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Address:380 JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

NATA

Client:
LumCAT: 4-2273-M
Luminaire: 92.70.131.000

Report No: nata-0100	Voltage(V): 36.8000
Test No: GC2018120704	Current(A): 0.5000
LampCAT: OSRAM SOLERIQ S13	Power (W): 18.4000
Lamp flux(lm): 1777.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 100	Width(mm): 100
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1570.01, Efficiency(%): 88.35% , Luminous Efficacy(lm/W): 85.33
Central intensity(cd): 26880.470, Maximum intensity(cd): 26880.470
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=9.0
[C90/270]Total=9.0
Field angle(10%Imax): [C0/180]Total=18.6
[C90/270]Total=18.6
Maximum s/h(1/2): C0_180=0.16 C90_270=0.16
Maximum s/h(1/4): C0_180=0.16 C90_270=0.16
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.71%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.339%

Equipment: GMS1980	Date: 2018/12/7	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	26880.469	6.431	6.431	.362%	.410%
1.0	26052.188	49.860	56.291	2.806%	3.585%
2.0	23662.266	90.558	146.849	5.096%	9.353%
3.0	20105.859	115.392	262.241	6.494%	16.703%
4.0	15476.414	118.388	380.628	6.662%	24.244%
5.0	11713.922	111.957	492.585	6.300%	31.375%
6.0	8680.992	99.507	592.093	5.600%	37.713%
7.0	5798.742	77.496	669.589	4.361%	42.649%
8.0	4174.664	63.713	733.302	3.585%	46.707%
9.0	2964.445	50.854	784.156	2.862%	49.946%
10.0	2162.320	41.176	825.332	2.317%	52.569%
11.0	1489.345	31.163	856.495	1.754%	54.553%
12.0	1186.615	27.055	883.55	1.522%	56.277%
13.0	956.341	23.591	907.141	1.328%	57.779%
14.0	834.314	22.134	929.275	1.246%	59.189%
15.0	768.143	21.802	951.077	1.227%	60.578%
16.0	723.776	21.877	972.954	1.231%	61.971%
17.0	700.137	22.448	995.402	1.263%	63.401%
18.0	679.584	23.029	1018.431	1.296%	64.868%
19.0	663.673	23.695	1042.125	1.333%	66.377%
20.0	648.598	24.326	1066.452	1.369%	67.926%
21.0	631.849	24.831	1091.283	1.397%	69.508%
22.0	615.558	25.287	1116.57	1.423%	71.119%
23.0	603.682	25.867	1142.436	1.456%	72.766%
24.0	593.381	26.467	1168.903	1.489%	74.452%
25.0	582.673	27.004	1195.907	1.520%	76.172%
26.0	574.973	27.640	1223.547	1.555%	77.932%
27.0	567.780	28.267	1251.814	1.591%	79.733%
28.0	559.913	28.826	1280.64	1.622%	81.569%
29.0	551.081	29.298	1309.938	1.649%	83.435%
30.0	542.173	29.728	1339.665	1.673%	85.328%
31.0	533.018	30.105	1369.77	1.694%	87.246%
32.0	524.777	30.496	1400.265	1.716%	89.188%
33.0	514.659	30.738	1431.004	1.730%	91.146%
34.0	477.260	29.266	1460.27	1.647%	93.010%
35.0	408.804	25.713	1485.983	1.447%	94.648%
36.0	320.020	20.628	1506.611	1.161%	95.962%
37.0	236.784	15.627	1522.238	.879%	96.957%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	131.520	8.879	1531.117	.500%	97.523%
39.0	55.821	3.852	1534.969	.217%	97.768%
40.0	22.992	1.621	1536.59	.091%	97.871%
41.0	15.462	1.112	1537.702	.063%	97.942%
42.0	13.591	0.997	1538.7	.056%	98.006%
43.0	10.891	0.815	1539.514	.046%	98.058%
44.0	8.993	0.685	1540.199	.039%	98.101%
45.0	8.086	0.627	1540.826	.035%	98.141%
46.0	7.910	0.624	1541.45	.035%	98.181%
47.0	7.741	0.621	1542.071	.035%	98.220%
48.0	7.615	0.621	1542.692	.035%	98.260%
49.0	7.502	0.621	1543.313	.035%	98.300%
50.0	7.404	0.622	1543.935	.035%	98.339%
51.0	7.291	0.621	1544.556	.035%	98.379%
52.0	7.193	0.622	1545.177	.035%	98.418%
53.0	7.109	0.623	1545.8	.035%	98.458%
54.0	7.024	0.623	1546.423	.035%	98.498%
55.0	6.954	0.625	1547.048	.035%	98.537%
56.0	6.877	0.625	1547.673	.035%	98.577%
57.0	6.806	0.626	1548.299	.035%	98.617%
58.0	6.771	0.630	1548.929	.035%	98.657%
59.0	6.715	0.631	1549.56	.036%	98.697%
60.0	6.680	0.634	1550.194	.036%	98.738%
61.0	6.638	0.637	1550.831	.036%	98.778%
62.0	6.595	0.639	1551.469	.036%	98.819%
63.0	6.567	0.642	1552.111	.036%	98.860%
64.0	6.539	0.645	1552.756	.036%	98.901%
65.0	6.518	0.648	1553.403	.036%	98.942%
66.0	6.476	0.649	1554.052	.037%	98.984%
67.0	6.462	0.652	1554.704	.037%	99.025%
68.0	6.427	0.653	1555.358	.037%	99.067%
69.0	6.413	0.656	1556.014	.037%	99.109%
70.0	6.398	0.659	1556.674	.037%	99.151%
71.0	6.398	0.663	1557.337	.037%	99.193%
72.0	6.391	0.667	1558.004	.038%	99.235%
73.0	6.377	0.669	1558.673	.038%	99.278%
74.0	6.363	0.671	1559.343	.038%	99.321%
75.0	6.356	0.673	1560.017	.038%	99.363%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.363	0.677	1560.694	.038%	99.407%
77.0	6.370	0.681	1561.374	.038%	99.450%
78.0	6.391	0.686	1562.06	.039%	99.494%
79.0	6.384	0.687	1562.747	.039%	99.537%
80.0	6.420	0.693	1563.44	.039%	99.582%
81.0	6.434	0.697	1564.137	.039%	99.626%
82.0	6.420	0.697	1564.834	.039%	99.670%
83.0	6.384	0.695	1565.529	.039%	99.715%
84.0	6.384	0.696	1566.226	.039%	99.759%
85.0	6.349	0.694	1566.919	.039%	99.803%
86.0	6.321	0.691	1567.611	.039%	99.847%
87.0	6.293	0.689	1568.3	.039%	99.891%
88.0	6.244	0.684	1568.984	.039%	99.935%
89.0	6.237	0.684	1569.668	.038%	99.978%
90.0	6.237	0.342	1570.01	.019%	100.000%

Zonal flux distribution table

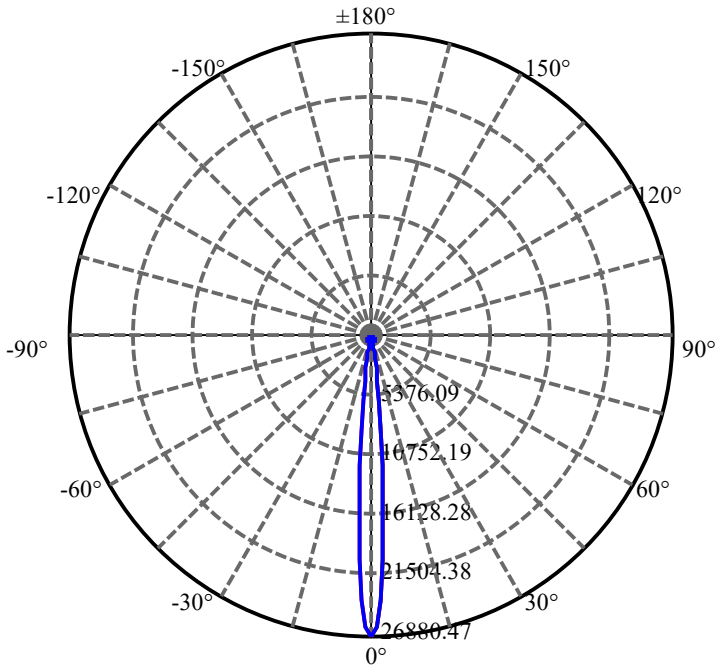
ZONAL LUMEN SUMMARY

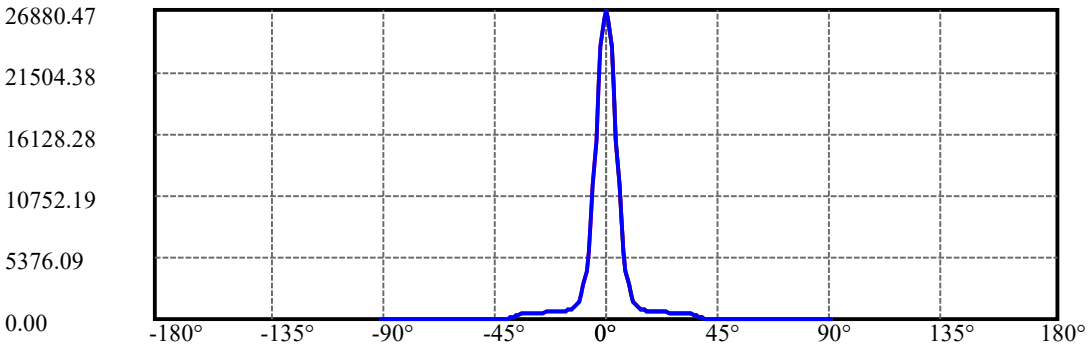
Zone	Lumens	%Lamp	%Fixt
0-30	1339.67	75.39%	85.33%
0-40	1536.59	86.47%	97.87%
0-60	1550.19	87.24%	98.74%
0-90	1569.67	88.33%	99.98%
0-120	1569.67	88.33%	99.98%
0-180	1570.01	88.35%	100.00%
60-90	20.11	1.13%	1.28%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.15	1256.01	70.68%	80.00%

ZONAL LUMEN SUMMARY

0-10	825.33
10-20	241.12
20-30	273.21
30-40	196.92
40-50	7.34
50-60	6.26
60-70	6.48
70-80	6.77
80-90	6.23
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):

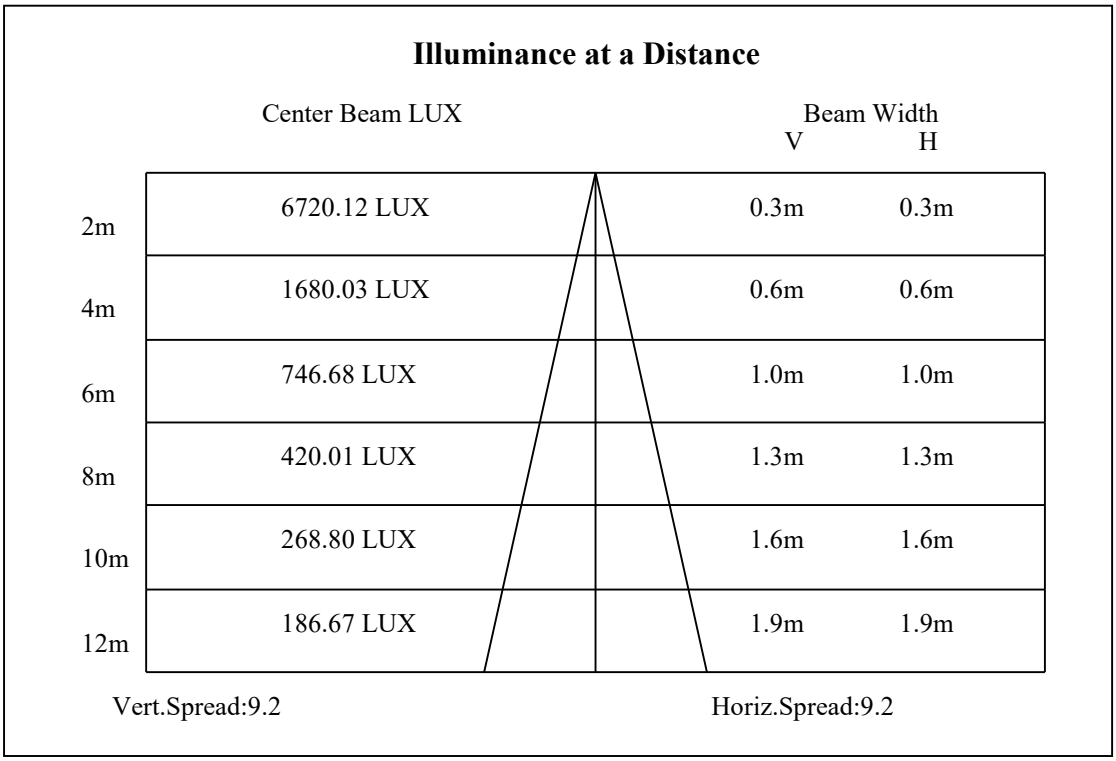
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:9.3 Right:9.3
:C90/270Left:9.3 Right:9.3

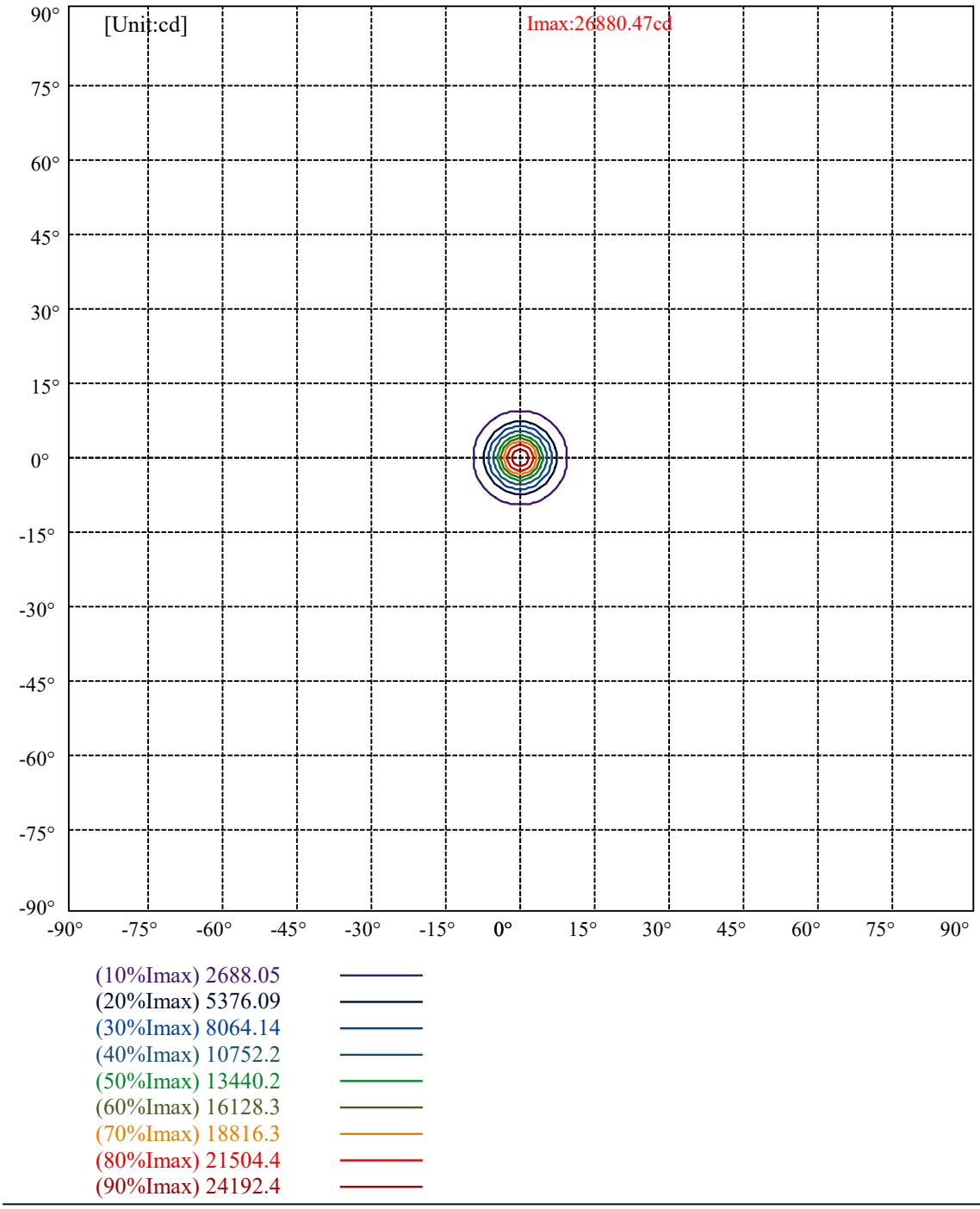
Beam Angle(50%Imax):C0/180Left:4.5 Right:4.5
:C90/270Left:4.5 Right:4.5

Lux distance Curve



Equipment: GMS1980 Date: 2018/12/7 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

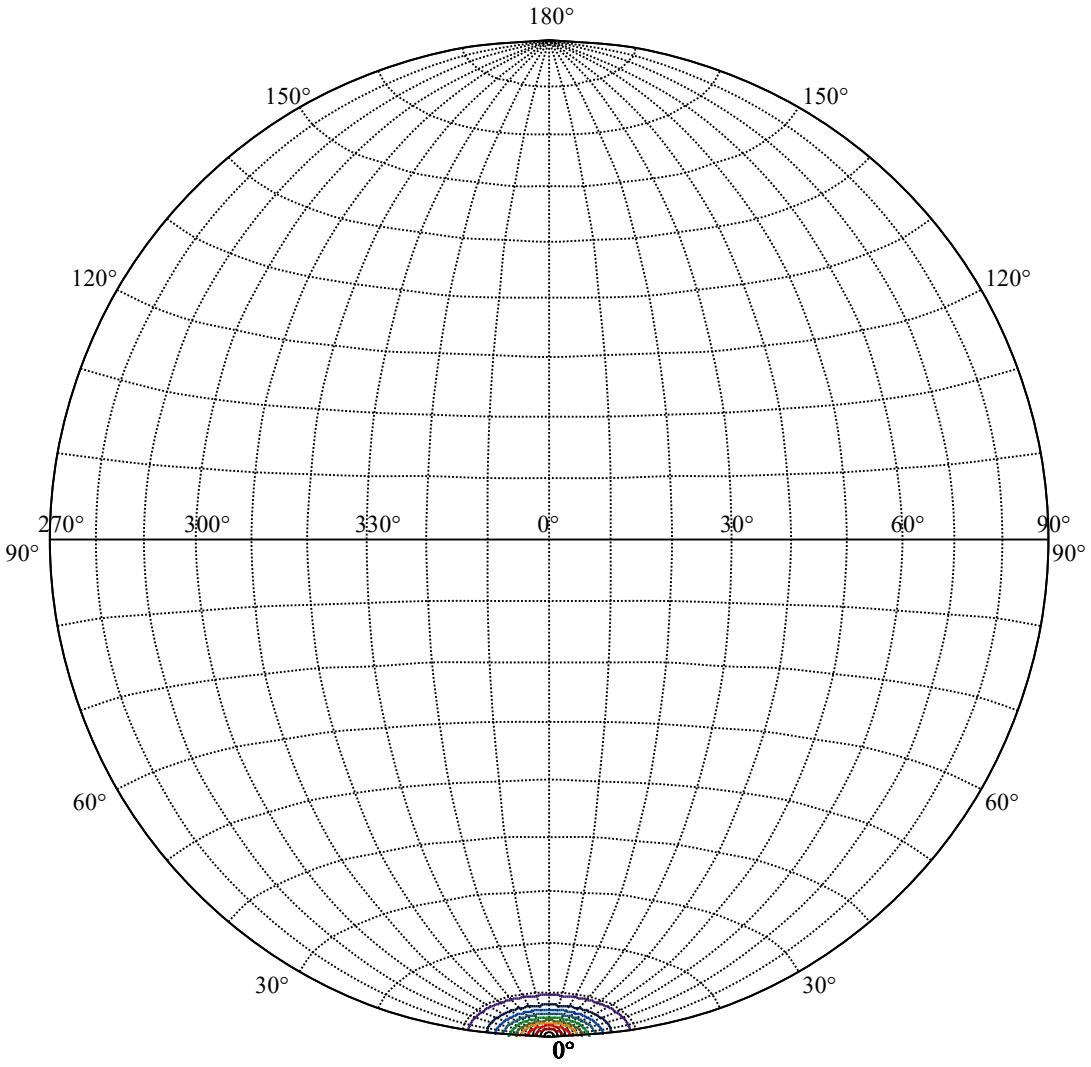


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



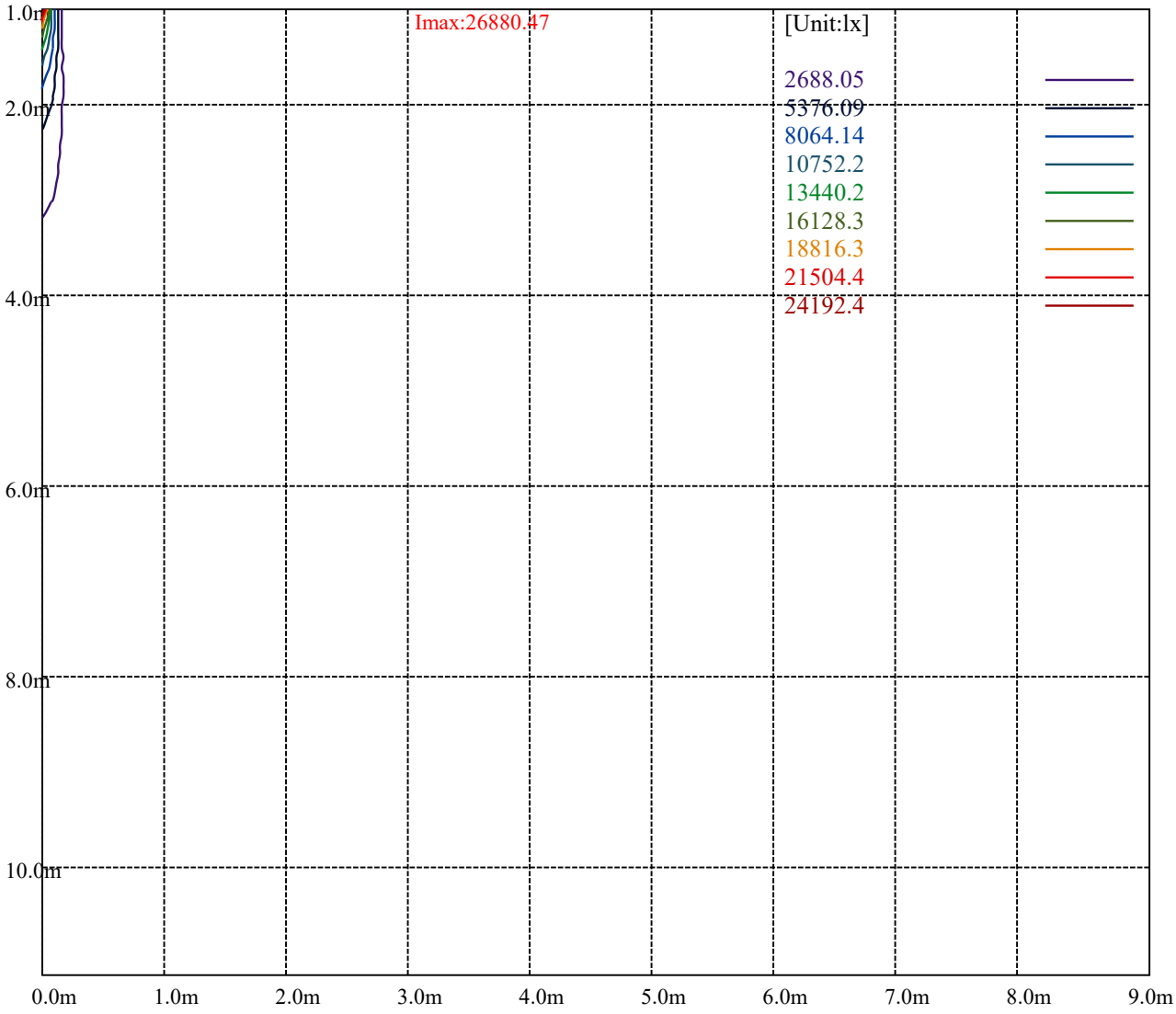
House [Unit:cd] Road

Imax:26880.47

(10%Imax) 2688.05
(20%Imax) 5376.09
(30%Imax) 8064.14
(40%Imax) 10752.2
(50%Imax) 13440.2
(60%Imax) 16128.3
(70%Imax) 18816.3
(80%Imax) 21504.4
(90%Imax) 24192.4

Equipment: GMS1980 Date: 2018/12/7 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

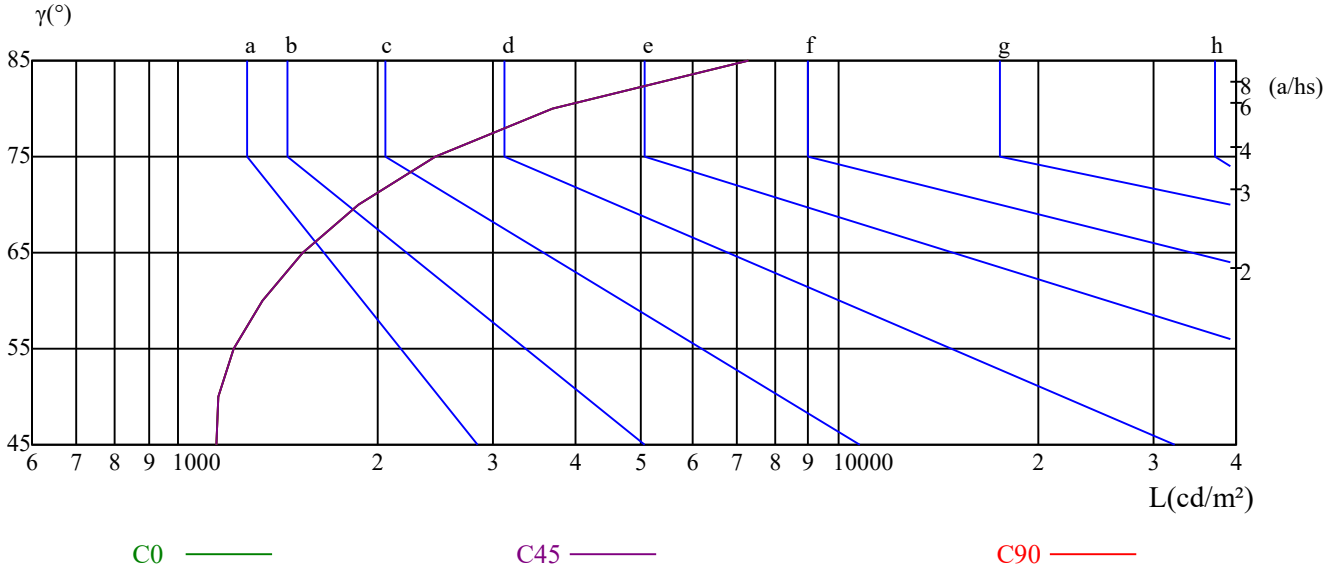
γ	45	50	55	60	65	70	75	80	85
C0	1144	1152	1212	1336	1542	1871	2456	3697	7285
C45	1144	1152	1212	1336	1542	1871	2456	3697	7285
C90	1144	1152	1212	1336	1542	1871	2456	3697	7285

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1542	1542	1542	2456	2456	2456	7285	7285	7285

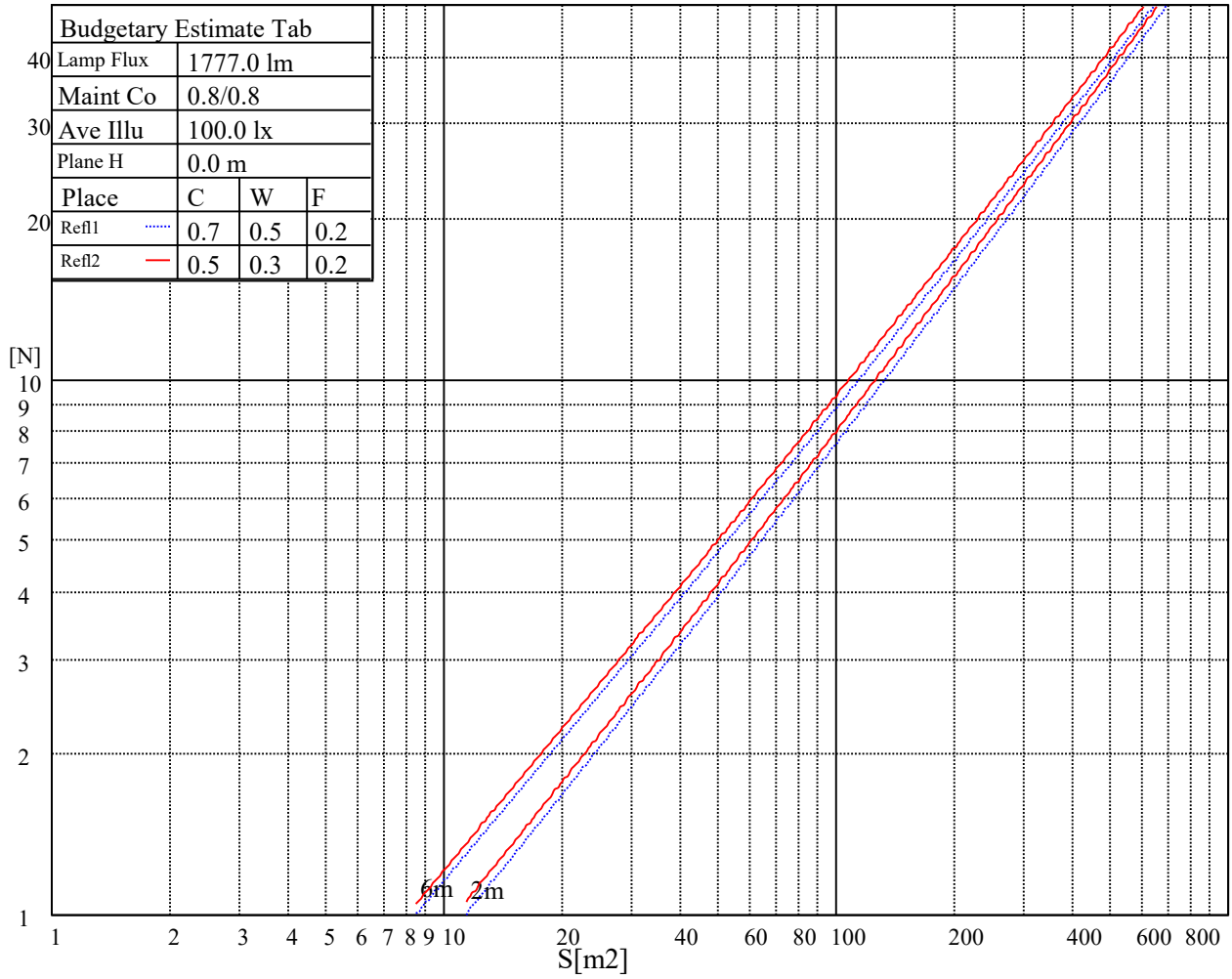
Glare Table

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

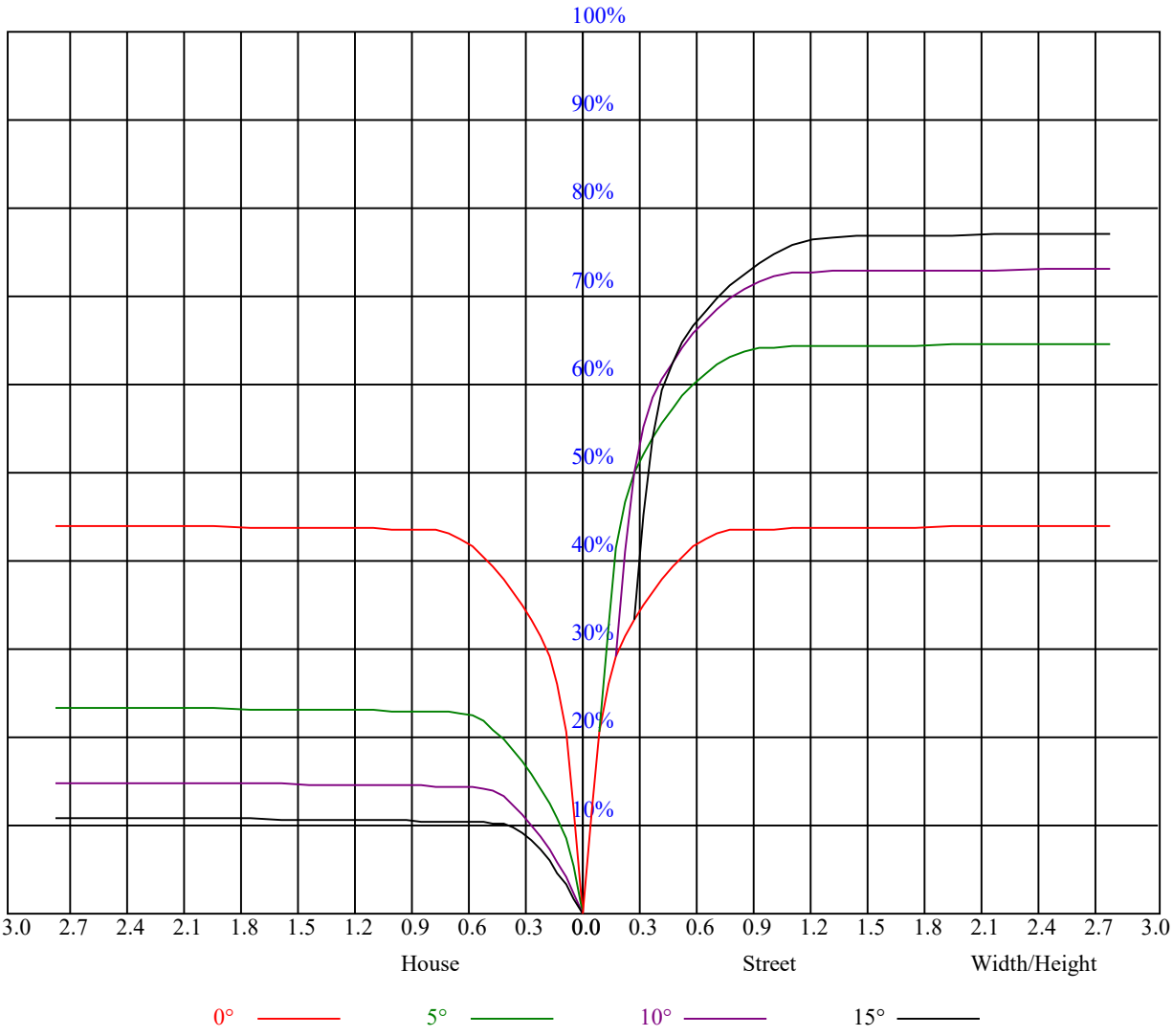


Equipment: GMS1980 Date: 2018/12/7 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.06	1.06	1.06	1.03	1.03	1.03	0.99	0.99	0.99	0.94	0.94	0.94	0.91	0.91	0.91	0.89
1	0.99	0.98	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.95	0.92	0.89	0.93	0.91	0.88	0.90	0.88	0.86	0.88	0.86	0.85	0.85	0.84	0.83	0.82
3	0.91	0.87	0.84	0.89	0.86	0.84	0.87	0.85	0.83	0.85	0.83	0.81	0.83	0.82	0.80	0.79
4	0.87	0.83	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.84	0.80	0.77	0.83	0.80	0.77	0.82	0.79	0.76	0.80	0.78	0.76	0.79	0.77	0.75	0.74
6	0.81	0.77	0.75	0.80	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.77	0.75	0.73	0.72
7	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.73	0.71	0.70
8	0.76	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.72	0.69	0.74	0.71	0.69	0.68
9	0.74	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.68	0.67
10	0.72	0.69	0.67	0.72	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65

Coefficient Utilization Curve

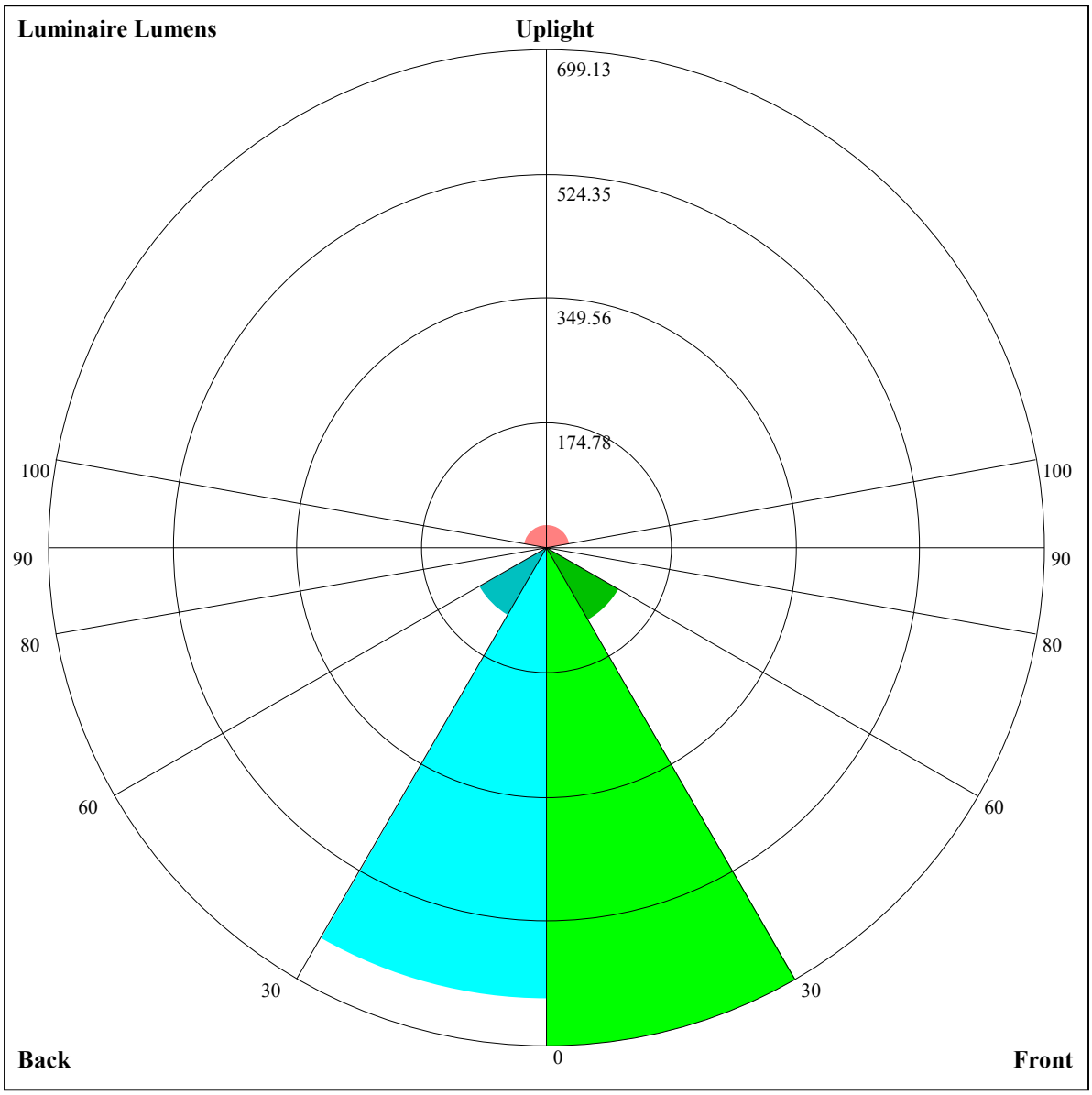


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/12/7
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

LCS Graph



Luminaire Lumens:

FL=699.13,FM=117.28,FH=6.63,FVH=3.47

BL=634.55,BM=108.92,BH=6.62,BVH=3.45

UL=6.8,UH=32.38

BUG Rating:B2-U2-G0

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	26409.38	27106.88	25785.00	23079.38	19130.63	14698.13	10918.13	7520.63	5416.88
45.0	27078.75	27168.75	25340.63	22584.38	18691.88	14338.13	10620.00	7312.50	5276.25
90.0	27129.38	26049.38	23737.50	19822.50	16070.63	10833.75	8841.94	5800.50	4179.38
135.0	26977.50	26145.00	23619.38	20986.88	16453.13	12178.13	8848.13	6058.13	4387.50
180.0	26409.38	24249.38	21256.88	16661.25	10902.38	9241.88	6538.50	4283.44	3061.69
225.0	26960.63	25115.63	22134.38	17983.13	11096.44	9781.88	6879.38	4477.50	3213.00
270.0	27101.25	26516.25	23895.00	20953.13	16059.38	11604.38	8611.88	5580.00	3999.38
315.0	26977.50	26066.25	23529.38	18776.25	15406.88	11035.13	8190.00	5357.25	3863.25
360.0	26409.38	27106.88	25785.00	23079.38	19130.63	14698.13	10918.13	7520.63	5416.88

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3757.50	2930.63	1901.81	1458.00	1082.81	916.31	817.31	749.25	720.00
45.0	3639.38	2953.13	1859.06	1424.81	1071.00	907.31	813.94	747.00	717.19
90.0	3008.81	2068.88	1593.00	1096.71	1002.09	855.68	779.18	730.24	701.78
135.0	3026.25	2426.63	1619.44	1246.50	977.06	853.88	776.81	723.94	698.63
180.0	2214.00	1557.00	1115.10	987.08	840.09	757.91	721.01	694.35	675.28
225.0	2311.31	1600.31	1099.35	1019.48	856.97	770.91	732.49	707.91	688.05
270.0	2981.25	1915.88	1448.44	1148.63	916.31	816.19	756.00	718.31	699.19
315.0	2777.06	1846.13	1278.56	1111.73	904.39	796.33	748.41	719.21	700.99
360.0	3757.50	2930.63	1901.81	1458.00	1082.81	916.31	817.31	749.25	720.00

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	699.19	679.50	662.06	646.31	630.56	618.75	606.94	595.13	586.69
45.0	691.31	671.06	654.75	637.88	622.13	610.31	599.06	588.38	578.81
90.0	678.94	662.68	646.93	628.43	611.78	599.57	589.33	578.31	570.83
135.0	676.13	659.81	645.75	631.69	616.50	603.00	592.88	582.19	573.19
180.0	659.14	646.82	634.50	616.11	600.24	589.50	580.22	570.09	563.06
225.0	671.23	658.86	646.09	628.88	609.64	599.85	590.40	579.43	573.58
270.0	680.06	665.44	650.25	635.63	619.88	606.38	596.25	586.13	578.81
315.0	680.68	665.21	648.45	629.89	613.74	602.10	591.98	581.74	574.82
360.0	699.19	679.50	662.06	646.31	630.56	618.75	606.94	595.13	586.69

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	578.81	571.50	564.75	554.06	544.50	537.19	529.31	518.63	473.63
45.0	570.94	563.63	557.44	546.19	536.63	529.31	521.44	510.75	457.88
90.0	564.02	556.54	546.75	538.14	529.65	520.88	513.39	486.62	422.89
135.0	565.88	558.56	549.56	540.56	531.56	523.69	515.81	492.75	421.31
180.0	556.43	547.37	538.09	530.16	520.54	512.10	493.88	425.87	344.70
225.0	566.72	557.49	548.27	540.39	530.55	521.61	505.52	435.54	353.70
270.0	571.50	563.63	554.06	546.19	537.19	528.75	520.88	475.31	402.19
315.0	567.96	560.59	549.73	541.69	533.53	524.70	517.05	472.61	394.14
360.0	578.81	571.50	564.75	554.06	544.50	537.19	529.31	518.63	473.63

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	399.38	299.25	228.94	101.64	44.55	16.14	14.46	12.60	10.52
45.0	385.88	285.75	175.50	98.10	32.96	16.31	14.51	12.26	10.91
90.0	329.96	230.23	143.89	61.99	17.77	15.58	13.95	11.36	8.78
135.0	342.00	295.88	141.13	66.49	21.15	14.85	13.16	11.25	8.78
180.0	244.29	147.60	72.68	20.81	16.71	14.85	12.71	8.33	7.93
225.0	250.48	150.02	73.74	20.36	16.99	15.02	13.05	8.89	8.16
270.0	313.88	290.81	107.83	42.30	17.21	15.92	13.67	11.48	8.66
315.0	294.30	194.74	108.45	34.88	16.59	15.02	13.22	10.97	8.21
360.0	399.38	299.25	228.94	101.64	44.55	16.14	14.46	12.60	10.52

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	8.21	8.04	7.82	7.65	7.54	7.43	7.31	7.20	7.09
45.0	8.21	7.99	7.88	7.71	7.59	7.54	7.43	7.26	7.14
90.0	8.27	8.10	7.93	7.82	7.71	7.59	7.48	7.31	7.26
135.0	7.99	7.82	7.65	7.54	7.48	7.37	7.26	7.20	7.09
180.0	7.76	7.59	7.48	7.37	7.26	7.20	7.09	7.03	6.98
225.0	7.99	7.82	7.65	7.54	7.43	7.31	7.20	7.14	7.03
270.0	8.21	8.04	7.88	7.76	7.59	7.48	7.37	7.26	7.20
315.0	8.04	7.88	7.65	7.54	7.43	7.31	7.20	7.14	7.09
360.0	8.21	8.04	7.82	7.65	7.54	7.43	7.31	7.20	7.09

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.03	6.98	6.86	6.81	6.81	6.69	6.69	6.64	6.58
45.0	7.09	7.03	6.92	6.86	6.81	6.75	6.75	6.69	6.64
90.0	7.14	7.03	6.98	6.92	6.86	6.81	6.75	6.69	6.64
135.0	7.03	6.92	6.86	6.81	6.75	6.69	6.64	6.64	6.64
180.0	6.92	6.86	6.75	6.69	6.69	6.64	6.64	6.58	6.53
225.0	6.92	6.92	6.86	6.75	6.69	6.64	6.64	6.58	6.58
270.0	7.09	7.03	6.98	6.86	6.81	6.81	6.69	6.69	6.64
315.0	6.98	6.86	6.81	6.75	6.75	6.69	6.64	6.58	6.53
360.0	7.03	6.98	6.86	6.81	6.81	6.69	6.69	6.64	6.58

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	6.58	6.53	6.47	6.47	6.41	6.41	6.41	6.36	6.36
45.0	6.64	6.58	6.58	6.53	6.47	6.47	6.41	6.41	6.47
90.0	6.64	6.58	6.58	6.53	6.53	6.47	6.47	6.47	6.47
135.0	6.58	6.58	6.53	6.47	6.47	6.47	6.41	6.41	6.36
180.0	6.53	6.47	6.47	6.41	6.41	6.36	6.36	6.36	6.36
225.0	6.53	6.53	6.47	6.47	6.47	6.41	6.41	6.36	6.36
270.0	6.58	6.58	6.58	6.53	6.53	6.47	6.47	6.47	6.47
315.0	6.47	6.47	6.47	6.41	6.41	6.36	6.36	6.36	6.36
360.0	6.58	6.53	6.47	6.47	6.41	6.41	6.41	6.36	6.36

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	6.36	6.36	6.30	6.30	6.30	6.30	6.30	6.30	6.30
45.0	6.41	6.41	6.41	6.36	6.41	6.41	6.41	6.36	6.69
90.0	6.47	6.47	6.47	6.41	6.41	6.41	6.47	6.53	6.53
135.0	6.36	6.36	6.36	6.30	6.30	6.30	6.30	6.30	6.30
180.0	6.36	6.30	6.30	6.36	6.36	6.47	6.53	6.47	6.41
225.0	6.36	6.36	6.36	6.36	6.36	6.36	6.36	6.36	6.41
270.0	6.47	6.47	6.41	6.41	6.41	6.41	6.41	6.41	6.41
315.0	6.36	6.30	6.30	6.36	6.36	6.30	6.36	6.36	6.30
360.0	6.36	6.36	6.30	6.30	6.30	6.30	6.30	6.30	6.30

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	6.30	6.30	6.24	6.24	6.24	6.24	6.30	6.24	6.24
45.0	6.75	6.69	6.58	6.53	6.53	6.47	6.53	6.24	6.24
90.0	6.58	6.53	6.53	6.53	6.41	6.36	6.24	6.24	6.24
135.0	6.30	6.30	6.30	6.30	6.24	6.24	6.24	6.24	6.24
180.0	6.36	6.30	6.30	6.30	6.30	6.24	6.24	6.24	6.19
225.0	6.47	6.41	6.36	6.36	6.36	6.30	6.24	6.24	6.24
270.0	6.41	6.47	6.41	6.47	6.36	6.36	6.30	6.24	6.24
315.0	6.30	6.36	6.36	6.36	6.36	6.36	6.24	6.24	6.24
360.0	6.30	6.30	6.24	6.24	6.24	6.24	6.30	6.24	6.24

Intensity data(cd)

C/γ(°)	90.0
0.0	6.19
45.0	6.24
90.0	6.24
135.0	6.24
180.0	6.19
225.0	6.30
270.0	6.24
315.0	6.24
360.0	6.19