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NATA

LumCAT: 2-1258-N
Luminaire: 92.70.045.00+92.70.059.00

Report No: NATA0100	Voltage(V): 35.1000
Test No: GC2018102002	Current(A): 0.7000
LampCAT: PHILIPS 1208 G7	Power (W): 24.5700
Lamp flux(lm): 3673.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 38

Photometric Results

Lumens(lm): 2790.70
Efficiency(%): 75.98%
Lumens(lm)/Power(W): 113.70
Central intensity(cd): 13002.190
Maximum intensity(cd): 13002.190
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=20.5
[C90/270]Total=20.5
Field angle(10%Imax): [C0/180]Total=42.2
[C90/270]Total=42.2
Maximum s/h(1/2): C0_180=0.35 C90_270=0.35
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 76.06%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.478%

Equipment:	Date: 2018/10/20	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.50

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13002.188	3.111	3.111	.085%	.111%
1.0	12969.844	24.822	27.933	.676%	1.001%
2.0	12871.406	49.260	77.193	1.341%	2.766%
3.0	12658.359	72.649	149.842	1.978%	5.369%
4.0	12328.594	94.308	244.15	2.568%	8.749%
5.0	11713.008	111.948	356.098	3.048%	12.760%
6.0	11169.422	128.032	484.13	3.486%	17.348%
7.0	10261.336	137.136	621.266	3.734%	22.262%
8.0	9215.086	140.639	761.905	3.829%	27.302%
9.0	8003.883	137.305	899.209	3.738%	32.222%
10.0	6781.781	129.141	1028.351	3.516%	36.849%
11.0	5669.367	118.627	1146.978	3.230%	41.100%
12.0	4660.945	106.269	1253.247	2.893%	44.908%
13.0	3842.859	94.797	1348.044	2.581%	48.305%
14.0	3237.188	85.881	1433.924	2.338%	51.382%
15.0	2800.688	79.490	1513.414	2.164%	54.231%
16.0	2454.117	74.180	1587.594	2.020%	56.889%
17.0	2105.859	67.518	1655.111	1.838%	59.308%
18.0	1849.430	62.672	1717.783	1.706%	61.554%
19.0	1634.695	58.362	1776.145	1.589%	63.645%
20.0	1469.180	55.103	1831.249	1.500%	65.620%
21.0	1317.727	51.785	1883.034	1.410%	67.475%
22.0	1173.480	48.206	1931.24	1.312%	69.203%
23.0	1094.365	46.891	1978.131	1.277%	70.883%
24.0	1003.310	44.751	2022.882	1.218%	72.487%
25.0	926.452	42.936	2065.818	1.169%	74.025%
26.0	856.378	41.168	2106.986	1.121%	75.500%
27.0	790.003	39.330	2146.316	1.071%	76.910%
28.0	730.990	37.633	2183.95	1.025%	78.258%
29.0	674.177	35.842	2219.792	.976%	79.543%
30.0	620.845	34.041	2253.833	.927%	80.762%
31.0	573.996	32.419	2286.252	.883%	81.924%
32.0	532.589	30.950	2317.202	.843%	83.033%
33.0	493.755	29.490	2346.692	.803%	84.090%
34.0	458.030	28.087	2374.779	.765%	85.096%
35.0	426.579	26.831	2401.61	.731%	86.058%
36.0	395.733	25.508	2427.118	.694%	86.972%
37.0	367.763	24.271	2451.389	.661%	87.841%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	342.035	23.092	2474.481	.629%	88.669%
39.0	319.015	22.016	2496.497	.599%	89.458%
40.0	294.666	20.771	2517.267	.565%	90.202%
41.0	271.976	19.567	2536.834	.533%	90.903%
42.0	244.547	17.944	2554.778	.489%	91.546%
43.0	223.123	16.687	2571.465	.454%	92.144%
44.0	203.576	15.508	2586.973	.422%	92.700%
45.0	186.659	14.474	2601.447	.394%	93.219%
46.0	170.550	13.454	2614.901	.366%	93.701%
47.0	154.962	12.428	2627.329	.338%	94.146%
48.0	141.834	11.559	2638.887	.315%	94.560%
49.0	128.398	10.626	2649.514	.289%	94.941%
50.0	116.606	9.796	2659.309	.267%	95.292%
51.0	106.158	9.047	2668.356	.246%	95.616%
52.0	96.455	8.335	2676.691	.227%	95.915%
53.0	87.708	7.681	2684.373	.209%	96.190%
54.0	80.086	7.105	2691.478	.193%	96.445%
55.0	72.302	6.495	2697.973	.177%	96.677%
56.0	65.257	5.933	2703.905	.162%	96.890%
57.0	59.449	5.468	2709.373	.149%	97.086%
58.0	53.831	5.006	2714.379	.136%	97.265%
59.0	49.001	4.606	2718.985	.125%	97.430%
60.0	44.754	4.250	2723.235	.116%	97.583%
61.0	40.767	3.910	2727.145	.106%	97.723%
62.0	37.202	3.602	2730.747	.098%	97.852%
63.0	34.179	3.340	2734.087	.091%	97.972%
64.0	31.830	3.137	2737.224	.085%	98.084%
65.0	30.270	3.008	2740.233	.082%	98.192%
66.0	28.983	2.904	2743.136	.079%	98.296%
67.0	27.844	2.811	2745.947	.077%	98.396%
68.0	26.888	2.734	2748.681	.074%	98.494%
69.0	25.931	2.655	2751.335	.072%	98.590%
70.0	25.052	2.582	2753.917	.070%	98.682%
71.0	24.286	2.518	2756.435	.069%	98.772%
72.0	23.604	2.462	2758.897	.067%	98.861%
73.0	22.901	2.402	2761.298	.065%	98.947%
74.0	22.226	2.343	2763.641	.064%	99.031%
75.0	21.572	2.285	2765.926	.062%	99.112%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	20.946	2.229	2768.155	.061%	99.192%
77.0	20.250	2.164	2770.319	.059%	99.270%
78.0	19.568	2.099	2772.418	.057%	99.345%
79.0	18.830	2.027	2774.445	.055%	99.418%
80.0	18.007	1.945	2776.389	.053%	99.487%
81.0	17.184	1.861	2778.251	.051%	99.554%
82.0	16.341	1.774	2780.025	.048%	99.618%
83.0	15.546	1.692	2781.717	.046%	99.678%
84.0	14.822	1.616	2783.334	.044%	99.736%
85.0	13.880	1.516	2784.85	.041%	99.791%
86.0	13.036	1.426	2786.276	.039%	99.842%
87.0	12.122	1.327	2787.603	.036%	99.889%
88.0	11.566	1.268	2788.871	.035%	99.935%
89.0	11.159	1.223	2790.094	.033%	99.978%
90.0	10.969	0.601	2790.696	.016%	100.000%

Zonal flux distribution table

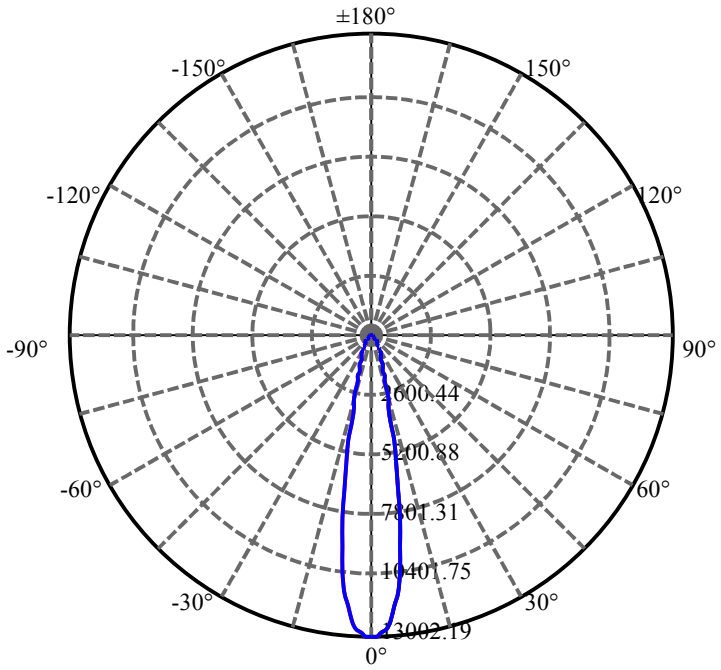
ZONAL LUMEN SUMMARY

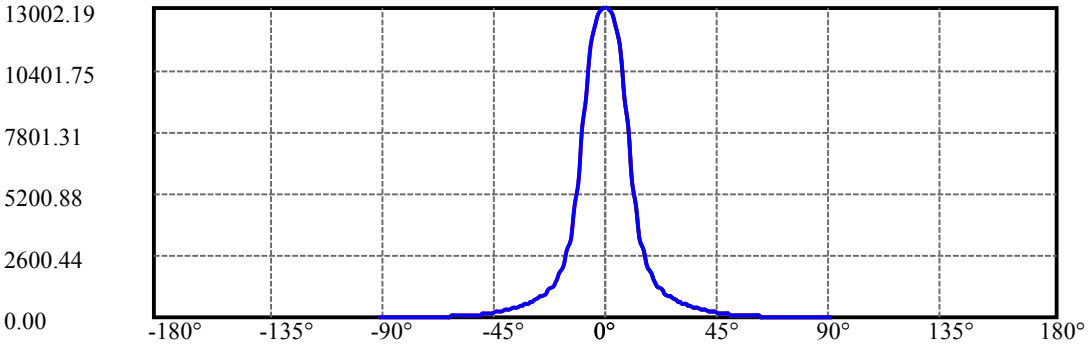
Zone	Lumens	%Lamp	%Fixt
0-30	2253.83	61.36%	80.76%
0-40	2517.27	68.53%	90.20%
0-60	2723.24	74.14%	97.58%
0-90	2790.09	75.96%	99.98%
0-120	2790.09	75.96%	99.98%
0-180	2790.70	75.98%	100.00%
60-90	71.11	1.94%	2.55%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-29.37	2232.56	60.78%	80.00%

ZONAL LUMEN SUMMARY

0-10	1028.35
10-20	802.90
20-30	422.58
30-40	263.43
40-50	142.04
50-60	63.93
60-70	30.68
70-80	22.47
80-90	13.71
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):

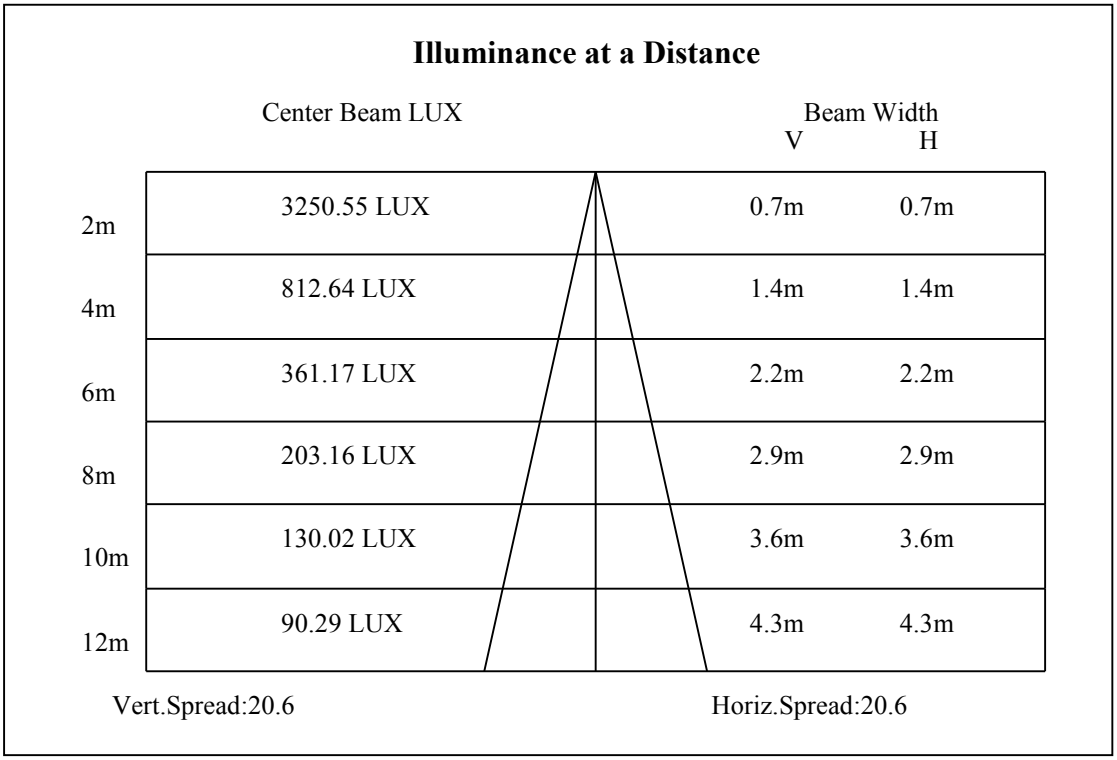
C0/C180:

C90/C270:

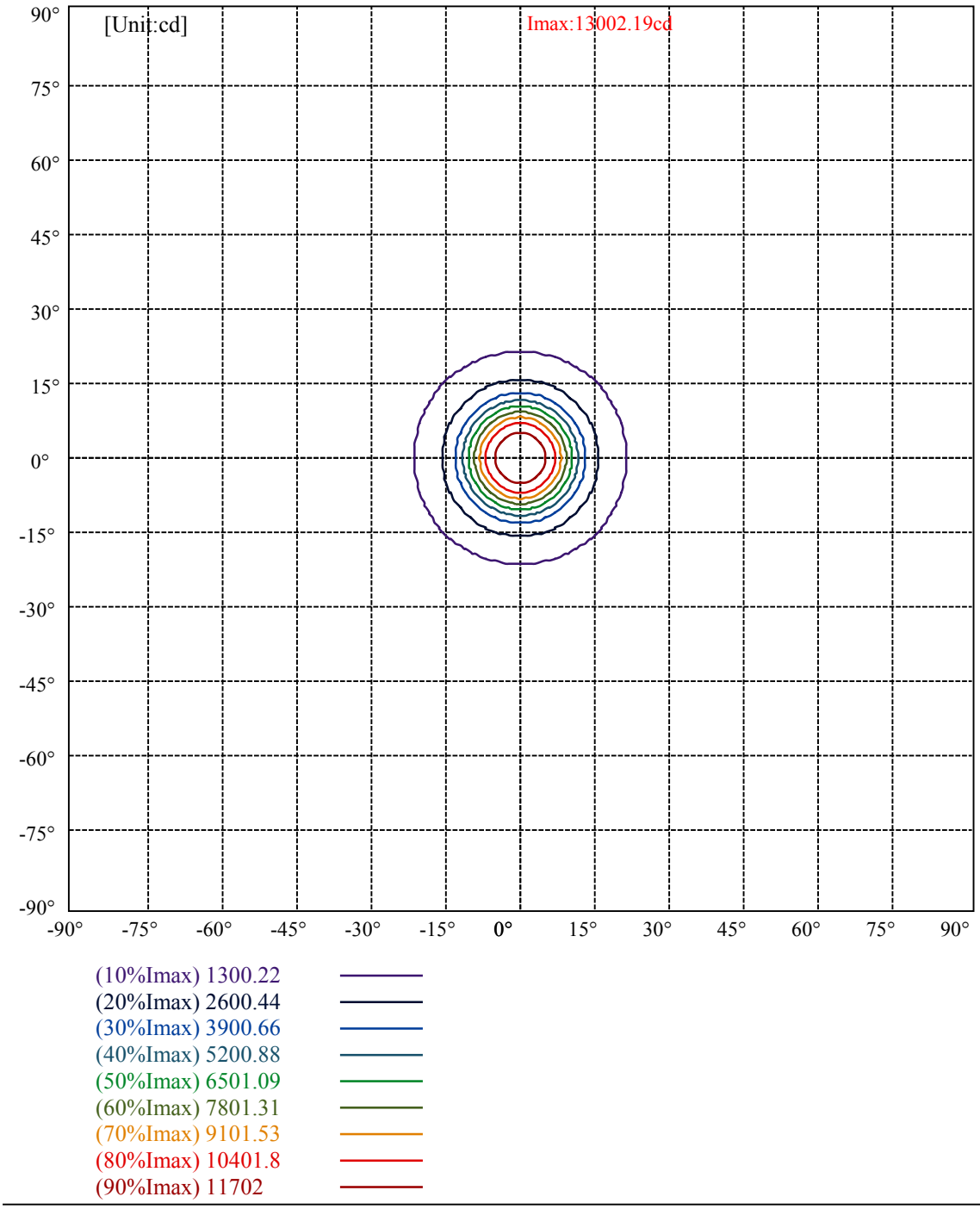
Field angle(10%Imax):C0/180Left:21.1 Right:21.1
:C90/270Left:21.1 Right:21.1

Beam Angle(50%Imax):C0/180Left:10.3 Right:10.3
:C90/270Left:10.3 Right:10.3

Lux distance Curve



ISO-Intensity(V-H)

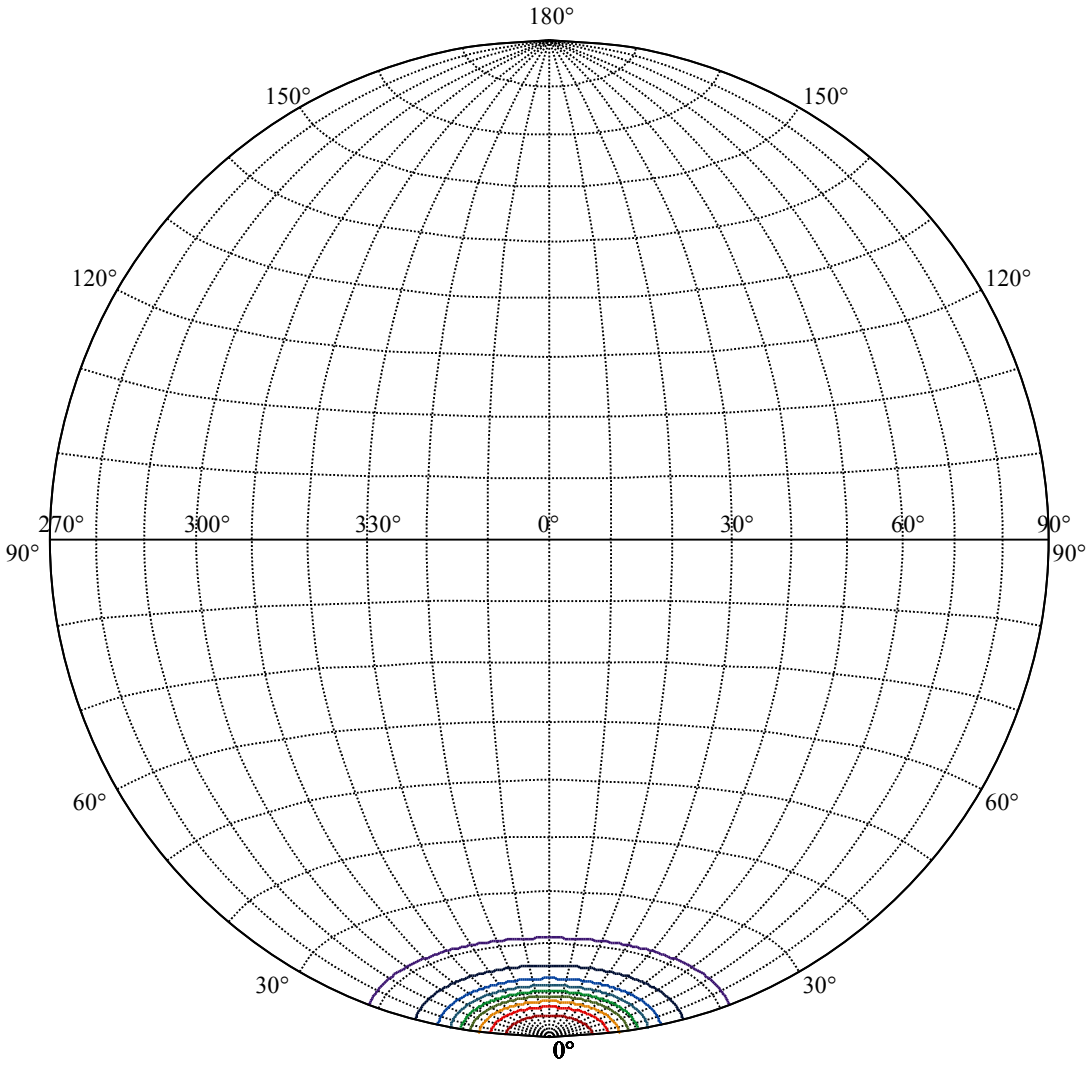


Equipment:
Temperature(°C): 25.0

Date: 2018/10/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:13002.19

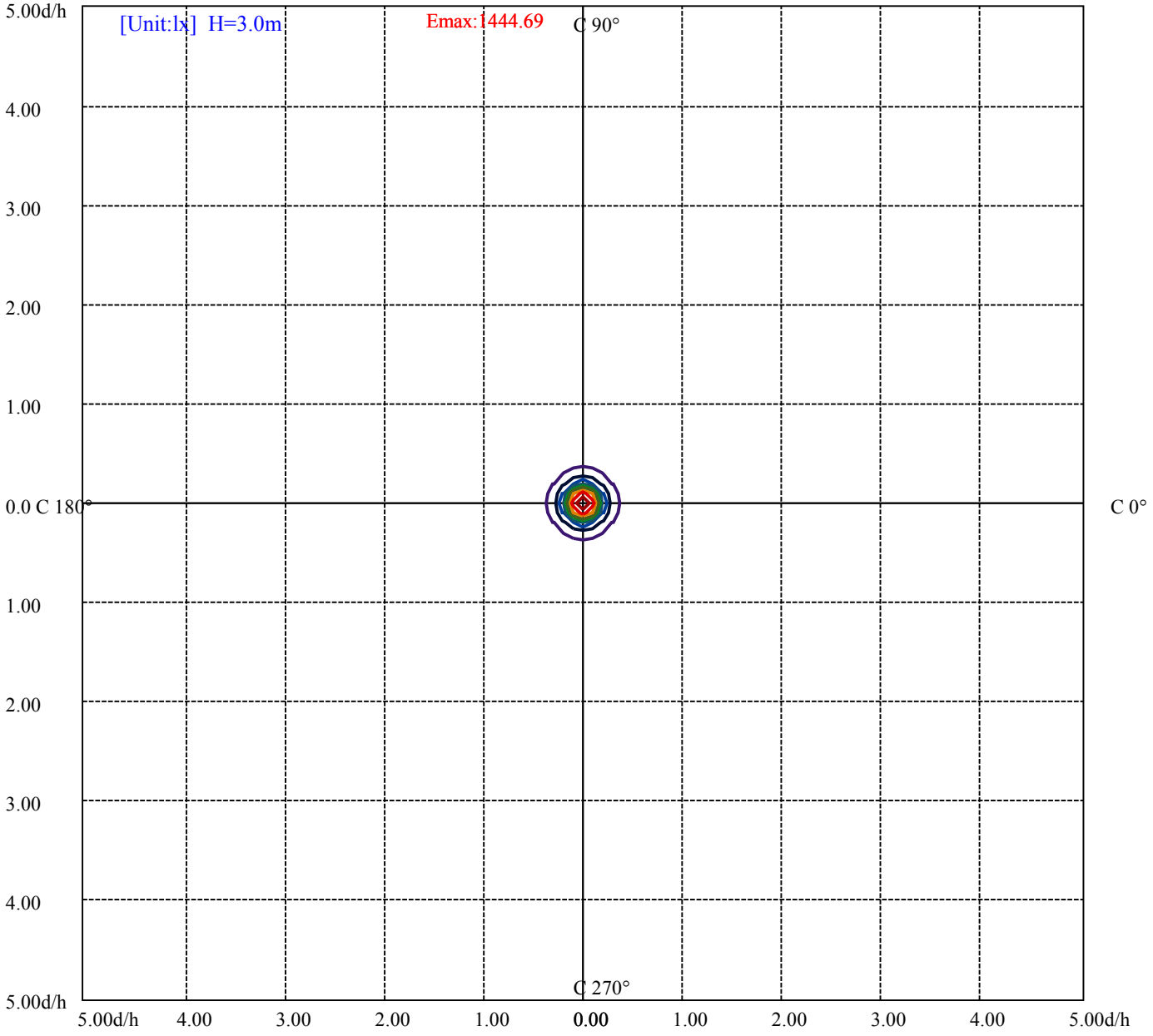
(10%Imax) 1300.22
(20%Imax) 2600.44
(30%Imax) 3900.66
(40%Imax) 5200.88
(50%Imax) 6501.09
(60%Imax) 7801.31
(70%Imax) 9101.53
(80%Imax) 10401.8
(90%Imax) 11702

Equipment:
Temperature(°C): 25.0

Date: 2018/10/20
Humidity(%): 60.0%

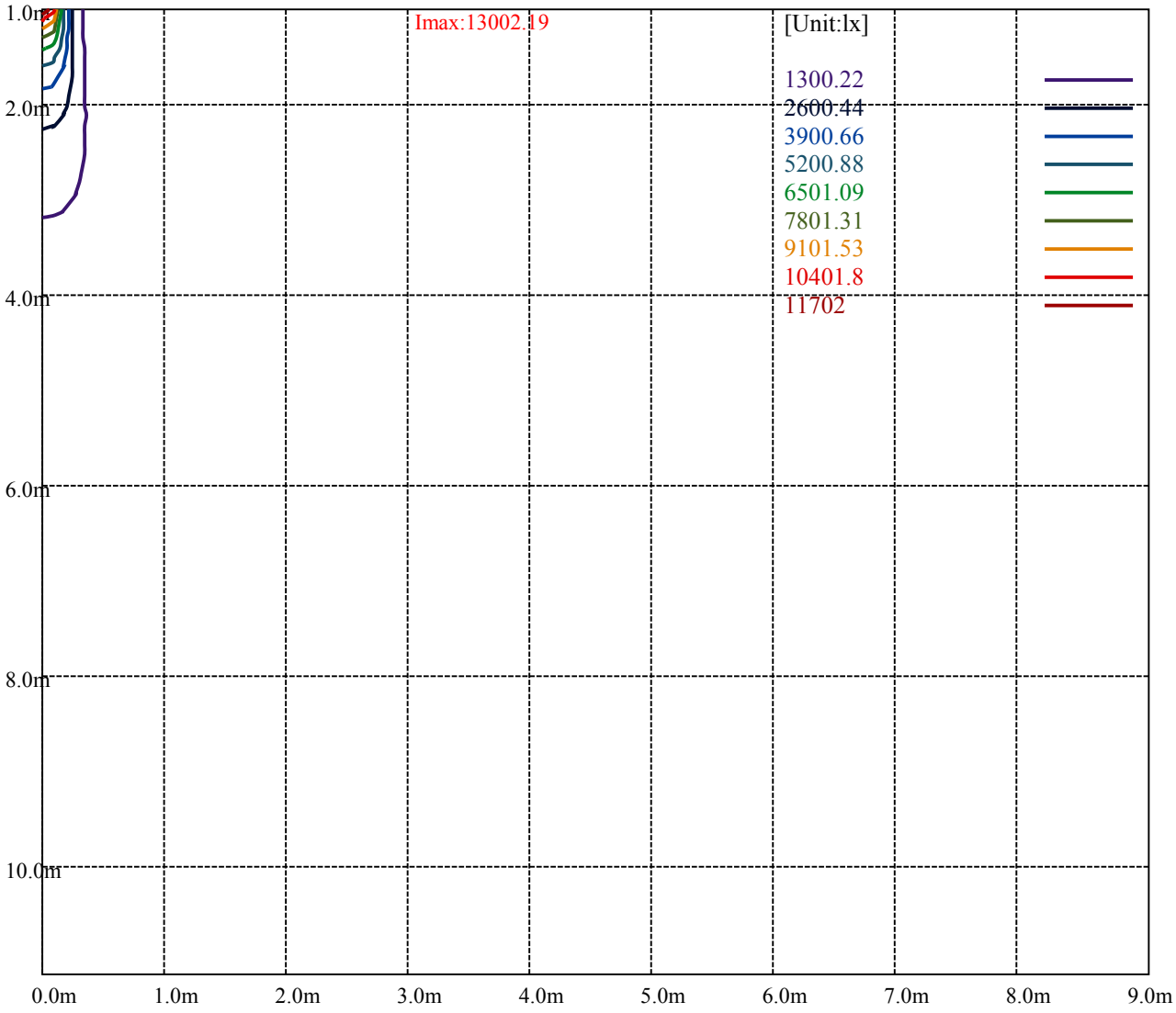
Operator: NT07
Distance(m): 7.50

ISO illuminance diagram



Equipment:
Temperature(°C): 25.0
Date: 2018/10/20
Humidity(%): 60.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment:
Temperature(°C): 25.0

Date: 2018/10/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.50

NATA 2-1258-N

Luminance Limitting Curve(no luminous side)

Luminance Table

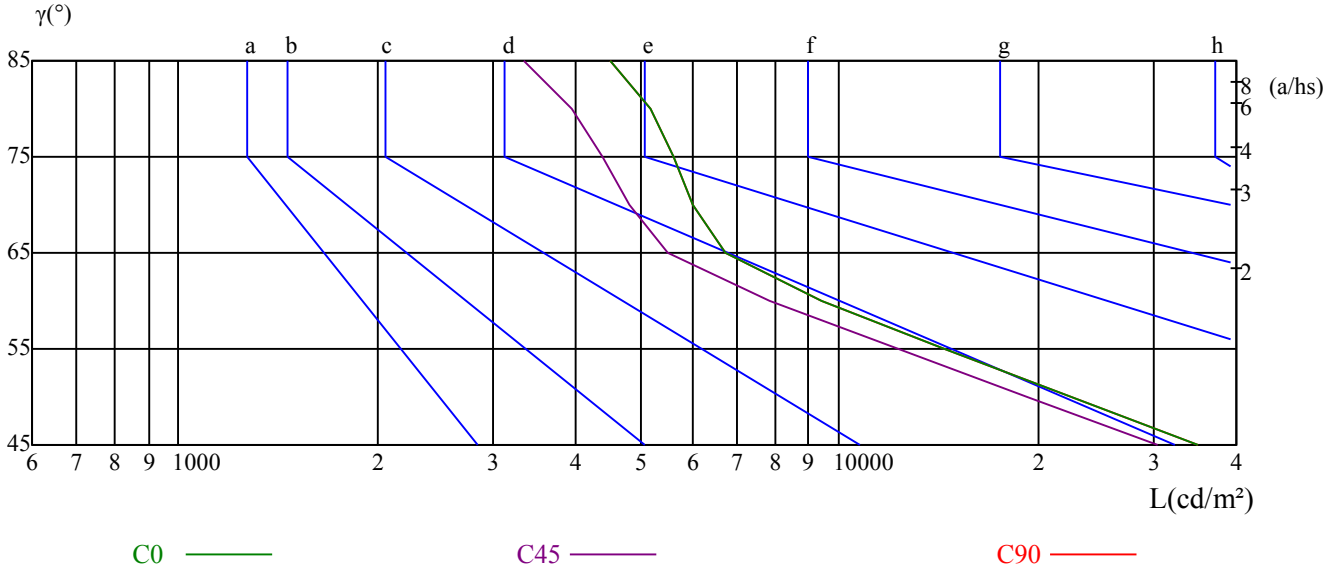
γ	45	50	55	60	65	70	75	80	85
C0	34917	22479	14491	9415	6754	6000	5621	5189	4511
C45	30476	19333	12271	7841	5523	4808	4401	3953	3325
C90	34917	22479	14491	9415	6754	6000	5621	5189	4511

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
14617	14617	14617	17010	17010	17010	32500	32500	32500

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

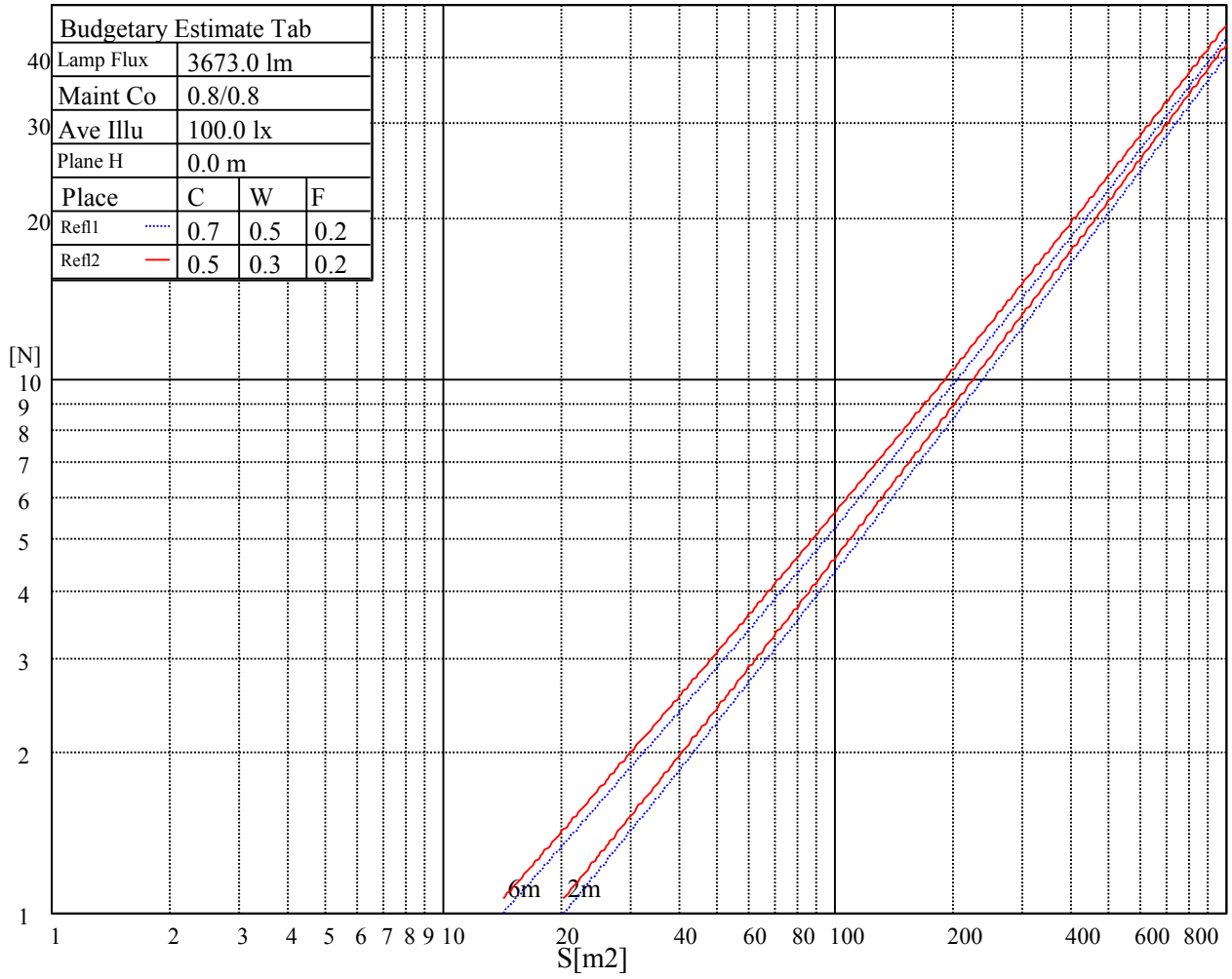


Equipment:
Temperature(°C): 25.0

Date: 2018/10/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.50

Budgetary Estimate Table



Equipment:
Temperature(°C): 25.0

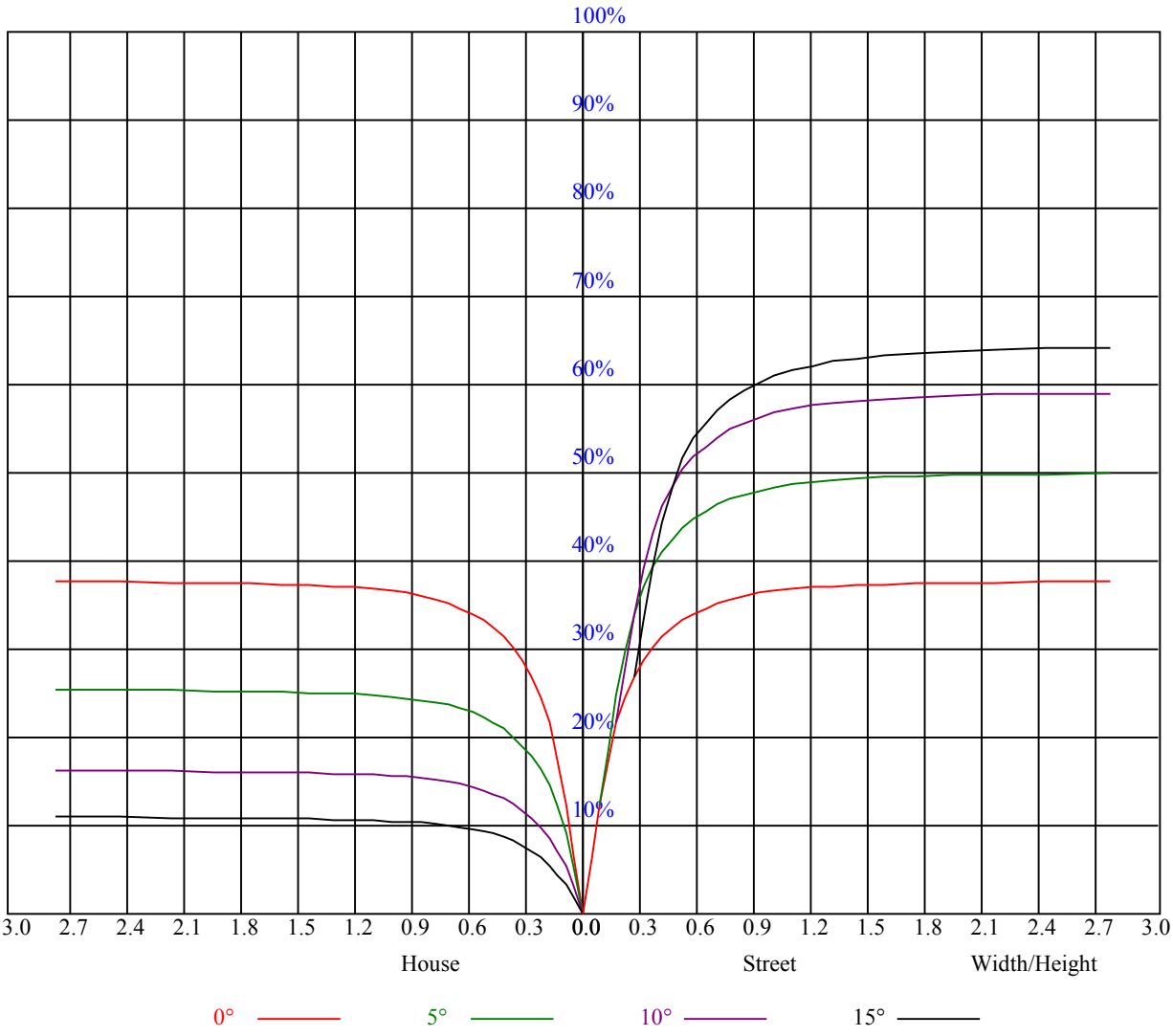
Date: 2018/10/20
Humidity(%): 60.0%

Operator: NT07
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	0.91	0.91	0.91	0.88	0.88	0.88	0.85	0.85	0.85	0.81	0.81	0.81	0.78	0.78	0.78	0.76
1	0.85	0.83	0.81	0.83	0.82	0.80	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73	0.72
2	0.80	0.77	0.75	0.79	0.76	0.74	0.76	0.74	0.72	0.74	0.72	0.71	0.72	0.71	0.69	0.68
3	0.76	0.72	0.70	0.75	0.72	0.69	0.73	0.70	0.68	0.71	0.69	0.67	0.69	0.68	0.66	0.65
4	0.72	0.69	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.68	0.66	0.64	0.67	0.65	0.63	0.62
5	0.69	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.65	0.62	0.61	0.60
6	0.66	0.62	0.60	0.66	0.62	0.60	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.60	0.58	0.57
7	0.64	0.60	0.57	0.63	0.60	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.61	0.58	0.56	0.55
8	0.61	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.59	0.56	0.54	0.54
9	0.59	0.56	0.53	0.59	0.56	0.53	0.58	0.55	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.52
10	0.57	0.54	0.52	0.57	0.54	0.52	0.57	0.54	0.51	0.56	0.53	0.51	0.56	0.53	0.51	0.50

Coefficient Utilization Curve



Equipment:	Date: 2018/10/20	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.50

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	12971.25	13021.88	12976.88	12858.75	12611.25	12301.88	11700.00	11036.25	10192.50
45.0	13021.88	13033.13	12988.13	12836.25	12594.38	12251.25	11626.88	10794.38	9866.25
90.0	13010.63	12982.50	12881.25	12684.38	12436.88	11891.25	11158.88	10416.94	9120.38
135.0	13005.00	12960.00	12892.50	12678.75	12386.25	11970.00	11323.13	10535.63	9585.00
180.0	12971.25	12892.50	12740.63	12442.50	11981.25	11142.00	10632.94	9418.50	8293.50
225.0	13021.88	12931.88	12791.25	12543.75	12144.38	11218.50	10832.63	9812.81	8609.63
270.0	13010.63	12976.88	12870.00	12645.00	12273.75	11733.75	11075.63	10130.63	9000.00
315.0	13005.00	12960.00	12830.63	12577.50	12200.63	11195.44	11005.31	9945.56	9053.44
360.0	12971.25	13021.88	12976.88	12858.75	12611.25	12301.88	11700.00	11036.25	10192.50

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	8943.75	7813.13	6671.25	5473.13	4466.25	3735.00	3116.25	2840.63	2344.50
45.0	8645.63	7441.88	6159.38	5023.13	4185.00	3459.38	2919.38	2868.75	2208.94
90.0	7950.38	6779.81	5573.81	4545.00	3810.94	3166.88	2727.00	2338.31	2017.69
135.0	8212.50	7036.88	5928.75	4730.63	3948.75	3335.63	2863.13	2430.56	2142.56
180.0	7128.56	5774.06	4829.63	4057.31	3310.88	2867.63	2518.88	2173.50	1965.94
225.0	7468.88	6224.06	5214.94	4275.00	3540.94	3043.13	2665.69	2323.69	2034.56
270.0	7891.88	6783.75	5490.00	4601.25	3870.00	3150.00	2874.38	2381.06	2089.69
315.0	7789.50	6400.69	5487.19	4582.13	3610.13	3139.88	2720.81	2276.44	2043.00
360.0	8943.75	7813.13	6671.25	5473.13	4466.25	3735.00	3116.25	2840.63	2344.50

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2086.31	1839.94	1633.50	1476.00	1323.00	1194.75	1097.44	1002.94	929.25
45.0	1932.19	1727.44	1548.56	1362.38	1240.31	1134.00	1018.69	942.75	875.81
90.0	1775.81	1553.63	1377.00	1254.38	1116.51	1044.90	967.67	899.94	829.86
135.0	1868.63	1642.50	1470.38	1301.06	1188.56	1078.88	984.94	914.06	842.06
180.0	1732.50	1515.94	1387.13	1245.38	1111.61	1036.58	960.13	883.18	813.60
225.0	1793.25	1594.13	1444.50	1299.94	1108.13	1074.83	994.61	914.01	839.70
270.0	1789.31	1598.63	1460.25	1301.06	1186.88	1111.50	1013.63	934.88	876.94
315.0	1817.44	1605.38	1432.13	1301.63	1112.85	1079.49	989.38	919.86	843.81
360.0	2086.31	1839.94	1633.50	1476.00	1323.00	1194.75	1097.44	1002.94	929.25

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	843.75	781.31	722.25	673.31	606.94	565.31	532.13	483.19	450.56
45.0	808.88	747.00	691.88	635.06	588.38	548.44	501.75	468.00	435.94
90.0	771.08	708.08	656.44	602.72	555.64	517.67	480.04	449.61	414.11
135.0	777.94	727.31	673.31	612.00	569.81	531.00	491.63	455.63	427.50
180.0	755.44	698.06	632.64	587.03	545.34	499.89	466.37	435.94	403.99
225.0	779.85	718.26	667.74	616.11	572.68	529.26	493.99	453.04	423.06
270.0	797.63	738.56	685.13	624.94	582.19	542.81	498.38	466.31	439.31
315.0	785.48	729.34	664.03	615.60	570.99	526.33	485.78	452.53	418.16
360.0	843.75	781.31	722.25	673.31	606.94	565.31	532.13	483.19	450.56

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	424.13	388.69	358.31	336.38	309.94	286.31	257.96	235.18	217.74
45.0	401.63	375.19	351.56	326.81	301.50	285.19	252.23	227.76	207.96
90.0	388.01	363.43	336.21	317.59	295.03	269.38	241.31	222.13	204.19
135.0	400.50	367.88	343.69	319.50	298.13	285.19	247.84	223.59	203.68
180.0	373.56	348.41	322.99	302.23	275.23	250.20	230.91	211.05	192.99
225.0	391.61	362.93	338.68	316.97	291.66	262.07	240.69	219.26	199.74
270.0	399.94	374.63	350.44	320.06	299.81	277.93	246.99	226.80	204.58
315.0	386.49	360.96	334.41	312.58	286.03	259.54	238.44	219.21	197.72
360.0	424.13	388.69	358.31	336.38	309.94	286.31	257.96	235.18	217.74

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	199.52	182.76	168.53	155.08	139.33	127.41	116.78	106.03	96.36
45.0	191.76	174.99	159.41	147.94	133.71	120.54	110.81	100.91	90.90
90.0	184.05	169.09	153.45	140.51	127.13	116.27	105.02	94.73	86.57
135.0	187.14	170.16	155.93	141.13	127.46	116.61	106.71	95.29	87.02
180.0	177.86	163.35	146.81	134.66	123.13	110.31	100.86	92.03	83.25
225.0	183.21	167.51	151.20	138.38	125.16	113.18	102.21	93.66	84.94
270.0	187.93	170.10	155.48	140.74	126.84	115.76	104.85	95.06	87.30
315.0	181.80	166.44	148.89	136.24	124.43	112.78	102.04	93.94	85.33
360.0	199.52	182.76	168.53	155.08	139.33	127.41	116.78	106.03	96.36

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	88.20	79.93	72.11	65.70	59.18	54.06	48.77	44.04	40.22
45.0	83.08	75.09	67.50	61.31	55.46	50.79	46.24	42.13	38.81
90.0	78.19	71.21	63.84	57.66	52.93	47.98	43.59	40.11	36.62
135.0	79.65	71.04	64.69	58.95	53.38	48.60	44.94	40.67	37.63
180.0	75.38	68.74	61.99	56.76	51.36	46.58	42.75	38.76	35.21
225.0	77.85	70.26	63.23	57.66	52.26	47.25	43.37	39.83	35.89
270.0	80.04	71.44	65.08	59.40	53.21	48.71	44.61	40.33	36.68
315.0	78.30	70.71	63.62	58.16	52.88	48.04	43.76	40.28	36.56
360.0	88.20	79.93	72.11	65.70	59.18	54.06	48.77	44.04	40.22

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	36.73	33.19	31.28	29.98	28.69	27.73	26.83	25.88	24.98
45.0	35.04	32.68	30.83	29.48	28.13	27.23	26.21	25.26	24.53
90.0	33.58	31.50	30.09	28.69	27.73	26.83	25.76	25.03	24.36
135.0	34.71	31.89	30.60	29.31	28.07	27.17	26.27	25.26	24.58
180.0	32.68	30.99	29.36	28.29	27.28	26.21	25.26	24.47	23.68
225.0	33.30	31.44	29.93	28.63	27.62	26.49	25.54	24.81	23.91
270.0	33.81	31.39	30.04	28.74	27.62	26.72	25.71	24.86	24.13
315.0	33.58	31.56	30.04	28.74	27.62	26.72	25.88	24.86	24.13
360.0	36.73	33.19	31.28	29.98	28.69	27.73	26.83	25.88	24.98

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	24.19	23.40	22.73	21.99	21.32	20.70	19.97	19.24	18.51
45.0	23.74	23.12	22.39	21.71	21.09	20.42	19.74	19.07	18.34
90.0	23.63	22.95	22.39	21.60	21.09	20.42	19.63	18.96	18.06
135.0	23.96	23.29	22.61	21.99	21.32	20.64	20.03	19.24	18.45
180.0	23.01	22.39	21.77	21.15	20.42	19.74	19.01	18.17	17.27
225.0	23.34	22.61	21.94	21.32	20.76	20.03	19.35	18.56	17.66
270.0	23.46	22.61	21.99	21.38	20.76	20.03	19.41	18.68	17.89
315.0	23.51	22.84	21.99	21.43	20.81	20.03	19.41	18.73	17.89
360.0	24.19	23.40	22.73	21.99	21.32	20.70	19.97	19.24	18.51

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	17.66	16.71	15.92	15.13	14.12	13.39	12.54	11.87	11.36
45.0	17.33	16.43	15.69	14.85	14.06	13.22	12.43	11.70	11.19
90.0	17.21	16.48	15.64	14.91	14.06	13.11	12.21	11.59	11.19
135.0	17.61	16.76	16.14	15.58	14.34	13.33	12.26	11.64	11.19
180.0	16.48	15.75	14.85	14.12	13.33	12.26	11.59	11.19	10.97
225.0	16.88	16.03	15.13	14.46	13.61	13.05	11.93	11.48	11.03
270.0	17.16	16.20	15.41	14.63	13.73	12.99	12.09	11.59	11.25
315.0	17.16	16.37	15.58	14.91	13.78	12.94	11.93	11.48	11.08
360.0	17.66	16.71	15.92	15.13	14.12	13.39	12.54	11.87	11.36

Intensity data(cd)

C/γ(°)	90.0
0.0	10.97
45.0	10.97
90.0	10.97
135.0	10.97
180.0	10.91
225.0	10.97
270.0	11.03
315.0	10.97
360.0	10.97