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Nata

LumCAT: 2-2162-M
Luminaire: BJB47.360.5080
Report No: NATA0100
Test No: GC2020022015
LampCAT: NICHIA NFDWJ130B-V3
Lamp flux(lm): 2906.0
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 36.4200
Current(A): 0.7000
Power (W): 25.4730
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 2179.38
Efficiency(%): 75.00%
Lumens(lm)/Power(W): 85.56
Central intensity(cd): 14352.190
Maximum intensity(cd): 14352.190
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=17.7
[C90/270]Total=17.7
Field angle(10%Imax): [C0/180]Total=41.9
[C90/270]Total=41.9
Maximum s/h(1/2): C0_180=0.30 C90_270=0.30
Maximum s/h(1/4): C0_180=0.35 C90_270=0.35
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 75.00%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.554%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	14352.188	0.000	0	.000%	.000%
1.0	14224.219	13.673	13.673	.471%	.627%
2.0	13745.391	40.145	53.818	1.381%	2.469%
3.0	13045.781	64.076	117.894	2.205%	5.410%
4.0	12052.898	84.013	201.907	2.891%	9.264%
5.0	11007.633	99.205	301.112	3.414%	13.816%
6.0	10000.758	110.405	411.517	3.799%	18.882%
7.0	8991.492	117.885	529.401	4.057%	24.291%
8.0	7950.938	121.254	650.655	4.173%	29.855%
9.0	7014.586	121.287	771.943	4.174%	35.420%
10.0	6212.672	119.702	891.644	4.119%	40.913%
11.0	5469.961	116.734	1008.378	4.017%	46.269%
12.0	4869.422	113.024	1121.402	3.889%	51.455%
13.0	4279.148	108.570	1229.973	3.736%	56.437%
14.0	3768.469	103.009	1332.981	3.545%	61.163%
15.0	3349.688	97.721	1430.703	3.363%	65.647%
16.0	3007.688	93.153	1523.856	3.206%	69.922%
17.0	2628.773	87.775	1611.631	3.020%	73.949%
18.0	2308.922	81.412	1693.043	2.802%	77.685%
19.0	1998.141	74.934	1767.977	2.579%	81.123%
20.0	1703.109	67.743	1835.72	2.331%	84.231%
21.0	1421.248	59.994	1895.714	2.064%	86.984%
22.0	1200.994	52.695	1948.409	1.813%	89.402%
23.0	975.298	45.664	1994.073	1.571%	91.497%
24.0	740.686	37.518	2031.591	1.291%	93.219%
25.0	552.263	29.399	2060.99	1.012%	94.568%
26.0	385.474	22.135	2083.125	.762%	95.584%
27.0	246.579	15.463	2098.589	.532%	96.293%
28.0	138.038	9.738	2108.326	.335%	96.740%
29.0	60.427	5.192	2113.519	.179%	96.978%
30.0	31.191	2.474	2115.992	.085%	97.092%
31.0	24.891	1.561	2117.553	.054%	97.163%
32.0	22.950	1.371	2118.923	.047%	97.226%
33.0	21.312	1.304	2120.227	.045%	97.286%
34.0	20.081	1.253	2121.48	.043%	97.343%
35.0	18.914	1.211	2122.691	.042%	97.399%
36.0	17.880	1.172	2123.863	.040%	97.453%
37.0	17.086	1.140	2125.003	.039%	97.505%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	16.341	1.116	2126.119	.038%	97.556%
39.0	15.518	1.087	2127.206	.037%	97.606%
40.0	14.963	1.063	2128.269	.037%	97.655%
41.0	14.456	1.048	2129.317	.036%	97.703%
42.0	13.929	1.031	2130.348	.035%	97.750%
43.0	13.535	1.017	2131.366	.035%	97.797%
44.0	13.184	1.008	2132.374	.035%	97.843%
45.0	12.839	1.000	2133.374	.034%	97.889%
46.0	12.509	0.991	2134.365	.034%	97.935%
47.0	12.227	0.984	2135.349	.034%	97.980%
48.0	11.974	0.978	2136.328	.034%	98.025%
49.0	11.728	0.973	2137.301	.033%	98.069%
50.0	11.482	0.968	2138.269	.033%	98.114%
51.0	11.257	0.962	2139.231	.033%	98.158%
52.0	11.053	0.957	2140.188	.033%	98.202%
53.0	10.891	0.955	2141.143	.033%	98.246%
54.0	10.751	0.954	2142.096	.033%	98.289%
55.0	10.617	0.954	2143.05	.033%	98.333%
56.0	10.512	0.955	2144.005	.033%	98.377%
57.0	10.434	0.958	2144.963	.033%	98.421%
58.0	10.364	0.962	2145.925	.033%	98.465%
59.0	10.336	0.968	2146.892	.033%	98.509%
60.0	10.287	0.974	2147.867	.034%	98.554%
61.0	10.245	0.980	2148.846	.034%	98.599%
62.0	10.216	0.986	2149.832	.034%	98.644%
63.0	10.181	0.992	2150.824	.034%	98.690%
64.0	10.160	0.998	2151.822	.034%	98.736%
65.0	10.132	1.004	2152.827	.035%	98.782%
66.0	10.125	1.011	2153.837	.035%	98.828%
67.0	10.097	1.017	2154.854	.035%	98.875%
68.0	10.090	1.023	2155.877	.035%	98.922%
69.0	10.069	1.028	2156.905	.035%	98.969%
70.0	10.062	1.034	2157.939	.036%	99.016%
71.0	10.048	1.039	2158.978	.036%	99.064%
72.0	10.041	1.045	2160.023	.036%	99.112%
73.0	10.020	1.049	2161.072	.036%	99.160%
74.0	9.998	1.052	2162.124	.036%	99.208%
75.0	9.991	1.056	2163.181	.036%	99.257%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	9.991	1.061	2164.241	.037%	99.306%
77.0	9.998	1.066	2165.307	.037%	99.354%
78.0	10.013	1.071	2166.378	.037%	99.404%
79.0	10.069	1.079	2167.457	.037%	99.453%
80.0	10.083	1.086	2168.544	.037%	99.503%
81.0	10.097	1.091	2169.635	.038%	99.553%
82.0	10.090	1.095	2170.73	.038%	99.603%
83.0	10.181	1.102	2171.832	.038%	99.654%
84.0	10.181	1.109	2172.941	.038%	99.705%
85.0	10.216	1.113	2174.054	.038%	99.756%
86.0	10.238	1.118	2175.172	.038%	99.807%
87.0	10.034	1.109	2176.282	.038%	99.858%
88.0	9.563	1.073	2177.355	.037%	99.907%
89.0	9.120	1.024	2178.379	.035%	99.954%
90.0	9.063	0.997	2179.376	.034%	100.000%

Zonal flux distribution table

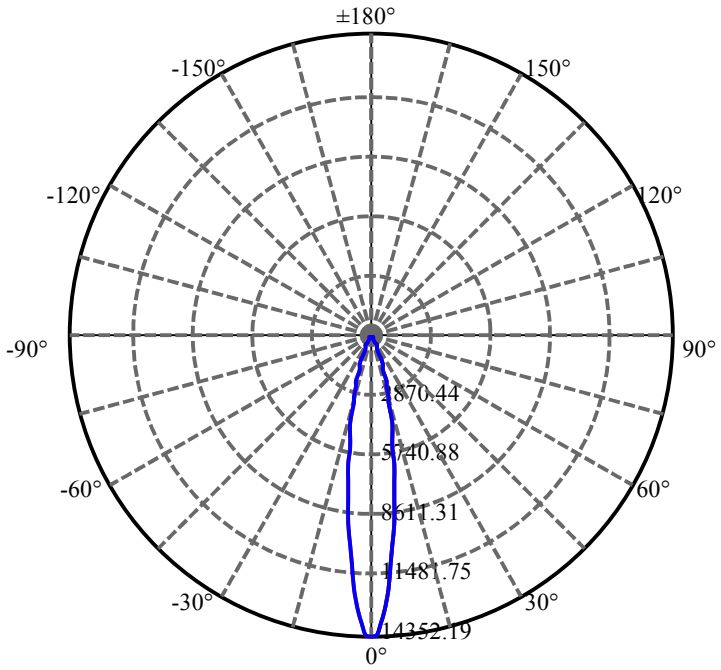
ZONAL LUMEN SUMMARY

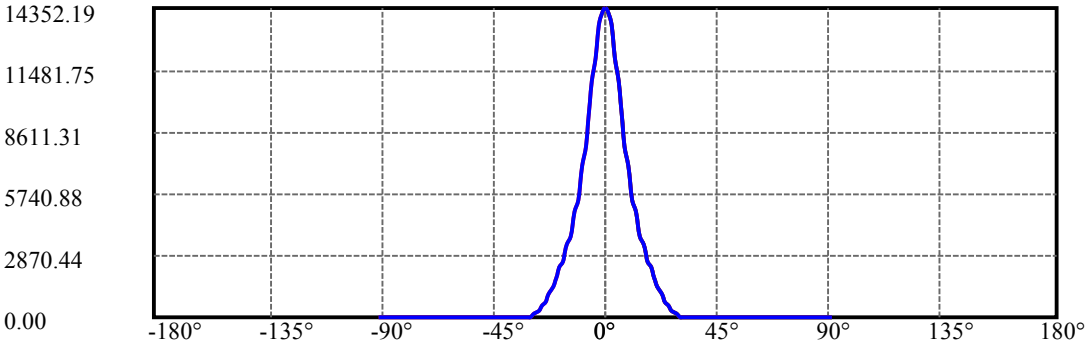
Zone	Lumens	%Lamp	%Fixt
0-30	2115.99	72.81%	97.09%
0-40	2128.27	73.24%	97.65%
0-60	2147.87	73.91%	98.55%
0-90	2178.38	74.96%	99.95%
0-120	2178.38	74.96%	99.95%
0-180	2179.38	75.00%	100.00%
60-90	31.49	1.08%	1.44%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-18.67	1743.50	60.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	891.64
10-20	944.08
20-30	280.27
30-40	12.28
40-50	10.00
50-60	9.60
60-70	10.07
70-80	10.60
80-90	9.84
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):

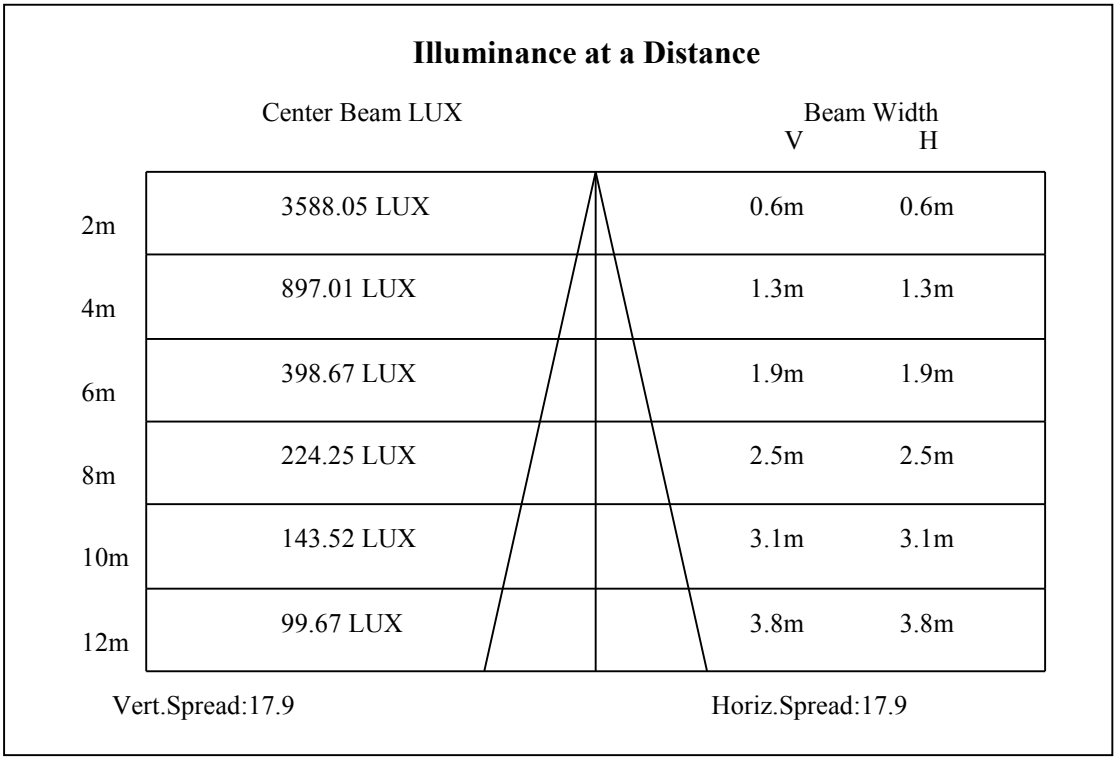
C0/C180:

C90/C270:

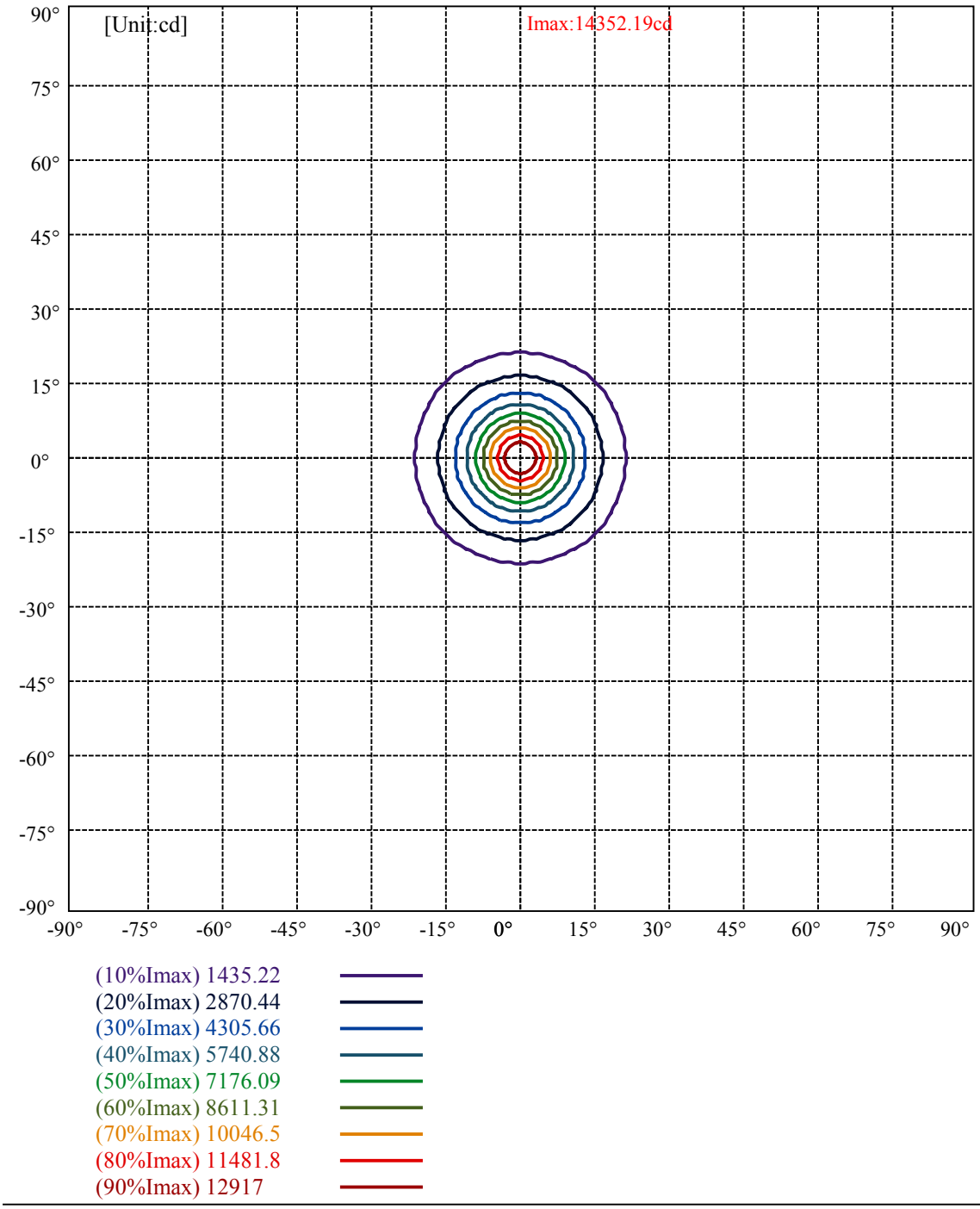
Field angle(10%Imax):C0/180Left:21.0 Right:21.0
:C90/270Left:21.0 Right:21.0

Beam Angle(50%Imax):C0/180Left:8.8 Right:8.8
:C90/270Left:8.8 Right:8.8

Lux distance Curve



ISO-Intensity(V-H)



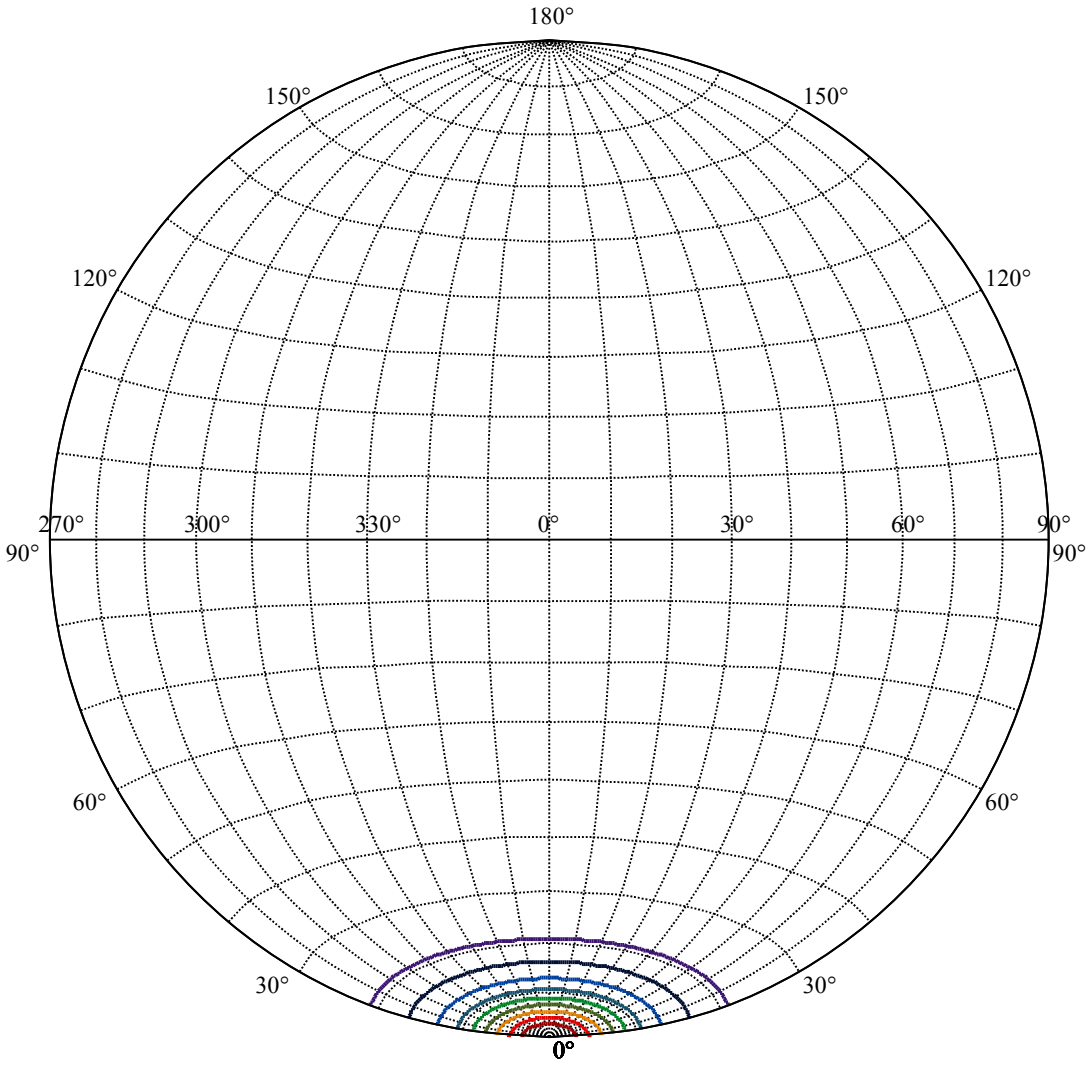
(10%Imax) 1435.22
(20%Imax) 2870.44
(30%Imax) 4305.66
(40%Imax) 5740.88
(50%Imax) 7176.09
(60%Imax) 8611.31
(70%Imax) 10046.5
(80%Imax) 11481.8
(90%Imax) 12917

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/2/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:14352.19

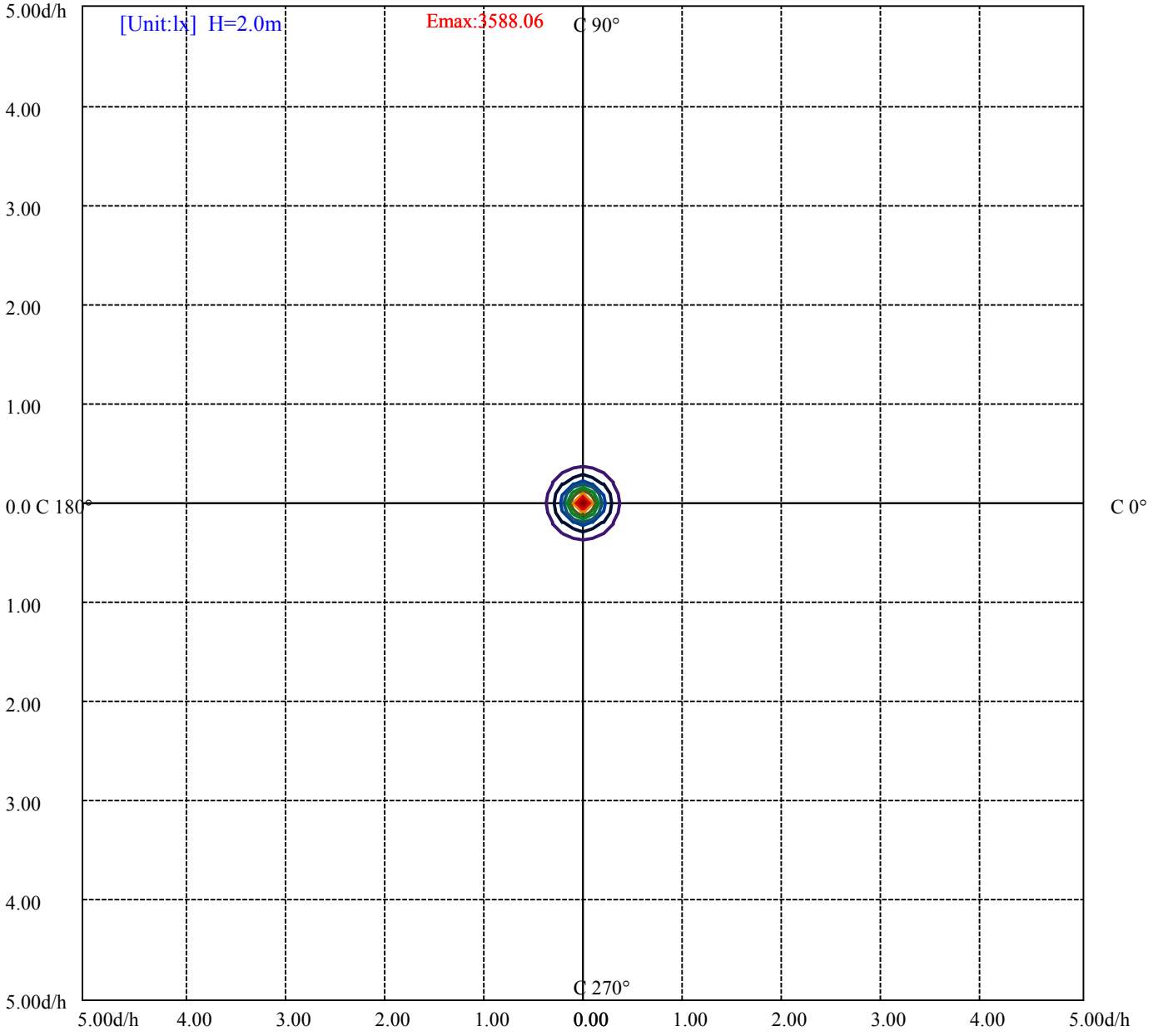
(10%Imax) 1435.22
(20%Imax) 2870.44
(30%Imax) 4305.66
(40%Imax) 5740.88
(50%Imax) 7176.09
(60%Imax) 8611.31
(70%Imax) 10046.5
(80%Imax) 11481.8
(90%Imax) 12917

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/2/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO illuminance diagram

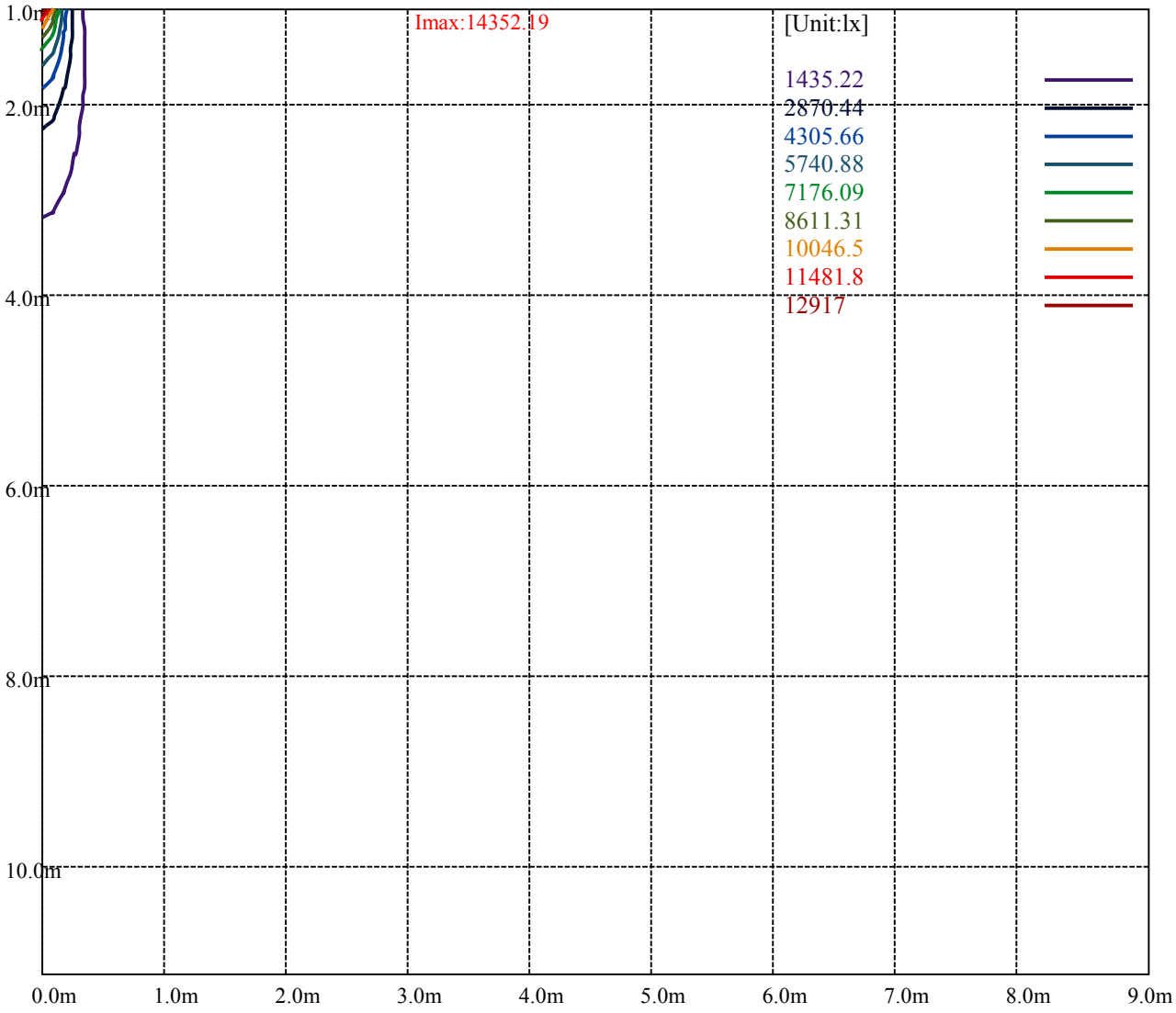


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/2/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/2/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Nata 2-2162-M

Luminance Limitting Curve(no luminous side)

Luminance Table

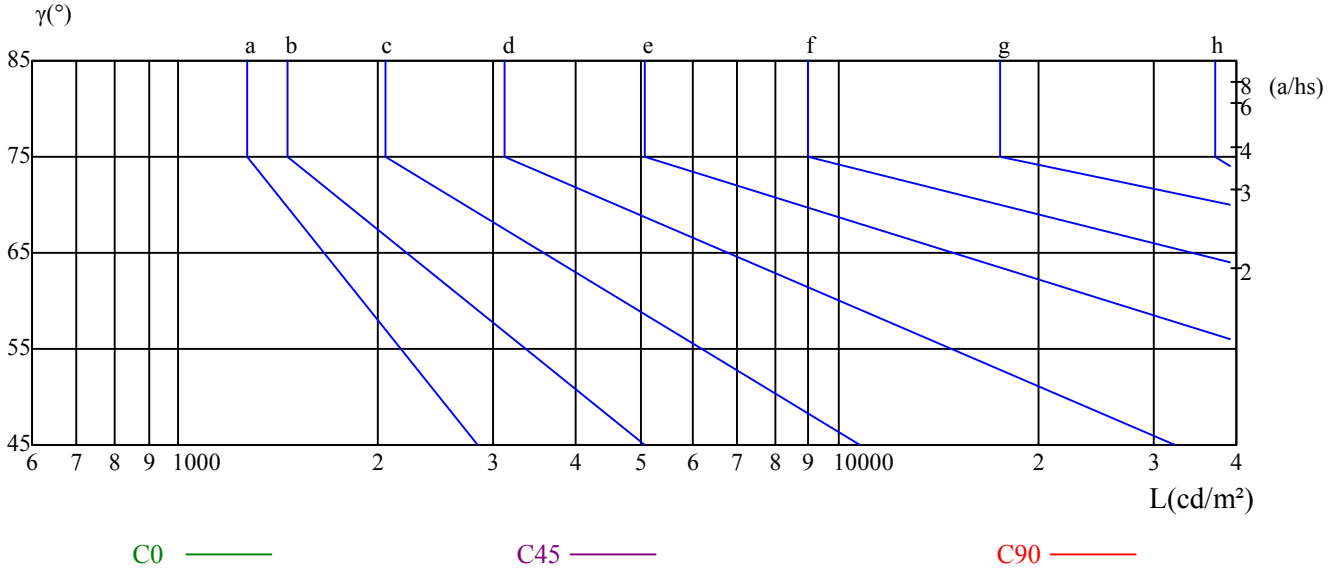
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

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

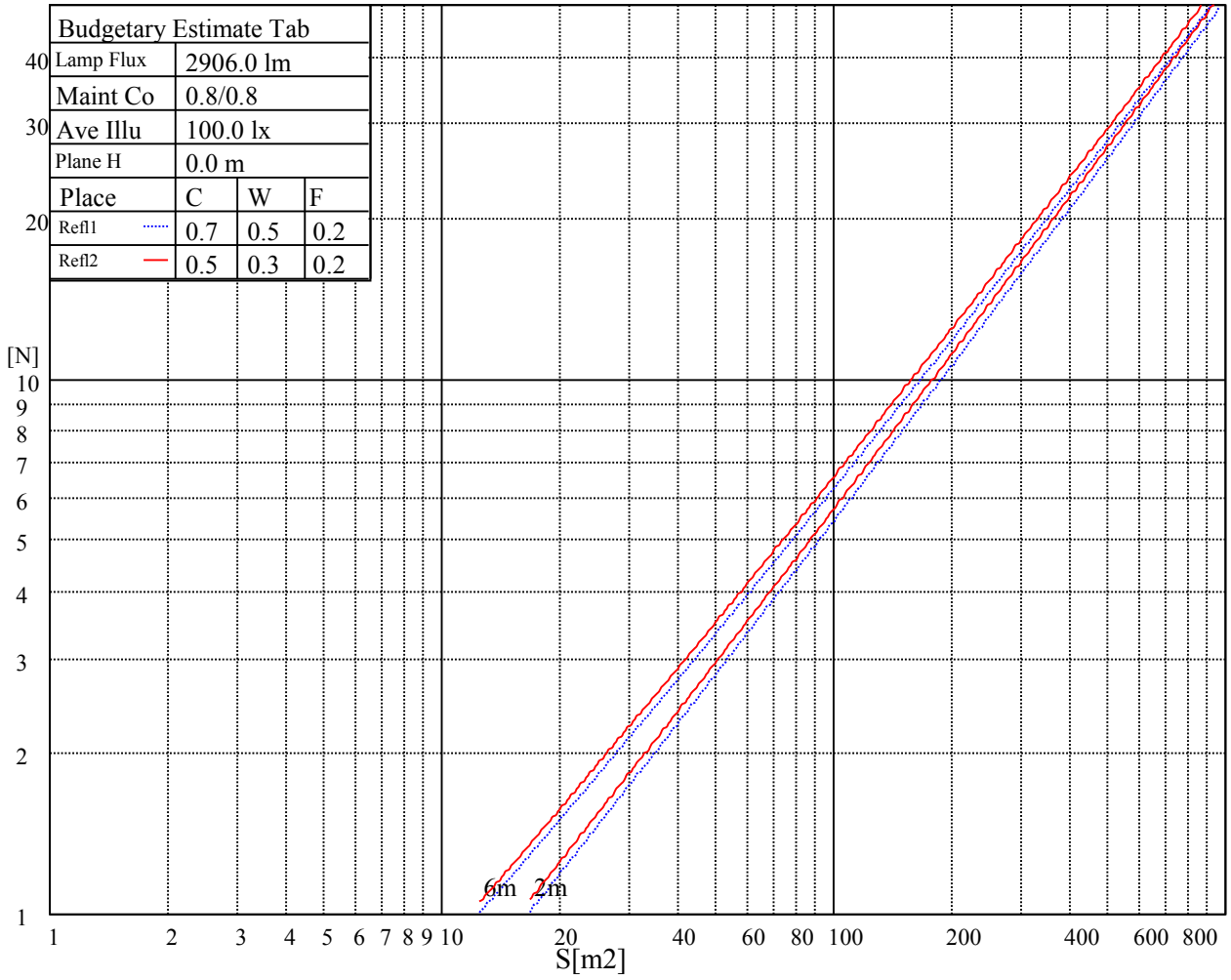


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/2/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Budgetary Estimate Table

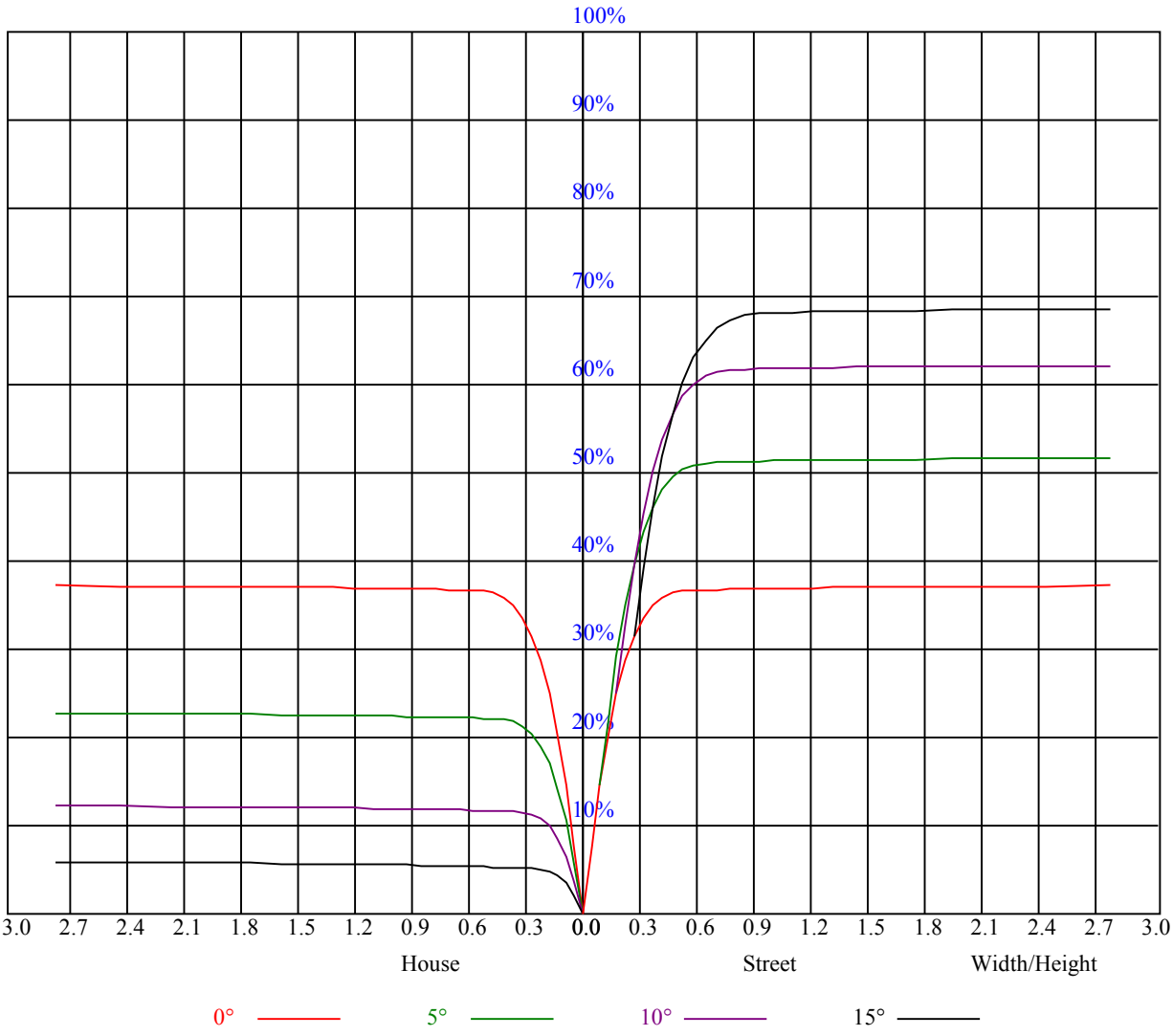


Equipment: GMS1980 Date: 2020/2/20 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.89	0.89	0.89	0.87	0.87	0.87	0.83	0.83	0.83	0.80	0.80	0.80	0.77	0.77	0.77	0.75
1	0.85	0.83	0.82	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.76	0.76	0.75	0.74	0.74	0.72
2	0.81	0.79	0.77	0.80	0.78	0.76	0.77	0.76	0.74	0.75	0.74	0.73	0.73	0.72	0.71	0.70
3	0.78	0.75	0.73	0.77	0.74	0.72	0.75	0.73	0.71	0.73	0.71	0.70	0.71	0.70	0.69	0.68
4	0.75	0.72	0.70	0.74	0.71	0.69	0.72	0.70	0.69	0.71	0.69	0.68	0.70	0.68	0.67	0.66
5	0.72	0.69	0.67	0.72	0.69	0.67	0.70	0.68	0.66	0.69	0.67	0.66	0.68	0.67	0.65	0.64
6	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.68	0.66	0.64	0.67	0.65	0.64	0.63
7	0.68	0.65	0.63	0.68	0.65	0.63	0.67	0.64	0.63	0.66	0.64	0.62	0.65	0.63	0.62	0.61
8	0.66	0.63	0.61	0.66	0.63	0.61	0.65	0.63	0.61	0.65	0.62	0.61	0.64	0.62	0.61	0.60
9	0.65	0.62	0.60	0.64	0.62	0.60	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.61	0.59	0.58
10	0.63	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.62	0.60	0.58	0.61	0.59	0.58	0.57

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/2/20	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	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	14158.13	13798.13	12999.38	12155.63	11176.88	10023.75	8893.13	7965.00	7014.38
45.0	14445.00	14321.25	13809.38	13123.13	12245.63	11131.88	9984.38	8960.63	7846.88
90.0	14450.63	14113.13	13359.38	12515.63	11162.25	10515.94	9239.06	8240.63	7331.63
135.0	14355.00	14315.63	13910.63	13308.75	12504.38	11340.00	10344.38	9343.13	8229.38
180.0	14158.13	14265.00	14079.38	13590.00	12909.38	11113.88	10865.81	9846.00	8700.19
225.0	14445.00	14315.63	13944.38	13123.13	12251.25	11152.13	10013.06	9012.38	8049.38
270.0	14450.63	14529.38	14259.38	13758.75	13027.50	12009.38	10901.25	9900.00	8797.50
315.0	14355.00	14135.63	13601.25	12791.25	11145.94	10774.13	9765.00	8664.19	7638.19
360.0	14158.13	13798.13	12999.38	12155.63	11176.88	10023.75	8893.13	7965.00	7014.38

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6176.25	5523.75	4860.00	4336.88	3808.13	3346.88	2970.00	2846.25	2270.81
45.0	6879.38	6125.63	5383.13	4786.88	4140.00	3690.00	3290.63	2981.25	2682.00
90.0	6431.06	5655.38	5042.25	4438.13	3908.25	3490.31	3070.13	2733.75	2391.75
135.0	7245.00	6474.38	5698.13	5073.75	4455.00	3909.38	3470.63	3048.75	2868.75
180.0	7748.44	6788.25	5858.44	5286.38	4637.81	4013.44	3626.44	3229.88	2751.19
225.0	7057.13	6184.69	5494.50	4803.75	4206.38	3742.88	3273.75	2898.56	2530.13
270.0	7756.88	6935.63	6120.00	5484.38	4831.88	4263.75	3802.50	3391.88	2930.63
315.0	6822.56	6013.69	5303.25	4745.25	4245.75	3691.13	3293.44	2931.19	2604.94
360.0	6176.25	5523.75	4860.00	4336.88	3808.13	3346.88	2970.00	2846.25	2270.81

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2001.38	1744.88	1457.44	1235.25	1021.50	816.19	575.44	405.56	296.44
45.0	2271.38	1989.56	1674.56	1447.88	1243.13	982.69	755.44	563.63	376.31
90.0	2074.50	1807.88	1560.38	1122.36	1040.51	830.93	588.43	419.85	276.58
135.0	2367.00	2066.06	1731.94	1491.19	1274.06	981.56	780.75	588.38	401.06
180.0	2476.13	2180.81	1875.38	1595.81	1369.69	1117.46	885.43	691.26	513.84
225.0	2198.81	1928.25	1673.44	1385.44	1103.23	945.68	699.86	524.19	366.24
270.0	2846.25	2309.06	1954.13	1693.69	1450.13	1186.88	932.06	722.25	507.38
315.0	2235.94	1958.63	1697.63	1398.38	1105.71	941.01	708.08	502.99	345.94
360.0	2001.38	1744.88	1457.44	1235.25	1021.50	816.19	575.44	405.56	296.44

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	137.70	56.36	28.52	24.92	22.67	21.21	19.80	18.79	17.83
45.0	286.88	118.52	45.90	25.03	22.39	20.36	19.13	18.00	16.99
90.0	152.04	67.50	30.26	26.16	24.41	22.84	21.38	20.19	19.07
135.0	293.63	135.96	70.65	29.03	25.71	24.30	22.61	21.32	20.42
180.0	338.85	199.13	104.12	41.18	26.66	24.19	22.16	20.76	19.41
225.0	208.52	115.31	52.54	26.49	24.02	21.71	19.80	18.79	17.61
270.0	350.44	299.25	105.41	48.60	27.34	24.92	23.23	21.77	20.19
315.0	204.58	112.28	46.01	28.13	25.93	24.08	22.39	21.04	19.80
360.0	137.70	56.36	28.52	24.92	22.67	21.21	19.80	18.79	17.83

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	17.04	16.43	15.81	15.24	14.79	14.46	14.01	13.67	13.44
45.0	16.26	15.69	15.08	14.57	14.18	13.78	13.50	13.16	12.83
90.0	18.06	17.21	16.48	15.58	14.96	14.40	13.89	13.50	13.16
135.0	19.13	18.17	17.21	16.20	15.41	14.79	14.12	13.67	13.33
180.0	18.39	17.66	17.04	16.26	15.81	15.30	14.79	14.40	13.89
225.0	16.71	16.09	15.41	14.51	14.12	13.73	13.28	12.94	12.60
270.0	19.01	17.94	17.04	16.03	15.36	14.68	13.95	13.50	13.05
315.0	18.45	17.49	16.65	15.75	15.08	14.51	13.89	13.44	13.16
360.0	17.04	16.43	15.81	15.24	14.79	14.46	14.01	13.67	13.44

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	12.99	12.66	12.38	12.04	11.81	11.59	11.31	11.08	10.97
45.0	12.60	12.32	12.09	11.93	11.64	11.48	11.31	11.19	11.03
90.0	12.71	12.38	12.09	11.87	11.64	11.42	11.25	11.08	11.03
135.0	12.99	12.71	12.49	12.32	11.98	11.81	11.59	11.36	11.19
180.0	13.56	13.16	12.77	12.38	12.15	11.76	11.48	11.25	10.97
225.0	12.32	11.98	11.64	11.42	11.19	10.91	10.69	10.46	10.29
270.0	12.71	12.38	12.09	11.87	11.64	11.31	11.14	10.91	10.69
315.0	12.83	12.49	12.26	11.98	11.76	11.59	11.31	11.08	10.97
360.0	12.99	12.66	12.38	12.04	11.81	11.59	11.31	11.08	10.97

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.86	10.74	10.69	10.63	10.63	10.58	10.58	10.52	10.52
45.0	10.97	10.86	10.74	10.74	10.63	10.74	10.69	10.63	10.63
90.0	10.86	10.74	10.69	10.63	10.58	10.46	10.41	10.41	10.35
135.0	11.03	10.86	10.69	10.63	10.52	10.46	10.35	10.29	10.24
180.0	10.74	10.63	10.46	10.41	10.29	10.29	10.24	10.18	10.18
225.0	10.18	10.07	10.01	9.90	9.90	9.84	9.84	9.84	9.79
270.0	10.58	10.41	10.29	10.13	10.07	10.07	9.96	9.96	9.90
315.0	10.80	10.63	10.52	10.41	10.29	10.24	10.24	10.13	10.13
360.0	10.86	10.74	10.69	10.63	10.63	10.58	10.58	10.52	10.52

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.46	10.46	10.35	10.41	10.29	10.35	10.29	10.29	10.24
45.0	10.63	10.63	10.63	10.63	10.63	10.63	10.69	10.69	10.74
90.0	10.35	10.35	10.29	10.29	10.35	10.29	10.29	10.29	10.29
135.0	10.24	10.18	10.18	10.13	10.13	10.13	10.07	10.13	10.07
180.0	10.13	10.13	10.07	10.13	10.07	10.07	10.07	10.01	10.01
225.0	9.73	9.68	9.73	9.68	9.62	9.62	9.56	9.56	9.51
270.0	9.84	9.84	9.79	9.73	9.73	9.73	9.68	9.68	9.68
315.0	10.07	10.01	10.01	10.01	9.96	9.90	9.90	9.84	9.84
360.0	10.46	10.46	10.35	10.41	10.29	10.35	10.29	10.29	10.24

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.24	10.24	10.24	10.18	10.18	10.18	10.18	10.29	10.29
45.0	10.80	10.86	10.86	10.97	11.08	11.19	11.36	11.64	11.93
90.0	10.29	10.24	10.29	10.24	10.35	10.41	10.46	10.58	10.63
135.0	10.07	10.01	9.96	9.96	9.84	9.84	9.84	9.84	9.79
180.0	9.96	9.96	9.90	9.84	9.84	9.79	9.73	9.73	9.68
225.0	9.51	9.51	9.45	9.45	9.45	9.45	9.39	9.39	9.34
270.0	9.68	9.62	9.56	9.56	9.51	9.45	9.51	9.45	9.45
315.0	9.79	9.73	9.73	9.73	9.68	9.68	9.62	9.62	9.56
360.0	10.24	10.24	10.24	10.18	10.18	10.18	10.18	10.29	10.29

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.35	10.41	10.46	10.58	10.74	10.91	9.90	9.23	9.23
45.0	11.93	11.87	12.32	12.04	12.09	12.26	12.26	12.26	8.89
90.0	10.74	10.86	11.19	11.42	11.64	11.81	11.81	9.11	9.00
135.0	9.79	9.73	9.79	9.73	9.68	9.56	9.39	9.28	9.23
180.0	9.73	9.68	9.62	9.56	9.51	9.45	9.34	9.28	9.34
225.0	9.28	9.28	9.23	9.23	9.17	9.06	9.00	8.89	8.89
270.0	9.39	9.39	9.34	9.34	9.34	9.28	9.23	9.17	9.17
315.0	9.56	9.51	9.51	9.56	9.56	9.56	9.34	9.28	9.23
360.0	10.35	10.41	10.46	10.58	10.74	10.91	9.90	9.23	9.23

Intensity data(cd)

C/γ(°)	90.0
0.0	9.17
45.0	8.89
90.0	9.00
135.0	9.17
180.0	9.17
225.0	8.89
270.0	9.06
315.0	9.17
360.0	9.17