NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

LumCAT: 2-1746-N
Luminaire: 92.70.124.00

Report No: 200407-B022	Voltage(V): 220.3000
Test No: 200407-C022	Current(A): 0.0410
LampCAT: LUMINUS CXM-9-AC40	Power (W): 8.0800
Lamp flux(lm): 738.0	PF: 0.8950
Number of Lamps: 1	Ballast type: AC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 605.79
Efficiency(%): 82.09%
Lumens(lm)/Power(W): 74.97
Central intensity(cd): 2113.023
Maximum intensity(cd): 2113.023
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=23.7
[C90/270]Total=23.7
Field angle(10%Imax): [C0/180]Total=61.6
[C90/270]Total=61.6
Maximum s/h(1/2): C0_180=0.40 C90_270=0.40
Maximum s/h(1/4): C0_180=0.43 C90_270=0.43
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.09%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.204%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	2113.023	0.000	0	.000%	.000%
1.0	2102.814	2.017	2.017	.273%	.333%
2.0	2072.130	5.992	8.009	.812%	1.322%
3.0	2023.986	9.797	17.806	1.327%	2.939%
4.0	1957.223	13.326	31.132	1.806%	5.139%
5.0	1873.581	16.480	47.612	2.233%	7.860%
6.0	1783.443	19.219	66.831	2.604%	11.032%
7.0	1663.780	21.397	88.228	2.899%	14.564%
8.0	1556.879	23.050	111.277	3.123%	18.369%
9.0	1436.404	24.259	135.536	3.287%	22.373%
10.0	1280.854	24.590	160.127	3.332%	26.433%
11.0	1176.273	24.552	184.678	3.327%	30.485%
12.0	1039.220	24.219	208.897	3.282%	34.483%
13.0	937.974	23.464	232.361	3.179%	38.357%
14.0	850.904	22.897	255.259	3.103%	42.136%
15.0	755.545	22.054	277.313	2.988%	45.777%
16.0	671.311	20.907	298.22	2.833%	49.228%
17.0	600.807	19.810	318.03	2.684%	52.498%
18.0	541.985	18.842	336.873	2.553%	55.609%
19.0	492.925	18.005	354.878	2.440%	58.581%
20.0	451.006	17.277	372.154	2.341%	61.433%
21.0	414.434	16.618	388.773	2.252%	64.176%
22.0	381.836	16.001	404.774	2.168%	66.817%
23.0	353.524	15.430	420.204	2.091%	69.364%
24.0	329.545	14.934	435.138	2.024%	71.830%
25.0	309.650	14.534	449.672	1.969%	74.229%
26.0	290.404	14.164	463.836	1.919%	76.567%
27.0	275.247	13.839	477.675	1.875%	78.851%
28.0	257.672	13.492	491.168	1.828%	81.079%
29.0	243.264	13.106	504.273	1.776%	83.242%
30.0	225.143	12.647	516.92	1.714%	85.330%
31.0	208.194	12.059	528.98	1.634%	87.320%
32.0	176.449	11.020	539.999	1.493%	89.139%
33.0	143.816	9.435	549.434	1.278%	90.697%
34.0	112.470	7.756	557.19	1.051%	91.977%
35.0	84.704	6.123	563.314	.830%	92.988%
36.0	61.421	4.653	567.966	.630%	93.756%
37.0	43.677	3.428	571.394	.464%	94.322%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	32.448	2.541	573.935	.344%	94.741%
39.0	25.881	1.991	575.926	.270%	95.070%
40.0	21.566	1.655	577.581	.224%	95.343%
41.0	18.759	1.436	579.017	.195%	95.580%
42.0	16.746	1.290	580.307	.175%	95.793%
43.0	15.151	1.182	581.488	.160%	95.988%
44.0	13.962	1.099	582.587	.149%	96.170%
45.0	12.819	1.029	583.616	.139%	96.339%
46.0	11.943	0.968	584.584	.131%	96.499%
47.0	11.108	0.917	585.501	.124%	96.651%
48.0	10.481	0.873	586.374	.118%	96.795%
49.0	9.890	0.837	587.211	.113%	96.933%
50.0	9.408	0.805	588.015	.109%	97.066%
51.0	8.950	0.777	588.792	.105%	97.194%
52.0	8.556	0.751	589.543	.102%	97.318%
53.0	8.231	0.730	590.273	.099%	97.438%
54.0	7.935	0.713	590.986	.097%	97.556%
55.0	7.686	0.697	591.683	.094%	97.671%
56.0	7.436	0.683	592.366	.093%	97.784%
57.0	7.088	0.664	593.03	.090%	97.893%
58.0	6.804	0.642	593.673	.087%	98.000%
59.0	6.595	0.626	594.299	.085%	98.103%
60.0	6.380	0.613	594.912	.083%	98.204%
61.0	6.125	0.597	595.509	.081%	98.303%
62.0	5.911	0.580	596.089	.079%	98.398%
63.0	5.737	0.566	596.655	.077%	98.492%
64.0	5.505	0.552	597.207	.075%	98.583%
65.0	5.278	0.534	597.741	.072%	98.671%
66.0	5.075	0.517	598.257	.070%	98.756%
67.0	4.872	0.500	598.757	.068%	98.839%
68.0	4.675	0.484	599.241	.066%	98.919%
69.0	4.466	0.466	599.707	.063%	98.996%
70.0	4.252	0.448	600.155	.061%	99.070%
71.0	4.060	0.430	600.585	.058%	99.141%
72.0	3.857	0.412	600.997	.056%	99.208%
73.0	3.683	0.394	601.391	.053%	99.274%
74.0	3.492	0.377	601.768	.051%	99.336%
75.0	3.347	0.361	602.129	.049%	99.395%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.144	0.345	602.474	.047%	99.452%
77.0	3.022	0.329	602.803	.045%	99.507%
78.0	2.848	0.314	603.117	.043%	99.558%
79.0	2.715	0.299	603.416	.040%	99.608%
80.0	2.570	0.285	603.701	.039%	99.655%
81.0	2.448	0.271	603.972	.037%	99.700%
82.0	2.285	0.257	604.229	.035%	99.742%
83.0	2.140	0.241	604.469	.033%	99.782%
84.0	2.001	0.226	604.695	.031%	99.819%
85.0	1.908	0.213	604.908	.029%	99.854%
86.0	1.763	0.201	605.109	.027%	99.887%
87.0	1.653	0.187	605.296	.025%	99.918%
88.0	1.537	0.175	605.471	.024%	99.947%
89.0	1.456	0.164	605.635	.022%	99.974%
90.0	1.404	0.157	605.792	.021%	100.000%

Zonal flux distribution table

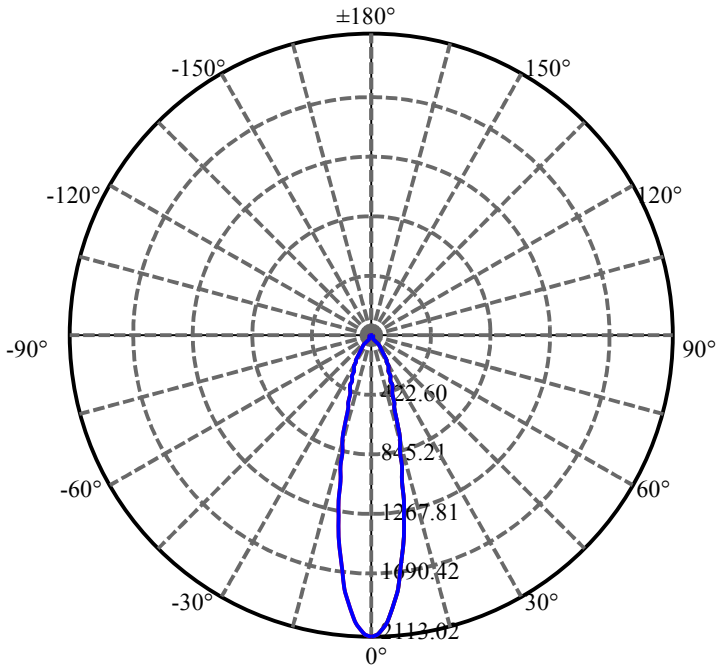
ZONAL LUMEN SUMMARY

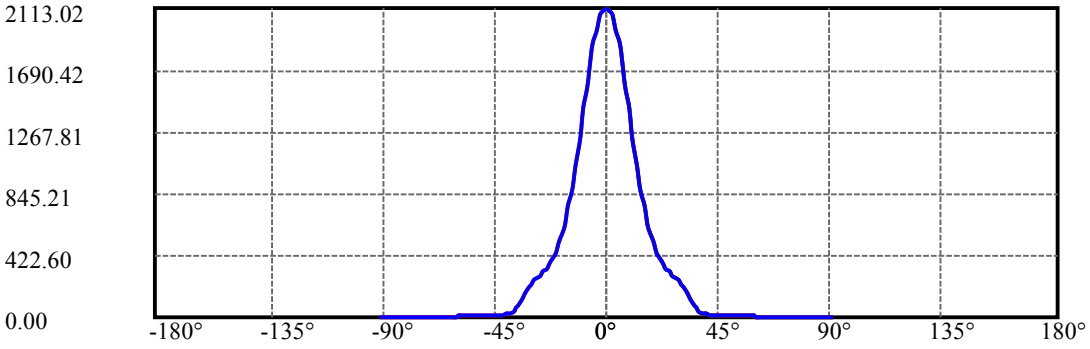
Zone	Lumens	%Lamp	%Fixt
0-30	516.92	70.04%	85.33%
0-40	577.58	78.26%	95.34%
0-60	594.91	80.61%	98.20%
0-90	605.63	82.06%	99.97%
0-120	605.63	82.06%	99.97%
0-180	605.79	82.09%	100.00%
60-90	11.34	1.54%	1.87%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.52	484.63	65.67%	80.00%

ZONAL LUMEN SUMMARY

0-10	160.13
10-20	212.03
20-30	144.77
30-40	60.66
40-50	10.43
50-60	6.90
60-70	5.24
70-80	3.55
80-90	1.93
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:30.8 Right:30.8
:C90/270Left:30.8 Right:30.8

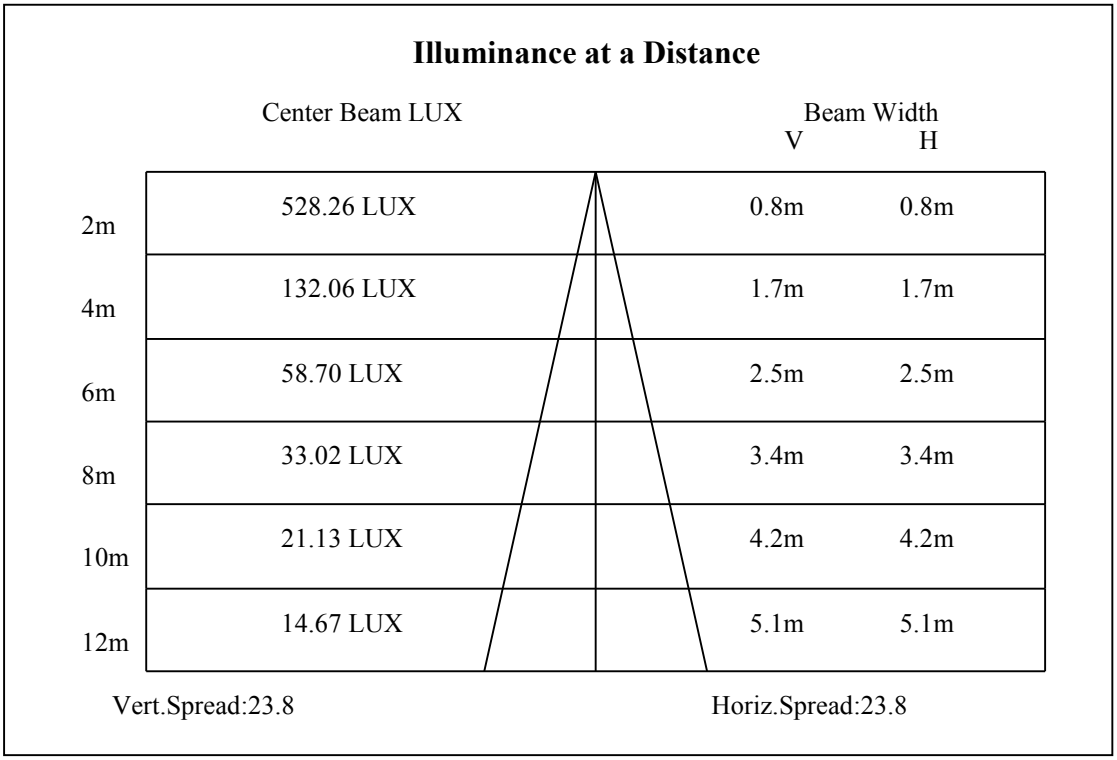
Beam Angle(50%Imax):C0/180Left:11.9 Right:11.9
:C90/270Left:11.9 Right:11.9

Equipment: GMS 1800
Temperature(°C): 25.0

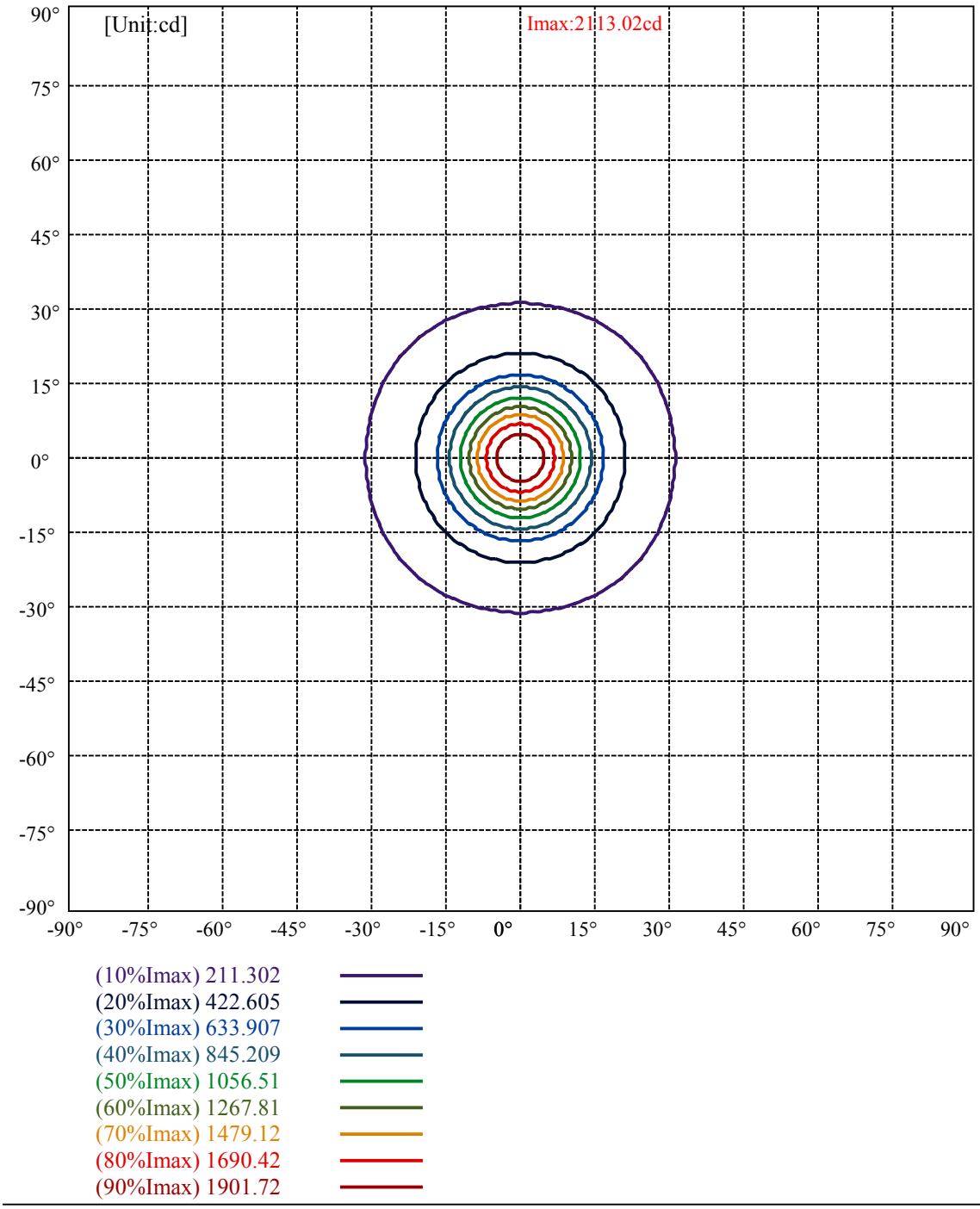
Date: 2020/4/7
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Lux distance Curve



ISO-Intensity(V-H)

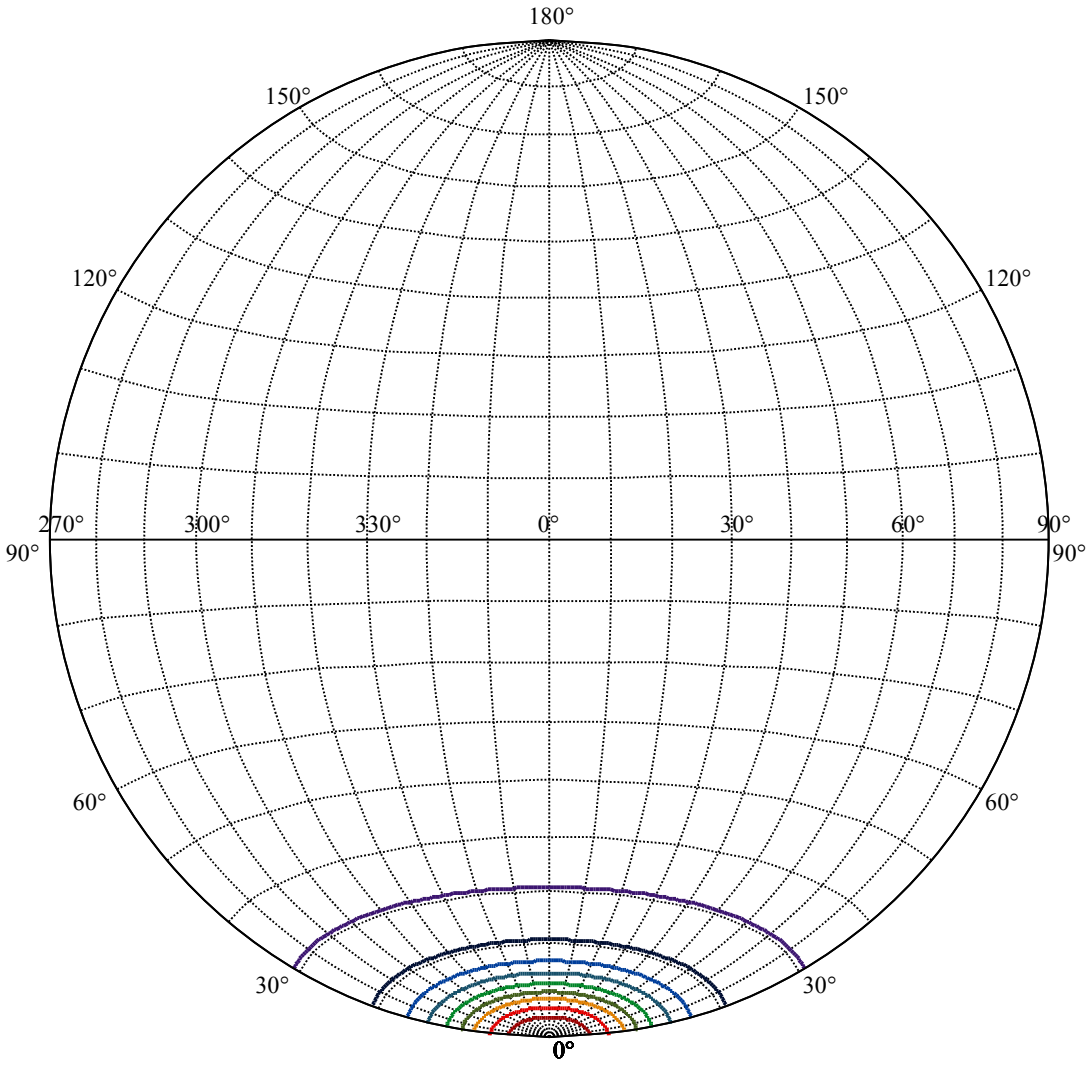


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:2113.02

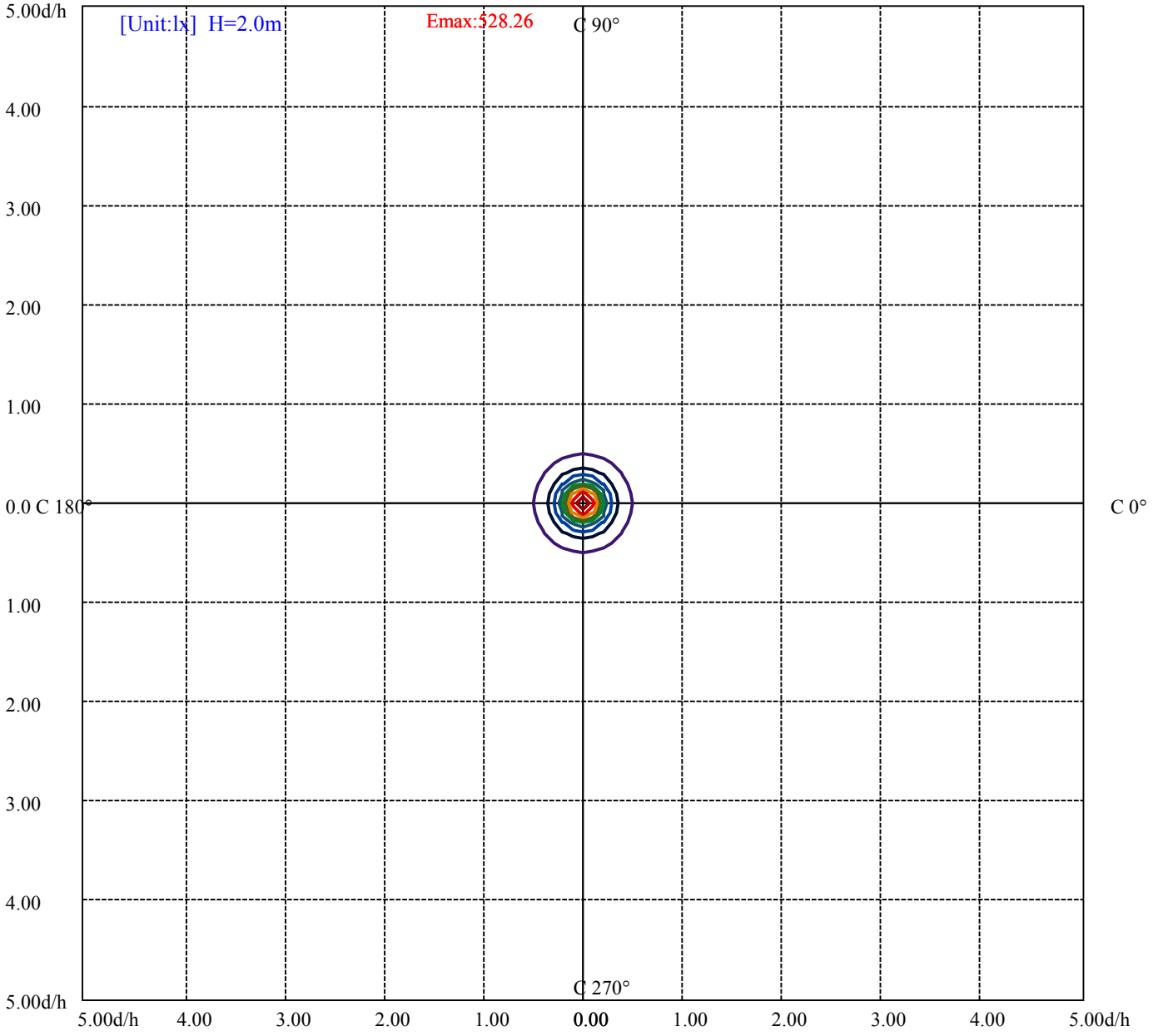
(10%Imax) 211.302
(20%Imax) 422.605
(30%Imax) 633.907
(40%Imax) 845.209
(50%Imax) 1056.51
(60%Imax) 1267.81
(70%Imax) 1479.12
(80%Imax) 1690.42
(90%Imax) 1901.72

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO illuminance diagram



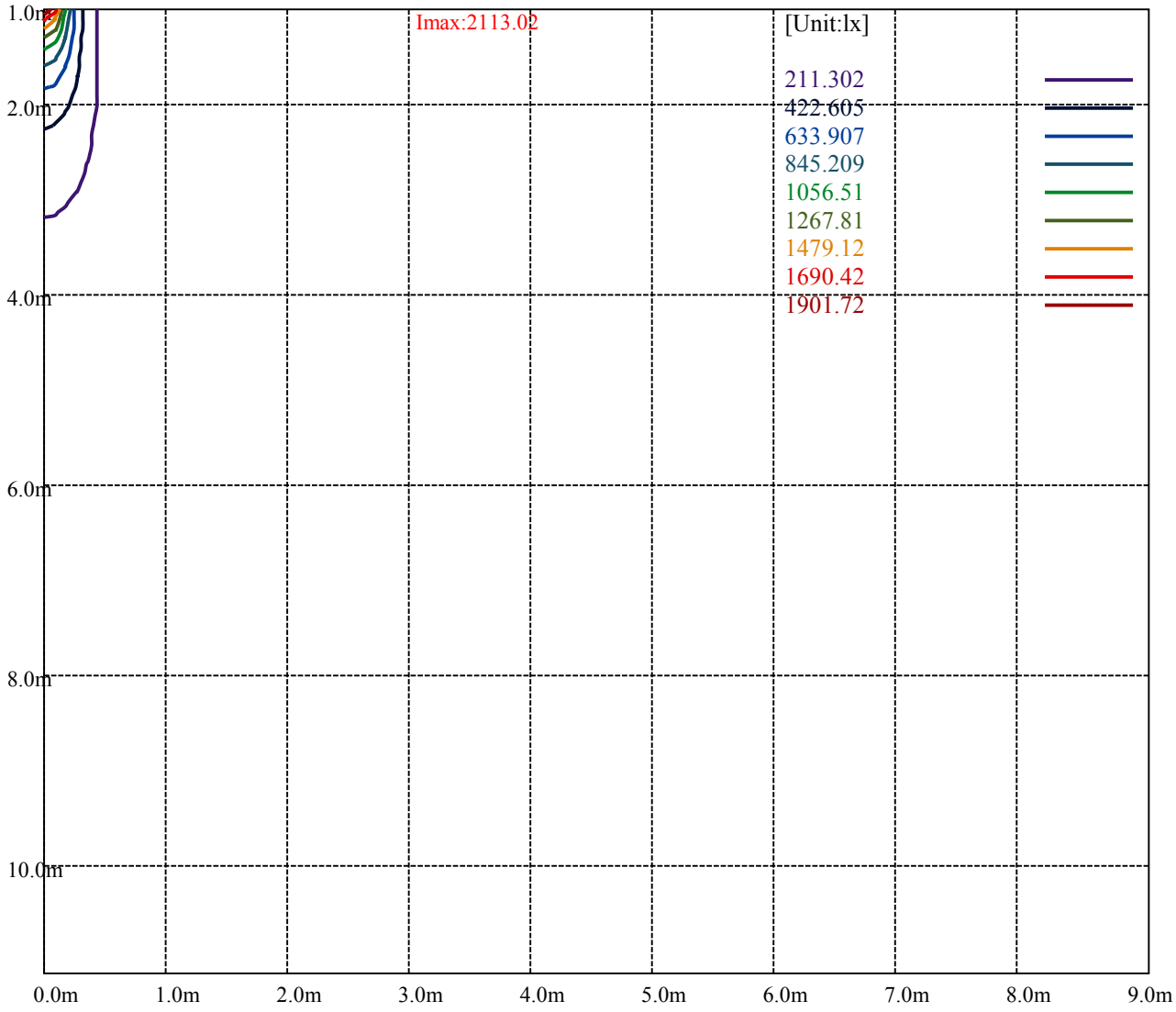
(10%Emax) 52.8255
(20%Emax) 105.651
(30%Emax) 158.4765
(40%Emax) 211.302
(50%Emax) 264.1275
(60%Emax) 316.9525
(70%Emax) 369.7775
(80%Emax) 422.605
(90%Emax) 475.43

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Luminance Limitting Curve(no luminous side)

Luminance Table

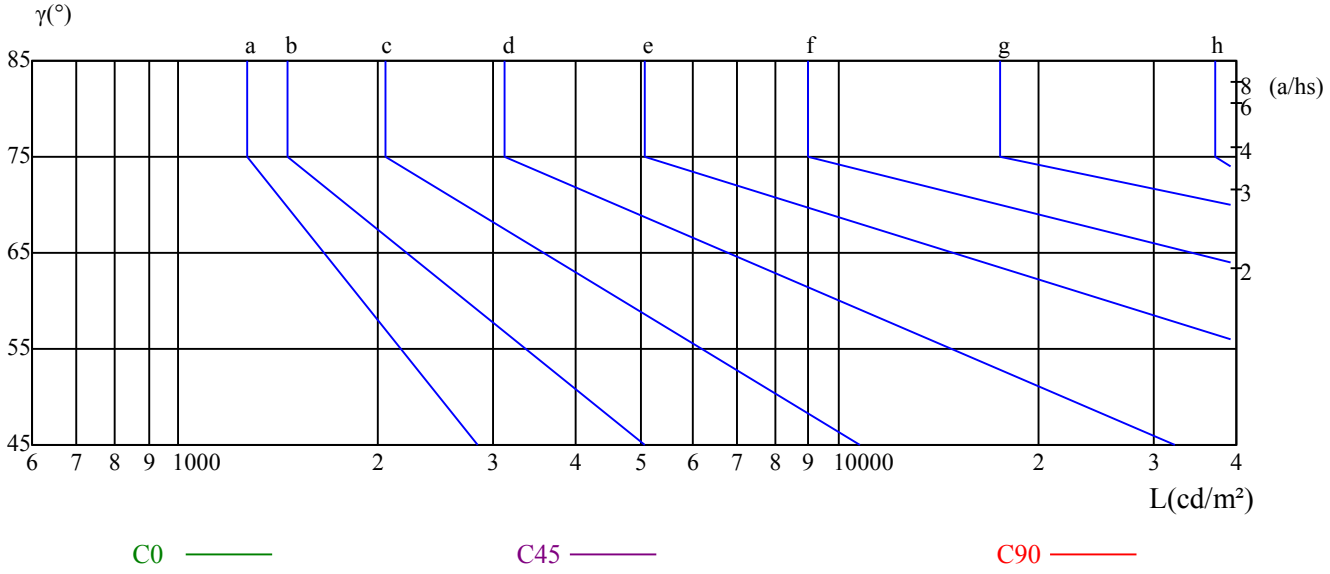
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

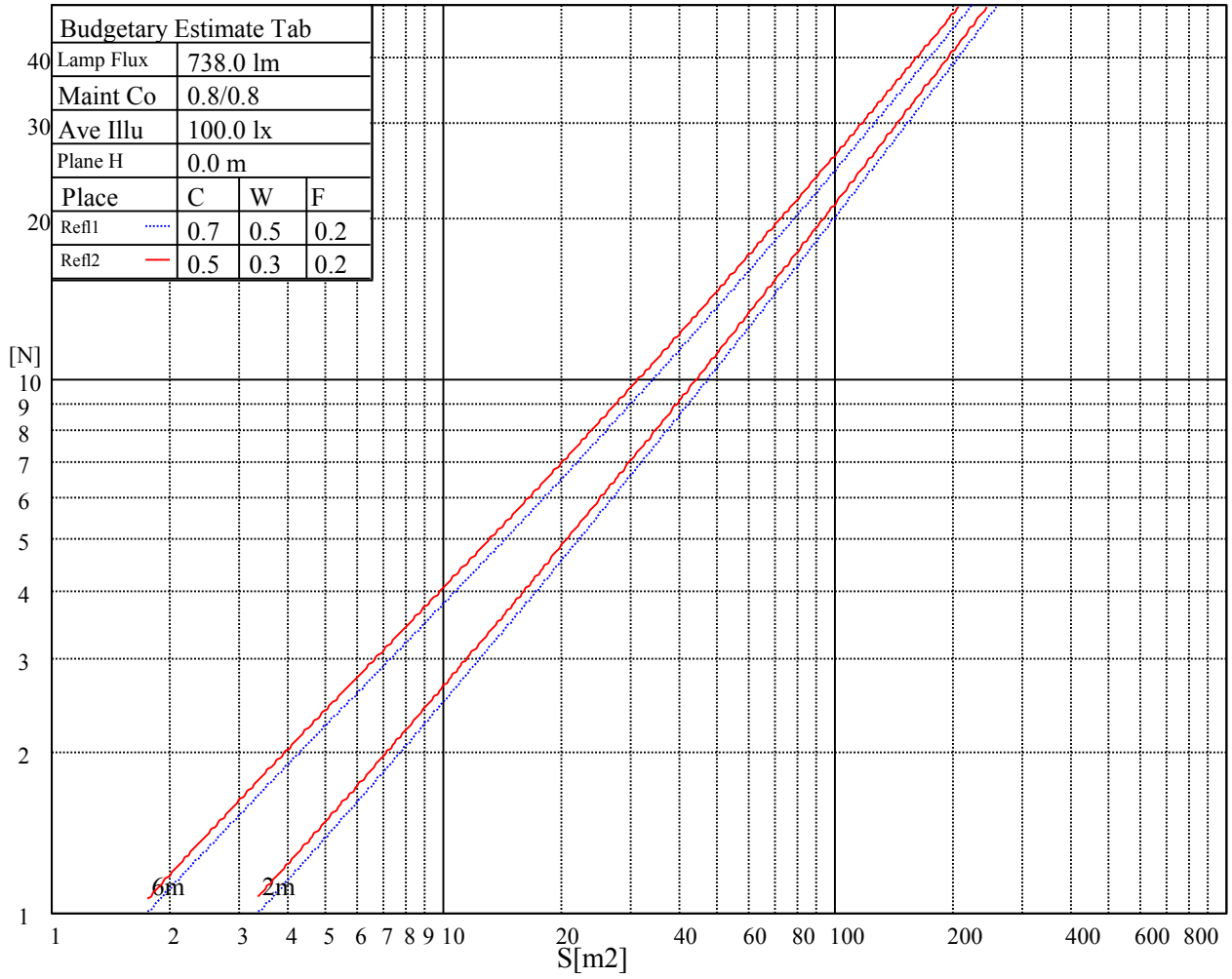
Glare Table

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



Budgetary Estimate Table

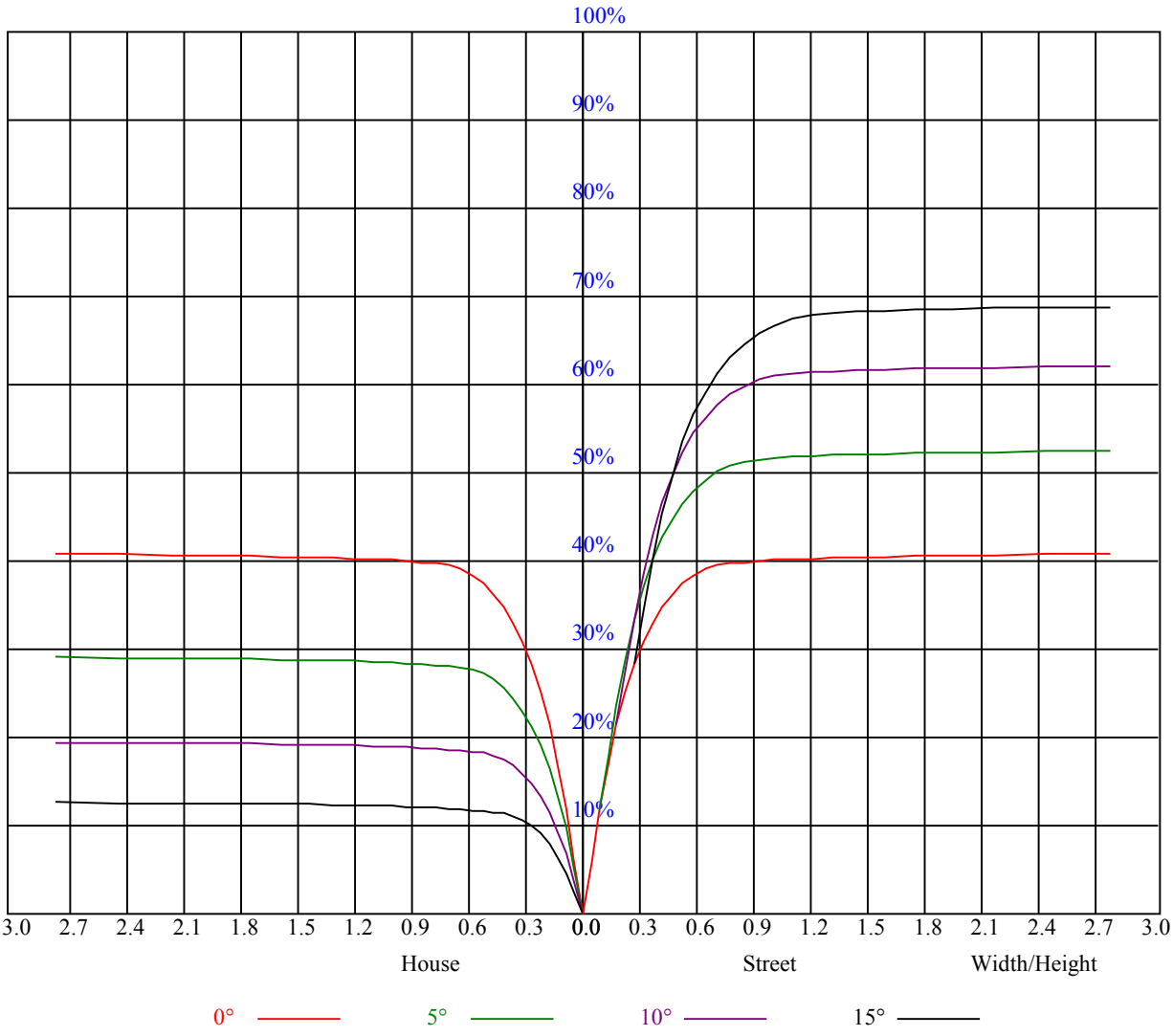


Equipment: GMS 1800 Date: 2020/4/7 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 6.81

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	0.98	0.98	0.98	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87	0.84	0.84	0.84	0.82
1	0.92	0.90	0.88	0.90	0.88	0.87	0.87	0.85	0.84	0.84	0.83	0.82	0.81	0.80	0.79	0.78
2	0.86	0.83	0.81	0.85	0.82	0.80	0.82	0.80	0.78	0.80	0.78	0.77	0.78	0.76	0.75	0.74
3	0.82	0.78	0.75	0.81	0.77	0.75	0.79	0.76	0.74	0.77	0.74	0.73	0.75	0.73	0.71	0.70
4	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.67
5	0.74	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.69	0.67	0.65	0.64
6	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.64	0.62	0.61
7	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.65	0.62	0.60	0.59
8	0.65	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.58	0.62	0.60	0.57	0.57
9	0.63	0.59	0.56	0.62	0.58	0.56	0.62	0.58	0.56	0.61	0.58	0.56	0.60	0.57	0.55	0.54
10	0.60	0.56	0.54	0.60	0.56	0.54	0.59	0.56	0.54	0.59	0.56	0.54	0.58	0.55	0.53	0.52

Coefficient Utilization Curve



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/7
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

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	2115.11	2097.94	2061.75	2010.70	1938.78	1846.44	1735.07	1614.42	1490.06
45.0	2118.36	2103.51	2069.17	2018.59	1948.52	1858.50	1792.14	1626.48	1549.45
90.0	2089.59	2044.58	1981.93	1896.55	1792.61	1676.60	1558.27	1432.98	1301.20
135.0	2129.03	2104.44	2063.60	2008.85	1933.67	1840.40	1731.82	1618.60	1498.41
180.0	2115.11	2108.15	2077.99	2035.30	1976.36	1897.48	1841.33	1688.20	1619.06
225.0	2118.36	2109.54	2081.70	2033.44	1972.65	1895.62	1801.89	1693.77	1575.44
270.0	2089.59	2124.39	2132.74	2123.46	2088.20	2045.97	1974.51	1912.33	1815.35
315.0	2129.03	2129.96	2108.15	2065.00	2006.99	1927.64	1832.51	1723.47	1606.07
360.0	2115.11	2097.94	2061.75	2010.70	1938.78	1846.44	1735.07	1614.42	1490.06

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1363.84	1234.38	1055.26	896.47	896.47	789.37	698.70	622.83	560.69
45.0	1419.52	1235.77	1160.13	1032.98	914.66	802.82	707.23	627.42	563.85
90.0	1171.73	886.49	886.49	864.17	761.66	678.00	606.45	546.26	494.38
135.0	1422.77	1244.12	1115.58	1041.34	923.47	814.43	722.55	644.59	578.70
180.0	1498.87	1329.97	1255.72	1130.43	1007.46	890.99	785.66	695.17	621.39
225.0	1446.44	1319.76	1189.83	896.79	896.79	850.39	743.38	657.26	585.66
270.0	1682.17	1585.65	1462.22	1334.61	1207.93	1085.88	966.63	852.94	755.49
315.0	1485.88	1410.71	1284.95	1116.97	895.35	895.35	813.78	724.03	646.31
360.0	1363.84	1234.38	1055.26	896.47	896.47	789.37	698.70	622.83	560.69

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	508.67	465.38	427.14	393.64	365.19	341.62	322.46	305.47	290.53
45.0	511.88	466.86	427.42	391.69	360.14	334.15	313.27	294.24	278.00
90.0	450.81	413.27	381.44	353.55	328.86	307.89	290.76	276.24	262.97
135.0	525.33	478.93	439.02	404.22	371.74	344.82	321.62	302.13	284.50
180.0	560.60	508.63	464.54	425.57	391.69	361.53	336.01	313.73	295.17
225.0	526.45	480.51	439.53	404.96	373.18	345.15	322.22	300.51	279.21
270.0	672.89	605.61	551.78	504.45	461.76	421.85	386.12	354.57	329.05
315.0	579.25	524.22	477.17	437.40	402.13	371.18	343.90	330.30	303.80
360.0	508.67	465.38	427.14	393.64	365.19	341.62	322.46	305.47	290.53

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	276.56	262.23	245.61	220.74	191.69	171.92	124.82	105.47	75.96
45.0	268.72	250.62	243.20	229.74	229.74	164.18	132.25	100.79	72.34
90.0	248.95	227.05	198.70	167.47	136.24	110.90	80.88	55.54	36.89
135.0	268.72	253.87	238.56	238.56	211.32	156.43	124.92	94.43	66.12
180.0	281.25	262.23	247.84	236.70	232.99	209.88	157.72	125.66	94.38
225.0	256.94	237.40	227.47	201.72	187.79	163.66	128.54	112.25	88.03
270.0	306.31	288.21	278.47	255.26	245.06	233.46	233.46	170.39	139.95
315.0	294.52	279.77	266.26	250.95	230.72	201.16	167.93	135.22	103.94
360.0	276.56	262.23	245.61	220.74	191.69	171.92	124.82	105.47	75.96

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	52.11	35.87	28.12	23.48	19.86	17.59	15.87	14.34	13.13
45.0	49.09	34.43	27.89	23.06	19.63	17.49	15.87	14.48	13.78
90.0	28.07	23.25	19.63	17.40	15.68	14.34	13.18	12.16	11.28
135.0	43.25	29.47	24.22	20.14	17.35	15.68	14.39	13.32	12.30
180.0	66.87	45.48	31.55	25.71	21.25	18.28	16.38	14.80	14.06
225.0	65.80	46.64	34.25	27.80	23.25	20.05	17.91	16.19	14.71
270.0	110.58	82.46	58.28	41.44	31.97	26.45	22.41	19.68	17.59
315.0	75.59	51.83	35.64	28.03	23.53	20.19	17.96	16.24	14.85
360.0	52.11	35.87	28.12	23.48	19.86	17.59	15.87	14.34	13.13

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	12.11	11.28	10.49	9.88	9.37	8.91	8.45	8.07	7.89
45.0	12.71	11.83	11.09	10.49	9.98	9.37	8.96	8.58	8.31
90.0	10.58	9.98	9.33	8.91	8.49	8.17	7.84	7.56	7.38
135.0	11.79	10.81	10.21	9.93	9.23	9.00	8.63	8.40	8.12
180.0	12.48	11.55	11.09	10.39	9.79	9.23	8.82	8.40	8.03
225.0	13.46	12.48	11.65	10.95	10.30	9.88	9.33	8.82	8.54
270.0	15.78	14.62	13.32	12.30	11.37	10.63	10.02	9.51	8.96
315.0	13.64	12.99	11.69	11.00	10.58	10.07	9.56	9.10	8.63
360.0	12.11	11.28	10.49	9.88	9.37	8.91	8.45	8.07	7.89

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.56	7.47	7.19	6.77	6.50	6.31	6.13	5.85	5.61
45.0	8.03	7.84	7.52	6.96	6.64	6.45	6.26	5.94	5.66
90.0	7.19	6.64	6.50	6.26	6.08	5.89	5.75	5.57	5.34
135.0	7.84	7.61	7.38	7.05	6.87	6.68	6.54	6.36	6.13
180.0	7.80	7.61	7.38	7.10	6.68	6.50	6.22	5.94	5.85
225.0	8.21	7.98	7.75	7.38	7.05	6.82	6.50	6.26	6.03
270.0	8.49	8.17	7.89	7.61	7.33	7.05	6.82	6.54	6.31
315.0	8.35	8.17	7.89	7.56	7.29	7.05	6.82	6.54	6.36
360.0	7.56	7.47	7.19	6.77	6.50	6.31	6.13	5.85	5.61

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.43	5.24	4.97	4.78	4.59	4.41	4.18	3.94	3.76
45.0	5.52	5.29	5.15	4.92	4.59	4.45	4.22	4.08	3.85
90.0	5.20	4.97	4.73	4.55	4.36	4.13	3.90	3.71	3.57
135.0	5.99	5.89	5.66	5.48	5.29	5.15	5.01	4.78	4.59
180.0	5.61	5.34	5.10	4.97	4.73	4.55	4.36	4.13	3.94
225.0	5.80	5.48	5.24	4.97	4.78	4.50	4.27	4.08	3.90
270.0	6.13	5.85	5.61	5.38	5.24	5.01	4.83	4.55	4.36
315.0	6.22	5.99	5.75	5.57	5.38	5.20	4.97	4.73	4.50
360.0	5.43	5.24	4.97	4.78	4.59	4.41	4.18	3.94	3.76

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.57	3.39	3.25	3.06	2.88	2.78	2.55	2.41	2.32
45.0	3.62	3.48	3.25	3.11	2.88	2.78	2.64	2.46	2.32
90.0	3.34	3.16	3.06	2.92	2.74	2.69	2.51	2.32	2.23
135.0	4.50	4.32	4.08	3.94	3.81	3.67	3.48	3.39	3.25
180.0	3.71	3.53	3.34	3.25	3.02	2.83	2.69	2.60	2.41
225.0	3.67	3.53	3.29	3.25	2.92	2.83	2.69	2.60	2.41
270.0	4.13	3.94	3.71	3.53	3.34	3.16	2.97	2.83	2.69
315.0	4.32	4.13	3.94	3.71	3.57	3.43	3.25	3.11	2.92
360.0	3.57	3.39	3.25	3.06	2.88	2.78	2.55	2.41	2.32

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.23	2.00	1.90	1.76	1.67	1.58	1.48	1.39	1.35
45.0	2.18	2.04	1.86	1.67	1.62	1.48	1.39	1.35	1.25
90.0	2.13	1.95	1.86	1.76	1.62	1.53	1.48	1.39	1.30
135.0	3.11	2.97	2.88	2.69	2.55	2.32	2.09	1.95	1.86
180.0	2.27	2.13	1.95	1.86	1.76	1.62	1.53	1.44	1.35
225.0	2.23	2.09	1.90	1.81	1.72	1.53	1.44	1.35	1.35
270.0	2.55	2.37	2.23	2.04	1.95	1.81	1.72	1.53	1.48
315.0	2.88	2.74	2.55	2.41	2.37	2.23	2.09	1.90	1.72
360.0	2.23	2.00	1.90	1.76	1.67	1.58	1.48	1.39	1.35

Intensity data(cd)

C/γ(°)	90.0
0.0	1.30
45.0	1.21
90.0	1.25
135.0	1.72
180.0	1.30
225.0	1.25
270.0	1.48
315.0	1.72
360.0	1.30