NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 3-1549-A3
Luminaire: 99.02.73.172+92.76.365.00

Report No: 200407-B012	Voltage(V): 33.3800
Test No: 200407-C012	Current(A): 0.3470
LampCAT: LUMINUS CXM-14-AC40	Power (W): 11.5820
Lamp flux(lm): 1553.5	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): 1392.95
Efficiency(%): 89.67%
Lumens(lm)/Power(W): 120.27
Central intensity(cd): 5116.640
Maximum intensity(cd): 5116.640
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=23.7
[C90/270]Total=23.7
Field angle(10%Imax): [C0/180]Total=60.6
[C90/270]Total=60.6
Maximum s/h(1/2): C0_180=0.40 C90_270=0.40
Maximum s/h(1/4): C0_180=0.41 C90_270=0.41
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.67%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.659%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5116.641	0.000	0	.000%	.000%
1.0	5081.625	4.880	4.88	.314%	.350%
2.0	4970.602	14.428	19.308	.929%	1.386%
3.0	4820.906	23.418	42.726	1.507%	3.067%
4.0	4642.453	31.677	74.403	2.039%	5.341%
5.0	4429.688	39.028	113.43	2.512%	8.143%
6.0	4188.797	45.292	158.723	2.916%	11.395%
7.0	3928.078	50.381	209.104	3.243%	15.012%
8.0	3672.070	54.393	263.497	3.501%	18.916%
9.0	3385.617	57.199	320.696	3.682%	23.023%
10.0	3081.023	58.521	379.216	3.767%	27.224%
11.0	2801.180	58.775	437.992	3.783%	31.444%
12.0	2523.375	58.205	496.197	3.747%	35.622%
13.0	2230.664	56.418	552.615	3.632%	39.672%
14.0	1973.320	53.811	606.426	3.464%	43.535%
15.0	1741.430	50.998	657.424	3.283%	47.197%
16.0	1495.174	47.425	704.849	3.053%	50.601%
17.0	1332.042	44.027	748.876	2.834%	53.762%
18.0	1187.473	41.541	790.418	2.674%	56.744%
19.0	1066.549	39.215	829.633	2.524%	59.559%
20.0	958.127	37.057	866.69	2.385%	62.220%
21.0	872.923	35.160	901.85	2.263%	64.744%
22.0	798.251	33.583	935.433	2.162%	67.155%
23.0	736.390	32.201	967.634	2.073%	69.467%
24.0	684.162	31.058	998.692	1.999%	71.696%
25.0	642.298	30.161	1028.853	1.941%	73.862%
26.0	611.824	29.604	1058.457	1.906%	75.987%
27.0	586.702	29.322	1087.779	1.887%	78.092%
28.0	564.518	29.146	1116.925	1.876%	80.184%
29.0	544.901	29.026	1145.951	1.868%	82.268%
30.0	521.220	28.785	1174.736	1.853%	84.335%
31.0	489.199	28.118	1202.854	1.810%	86.353%
32.0	450.499	26.921	1229.776	1.733%	88.286%
33.0	409.704	25.342	1255.118	1.631%	90.105%
34.0	363.874	23.411	1278.528	1.507%	91.786%
35.0	299.173	20.592	1299.12	1.326%	93.264%
36.0	244.680	17.316	1316.436	1.115%	94.507%
37.0	186.504	14.063	1330.499	.905%	95.517%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	139.163	10.870	1341.37	.700%	96.297%
39.0	90.309	7.833	1349.202	.504%	96.859%
40.0	58.929	5.205	1354.407	.335%	97.233%
41.0	37.392	3.430	1357.837	.221%	97.479%
42.0	23.189	2.201	1360.038	.142%	97.637%
43.0	18.267	1.536	1361.574	.099%	97.748%
44.0	14.991	1.255	1362.829	.081%	97.838%
45.0	12.516	1.057	1363.886	.068%	97.914%
46.0	10.800	0.912	1364.798	.059%	97.979%
47.0	9.260	0.798	1365.596	.051%	98.036%
48.0	8.705	0.726	1366.322	.047%	98.088%
49.0	8.402	0.703	1367.024	.045%	98.139%
50.0	8.170	0.691	1367.715	.044%	98.189%
51.0	7.973	0.683	1368.398	.044%	98.238%
52.0	7.763	0.675	1369.074	.043%	98.286%
53.0	7.587	0.668	1369.741	.043%	98.334%
54.0	7.418	0.661	1370.403	.043%	98.381%
55.0	7.263	0.655	1371.058	.042%	98.429%
56.0	7.123	0.650	1371.708	.042%	98.475%
57.0	6.996	0.646	1372.354	.042%	98.522%
58.0	6.870	0.641	1372.995	.041%	98.568%
59.0	6.771	0.638	1373.632	.041%	98.613%
60.0	6.673	0.635	1374.268	.041%	98.659%
61.0	6.560	0.631	1374.899	.041%	98.704%
62.0	6.469	0.628	1375.527	.040%	98.749%
63.0	6.405	0.626	1376.153	.040%	98.794%
64.0	6.342	0.626	1376.779	.040%	98.839%
65.0	6.272	0.624	1377.403	.040%	98.884%
66.0	6.230	0.624	1378.027	.040%	98.929%
67.0	6.173	0.624	1378.65	.040%	98.974%
68.0	6.131	0.623	1379.274	.040%	99.018%
69.0	6.082	0.623	1379.897	.040%	99.063%
70.0	6.040	0.623	1380.519	.040%	99.108%
71.0	5.998	0.622	1381.141	.040%	99.152%
72.0	5.963	0.622	1381.763	.040%	99.197%
73.0	5.941	0.622	1382.386	.040%	99.242%
74.0	5.920	0.624	1383.009	.040%	99.286%
75.0	5.871	0.623	1383.632	.040%	99.331%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.843	0.622	1384.254	.040%	99.376%
77.0	5.822	0.622	1384.876	.040%	99.421%
78.0	5.801	0.622	1385.498	.040%	99.465%
79.0	5.780	0.622	1386.12	.040%	99.510%
80.0	5.773	0.623	1386.743	.040%	99.555%
81.0	5.745	0.623	1387.366	.040%	99.599%
82.0	5.745	0.623	1387.989	.040%	99.644%
83.0	5.730	0.624	1388.613	.040%	99.689%
84.0	5.773	0.627	1389.24	.040%	99.734%
85.0	5.752	0.629	1389.869	.040%	99.779%
86.0	5.681	0.625	1390.494	.040%	99.824%
87.0	5.625	0.619	1391.112	.040%	99.868%
88.0	5.583	0.614	1391.726	.040%	99.912%
89.0	5.576	0.612	1392.338	.039%	99.956%
90.0	5.555	0.610	1392.948	.039%	100.000%

Zonal flux distribution table

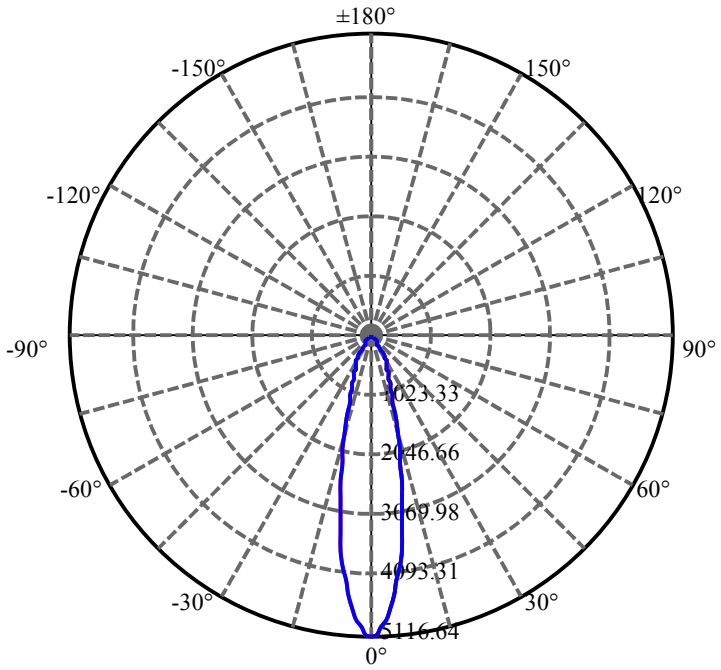
ZONAL LUMEN SUMMARY

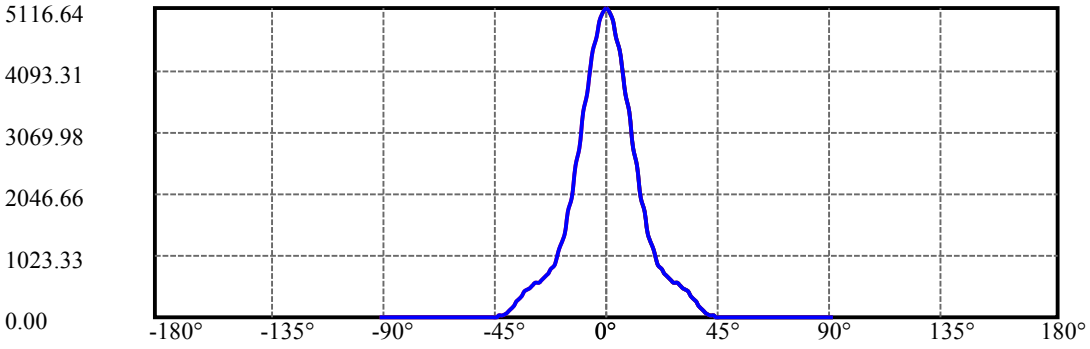
Zone	Lumens	%Lamp	%Fixt
0-30	1174.74	75.62%	84.33%
0-40	1354.41	87.18%	97.23%
0-60	1374.27	88.46%	98.66%
0-90	1392.34	89.63%	99.96%
0-120	1392.34	89.63%	99.96%
0-180	1392.95	89.67%	100.00%
60-90	18.71	1.20%	1.34%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.91	1114.36	71.73%	80.00%

ZONAL LUMEN SUMMARY

0-10	379.22
10-20	487.47
20-30	308.05
30-40	179.67
40-50	13.31
50-60	6.55
60-70	6.25
70-80	6.22
80-90	5.59
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):

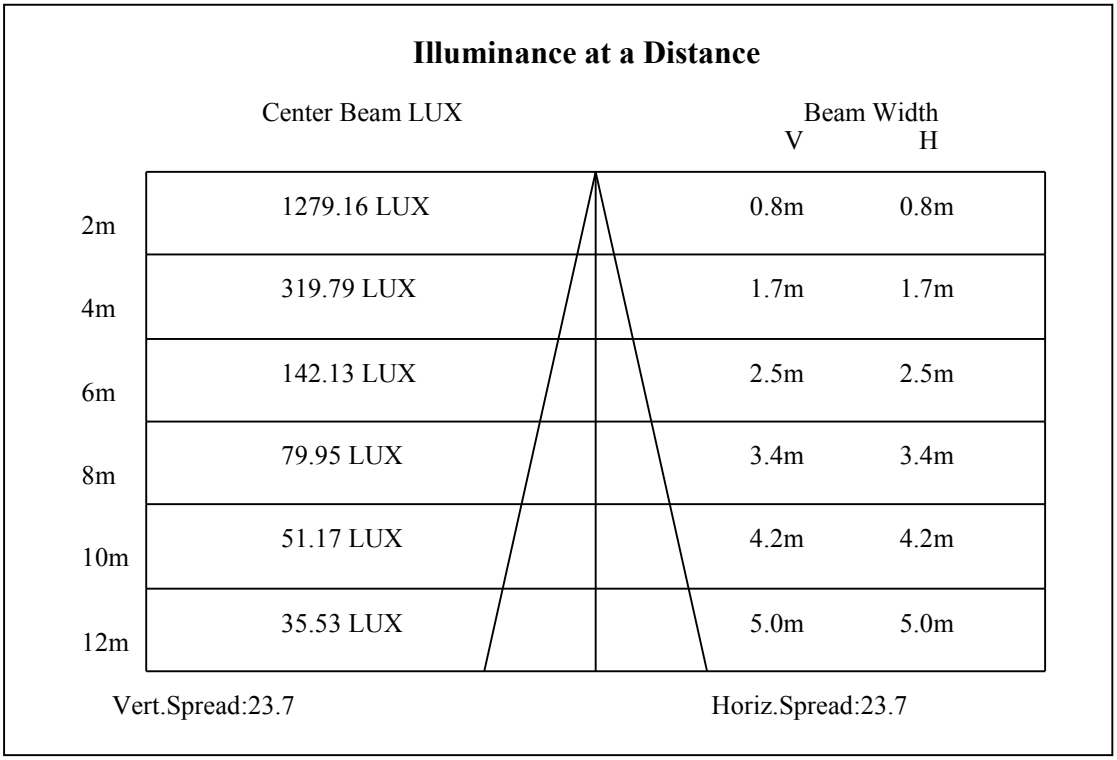
C0/C180:

C90/C270:

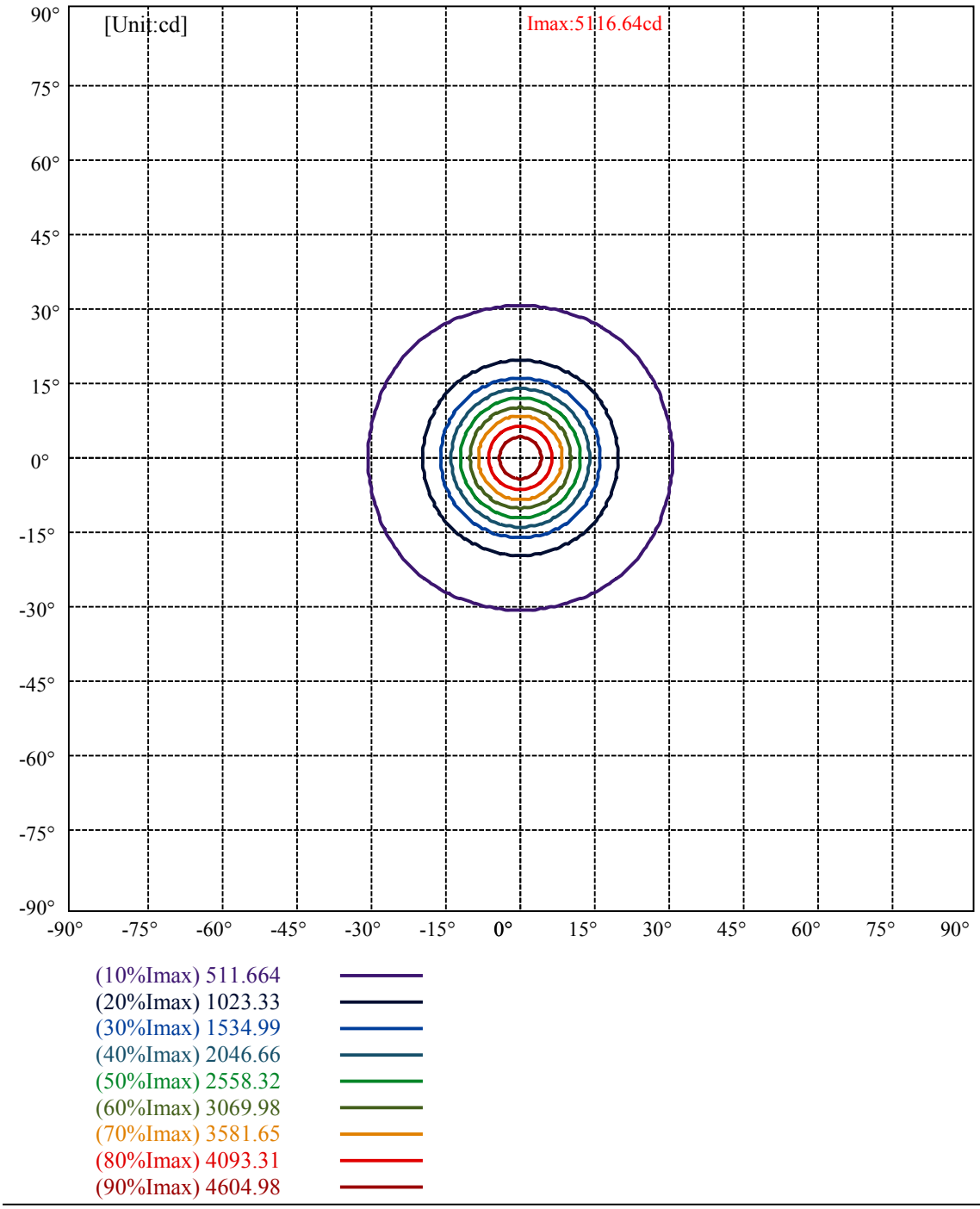
Field angle(10%Imax):C0/180Left:30.3 Right:30.3
:C90/270Left:30.3 Right:30.3

Beam Angle(50%Imax):C0/180Left:11.9 Right:11.9
:C90/270Left:11.9 Right:11.9

Lux distance Curve



ISO-Intensity(V-H)

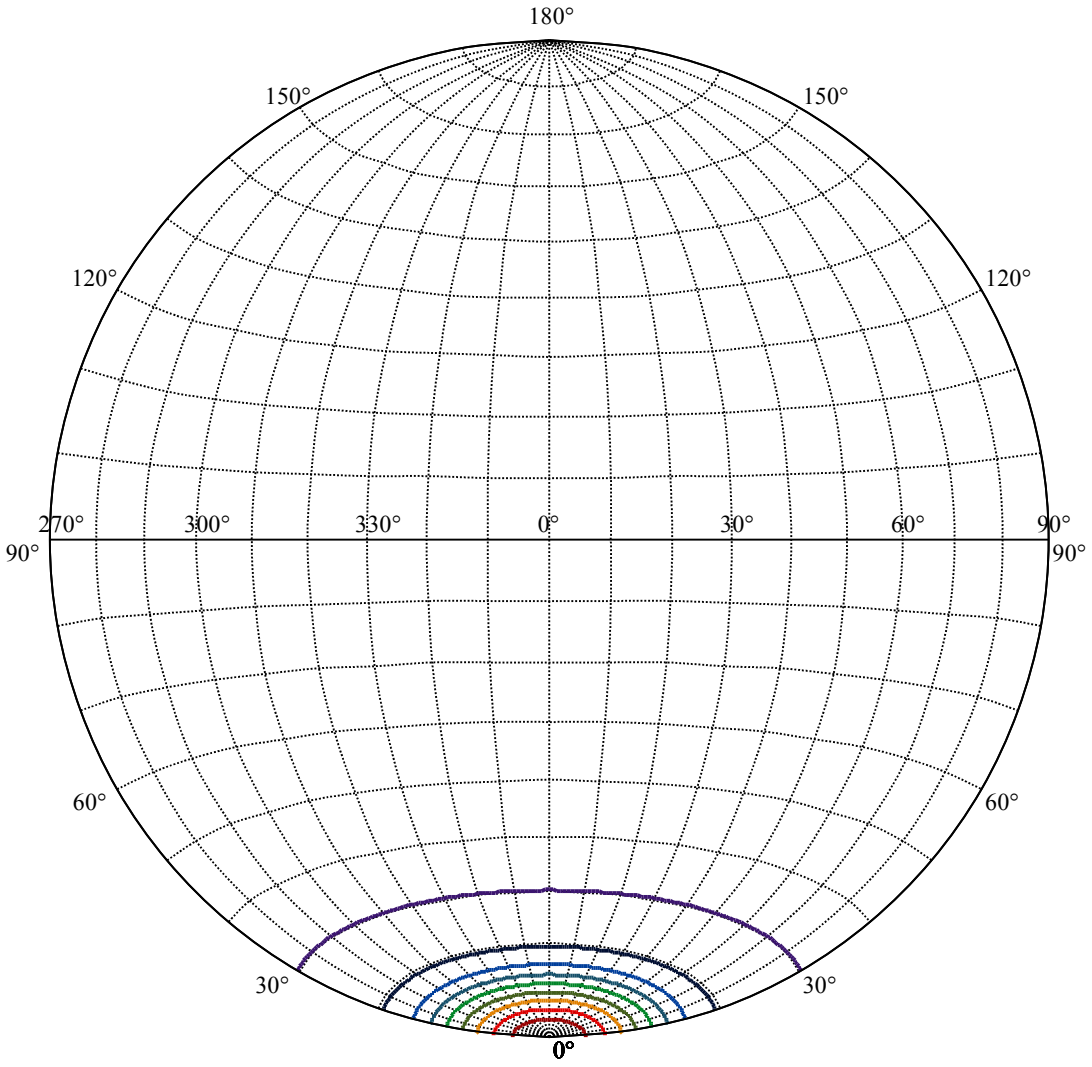


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



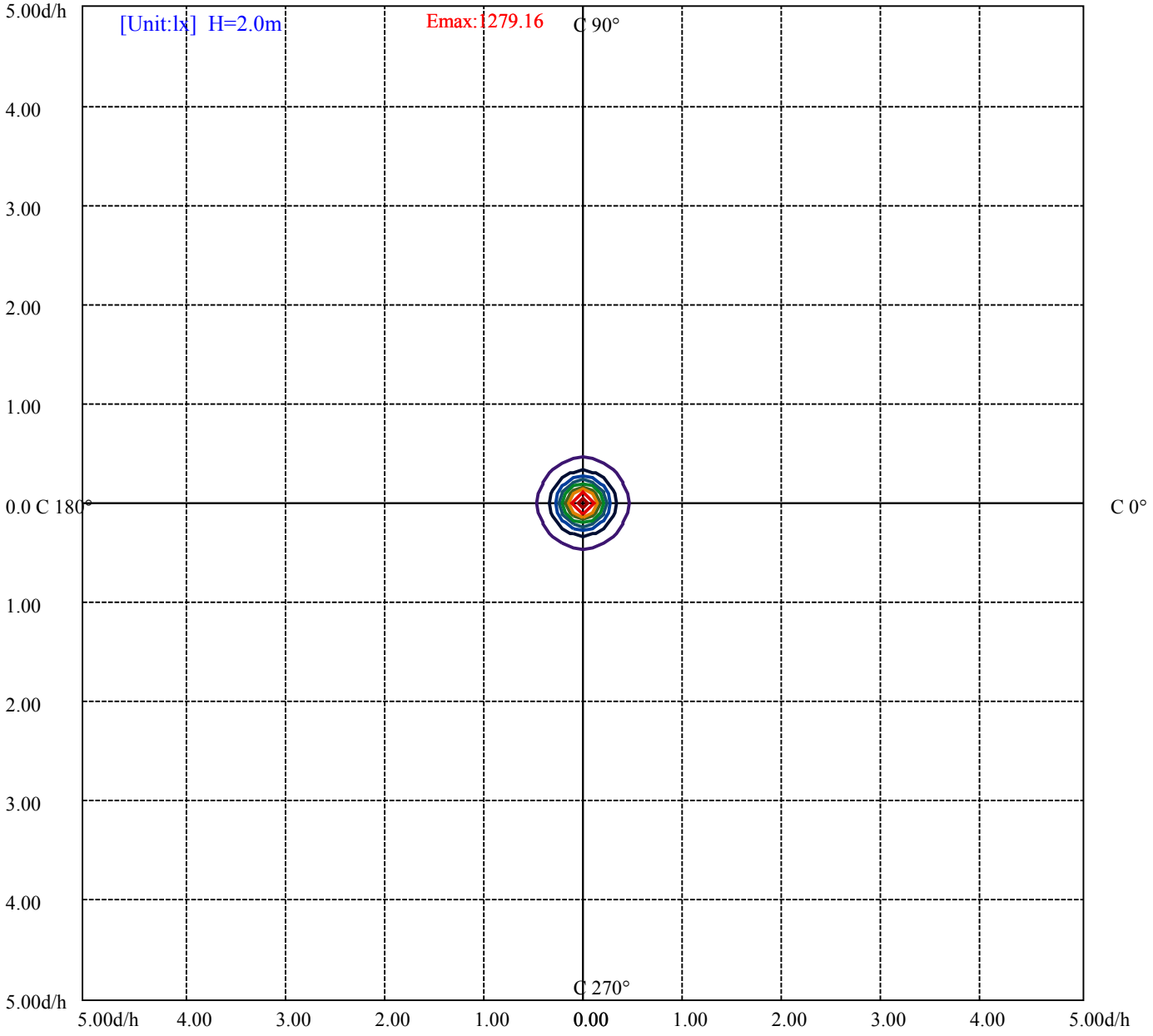
House [Unit:cd] Road

Imax:5116.64

(10%Imax) 511.664
(20%Imax) 1023.33
(30%Imax) 1534.99
(40%Imax) 2046.66
(50%Imax) 2558.32
(60%Imax) 3069.98
(70%Imax) 3581.65
(80%Imax) 4093.31
(90%Imax) 4604.98

Equipment: GMS1980 Date: 2020/4/7 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO illuminance diagram

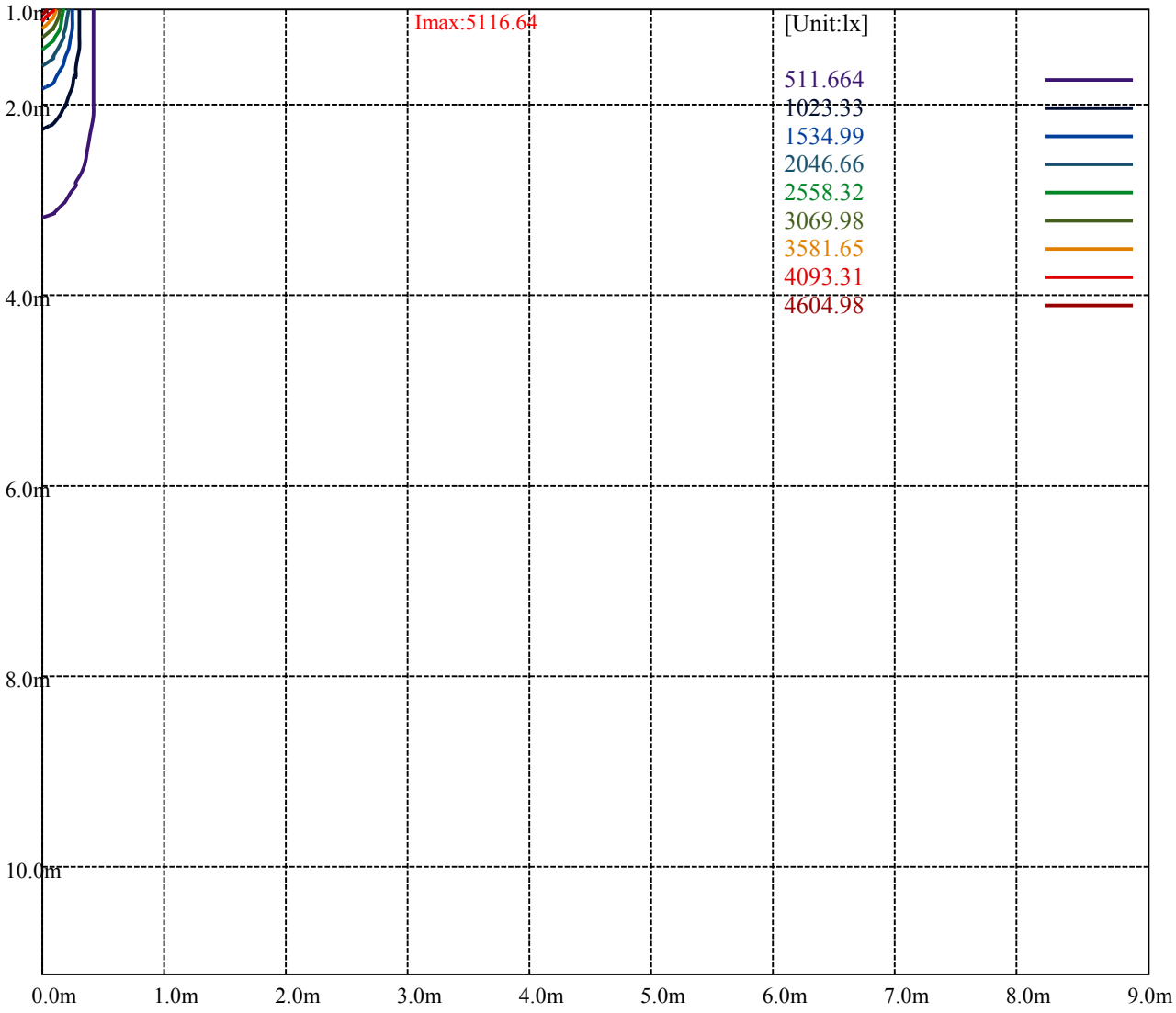


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

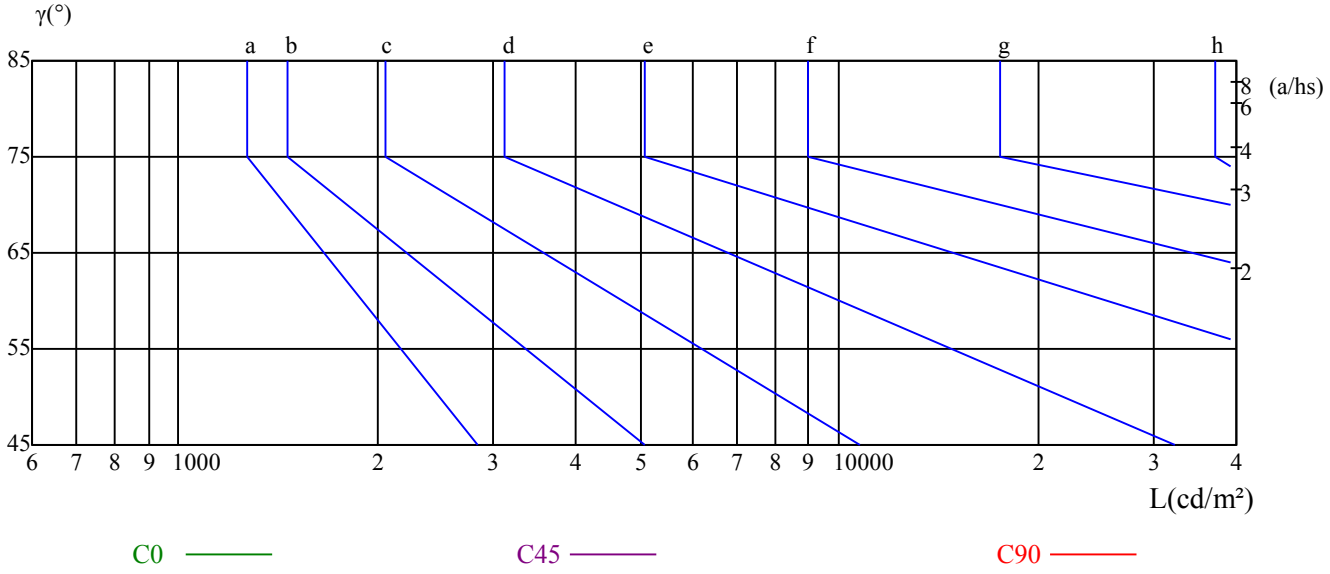
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

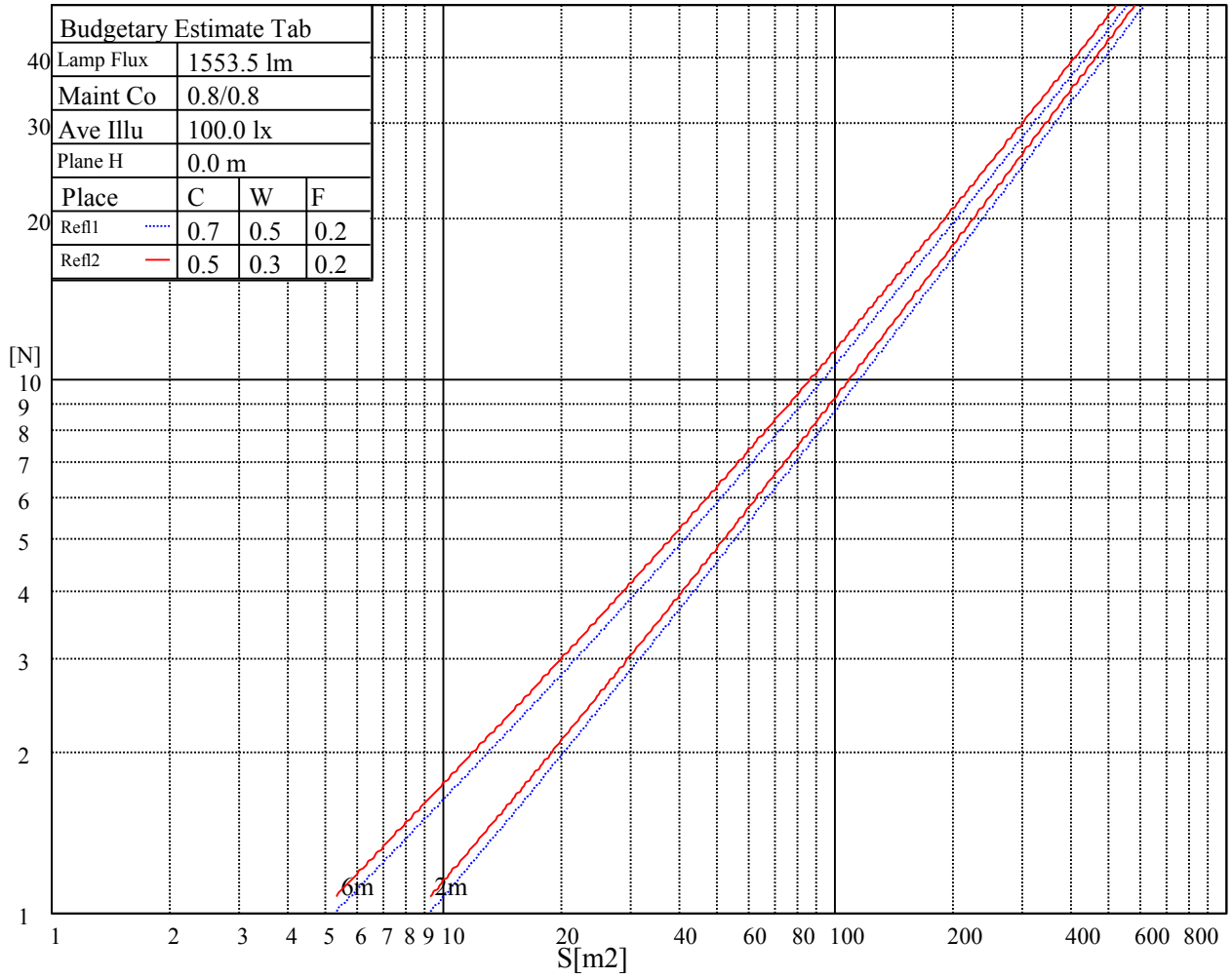
Glare Table

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

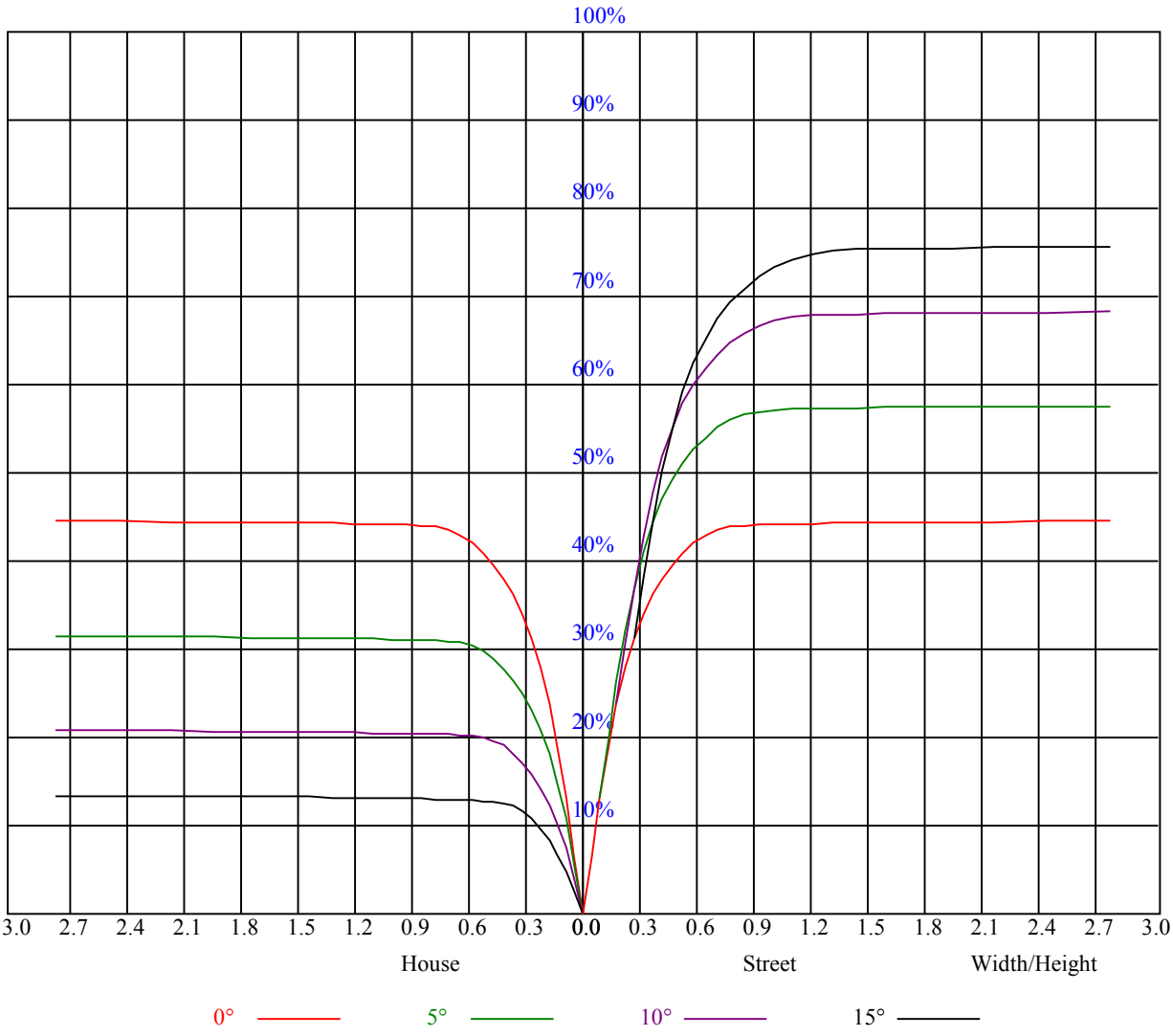


Equipment: GMS1980 Date: 2020/4/7 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.07	1.07	1.07	1.04	1.04	1.04	1.00	1.00	1.00	0.95	0.95	0.95	0.91	0.91	0.91	0.90
1	1.00	0.98	0.96	0.98	0.97	0.95	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.85
2	0.95	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.78	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.74
5	0.81	0.77	0.74	0.81	0.77	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.76	0.74	0.72	0.71
6	0.78	0.73	0.70	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
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	0.72	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.63	0.62
9	0.69	0.65	0.62	0.68	0.64	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.60
10	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.58

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/4/7	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	5106.38	5156.44	5126.06	5046.19	4910.06	4750.31	4510.13	4296.94	4066.88
45.0	5124.94	5097.38	4983.75	4827.94	4657.50	4442.06	4223.25	3953.25	3670.31
90.0	5078.81	4945.50	4777.31	4534.31	4317.19	4083.75	3801.94	3502.13	3231.00
135.0	5156.44	5018.06	4824.00	4624.88	4383.56	4119.19	3869.44	3566.81	3301.88
180.0	5106.38	4973.63	4786.31	4599.00	4364.44	4131.56	3849.19	3548.81	3277.69
225.0	5124.94	5090.63	4934.81	4799.25	4621.50	4366.13	4138.31	3894.19	3638.25
270.0	5078.81	5173.31	5163.19	5082.19	4940.44	4756.50	4564.13	4325.06	4093.88
315.0	5156.44	5198.06	5169.38	5053.50	4944.94	4788.00	4554.00	4337.44	4096.69
360.0	5106.38	5156.44	5126.06	5046.19	4910.06	4750.31	4510.13	4296.94	4066.88

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3788.44	3489.19	3218.06	2910.38	2602.13	2334.94	2058.19	1833.19	1609.31
45.0	3413.25	3110.63	2801.25	2532.94	2274.75	1967.63	1744.88	1553.63	1347.19
90.0	2923.88	2652.19	2353.50	2073.94	1838.25	1595.25	1384.88	1112.12	1097.10
135.0	2999.81	2689.31	2414.25	2151.56	1847.25	1625.06	1423.69	1213.88	1082.25
180.0	3001.50	2657.81	2390.06	2134.69	1834.88	1617.75	1417.50	1117.46	1069.43
225.0	3304.69	3030.75	2760.19	2461.50	2175.19	1932.75	1684.13	1456.31	1213.88
270.0	3813.75	3517.31	3247.88	2976.75	2640.94	2377.69	2126.25	1834.88	1622.81
315.0	3839.63	3501.00	3224.25	2945.25	2631.94	2335.50	2091.94	1839.94	1614.38
360.0	3788.44	3489.19	3218.06	2910.38	2602.13	2334.94	2058.19	1833.19	1609.31

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1416.94	1270.13	1143.56	1005.75	913.50	835.31	755.44	704.81	666.00
45.0	1197.00	1077.75	965.81	872.44	803.25	738.56	691.31	649.69	618.19
90.0	956.14	885.54	818.10	760.28	698.74	658.86	626.46	594.45	573.92
135.0	971.44	879.19	805.50	751.50	696.94	655.31	615.94	586.13	565.31
180.0	958.67	872.66	790.76	736.31	686.87	639.17	601.09	574.71	552.66
225.0	1120.73	1009.13	907.26	825.53	764.78	705.83	661.22	621.00	589.84
270.0	1437.75	1265.06	1122.75	1015.31	911.81	826.31	762.75	705.94	665.44
315.0	1441.13	1272.94	1111.28	1016.27	910.13	831.77	759.09	701.66	663.24
360.0	1416.94	1270.13	1143.56	1005.75	913.50	835.31	755.44	704.81	666.00

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	632.25	606.94	587.25	570.38	556.88	542.81	518.63	479.25	423.00
45.0	596.25	574.88	556.88	541.13	525.38	482.06	434.25	381.94	319.50
90.0	553.95	535.39	516.15	483.24	431.10	371.42	317.19	256.05	201.04
135.0	545.06	528.75	509.63	471.94	411.19	358.88	304.31	290.81	177.92
180.0	536.23	520.48	499.95	463.84	411.81	354.09	299.59	246.15	178.03
225.0	567.56	545.18	526.78	512.44	486.56	434.19	384.30	330.92	269.44
270.0	628.88	600.75	579.38	560.81	541.13	526.50	503.44	453.38	401.63
315.0	633.43	603.79	583.20	565.99	549.56	534.04	515.93	472.50	422.83
360.0	632.25	606.94	587.25	570.38	556.88	542.81	518.63	479.25	423.00

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	360.56	302.63	287.44	169.14	117.28	73.18	35.83	27.00	21.15
45.0	284.63	199.74	142.26	94.22	50.12	27.23	22.78	18.17	14.96
90.0	142.93	88.76	50.85	28.18	21.26	17.27	14.29	12.77	11.14
135.0	127.58	78.86	38.76	22.67	18.79	15.24	12.60	11.76	10.63
180.0	128.70	83.31	43.88	21.71	18.45	14.23	11.64	10.91	10.07
225.0	207.90	156.49	101.31	55.01	28.69	20.93	16.65	12.71	11.36
270.0	344.81	286.88	211.61	157.67	100.91	59.46	31.84	25.65	19.29
315.0	360.34	295.37	237.21	173.87	115.93	71.61	39.88	27.17	21.32
360.0	360.56	302.63	287.44	169.14	117.28	73.18	35.83	27.00	21.15

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	17.04	13.95	10.35	9.56	9.11	8.83	8.61	8.33	8.10
45.0	13.28	10.18	9.62	9.28	8.94	8.72	8.44	8.21	7.99
90.0	9.56	9.23	8.89	8.61	8.33	8.16	7.93	7.71	7.59
135.0	9.23	8.83	8.55	8.38	8.10	7.88	7.71	7.54	7.31
180.0	8.83	8.49	8.27	7.99	7.76	7.59	7.48	7.26	7.14
225.0	10.52	8.61	8.27	8.04	7.82	7.59	7.43	7.31	7.14
270.0	14.91	13.33	10.52	8.72	8.38	8.10	7.93	7.76	7.54
315.0	16.76	13.78	9.62	9.06	8.78	8.49	8.27	7.99	7.88
360.0	17.04	13.95	10.35	9.56	9.11	8.83	8.61	8.33	8.10

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.93	7.71	7.54	7.43	7.26	7.09	6.98	6.81	6.69
45.0	7.76	7.65	7.43	7.26	7.09	6.98	6.86	6.75	6.58
90.0	7.37	7.20	7.09	6.92	6.86	6.75	6.64	6.53	6.41
135.0	7.20	7.03	6.98	6.86	6.69	6.64	6.58	6.47	6.41
180.0	7.03	6.86	6.75	6.69	6.58	6.53	6.47	6.36	6.30
225.0	7.03	6.92	6.81	6.64	6.58	6.53	6.41	6.36	6.30
270.0	7.37	7.26	7.09	6.98	6.86	6.75	6.64	6.53	6.47
315.0	7.65	7.48	7.31	7.20	7.03	6.92	6.81	6.69	6.58
360.0	7.93	7.71	7.54	7.43	7.26	7.09	6.98	6.81	6.69

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.64	6.58	6.47	6.36	6.30	6.24	6.13	6.13	6.08
45.0	6.53	6.41	6.30	6.24	6.19	6.08	6.02	6.02	5.96
90.0	6.36	6.30	6.24	6.19	6.13	6.08	6.02	5.96	5.91
135.0	6.36	6.30	6.24	6.24	6.19	6.19	6.13	6.08	6.08
180.0	6.24	6.19	6.19	6.19	6.13	6.13	6.13	6.08	6.08
225.0	6.19	6.19	6.13	6.13	6.08	6.02	6.02	5.96	5.91
270.0	6.41	6.36	6.24	6.19	6.13	6.13	6.08	6.02	5.96
315.0	6.53	6.41	6.36	6.30	6.24	6.19	6.13	6.08	6.02
360.0	6.64	6.58	6.47	6.36	6.30	6.24	6.13	6.13	6.08

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.02	5.96	5.96	5.91	5.85	5.85	5.79	5.79	5.79
45.0	5.91	5.85	5.85	5.79	5.79	5.79	5.74	5.74	5.68
90.0	5.91	5.91	5.85	5.85	5.79	5.74	5.79	5.74	5.74
135.0	6.02	6.02	6.02	5.91	5.91	5.91	5.91	5.85	5.85
180.0	6.02	6.02	5.96	5.96	5.96	5.91	5.91	5.85	5.91
225.0	5.85	5.91	5.85	5.85	5.79	5.79	5.74	5.74	5.74
270.0	5.96	5.91	5.91	5.85	5.79	5.79	5.74	5.74	5.74
315.0	6.02	5.96	5.96	5.85	5.85	5.79	5.79	5.79	5.74
360.0	6.02	5.96	5.96	5.91	5.85	5.85	5.79	5.79	5.79

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	5.74	5.74	5.74	5.74	5.68	5.63	5.68	5.63	5.63
45.0	5.68	5.68	5.63	5.68	5.68	5.74	5.63	5.51	5.51
90.0	5.68	5.68	5.74	5.85	5.85	5.63	5.57	5.57	5.57
135.0	5.85	5.79	5.79	5.79	5.68	5.63	5.63	5.63	5.57
180.0	5.79	5.91	5.91	5.96	5.91	5.68	5.63	5.57	5.57
225.0	5.74	5.68	5.68	5.74	5.79	5.68	5.57	5.57	5.51
270.0	5.74	5.74	5.68	5.68	5.74	5.79	5.63	5.57	5.57
315.0	5.74	5.74	5.68	5.74	5.68	5.68	5.68	5.63	5.68
360.0	5.74	5.74	5.74	5.74	5.68	5.63	5.68	5.63	5.63

Intensity data(cd)

C/γ(°)	90.0
0.0	5.63
45.0	5.51
90.0	5.51
135.0	5.57
180.0	5.57
225.0	5.51
270.0	5.57
315.0	5.57
360.0	5.63