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Nata

LumCAT: LN01D03517EE-N
Luminaire: 92.70.307.00
Report No: 210521-B001
Test No: 210521-C001
LampCAT: LUMINUS CXM-3 LES3.5
Lamp flux(lm): 548.1
Number of Lamps: 1
Length(mm): 74
Phm Type: C

Voltage(V): 221.4000
Current(A): 0.0800
Power (W): 9.0000
PF: 0.5090
Ballast type: DC
Width(mm): 74
Height(mm): 56

Photometric Results

Lumens(lm): 371.05
Efficiency(%): 67.69%
Lumens(lm)/Power(W): 41.23
Central intensity(cd): 2404.336
Maximum intensity(cd): 2404.336
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.5
[C90/270]Total=16.5
Field angle(10%Imax): [C0/180]Total=36.0
[C90/270]Total=36.0
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.30 C90_270=0.30
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 67.69%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 94.113%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2404.336	0.000	0	.000%	.000%
1.0	2380.570	2.289	2.289	.418%	.617%
2.0	2306.250	6.727	9.016	1.227%	2.430%
3.0	2181.445	10.733	19.75	1.958%	5.323%
4.0	2028.938	14.093	33.843	2.571%	9.121%
5.0	1859.555	16.728	50.571	3.052%	13.629%
6.0	1650.234	18.445	69.016	3.365%	18.600%
7.0	1447.010	19.225	88.241	3.507%	23.782%
8.0	1237.669	19.214	107.454	3.505%	28.960%
9.0	1083.930	18.815	126.27	3.433%	34.031%
10.0	914.316	18.083	144.353	3.299%	38.904%
11.0	779.716	16.927	161.28	3.088%	43.466%
12.0	659.264	15.730	177.01	2.870%	47.706%
13.0	539.880	14.231	191.241	2.596%	51.541%
14.0	457.172	12.762	204.003	2.328%	54.981%
15.0	388.111	11.604	215.607	2.117%	58.108%
16.0	326.109	10.465	226.073	1.909%	60.929%
17.0	279.598	9.432	235.505	1.721%	63.471%
18.0	240.546	8.576	244.081	1.565%	65.782%
19.0	207.211	7.790	251.871	1.421%	67.881%
20.0	174.881	6.993	258.865	1.276%	69.766%
21.0	152.473	6.286	265.151	1.147%	71.460%
22.0	133.608	5.749	270.899	1.049%	73.010%
23.0	117.724	5.274	276.173	.962%	74.431%
24.0	103.451	4.836	281.009	.882%	75.734%
25.0	91.927	4.442	285.451	.810%	76.932%
26.0	82.547	4.118	289.57	.751%	78.041%
27.0	74.299	3.837	293.407	.700%	79.076%
28.0	66.255	3.559	296.965	.649%	80.035%
29.0	60.096	3.306	300.271	.603%	80.926%
30.0	54.865	3.104	303.375	.566%	81.762%
31.0	49.584	2.907	306.282	.530%	82.546%
32.0	45.359	2.720	309.002	.496%	83.279%
33.0	41.695	2.565	311.566	.468%	83.970%
34.0	38.229	2.419	313.985	.441%	84.622%
35.0	35.051	2.276	316.261	.415%	85.235%
36.0	32.442	2.149	318.41	.392%	85.814%
37.0	30.122	2.040	320.45	.372%	86.364%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	28.090	1.943	322.393	.354%	86.888%
39.0	25.995	1.846	324.24	.337%	87.385%
40.0	24.223	1.751	325.991	.320%	87.857%
41.0	22.641	1.669	327.66	.304%	88.307%
42.0	21.080	1.588	329.248	.290%	88.735%
43.0	19.723	1.511	330.76	.276%	89.143%
44.0	18.619	1.447	332.207	.264%	89.533%
45.0	17.564	1.391	333.597	.254%	89.907%
46.0	16.502	1.332	334.929	.243%	90.266%
47.0	15.553	1.275	336.204	.233%	90.610%
48.0	14.766	1.226	337.43	.224%	90.940%
49.0	14.027	1.182	338.612	.216%	91.259%
50.0	13.345	1.141	339.754	.208%	91.567%
51.0	12.741	1.104	340.857	.201%	91.864%
52.0	12.038	1.063	341.921	.194%	92.151%
53.0	11.405	1.020	342.94	.186%	92.425%
54.0	10.884	0.982	343.923	.179%	92.690%
55.0	10.448	0.952	344.875	.174%	92.947%
56.0	9.998	0.924	345.799	.169%	93.196%
57.0	9.548	0.894	346.693	.163%	93.437%
58.0	9.120	0.863	347.556	.157%	93.669%
59.0	8.754	0.836	348.392	.152%	93.894%
60.0	8.416	0.811	349.203	.148%	94.113%
61.0	8.058	0.786	349.989	.143%	94.325%
62.0	7.748	0.762	350.751	.139%	94.530%
63.0	7.481	0.741	351.491	.135%	94.730%
64.0	7.193	0.720	352.211	.131%	94.924%
65.0	6.940	0.699	352.911	.128%	95.112%
66.0	6.722	0.682	353.592	.124%	95.296%
67.0	6.511	0.665	354.258	.121%	95.475%
68.0	6.792	0.674	354.932	.123%	95.657%
69.0	7.249	0.716	355.648	.131%	95.850%
70.0	8.142	0.790	356.438	.144%	96.063%
71.0	9.330	0.903	357.342	.165%	96.307%
72.0	10.484	1.030	358.372	.188%	96.584%
73.0	11.468	1.148	359.52	.209%	96.894%
74.0	12.101	1.239	360.759	.226%	97.228%
75.0	11.890	1.268	362.026	.231%	97.569%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	11.215	1.226	363.253	.224%	97.900%
77.0	10.343	1.149	364.402	.210%	98.210%
78.0	9.492	1.062	365.464	.194%	98.496%
79.0	8.515	0.968	366.432	.177%	98.756%
80.0	7.699	0.874	367.306	.159%	98.992%
81.0	7.017	0.796	368.101	.145%	99.206%
82.0	5.681	0.689	368.79	.126%	99.392%
83.0	3.923	0.522	369.312	.095%	99.533%
84.0	2.798	0.366	369.678	.067%	99.631%
85.0	2.489	0.289	369.967	.053%	99.709%
86.0	2.187	0.256	370.223	.047%	99.778%
87.0	1.955	0.227	370.449	.041%	99.839%
88.0	1.863	0.209	370.658	.038%	99.896%
89.0	1.751	0.198	370.856	.036%	99.949%
90.0	1.702	0.189	371.046	.035%	100.000%

Zonal flux distribution table

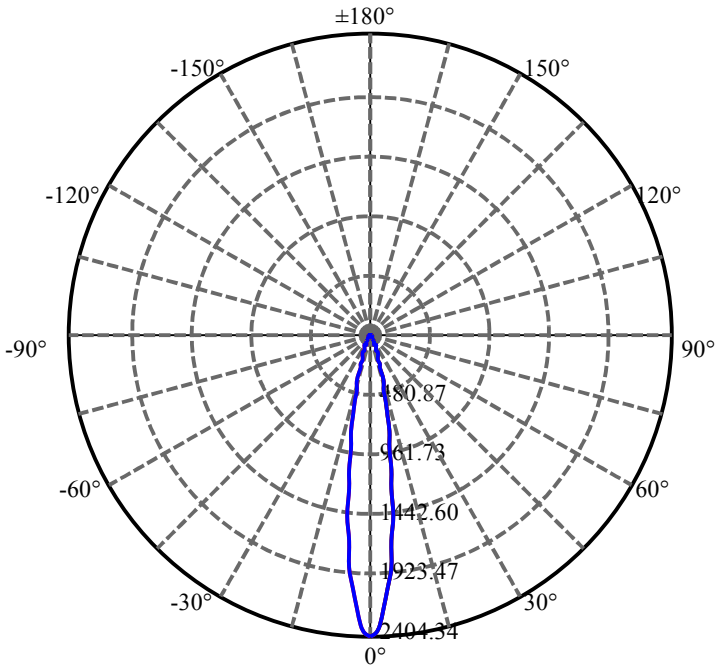
ZONAL LUMEN SUMMARY

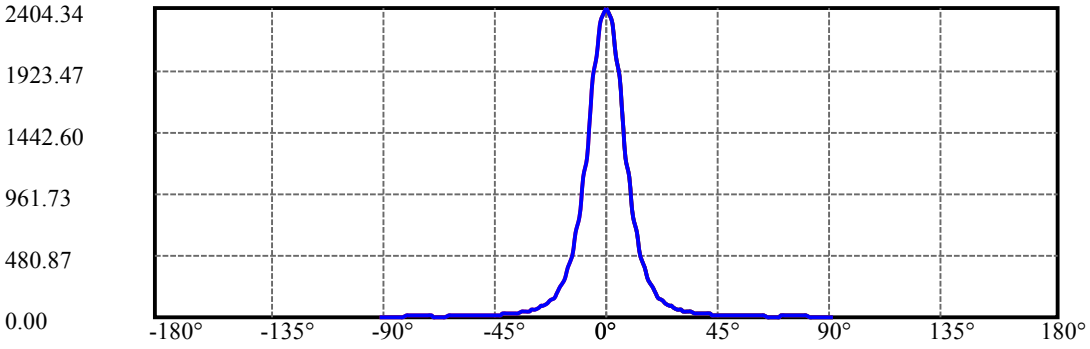
Zone	Lumens	%Lamp	%Fixt
0-30	303.38	55.35%	81.76%
0-40	325.99	59.47%	87.86%
0-60	349.20	63.71%	94.11%
0-90	370.86	67.66%	99.95%
0-120	370.86	67.66%	99.95%
0-180	371.05	67.69%	100.00%
60-90	22.46	4.10%	6.05%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.96	296.84	54.15%	80.00%

ZONAL LUMEN SUMMARY

0-10	144.35
10-20	114.51
20-30	44.51
30-40	22.62
40-50	13.76
50-60	9.45
60-70	7.24
70-80	10.87
80-90	3.55
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:18.0 Right:18.0
:C90/270Left:18.0 Right:18.0

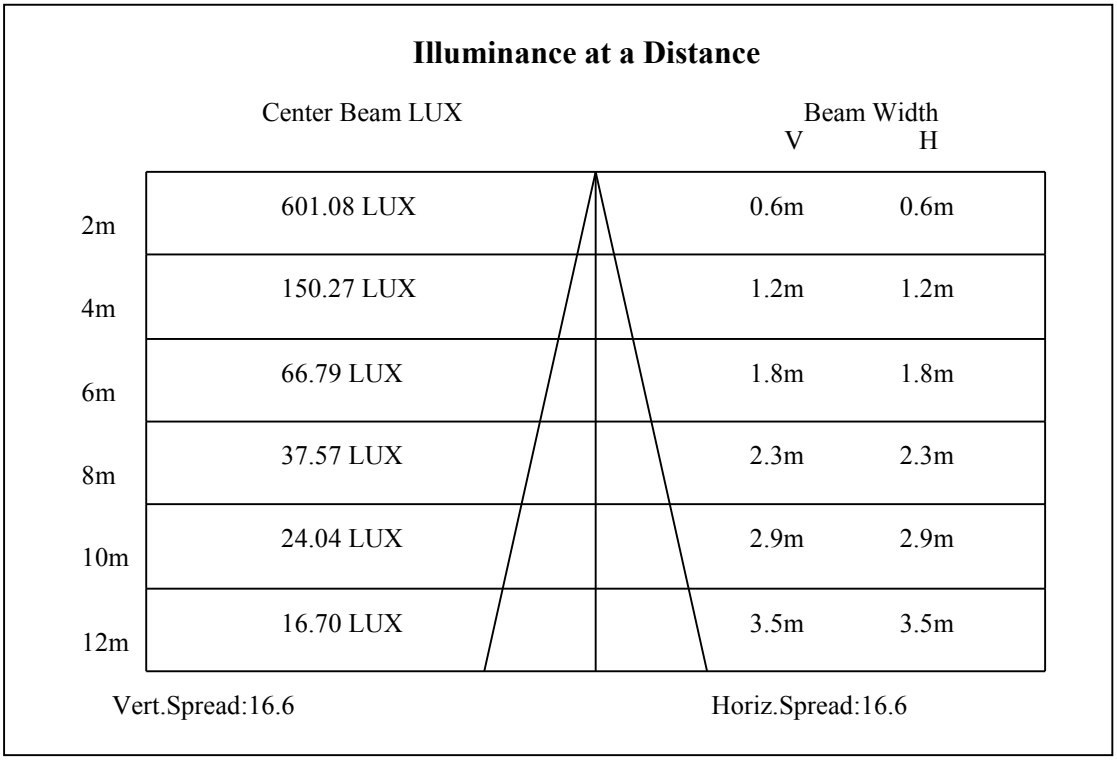
Beam Angle(50%Imax):C0/180Left:8.2 Right:8.2
:C90/270Left:8.2 Right:8.2

Equipment: GMS1980
Temperature(°C): 25.0

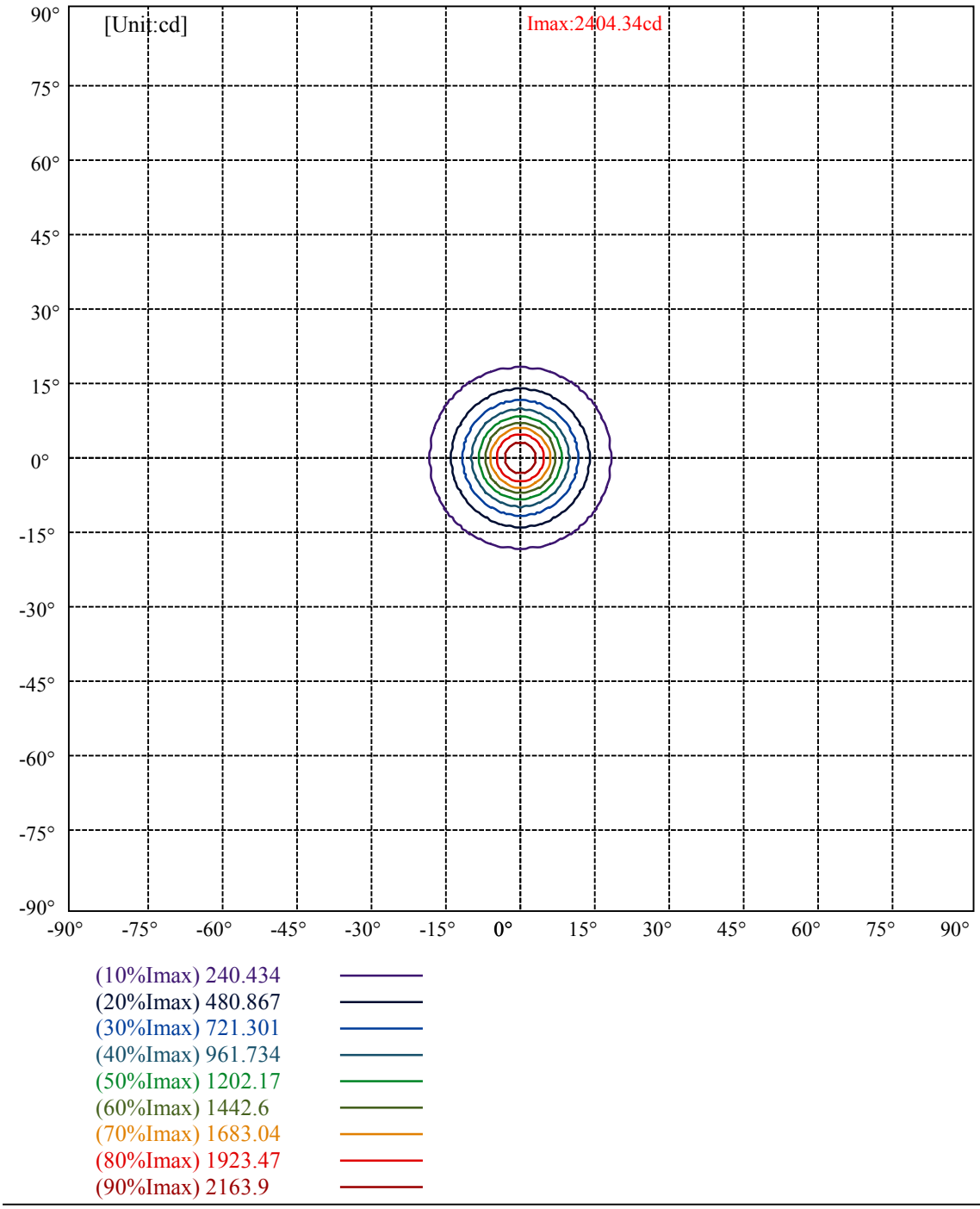
Date: 2021/05/21
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Lux distance Curve



ISO-Intensity(V-H)

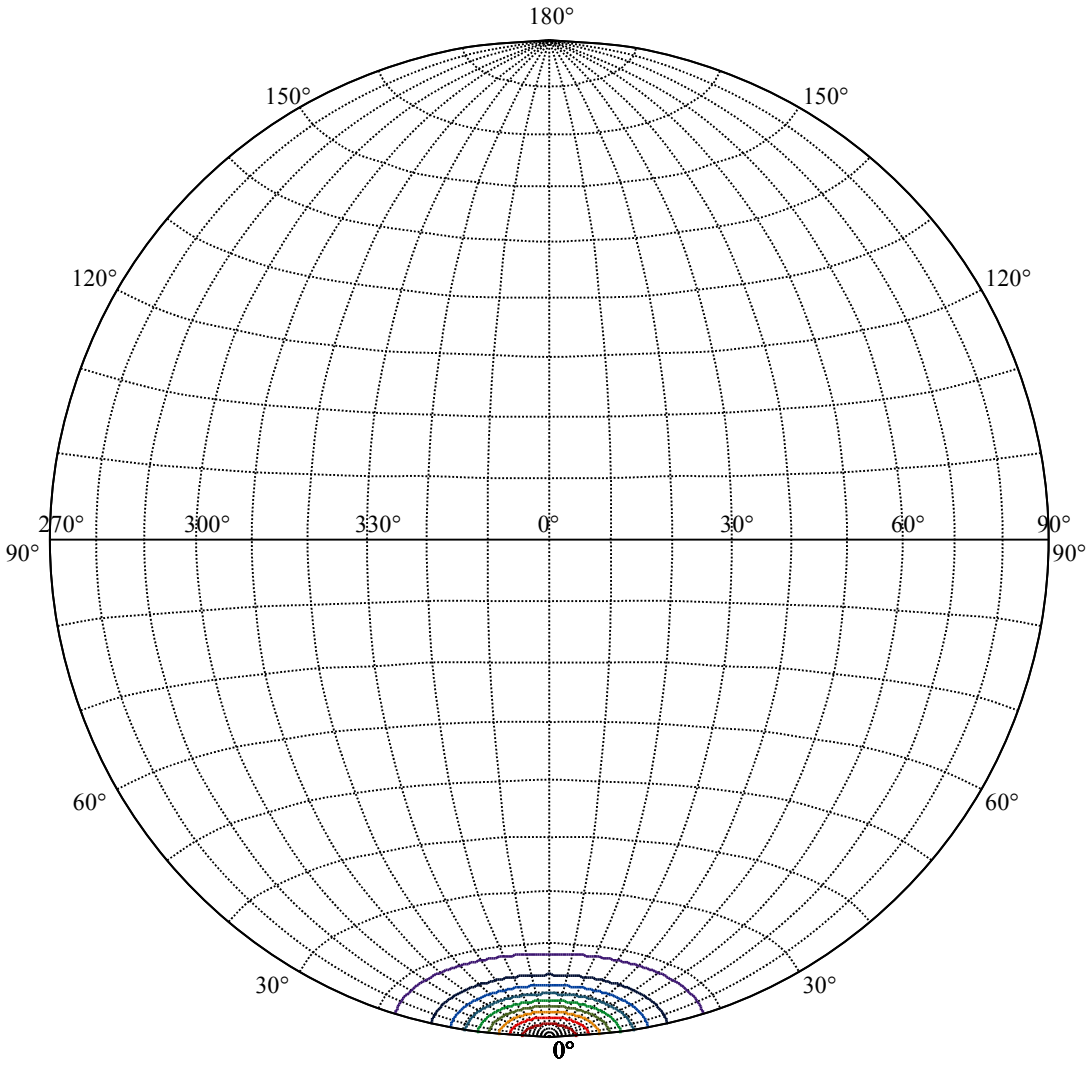


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/05/21
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:2404.34

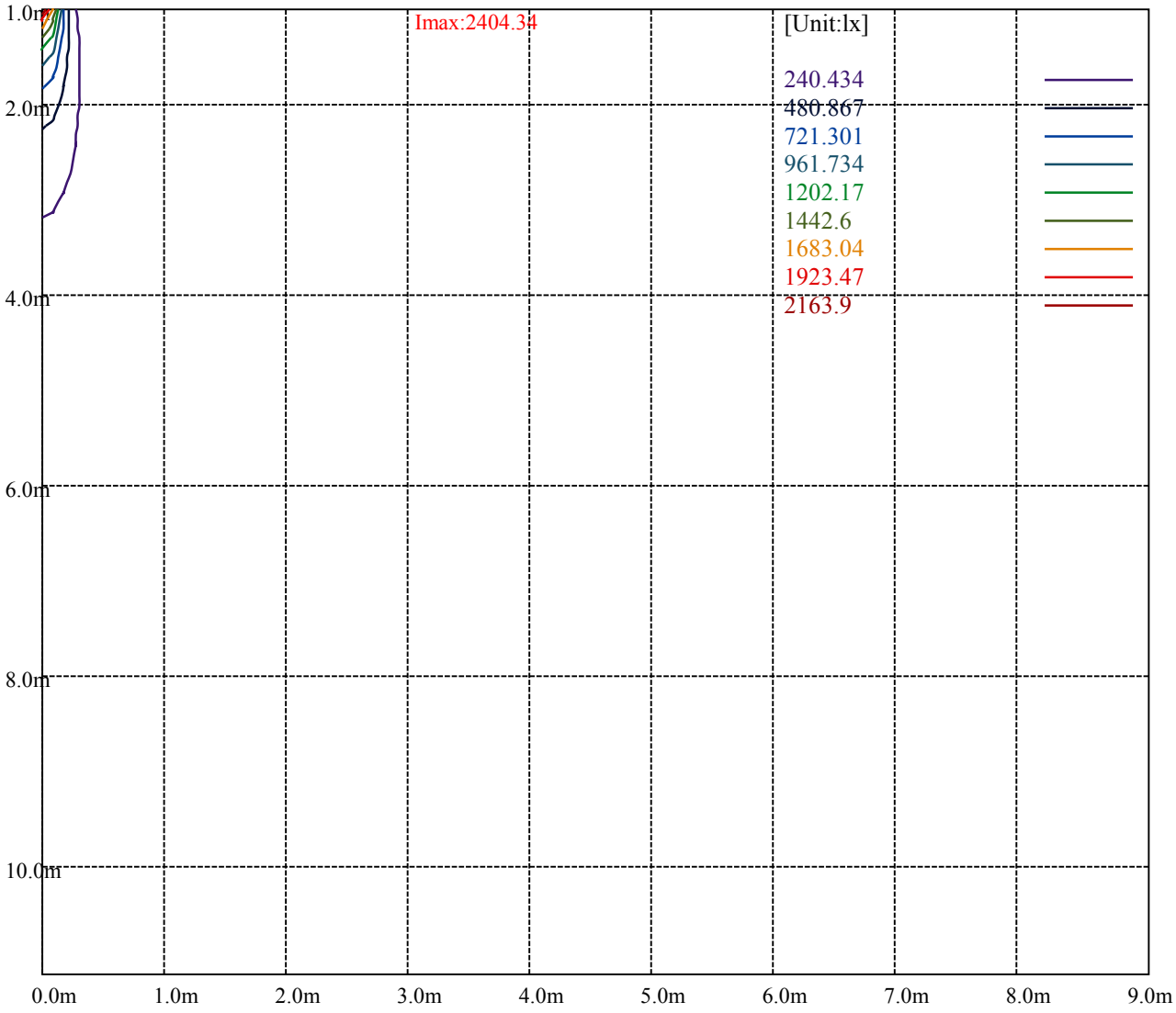
(10%Imax) 240.434
(20%Imax) 480.867
(30%Imax) 721.301
(40%Imax) 961.734
(50%Imax) 1202.17
(60%Imax) 1442.6
(70%Imax) 1683.04
(80%Imax) 1923.47
(90%Imax) 2163.9

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/05/21
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/05/21
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Nata LN01D03517EE-N

Luminance Limitting Curve(no luminous side)

Luminance Table

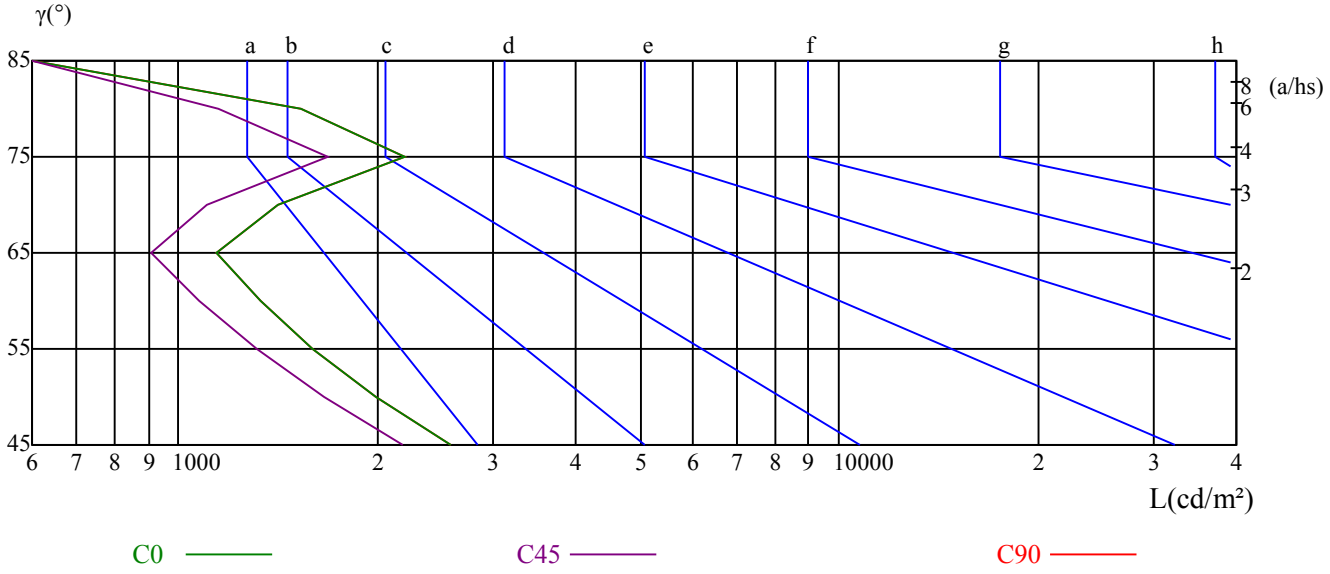
γ	45	50	55	60	65	70	75	80	85
C0	2582	1994	1599	1330	1143	1412	2194	1530	540
C45	2191	1666	1316	1077	910	1103	1680	1145	394
C90	2582	1994	1599	1330	1143	1412	2194	1530	540

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2999	2999	2999	8389	8389	8389	5215	5215	5215

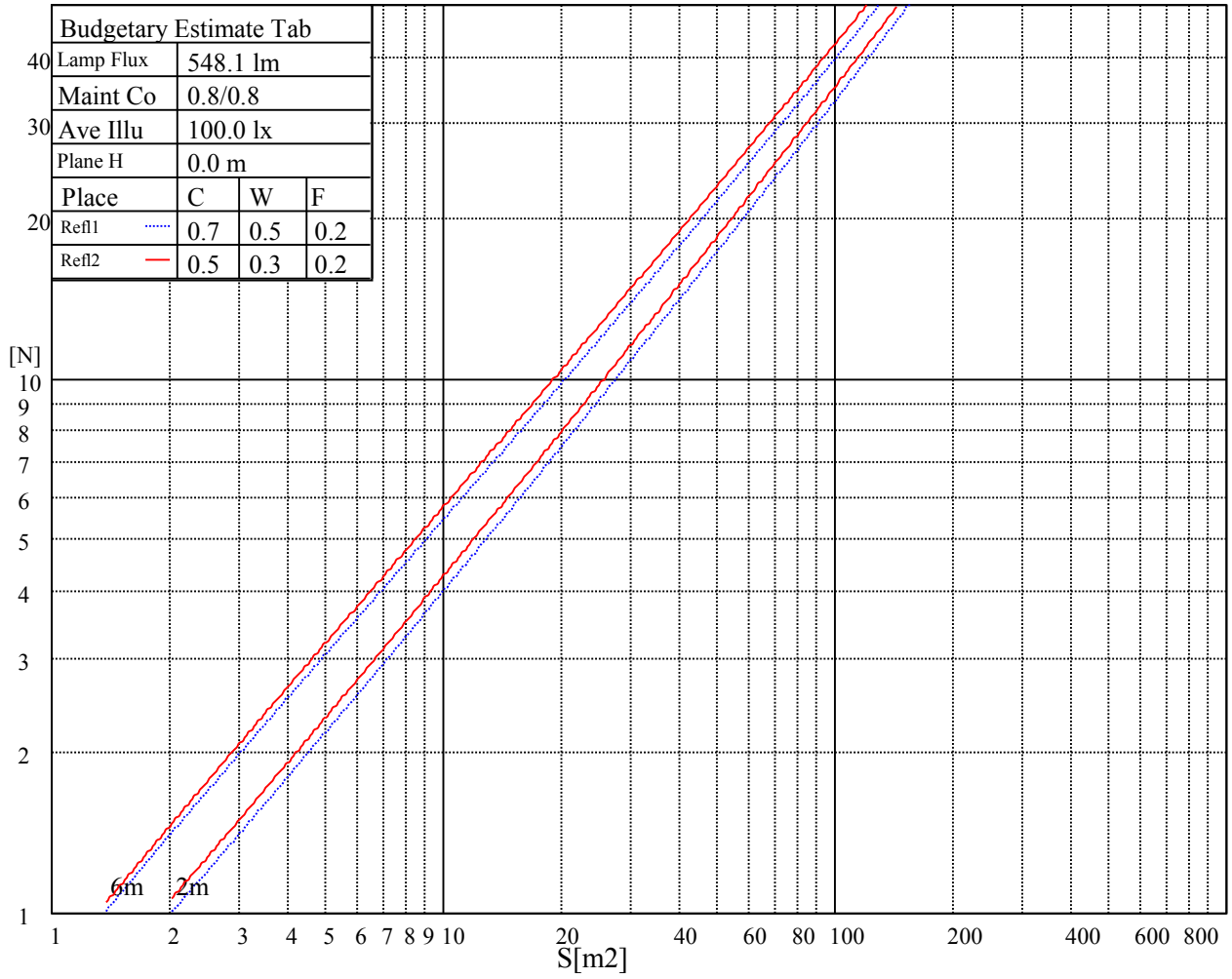
Glare Table

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

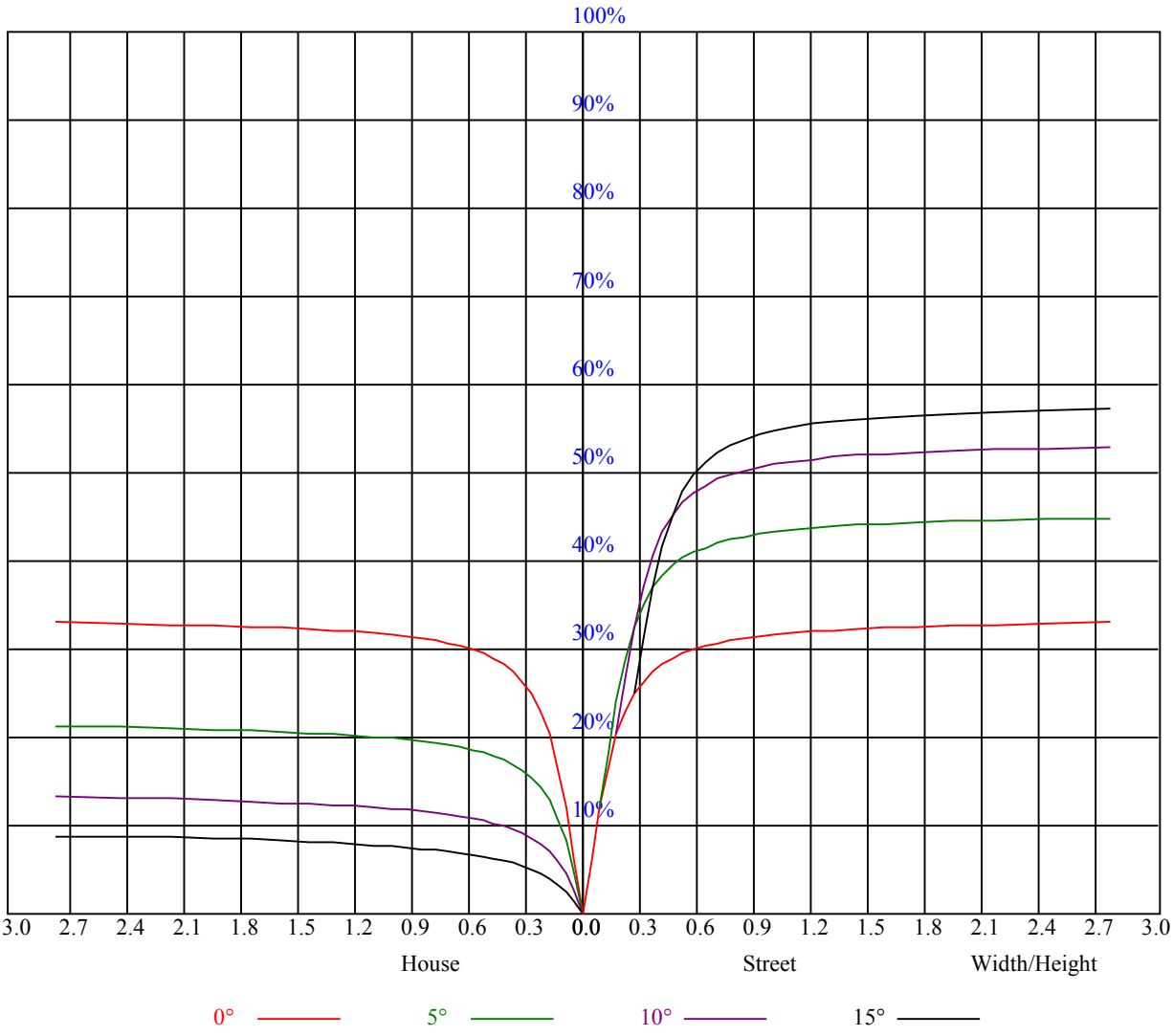


Equipment: GMS1980 Date: 2021/05/21 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.81	0.81	0.81	0.79	0.79	0.79	0.75	0.75	0.75	0.72	0.72	0.72	0.69	0.69	0.69	0.68
1	0.75	0.73	0.72	0.74	0.72	0.71	0.71	0.70	0.69	0.68	0.67	0.67	0.66	0.65	0.65	0.63
2	0.71	0.68	0.66	0.69	0.67	0.65	0.67	0.65	0.64	0.65	0.64	0.62	0.63	0.62	0.61	0.60
3	0.67	0.64	0.61	0.66	0.63	0.61	0.64	0.62	0.60	0.63	0.61	0.59	0.61	0.60	0.58	0.57
4	0.64	0.61	0.58	0.63	0.60	0.58	0.62	0.59	0.57	0.60	0.58	0.56	0.59	0.57	0.56	0.55
5	0.61	0.58	0.55	0.61	0.57	0.55	0.59	0.57	0.55	0.58	0.56	0.54	0.57	0.55	0.54	0.53
6	0.59	0.55	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.56	0.54	0.52	0.56	0.54	0.52	0.51
7	0.57	0.53	0.51	0.56	0.53	0.51	0.56	0.53	0.51	0.55	0.52	0.51	0.54	0.52	0.50	0.50
8	0.55	0.52	0.50	0.55	0.52	0.49	0.54	0.51	0.49	0.53	0.51	0.49	0.53	0.51	0.49	0.48
9	0.53	0.50	0.48	0.53	0.50	0.48	0.52	0.50	0.48	0.52	0.49	0.48	0.51	0.49	0.48	0.47
10	0.52	0.49	0.47	0.52	0.49	0.47	0.51	0.48	0.47	0.51	0.48	0.46	0.50	0.48	0.46	0.46

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2021/05/21	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	2348.44	2393.44	2376.56	2318.63	2201.63	2064.94	1881.00	1686.38	1504.69
45.0	2427.75	2414.81	2346.75	2237.63	2080.13	1888.88	1706.63	1516.50	1310.06
90.0	2431.69	2405.25	2335.50	2195.44	2043.00	1869.75	1636.31	1446.19	1104.98
135.0	2406.94	2384.44	2303.44	2193.75	2032.88	1866.94	1659.94	1449.56	1267.88
180.0	2353.50	2262.94	2143.13	1951.31	1773.56	1588.50	1352.81	1106.27	1002.66
225.0	2427.75	2391.75	2309.06	2157.19	2003.63	1830.38	1620.56	1410.19	1102.22
270.0	2431.69	2413.13	2337.19	2226.94	2066.63	1901.25	1701.00	1494.56	1317.38
315.0	2406.94	2378.81	2298.38	2170.69	2030.06	1865.81	1643.63	1466.44	1291.50
360.0	2348.44	2393.44	2376.56	2318.63	2201.63	2064.94	1881.00	1686.38	1504.69

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1309.50	1125.00	972.00	852.19	685.13	583.31	507.38	414.00	345.94
45.0	1112.63	934.31	791.44	668.25	540.00	456.75	387.00	322.88	286.88
90.0	1044.62	891.34	756.79	612.84	517.61	436.95	357.30	310.84	261.39
135.0	1077.19	900.56	763.31	644.06	521.44	442.13	376.88	316.69	288.56
180.0	851.91	693.39	585.06	494.44	402.53	343.46	294.92	249.47	212.51
225.0	1041.19	873.28	741.66	613.69	518.01	429.30	358.09	305.94	262.18
270.0	1130.63	960.75	825.75	705.94	577.13	491.06	417.94	348.75	292.50
315.0	1103.79	935.89	801.73	682.71	557.21	474.41	405.39	340.31	286.82
360.0	1309.50	1125.00	972.00	852.19	685.13	583.31	507.38	414.00	345.94

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	302.63	285.75	212.06	184.84	159.30	139.89	121.61	106.26	94.67
45.0	230.51	200.59	168.53	147.54	128.08	110.48	98.10	87.92	78.19
90.0	221.51	192.43	168.36	143.94	127.97	113.74	98.66	88.54	79.82
135.0	230.46	198.73	172.91	155.98	137.76	121.61	108.39	96.30	87.53
180.0	185.18	160.03	141.47	123.58	108.68	97.26	86.01	76.84	69.69
225.0	219.09	190.97	166.78	142.43	125.83	111.60	98.04	86.74	78.19
270.0	286.88	216.68	182.81	160.14	140.74	122.46	107.10	95.68	84.71
315.0	248.12	212.51	186.13	161.33	140.51	124.76	109.69	97.14	87.58
360.0	302.63	285.75	212.06	184.84	159.30	139.89	121.61	106.26	94.67

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	84.60	74.14	67.05	61.03	54.45	49.84	45.62	41.57	37.86
45.0	70.03	63.34	57.04	52.48	47.14	43.31	39.94	36.39	33.64
90.0	71.61	64.52	58.73	53.21	48.88	44.55	40.84	37.63	34.54
135.0	79.54	70.20	64.13	58.73	52.48	48.66	44.94	41.12	37.69
180.0	63.28	56.42	51.53	47.25	43.03	39.21	36.28	33.24	30.60
225.0	69.98	63.68	57.60	52.14	47.93	43.54	39.71	36.84	34.20
270.0	76.22	67.84	60.98	55.74	50.01	45.96	42.30	38.98	35.33
315.0	79.14	69.92	63.73	58.33	52.76	47.81	43.93	40.05	36.56
360.0	84.60	74.14	67.05	61.03	54.45	49.84	45.62	41.57	37.86

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	34.93	32.06	29.87	27.51	25.48	23.96	22.22	20.76	19.58
45.0	31.39	29.42	27.17	25.59	24.08	22.39	20.93	19.74	18.45
90.0	31.78	29.59	27.62	25.20	23.63	22.28	21.04	19.63	18.73
135.0	34.99	32.51	30.88	28.58	26.10	23.91	21.71	20.36	19.41
180.0	28.52	26.44	24.81	23.06	21.60	20.36	19.24	17.94	16.93
225.0	31.33	29.42	27.56	25.54	24.02	22.56	20.81	19.46	18.45
270.0	32.79	30.49	28.01	25.93	24.36	22.73	21.21	20.03	18.73
315.0	33.81	31.05	28.80	26.55	24.53	22.95	21.49	19.86	18.68
360.0	34.93	32.06	29.87	27.51	25.48	23.96	22.22	20.76	19.58

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	18.45	17.10	16.14	15.36	14.46	13.73	13.11	12.38	11.76
45.0	17.49	16.71	15.47	14.63	13.84	13.16	12.66	12.09	11.59
90.0	17.49	16.20	15.30	14.63	13.95	13.28	12.66	12.04	11.53
135.0	18.39	17.33	16.65	15.98	15.19	14.63	14.12	12.54	11.42
180.0	15.98	14.96	14.23	13.61	12.99	12.32	11.81	11.25	10.74
225.0	17.44	16.65	15.47	14.29	13.73	13.05	12.38	11.93	11.48
270.0	17.66	16.65	15.64	14.91	14.12	13.44	12.66	12.15	11.42
315.0	17.61	16.43	15.53	14.74	13.95	13.16	12.54	11.93	11.31
360.0	18.45	17.10	16.14	15.36	14.46	13.73	13.11	12.38	11.76

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.25	10.69	10.29	9.84	9.39	9.06	8.66	8.27	7.93
45.0	11.19	10.80	10.24	9.73	9.28	8.78	8.44	8.10	7.76
90.0	10.97	10.46	10.01	9.56	9.11	8.83	8.44	8.04	7.76
135.0	10.91	10.46	9.96	9.51	9.11	8.83	8.49	8.27	7.99
180.0	10.24	9.84	9.45	9.00	8.61	8.33	8.04	7.65	7.37
225.0	10.86	10.52	10.13	9.79	9.17	8.72	8.38	7.93	7.59
270.0	10.91	10.58	10.07	9.56	9.28	8.78	8.44	8.10	7.71
315.0	10.74	10.24	9.84	9.39	9.00	8.72	8.44	8.10	7.88
360.0	11.25	10.69	10.29	9.84	9.39	9.06	8.66	8.27	7.93

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.65	7.31	7.09	6.92	6.58	6.36	6.13	5.91	5.68
45.0	7.48	7.20	6.92	6.64	6.36	6.13	5.91	5.68	5.51
90.0	7.43	7.09	6.86	6.64	6.36	6.08	5.85	5.57	5.34
135.0	7.76	7.54	7.37	7.14	7.26	11.19	16.09	20.76	26.38
180.0	7.09	6.75	6.47	6.30	6.02	5.79	5.57	5.29	5.18
225.0	7.31	7.03	6.75	6.47	6.24	6.02	5.74	5.57	5.40
270.0	7.48	7.20	6.86	6.64	6.41	6.08	5.85	5.63	5.34
315.0	7.65	7.43	7.20	7.03	6.86	6.69	6.86	10.74	15.81
360.0	7.65	7.31	7.09	6.92	6.58	6.36	6.13	5.91	5.68

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	5.46	5.18	5.01	4.78	4.56	4.39	4.16	3.94	3.71
45.0	5.46	5.46	5.63	5.68	5.63	5.29	4.78	4.28	3.77
90.0	5.12	4.84	4.67	4.39	4.16	3.94	3.77	3.49	3.32
135.0	31.05	34.43	35.72	33.30	30.77	27.84	25.26	22.44	19.86
180.0	4.89	4.61	4.44	4.16	3.88	3.71	3.49	3.21	3.04
225.0	5.34	5.34	5.29	5.01	4.67	4.28	3.88	3.60	3.38
270.0	5.12	4.89	4.67	4.44	4.22	3.99	3.88	3.60	3.32
315.0	21.43	27.00	31.39	33.36	31.84	29.31	26.72	23.57	21.21
360.0	5.46	5.18	5.01	4.78	4.56	4.39	4.16	3.94	3.71

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.54	3.26	3.04	2.87	2.64	2.48	2.14	2.03	1.91
45.0	3.38	3.15	2.93	2.76	2.53	2.19	2.03	1.91	1.80
90.0	3.15	2.98	2.87	2.70	2.48	2.19	1.97	1.86	1.74
135.0	17.83	10.91	3.49	2.87	2.48	1.97	1.80	1.69	1.58
180.0	2.81	2.59	2.42	2.25	1.97	1.86	1.74	1.63	1.63
225.0	3.15	2.98	2.76	2.59	2.42	2.14	1.97	1.97	1.80
270.0	3.21	3.04	2.87	2.76	2.64	2.42	2.03	1.97	1.86
315.0	19.07	16.54	11.03	3.60	2.76	2.25	1.97	1.86	1.69
360.0	3.54	3.26	3.04	2.87	2.64	2.48	2.14	2.03	1.91

Intensity data(cd)

C/γ(°)	90.0
0.0	1.86
45.0	1.80
90.0	1.74
135.0	1.52
180.0	1.52
225.0	1.74
270.0	1.80
315.0	1.63
360.0	1.86