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NATA

LumCAT: 3-1219-E
Luminaire: 92.70.074.00

Report No: NATA0100	Voltage(V): 35.6000
Test No: GC2019030607	Current(A): 0.4000
LampCAT: CREE CXA1816	Power (W): 15.3100
Lamp flux(lm): 1503.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 79	Width(mm): 79
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1368.18
Efficiency(%): 91.03%
Lumens(lm)/Power(W): 89.83
Central intensity(cd): 1410.469
Maximum intensity(cd): 1410.469
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=56.6
[C90/270]Total=56.6
Field angle(10%Imax): [C0/180]Total=94.5
[C90/270]Total=94.5
Maximum s/h(1/2): C0_180=0.86 C90_270=0.86
Maximum s/h(1/4): C0_180=0.89 C90_270=0.89
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.50%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.062%

Equipment: GMS1980	Date: 2019/3/6	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	1410.469	8.435	8.435	.561%	.617%
5.0	1398.375	66.805	75.24	4.445%	5.499%
10.0	1334.531	127.025	202.265	8.451%	14.783%
15.0	1206.872	171.217	373.482	11.392%	27.298%
20.0	1047.994	196.472	569.953	13.072%	41.658%
25.0	828.956	192.030	761.983	12.776%	55.693%
30.0	640.800	175.623	937.607	11.685%	68.529%
35.0	504.541	158.627	1096.234	10.554%	80.123%
40.0	392.709	138.366	1234.599	9.206%	90.236%
45.0	214.509	83.142	1317.741	5.532%	96.313%
50.0	49.845	20.930	1338.671	1.393%	97.843%
55.0	13.254	5.951	1344.622	.396%	98.278%
60.0	8.522	4.045	1348.667	.269%	98.574%
65.0	8.255	4.101	1352.768	.273%	98.873%
70.0	7.882	4.060	1356.828	.270%	99.170%
75.0	6.891	3.648	1360.476	.243%	99.437%
80.0	6.792	3.666	1364.143	.244%	99.705%
85.0	5.077	2.772	1366.915	.184%	99.907%
90.0	4.627	1.268	1368.183	.084%	100.000%

Zonal flux distribution table

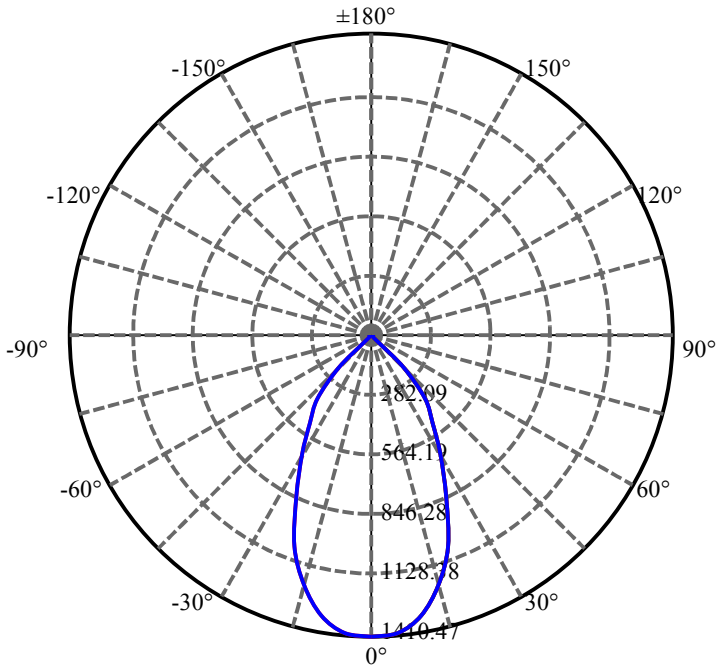
ZONAL LUMEN SUMMARY

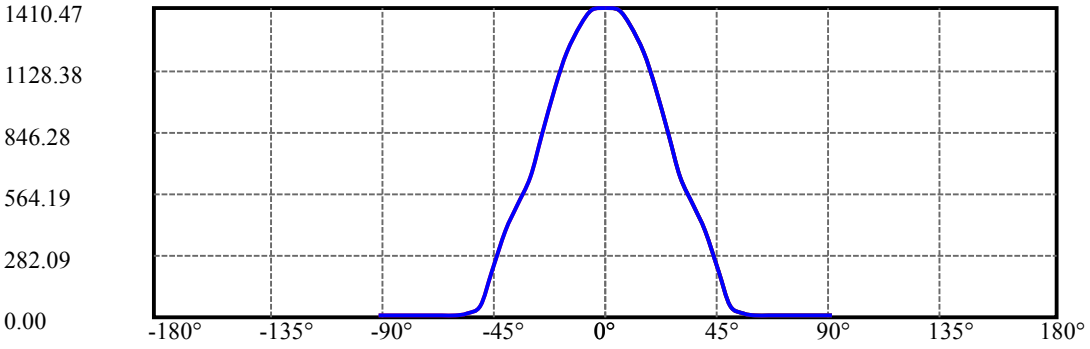
Zone	Lumens	%Lamp	%Fixt
0-30	937.61	62.38%	68.53%
0-40	1234.60	82.14%	90.24%
0-60	1348.67	89.73%	98.57%
0-90	1366.91	90.95%	99.91%
0-120	1366.91	90.95%	99.91%
0-180	1368.18	91.03%	100.00%
60-90	22.29	1.48%	1.63%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-34.95	1094.55	72.82%	80.00%

ZONAL LUMEN SUMMARY

0-10	202.26
10-20	367.69
20-30	367.65
30-40	296.99
40-50	104.07
50-60	10.00
60-70	8.16
70-80	7.31
80-90	2.77
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):

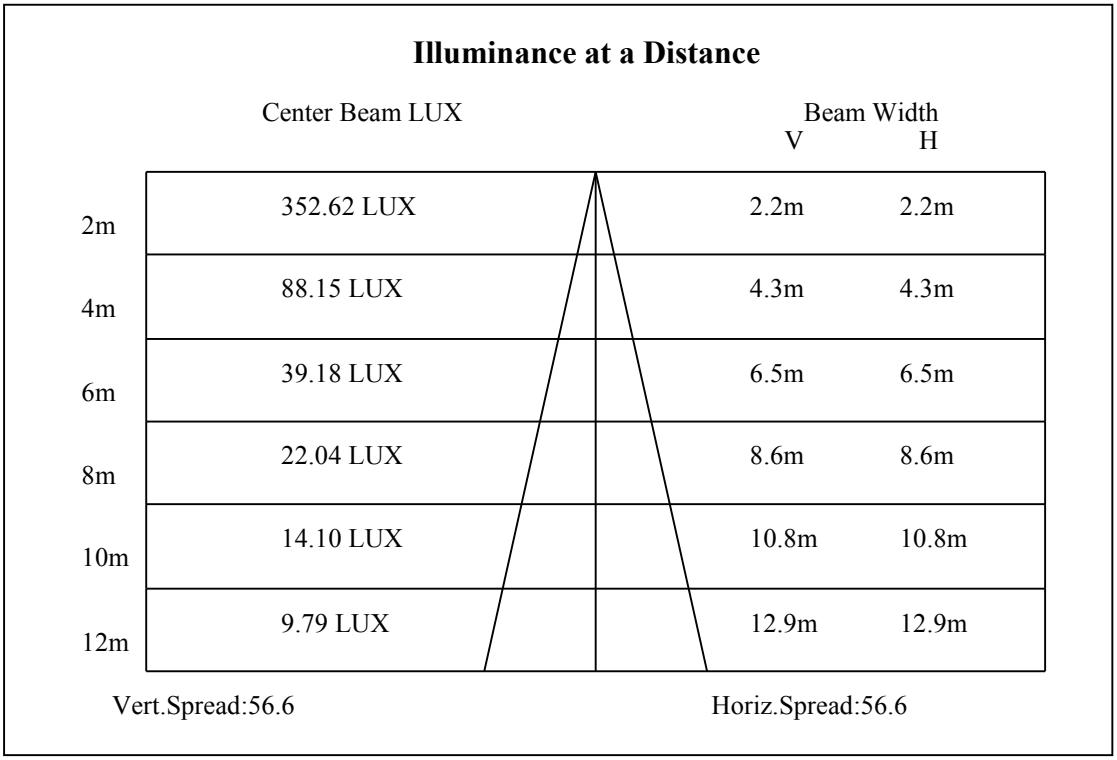
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:47.2 Right:47.2
:C90/270Left:47.2 Right:47.2

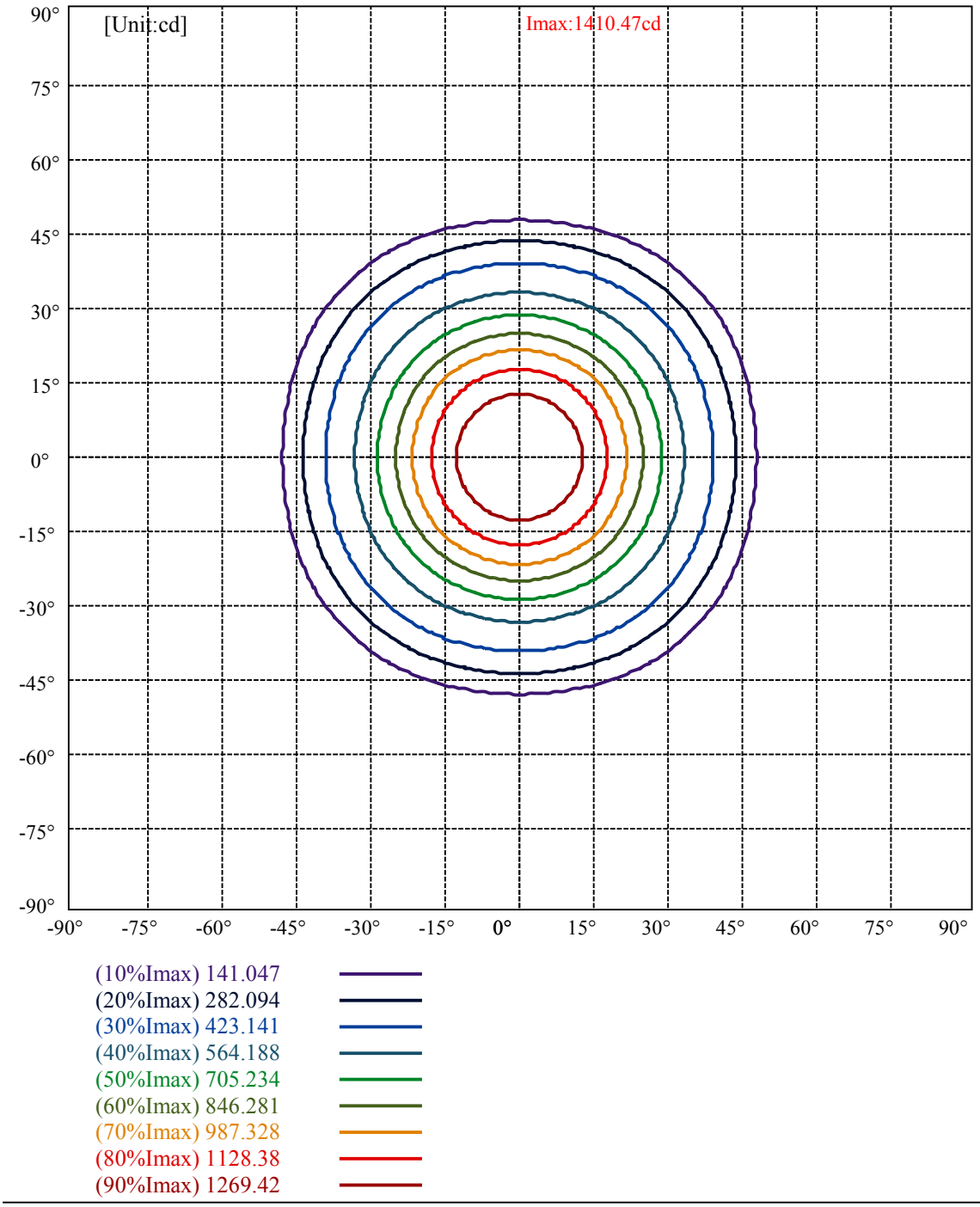
Beam Angle(50%Imax):C0/180Left:28.3 Right:28.3
:C90/270Left:28.3 Right:28.3

Lux distance Curve



Equipment: GMS1980 Date: 2019/3/6 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

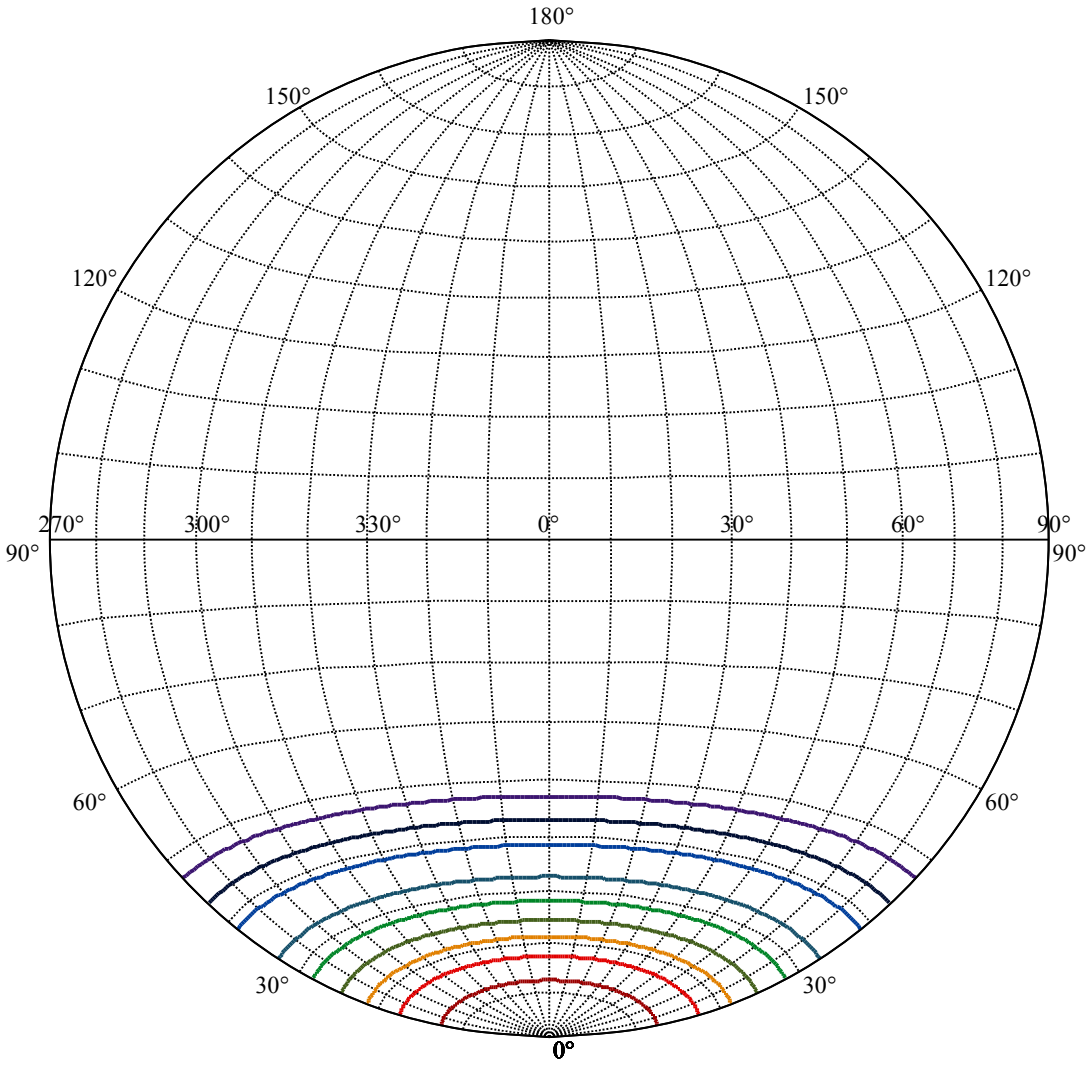


Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/3/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:1410.47

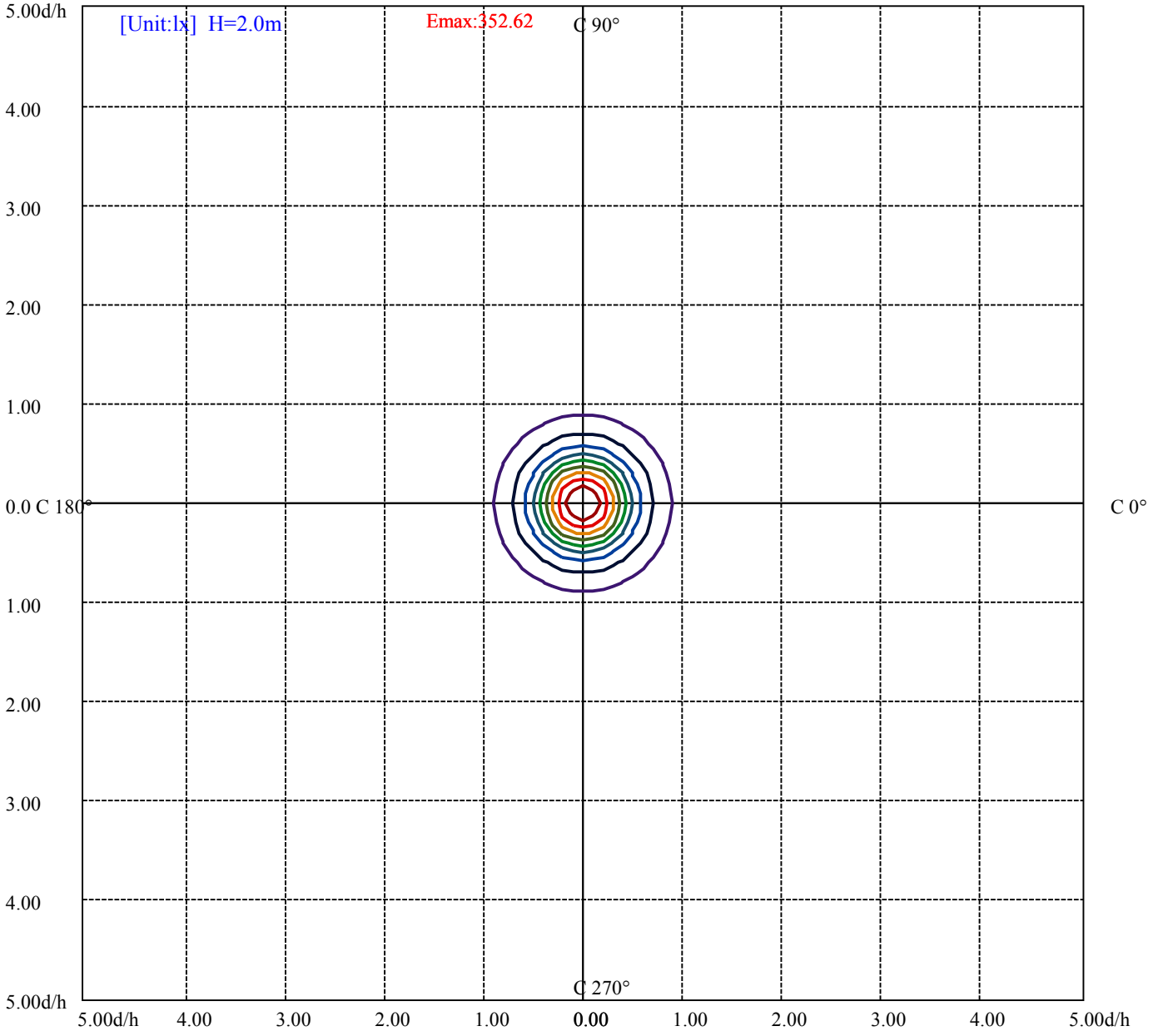
(10%Imax) 141.047
(20%Imax) 282.094
(30%Imax) 423.141
(40%Imax) 564.188
(50%Imax) 705.234
(60%Imax) 846.281
(70%Imax) 987.328
(80%Imax) 1128.38
(90%Imax) 1269.42

Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/3/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

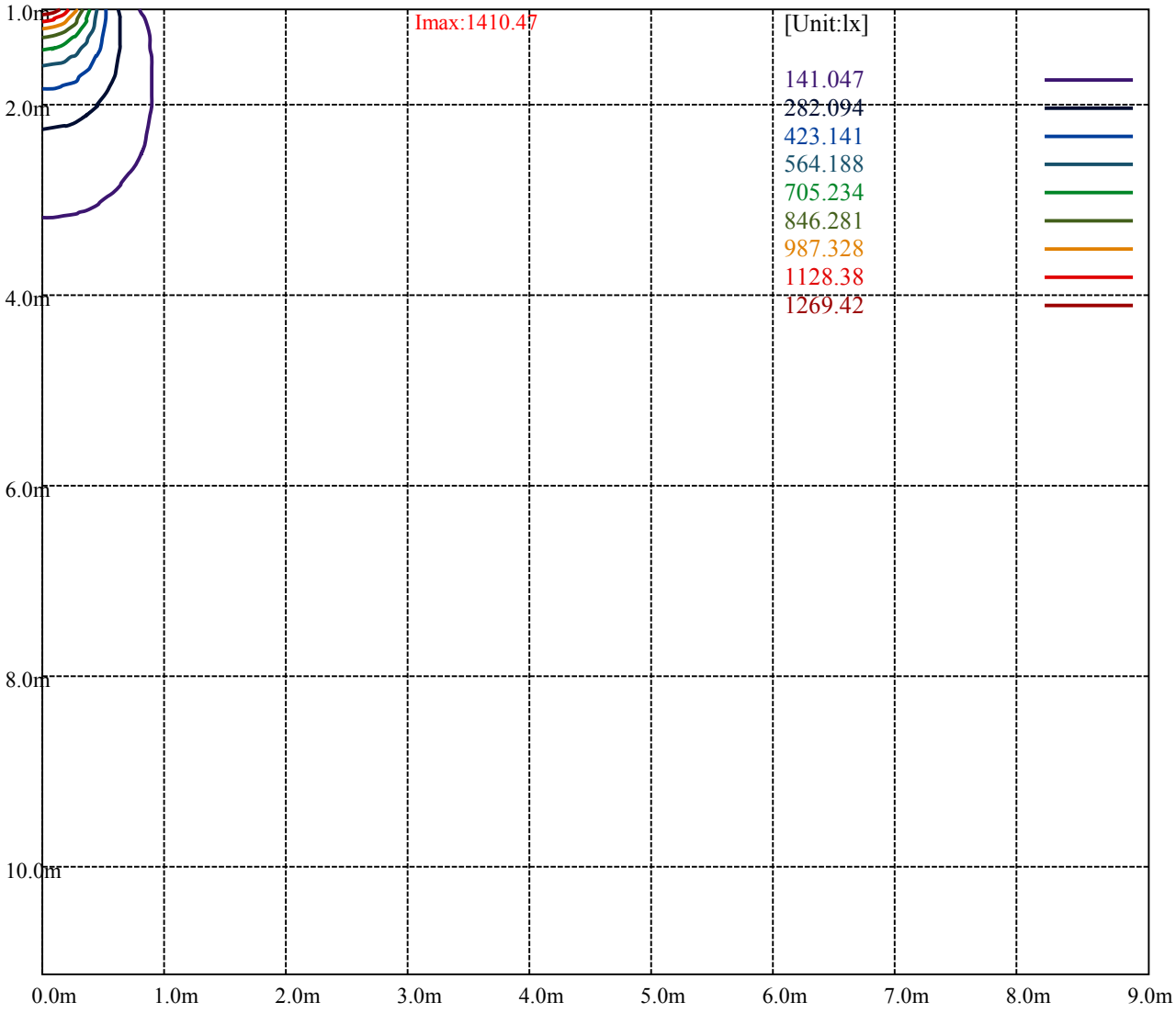
ISO illuminance diagram



(10%Emax) 35.26175
(20%Emax) 70.5235
(30%Emax) 105.7852
(40%Emax) 141.0468
(50%Emax) 176.3085
(60%Emax) 211.5703
(70%Emax) 246.832
(80%Emax) 282.0925
(90%Emax) 317.355

Equipment: GMS1980
Temperature(°C): 10.0
Date: 2019/3/6
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/3/6
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

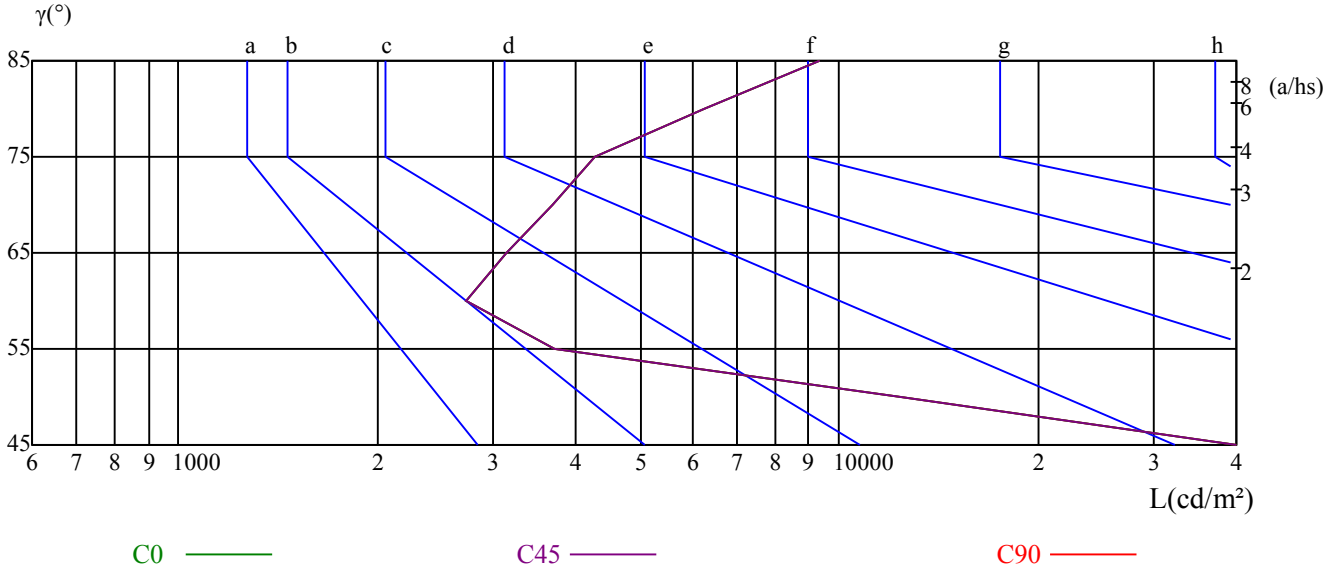
γ	45	50	55	60	65	70	75	80	85
C0	48608	12425	3703	2731	3130	3693	4266	6267	9333
C45	48608	12425	3703	2731	3130	3693	4266	6267	9333
C90	48608	12425	3703	2731	3130	3693	4266	6267	9333

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3130	3130	3130	4266	4266	4266	9333	9333	9333

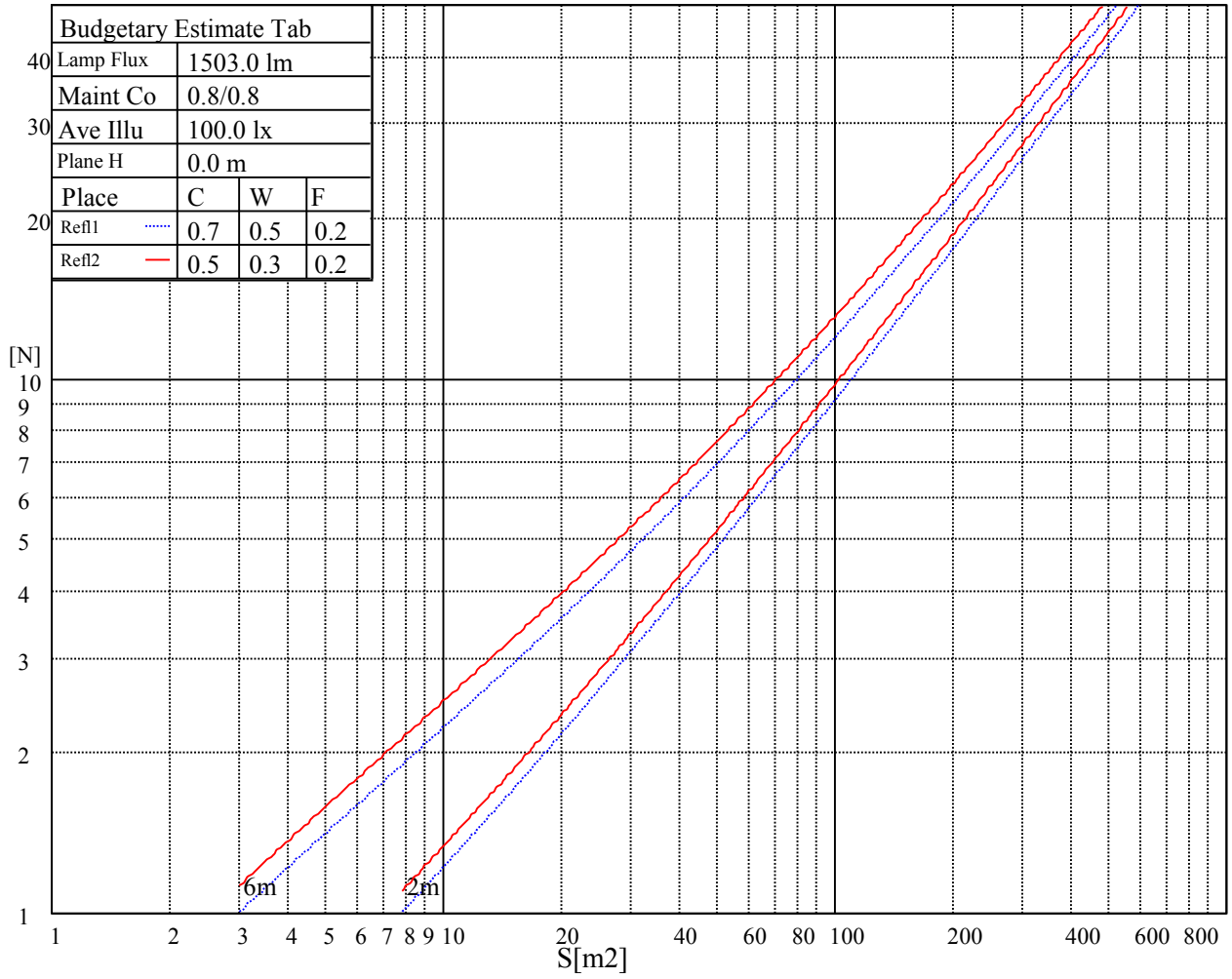
Glare Table

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

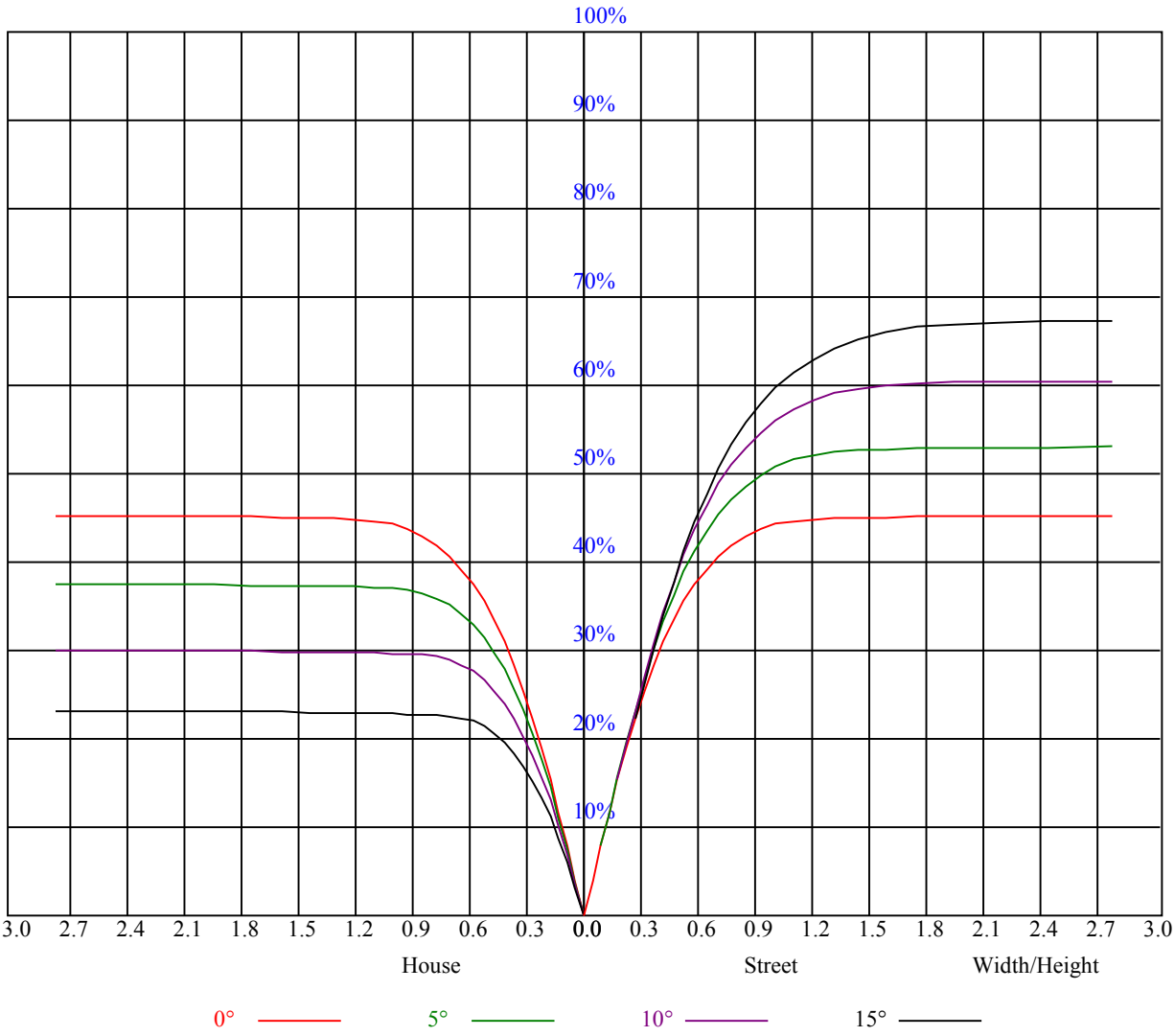


Equipment: GMS1980 Date: 2019/3/6 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.09	1.09	1.09	1.06	1.06	1.06	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.92
1	1.00	0.98	0.96	0.98	0.96	0.94	0.95	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.84
2	0.93	0.90	0.86	0.92	0.88	0.85	0.89	0.86	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.78
3	0.87	0.82	0.79	0.86	0.82	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.79	0.77	0.74	0.73
4	0.81	0.76	0.72	0.80	0.76	0.72	0.78	0.74	0.71	0.77	0.73	0.70	0.75	0.72	0.69	0.68
5	0.76	0.71	0.67	0.76	0.70	0.67	0.74	0.69	0.66	0.72	0.69	0.65	0.71	0.68	0.65	0.64
6	0.72	0.66	0.62	0.71	0.66	0.62	0.70	0.65	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.60
7	0.68	0.62	0.58	0.67	0.62	0.58	0.66	0.61	0.58	0.65	0.61	0.57	0.64	0.60	0.57	0.56
8	0.64	0.58	0.55	0.63	0.58	0.55	0.62	0.58	0.54	0.61	0.57	0.54	0.60	0.57	0.54	0.53
9	0.60	0.55	0.51	0.60	0.55	0.51	0.59	0.54	0.51	0.58	0.54	0.51	0.58	0.54	0.51	0.50
10	0.57	0.52	0.49	0.57	0.52	0.48	0.56	0.52	0.48	0.55	0.51	0.48	0.55	0.51	0.48	0.47

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/3/6	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	1410.19	1396.69	1344.38	1244.25	1106.44	910.13	693.56	549.00	445.50
45.0	1406.81	1409.63	1356.75	1261.13	1119.94	919.69	729.00	564.75	457.88
90.0	1415.81	1416.94	1368.56	1271.81	1105.14	878.18	692.10	533.48	434.08
135.0	1409.06	1435.50	1410.19	1305.56	1153.69	914.06	693.56	540.56	437.06
180.0	1410.19	1416.38	1352.81	1217.81	1032.64	782.72	594.73	479.31	374.91
225.0	1406.81	1383.75	1319.06	1121.96	963.51	747.56	581.23	466.82	334.41
270.0	1415.81	1364.63	1270.69	1113.19	930.38	699.75	531.00	408.38	285.19
315.0	1409.06	1363.50	1253.81	1119.26	972.23	779.57	611.21	494.04	372.66
360.0	1410.19	1396.69	1344.38	1244.25	1106.44	910.13	693.56	549.00	445.50

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	293.06	59.18	13.28	6.13	5.68	5.46	5.40	6.69	5.23
45.0	345.94	119.25	14.79	6.64	5.91	5.63	5.34	5.74	5.12
90.0	309.09	93.49	29.03	17.83	17.16	17.04	16.48	9.17	5.06
135.0	288.00	66.26	15.08	6.92	7.26	7.09	5.79	5.06	4.95
180.0	148.05	13.50	6.19	6.24	6.13	5.79	5.06	6.64	5.12
225.0	83.87	10.97	7.93	8.33	9.73	9.34	5.57	8.33	5.06
270.0	109.52	23.85	12.83	9.90	8.44	7.26	6.02	6.69	5.01
315.0	138.54	12.26	6.92	6.19	5.74	5.46	5.46	6.02	5.06
360.0	293.06	59.18	13.28	6.13	5.68	5.46	5.40	6.69	5.23

C/γ(°)	90.0
0.0	4.78
45.0	4.67
90.0	4.61
135.0	4.73
180.0	4.56
225.0	4.56
270.0	4.50
315.0	4.61
360.0	4.78