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NATA

LumCAT: LM01D05515BH(62.0028.00)
Luminaire: 92.70.132.00

Report No: NATA0100	Voltage(V): 34.9000
Test No: GC2018120404	Current(A): 0.2500
LampCAT: LUMILEDS LUXEON 1203	Power (W): 8.7250
Lamp flux(lm): 1030.1	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 55	Width(mm): 55
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 934.64
Efficiency(%): 90.73%
Lumens(lm)/Power(W): 107.33
Central intensity(cd): 7878.375
Maximum intensity(cd): 7878.375
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.3
[C90/270]Total=16.3
Field angle(10%Imax): [C0/180]Total=31.7
[C90/270]Total=31.7
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.28 C90_270=0.28
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.91%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 95.475%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	7878.375	1.885	1.885	.183%	.202%
1.0	7823.531	14.973	16.858	1.453%	1.804%
2.0	7637.906	29.231	46.089	2.838%	4.931%
3.0	7303.008	41.913	88.002	4.069%	9.416%
4.0	6842.461	52.342	140.344	5.081%	15.016%
5.0	6213.516	59.386	199.73	5.765%	21.370%
6.0	5530.992	63.400	263.13	6.155%	28.153%
7.0	4764.445	63.673	326.804	6.181%	34.966%
8.0	4030.594	61.514	388.318	5.971%	41.547%
9.0	3326.555	57.066	445.384	5.540%	47.653%
10.0	2689.172	51.208	496.593	4.971%	53.132%
11.0	2184.680	45.713	542.306	4.438%	58.023%
12.0	1749.537	39.889	582.195	3.872%	62.291%
13.0	1408.486	34.745	616.94	3.373%	66.008%
14.0	1138.416	30.201	647.141	2.932%	69.240%
15.0	927.309	26.319	673.46	2.555%	72.056%
16.0	765.780	23.147	696.607	2.247%	74.532%
17.0	638.416	20.469	717.076	1.987%	76.722%
18.0	520.137	17.626	734.702	1.711%	78.608%
19.0	434.475	15.512	750.214	1.506%	80.268%
20.0	352.582	13.224	763.438	1.284%	81.683%
21.0	289.216	11.366	774.803	1.103%	82.899%
22.0	233.845	9.606	784.41	.933%	83.926%
23.0	195.736	8.387	792.797	.814%	84.824%
24.0	152.613	6.807	799.604	.661%	85.552%
25.0	124.924	5.790	805.393	.562%	86.172%
26.0	104.653	5.031	810.424	.488%	86.710%
27.0	88.144	4.388	814.812	.426%	87.179%
28.0	76.043	3.915	818.727	.380%	87.598%
29.0	66.797	3.551	822.278	.345%	87.978%
30.0	59.238	3.248	825.527	.315%	88.326%
31.0	52.699	2.976	828.503	.289%	88.644%
32.0	47.039	2.734	831.236	.265%	88.937%
33.0	42.623	2.546	833.782	.247%	89.209%
34.0	38.714	2.374	836.156	.230%	89.463%
35.0	35.641	2.242	838.398	.218%	89.703%
36.0	33.441	2.155	840.553	.209%	89.933%
37.0	32.063	2.116	842.669	.205%	90.160%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	31.099	2.100	844.769	.204%	90.385%
39.0	30.445	2.101	846.87	.204%	90.609%
40.0	30.129	2.124	848.994	.206%	90.837%
41.0	30.016	2.160	851.153	.210%	91.068%
42.0	30.052	2.205	853.359	.214%	91.304%
43.0	30.115	2.252	855.611	.219%	91.544%
44.0	30.206	2.301	857.912	.223%	91.791%
45.0	30.291	2.349	860.261	.228%	92.042%
46.0	30.333	2.393	862.653	.232%	92.298%
47.0	30.312	2.431	865.084	.236%	92.558%
48.0	30.136	2.456	867.54	.238%	92.821%
49.0	29.813	2.467	870.008	.240%	93.085%
50.0	29.257	2.458	872.465	.239%	93.348%
51.0	28.652	2.442	874.907	.237%	93.609%
52.0	27.907	2.412	877.319	.234%	93.867%
53.0	26.937	2.359	879.678	.229%	94.120%
54.0	25.889	2.297	881.975	.223%	94.365%
55.0	24.799	2.228	884.202	.216%	94.604%
56.0	23.681	2.153	886.355	.209%	94.834%
57.0	22.535	2.073	888.428	.201%	95.056%
58.0	21.305	1.981	890.409	.192%	95.268%
59.0	20.159	1.895	892.304	.184%	95.470%
60.0	19.069	1.811	894.115	.176%	95.664%
61.0	18.063	1.732	895.847	.168%	95.850%
62.0	17.198	1.665	897.513	.162%	96.028%
63.0	16.523	1.614	899.127	.157%	96.200%
64.0	15.785	1.556	900.683	.151%	96.367%
65.0	15.096	1.500	902.183	.146%	96.527%
66.0	14.520	1.455	903.638	.141%	96.683%
67.0	14.020	1.415	905.053	.137%	96.834%
68.0	13.634	1.386	906.439	.135%	96.983%
69.0	13.310	1.363	907.802	.132%	97.129%
70.0	13.057	1.345	909.147	.131%	97.273%
71.0	12.776	1.325	910.472	.129%	97.414%
72.0	12.495	1.303	911.775	.126%	97.554%
73.0	12.255	1.285	913.06	.125%	97.691%
74.0	12.059	1.271	914.332	.123%	97.827%
75.0	11.883	1.259	915.59	.122%	97.962%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.763	1.252	916.842	.122%	98.096%
77.0	11.707	1.251	918.093	.121%	98.230%
78.0	11.686	1.253	919.346	.122%	98.364%
79.0	11.700	1.259	920.606	.122%	98.499%
80.0	11.827	1.277	921.883	.124%	98.635%
81.0	12.150	1.316	923.199	.128%	98.776%
82.0	12.593	1.368	924.566	.133%	98.922%
83.0	13.043	1.420	925.986	.138%	99.074%
84.0	13.395	1.461	927.447	.142%	99.230%
85.0	13.577	1.483	928.93	.144%	99.389%
86.0	13.064	1.429	930.359	.139%	99.542%
87.0	12.551	1.374	931.734	.133%	99.689%
88.0	11.834	1.297	933.031	.126%	99.828%
89.0	10.329	1.133	934.163	.110%	99.949%
90.0	8.684	0.476	934.639	.046%	100.000%

Zonal flux distribution table

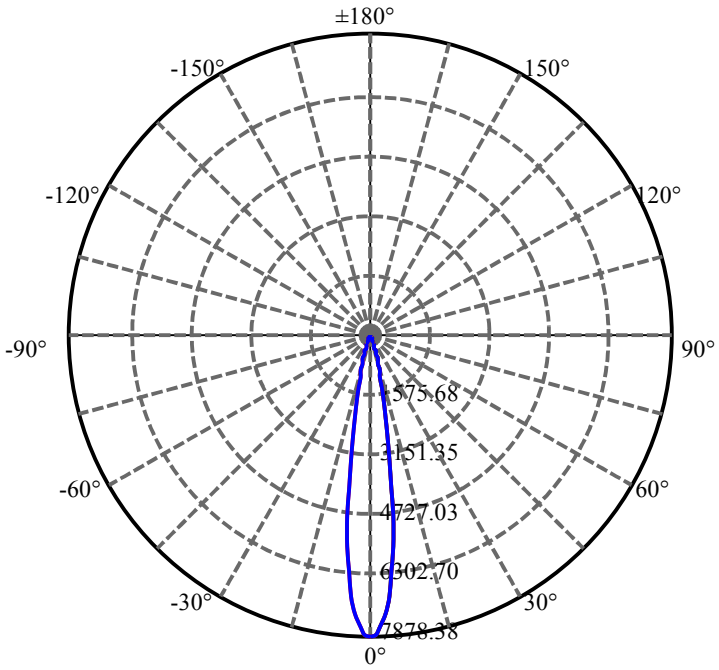
ZONAL LUMEN SUMMARY

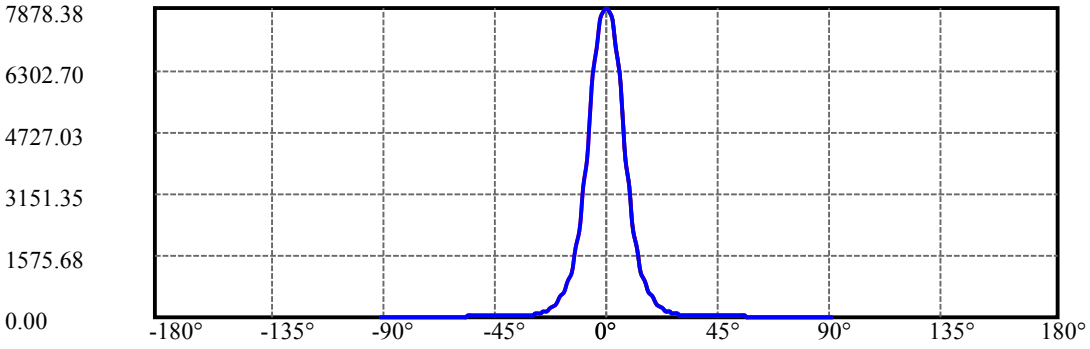
Zone	Lumens	%Lamp	%Fixt
0-30	825.53	80.14%	88.33%
0-40	848.99	82.42%	90.84%
0-60	894.11	86.80%	95.66%
0-90	934.16	90.68%	99.95%
0-120	934.16	90.68%	99.95%
0-180	934.64	90.73%	100.00%
60-90	41.86	4.06%	4.48%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-18.84	747.71	72.58%	80.00%

ZONAL LUMEN SUMMARY

0-10	496.59
10-20	266.84
20-30	62.09
30-40	23.47
40-50	23.47
50-60	21.65
60-70	15.03
70-80	12.74
80-90	12.28
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):

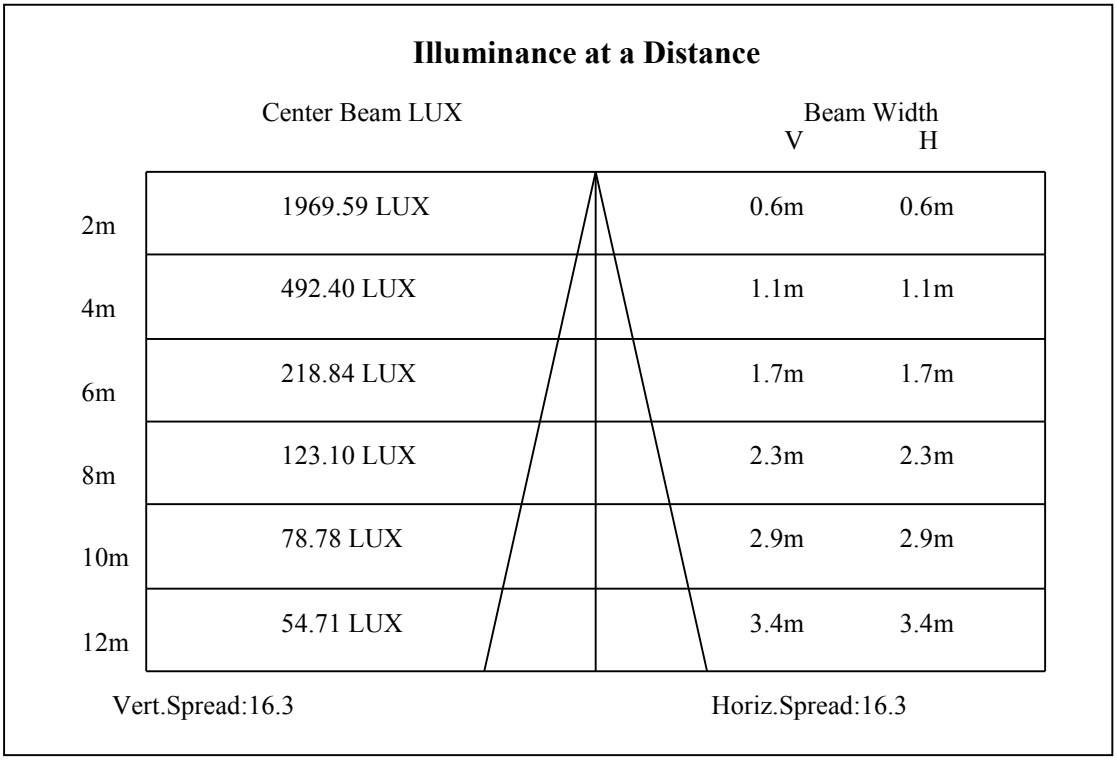
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:15.9 Right:15.9
:C90/270Left:15.9 Right:15.9

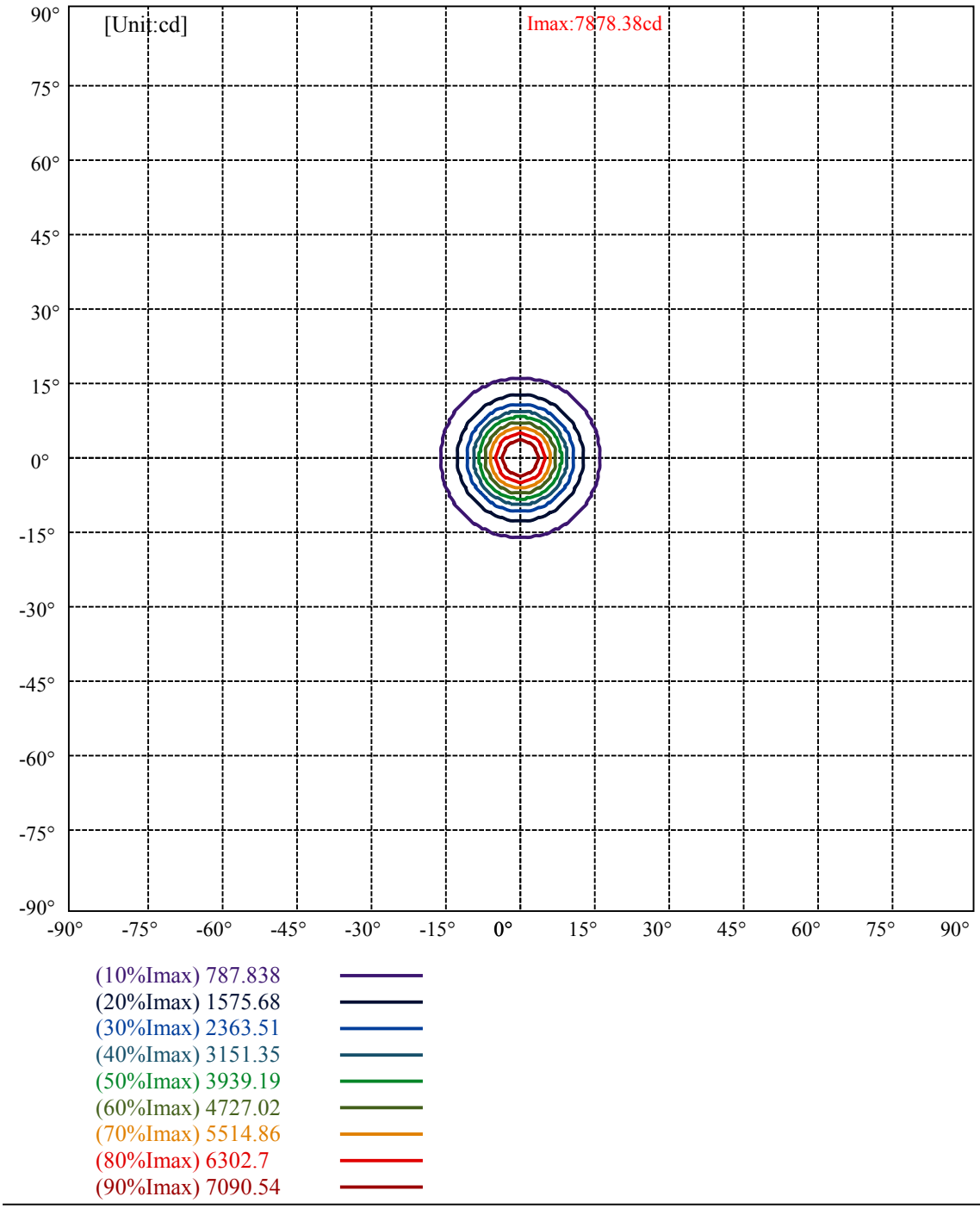
Beam Angle(50%Imax):C0/180Left:8.1 Right:8.1
:C90/270Left:8.1 Right:8.1

Lux distance Curve



Equipment: GMS1980 Date: 2018/12/4 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

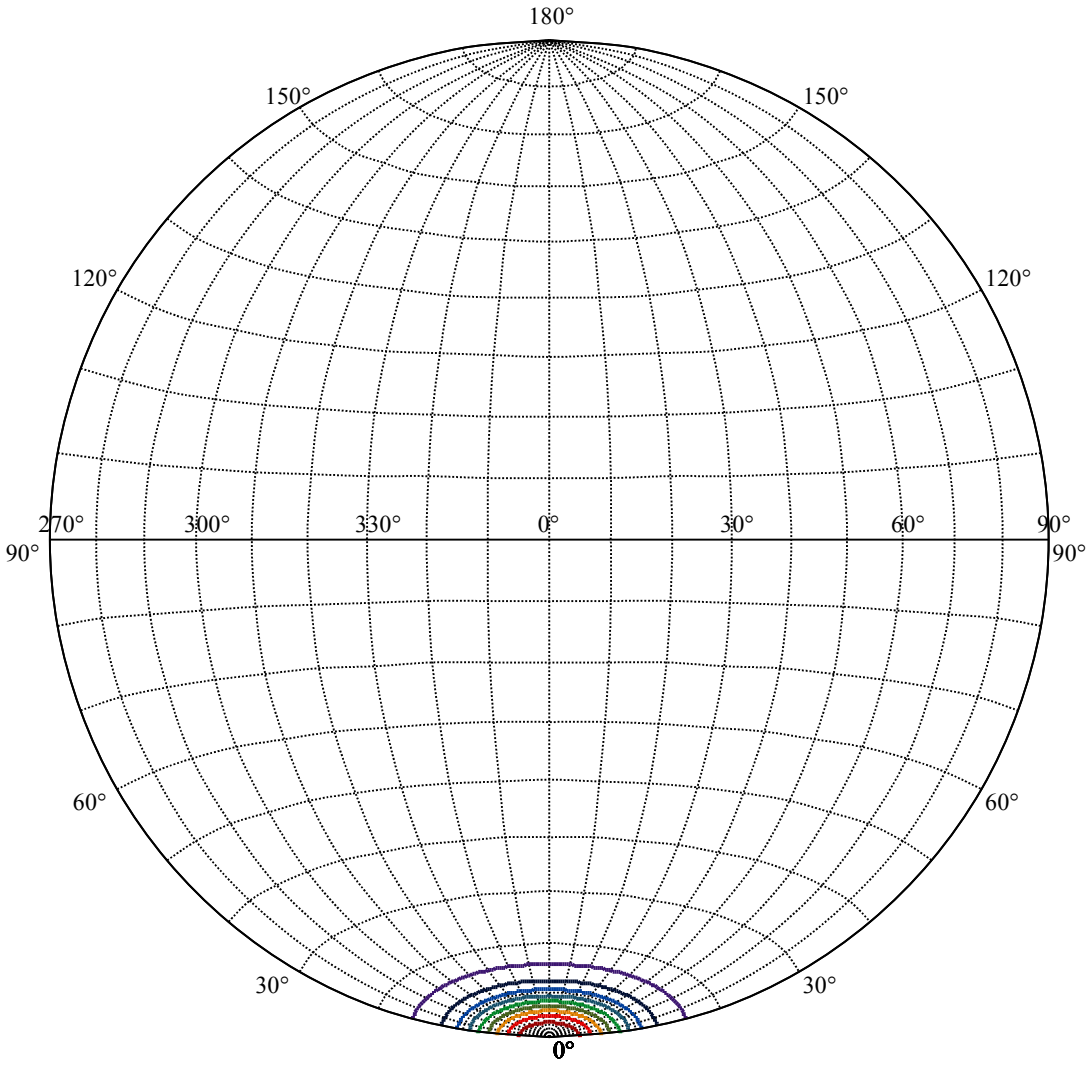


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/4
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:7878.38

(10%Imax) 787.838
(20%Imax) 1575.68
(30%Imax) 2363.51
(40%Imax) 3151.35
(50%Imax) 3939.19
(60%Imax) 4727.02
(70%Imax) 5514.86
(80%Imax) 6302.7
(90%Imax) 7090.54

Equipment: GMS1980 Date: 2018/12/4 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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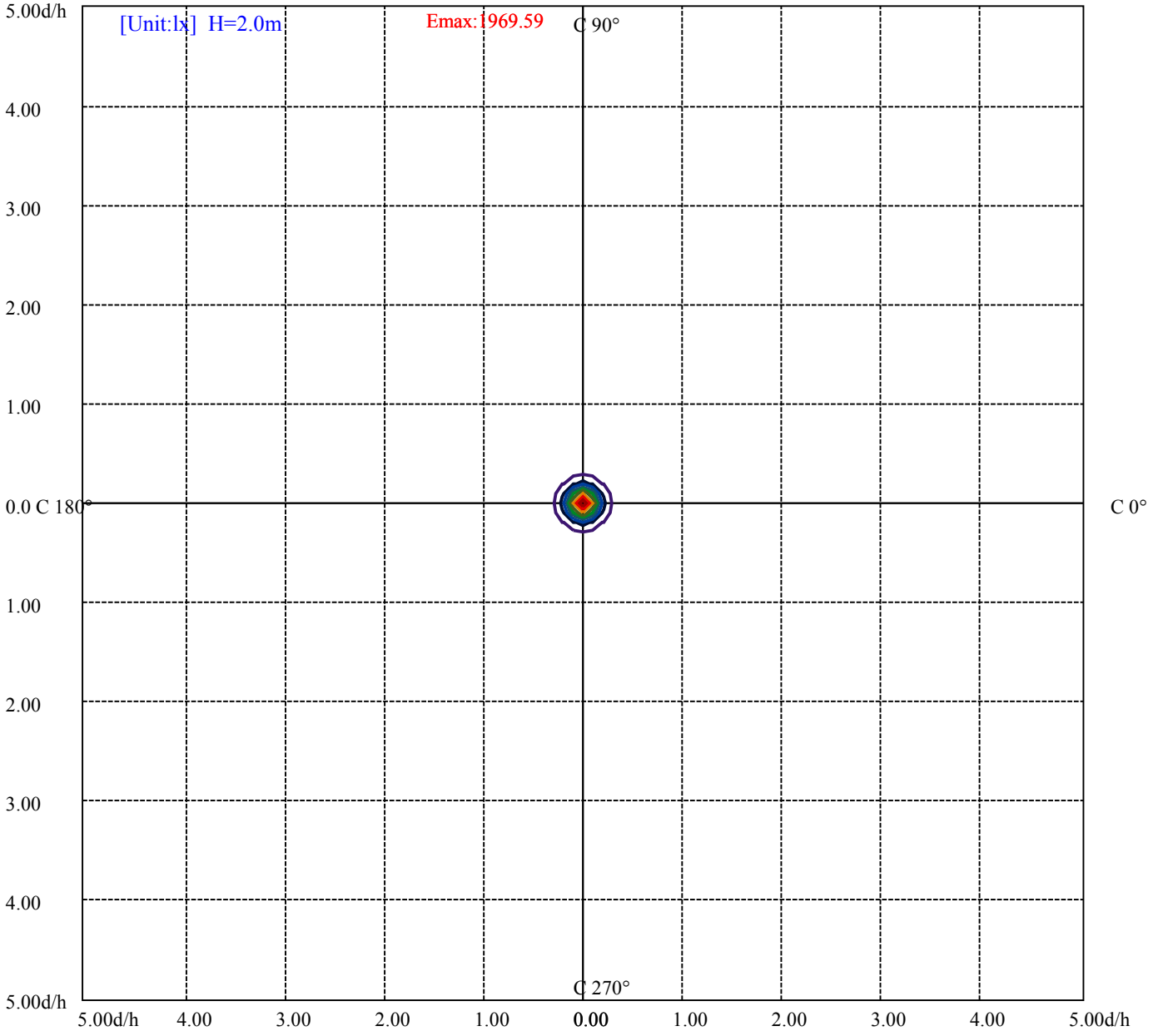
ISO illuminance diagram



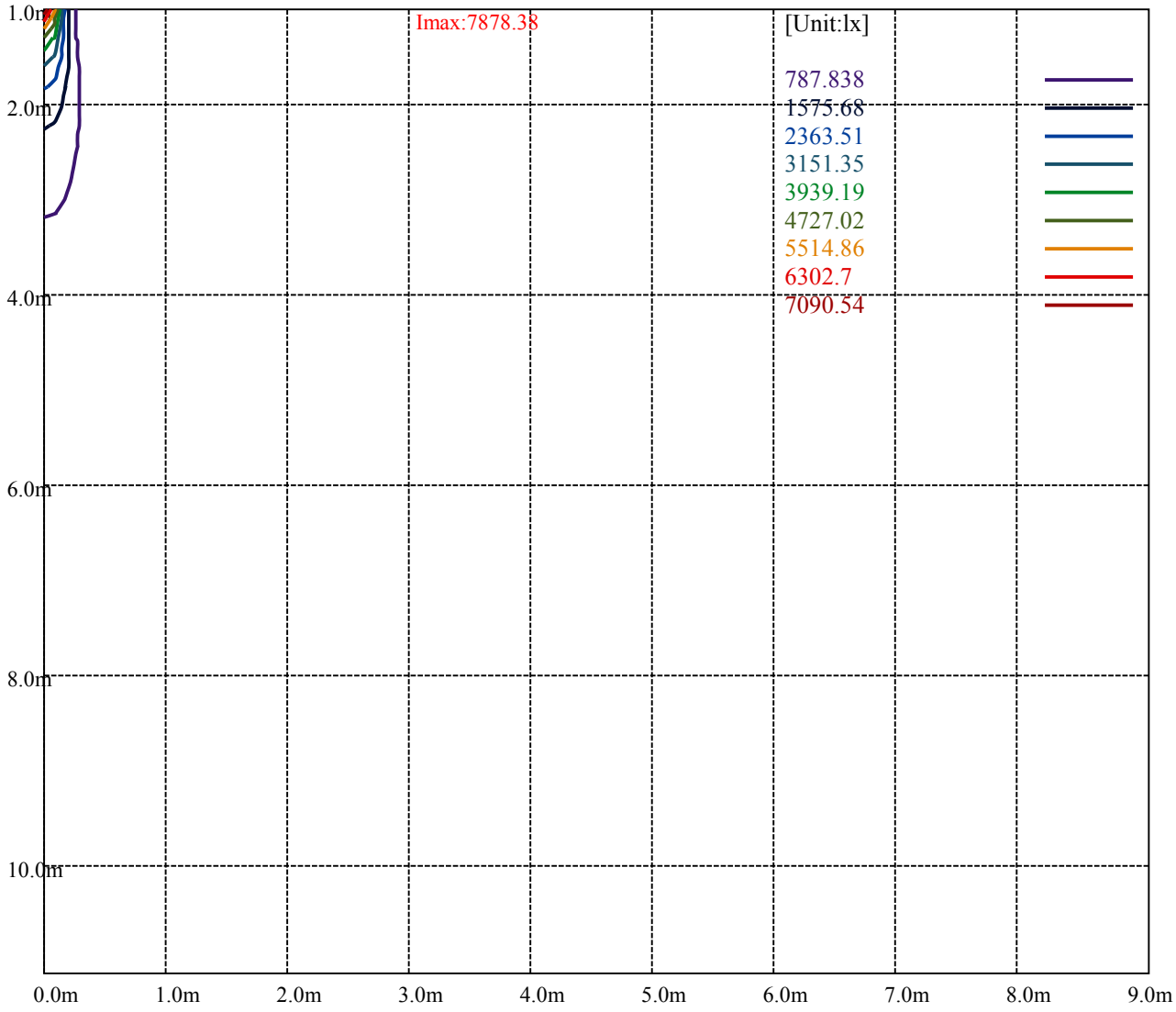
(10%Emax) 196.9592
(20%Emax) 393.9175
(30%Emax) 590.8775
(40%Emax) 787.8375
(50%Emax) 984.795
(60%Emax) 1181.755
(70%Emax) 1378.715
(80%Emax) 1575.672
(90%Emax) 1772.632

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/4
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/4
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

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Luminance Limitting Curve(no luminous side)

Luminance Table

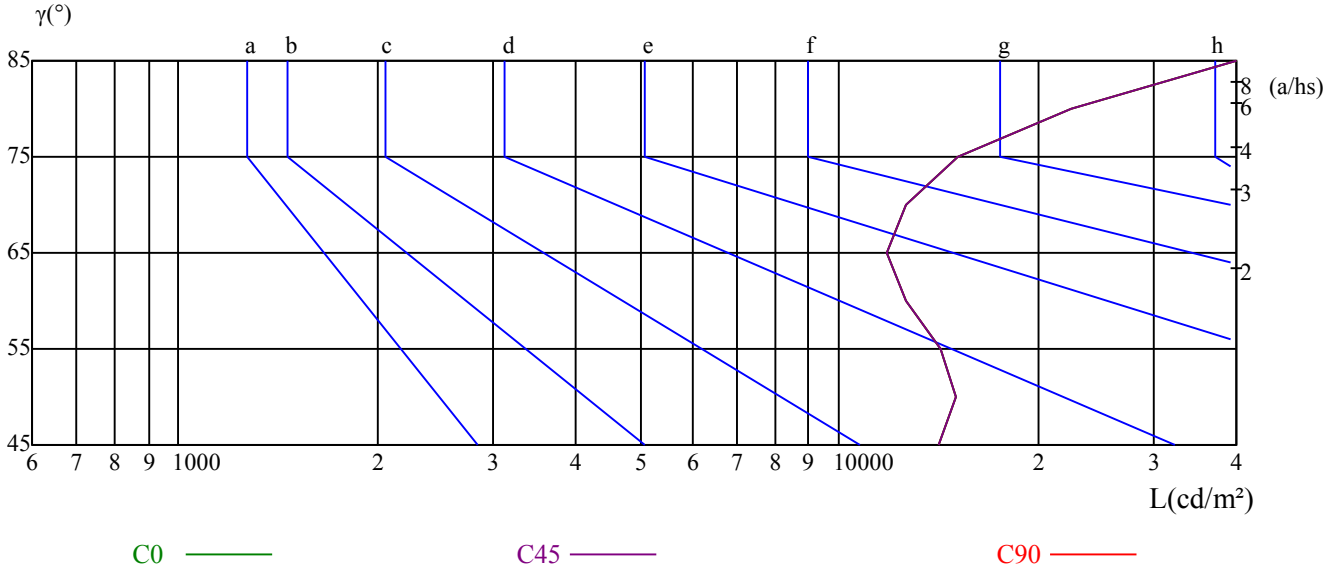
γ	45	50	55	60	65	70	75	80	85
C0	14161	15047	14293	12607	11808	12620	15177	22515	51498
C45	14161	15047	14293	12607	11808	12620	15177	22515	51498
C90	14161	15047	14293	12607	11808	12620	15177	22515	51498

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
11808	11808	11808	15177	15177	15177	51498	51498	51498

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

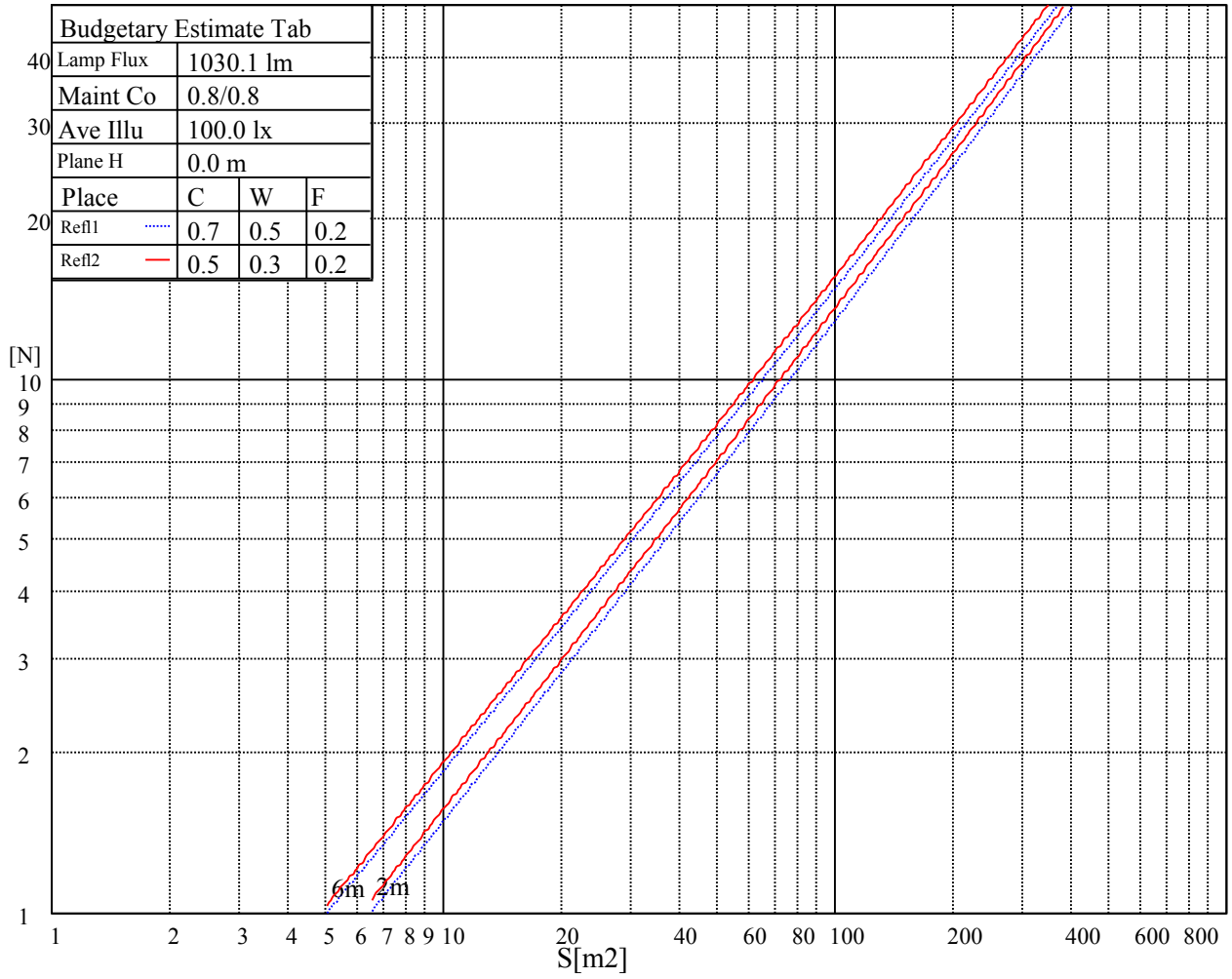


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/4
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Budgetary Estimate Table

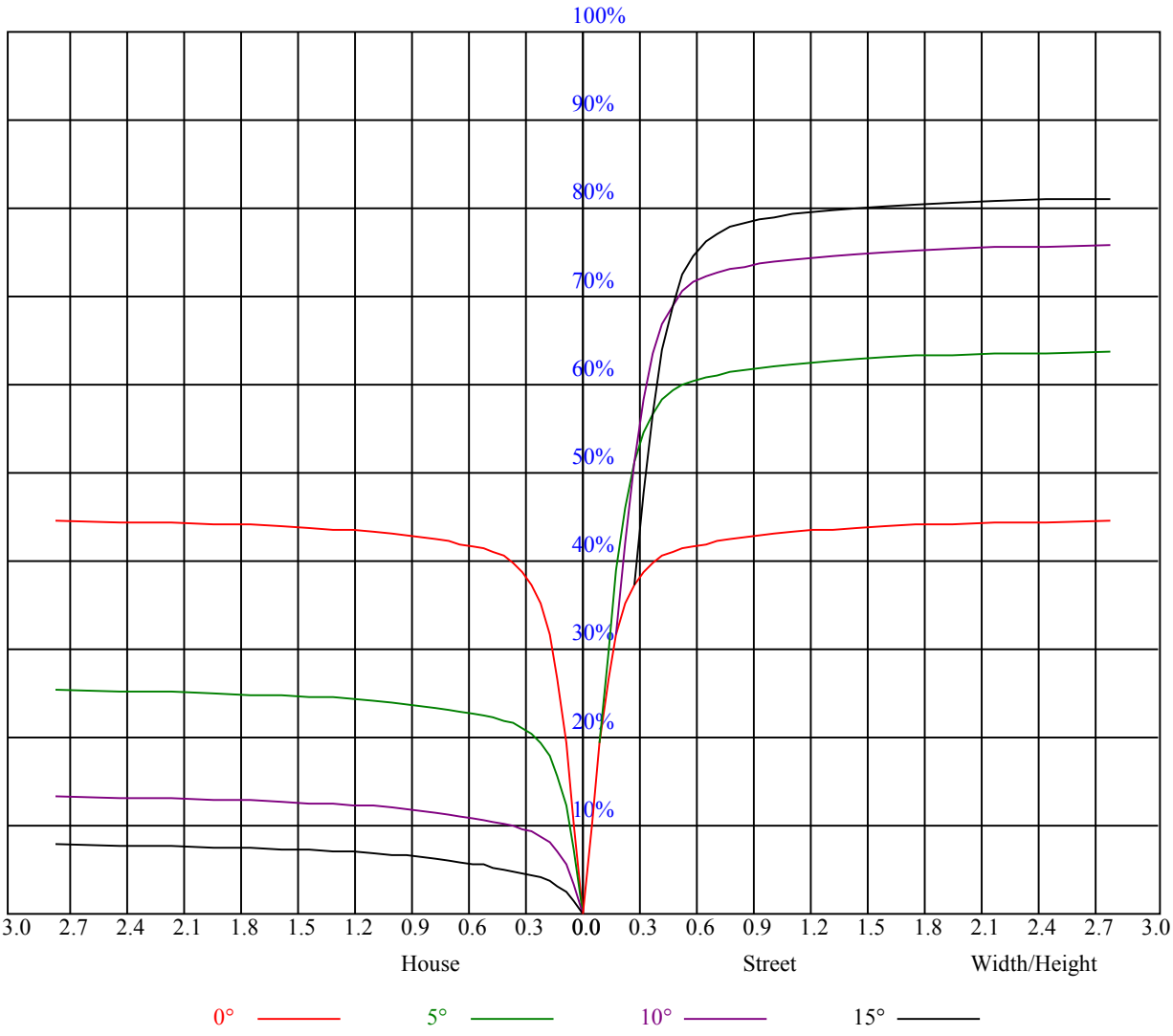


Equipment: GMS1980 Date: 2018/12/4 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.01	0.99	0.98	1.00	0.98	0.96	0.96	0.94	0.93	0.93	0.91	0.90	0.89	0.89	0.88	0.86
2	0.96	0.93	0.91	0.95	0.92	0.90	0.92	0.90	0.88	0.89	0.88	0.86	0.87	0.86	0.84	0.83
3	0.92	0.89	0.86	0.91	0.88	0.85	0.89	0.86	0.84	0.87	0.85	0.83	0.85	0.83	0.82	0.80
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	0.80	0.85	0.82	0.79	0.84	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
6	0.84	0.80	0.77	0.83	0.80	0.77	0.82	0.79	0.76	0.81	0.78	0.76	0.80	0.77	0.76	0.75
7	0.82	0.78	0.75	0.81	0.77	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.78	0.76	0.74	0.73
8	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.73	0.78	0.75	0.73	0.77	0.74	0.73	0.72
9	0.78	0.74	0.72	0.77	0.74	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.76	0.73	0.71	0.70
10	0.76	0.73	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.69

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2018/12/4	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	7881.75	7862.06	7739.44	7506.56	7112.25	6580.13	5996.25	5240.81	4540.50
45.0	7881.75	7823.25	7593.75	7277.63	6833.81	6111.00	5422.50	4781.25	3907.13
90.0	7851.38	7705.69	7440.75	6898.50	6309.56	5616.00	4779.56	3970.13	3309.19
135.0	7898.63	7818.75	7590.94	7228.69	6630.75	5868.00	5124.38	4290.75	3614.06
180.0	7881.75	7773.75	7558.31	7090.31	6528.38	5852.81	5004.00	4160.81	3474.56
225.0	7881.75	7845.75	7647.75	7364.81	6949.69	6245.44	5655.94	4845.94	3949.31
270.0	7851.38	7893.56	7802.44	7623.00	7288.31	6805.69	6268.50	5562.00	4876.88
315.0	7898.63	7865.44	7729.88	7434.56	7086.94	6629.06	5996.81	5263.88	4573.13
360.0	7881.75	7862.06	7739.44	7506.56	7112.25	6580.13	5996.25	5240.81	4540.50

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3774.94	3083.06	2553.19	2111.63	1663.31	1379.25	1149.19	922.50	779.63
45.0	3197.25	2633.06	2090.81	1693.69	1338.75	1064.25	876.38	711.00	578.25
90.0	2647.13	2078.44	1661.63	1120.11	1032.58	816.92	653.85	539.33	441.79
135.0	2926.69	2313.56	1845.56	1463.06	1093.50	873.00	704.81	547.31	447.19
180.0	2780.44	2188.13	1757.25	1409.63	1098.06	864.39	705.94	565.31	463.11
225.0	3369.38	2706.75	2151.00	1749.94	1427.63	1112.51	920.70	764.94	635.79
270.0	4105.69	3389.06	2823.75	2340.00	1851.75	1542.94	1293.19	1046.81	886.50
315.0	3810.94	3121.31	2594.25	2108.25	1762.31	1454.06	1114.43	1029.04	875.08
360.0	3774.94	3083.06	2553.19	2111.63	1663.31	1379.25	1149.19	922.50	779.63

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	659.25	545.63	447.19	370.69	297.56	290.81	189.45	147.66	120.77
45.0	473.63	393.75	306.56	291.38	200.93	160.14	128.36	108.45	91.63
90.0	341.66	278.21	227.42	176.29	145.97	122.68	103.22	88.03	77.57
135.0	357.19	285.75	223.65	182.93	150.30	124.03	103.78	90.17	77.63
180.0	367.54	289.29	232.88	182.81	144.84	120.83	103.61	87.98	78.24
225.0	505.74	420.64	348.58	272.48	220.56	177.92	141.53	114.81	99.00
270.0	751.50	650.25	515.81	430.31	364.50	285.19	224.49	181.63	145.01
315.0	704.59	612.28	518.57	406.86	346.11	284.29	226.46	180.68	147.38
360.0	659.25	545.63	447.19	370.69	297.56	290.81	189.45	147.66	120.77

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	99.34	85.28	75.71	68.06	59.85	54.06	49.11	43.31	39.43
45.0	79.59	70.71	62.33	56.03	49.89	44.21	40.33	36.51	33.24
90.0	68.12	60.08	53.61	47.93	43.48	39.32	35.78	33.41	31.89
135.0	67.95	60.69	53.27	47.48	42.19	38.14	35.38	32.74	31.16
180.0	69.75	60.69	54.28	48.43	43.20	38.64	35.44	32.74	31.11
225.0	85.22	74.64	66.71	59.01	52.93	47.08	41.79	37.80	34.65
270.0	116.78	99.34	85.05	75.15	66.09	58.28	52.48	47.31	41.79
315.0	118.41	96.92	83.42	71.83	63.96	56.59	50.68	45.90	41.85
360.0	99.34	85.28	75.71	68.06	59.85	54.06	49.11	43.31	39.43

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	36.51	34.03	32.57	31.61	31.05	30.66	30.54	30.38	30.32
45.0	31.39	30.49	29.70	29.25	28.91	28.91	28.80	28.80	28.80
90.0	30.71	30.04	29.64	29.25	29.14	29.19	29.31	29.42	29.53
135.0	30.15	29.64	29.08	28.86	28.74	28.86	28.91	29.08	29.36
180.0	30.04	29.31	28.97	28.80	28.63	28.52	28.52	28.46	28.46
225.0	32.29	31.22	30.66	30.09	29.93	29.81	29.81	29.87	29.81
270.0	38.31	35.83	33.86	32.79	32.29	32.06	32.29	32.51	32.79
315.0	38.14	35.94	34.31	32.91	32.34	32.12	32.23	32.40	32.57
360.0	36.51	34.03	32.57	31.61	31.05	30.66	30.54	30.38	30.32

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	30.26	30.26	30.26	30.09	29.70	29.08	28.46	27.79	26.89
45.0	28.74	28.74	28.63	28.35	27.96	27.39	26.83	26.10	24.86
90.0	29.53	29.64	29.64	29.31	28.80	28.13	27.39	26.61	25.65
135.0	29.59	29.70	29.81	29.76	29.42	28.80	28.24	27.45	26.33
180.0	28.46	28.35	28.18	27.84	27.51	26.83	26.10	25.14	24.30
225.0	29.98	30.04	29.93	29.70	29.48	29.03	28.41	27.62	26.78
270.0	33.08	33.19	33.30	33.30	32.96	32.51	32.01	31.50	30.43
315.0	32.68	32.74	32.74	32.74	32.68	32.29	31.78	31.05	30.26
360.0	30.26	30.26	30.26	30.09	29.70	29.08	28.46	27.79	26.89

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	26.04	25.03	23.96	22.73	21.32	19.91	18.51	17.44	16.71
45.0	24.02	22.89	21.83	20.81	19.86	18.73	17.78	16.99	16.26
90.0	24.41	23.34	22.39	21.15	20.25	19.35	18.45	17.55	16.82
135.0	25.37	24.36	23.01	21.94	20.70	19.52	18.51	17.66	16.65
180.0	23.18	22.05	21.09	20.14	18.90	18.00	17.10	16.26	15.53
225.0	25.59	24.58	23.63	22.39	21.15	20.19	19.07	18.06	17.27
270.0	29.36	28.29	26.94	25.76	24.47	23.06	21.83	20.76	19.63
315.0	29.14	27.84	26.61	25.37	23.79	22.50	21.32	19.80	18.73
360.0	26.04	25.03	23.96	22.73	21.32	19.91	18.51	17.44	16.71

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	16.20	15.47	14.96	14.29	13.67	13.33	13.05	12.83	12.38
45.0	15.75	14.85	14.23	13.73	13.33	12.94	12.77	12.66	12.49
90.0	16.03	15.69	15.08	14.68	14.40	14.18	13.78	13.56	13.28
135.0	15.98	15.13	14.57	14.06	13.56	13.28	13.05	12.77	12.49
180.0	14.85	14.18	13.56	13.16	12.71	12.38	12.09	11.76	11.48
225.0	16.65	16.03	15.24	14.51	14.12	13.61	13.22	12.88	12.60
270.0	18.79	18.00	17.16	16.37	15.75	15.19	14.74	14.46	14.12
315.0	17.94	16.93	15.98	15.36	14.63	14.18	13.78	13.56	13.39
360.0	16.20	15.47	14.96	14.29	13.67	13.33	13.05	12.83	12.38

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	12.26	12.04	11.81	11.59	11.42	11.25	11.19	11.25	11.42
45.0	12.21	12.04	11.81	11.42	11.19	11.03	10.91	10.91	10.91
90.0	12.88	12.71	12.49	12.32	12.26	12.26	12.32	12.21	12.54
135.0	12.21	11.98	11.81	11.76	11.76	11.81	11.87	11.98	12.32
180.0	11.19	10.97	10.86	10.80	10.74	10.80	10.91	11.08	11.31
225.0	12.26	11.98	11.70	11.53	11.36	11.36	11.36	11.36	11.42
270.0	13.89	13.67	13.50	13.28	13.11	13.05	12.94	12.77	12.54
315.0	13.05	12.66	12.49	12.38	12.26	12.09	11.98	12.04	12.15
360.0	12.26	12.04	11.81	11.59	11.42	11.25	11.19	11.25	11.42

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	11.59	11.98	12.26	12.43	12.66	12.83	11.76	11.42	10.18
45.0	11.25	11.64	12.15	12.60	13.05	11.70	11.31	10.58	9.00
90.0	12.99	13.33	13.56	13.44	13.11	12.54	12.21	10.74	8.83
135.0	12.83	13.39	13.84	14.01	13.73	13.39	13.44	12.04	10.01
180.0	11.70	12.15	12.43	12.60	12.71	11.31	10.97	10.07	8.33
225.0	11.76	12.21	12.77	13.22	13.50	12.77	11.70	11.36	9.90
270.0	12.71	13.11	13.67	14.23	14.68	14.74	14.18	13.95	13.16
315.0	12.38	12.94	13.67	14.63	15.19	15.24	14.85	14.51	13.22
360.0	11.59	11.98	12.26	12.43	12.66	12.83	11.76	11.42	10.18

Intensity data(cd)

C/γ(°)	90.0
0.0	8.33
45.0	7.43
90.0	7.26
135.0	7.88
180.0	7.37
225.0	8.61
270.0	11.19
315.0	11.42
360.0	8.33