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Nata

LumCAT: 3-2031-M
Luminaire: 92.70.124.00
Report No: NATA0100
Test No: GC2018073013
LampCAT: BRIDGELUX V6HD
Lamp flux(lm): 1112.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 35.9000
Current(A): 0.3000
Power (W): 10.7700
PF: 1.0000
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 991.48
Efficiency(%): 89.16%
Lumens(lm)/Power(W): 92.06
Central intensity(cd): 15758.520
Maximum intensity(cd): 15758.520
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=9.9
[C90/270]Total=9.9
Field angle(10%Imax): [C0/180]Total=18.2
[C90/270]Total=18.2
Maximum s/h(1/2): C0_180=0.17 C90_270=0.17
Maximum s/h(1/4): C0_180=0.17 C90_270=0.17
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.50%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.278%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15758.518	3.770	3.77	.339%	.380%
1.0	15406.845	29.486	33.256	2.652%	3.354%
2.0	13857.008	53.032	86.289	4.769%	8.703%
3.0	11887.090	68.222	154.511	6.135%	15.584%
4.0	10182.750	77.894	232.405	7.005%	23.440%
5.0	7746.642	74.039	306.444	6.658%	30.908%
6.0	5485.338	62.877	369.321	5.654%	37.249%
7.0	3715.481	49.655	418.975	4.465%	42.258%
8.0	2413.796	36.839	455.814	3.313%	45.973%
9.0	1639.015	28.117	483.931	2.528%	48.809%
10.0	1069.526	20.366	504.298	1.832%	50.863%
11.0	852.452	17.837	522.135	1.604%	52.662%
12.0	728.644	16.613	538.747	1.494%	54.338%
13.0	640.155	15.792	554.539	1.420%	55.930%
14.0	579.152	15.365	569.904	1.382%	57.480%
15.0	538.087	15.272	585.176	1.373%	59.020%
16.0	506.491	15.310	600.485	1.377%	60.564%
17.0	479.307	15.367	615.853	1.382%	62.114%
18.0	458.819	15.548	631.401	1.398%	63.683%
19.0	443.624	15.838	647.239	1.424%	65.280%
20.0	428.531	16.073	663.312	1.445%	66.901%
21.0	415.091	16.313	679.624	1.467%	68.546%
22.0	405.993	16.678	696.302	1.500%	70.229%
23.0	396.860	17.005	713.307	1.529%	71.944%
24.0	389.545	17.375	730.682	1.562%	73.696%
25.0	383.970	17.795	748.477	1.600%	75.491%
26.0	379.387	18.238	766.715	1.640%	77.330%
27.0	374.211	18.630	785.345	1.675%	79.209%
28.0	369.573	19.027	804.371	1.711%	81.128%
29.0	363.751	19.339	823.71	1.739%	83.079%
30.0	358.094	19.634	843.345	1.766%	85.059%
31.0	353.311	19.955	863.299	1.794%	87.072%
32.0	347.502	20.194	883.493	1.816%	89.108%
33.0	340.875	20.359	903.852	1.831%	91.162%
34.0	325.879	19.983	923.836	1.797%	93.177%
35.0	276.142	17.369	941.205	1.562%	94.929%
36.0	190.337	12.269	953.473	1.103%	96.167%
37.0	124.366	8.208	961.681	.738%	96.994%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	46.915	3.167	964.848	.285%	97.314%
39.0	21.128	1.458	966.306	.131%	97.461%
40.0	15.313	1.079	967.386	.097%	97.570%
41.0	11.989	0.863	968.248	.078%	97.657%
42.0	9.277	0.681	968.929	.061%	97.725%
43.0	8.018	0.600	969.528	.054%	97.786%
44.0	7.453	0.568	970.096	.051%	97.843%
45.0	7.130	0.553	970.649	.050%	97.899%
46.0	6.896	0.544	971.193	.049%	97.954%
47.0	6.648	0.533	971.726	.048%	98.008%
48.0	6.428	0.524	972.25	.047%	98.060%
49.0	6.249	0.517	972.767	.047%	98.113%
50.0	6.049	0.508	973.275	.046%	98.164%
51.0	5.905	0.503	973.779	.045%	98.215%
52.0	5.760	0.498	974.276	.045%	98.265%
53.0	5.623	0.492	974.769	.044%	98.314%
54.0	5.464	0.485	975.254	.044%	98.363%
55.0	5.347	0.480	975.734	.043%	98.412%
56.0	5.237	0.476	976.21	.043%	98.460%
57.0	5.120	0.471	976.681	.042%	98.507%
58.0	5.038	0.468	977.149	.042%	98.555%
59.0	4.955	0.466	977.615	.042%	98.602%
60.0	4.879	0.463	978.079	.042%	98.648%
61.0	4.797	0.460	978.539	.041%	98.695%
62.0	4.735	0.458	978.997	.041%	98.741%
63.0	4.680	0.457	979.454	.041%	98.787%
64.0	4.618	0.455	979.91	.041%	98.833%
65.0	4.583	0.456	980.365	.041%	98.879%
66.0	4.535	0.454	980.819	.041%	98.925%
67.0	4.487	0.453	981.272	.041%	98.970%
68.0	4.453	0.453	981.725	.041%	99.016%
69.0	4.418	0.452	982.177	.041%	99.062%
70.0	4.391	0.452	982.63	.041%	99.107%
71.0	4.370	0.453	983.083	.041%	99.153%
72.0	4.343	0.453	983.536	.041%	99.199%
73.0	4.322	0.453	983.989	.041%	99.244%
74.0	4.301	0.453	984.443	.041%	99.290%
75.0	4.281	0.453	984.896	.041%	99.336%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.267	0.454	985.35	.041%	99.382%
77.0	4.267	0.456	985.806	.041%	99.428%
78.0	4.226	0.453	986.259	.041%	99.473%
79.0	4.226	0.455	986.714	.041%	99.519%
80.0	4.212	0.455	987.169	.041%	99.565%
81.0	4.205	0.455	987.624	.041%	99.611%
82.0	4.198	0.456	988.08	.041%	99.657%
83.0	4.184	0.455	988.536	.041%	99.703%
84.0	4.191	0.457	988.993	.041%	99.749%
85.0	4.157	0.454	989.447	.041%	99.795%
86.0	4.143	0.453	989.9	.041%	99.841%
87.0	4.122	0.451	990.351	.041%	99.886%
88.0	4.115	0.451	990.803	.041%	99.932%
89.0	4.129	0.453	991.255	.041%	99.977%
90.0	4.115	0.226	991.481	.020%	100.000%

Zonal flux distribution table

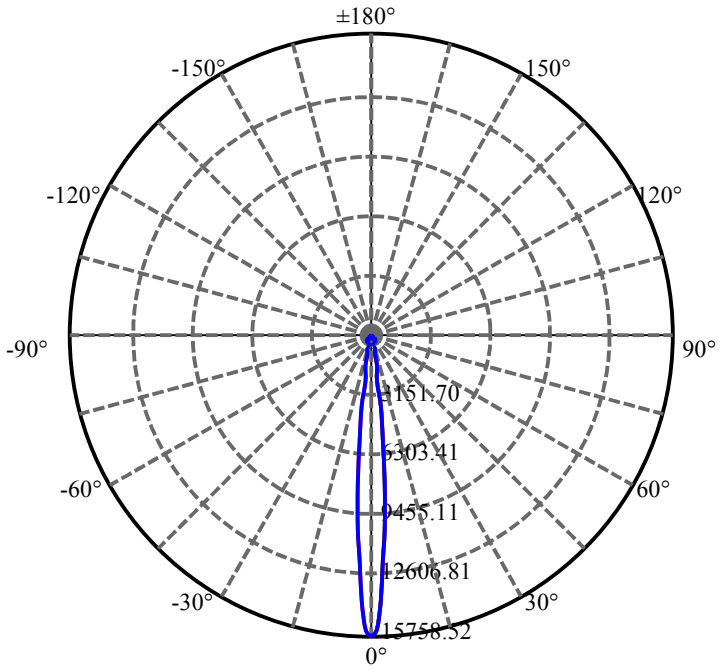
ZONAL LUMEN SUMMARY

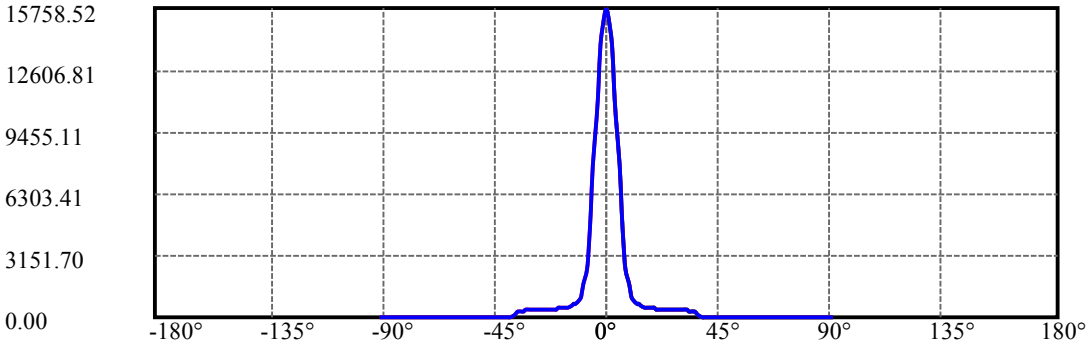
Zone	Lumens	%Lamp	%Fixt
0-30	843.34	75.84%	85.06%
0-40	967.39	87.00%	97.57%
0-60	978.08	87.96%	98.65%
0-90	991.26	89.14%	99.98%
0-120	991.26	89.14%	99.98%
0-180	991.48	89.16%	100.00%
60-90	13.64	1.23%	1.38%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.41	793.18	71.33%	80.00%

ZONAL LUMEN SUMMARY

0-10	504.30
10-20	159.01
20-30	180.03
30-40	124.04
40-50	5.89
50-60	4.80
60-70	4.55
70-80	4.54
80-90	4.09
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):

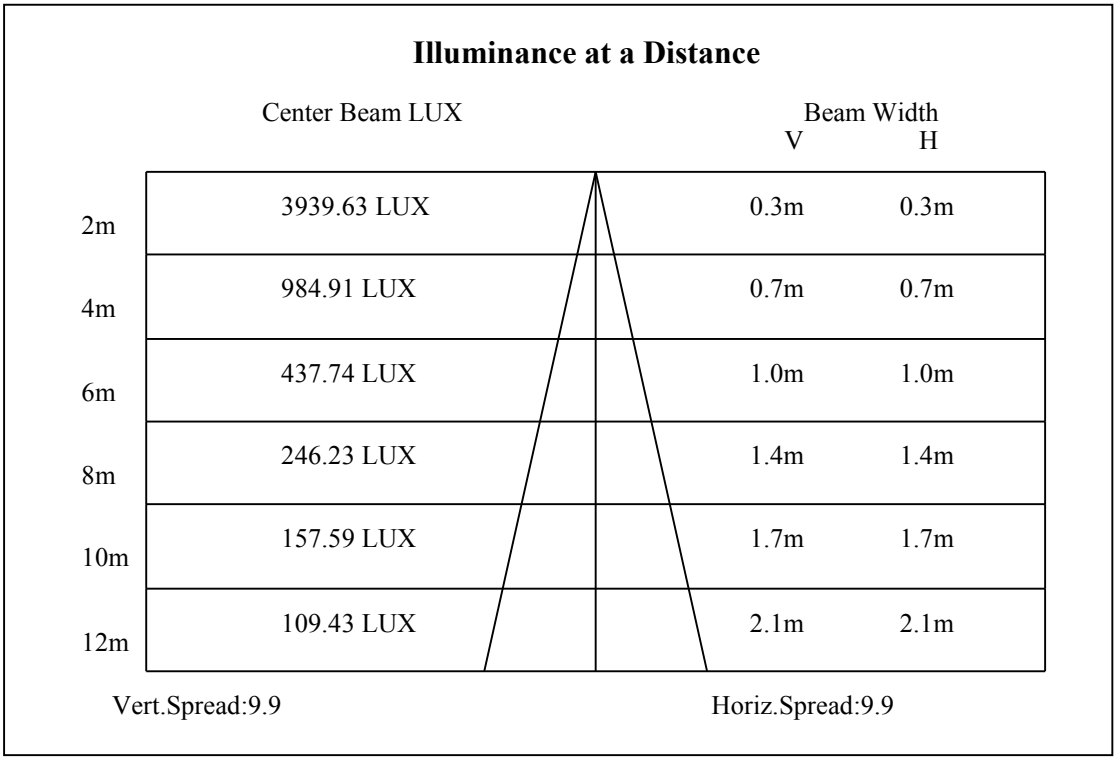
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:9.1 Right:9.1
:C90/270Left:9.1 Right:9.1

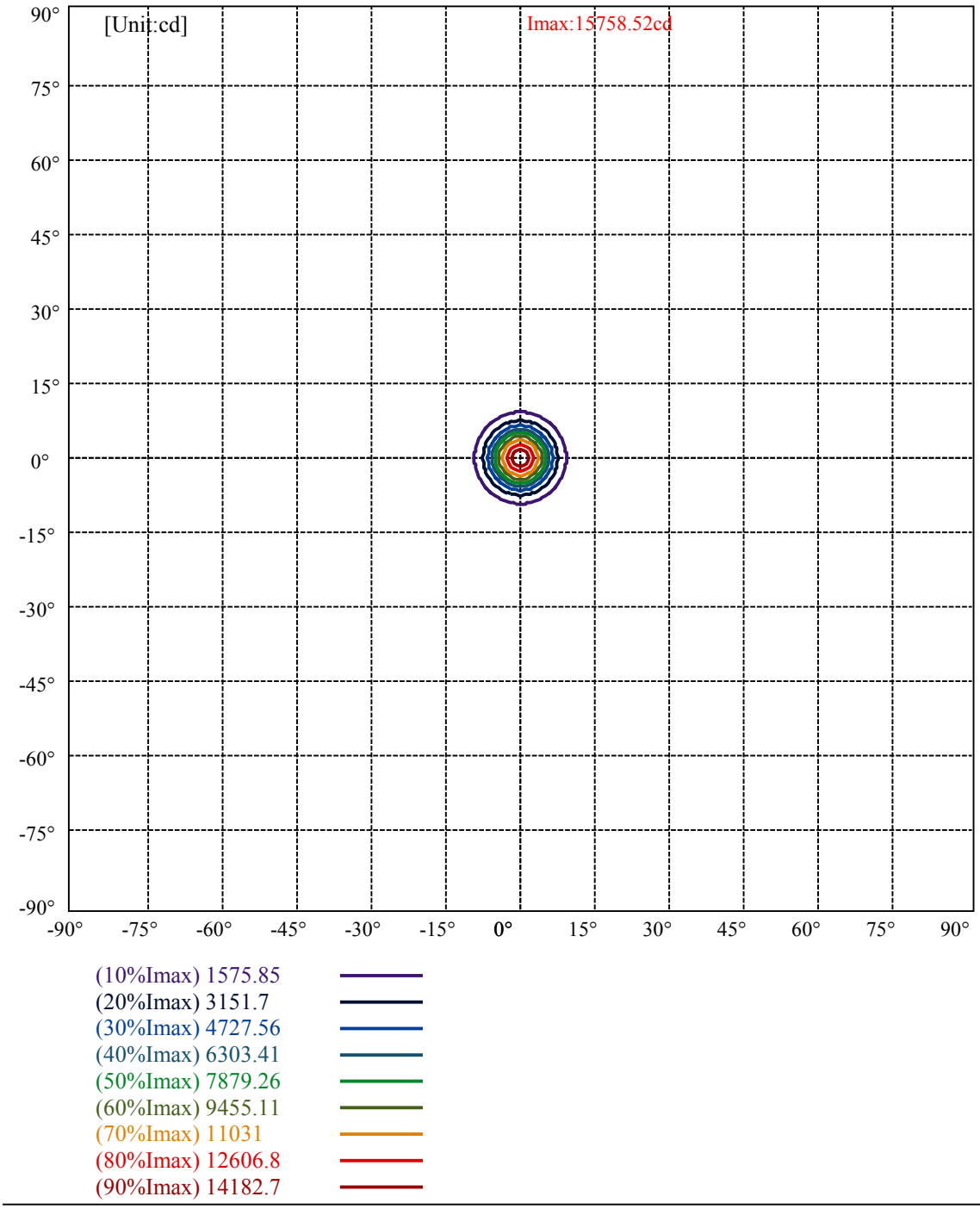
Beam Angle(50%Imax):C0/180Left:4.9 Right:4.9
:C90/270Left:4.9 Right:4.9

Lux distance Curve



Equipment: GMS1980 Date: 2018/7/30 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)

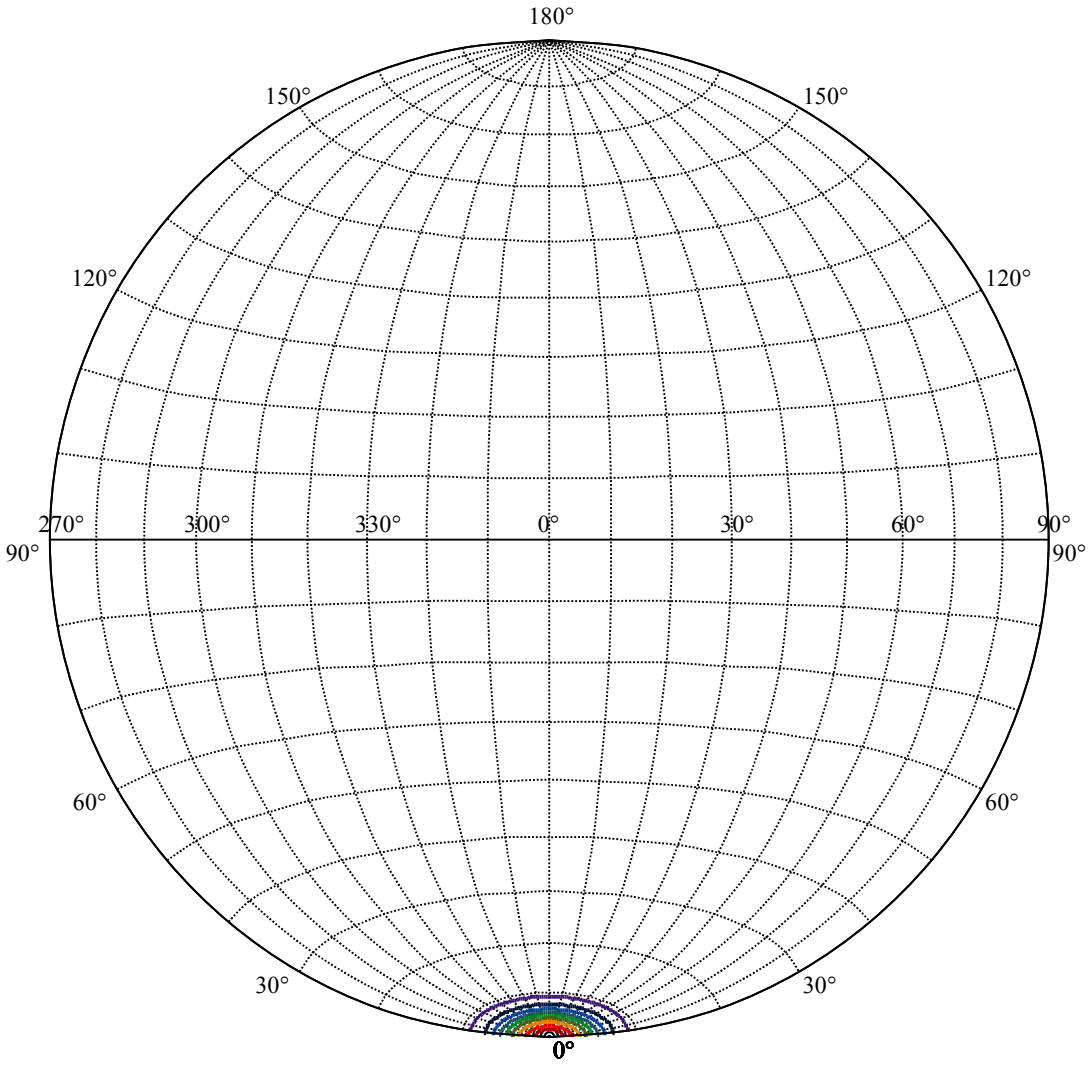


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/7/30
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



[Unit:cd]

Imax:15758.52

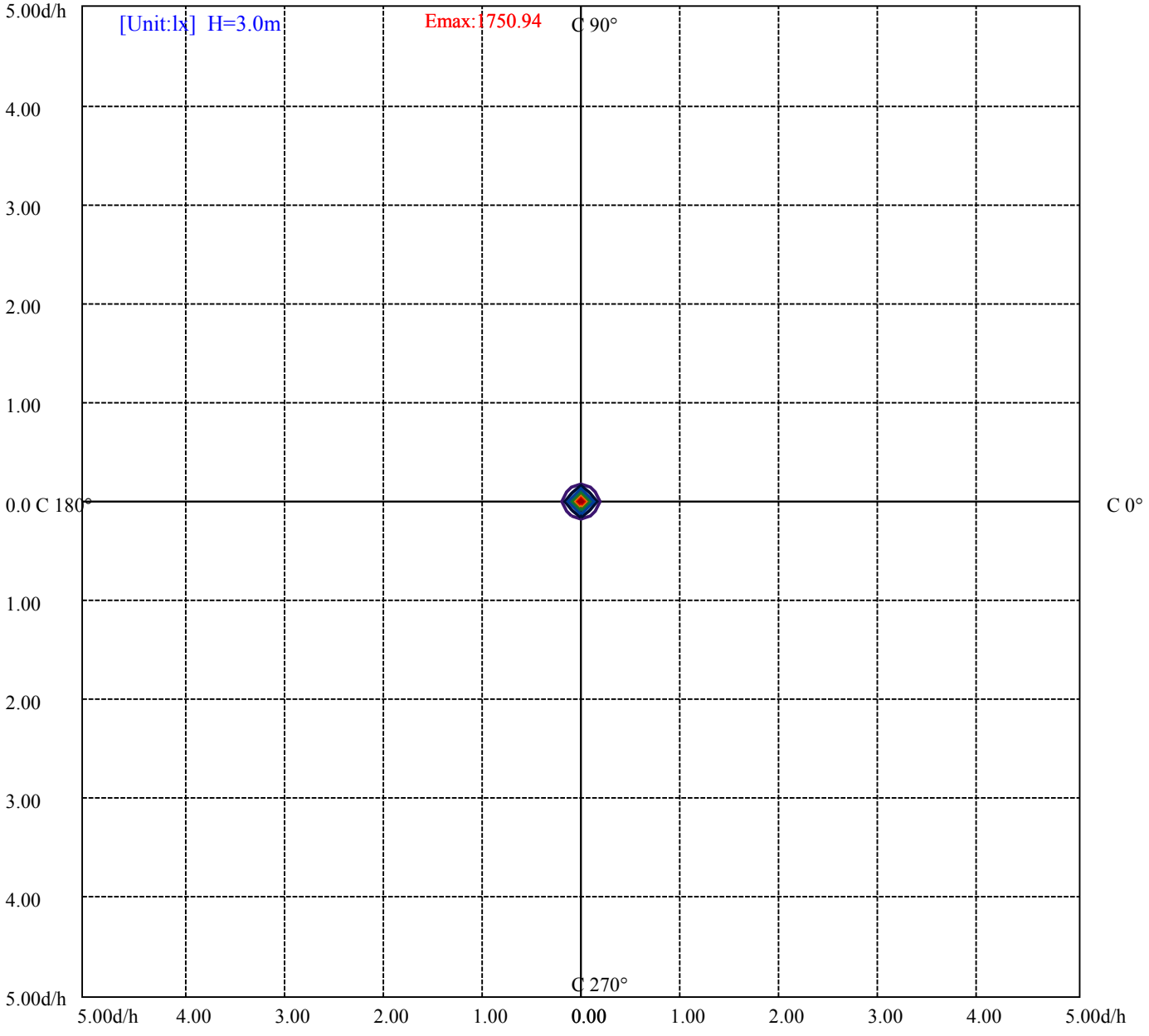
(10%Imax) 1575.85
(20%Imax) 3151.7
(30%Imax) 4727.56
(40%Imax) 6303.41
(50%Imax) 7879.26
(60%Imax) 9455.11
(70%Imax) 11031
(80%Imax) 12606.8
(90%Imax) 14182.7

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/7/30
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

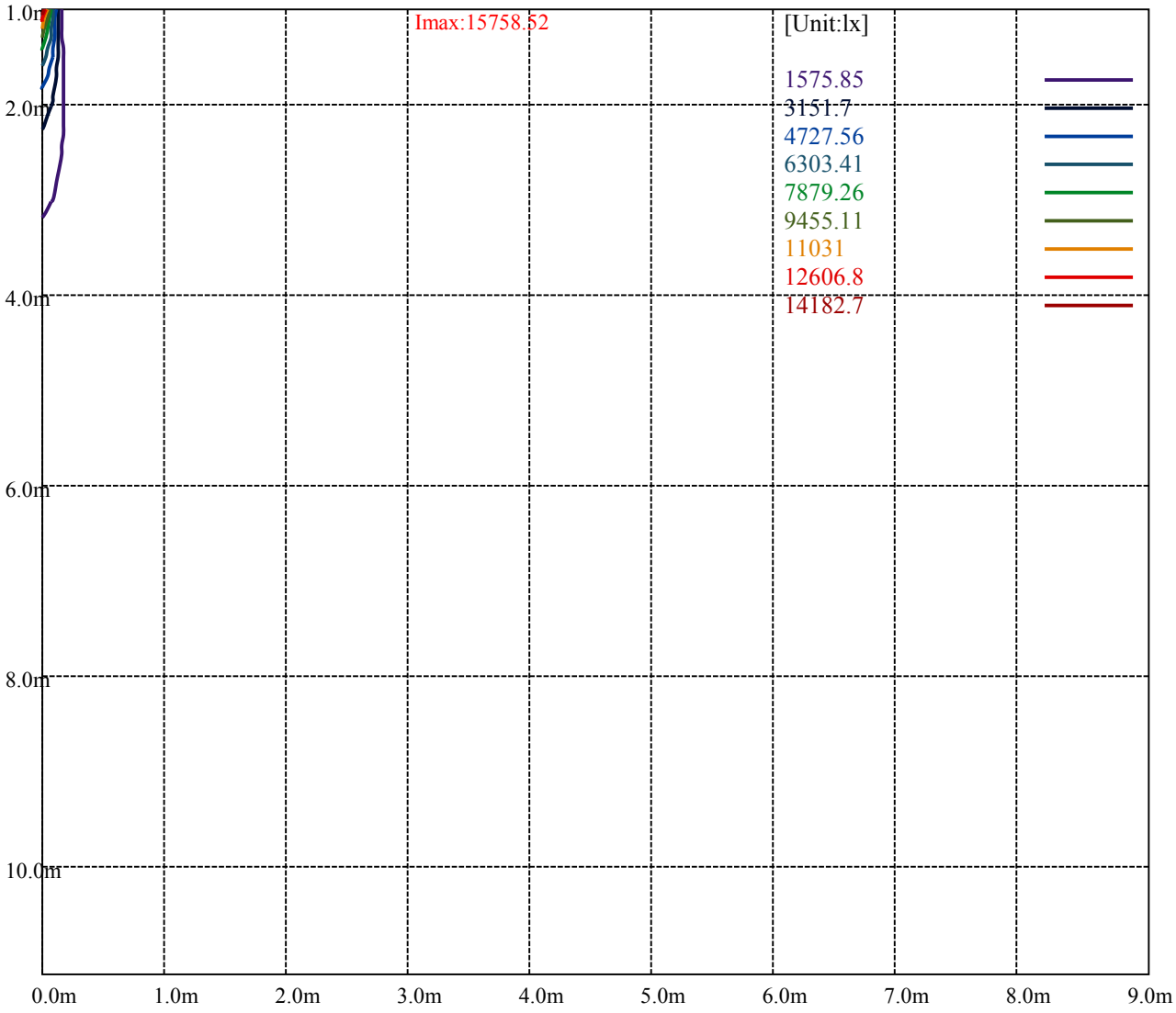
ISO illuminance diagram



(10%Emax) 175.0944
(20%Emax) 350.1878
(30%Emax) 525.2822
(40%Emax) 700.3767
(50%Emax) 875.47
(60%Emax) 1050.564
(70%Emax) 1225.656
(80%Emax) 1400.755
(90%Emax) 1575.844

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2018/7/30
Humidity(%): 60.0%
Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2018/7/30
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Nata 3-2031-M

Luminance Limitting Curve(no luminous side)

Luminance Table

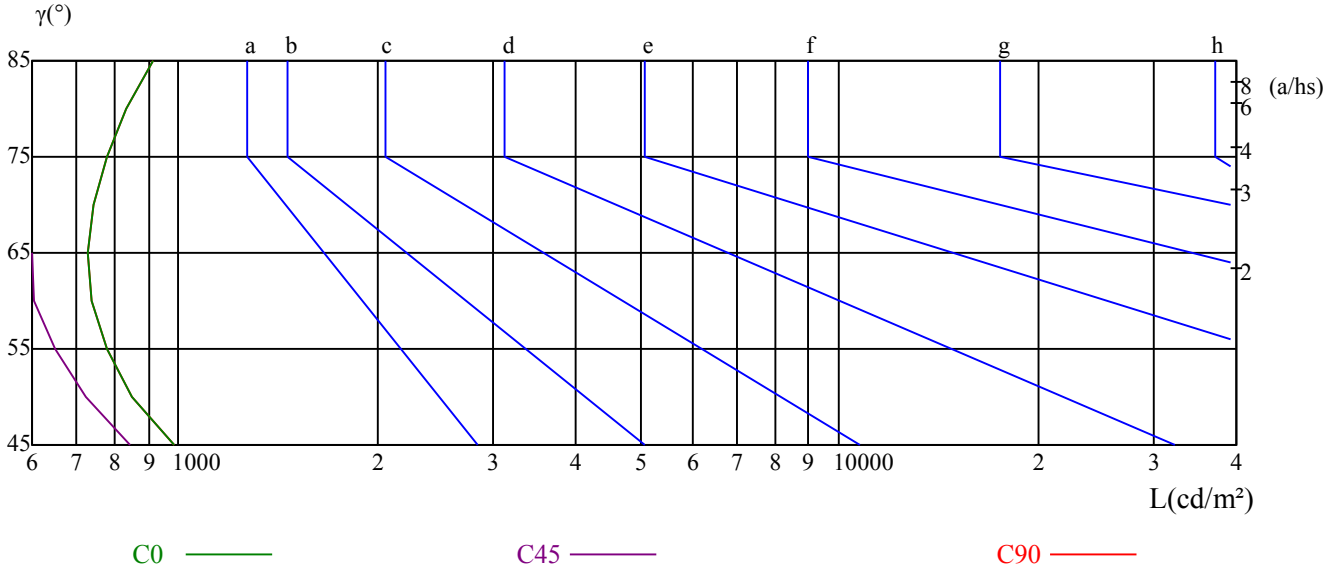
γ	45	50	55	60	65	70	75	80	85
C0	982	852	777	738	729	742	777	834	912
C45	845	722	648	606	588	586	601	629	668
C90	982	852	777	738	729	742	777	834	912

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
1738	1738	1738	2650	2650	2650	7642	7642	7642

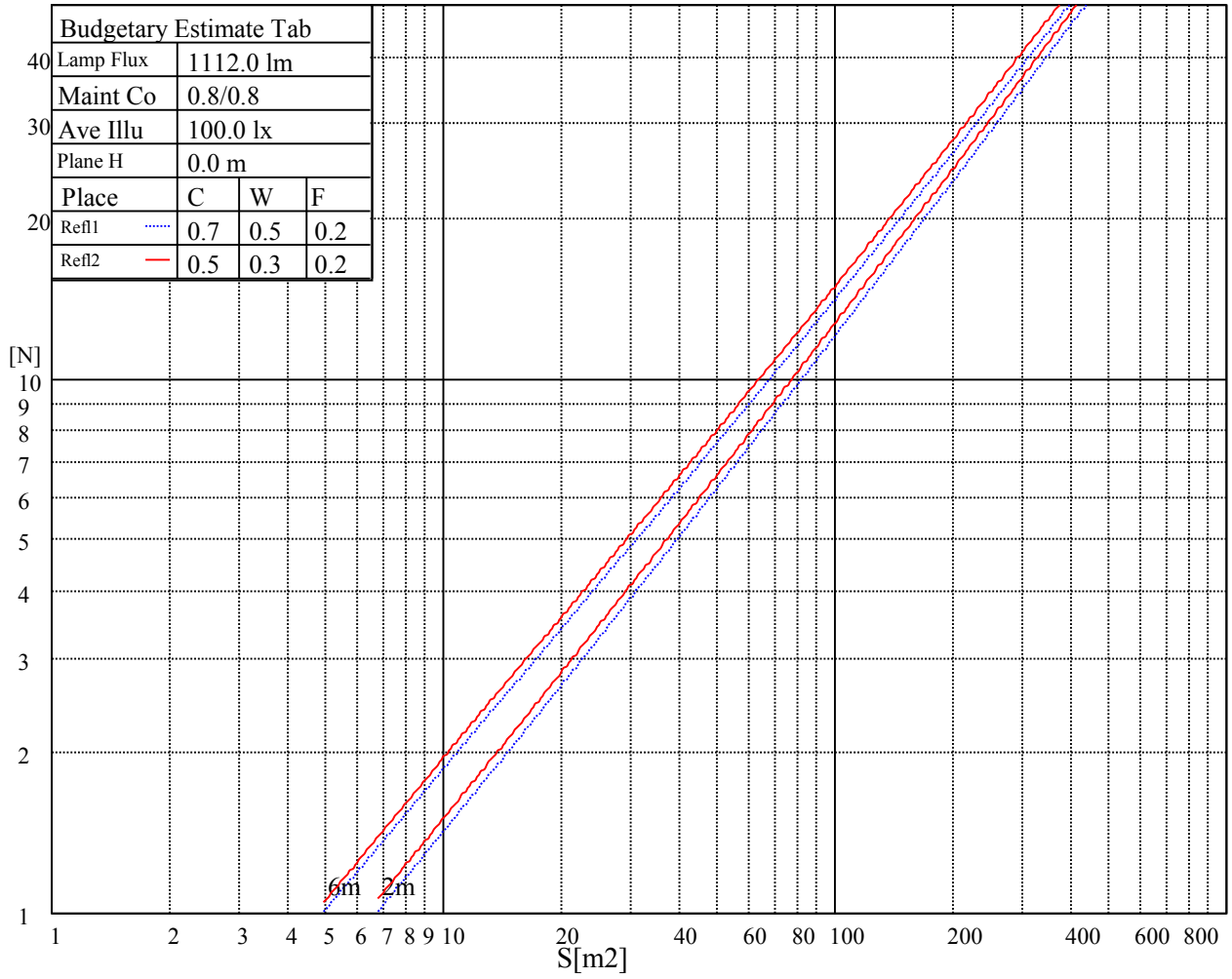
Glare Table

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

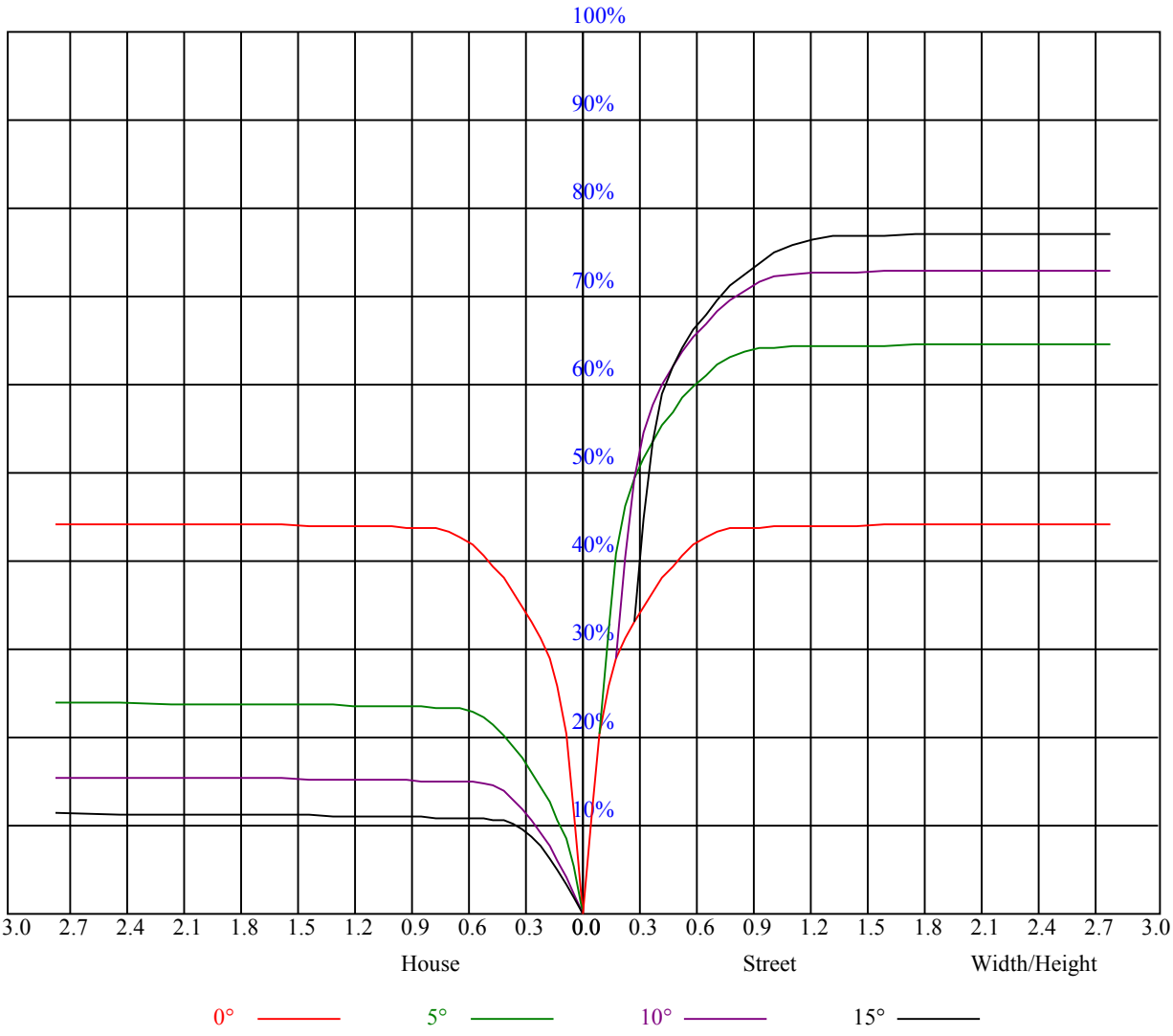


Equipment: GMS1980 Date: 2018/7/30 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	1.00	0.98	0.97	0.98	0.97	0.95	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.88	0.87	0.85
2	0.95	0.92	0.90	0.94	0.91	0.89	0.91	0.89	0.87	0.88	0.87	0.85	0.86	0.85	0.83	0.82
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.83	0.82	0.84	0.82	0.80	0.79
4	0.87	0.84	0.81	0.86	0.83	0.80	0.85	0.82	0.80	0.83	0.81	0.79	0.81	0.79	0.78	0.77
5	0.84	0.80	0.78	0.83	0.80	0.77	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.74
6	0.81	0.77	0.75	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.76	0.74	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	0.70	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.67
10	0.72	0.69	0.66	0.72	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.65

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2018/7/30	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	15437.81	15817.70	15360.74	14171.52	12618.93	9667.90	7542.73	5747.89	3529.12
45.0	15828.72	15977.37	15184.56	13863.20	11952.74	9552.29	7146.32	5125.75	3182.26
90.0	15966.36	15674.56	14611.97	10947.97	10677.09	8233.68	5916.91	4041.69	2434.59
135.0	15801.19	15542.42	14292.64	12547.35	10449.70	7740.93	5692.83	3870.46	2929.00
180.0	15437.81	14353.20	10769.03	9951.99	7734.32	5641.08	3564.35	2089.94	1061.93
225.0	15828.72	15019.39	12277.58	10837.30	8581.64	6119.52	3907.35	2409.82	1289.42
270.0	15966.36	15536.92	14215.56	12024.32	9783.52	7531.72	4922.04	3171.25	2818.89
315.0	15801.19	15333.21	14143.99	10753.07	9664.05	7486.02	5190.17	3267.05	2065.17
360.0	15437.81	15817.70	15360.74	14171.52	12618.93	9667.90	7542.73	5747.89	3529.12

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2818.89	1450.19	1061.49	868.24	733.35	643.61	588.55	542.86	508.72
45.0	2835.40	1307.04	967.34	798.87	675.54	602.32	558.82	525.24	496.61
90.0	1578.47	1066.55	860.86	735.28	641.02	576.50	537.79	504.98	473.71
135.0	1466.15	1095.62	870.99	747.12	653.52	589.10	548.36	512.58	484.50
180.0	1000.60	809.77	706.70	630.51	581.34	537.85	503.33	478.94	457.63
225.0	1089.40	861.69	712.43	644.99	584.64	540.60	510.65	487.36	462.25
270.0	1238.77	967.89	811.53	700.87	624.89	573.14	530.19	502.11	476.24
315.0	1084.45	997.46	828.27	703.29	626.93	570.11	527.00	497.88	474.81
360.0	2818.89	1450.19	1061.49	868.24	733.35	643.61	588.55	542.86	508.72

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	484.50	465.23	446.51	431.64	420.08	405.22	397.51	390.35	385.39
45.0	472.38	455.32	438.25	423.38	412.37	402.46	390.90	385.39	379.89
90.0	454.16	438.47	423.60	411.77	401.53	390.46	383.41	377.58	373.01
135.0	463.02	445.41	427.24	416.23	405.77	394.20	385.95	380.44	376.59
180.0	439.30	426.63	413.75	400.98	393.98	386.77	381.71	375.70	371.80
225.0	447.44	435.72	422.45	408.52	400.87	395.36	389.63	384.84	381.21
270.0	457.52	443.75	429.44	415.68	409.62	403.01	396.96	391.45	385.95
315.0	452.23	438.47	427.02	412.54	403.73	397.40	390.29	386.00	381.27
360.0	484.50	465.23	446.51	431.64	420.08	405.22	397.51	390.35	385.39

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	380.44	375.48	369.98	363.92	357.87	352.36	346.30	340.80	334.19
45.0	374.38	369.98	366.13	359.52	354.56	349.61	344.65	339.15	333.64
90.0	369.26	364.09	357.10	352.20	347.74	340.85	335.95	330.72	281.34
135.0	371.63	366.68	359.52	354.56	350.16	344.10	337.50	331.99	282.99
180.0	366.01	360.89	355.94	349.99	344.98	339.31	330.23	276.99	194.62
225.0	375.98	372.07	366.13	361.34	357.10	350.27	343.44	320.15	235.70
270.0	381.54	376.59	371.08	365.57	360.62	355.66	348.51	341.35	286.29
315.0	374.44	370.80	364.14	357.65	353.46	347.85	340.41	325.88	260.36
360.0	380.44	375.48	369.98	363.92	357.87	352.36	346.30	340.80	334.19

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	291.25	282.44	101.80	36.23	18.39	15.42	11.73	8.86	8.04
45.0	281.89	223.53	101.96	29.07	18.55	15.64	10.79	8.42	7.82
90.0	214.39	128.45	48.06	20.26	17.40	13.21	9.91	8.86	7.71
135.0	193.74	108.46	31.38	19.27	16.52	12.17	9.47	7.98	7.54
180.0	89.96	31.49	18.22	14.76	11.01	8.48	7.49	7.21	6.99
225.0	133.68	55.50	19.71	15.91	12.88	9.69	8.26	7.65	6.99
270.0	174.64	89.19	29.35	16.74	14.04	10.74	8.09	7.54	7.27
315.0	143.15	75.87	24.83	16.79	13.71	10.57	8.48	7.60	7.27
360.0	291.25	282.44	101.80	36.23	18.39	15.42	11.73	8.86	8.04

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	7.27	6.99	6.72	6.50	6.28	6.06	5.89	5.73	5.62
45.0	7.49	7.27	7.05	6.77	6.61	6.39	6.22	6.06	5.89
90.0	7.49	7.21	6.94	6.77	6.61	6.33	6.22	6.06	5.89
135.0	7.27	7.05	6.77	6.55	6.33	6.17	6.00	5.84	5.67
180.0	6.72	6.55	6.33	6.11	6.00	5.78	5.67	5.56	5.40
225.0	6.77	6.55	6.33	6.11	5.95	5.78	5.67	5.56	5.45
270.0	6.99	6.77	6.55	6.33	6.11	5.95	5.78	5.67	5.56
315.0	7.05	6.77	6.50	6.28	6.11	5.95	5.78	5.62	5.51
360.0	7.27	6.99	6.72	6.50	6.28	6.06	5.89	5.73	5.62

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.45	5.34	5.23	5.12	5.01	4.96	4.90	4.79	4.73
45.0	5.73	5.56	5.45	5.29	5.18	5.07	4.96	4.90	4.79
90.0	5.73	5.56	5.40	5.29	5.18	5.12	5.01	4.90	4.79
135.0	5.56	5.45	5.29	5.18	5.12	5.01	4.96	4.84	4.79
180.0	5.23	5.18	5.07	5.01	4.90	4.84	4.79	4.73	4.68
225.0	5.29	5.18	5.12	5.01	4.96	4.84	4.79	4.73	4.68
270.0	5.40	5.29	5.23	5.07	5.01	4.96	4.84	4.73	4.73
315.0	5.34	5.23	5.12	5.01	4.96	4.84	4.79	4.73	4.68
360.0	5.45	5.34	5.23	5.12	5.01	4.96	4.90	4.79	4.73

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	4.68	4.62	4.57	4.51	4.51	4.40	4.40	4.35	4.35
45.0	4.73	4.68	4.62	4.57	4.51	4.51	4.46	4.40	4.40
90.0	4.73	4.68	4.62	4.57	4.51	4.46	4.46	4.40	4.40
135.0	4.73	4.68	4.68	4.62	4.51	4.51	4.46	4.46	4.40
180.0	4.62	4.57	4.51	4.51	4.46	4.40	4.40	4.35	4.35
225.0	4.62	4.57	4.57	4.51	4.46	4.46	4.40	4.40	4.35
270.0	4.68	4.57	4.57	4.51	4.46	4.46	4.40	4.40	4.35
315.0	4.62	4.57	4.51	4.46	4.46	4.40	4.35	4.35	4.35
360.0	4.68	4.62	4.57	4.51	4.51	4.40	4.40	4.35	4.35

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.29	4.29	4.29	4.29	4.24	4.24	4.24	4.18	4.18
45.0	4.40	4.35	4.35	4.29	4.29	4.29	4.24	4.24	4.24
90.0	4.35	4.29	4.29	4.29	4.29	4.29	4.24	4.24	4.24
135.0	4.40	4.35	4.35	4.29	4.29	4.29	4.24	4.24	4.24
180.0	4.29	4.29	4.29	4.24	4.24	4.24	4.18	4.24	4.18
225.0	4.35	4.35	4.29	4.29	4.29	4.29	4.24	4.24	4.24
270.0	4.35	4.35	4.29	4.29	4.24	4.24	4.24	4.24	4.18
315.0	4.29	4.29	4.24	4.24	4.24	4.24	4.18	4.18	4.18
360.0	4.29	4.29	4.29	4.29	4.24	4.24	4.24	4.18	4.18

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.18	4.18	4.18	4.18	4.13	4.13	4.13	4.13	4.13
45.0	4.24	4.24	4.18	4.24	4.18	4.18	4.13	4.13	4.13
90.0	4.24	4.18	4.18	4.18	4.13	4.13	4.13	4.07	4.13
135.0	4.18	4.18	4.18	4.18	4.18	4.13	4.13	4.13	4.13
180.0	4.18	4.18	4.13	4.13	4.13	4.13	4.13	4.07	4.13
225.0	4.24	4.24	4.24	4.24	4.18	4.18	4.13	4.13	4.13
270.0	4.18	4.18	4.18	4.18	4.18	4.13	4.13	4.13	4.13
315.0	4.18	4.18	4.18	4.18	4.13	4.13	4.07	4.13	4.13
360.0	4.18	4.18	4.18	4.18	4.13	4.13	4.13	4.13	4.13

Intensity data(cd)

C/γ(°)	90.0
0.0	4.13
45.0	4.13
90.0	4.13
135.0	4.13
180.0	4.07
225.0	4.13
270.0	4.13
315.0	4.07
360.0	4.13