C90/270]Total=50.3
Maximum s/h(1/2): C0_180=0.57 C90_270=0.57
Maximum s/h(1/4): C0_180=0.54 C90_270=0.54
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 71.47%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.468%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4086.141	0.000	0	.000%	.000%
1.0	4078.617	3.907	3.907	.216%	.302%
2.0	4054.641	11.674	15.58	.645%	1.204%
3.0	4014.070	19.298	34.878	1.066%	2.696%
4.0	3959.648	26.691	61.569	1.475%	4.759%
5.0	3884.906	33.747	95.315	1.865%	7.368%
6.0	3804.680	40.411	135.726	2.233%	10.492%
7.0	3702.938	46.600	182.326	2.575%	14.094%
8.0	3595.148	52.231	234.557	2.886%	18.132%
9.0	3471.539	57.272	291.829	3.164%	22.559%
10.0	3333.586	61.584	353.412	3.403%	27.320%
11.0	3194.719	65.231	418.644	3.604%	32.362%
12.0	3044.320	68.202	486.845	3.768%	37.634%
13.0	2874.516	70.242	557.087	3.881%	43.064%
14.0	2695.148	71.291	628.378	3.939%	48.575%
15.0	2508.539	71.439	699.817	3.947%	54.098%
16.0	2301.539	70.481	770.298	3.894%	59.546%
17.0	2099.953	68.543	838.841	3.787%	64.845%
18.0	1877.977	65.587	904.428	3.624%	69.915%
19.0	1667.250	61.680	966.108	3.408%	74.683%
20.0	1412.121	56.361	1022.469	3.114%	79.039%
21.0	1208.798	50.327	1072.796	2.781%	82.930%
22.0	987.363	44.133	1116.929	2.438%	86.341%
23.0	791.093	37.317	1154.246	2.062%	89.226%
24.0	603.879	30.499	1184.745	1.685%	91.584%
25.0	430.249	23.514	1208.259	1.299%	93.401%
26.0	301.514	17.273	1225.532	.954%	94.737%
27.0	186.110	11.930	1237.462	.659%	95.659%
28.0	94.859	7.114	1244.575	.393%	96.209%
29.0	51.806	3.837	1248.412	.212%	96.505%
30.0	32.323	2.271	1250.684	.126%	96.681%
31.0	24.546	1.583	1252.266	.087%	96.803%
32.0	20.644	1.295	1253.561	.072%	96.903%
33.0	18.134	1.142	1254.704	.063%	96.992%
34.0	16.214	1.039	1255.743	.057%	97.072%
35.0	14.759	0.962	1256.705	.053%	97.146%
36.0	13.528	0.901	1257.606	.050%	97.216%
37.0	12.579	0.851	1258.457	.047%	97.282%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	11.728	0.811	1259.268	.045%	97.345%
39.0	11.032	0.777	1260.045	.043%	97.405%
40.0	10.470	0.750	1260.795	.041%	97.463%
41.0	9.984	0.728	1261.523	.040%	97.519%
42.0	9.534	0.709	1262.233	.039%	97.574%
43.0	9.155	0.692	1262.925	.038%	97.627%
44.0	8.838	0.679	1263.604	.038%	97.680%
45.0	8.529	0.667	1264.271	.037%	97.731%
46.0	8.290	0.658	1264.929	.036%	97.782%
47.0	8.058	0.650	1265.579	.036%	97.832%
48.0	7.847	0.643	1266.222	.036%	97.882%
49.0	7.685	0.638	1266.86	.035%	97.931%
50.0	7.530	0.634	1267.495	.035%	97.981%
51.0	7.411	0.632	1268.127	.035%	98.029%
52.0	7.291	0.631	1268.758	.035%	98.078%
53.0	7.179	0.629	1269.387	.035%	98.127%
54.0	7.066	0.628	1270.015	.035%	98.175%
55.0	6.989	0.627	1270.642	.035%	98.224%
56.0	6.912	0.628	1271.27	.035%	98.272%
57.0	6.855	0.629	1271.9	.035%	98.321%
58.0	6.785	0.631	1272.531	.035%	98.370%
59.0	6.729	0.632	1273.163	.035%	98.419%
60.0	6.680	0.633	1273.796	.035%	98.468%
61.0	6.630	0.635	1274.431	.035%	98.517%
62.0	6.609	0.638	1275.069	.035%	98.566%
63.0	6.553	0.640	1275.709	.035%	98.616%
64.0	6.497	0.640	1276.35	.035%	98.665%
65.0	6.483	0.642	1276.992	.035%	98.715%
66.0	6.448	0.645	1277.637	.036%	98.765%
67.0	6.420	0.647	1278.284	.036%	98.815%
68.0	6.413	0.650	1278.934	.036%	98.865%
69.0	6.384	0.653	1279.587	.036%	98.915%
70.0	6.363	0.655	1280.242	.036%	98.966%
71.0	6.335	0.656	1280.898	.036%	99.017%
72.0	6.314	0.658	1281.556	.036%	99.067%
73.0	6.300	0.660	1282.215	.036%	99.118%
74.0	6.293	0.662	1282.877	.037%	99.170%
75.0	6.286	0.665	1283.542	.037%	99.221%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.265	0.666	1284.208	.037%	99.273%
77.0	6.251	0.667	1284.876	.037%	99.324%
78.0	6.244	0.669	1285.544	.037%	99.376%
79.0	6.230	0.670	1286.215	.037%	99.428%
80.0	6.216	0.671	1286.886	.037%	99.480%
81.0	6.209	0.672	1287.557	.037%	99.531%
82.0	6.188	0.672	1288.23	.037%	99.583%
83.0	6.195	0.673	1288.903	.037%	99.635%
84.0	6.166	0.673	1289.576	.037%	99.687%
85.0	6.166	0.673	1290.249	.037%	99.740%
86.0	6.173	0.675	1290.924	.037%	99.792%
87.0	6.152	0.675	1291.598	.037%	99.844%
88.0	6.145	0.674	1292.272	.037%	99.896%
89.0	6.138	0.673	1292.945	.037%	99.948%
90.0	6.145	0.673	1293.619	.037%	100.000%

Zonal flux distribution table

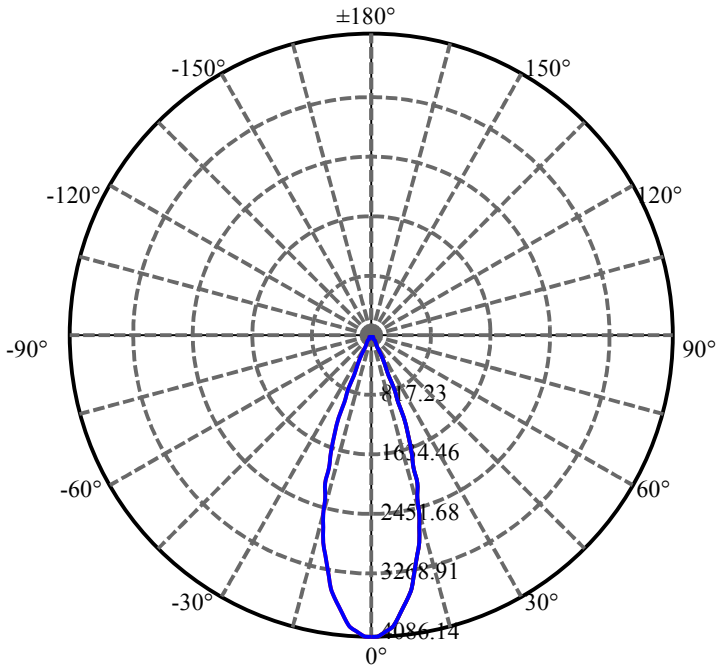
ZONAL LUMEN SUMMARY

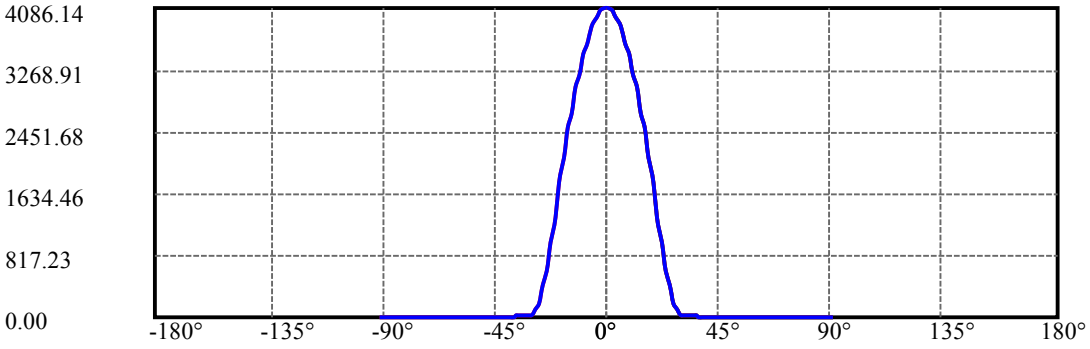
Zone	Lumens	%Lamp	%Fixt
0-30	1250.68	69.10%	96.68%
0-40	1260.80	69.66%	97.46%
0-60	1273.80	70.38%	98.47%
0-90	1292.95	71.44%	99.95%
0-120	1292.95	71.44%	99.95%
0-180	1293.62	71.47%	100.00%
60-90	19.78	1.09%	1.53%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-20.25	1034.90	57.18%	80.00%

ZONAL LUMEN SUMMARY

0-10	353.41
10-20	669.06
20-30	228.21
30-40	10.11
40-50	6.70
50-60	6.30
60-70	6.45
70-80	6.64
80-90	6.06
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):

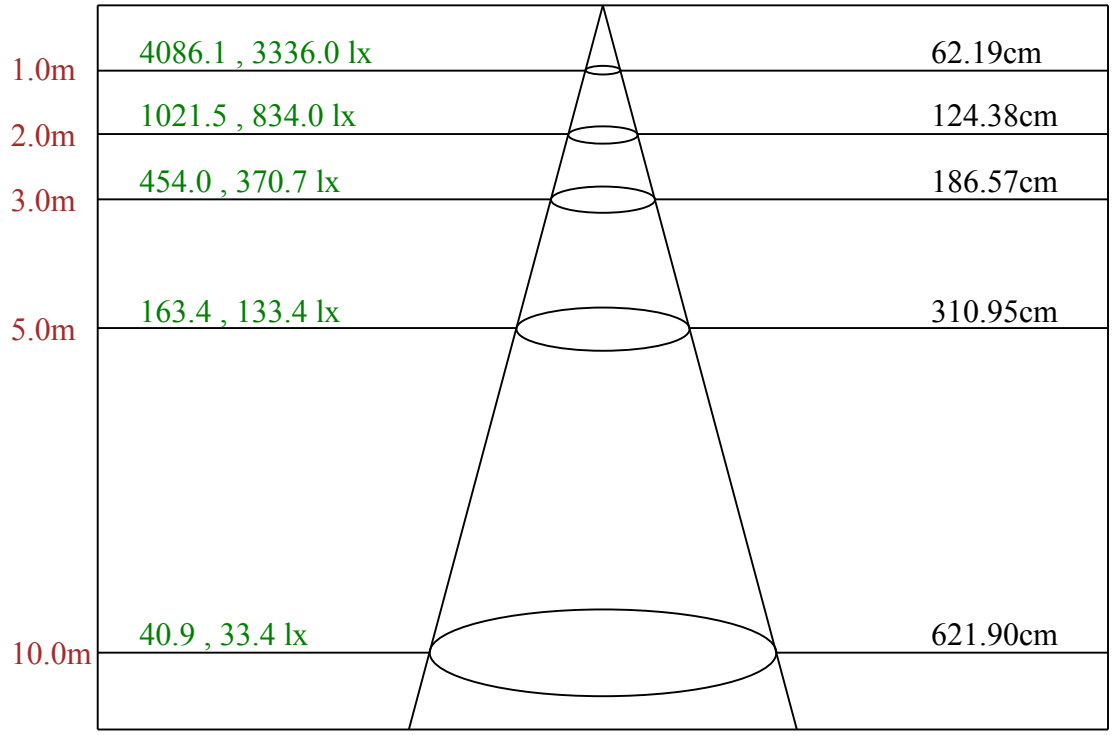
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:25.2 Right:25.2
:C90/270Left:25.2 Right:25.2

Beam Angle(50%Imax):C0/180Left:17.3 Right:17.3
:C90/270Left:17.3 Right:17.3

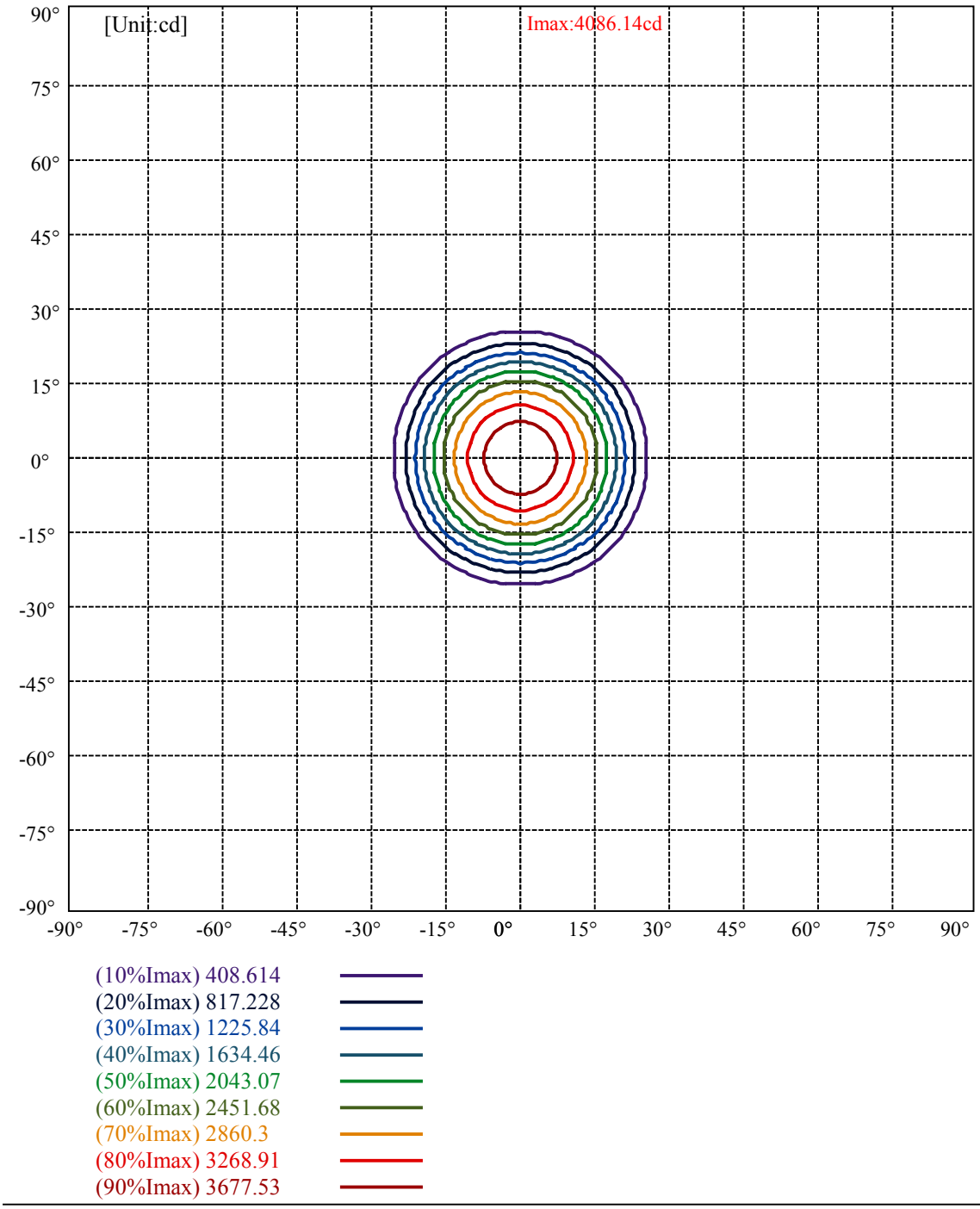
Lux distance Curve



Max , Ave

Beam angle of C0 plane 34.55

ISO-Intensity(V-H)

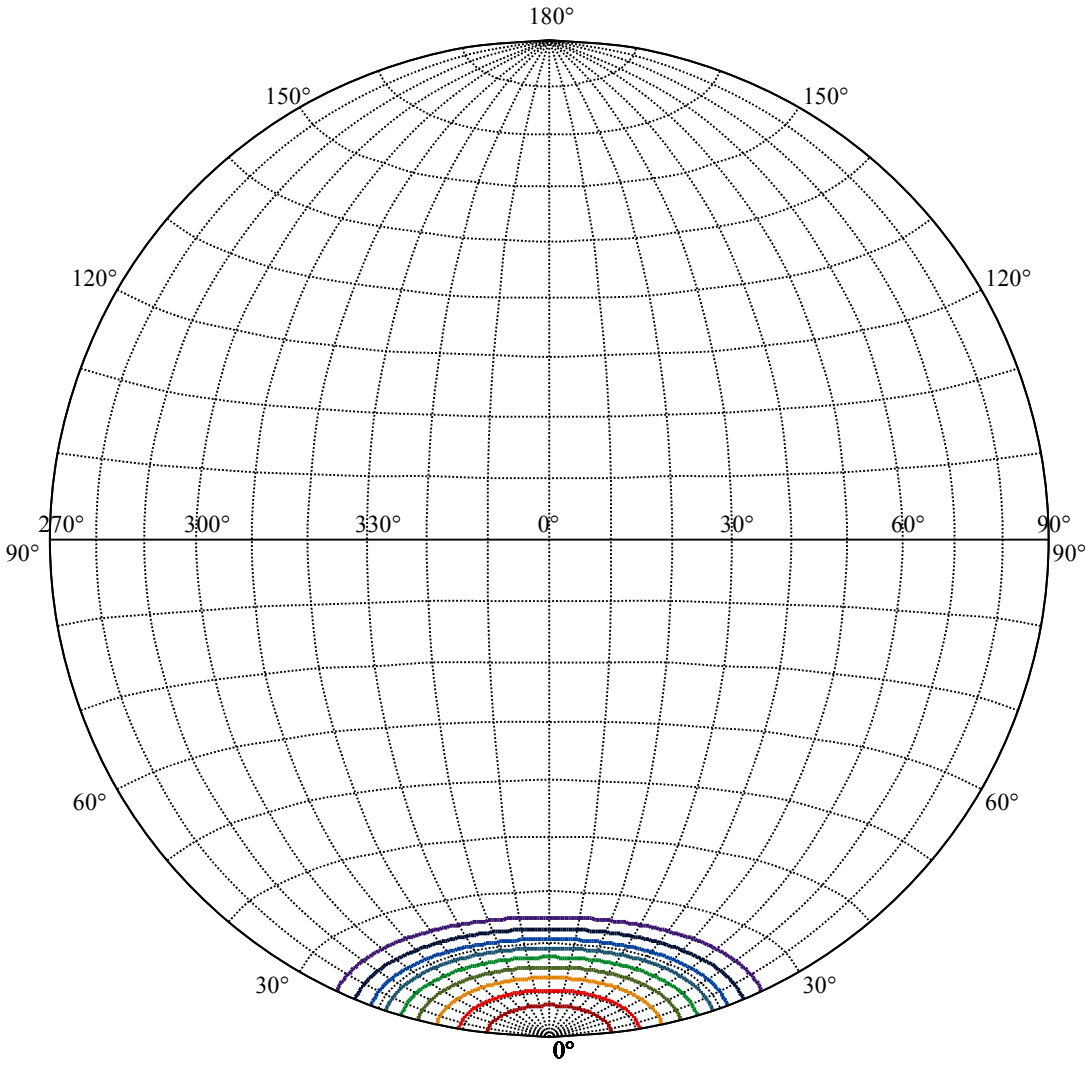


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:4086.14

(10%Imax) 408.614
(20%Imax) 817.228
(30%Imax) 1225.84
(40%Imax) 1634.46
(50%Imax) 2043.07
(60%Imax) 2451.68
(70%Imax) 2860.3
(80%Imax) 3268.91
(90%Imax) 3677.53

Equipment: GMS1980 Date: 2019/9/23 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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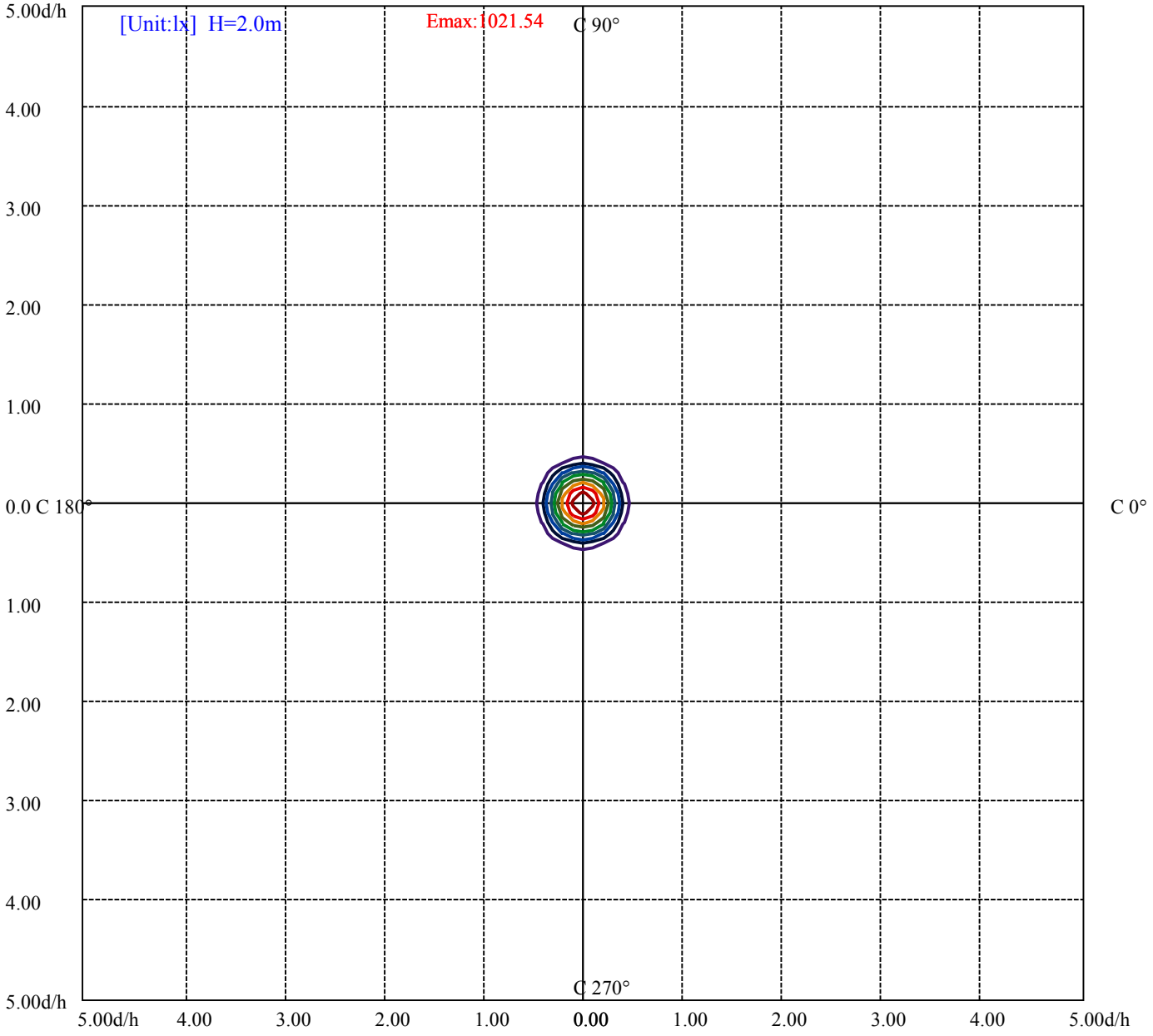
ISO illuminance diagram

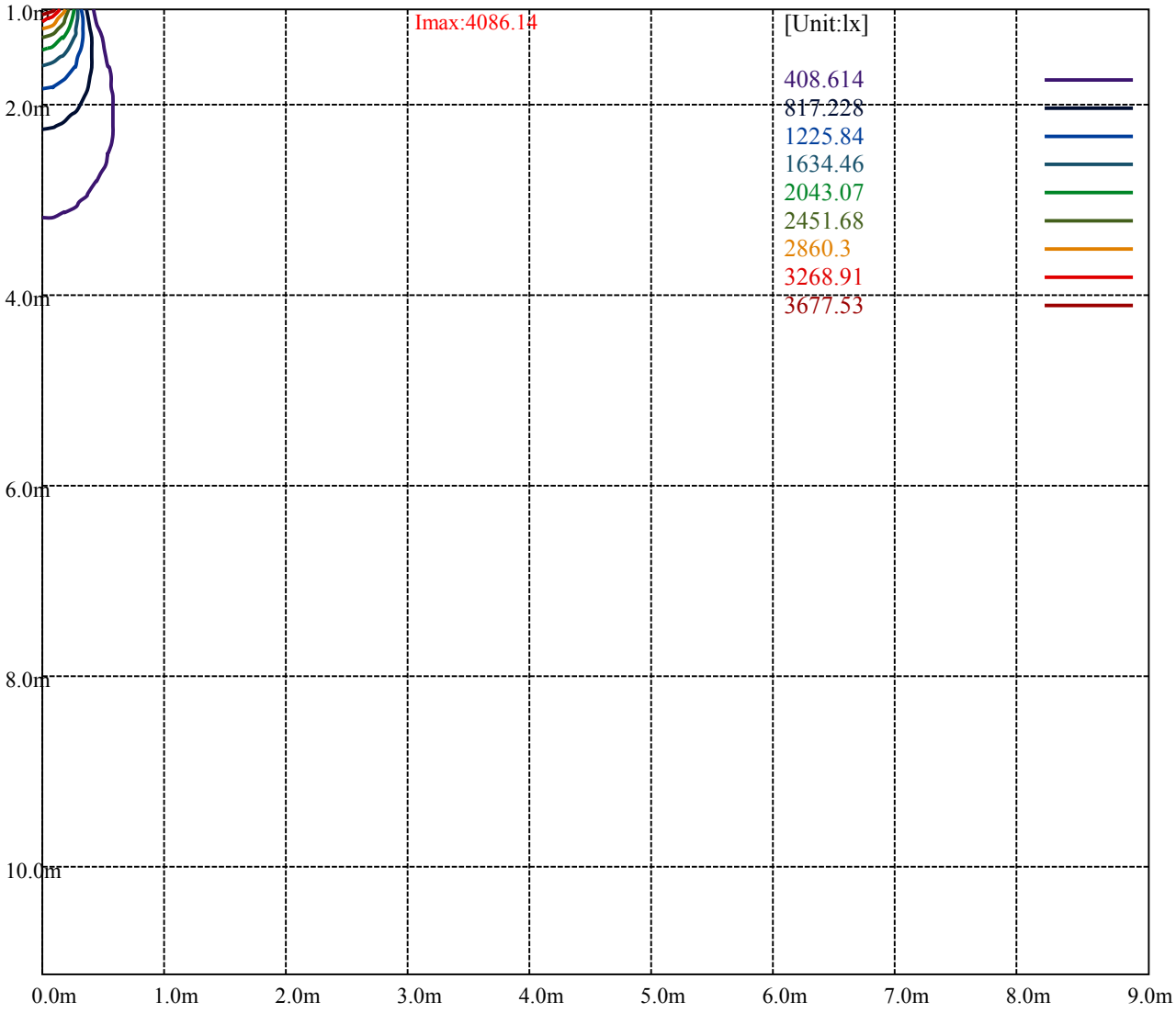


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

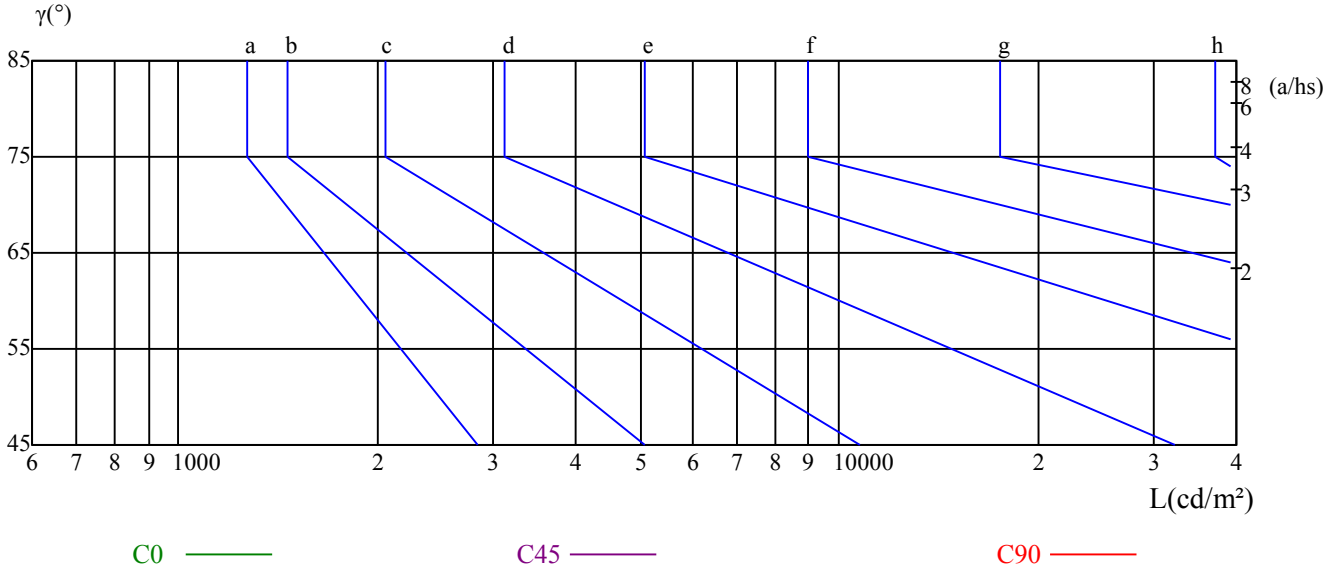
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

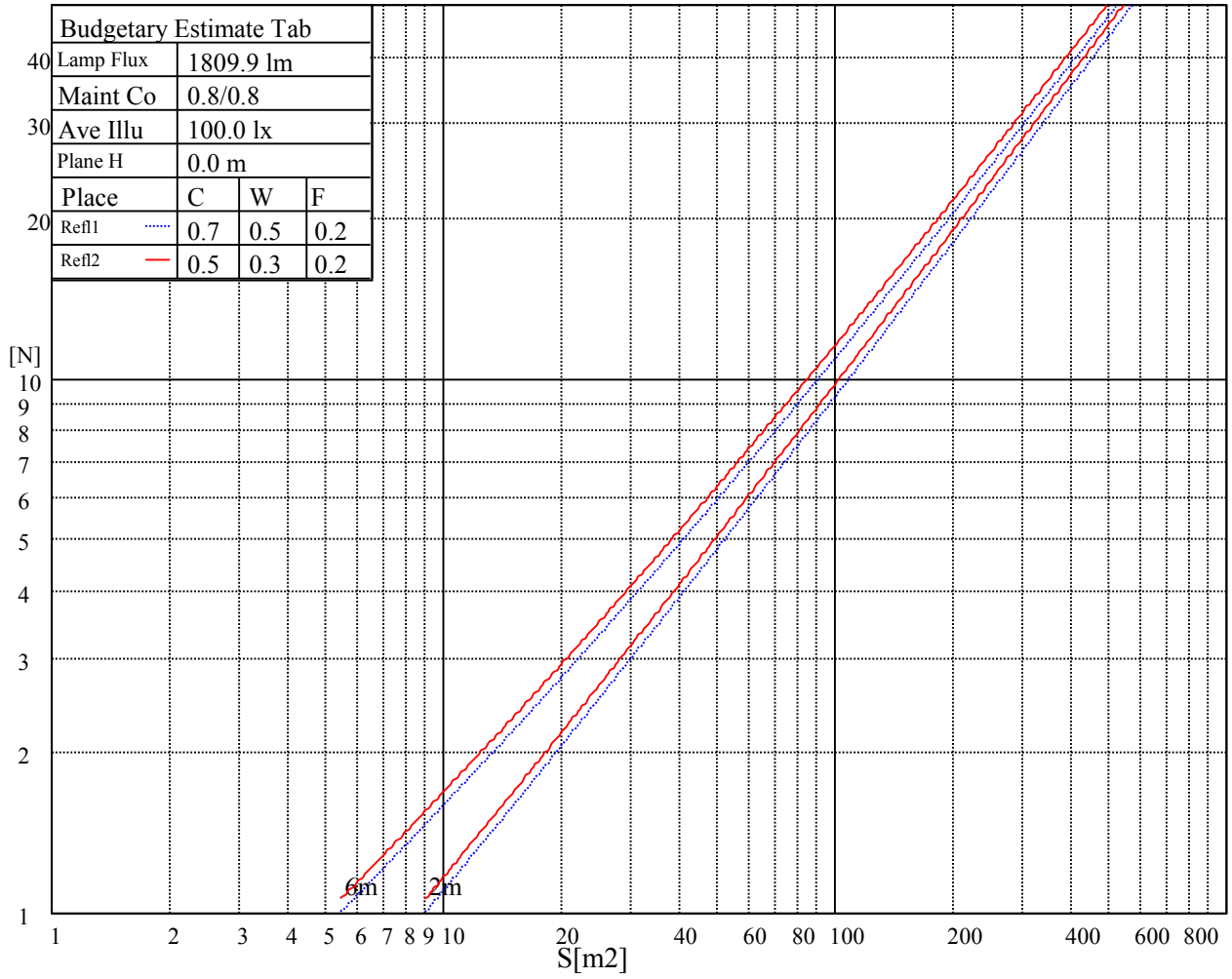
Glare Table

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

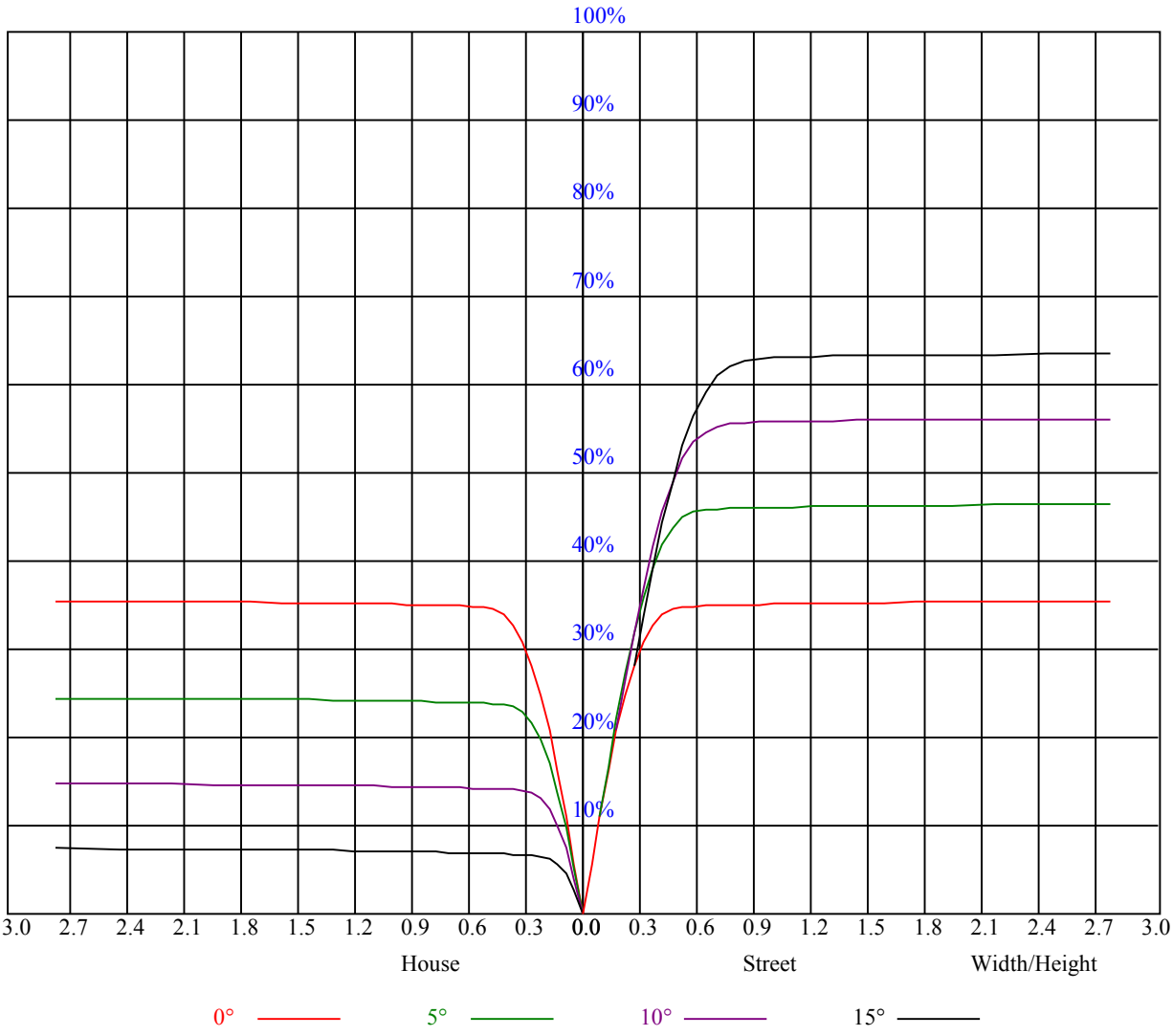


Equipment: GMS1980	Date: 2019/9/23	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	0.85	0.85	0.85	0.83	0.83	0.83	0.79	0.79	0.79	0.76	0.76	0.76	0.73	0.73	0.73	0.71
1	0.80	0.79	0.77	0.79	0.77	0.76	0.76	0.75	0.74	0.73	0.72	0.72	0.71	0.70	0.70	0.68
2	0.76	0.74	0.72	0.75	0.73	0.71	0.73	0.71	0.70	0.71	0.69	0.68	0.69	0.68	0.67	0.66
3	0.73	0.70	0.68	0.72	0.69	0.67	0.70	0.68	0.66	0.68	0.67	0.65	0.67	0.65	0.64	0.63
4	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.66	0.64	0.63	0.65	0.63	0.62	0.61
5	0.67	0.64	0.62	0.66	0.64	0.61	0.65	0.63	0.61	0.64	0.62	0.60	0.63	0.61	0.60	0.59
6	0.65	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.62	0.60	0.58	0.61	0.59	0.58	0.57
7	0.62	0.59	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.60	0.58	0.56	0.60	0.58	0.56	0.55
8	0.60	0.57	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.59	0.56	0.55	0.58	0.56	0.54	0.54
9	0.58	0.55	0.53	0.58	0.55	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.56	0.54	0.53	0.52
10	0.57	0.54	0.52	0.56	0.53	0.52	0.56	0.53	0.51	0.55	0.53	0.51	0.55	0.53	0.51	0.50

Coefficient Utilization Curve



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/9/23
Humidity(%): 65.0%

Operator: NT07
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	4082.06	4059.00	4019.63	3975.75	3893.63	3803.06	3711.94	3597.19	3485.25
45.0	4103.44	4088.81	4050.56	4003.88	3943.13	3849.75	3760.88	3660.19	3535.31
90.0	4084.88	4070.25	4041.56	3985.31	3925.13	3841.31	3753.56	3641.06	3529.69
135.0	4074.19	4080.94	4070.25	4046.06	4002.19	3940.31	3871.69	3777.75	3682.69
180.0	4082.06	4086.00	4078.13	4044.94	4011.75	3959.44	3884.06	3792.38	3697.88
225.0	4103.44	4104.56	4087.13	4057.31	4015.13	3942.00	3880.69	3786.75	3666.94
270.0	4084.88	4085.44	4068.56	4038.75	3989.81	3923.44	3852.00	3758.06	3663.56
315.0	4074.19	4053.94	4021.31	3960.56	3896.44	3819.94	3722.63	3610.13	3499.88
360.0	4082.06	4059.00	4019.63	3975.75	3893.63	3803.06	3711.94	3597.19	3485.25

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3349.69	3200.06	3058.31	2906.44	2704.50	2526.19	2334.94	2084.06	1883.81
45.0	3400.31	3268.13	3108.38	2957.63	2776.50	2581.88	2386.69	2176.88	1950.19
90.0	3394.13	3245.06	3105.00	2938.50	2781.00	2589.75	2383.31	2191.50	1991.81
135.0	3565.13	3434.06	3306.94	3169.69	2985.75	2829.94	2661.75	2443.50	2252.25
180.0	3578.63	3447.56	3322.13	3170.81	3026.81	2856.38	2673.56	2499.19	2310.75
225.0	3573.00	3441.38	3295.13	3155.63	3008.25	2814.19	2645.44	2462.63	2247.19
270.0	3546.00	3415.50	3287.81	3151.69	2968.88	2811.94	2643.19	2412.00	2220.19
315.0	3365.44	3216.94	3074.06	2904.19	2744.44	2550.94	2339.44	2142.56	1943.44
360.0	3349.69	3200.06	3058.31	2906.44	2704.50	2526.19	2334.94	2084.06	1883.81

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1681.31	1450.69	1218.94	1019.81	802.13	598.50	434.25	290.25	160.88
45.0	1742.06	1525.50	1274.06	1069.31	869.63	631.13	459.00	322.31	306.56
90.0	1738.13	1528.88	1245.38	1058.91	863.61	679.67	491.29	326.81	207.62
135.0	2055.38	1830.94	1605.38	1397.81	1161.56	927.56	740.81	551.81	392.63
180.0	2063.25	1861.31	1659.38	1397.25	1114.65	992.76	803.14	581.57	422.94
225.0	2026.69	1828.69	1625.06	1367.44	1106.72	956.25	741.09	543.99	387.45
270.0	2023.31	1827.00	1571.63	1362.94	1156.50	905.63	714.38	537.19	358.31
315.0	1693.69	1485.00	1097.16	996.92	824.12	637.26	447.08	288.06	175.73
360.0	1681.31	1450.69	1218.94	1019.81	802.13	598.50	434.25	290.25	160.88

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	79.14	38.93	28.41	23.46	19.80	17.66	16.03	14.40	13.33
45.0	100.86	52.09	32.12	25.37	20.98	18.17	16.43	14.96	13.67
90.0	116.44	62.55	36.84	27.34	23.12	19.74	17.38	15.75	14.46
135.0	289.69	147.43	76.05	43.31	28.74	23.74	20.36	17.78	15.81
180.0	287.61	157.39	87.86	45.28	30.04	23.51	20.08	17.49	15.86
225.0	236.36	140.12	68.57	37.01	27.90	22.84	19.58	17.44	15.81
270.0	288.56	118.74	55.35	33.53	25.48	21.60	19.13	17.10	15.47
315.0	90.23	41.63	29.25	23.29	20.31	17.89	16.09	14.79	13.67
360.0	79.14	38.93	28.41	23.46	19.80	17.66	16.03	14.40	13.33

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	12.43	11.59	10.86	10.29	9.79	9.39	9.00	8.66	8.44
45.0	12.71	11.93	11.14	10.63	10.13	9.68	9.28	8.94	8.61
90.0	13.16	12.26	11.59	10.86	10.29	9.90	9.39	9.06	8.78
135.0	14.46	13.28	12.21	11.48	10.91	10.35	9.84	9.45	9.11
180.0	14.34	13.22	12.32	11.53	10.86	10.29	9.84	9.39	9.06
225.0	14.23	13.22	12.32	11.42	10.80	10.29	9.79	9.39	9.06
270.0	14.34	13.33	12.26	11.59	10.97	10.35	9.84	9.51	9.11
315.0	12.54	11.81	11.14	10.46	10.01	9.62	9.28	8.83	8.55
360.0	12.43	11.59	10.86	10.29	9.79	9.39	9.00	8.66	8.44

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	8.16	7.93	7.76	7.59	7.43	7.31	7.20	7.09	6.98
45.0	8.38	8.16	7.93	7.76	7.59	7.43	7.31	7.20	7.09
90.0	8.44	8.27	8.04	7.76	7.71	7.54	7.37	7.26	7.20
135.0	8.78	8.49	8.27	8.04	7.88	7.71	7.59	7.48	7.31
180.0	8.72	8.44	8.21	7.99	7.76	7.59	7.48	7.37	7.20
225.0	8.66	8.44	8.16	7.93	7.76	7.59	7.48	7.37	7.26
270.0	8.78	8.49	8.27	8.04	7.82	7.65	7.54	7.43	7.31
315.0	8.33	8.10	7.82	7.65	7.54	7.43	7.31	7.14	7.09
360.0	8.16	7.93	7.76	7.59	7.43	7.31	7.20	7.09	6.98

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	6.86	6.81	6.75	6.69	6.64	6.58	6.53	6.53	6.47
45.0	7.03	6.98	6.86	6.81	6.75	6.69	6.64	6.64	6.58
90.0	7.03	7.03	6.92	6.86	6.81	6.75	6.75	6.64	6.64
135.0	7.20	7.09	7.03	6.98	6.92	6.81	6.75	6.69	6.69
180.0	7.09	6.98	6.92	6.86	6.75	6.69	6.69	6.58	6.58
225.0	7.14	7.03	6.92	6.86	6.81	6.75	6.69	6.64	6.64
270.0	7.20	7.09	7.03	6.98	6.86	6.86	6.75	6.75	6.69
315.0	6.98	6.92	6.86	6.81	6.75	6.69	6.64	6.58	6.58
360.0	6.86	6.81	6.75	6.69	6.64	6.58	6.53	6.53	6.47

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.41	6.36	6.36	6.36	6.30	6.30	6.30	6.30	6.24
45.0	6.53	6.47	6.47	6.41	6.41	6.41	6.36	6.36	6.30
90.0	6.58	6.53	6.53	6.53	6.47	6.47	6.41	6.41	6.41
135.0	6.64	6.58	6.53	6.47	6.47	6.47	6.47	6.41	6.36
180.0	6.53	6.47	6.47	6.41	6.36	6.36	6.30	6.30	6.30
225.0	6.58	6.53	6.47	6.47	6.41	6.41	6.41	6.36	6.36
270.0	6.64	6.58	6.58	6.53	6.53	6.47	6.47	6.41	6.41
315.0	6.53	6.47	6.47	6.41	6.41	6.41	6.36	6.36	6.30
360.0	6.41	6.36	6.36	6.36	6.30	6.30	6.30	6.30	6.24

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.24	6.19	6.19	6.19	6.19	6.19	6.13	6.13	6.13
45.0	6.30	6.30	6.24	6.24	6.24	6.24	6.24	6.19	6.19
90.0	6.36	6.36	6.36	6.36	6.36	6.30	6.30	6.30	6.24
135.0	6.36	6.36	6.36	6.30	6.30	6.30	6.30	6.30	6.24
180.0	6.30	6.24	6.24	6.24	6.24	6.19	6.19	6.19	6.19
225.0	6.30	6.30	6.30	6.30	6.24	6.24	6.24	6.19	6.19
270.0	6.36	6.36	6.36	6.36	6.30	6.30	6.30	6.30	6.30
315.0	6.30	6.30	6.30	6.30	6.24	6.24	6.24	6.24	6.24
360.0	6.24	6.19	6.19	6.19	6.19	6.19	6.13	6.13	6.13

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.13	6.08	6.13	6.08	6.08	6.13	6.08	6.08	6.08
45.0	6.19	6.19	6.19	6.13	6.19	6.19	6.19	6.13	6.13
90.0	6.30	6.24	6.24	6.19	6.24	6.19	6.19	6.19	6.19
135.0	6.24	6.24	6.24	6.19	6.19	6.19	6.19	6.19	6.19
180.0	6.13	6.13	6.13	6.13	6.08	6.13	6.08	6.08	6.08
225.0	6.19	6.19	6.19	6.19	6.13	6.13	6.13	6.13	6.13
270.0	6.24	6.24	6.24	6.24	6.24	6.24	6.19	6.19	6.19
315.0	6.24	6.19	6.19	6.19	6.19	6.19	6.19	6.19	6.13
360.0	6.13	6.08	6.13	6.08	6.08	6.13	6.08	6.08	6.08

Intensity data(cd)

C/γ(°)	90.0
0.0	6.08
45.0	6.13
90.0	6.19
135.0	6.19
180.0	6.08
225.0	6.13
270.0	6.19
315.0	6.19
360.0	6.08