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Nata

LumCAT: 2-1676-M
Luminaire: 92.70.129.00
Report No: NT2017061910
Test No: GC2017061910
LampCAT: CREE CXA1830
Lamp flux(lm): 2036.0
Number of Lamps: 1
Length(mm): 70
Phm Type: C

Voltage(V): 218.3000
Current(A): 0.1000
Power (W): 19.8000
PF: 0.9010
Ballast type: DC
Width(mm): 70
Height(mm): 0

Photometric Results

Lumens(lm): 1830.75
Efficiency(%): 89.92%
Lumens(lm)/Power(W): 92.46
Central intensity(cd): 4212.641
Maximum intensity(cd): 4212.641
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=34.9
[C90/270]Total=34.9
Field angle(10%Imax): [C0/180]Total=70.3
[C90/270]Total=70.3
Maximum s/h(1/2): C0_180=0.58 C90_270=0.58
Maximum s/h(1/4): C0_180=0.57 C90_270=0.57
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.92%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.705%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4212.640	0.000	0	.000%	.000%
1.0	4203.556	4.027	4.027	.198%	.220%
2.0	4172.174	12.022	16.049	.590%	.877%
3.0	4120.283	19.833	35.881	.974%	1.960%
4.0	4060.547	27.384	63.265	1.345%	3.456%
5.0	3977.963	34.581	97.847	1.698%	5.345%
6.0	3893.313	41.366	139.212	2.032%	7.604%
7.0	3793.111	47.710	186.922	2.343%	10.210%
8.0	3680.245	53.485	240.407	2.627%	13.132%
9.0	3557.056	58.654	299.062	2.881%	16.335%
10.0	3428.224	63.214	362.276	3.105%	19.788%
11.0	3285.215	67.081	429.357	3.295%	23.453%
12.0	3135.875	70.192	499.549	3.448%	27.287%
13.0	2972.633	72.493	572.041	3.561%	31.246%
14.0	2782.275	73.662	645.703	3.618%	35.270%
15.0	2602.516	73.925	719.628	3.631%	39.308%
16.0	2408.993	73.433	793.061	3.607%	43.319%
17.0	2203.495	71.829	864.89	3.528%	47.242%
18.0	1996.207	69.244	934.134	3.401%	51.025%
19.0	1814.934	66.306	1000.44	3.257%	54.646%
20.0	1602.279	62.544	1062.984	3.072%	58.063%
21.0	1416.753	57.972	1120.956	2.847%	61.229%
22.0	1286.916	54.331	1175.287	2.669%	64.197%
23.0	1137.451	50.870	1226.157	2.499%	66.976%
24.0	1035.473	47.508	1273.665	2.333%	69.571%
25.0	955.297	45.266	1318.931	2.223%	72.043%
26.0	883.986	43.416	1362.347	2.132%	74.415%
27.0	825.997	41.835	1404.182	2.055%	76.700%
28.0	782.806	40.731	1444.914	2.001%	78.925%
29.0	739.518	39.828	1484.742	1.956%	81.100%
30.0	705.107	39.005	1523.747	1.916%	83.231%
31.0	668.908	38.237	1561.983	1.878%	85.319%
32.0	617.898	36.865	1598.849	1.811%	87.333%
33.0	564.535	34.835	1633.684	1.711%	89.236%
34.0	502.555	32.293	1665.977	1.586%	91.000%
35.0	432.083	29.026	1695.003	1.426%	92.585%
36.0	356.366	25.104	1720.108	1.233%	93.956%
37.0	290.092	21.084	1741.192	1.036%	95.108%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	233.549	17.478	1758.67	.858%	96.063%
39.0	153.112	13.198	1771.868	.648%	96.784%
40.0	98.675	8.781	1780.649	.431%	97.263%
41.0	61.085	5.689	1786.338	.279%	97.574%
42.0	32.359	3.395	1789.733	.167%	97.760%
43.0	21.362	1.990	1791.723	.098%	97.868%
44.0	16.448	1.427	1793.15	.070%	97.946%
45.0	13.984	1.170	1794.32	.057%	98.010%
46.0	12.539	1.037	1795.357	.051%	98.067%
47.0	11.410	0.953	1796.31	.047%	98.119%
48.0	10.722	0.895	1797.204	.044%	98.168%
49.0	10.268	0.862	1798.066	.042%	98.215%
50.0	9.924	0.842	1798.908	.041%	98.261%
51.0	9.690	0.830	1799.738	.041%	98.306%
52.0	9.539	0.825	1800.563	.041%	98.351%
53.0	9.346	0.821	1801.385	.040%	98.396%
54.0	9.181	0.817	1802.201	.040%	98.441%
55.0	9.029	0.813	1803.014	.040%	98.485%
56.0	8.878	0.809	1803.823	.040%	98.529%
57.0	8.740	0.806	1804.629	.040%	98.573%
58.0	8.658	0.805	1805.433	.040%	98.617%
59.0	8.548	0.804	1806.238	.040%	98.661%
60.0	8.451	0.803	1807.041	.039%	98.705%
61.0	8.341	0.801	1807.842	.039%	98.749%
62.0	8.258	0.800	1808.642	.039%	98.792%
63.0	8.162	0.799	1809.441	.039%	98.836%
64.0	8.107	0.798	1810.239	.039%	98.880%
65.0	8.011	0.798	1811.037	.039%	98.923%
66.0	7.956	0.797	1811.833	.039%	98.967%
67.0	7.887	0.797	1812.63	.039%	99.010%
68.0	7.818	0.796	1813.425	.039%	99.054%
69.0	7.763	0.795	1814.22	.039%	99.097%
70.0	7.708	0.795	1815.015	.039%	99.140%
71.0	7.639	0.793	1815.808	.039%	99.184%
72.0	7.598	0.792	1816.6	.039%	99.227%
73.0	7.543	0.792	1817.392	.039%	99.270%
74.0	7.501	0.791	1818.183	.039%	99.314%
75.0	7.515	0.793	1818.976	.039%	99.357%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.570	0.801	1819.777	.039%	99.401%
77.0	7.515	0.804	1820.581	.040%	99.445%
78.0	7.405	0.799	1821.38	.039%	99.488%
79.0	7.336	0.792	1822.172	.039%	99.531%
80.0	7.281	0.788	1822.96	.039%	99.574%
81.0	7.281	0.788	1823.748	.039%	99.618%
82.0	7.226	0.787	1824.534	.039%	99.660%
83.0	7.199	0.784	1825.319	.039%	99.703%
84.0	7.144	0.781	1826.1	.038%	99.746%
85.0	7.130	0.779	1826.879	.038%	99.789%
86.0	7.089	0.777	1827.656	.038%	99.831%
87.0	7.075	0.775	1828.431	.038%	99.873%
88.0	7.047	0.774	1829.205	.038%	99.916%
89.0	7.047	0.773	1829.977	.038%	99.958%
90.0	7.047	0.773	1830.75	.038%	100.000%

Zonal flux distribution table

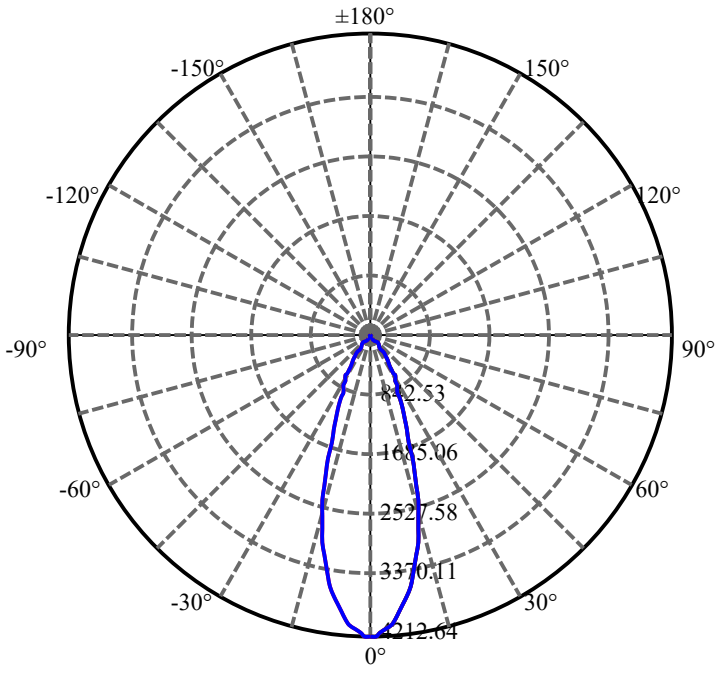
ZONAL LUMEN SUMMARY

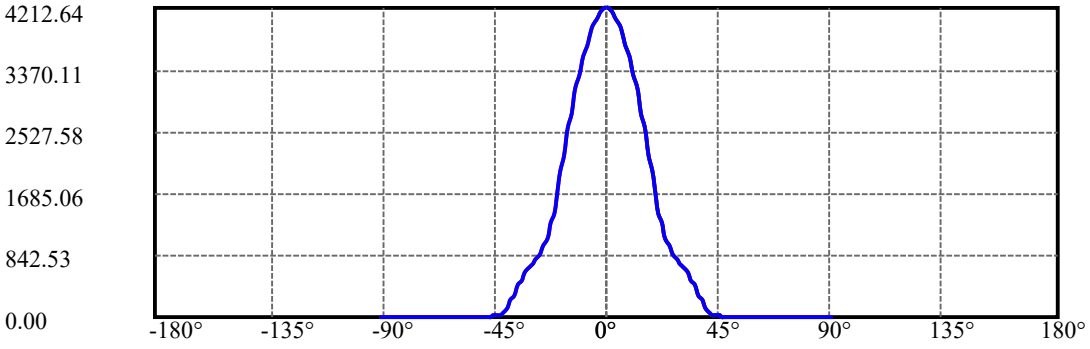
Zone	Lumens	%Lamp	%Fixt
0-30	1523.75	74.84%	83.23%
0-40	1780.65	87.46%	97.26%
0-60	1807.04	88.75%	98.70%
0-90	1829.98	89.88%	99.96%
0-120	1829.98	89.88%	99.96%
0-180	1830.75	89.92%	100.00%
60-90	23.74	1.17%	1.30%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.49	1464.60	71.94%	80.00%

ZONAL LUMEN SUMMARY

0-10	362.28
10-20	700.71
20-30	460.76
30-40	256.90
40-50	18.26
50-60	8.13
60-70	7.97
70-80	7.95
80-90	7.02
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:

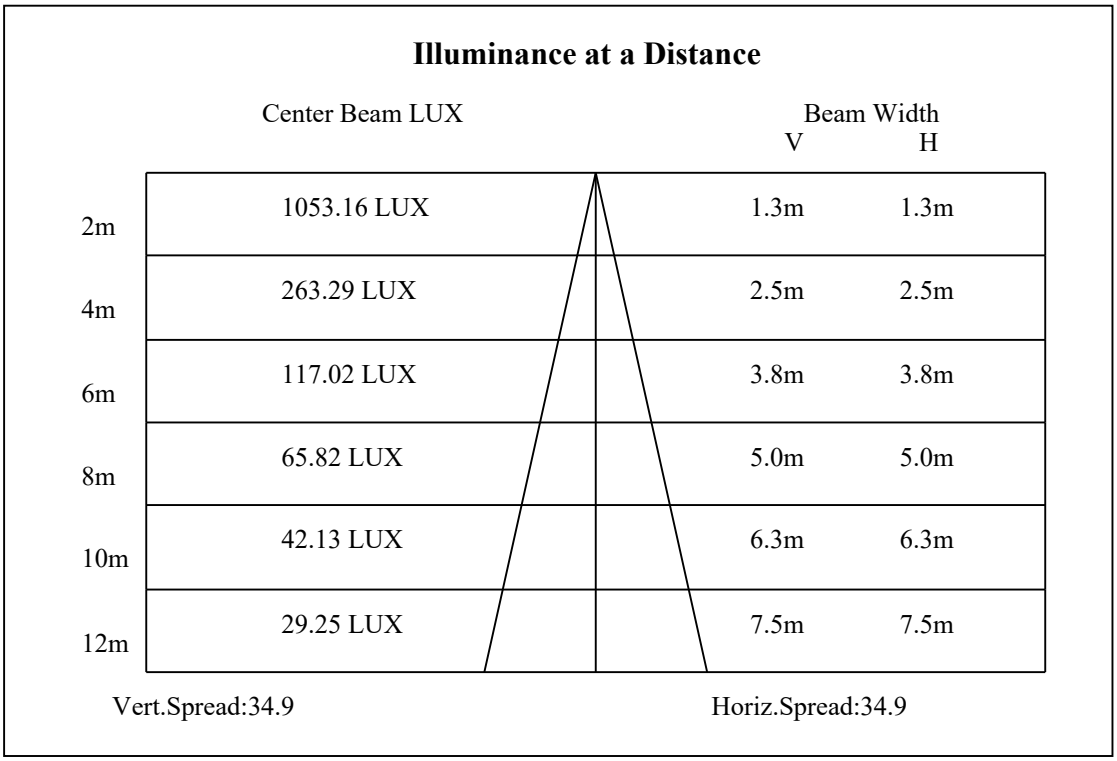
C90/C270:

Field angle(10%Imax):C0/180Left:35.1 Right:35.1
:C90/270Left:35.1 Right:35.1

Beam Angle(50%Imax):C0/180Left:17.5 Right:17.5
:C90/270Left:17.5 Right:17.5

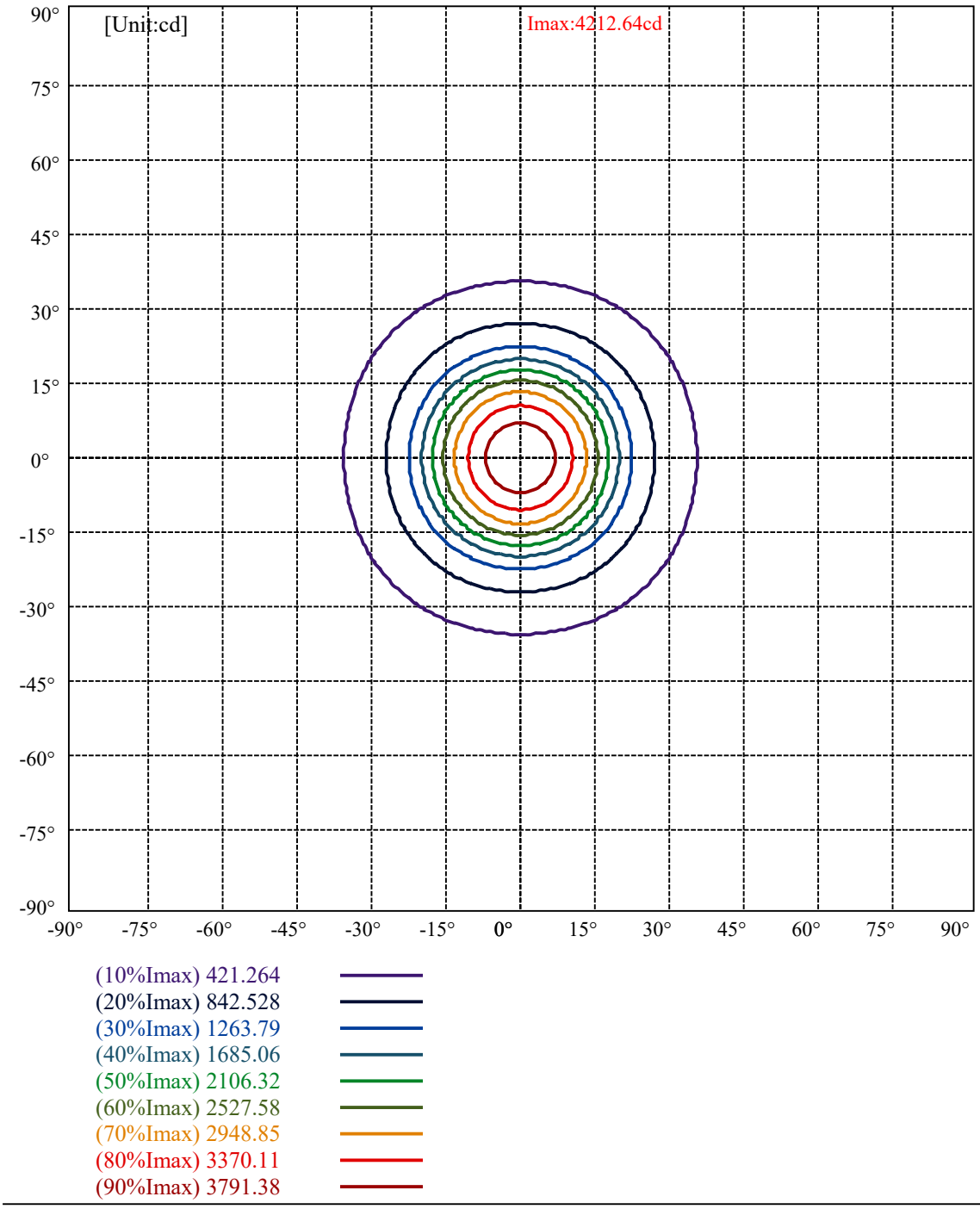
Equipment: gms1980 Date: 2017/6/3 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Lux distance Curve



Equipment: gms1980 Date: 2017/6/3 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)

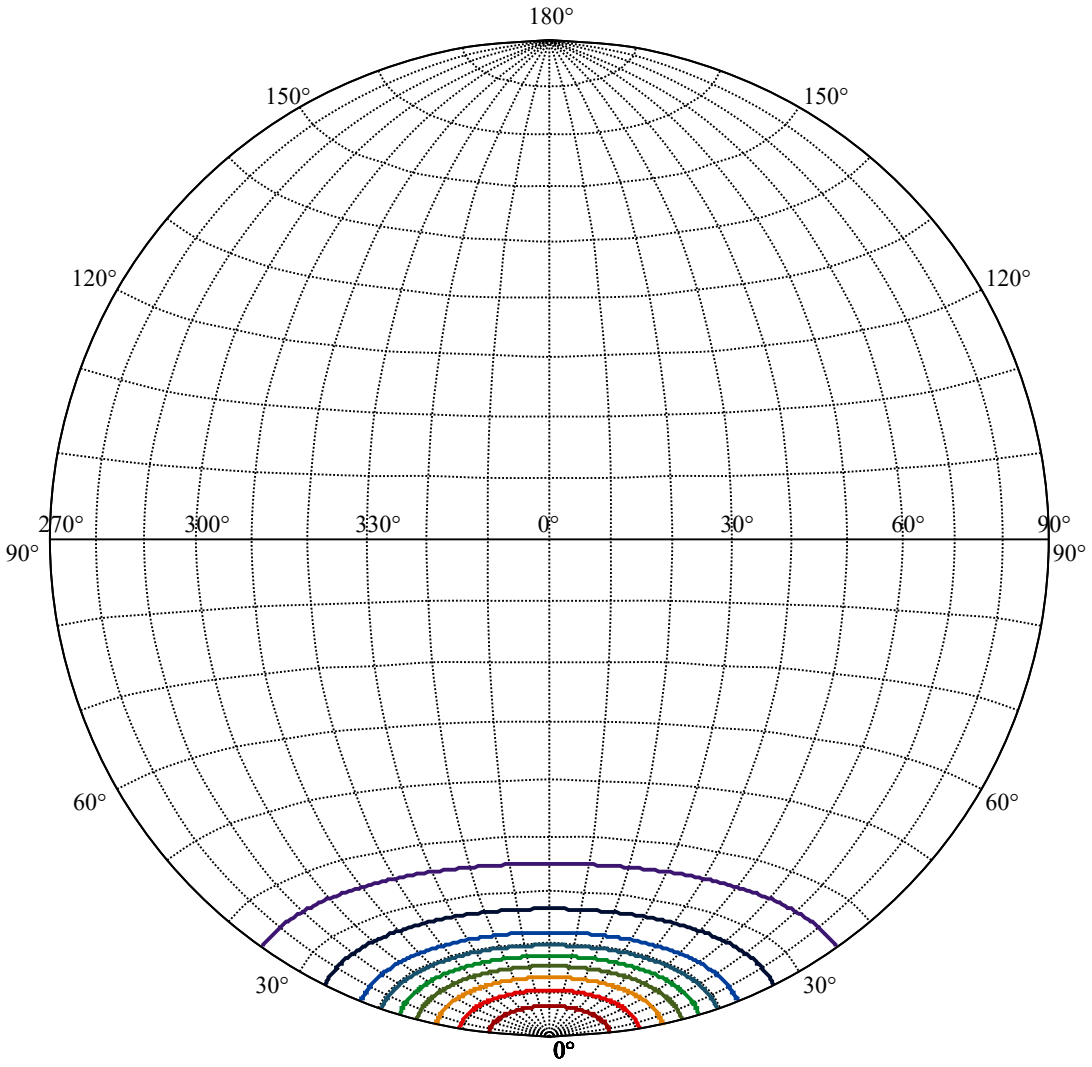


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:4212.64

(10%Imax) 421.264
(20%Imax) 842.528
(30%Imax) 1263.79
(40%Imax) 1685.06
(50%Imax) 2106.32
(60%Imax) 2527.58
(70%Imax) 2948.85
(80%Imax) 3370.11
(90%Imax) 3791.38

Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

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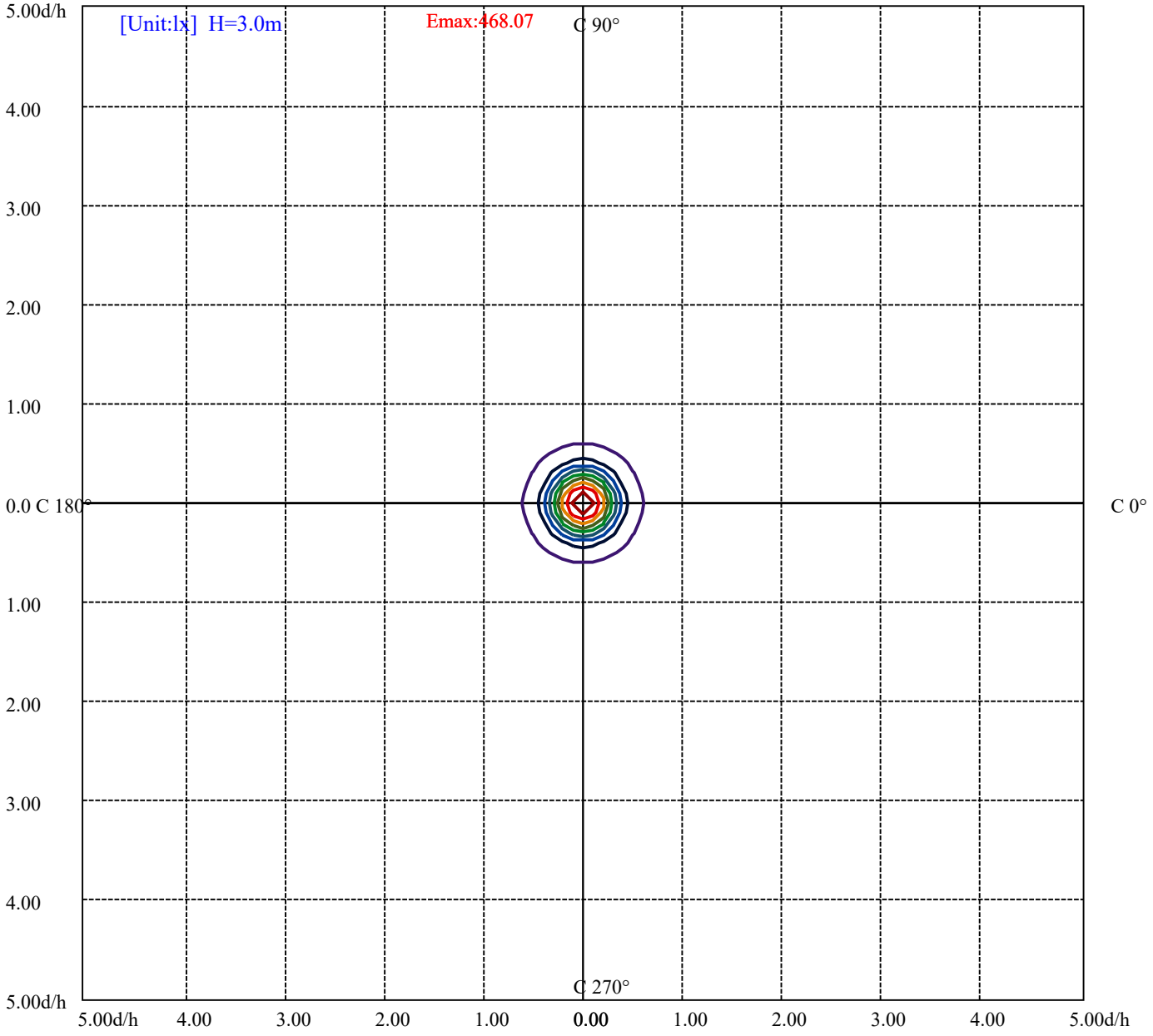
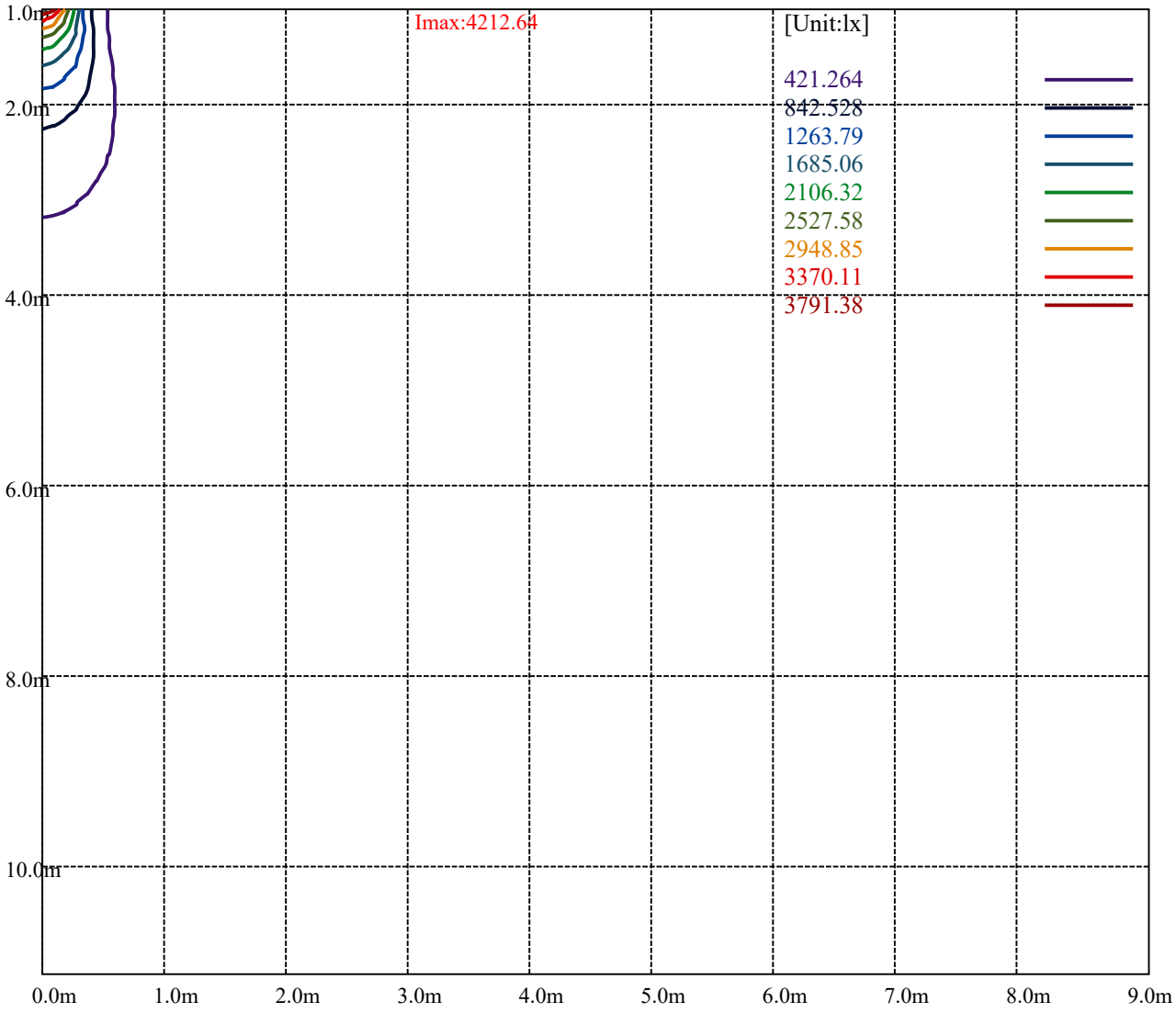
ISO illuminance diagram



Equipment: gms1980 Date: 2017/6/3 Operator: NT07

Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

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Luminance Limitting Curve(no luminous side)

Luminance Table

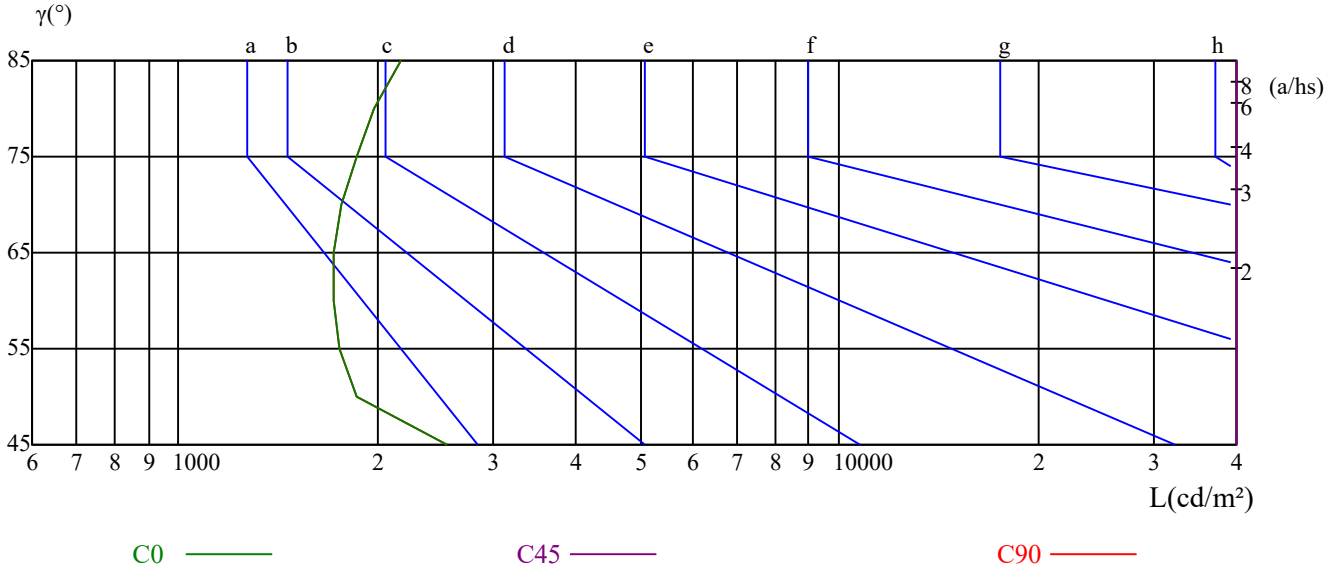
γ	45	50	55	60	65	70	75	80	85
C0	2545	1856	1749	1712	1715	1763	1860	1980	2170
C45	78001	45820	41852	40571	40502	41071	42592	44790	48142
C90	2545	1856	1749	1712	1715	1763	1860	1980	2170

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3868	3868	112448	5926	5926	174258	16695	16695	503943

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

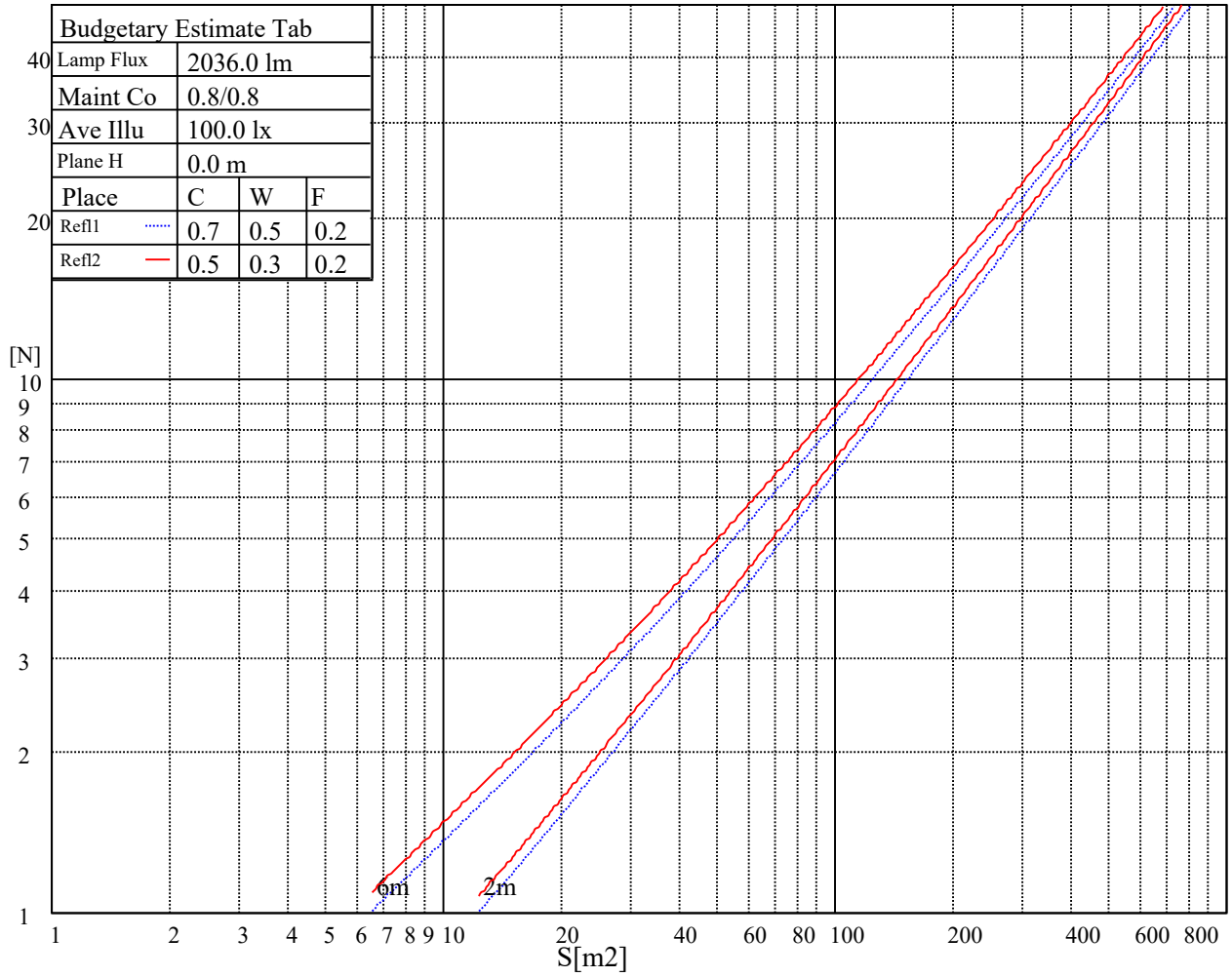


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/6/3
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Budgetary Estimate Table

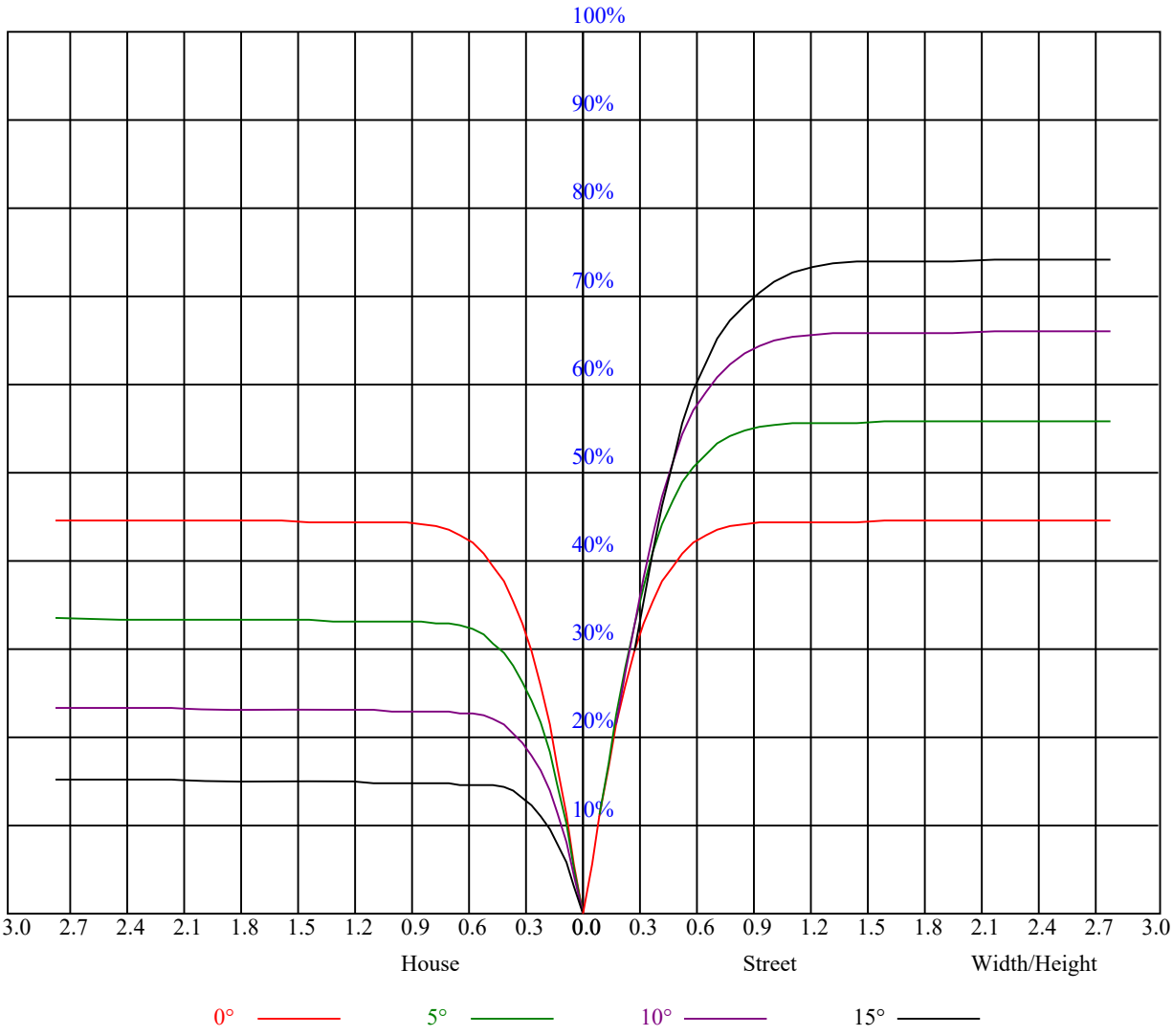


Equipment: gms1980 Date: 2017/6/3 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.05	1.05	1.05	1.00	1.00	1.00	0.96	0.96	0.96	0.92	0.92	0.92	0.90
1	1.00	0.98	0.96	0.98	0.96	0.95	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.85
2	0.94	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.84	0.85	0.83	0.82	0.80
3	0.89	0.85	0.82	0.88	0.84	0.81	0.86	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.78	0.76
4	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.78	0.76	0.74	0.72
5	0.80	0.76	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
6	0.76	0.72	0.68	0.76	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
7	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.63
8	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.60
9	0.67	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
10	0.64	0.59	0.56	0.63	0.59	0.56	0.63	0.59	0.56	0.62	0.59	0.56	0.62	0.58	0.56	0.55

Coefficient Utilization Curve



Equipment: gms1980	Date: 2017/6/3	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

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	4227.78	4227.23	4196.40	4155.11	4095.65	4005.90	3924.42	3832.48	3720.16
90.0	4197.50	4220.07	4220.62	4198.60	4160.06	4095.65	4036.18	3961.86	3865.51
180.0	4227.78	4208.51	4166.67	4106.66	4045.54	3957.45	3867.71	3755.95	3631.52
270.0	4197.50	4158.41	4105.01	4020.77	3940.94	3852.85	3744.94	3622.16	3503.79
360.0	4227.78	4227.23	4196.40	4155.11	4095.65	4005.90	3924.42	3832.48	3720.16

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3597.39	3482.32	3340.82	3197.68	3018.74	2824.39	2642.16	2425.78	2206.11
90.0	3757.05	3652.99	3523.06	3398.63	3251.08	3094.72	2946.62	2769.89	2575.54
180.0	3512.05	3372.20	3227.41	3090.32	2943.32	2742.91	2571.13	2388.90	2175.83
270.0	3361.74	3205.38	3049.57	2856.88	2677.39	2467.08	2250.16	2051.40	1856.50
360.0	3597.39	3482.32	3340.82	3197.68	3018.74	2824.39	2642.16	2425.78	2206.11

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2011.76	1821.82	1588.93	1412.20	1262.44	1123.15	1013.59	937.06	866.04
90.0	2390.55	2222.63	1961.11	1775.02	1618.11	1397.88	1240.42	1133.61	1020.20
180.0	1958.91	1771.16	1572.41	1383.57	1243.17	1085.11	1018.21	937.67	877.98
270.0	1623.61	1444.13	1286.67	1096.23	1023.94	943.67	869.67	812.85	771.73
360.0	2011.76	1821.82	1588.93	1412.20	1262.44	1123.15	1013.59	937.06	866.04

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	809.88	768.04	727.85	698.12	668.94	629.85	578.64	512.02	438.80
90.0	939.26	883.10	821.44	782.35	746.01	704.72	674.99	624.89	551.67
180.0	824.47	784.06	738.03	703.73	672.29	615.37	555.85	493.20	427.40
270.0	730.38	696.02	670.75	636.23	588.39	521.66	448.65	380.11	310.46
360.0	809.88	768.04	727.85	698.12	668.94	629.85	578.64	512.02	438.80

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	371.08	302.81	285.74	150.69	94.59	55.11	24.11	19.43	17.01
90.0	484.50	415.68	328.69	278.03	193.08	128.12	66.67	33.53	20.43
180.0	344.21	278.37	213.40	135.38	81.04	40.96	22.02	18.72	16.24
270.0	225.68	163.52	106.37	48.34	25.99	20.15	16.63	13.76	12.11
360.0	371.08	302.81	285.74	150.69	94.59	55.11	24.11	19.43	17.01

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	13.32	11.56	10.74	10.35	10.08	9.91	9.58	9.47	9.25
90.0	18.11	15.80	13.27	12.28	11.23	10.46	10.24	10.02	9.80
180.0	13.54	12.17	11.34	10.19	9.91	9.69	9.52	9.36	9.19
270.0	10.96	10.63	10.30	10.08	9.86	9.63	9.41	9.30	9.14
360.0	13.32	11.56	10.74	10.35	10.08	9.91	9.58	9.47	9.25

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.14	8.97	8.86	8.70	8.64	8.53	8.42	8.31	8.20
90.0	9.63	9.47	9.19	9.14	8.97	8.86	8.75	8.64	8.53
180.0	8.97	8.86	8.75	8.59	8.53	8.42	8.37	8.20	8.15
270.0	8.97	8.81	8.70	8.53	8.48	8.37	8.26	8.20	8.15
360.0	9.14	8.97	8.86	8.70	8.64	8.53	8.42	8.31	8.20

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.15	8.15	8.04	7.98	7.87	7.82	7.82	7.76	7.65
90.0	8.48	8.37	8.20	8.15	8.09	7.98	7.93	7.87	7.82
180.0	8.04	7.98	7.93	7.87	7.82	7.76	7.65	7.60	7.54
270.0	7.98	7.93	7.87	7.82	7.76	7.71	7.65	7.60	7.54
360.0	8.15	8.15	8.04	7.98	7.87	7.82	7.82	7.76	7.65

Intensity data(cd)

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	7.60	7.54	7.49	7.49	7.43	7.38	7.27	7.27	7.21
90.0	7.76	7.71	7.65	7.54	7.49	7.43	7.43	7.38	7.38
180.0	7.49	7.49	7.43	7.43	7.32	7.32	7.27	7.27	7.21
270.0	7.54	7.43	7.43	7.60	8.04	7.93	7.65	7.43	7.32
360.0	7.60	7.54	7.49	7.49	7.43	7.38	7.27	7.27	7.21

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.27	7.16	7.16	7.10	7.10	7.05	7.05	7.05	6.99
90.0	7.32	7.27	7.27	7.21	7.21	7.16	7.10	7.10	7.10
180.0	7.21	7.21	7.16	7.10	7.10	7.05	7.05	6.99	7.05
270.0	7.32	7.27	7.21	7.16	7.10	7.10	7.10	7.05	7.05
360.0	7.27	7.16	7.16	7.10	7.10	7.05	7.05	7.05	6.99

C/γ(°)	90.0
0.0	7.05
90.0	7.10
180.0	6.99
270.0	7.05
360.0	7.05