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Nata

LumCAT: 2-1674-M
Luminaire: 92.70.131.00
Report No: NT2017051902
Test No: GC2017051902
LampCAT: BMTC MA-1919 30
Lamp flux(lm): 2655.0
Number of Lamps: 1
Length(mm): 70
Phm Type: C

Voltage(V): 220.4000
Current(A): 0.1210
Power (W): 24.7000
PF: 0.9280
Ballast type: DC
Width(mm): 70
Height(mm): 0

Photometric Results

Lumens(lm): 2404.43
Efficiency(%): 90.56%
Lumens(lm)/Power(W): 97.35
Central intensity(cd): 14950.560
Maximum intensity(cd): 14950.560
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.7
[C90/270]Total=16.7
Field angle(10%Imax): [C0/180]Total=35.0
[C90/270]Total=35.0
Maximum s/h(1/2): C0_180=0.29 C90_270=0.29
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(%): 90.56%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.816%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	14950.565	0.000	0	.000%	.000%
1.0	14896.885	14.281	14.281	.538%	.594%
2.0	14603.710	42.342	56.624	1.595%	2.355%
3.0	14106.826	68.666	125.29	2.586%	5.211%
4.0	13359.435	91.938	217.228	3.463%	9.034%
5.0	12046.340	109.294	326.522	4.117%	13.580%
6.0	10885.889	120.515	447.037	4.539%	18.592%
7.0	9513.746	126.620	573.658	4.769%	23.858%
8.0	8004.237	125.373	699.03	4.722%	29.073%
9.0	6481.928	117.402	816.433	4.422%	33.955%
10.0	5219.622	105.895	922.328	3.989%	38.359%
11.0	4159.098	93.713	1016.04	3.530%	42.257%
12.0	3410.882	82.751	1098.791	3.117%	45.699%
13.0	2775.668	73.419	1172.21	2.765%	48.752%
14.0	2462.948	67.054	1239.264	2.526%	51.541%
15.0	2042.868	61.858	1301.121	2.330%	54.113%
16.0	1792.499	56.199	1357.32	2.117%	56.451%
17.0	1573.099	52.411	1409.732	1.974%	58.631%
18.0	1412.885	49.232	1458.964	1.854%	60.678%
19.0	1282.264	46.890	1505.854	1.766%	62.628%
20.0	1145.517	44.435	1550.289	1.674%	64.476%
21.0	1096.104	43.044	1593.333	1.621%	66.266%
22.0	1037.331	42.872	1636.205	1.615%	68.050%
23.0	991.621	42.573	1678.778	1.603%	69.820%
24.0	949.819	42.447	1721.225	1.599%	71.586%
25.0	916.317	42.432	1763.657	1.598%	73.350%
26.0	889.161	42.619	1806.275	1.605%	75.123%
27.0	867.634	42.980	1849.256	1.619%	76.910%
28.0	848.777	43.456	1892.712	1.637%	78.718%
29.0	835.605	44.068	1936.78	1.660%	80.550%
30.0	820.506	44.715	1981.494	1.684%	82.410%
31.0	807.099	45.294	2026.788	1.706%	84.294%
32.0	785.710	45.632	2072.42	1.719%	86.192%
33.0	745.711	45.116	2117.537	1.699%	88.068%
34.0	689.939	43.447	2160.984	1.636%	89.875%
35.0	611.002	40.402	2201.386	1.522%	91.555%
36.0	531.377	36.374	2237.76	1.370%	93.068%
37.0	450.953	32.038	2269.798	1.207%	94.401%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	366.056	27.271	2297.069	1.027%	95.535%
39.0	273.121	21.817	2318.885	.822%	96.442%
40.0	229.530	17.531	2336.416	.660%	97.171%
41.0	122.294	12.528	2348.944	.472%	97.692%
42.0	63.934	6.766	2355.71	.255%	97.974%
43.0	28.877	3.438	2359.148	.129%	98.117%
44.0	19.352	1.820	2360.969	.069%	98.192%
45.0	16.861	1.392	2362.36	.052%	98.250%
46.0	14.108	1.211	2363.572	.046%	98.301%
47.0	12.828	1.071	2364.643	.040%	98.345%
48.0	11.534	0.985	2365.628	.037%	98.386%
49.0	10.172	0.891	2366.519	.034%	98.423%
50.0	10.062	0.844	2367.363	.032%	98.458%
51.0	9.938	0.846	2368.209	.032%	98.493%
52.0	9.841	0.849	2369.058	.032%	98.529%
53.0	9.731	0.851	2369.909	.032%	98.564%
54.0	9.649	0.854	2370.763	.032%	98.600%
55.0	9.566	0.858	2371.621	.032%	98.635%
56.0	9.497	0.861	2372.482	.032%	98.671%
57.0	9.428	0.865	2373.348	.033%	98.707%
58.0	9.387	0.870	2374.218	.033%	98.743%
59.0	9.332	0.875	2375.093	.033%	98.780%
60.0	9.291	0.880	2375.973	.033%	98.816%
61.0	9.249	0.885	2376.857	.033%	98.853%
62.0	9.222	0.890	2377.747	.034%	98.890%
63.0	9.208	0.896	2378.644	.034%	98.927%
64.0	9.167	0.902	2379.545	.034%	98.965%
65.0	9.139	0.906	2380.451	.034%	99.003%
66.0	9.153	0.913	2381.364	.034%	99.041%
67.0	9.112	0.918	2382.283	.035%	99.079%
68.0	9.084	0.922	2383.204	.035%	99.117%
69.0	9.084	0.927	2384.131	.035%	99.156%
70.0	9.071	0.932	2385.064	.035%	99.194%
71.0	9.043	0.936	2386	.035%	99.233%
72.0	9.057	0.941	2386.941	.035%	99.273%
73.0	9.043	0.946	2387.887	.036%	99.312%
74.0	9.043	0.951	2388.838	.036%	99.351%
75.0	9.029	0.955	2389.793	.036%	99.391%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.029	0.959	2390.752	.036%	99.431%
77.0	9.029	0.963	2391.715	.036%	99.471%
78.0	9.015	0.966	2392.68	.036%	99.511%
79.0	9.015	0.969	2393.649	.036%	99.552%
80.0	9.002	0.971	2394.621	.037%	99.592%
81.0	9.029	0.975	2395.596	.037%	99.632%
82.0	9.002	0.978	2396.573	.037%	99.673%
83.0	8.988	0.978	2397.551	.037%	99.714%
84.0	9.002	0.980	2398.531	.037%	99.755%
85.0	9.002	0.983	2399.514	.037%	99.795%
86.0	9.002	0.984	2400.498	.037%	99.836%
87.0	8.974	0.984	2401.482	.037%	99.877%
88.0	8.960	0.982	2402.464	.037%	99.918%
89.0	8.988	0.984	2403.448	.037%	99.959%
90.0	8.960	0.984	2404.432	.037%	100.000%

Zonal flux distribution table

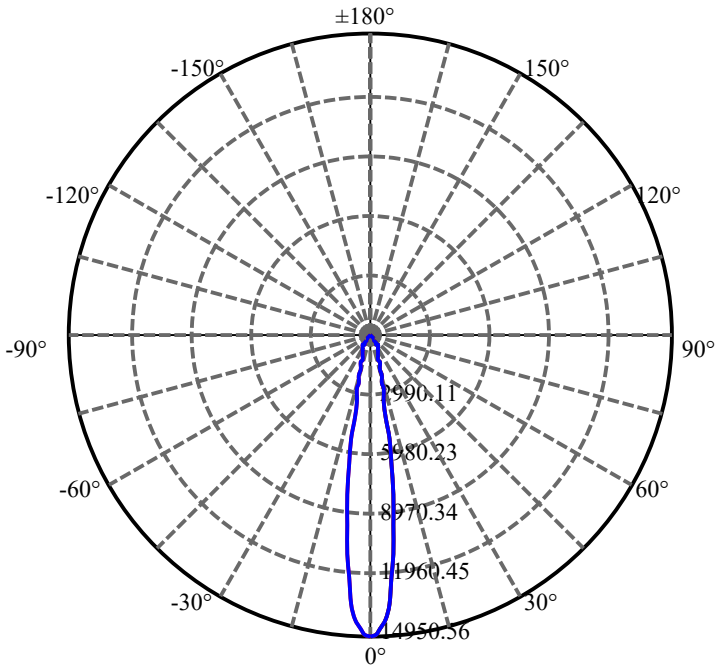
ZONAL LUMEN SUMMARY

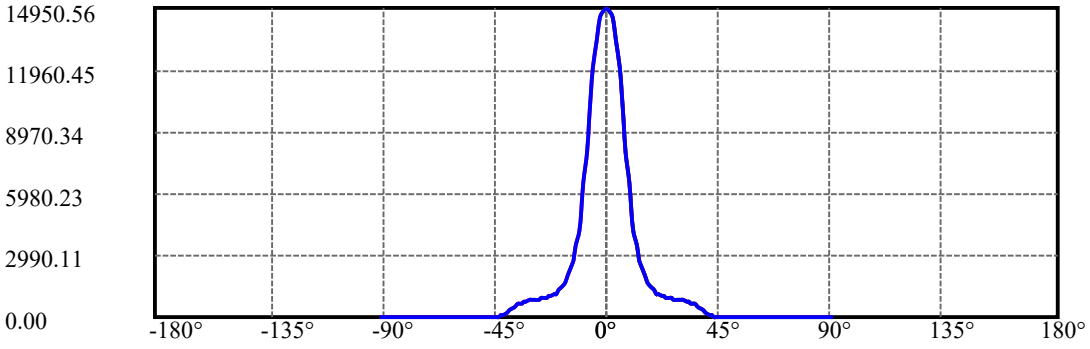
Zone	Lumens	%Lamp	%Fixt
0-30	1981.49	74.63%	82.41%
0-40	2336.42	88.00%	97.17%
0-60	2375.97	89.49%	98.82%
0-90	2403.45	90.53%	99.96%
0-120	2403.45	90.53%	99.96%
0-180	2404.43	90.56%	100.00%
60-90	28.36	1.07%	1.18%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.70	1923.55	72.45%	80.00%

ZONAL LUMEN SUMMARY

0-10	922.33
10-20	627.96
20-30	431.21
30-40	354.92
40-50	30.95
50-60	8.61
60-70	9.09
70-80	9.56
80-90	8.83
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:

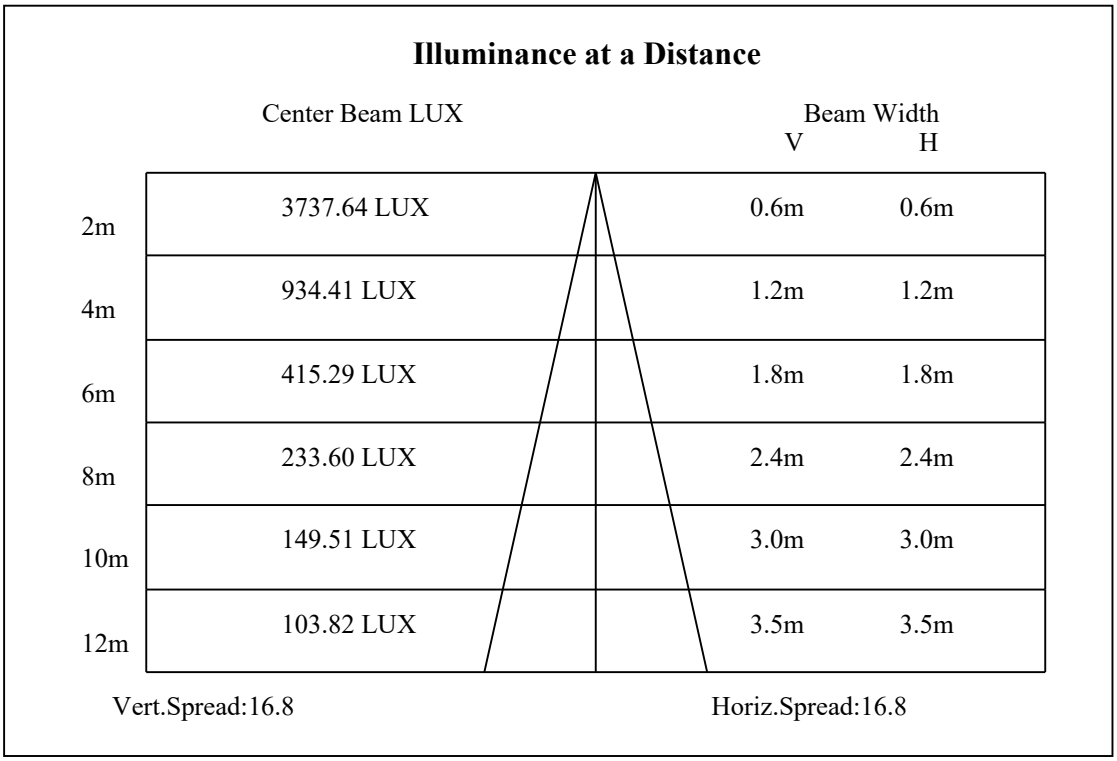
C90/C270:

Field angle(10%Imax):C0/180Left:17.5 Right:17.5
:C90/270Left:17.5 Right:17.5

Beam Angle(50%Imax):C0/180Left:8.3 Right:8.3
:C90/270Left:8.3 Right:8.3

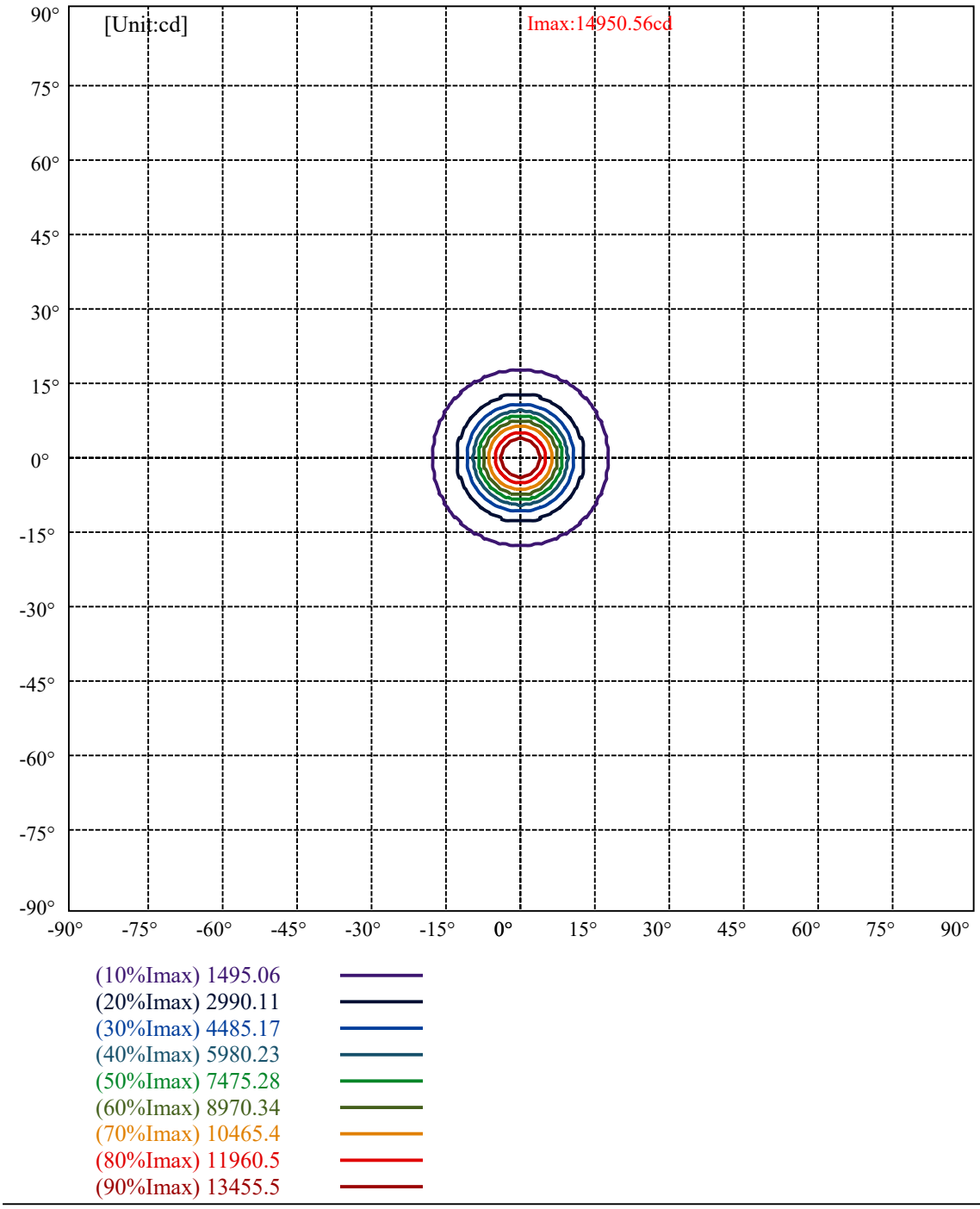
Equipment: gms1980 Date: 2017/5/19 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Lux distance Curve



Equipment: gms1980 Date: 2017/5/19 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)

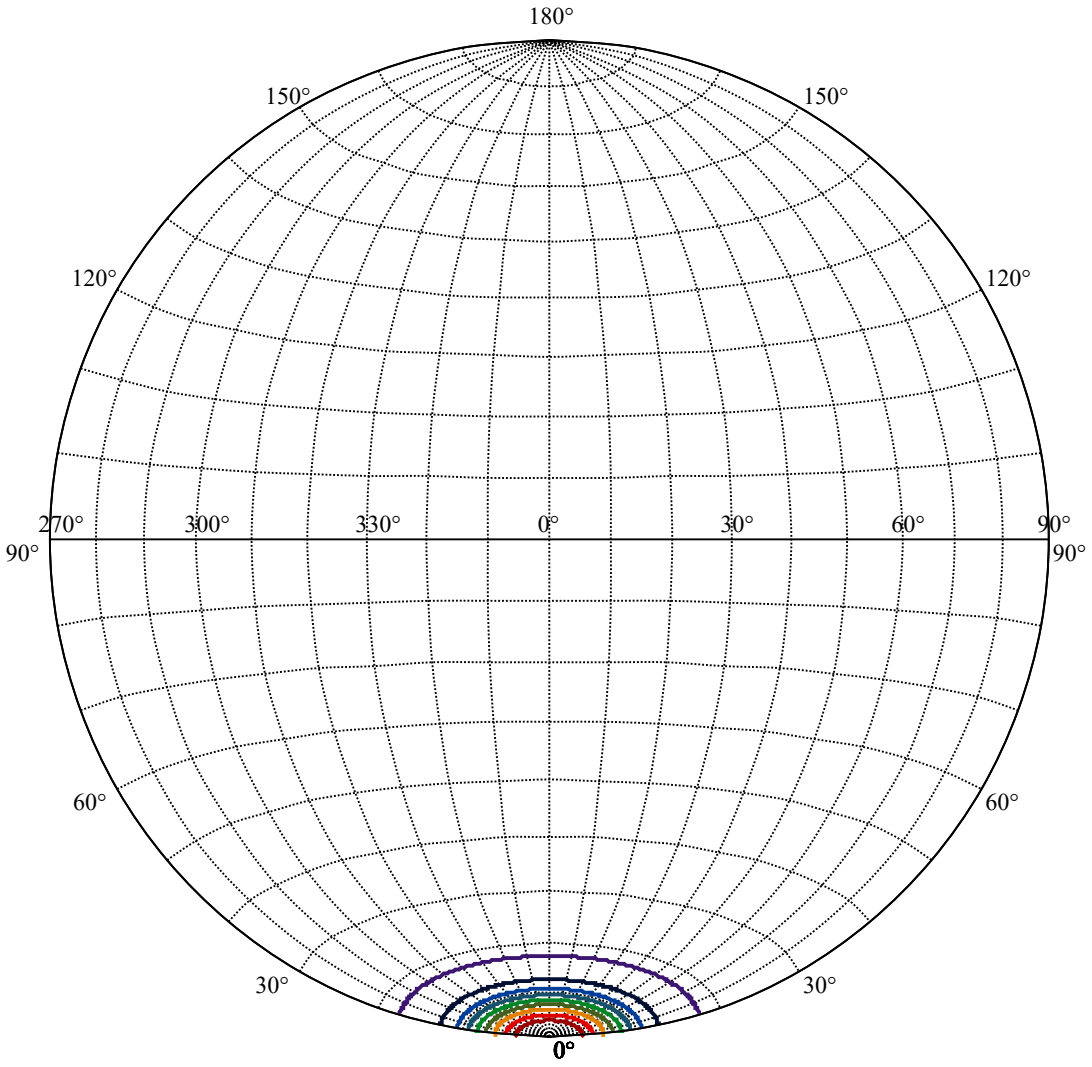


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/19
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



[Unit:cd]

Imax:14950.56

(10%Imax) 1495.06
(20%Imax) 2990.11
(30%Imax) 4485.17
(40%Imax) 5980.23
(50%Imax) 7475.28
(60%Imax) 8970.34
(70%Imax) 10465.4
(80%Imax) 11960.5
(90%Imax) 13455.5

Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/19
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

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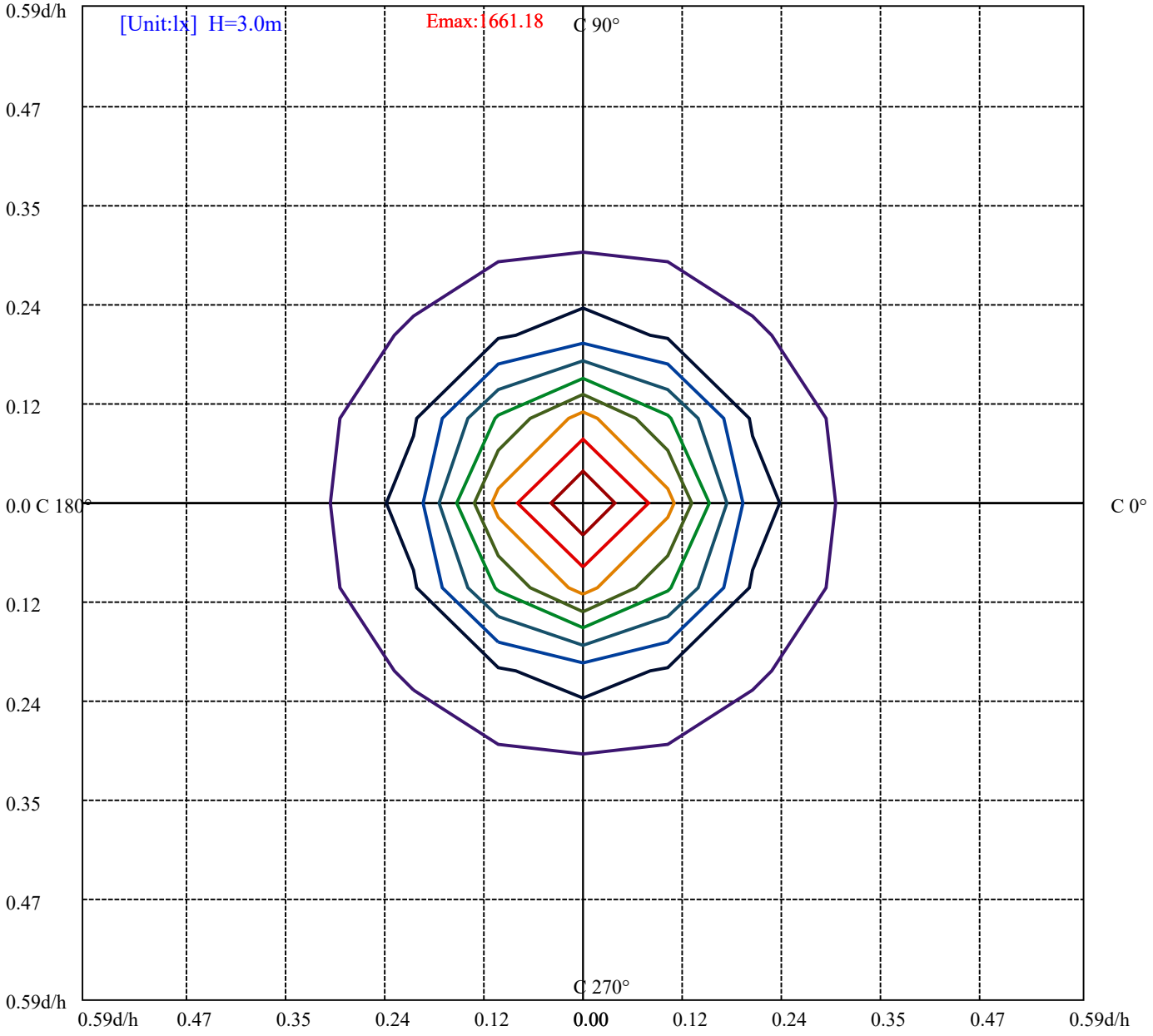
ISO illuminance diagram

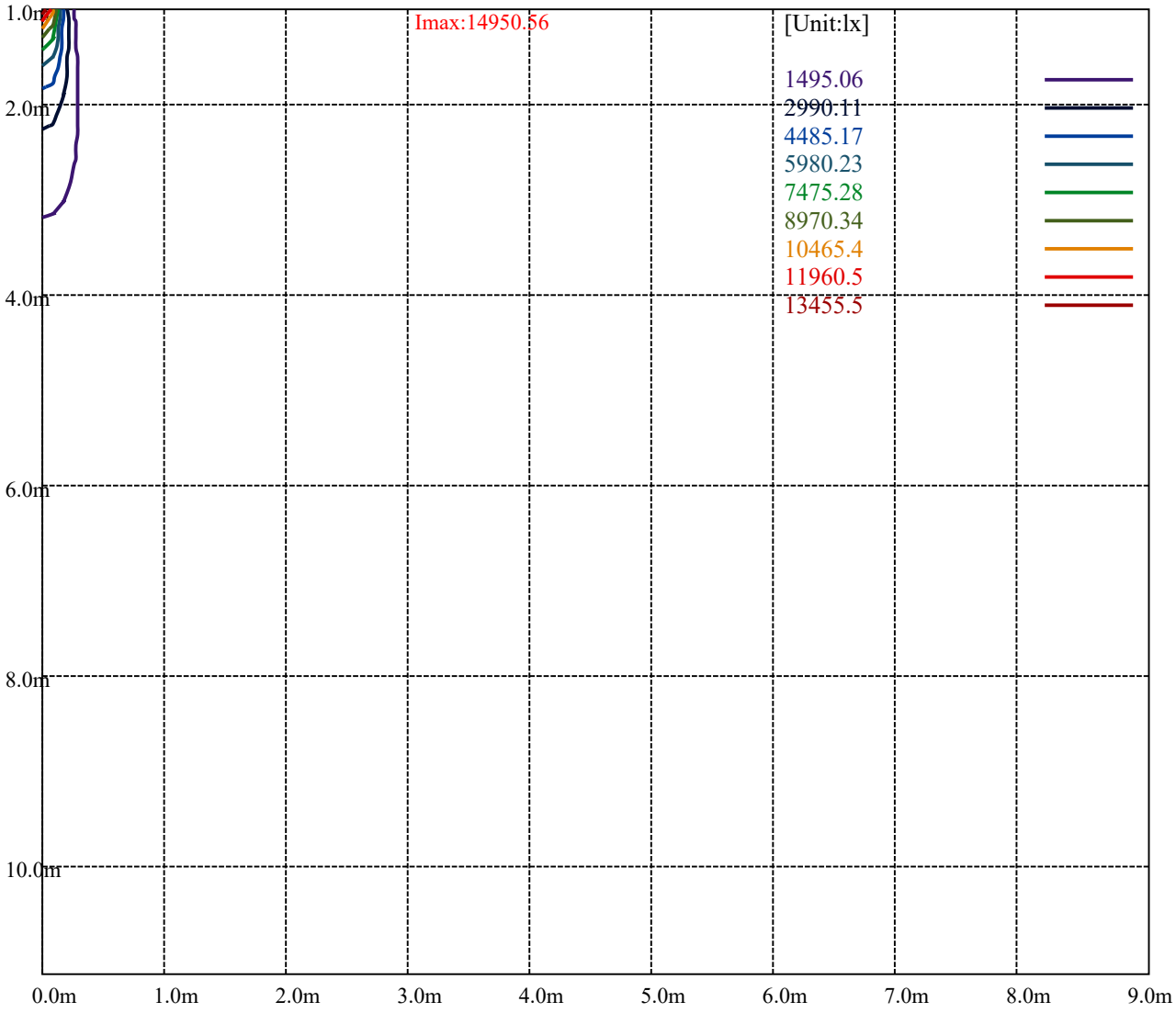


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/19
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/19
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

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Luminance Limitting Curve(no luminous side)

Luminance Table

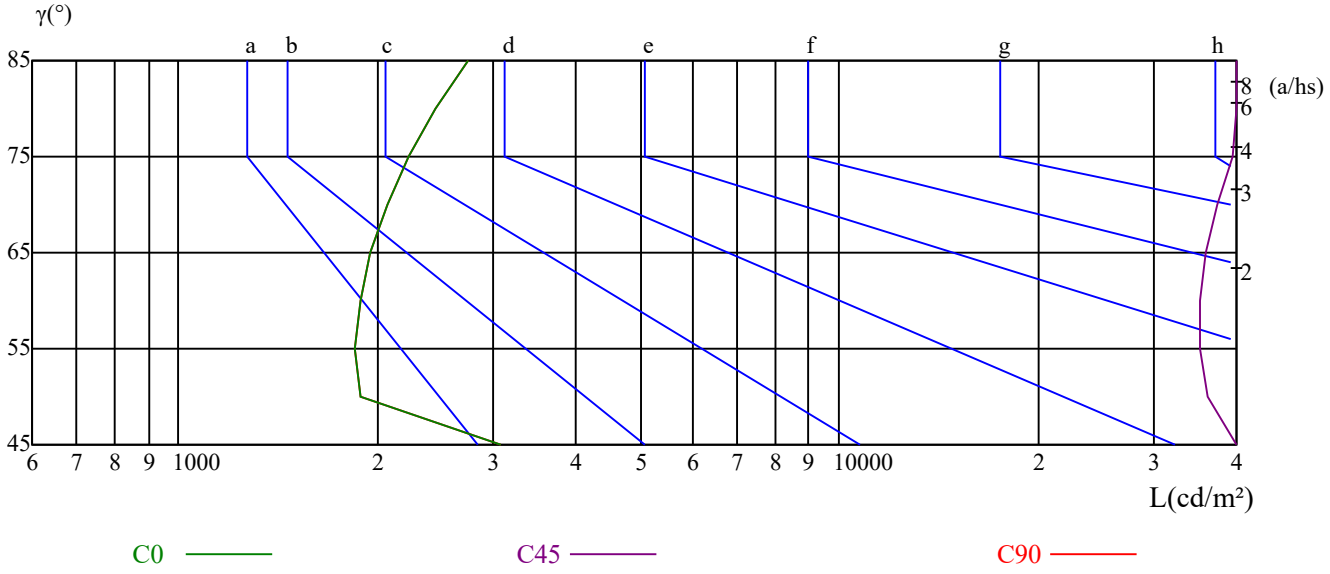
γ	45	50	55	60	65	70	75	80	85
C0	3069	1881	1853	1882	1956	2074	2235	2448	2739
C45	59955	36207	35236	35233	36046	37393	39532	42280	45925
C90	3069	1881	1853	1882	1956	2074	2235	2448	2739

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4413	4413	100076	7120	7120	161739	21078	21078	480738

Glare Table

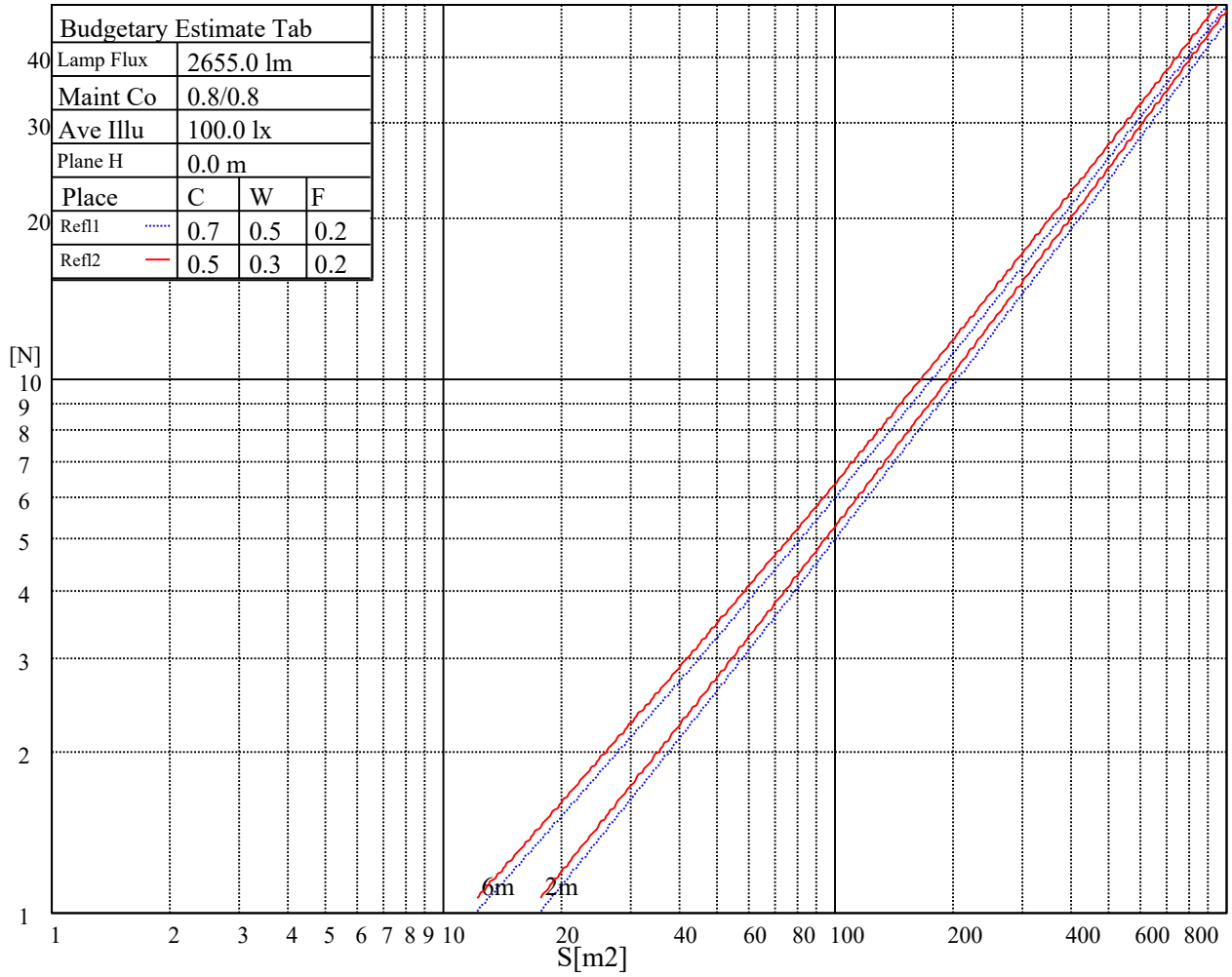
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve



Equipment: gms1980 Date: 2017/5/19 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Budgetary Estimate Table

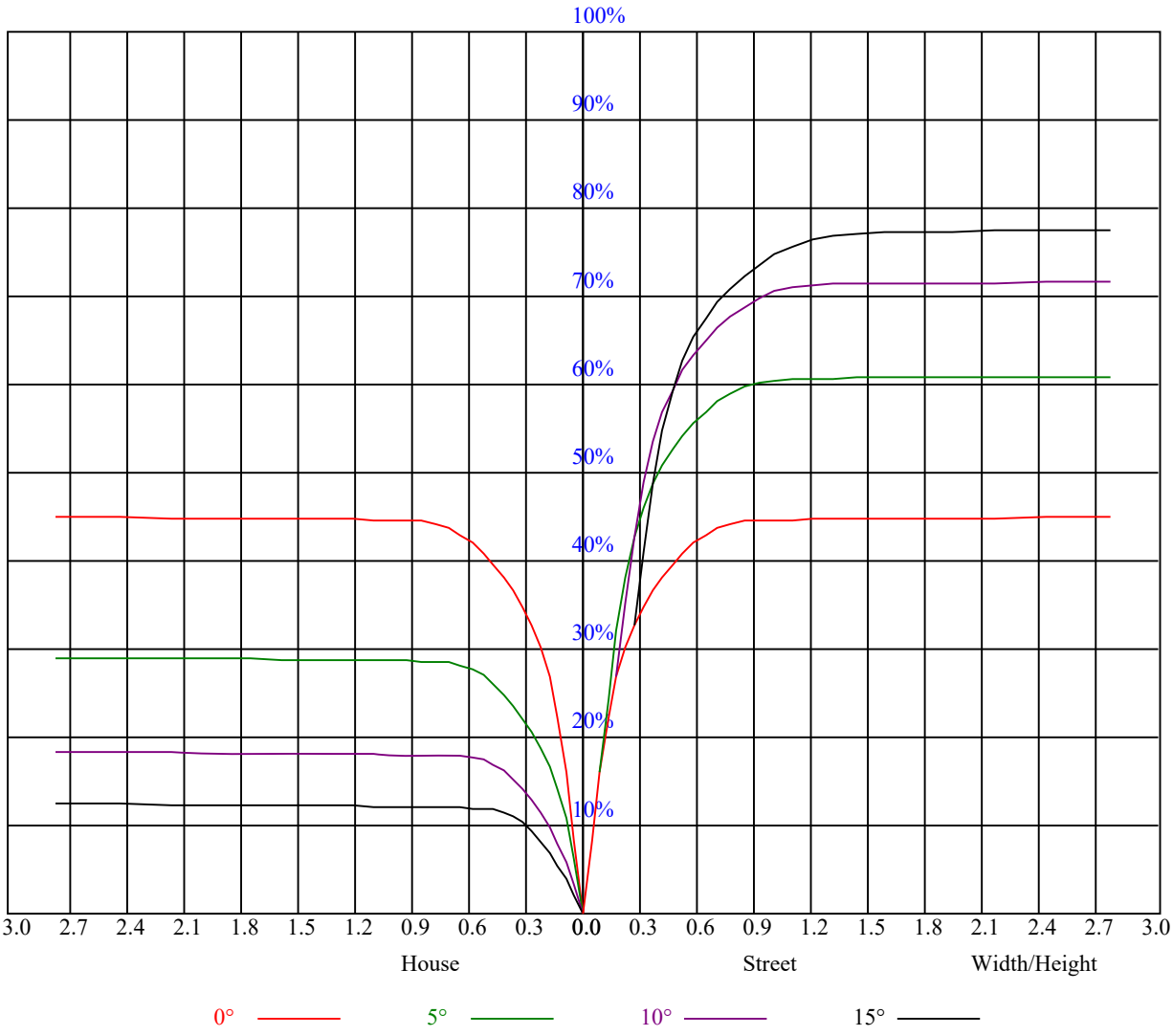


Equipment: gms1980 Date: 2017/5/19 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.91
1	1.02	1.00	0.98	1.00	0.98	0.96	0.96	0.95	0.93	0.93	0.92	0.91	0.90	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	0.87	0.86	0.87	0.85	0.84	0.83
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.79
4	0.87	0.83	0.80	0.86	0.83	0.80	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.84	0.80	0.76	0.83	0.79	0.76	0.81	0.78	0.75	0.80	0.77	0.75	0.79	0.76	0.74	0.73
6	0.80	0.76	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.74	0.72	0.70
7	0.77	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
8	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.72	0.69	0.67	0.66
9	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.68	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62

Coefficient Utilization Curve



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/5/19
Humidity(%): 60.0%

Operator: NT07
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	14958.82	14975.34	14700.06	14287.14	13637.47	12569.38	11220.49	10025.77	8252.95
90.0	14942.31	14931.30	14738.60	14320.17	13736.57	12899.71	11495.78	10179.93	8764.98
180.0	14958.82	14859.72	14529.38	13945.79	13163.99	11749.04	10536.14	9145.42	7711.75
270.0	14942.31	14821.18	14446.80	13874.21	12899.71	10967.23	10291.14	8703.87	7287.27
360.0	14958.82	14975.34	14700.06	14287.14	13637.47	12569.38	11220.49	10025.77	8252.95

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6722.39	5610.25	4294.40	3496.08	2901.47	2541.40	2058.01	1820.16	1585.07
90.0	7041.71	5775.42	4690.81	3820.91	3011.59	2818.89	2199.50	1900.55	1664.35
180.0	6180.63	4881.30	3894.14	3226.86	2674.64	2306.86	1998.55	1777.77	1566.35
270.0	5982.98	4611.52	3757.05	3099.68	2514.98	2184.64	1915.41	1671.51	1476.61
360.0	6722.39	5610.25	4294.40	3496.08	2901.47	2541.40	2058.01	1820.16	1585.07

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1433.67	1308.14	1187.57	1116.54	1058.73	1006.98	965.14	929.35	899.07
90.0	1488.73	1327.96	1202.98	1117.64	1048.27	997.62	956.33	919.44	893.57
180.0	1384.67	1266.85	1098.21	1075.69	1022.56	981.44	937.89	907.22	881.67
270.0	1344.48	1226.11	1093.31	1074.54	1019.75	980.44	939.92	909.26	882.33
360.0	1433.67	1308.14	1187.57	1116.54	1058.73	1006.98	965.14	929.35	899.07

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	874.85	856.13	841.81	829.70	813.73	796.67	763.63	713.53	631.50
90.0	870.99	851.17	837.41	821.99	808.23	790.61	761.43	709.13	634.25
180.0	860.53	842.42	831.41	811.97	801.13	778.77	727.18	677.03	601.44
270.0	864.17	845.39	831.79	818.36	805.31	776.79	730.60	660.07	576.83
360.0	874.85	856.13	841.81	829.70	813.73	796.67	763.63	713.53	631.50

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	553.87	476.24	380.44	298.96	279.14	133.02	69.98	33.14	20.32
90.0	564.33	478.99	397.51	303.36	294.00	140.67	76.75	33.86	19.71
180.0	508.83	441.17	361.11	253.75	188.84	121.07	60.78	26.43	18.94
270.0	498.48	407.42	325.16	236.41	156.14	94.42	48.23	22.08	18.44
360.0	553.87	476.24	380.44	298.96	279.14	133.02	69.98	33.14	20.32

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	18.00	15.09	13.49	12.61	10.41	10.24	10.08	10.02	9.86
90.0	17.34	14.26	12.77	12.11	10.13	10.02	9.91	9.80	9.74
180.0	16.19	13.54	12.39	10.79	10.08	10.02	9.91	9.80	9.74
270.0	15.91	13.54	12.66	10.63	10.08	9.97	9.86	9.74	9.58
360.0	18.00	15.09	13.49	12.61	10.41	10.24	10.08	10.02	9.86

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.74	9.69	9.58	9.52	9.47	9.41	9.36	9.30	9.25
90.0	9.69	9.52	9.47	9.47	9.41	9.36	9.30	9.25	9.25
180.0	9.63	9.58	9.52	9.41	9.41	9.36	9.30	9.30	9.25
270.0	9.52	9.47	9.41	9.30	9.25	9.19	9.19	9.14	9.14
360.0	9.74	9.69	9.58	9.52	9.47	9.41	9.36	9.30	9.25

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	9.30	9.25	9.19	9.19	9.14	9.14	9.14	9.14	9.08
90.0	9.19	9.19	9.14	9.14	9.08	9.08	9.14	9.08	9.03
180.0	9.25	9.19	9.14	9.19	9.19	9.14	9.08	9.08	9.08
270.0	9.08	9.03	9.08	9.08	9.03	8.97	8.97	8.97	8.97
360.0	9.30	9.25	9.19	9.19	9.14	9.14	9.14	9.14	9.08

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	9.08	9.08	9.08	9.08	9.08	9.08	9.03	9.08	9.03
90.0	9.03	9.03	9.03	9.03	9.03	9.03	8.97	8.97	9.03
180.0	9.08	9.08	9.08	9.03	9.08	9.03	9.08	9.08	9.03
270.0	9.03	8.97	8.97	8.97	8.92	8.97	8.97	8.92	8.92
360.0	9.08	9.08	9.08	9.08	9.08	9.08	9.03	9.08	9.03

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.08	9.03	9.03	9.08	9.03	9.03	9.03	9.03	9.03
90.0	9.03	8.97	8.97	8.97	8.97	8.97	8.97	8.92	8.97
180.0	9.03	9.03	9.03	9.03	9.03	9.03	8.97	8.97	9.03
270.0	8.97	8.97	8.92	8.92	8.97	8.97	8.92	8.92	8.92
360.0	9.08	9.03	9.03	9.08	9.03	9.03	9.03	9.03	9.03

C/γ(°)	90.0
0.0	9.03
90.0	8.92
180.0	8.97
270.0	8.92
360.0	9.03