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: 2-1122-A4
Luminaire: 99.02.73.172+92.76.365.00

Report No: NATA0100	Voltage(V): 35.0000
Test No: GC2019011515	Current(A): 0.5000
LampCAT: CITIZEN CLU720	Power (W): 17.5000
Lamp flux(lm): 1995.0	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): 1831.38
Efficiency(%): 91.80%
Lumens(lm)/Power(W): 106.03
Central intensity(cd): 4338.563
Maximum intensity(cd): 4338.563
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=33.9
[C90/270]Total=33.9
Field angle(10%Imax): [C0/180]Total=71.3
[C90/270]Total=71.3
Maximum s/h(1/2): C0_180=0.57 C90_270=0.57
Maximum s/h(1/4): C0_180=0.54 C90_270=0.54
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 93.01%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.495%

Equipment: GMS1980	Date: 2019/1/15	Operator: NT07
Temperature(°C): 10.0	Humidity(%): 65.0%	Distance(m): 7.50

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4338.563	25.945	25.945	1.301%	1.417%
5.0	4096.898	195.722	221.668	9.811%	12.104%
10.0	3542.906	337.225	558.893	16.903%	30.518%
15.0	2633.906	373.668	932.561	18.730%	50.921%
20.0	1432.744	268.602	1201.163	13.464%	65.588%
25.0	904.711	209.579	1410.742	10.505%	77.032%
30.0	671.147	183.940	1594.682	9.220%	87.075%
35.0	481.859	151.496	1746.178	7.594%	95.348%
40.0	125.515	44.223	1790.401	2.217%	97.762%
45.0	17.213	6.671	1797.073	.334%	98.127%
50.0	9.654	4.054	1801.126	.203%	98.348%
55.0	8.880	3.987	1805.114	.200%	98.566%
60.0	8.416	3.995	1809.109	.200%	98.784%
65.0	8.065	4.006	1813.115	.201%	99.003%
70.0	7.819	4.027	1817.143	.202%	99.222%
75.0	7.664	4.058	1821.201	.203%	99.444%
80.0	7.545	4.073	1825.273	.204%	99.666%
85.0	7.467	4.077	1829.351	.204%	99.889%
90.0	7.411	2.031	1831.382	.102%	100.000%

Zonal flux distribution table

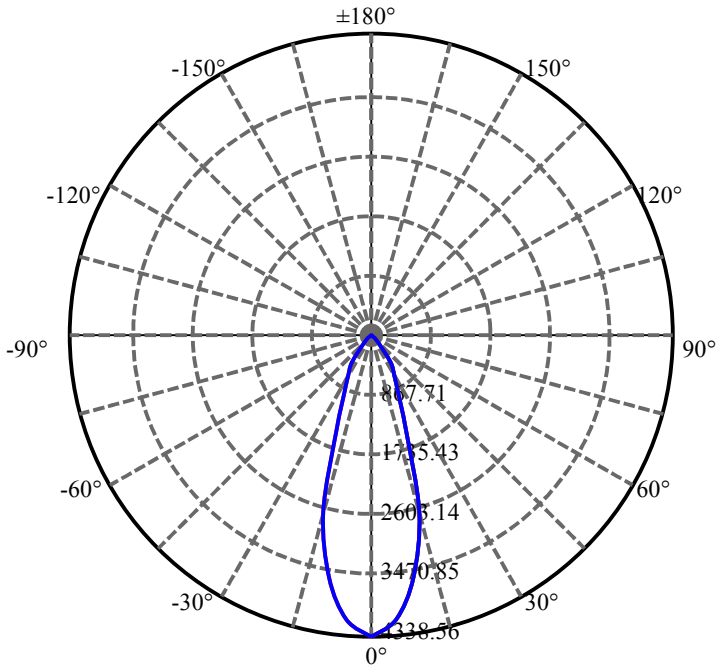
ZONAL LUMEN SUMMARY

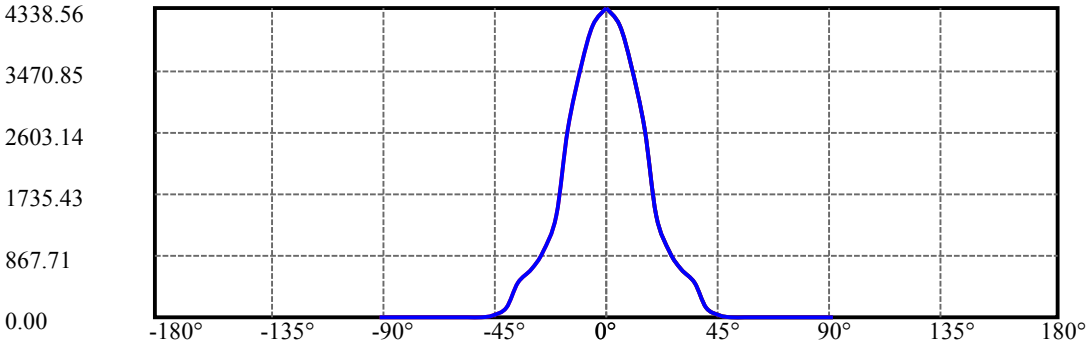
Zone	Lumens	%Lamp	%Fixt
0-30	1594.68	79.93%	87.08%
0-40	1790.40	89.74%	97.76%
0-60	1809.11	90.68%	98.78%
0-90	1829.35	91.70%	99.89%
0-120	1829.35	91.70%	99.89%
0-180	1831.38	91.80%	100.00%
60-90	24.24	1.21%	1.32%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.48	1465.11	73.44%	80.00%

ZONAL LUMEN SUMMARY

0-10	558.89
10-20	642.27
20-30	393.52
30-40	195.72
40-50	10.73
50-60	7.98
60-70	8.03
70-80	8.13
80-90	4.08
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:

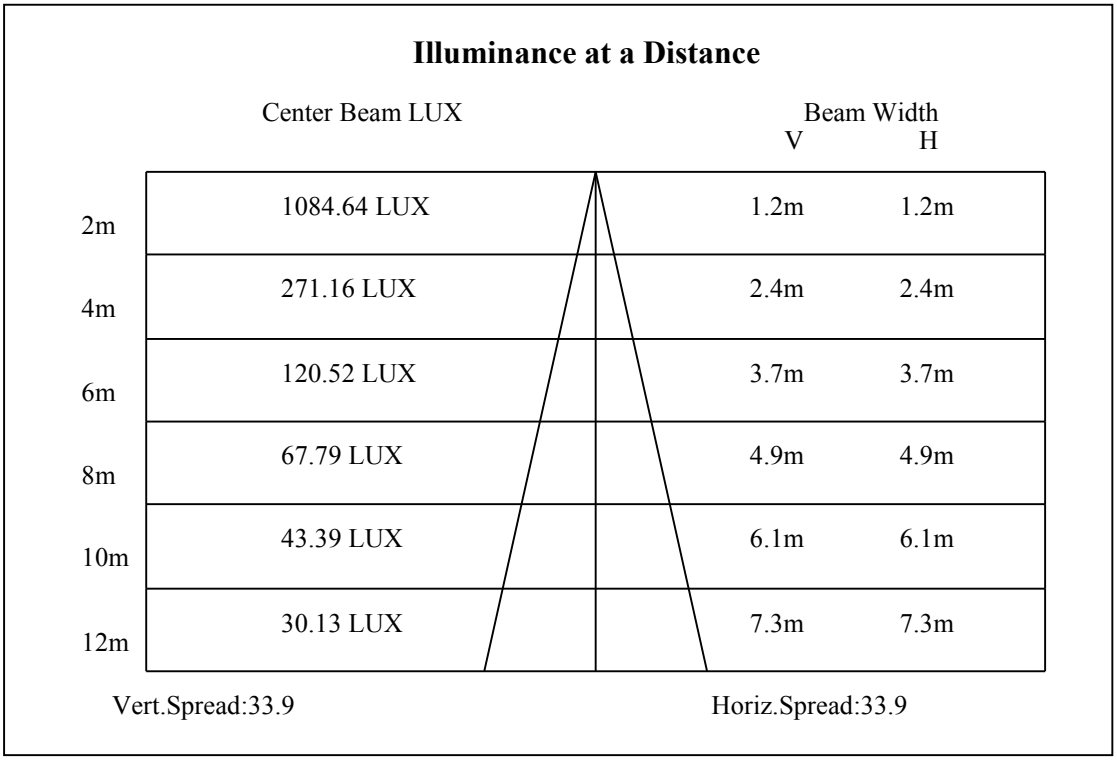
C90/C270:

Field angle(10%Imax):C0/180Left:35.7 Right:35.7
:C90/270Left:35.7 Right:35.7

Beam Angle(50%Imax):C0/180Left:16.9 Right:16.9
:C90/270Left:16.9 Right:16.9

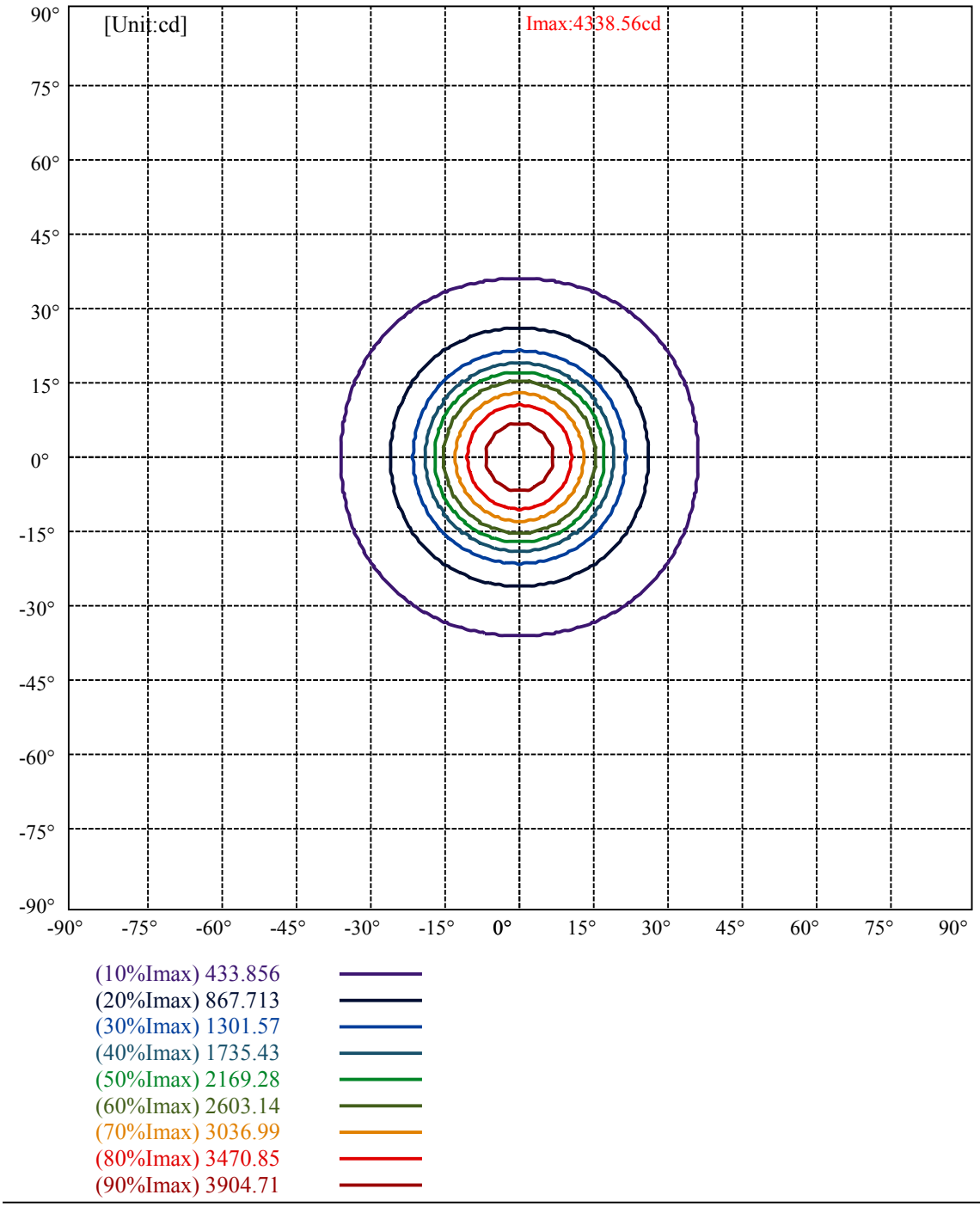
Equipment: GMS1980 Date: 2019/1/15 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

Lux distance Curve



Equipment: GMS1980 Date: 2019/1/15 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

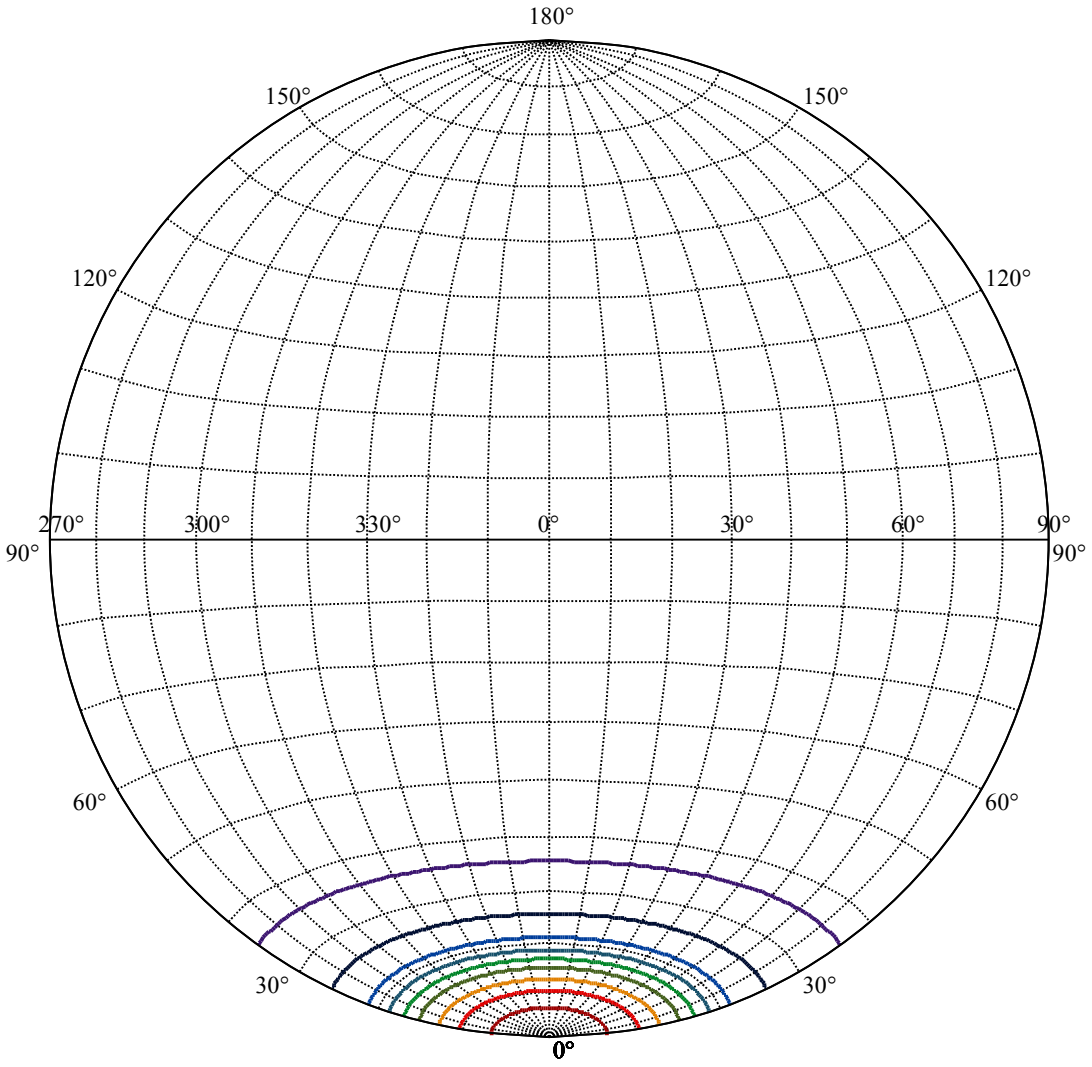


Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:4338.56

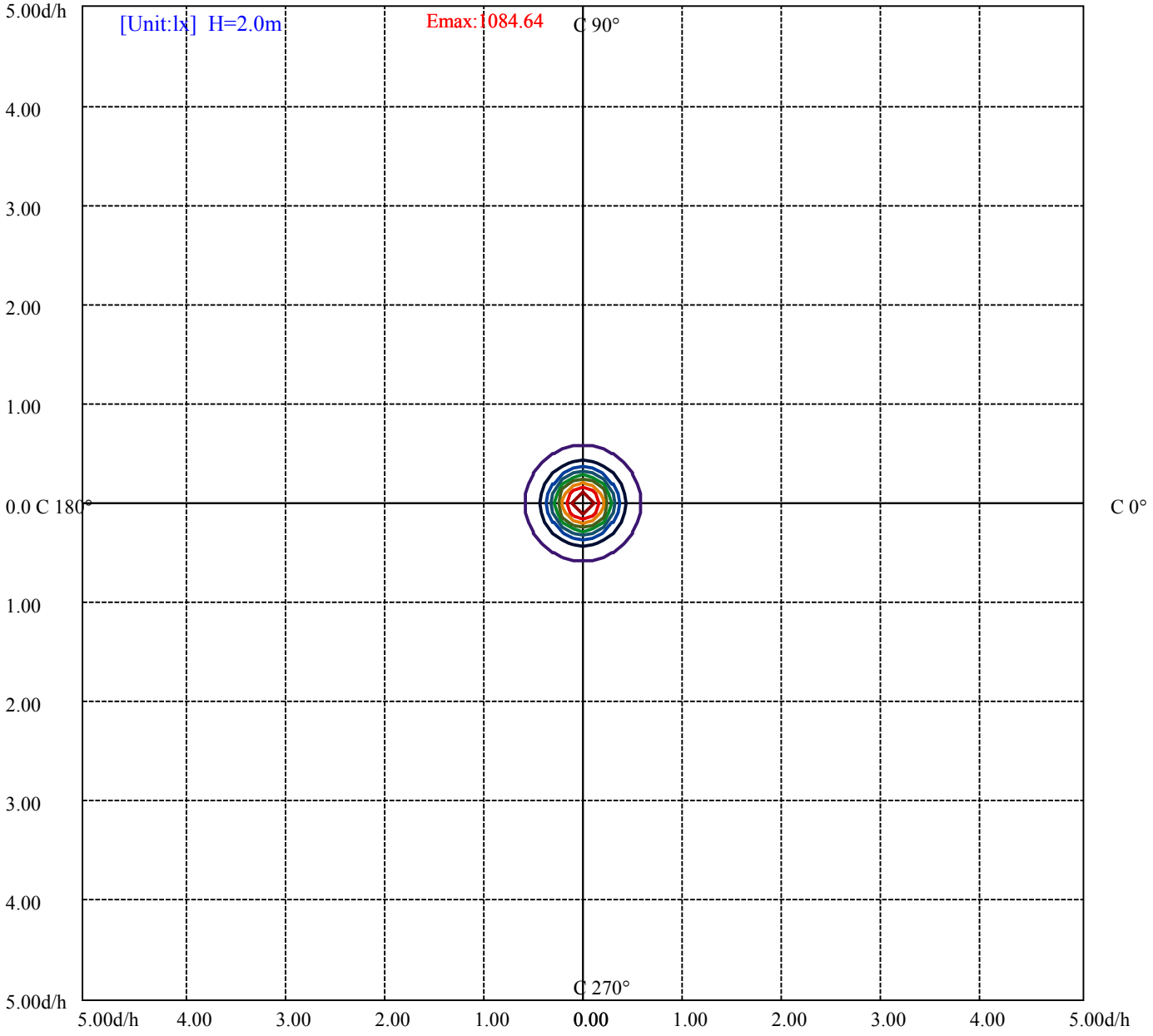
(10%Imax) 433.856
(20%Imax) 867.713
(30%Imax) 1301.57
(40%Imax) 1735.43
(50%Imax) 2169.28
(60%Imax) 2603.14
(70%Imax) 3036.99
(80%Imax) 3470.85
(90%Imax) 3904.71

Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

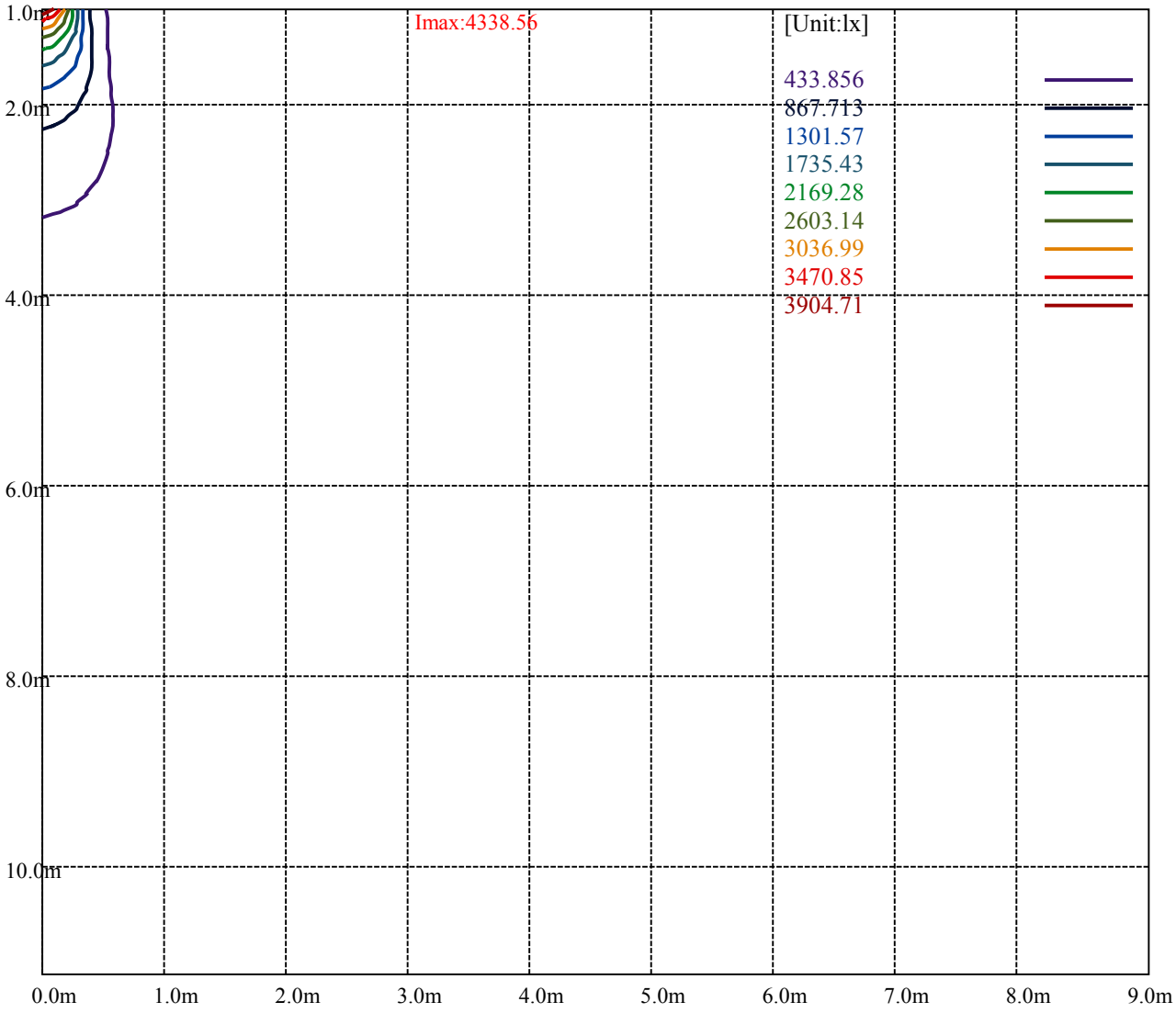
ISO illuminance diagram



(10%Emax) 108.464
(20%Emax) 216.9277
(30%Emax) 325.3925
(40%Emax) 433.855
(50%Emax) 542.32
(60%Emax) 650.7825
(70%Emax) 759.2475
(80%Emax) 867.71
(90%Emax) 976.175

Equipment: GMS1980
Temperature(°C): 10.0
Date: 2019/1/15
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/15
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

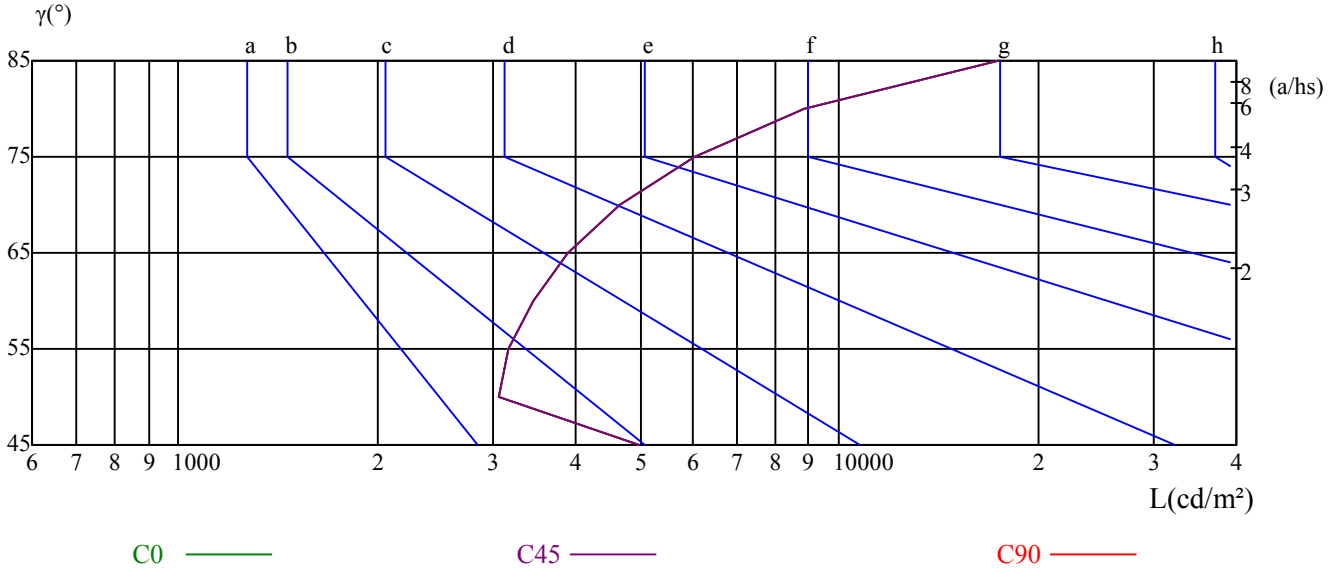
γ	45	50	55	60	65	70	75	80	85
C0	4968	3065	3160	3435	3894	4665	6043	8867	17485
C45	4968	3065	3160	3435	3894	4665	6043	8867	17485
C90	4968	3065	3160	3435	3894	4665	6043	8867	17485

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3894	3894	3894	6043	6043	6043	17485	17485	17485

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

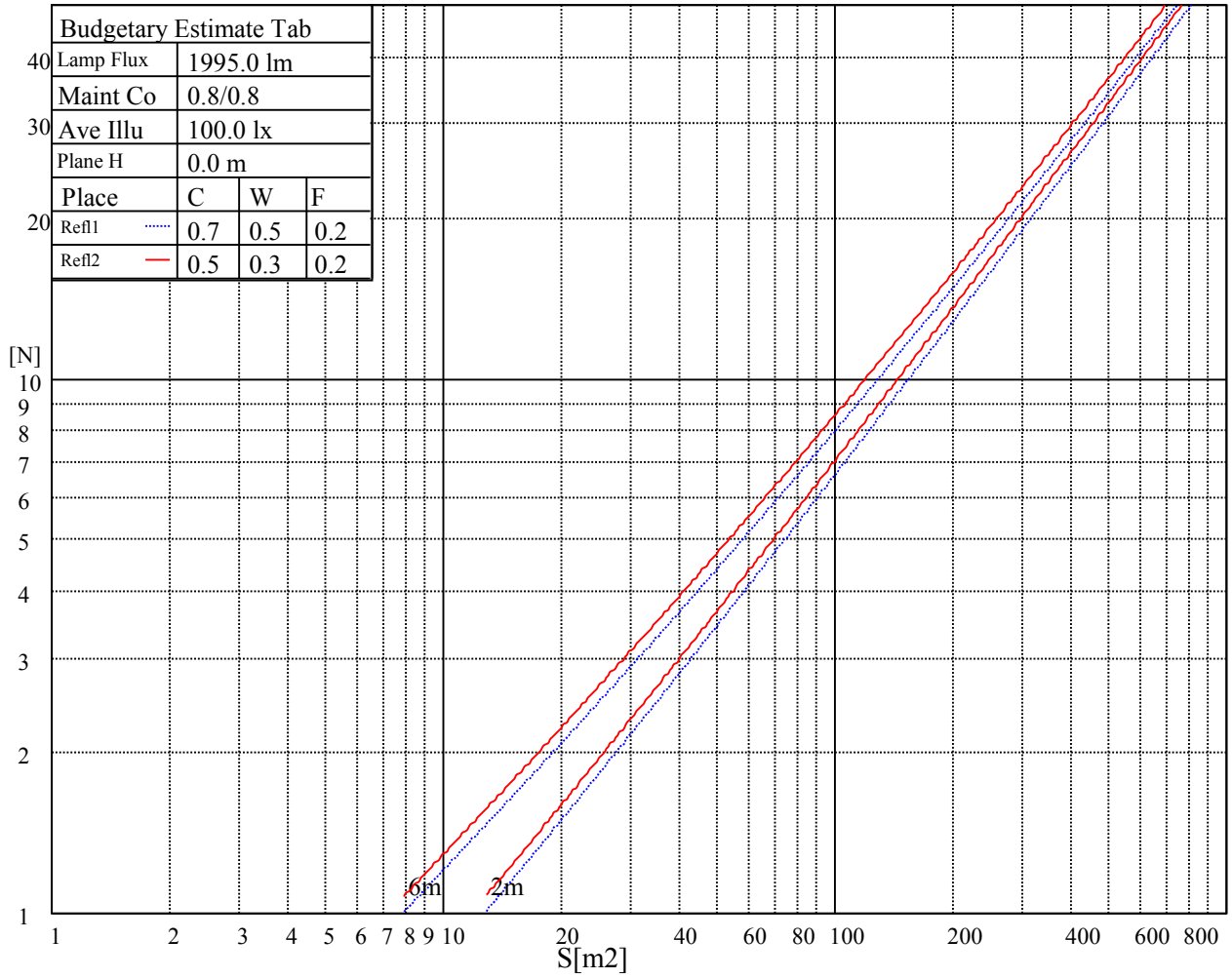


UGR Glare

Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	2.81	3.72	3.17	4.03	4.35	2.78	3.70	3.15	4.01	4.33
	3H	5.92	6.73	6.31	7.06	7.43	5.89	6.69	6.27	7.03	7.40
	4H	7.63	8.38	8.04	8.73	9.12	7.59	8.34	8.00	8.69	9.08
	6H	9.57	10.25	9.99	10.62	11.02	9.51	10.19	9.93	10.56	10.96
	8H	10.64	11.28	11.08	11.67	12.08	10.57	11.21	11.01	11.60	12.01
	12H	12.38	12.99	12.81	13.37	13.81	12.30	12.91	12.74	13.30	13.73
4H	2H	3.68	4.43	4.09	4.78	5.17	3.66	4.41	4.07	4.76	5.16
	3H	7.05	7.67	7.47	8.08	8.48	7.03	7.64	7.44	8.05	8.46
	4H	8.93	9.48	9.37	9.91	10.35	8.91	9.45	9.35	9.88	10.33
	6H	11.03	11.50	11.50	11.95	12.42	10.98	11.44	11.45	11.90	12.37
	8H	12.20	12.64	12.68	13.09	13.57	12.14	12.58	12.62	13.03	13.50
	12H	13.85	14.22	14.34	14.71	15.19	13.78	14.15	14.27	14.64	15.12
8H	4H	9.65	10.08	10.12	10.53	11.01	9.63	10.06	10.10	10.51	10.99
	6H	12.02	12.36	12.53	12.86	13.35	11.97	12.31	12.48	12.82	13.31
	8H	13.38	13.68	13.92	14.21	14.71	13.33	13.63	13.86	14.15	14.65
	12H	15.17	15.42	15.69	15.92	16.51	15.10	15.36	15.63	15.86	16.45
12H	4H	9.85	10.22	10.34	10.71	11.19	9.83	10.20	10.32	10.69	11.17
	6H	12.53	12.63	12.87	13.11	13.66	12.49	12.59	12.83	13.07	13.62
	8H	13.82	14.08	14.35	14.58	15.17	13.78	14.04	14.30	14.54	15.12

Variation with the observer position at spacings:		
S = 1.0H	5.1/-7.9	5.1/-7.9
S = 1.5H	7.4/-6.0	7.4/-6.0
S = 2.0H	8.8/-4.5	8.8/-4.5
Standard tables:	BK2	BK2
Uncorrected UGR	0.9	0.9

Budgetary Estimate Table

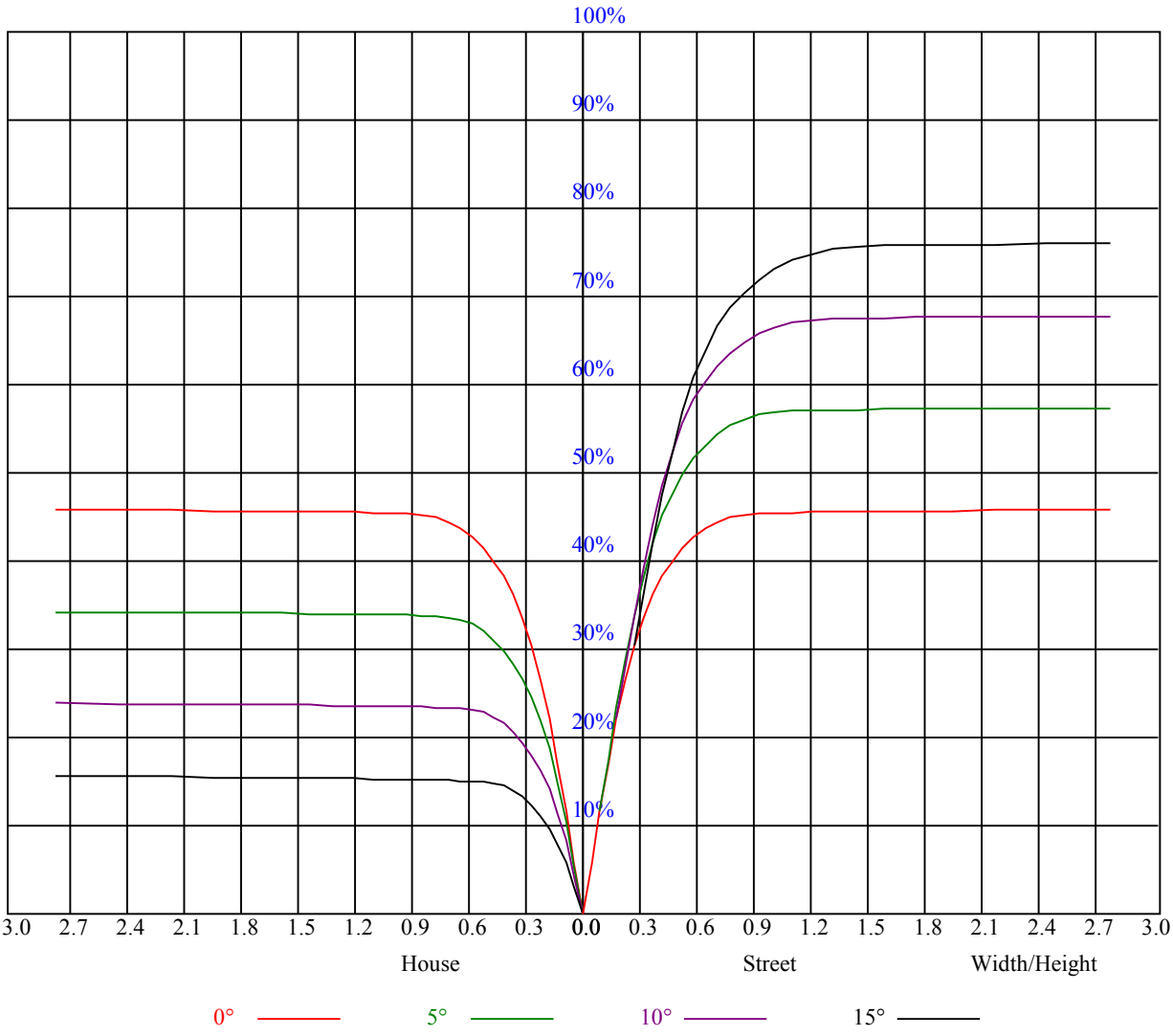


Equipment: GMS1980 Date: 2019/1/15 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.11	1.11	1.11	1.08	1.08	1.08	1.03	1.03	1.03	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	1.00	0.98	1.00	0.98	0.96	0.97	0.95	0.93	0.93	0.92	0.91	0.90	0.89	0.88	0.86
2	0.97	0.93	0.90	0.95	0.92	0.89	0.92	0.90	0.87	0.90	0.87	0.86	0.87	0.85	0.84	0.82
3	0.92	0.88	0.85	0.91	0.87	0.84	0.88	0.85	0.83	0.86	0.83	0.81	0.84	0.82	0.80	0.79
4	0.88	0.83	0.80	0.87	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.78	0.81	0.79	0.77	0.75
5	0.84	0.79	0.76	0.83	0.79	0.75	0.81	0.78	0.75	0.80	0.77	0.74	0.78	0.76	0.74	0.72
6	0.80	0.76	0.72	0.80	0.75	0.72	0.78	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.69
7	0.77	0.72	0.69	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.67
8	0.74	0.70	0.66	0.74	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.64
9	0.71	0.67	0.64	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.69	0.66	0.63	0.62
10	0.69	0.65	0.62	0.69	0.64	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.60

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/1/15	Operator: NT07
Temperature(°C): 10.0	Humidity(%): 65.0%	Distance(m): 7.50

Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	4344.19	4030.88	3489.19	2521.69	1401.19	892.69	672.19	462.94	54.73
45.0	4345.88	4044.94	3451.50	2498.63	1310.63	851.63	648.00	432.56	44.78
90.0	4335.75	4028.63	3434.63	2382.19	1067.34	840.09	638.61	416.42	48.88
135.0	4328.44	4197.94	3699.00	2814.75	1675.13	930.94	686.81	531.56	303.75
180.0	4344.19	4163.63	3628.13	2794.50	1523.25	936.00	671.34	493.88	92.87
225.0	4345.88	4158.00	3674.25	2837.25	1663.31	965.76	698.40	529.99	120.15
270.0	4335.75	4161.38	3643.88	2865.38	1718.44	982.13	704.25	570.38	300.38
315.0	4328.44	3989.81	3322.69	2356.88	1102.67	838.46	649.58	417.15	38.59
360.0	4344.19	4030.88	3489.19	2521.69	1401.19	892.69	672.19	462.94	54.73

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	14.46	9.51	8.89	8.44	8.04	7.76	7.59	7.48	7.37
45.0	17.83	9.62	8.94	8.44	8.10	7.88	7.71	7.54	7.48
90.0	18.23	9.39	8.78	8.38	8.04	7.82	7.65	7.54	7.48
135.0	20.36	9.73	8.89	8.44	8.10	7.82	7.71	7.54	7.48
180.0	19.07	9.56	8.78	8.33	7.99	7.76	7.59	7.48	7.43
225.0	19.07	9.84	9.00	8.49	8.10	7.88	7.71	7.59	7.54
270.0	17.21	9.96	9.00	8.49	8.16	7.88	7.71	7.65	7.48
315.0	11.48	9.62	8.78	8.33	7.99	7.76	7.65	7.54	7.48
360.0	14.46	9.51	8.89	8.44	8.04	7.76	7.59	7.48	7.37

C/γ(°)	90.0
0.0	7.37
45.0	7.43
90.0	7.43
135.0	7.37
180.0	7.37
225.0	7.43
270.0	7.48
315.0	7.43
360.0	7.37