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Nata

LumCAT: 2-1536-A
Luminaire: 99.02.73.181+92.76.323.00

Report No: NT2017031701	Voltage(V): 36.0000
Test No: NT2017031701	Current(A): 0.5000
LampCAT: LUMILEDS G6 1205	Power (W): 18.0000
Lamp flux(lm): 2435.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2213.66
Efficiency(%): 90.91%
Lumens(lm)/Power(W): 122.98
Central intensity(cd): 15759.210
Maximum intensity(cd): 15759.210
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=14.6
[C90/270]Total=14.6
Field angle(10%Imax): [C0/180]Total=31.3
[C90/270]Total=31.3
Maximum s/h(1/2): C0_180=0.25 C90_270=0.25
Maximum s/h(1/4): C0_180=0.26 C90_270=0.26
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.06%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.612%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15759.206	3.770	3.77	.155%	.170%
1.0	15586.467	29.830	33.6	1.225%	1.518%
2.0	15068.937	57.670	91.271	2.368%	4.123%
3.0	13922.869	79.906	171.177	3.282%	7.733%
4.0	13010.791	99.527	270.704	4.087%	12.229%
5.0	11663.010	111.470	382.174	4.578%	17.264%
6.0	9989.777	114.510	496.684	4.703%	22.437%
7.0	8297.550	110.891	607.575	4.554%	27.447%
8.0	6971.310	106.395	713.97	4.369%	32.253%
9.0	5595.175	95.984	809.953	3.942%	36.589%
10.0	4386.756	83.534	893.488	3.431%	40.362%
11.0	3598.693	75.300	968.788	3.092%	43.764%
12.0	2895.347	66.013	1034.801	2.711%	46.746%
13.0	2321.797	57.275	1092.076	2.352%	49.334%
14.0	2056.150	54.548	1146.624	2.240%	51.798%
15.0	1717.484	48.746	1195.371	2.002%	54.000%
16.0	1496.639	45.238	1240.609	1.858%	56.043%
17.0	1322.744	42.409	1283.018	1.742%	57.959%
18.0	1218.687	41.298	1324.316	1.696%	59.825%
19.0	1131.829	40.409	1364.725	1.659%	61.650%
20.0	1068.342	40.069	1404.794	1.646%	63.460%
21.0	1021.420	40.141	1444.935	1.648%	65.274%
22.0	988.111	40.591	1485.526	1.667%	67.107%
23.0	962.847	41.256	1526.782	1.694%	68.971%
24.0	938.767	41.872	1568.654	1.720%	70.863%
25.0	917.997	42.544	1611.198	1.747%	72.784%
26.0	897.481	43.144	1654.342	1.772%	74.733%
27.0	877.048	43.664	1698.006	1.793%	76.706%
28.0	851.936	43.860	1741.866	1.801%	78.687%
29.0	830.622	44.160	1786.026	1.814%	80.682%
30.0	808.792	44.346	1830.372	1.821%	82.685%
31.0	784.354	44.300	1874.672	1.819%	84.687%
32.0	750.666	43.622	1918.295	1.791%	86.657%
33.0	711.164	42.475	1960.769	1.744%	88.576%
34.0	658.936	40.407	2001.176	1.659%	90.401%
35.0	583.440	36.698	2037.874	1.507%	92.059%
36.0	508.756	32.793	2070.667	1.347%	93.540%
37.0	422.441	27.879	2098.546	1.145%	94.800%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	335.617	22.659	2121.205	.931%	95.823%
39.0	253.638	17.504	2138.709	.719%	96.614%
40.0	170.393	12.011	2150.72	.493%	97.157%
41.0	125.329	9.017	2159.736	.370%	97.564%
42.0	70.431	5.168	2164.904	.212%	97.798%
43.0	41.643	3.114	2168.019	.128%	97.938%
44.0	27.095	2.064	2170.083	.085%	98.031%
45.0	23.110	1.792	2171.875	.074%	98.112%
46.0	19.325	1.524	2173.399	.063%	98.181%
47.0	16.228	1.301	2174.701	.053%	98.240%
48.0	13.613	1.109	2175.81	.046%	98.290%
49.0	12.395	1.026	2176.836	.042%	98.337%
50.0	10.942	0.919	2177.755	.038%	98.378%
51.0	10.543	0.899	2178.654	.037%	98.419%
52.0	10.213	0.883	2179.536	.036%	98.459%
53.0	10.027	0.878	2180.414	.036%	98.498%
54.0	9.910	0.879	2181.293	.036%	98.538%
55.0	9.793	0.880	2182.173	.036%	98.578%
56.0	9.669	0.879	2183.052	.036%	98.617%
57.0	9.559	0.879	2183.931	.036%	98.657%
58.0	9.456	0.879	2184.811	.036%	98.697%
59.0	9.387	0.882	2185.693	.036%	98.737%
60.0	9.298	0.883	2186.576	.036%	98.777%
61.0	9.236	0.886	2187.462	.036%	98.817%
62.0	9.167	0.888	2188.349	.036%	98.857%
63.0	9.105	0.890	2189.239	.037%	98.897%
64.0	9.057	0.893	2190.132	.037%	98.937%
65.0	9.009	0.895	2191.027	.037%	98.978%
66.0	8.974	0.899	2191.926	.037%	99.018%
67.0	8.926	0.901	2192.827	.037%	99.059%
68.0	8.885	0.903	2193.731	.037%	99.100%
69.0	8.850	0.906	2194.637	.037%	99.141%
70.0	8.837	0.911	2195.547	.037%	99.182%
71.0	8.795	0.912	2196.459	.037%	99.223%
72.0	8.788	0.917	2197.376	.038%	99.264%
73.0	8.768	0.919	2198.295	.038%	99.306%
74.0	8.733	0.921	2199.216	.038%	99.348%
75.0	8.713	0.923	2200.139	.038%	99.389%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.706	0.926	2201.065	.038%	99.431%
77.0	8.692	0.929	2201.994	.038%	99.473%
78.0	8.671	0.930	2202.924	.038%	99.515%
79.0	8.651	0.931	2203.855	.038%	99.557%
80.0	8.630	0.932	2204.787	.038%	99.599%
81.0	8.589	0.930	2205.717	.038%	99.641%
82.0	8.589	0.933	2206.65	.038%	99.683%
83.0	8.582	0.934	2207.584	.038%	99.726%
84.0	8.575	0.935	2208.519	.038%	99.768%
85.0	8.561	0.935	2209.455	.038%	99.810%
86.0	8.548	0.935	2210.39	.038%	99.852%
87.0	8.548	0.936	2211.326	.038%	99.895%
88.0	8.534	0.935	2212.261	.038%	99.937%
89.0	8.499	0.932	2213.193	.038%	99.979%
90.0	8.499	0.466	2213.659	.019%	100.000%

Zonal flux distribution table

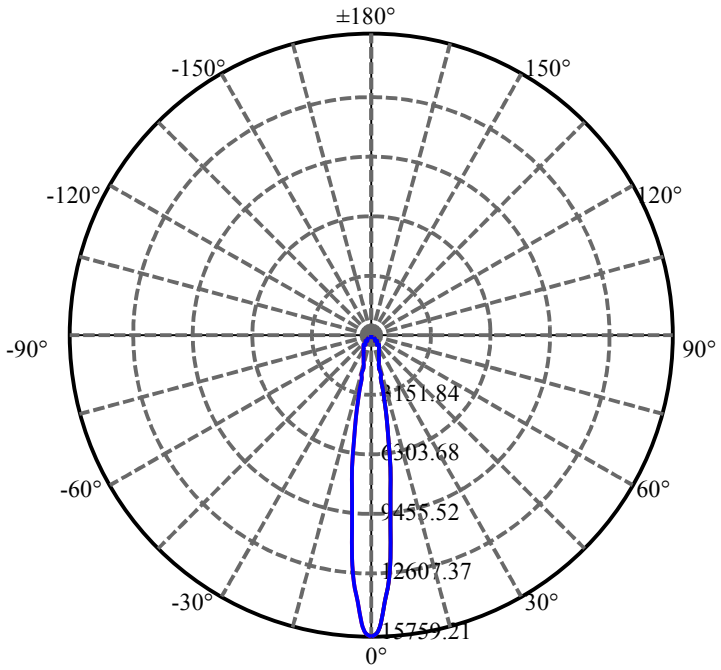
ZONAL LUMEN SUMMARY

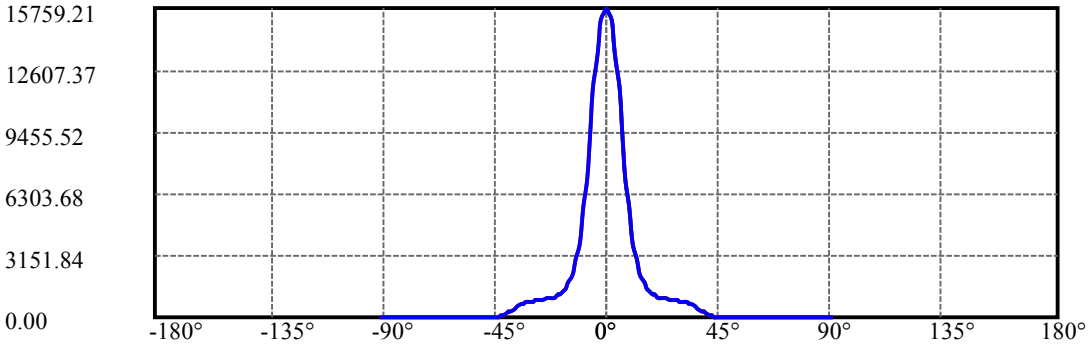
Zone	Lumens	%Lamp	%Fixt
0-30	1830.37	75.17%	82.69%
0-40	2150.72	88.33%	97.16%
0-60	2186.58	89.80%	98.78%
0-90	2213.19	90.89%	99.98%
0-120	2213.19	90.89%	99.98%
0-180	2213.66	90.91%	100.00%
60-90	27.50	1.13%	1.24%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.66	1770.93	72.73%	80.00%

ZONAL LUMEN SUMMARY

0-10	893.49
10-20	511.31
20-30	425.58
30-40	320.35
40-50	27.04
50-60	8.82
60-70	8.97
70-80	9.24
80-90	8.41
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:15.6 Right:15.6
:C90/270Left:15.6 Right:15.6

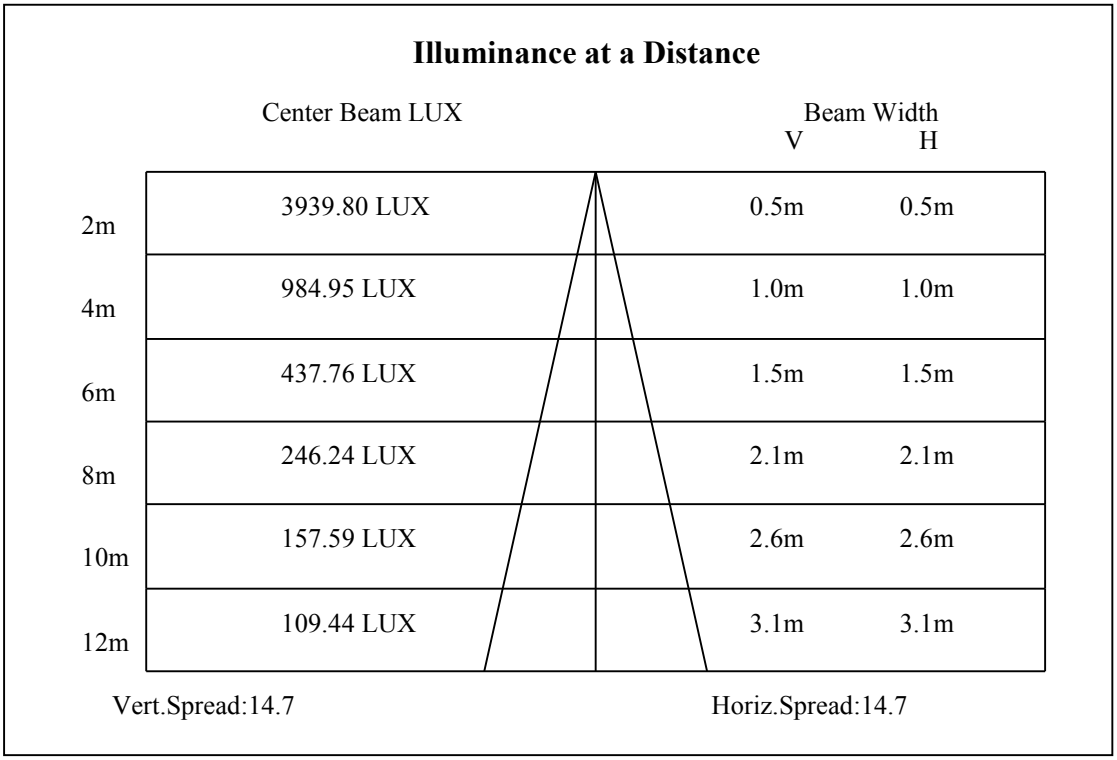
Beam Angle(50%Imax):C0/180Left:7.3 Right:7.3
:C90/270Left:7.3 Right:7.3

Equipment: gms1980
Temperature(°C): 25.0

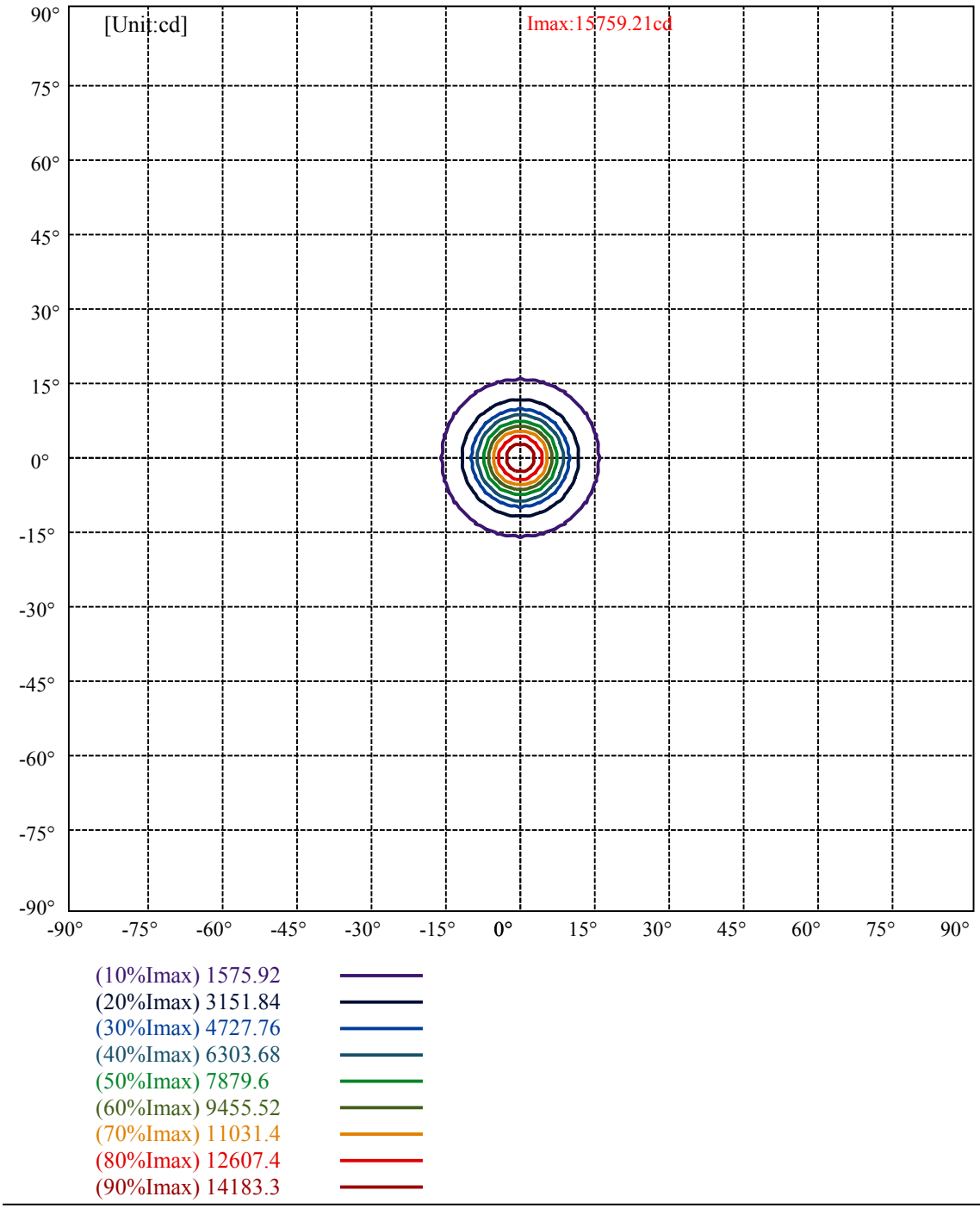
Date: 2017/3/17
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Lux distance Curve



ISO-Intensity(V-H)

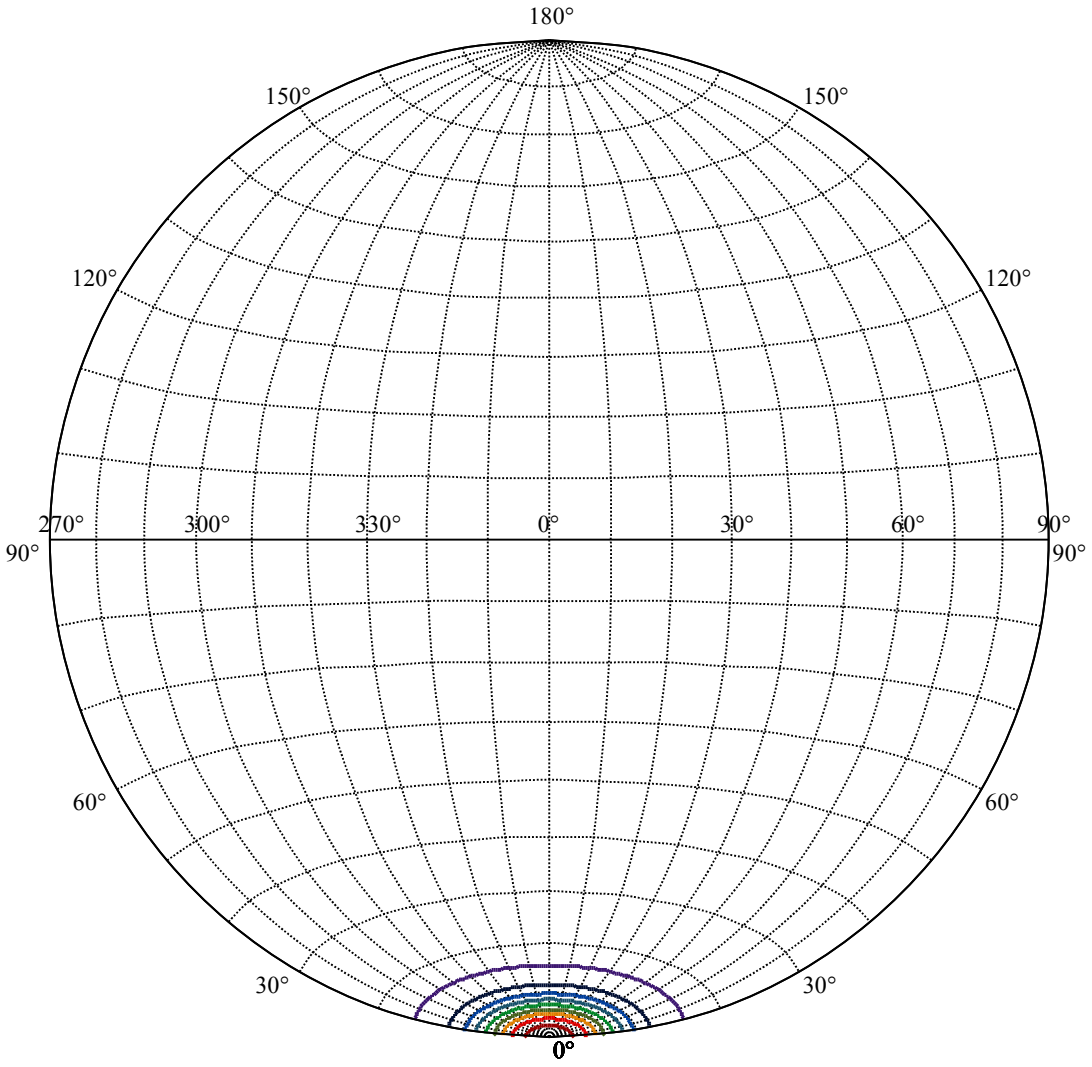


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/3/17
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:15759.21

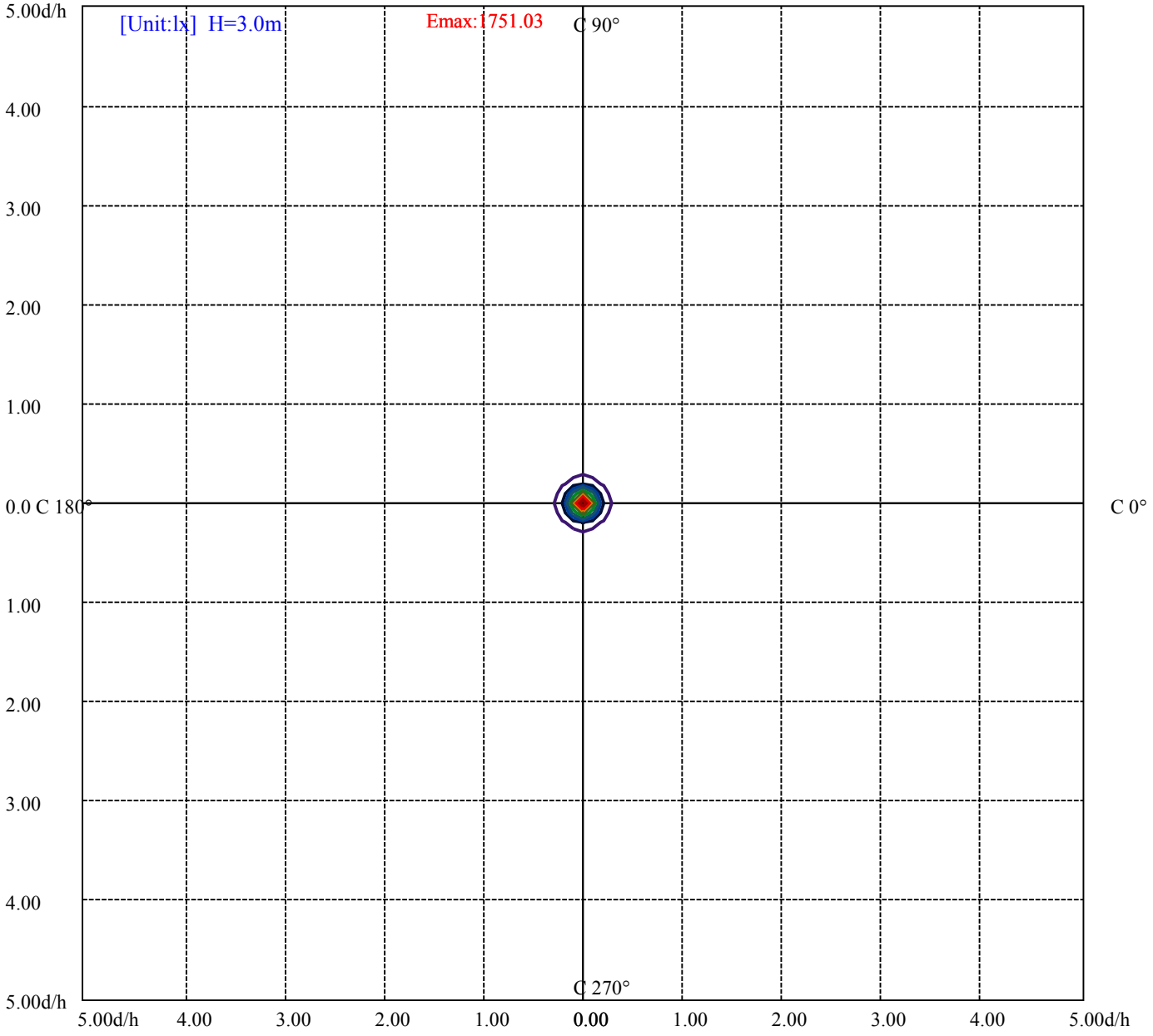
(10%Imax) 1575.92
(20%Imax) 3151.84
(30%Imax) 4727.76
(40%Imax) 6303.68
(50%Imax) 7879.6
(60%Imax) 9455.52
(70%Imax) 11031.4
(80%Imax) 12607.4
(90%Imax) 14183.3

Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/3/17
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO illuminance diagram

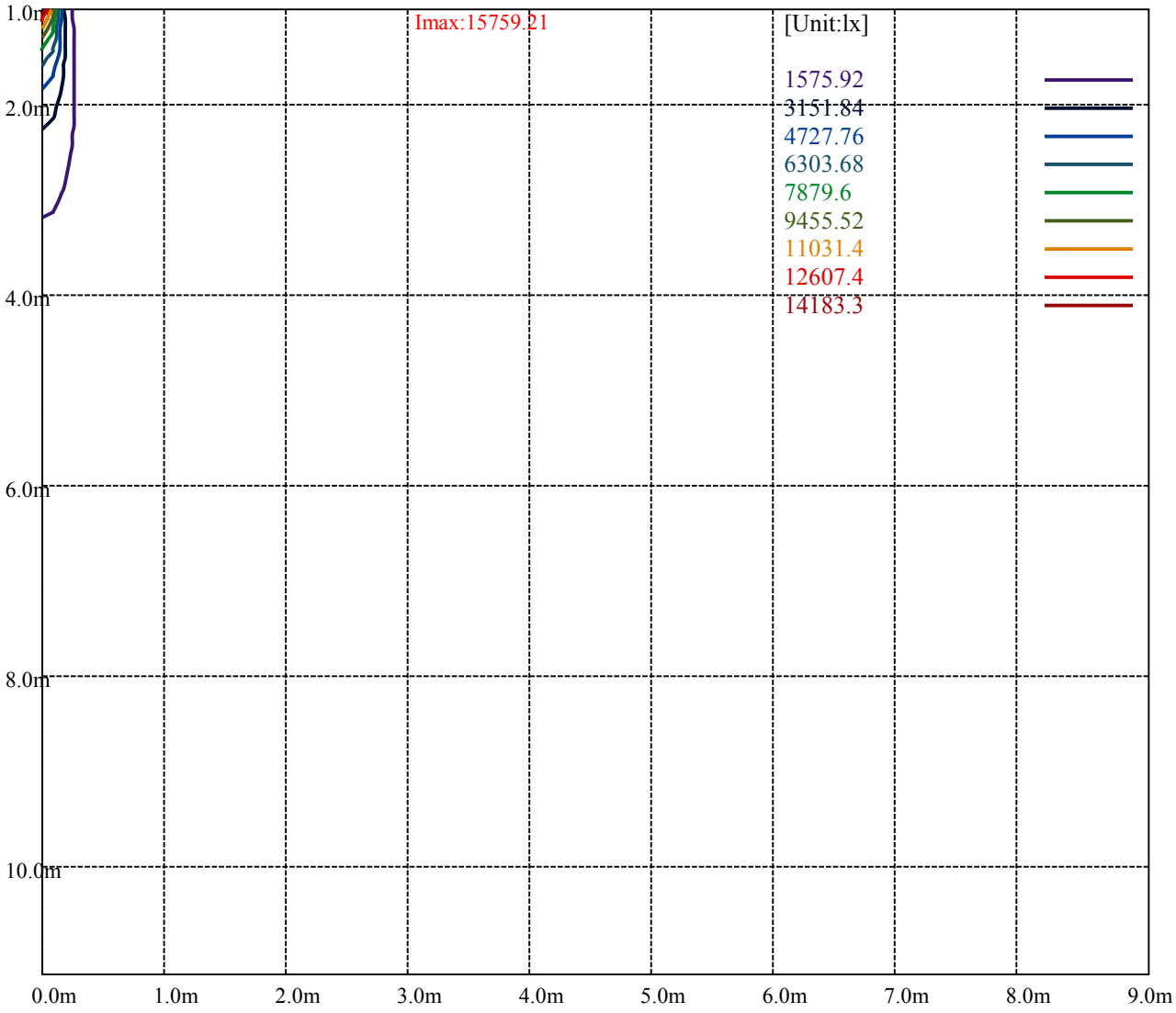


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/3/17
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/3/17
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Nata 2-1536-E

Luminance Limitting Curve(no luminous side)

Luminance Table

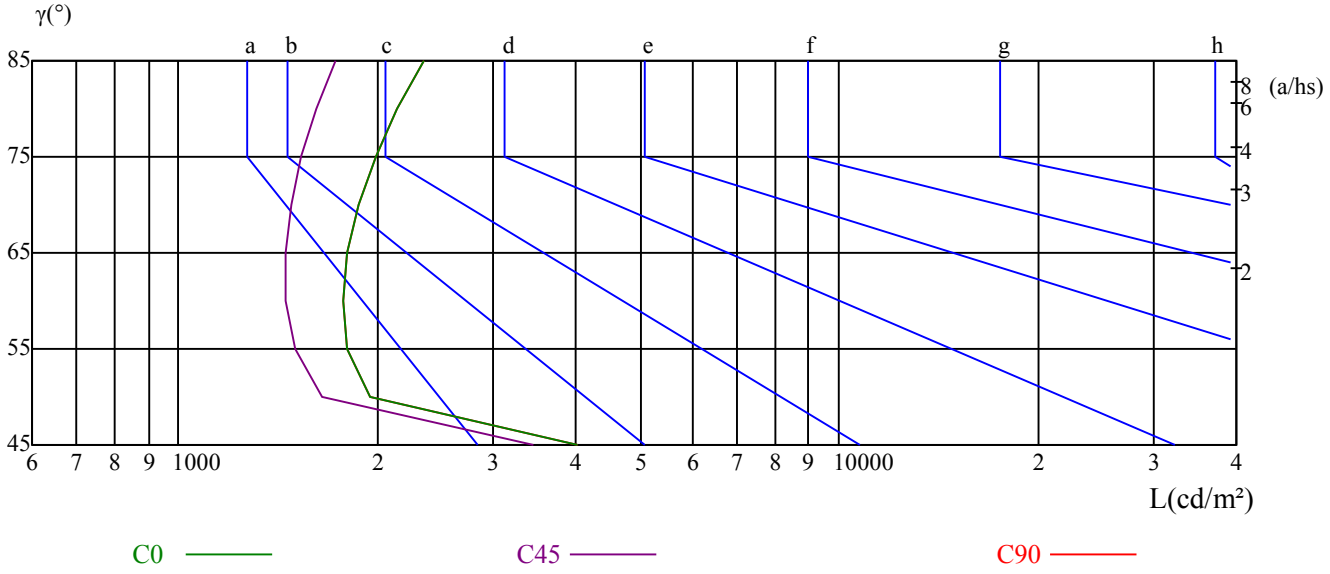
γ	45	50	55	60	65	70	75	80	85
C0	4025	1948	1798	1775	1806	1879	1990	2146	2355
C45	3457	1648	1497	1454	1453	1484	1537	1617	1725
C90	4025	1948	1798	1775	1806	1879	1990	2146	2355

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4350	4350	4350	6870	6870	6870	20047	20047	20047

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

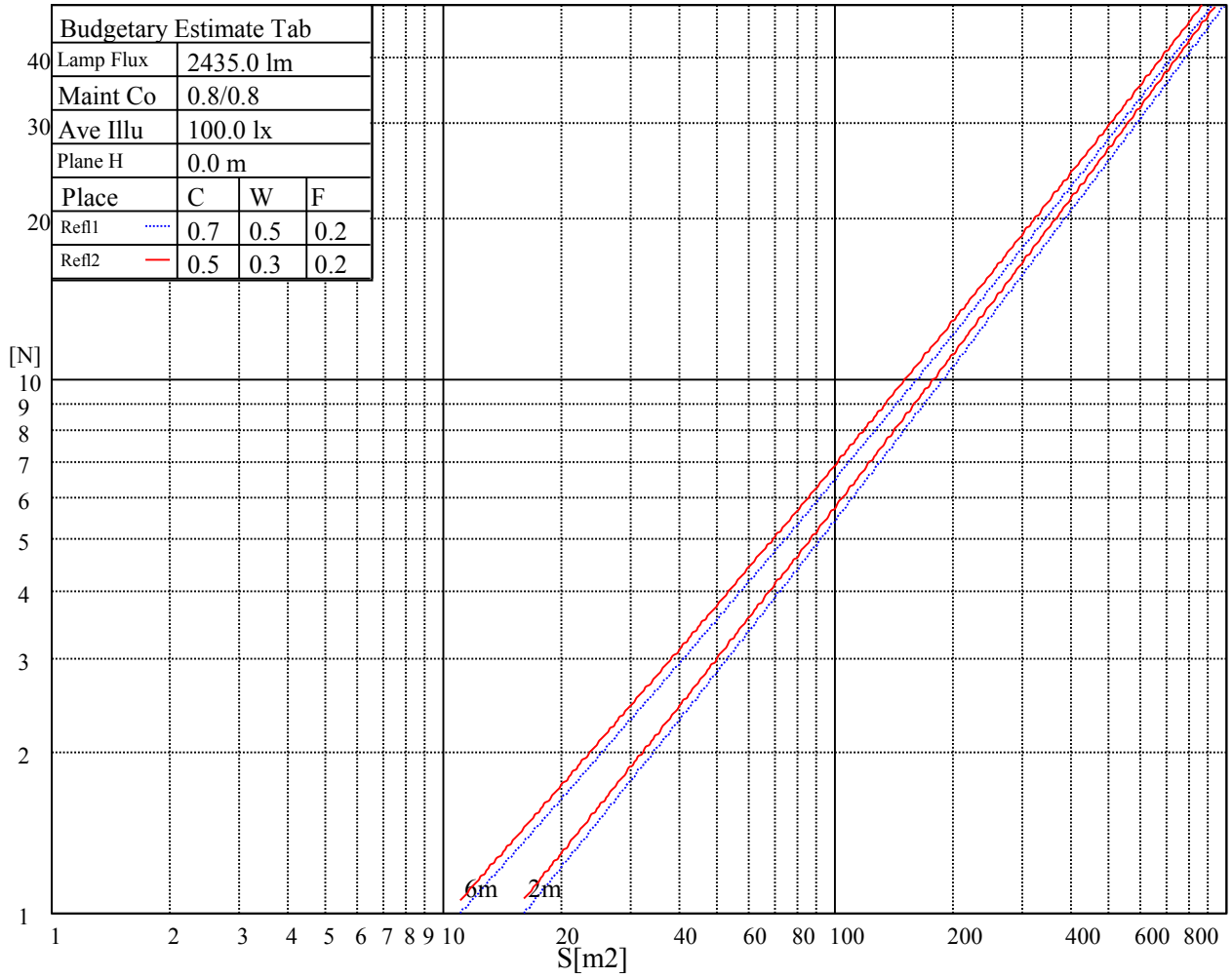


Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/3/17
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Budgetary Estimate Table

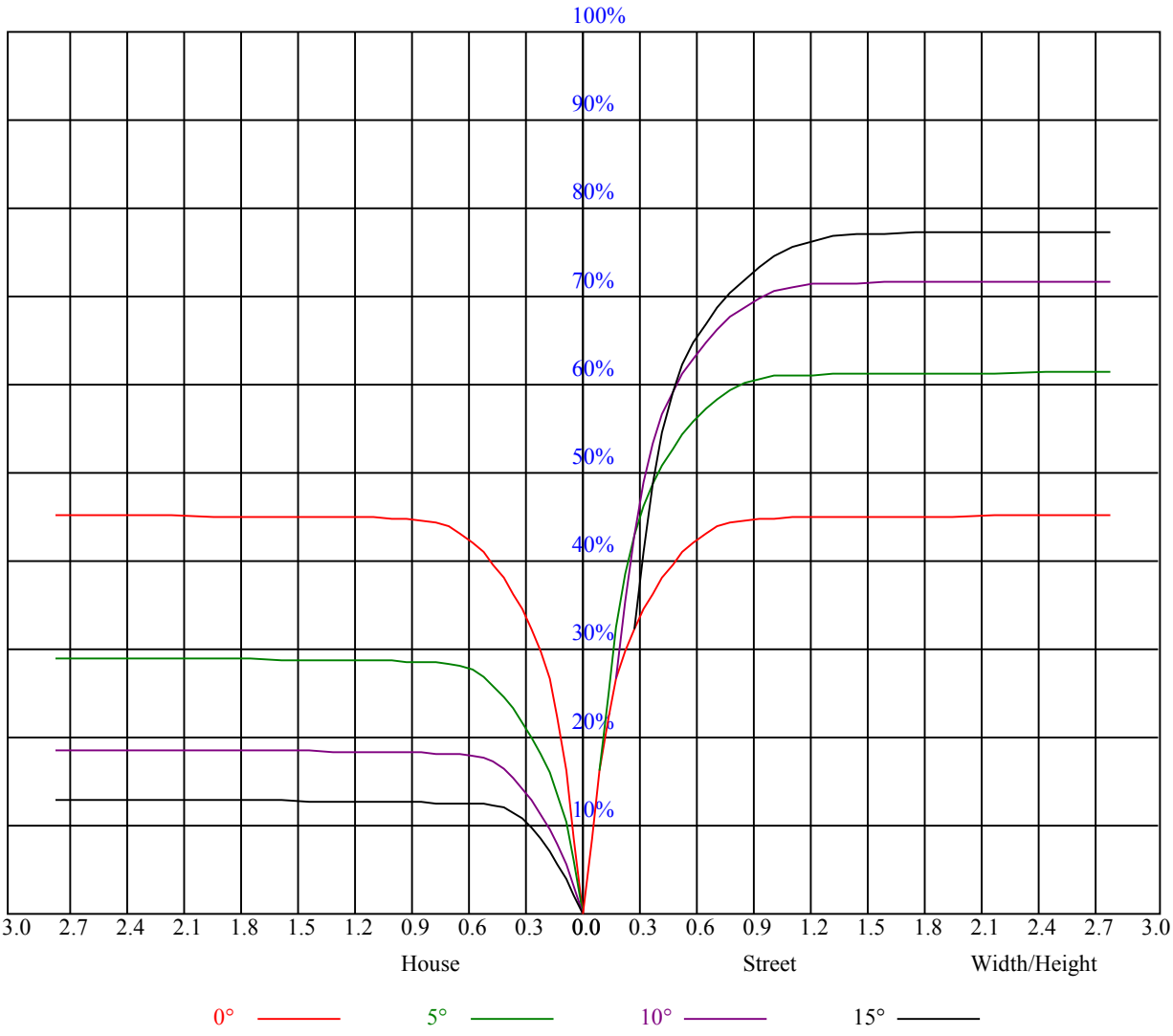


Equipment: gms1980 Date: 2017/3/17 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.06	1.06	1.06	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.91
1	1.02	1.00	0.98	1.00	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87
2	0.97	0.93	0.91	0.95	0.92	0.90	0.92	0.90	0.88	0.89	0.88	0.86	0.87	0.86	0.84	0.83
3	0.92	0.88	0.85	0.91	0.87	0.85	0.88	0.86	0.83	0.86	0.84	0.82	0.84	0.82	0.81	0.79
4	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.81	0.78	0.82	0.79	0.78	0.76
5	0.84	0.80	0.77	0.83	0.79	0.76	0.82	0.78	0.76	0.80	0.77	0.75	0.79	0.77	0.75	0.73
6	0.81	0.77	0.74	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.72	0.69	0.68
8	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
9	0.73	0.69	0.66	0.72	0.68	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.62

Coefficient Utilization Curve



Equipment: gms1980
Temperature(°C): 25.0

Date: 2017/3/17
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	15652.53	16070.96	16137.03	15867.25	15184.56	14221.07	12784.10	11099.37	9497.23
45.0	15790.18	15669.05	15151.52	14215.56	13114.43	11787.58	9877.12	8274.98	6793.96
90.0	15669.05	14892.76	13841.18	11903.19	10638.55	9036.41	7230.56	5624.56	4489.30
135.0	15889.28	15179.05	13951.29	12382.18	10846.11	9221.95	7388.57	5731.37	4569.68
180.0	15652.53	14975.34	13962.30	10971.09	10775.09	9177.35	7182.66	5741.83	4568.03
225.0	15790.18	15564.44	15052.42	14110.96	12795.11	10971.64	9606.24	7882.42	6430.59
270.0	15669.05	16015.91	16065.46	15757.14	15151.52	14204.55	12585.89	11088.36	9519.25
315.0	15960.85	16324.22	16390.29	16175.57	15580.96	14683.54	13263.09	10937.50	9902.44
360.0	15652.53	16070.96	16137.03	15867.25	15184.56	14221.07	12784.10	11099.37	9497.23

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7702.39	6050.70	4828.45	3875.97	3006.08	2802.37	2129.58	1810.25	1573.51
45.0	5219.35	4200.80	3413.50	2818.89	2272.18	1946.79	1667.66	1453.49	1305.39
90.0	3630.97	2859.08	2410.37	2072.87	1755.75	1559.75	1394.58	1234.92	1090.34
135.0	3589.68	2879.45	2813.38	2081.68	1760.70	1566.91	1404.49	1259.69	1151.23
180.0	3665.10	2850.82	2385.04	2040.39	1716.66	1520.11	1362.10	1227.76	1093.31
225.0	5147.22	3884.23	3145.37	2593.16	2092.14	1806.40	1593.88	1428.16	1266.85
270.0	7564.75	6100.25	4855.97	3782.37	2995.07	2785.85	2103.71	1787.68	1557.55
315.0	8241.94	6268.72	4937.46	3897.44	2975.80	2461.02	2083.88	1771.16	1543.78
360.0	7702.39	6050.70	4828.45	3875.97	3006.08	2802.37	2129.58	1810.25	1573.51

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1409.44	1264.65	1157.84	1093.42	1042.77	1010.84	983.31	959.08	938.71
45.0	1185.36	1113.79	1057.08	1012.49	986.61	962.94	937.61	918.89	900.17
90.0	1066.72	1011.06	977.03	949.06	926.49	908.87	889.99	873.25	850.84
135.0	1080.21	1025.15	987.16	957.98	936.51	917.24	897.97	878.70	857.23
180.0	1064.63	1014.47	981.44	953.19	930.07	911.35	891.86	872.70	852.44
225.0	1149.03	1094.58	1037.48	997.18	971.03	947.96	927.20	909.42	889.93
270.0	1401.19	1268.50	1172.70	1111.59	1060.94	1026.80	995.42	969.54	947.52
315.0	1392.93	1262.44	1176.00	1096.45	1050.48	1016.78	986.78	962.39	943.01
360.0	1409.44	1264.65	1157.84	1093.42	1042.77	1010.84	983.31	959.08	938.71

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	917.79	891.91	868.79	844.57	818.14	798.32	779.60	759.23	708.58
45.0	873.75	846.77	823.09	795.01	771.89	755.37	723.44	667.83	588.55
90.0	830.20	808.56	786.98	768.42	749.10	690.35	625.22	552.11	453.39
135.0	837.41	813.73	797.22	779.05	750.42	697.56	630.95	547.81	452.01
180.0	832.12	808.67	789.40	771.95	749.43	696.41	632.32	550.67	460.71
225.0	871.87	846.44	823.09	803.33	784.39	762.31	729.83	673.06	585.91
270.0	929.35	900.17	878.70	856.13	825.30	803.82	786.76	762.53	711.88
315.0	923.90	899.24	877.71	851.89	826.18	801.18	781.20	758.24	706.48
360.0	917.79	891.91	868.79	844.57	818.14	798.32	779.60	759.23	708.58

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	647.46	561.02	475.69	377.69	281.89	232.56	124.26	69.32	34.19
45.0	503.22	423.93	339.70	286.84	163.85	99.65	47.24	29.01	26.10
90.0	371.14	289.38	200.96	123.99	68.10	32.15	28.24	25.00	20.87
135.0	367.23	282.44	188.07	110.61	53.74	31.38	27.53	23.73	19.82
180.0	376.86	280.62	198.81	119.09	59.35	32.15	28.63	24.39	20.10
225.0	506.90	423.49	327.37	238.23	164.62	92.66	46.52	30.34	26.92
270.0	657.37	565.43	484.50	399.16	292.90	282.44	130.59	69.26	35.02
315.0	639.87	553.21	469.85	373.50	278.70	199.63	130.43	62.10	33.75
360.0	647.46	561.02	475.69	377.69	281.89	232.56	124.26	69.32	34.19

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	29.40	25.82	21.31	17.12	14.65	11.67	11.12	10.57	10.30
45.0	23.18	17.73	14.76	13.43	12.22	10.35	10.19	9.97	9.86
90.0	17.56	15.09	11.45	10.68	10.41	10.13	10.02	9.91	9.74
135.0	16.68	12.94	11.62	10.63	10.41	10.24	10.08	9.97	9.80
180.0	16.19	14.26	13.21	11.34	10.35	10.13	10.02	9.86	9.69
225.0	23.07	18.50	15.80	11.78	11.01	10.41	10.24	10.08	9.91
270.0	29.62	25.77	21.69	17.84	15.75	12.50	11.45	10.74	10.52
315.0	29.18	24.50	19.99	16.08	14.37	12.11	11.23	10.63	10.41
360.0	29.40	25.82	21.31	17.12	14.65	11.67	11.12	10.57	10.30

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.19	10.08	9.91	9.80	9.69	9.63	9.47	9.47	9.30
45.0	9.69	9.63	9.52	9.41	9.30	9.25	9.14	9.08	9.03
90.0	9.63	9.58	9.41	9.30	9.25	9.19	9.08	9.03	9.03
135.0	9.74	9.63	9.47	9.41	9.30	9.25	9.19	9.14	9.08
180.0	9.69	9.58	9.52	9.41	9.30	9.25	9.25	9.14	9.14
225.0	9.74	9.63	9.58	9.41	9.36	9.25	9.14	9.14	9.03
270.0	10.35	10.13	10.02	9.86	9.74	9.63	9.52	9.41	9.36
315.0	10.24	10.08	9.91	9.86	9.69	9.63	9.58	9.47	9.36
360.0	10.19	10.08	9.91	9.80	9.69	9.63	9.47	9.47	9.30

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	9.25	9.19	9.14	9.14	9.08	9.03	8.97	8.97	8.97
45.0	8.97	8.92	8.92	8.86	8.75	8.75	8.70	8.75	8.70
90.0	8.92	8.92	8.86	8.81	8.81	8.81	8.75	8.75	8.70
135.0	9.03	9.03	8.97	8.97	8.92	8.86	8.86	8.81	8.75
180.0	9.08	9.03	8.97	8.97	8.92	8.92	8.86	8.86	8.81
225.0	9.03	8.92	8.92	8.86	8.86	8.75	8.70	8.70	8.64
270.0	9.30	9.19	9.14	9.08	9.03	8.97	8.97	8.92	8.86
315.0	9.25	9.25	9.14	9.08	9.03	8.97	8.97	8.92	8.92
360.0	9.25	9.19	9.14	9.14	9.08	9.03	8.97	8.97	8.97

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.86	8.86	8.86	8.81	8.81	8.81	8.81	8.75	8.70
45.0	8.64	8.64	8.59	8.59	8.70	8.53	8.53	8.53	8.48
90.0	8.70	8.70	8.70	8.70	8.70	8.75	8.75	8.75	8.64
135.0	8.92	8.75	8.70	8.70	8.64	8.70	8.64	8.64	8.64
180.0	8.81	8.81	8.81	8.75	8.70	8.70	8.70	8.70	8.70
225.0	8.64	8.75	8.64	8.59	8.59	8.59	8.53	8.53	8.53
270.0	8.86	8.81	8.75	8.75	8.75	8.70	8.70	8.59	8.64
315.0	8.86	8.81	8.81	8.81	8.75	8.75	8.70	8.70	8.70
360.0	8.86	8.86	8.86	8.81	8.81	8.81	8.81	8.75	8.70

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.70	8.70	8.70	8.70	8.70	8.64	8.64	8.64	8.59
45.0	8.42	8.48	8.48	8.48	8.42	8.42	8.48	8.42	8.37
90.0	8.59	8.53	8.53	8.53	8.64	8.48	8.48	8.48	8.48
135.0	8.59	8.64	8.59	8.64	8.53	8.59	8.53	8.53	8.53
180.0	8.64	8.64	8.64	8.64	8.64	8.59	8.59	8.59	8.59
225.0	8.48	8.48	8.53	8.48	8.42	8.48	8.48	8.42	8.37
270.0	8.64	8.59	8.59	8.53	8.53	8.59	8.53	8.59	8.48
315.0	8.64	8.64	8.59	8.59	8.59	8.59	8.64	8.59	8.59
360.0	8.70	8.70	8.70	8.70	8.70	8.64	8.64	8.64	8.59

Intensity data(cd)

C/γ(°)	90.0
0.0	8.59
45.0	8.42
90.0	8.42
135.0	8.53
180.0	8.59
225.0	8.42
270.0	8.48
315.0	8.53
360.0	8.59