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: 1680-M
Luminaire: 92.70.064.00

Report No: NATA0100	Voltage(V): 34.4600
Test No: GC2019022201	Current(A): 0.3000
LampCAT: CREE CMT1420	Power (W): 10.3380
Lamp flux(lm): 1567.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 32	Width(mm): 32
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1377.69
Efficiency(%): 87.92%
Lumens(lm)/Power(W): 133.91
Central intensity(cd): 1332.422
Maximum intensity(cd): 1333.266
Angle of maximum intensity: C=0.0 γ=5.0
Beam Angle(50%Imax): [C0/180]Total=64.4
[C90/270]Total=64.4
Field angle(10%Imax): [C0/180]Total=85.7
[C90/270]Total=85.7
Maximum s/h(1/2): C0_180=1.05 C90_270=1.05
Maximum s/h(1/4): C0_180=0.94 C90_270=0.94
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.34%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.025%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1332.422	7.968	7.968	.508%	.578%
5.0	1333.266	63.695	71.663	4.065%	5.202%
10.0	1315.125	125.178	196.84	7.988%	14.288%
15.0	1281.234	181.767	378.607	11.600%	27.481%
20.0	1231.383	230.852	609.459	14.732%	44.238%
25.0	1089.633	252.417	861.876	16.108%	62.559%
30.0	818.009	224.191	1086.066	14.307%	78.832%
35.0	473.154	148.759	1234.825	9.493%	89.630%
40.0	232.580	81.946	1316.772	5.229%	95.578%
45.0	57.938	22.456	1339.228	1.433%	97.208%
50.0	19.680	8.264	1347.491	.527%	97.808%
55.0	11.123	4.995	1352.486	.319%	98.170%
60.0	9.527	4.523	1357.009	.289%	98.499%
65.0	8.613	4.279	1361.287	.273%	98.809%
70.0	7.988	4.114	1365.402	.263%	99.108%
75.0	7.172	3.797	1369.199	.242%	99.384%
80.0	6.792	3.666	1372.865	.234%	99.650%
85.0	6.075	3.317	1376.183	.212%	99.890%
90.0	5.505	1.509	1377.692	.096%	100.000%

Zonal flux distribution table

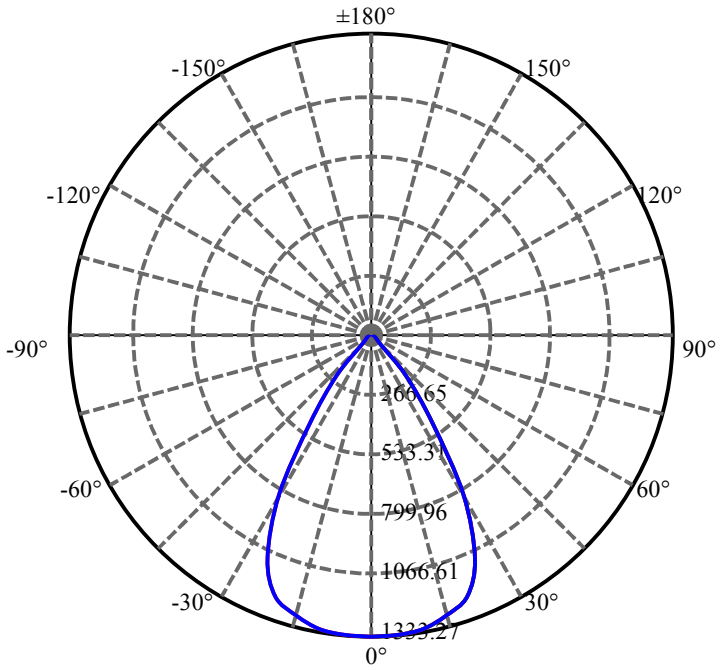
ZONAL LUMEN SUMMARY

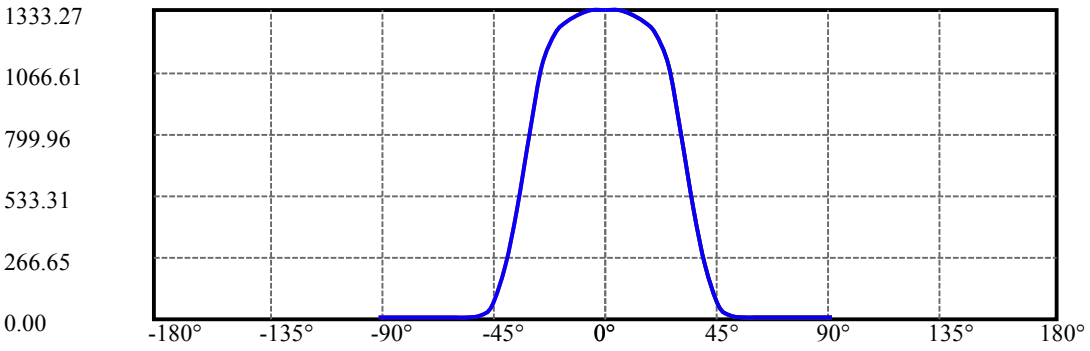
Zone	Lumens	%Lamp	%Fixt
0-30	1086.07	69.31%	78.83%
0-40	1316.77	84.03%	95.58%
0-60	1357.01	86.60%	98.50%
0-90	1376.18	87.82%	99.89%
0-120	1376.18	87.82%	99.89%
0-180	1377.69	87.92%	100.00%
60-90	23.70	1.51%	1.72%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-30.54	1102.15	70.34%	80.00%

ZONAL LUMEN SUMMARY

0-10	196.84
10-20	412.62
20-30	476.61
30-40	230.71
40-50	30.72
50-60	9.52
60-70	8.39
70-80	7.46
80-90	3.32
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):

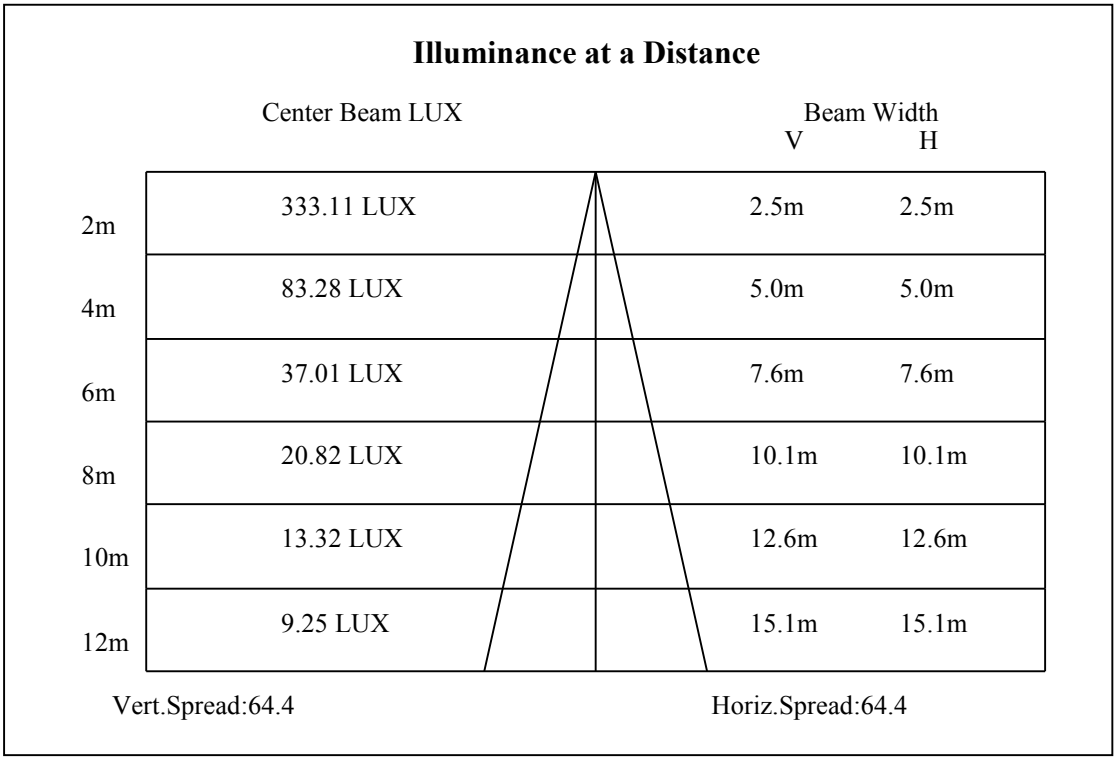
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:47.8 Right:37.8
:C90/270Left:47.8 Right:37.8

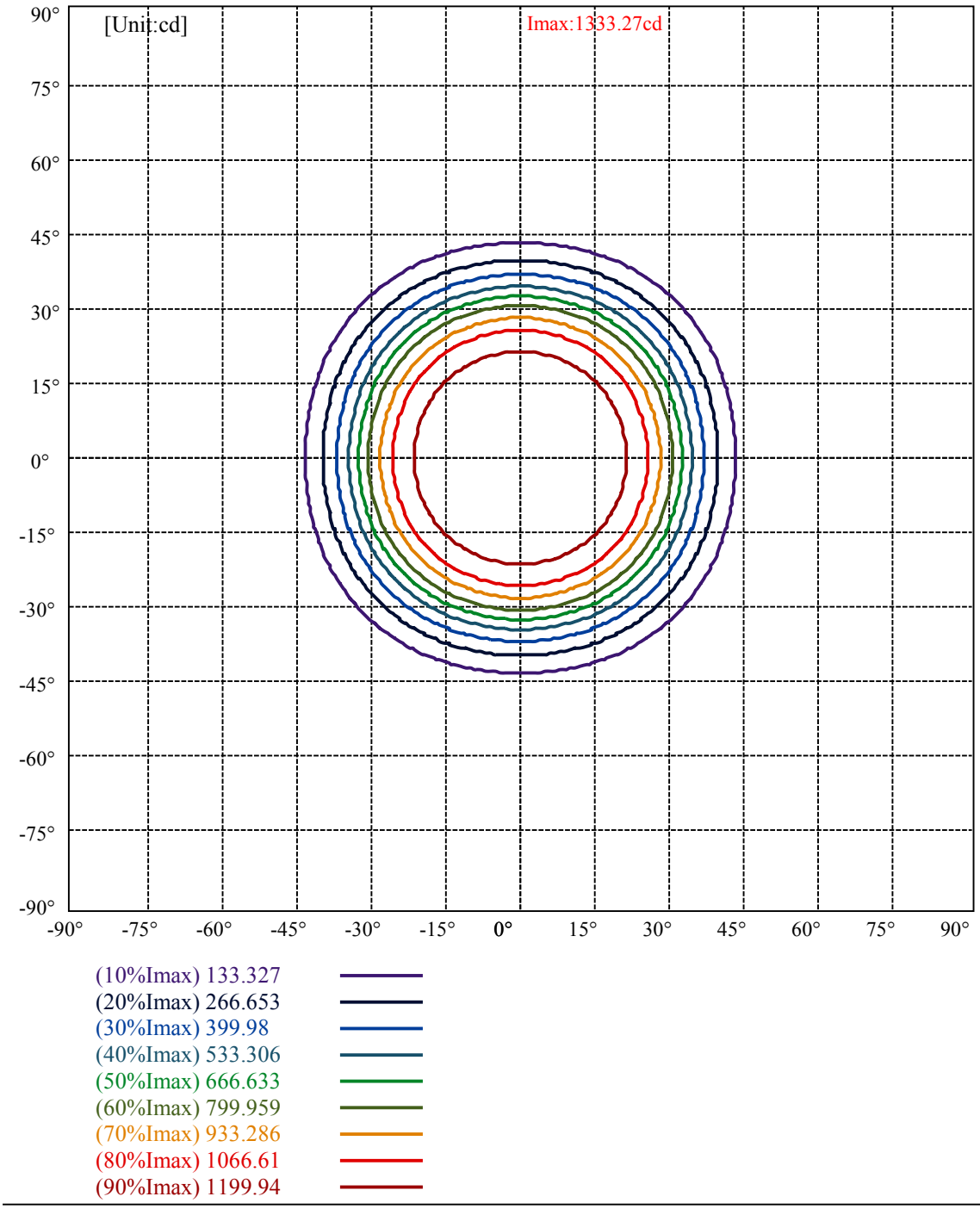
Beam Angle(50%Imax):C0/180Left:37.2 Right:27.2
:C90/270Left:37.2 Right:27.2

Lux distance Curve



Equipment: GMS1980 Date: 2019/2/22 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)



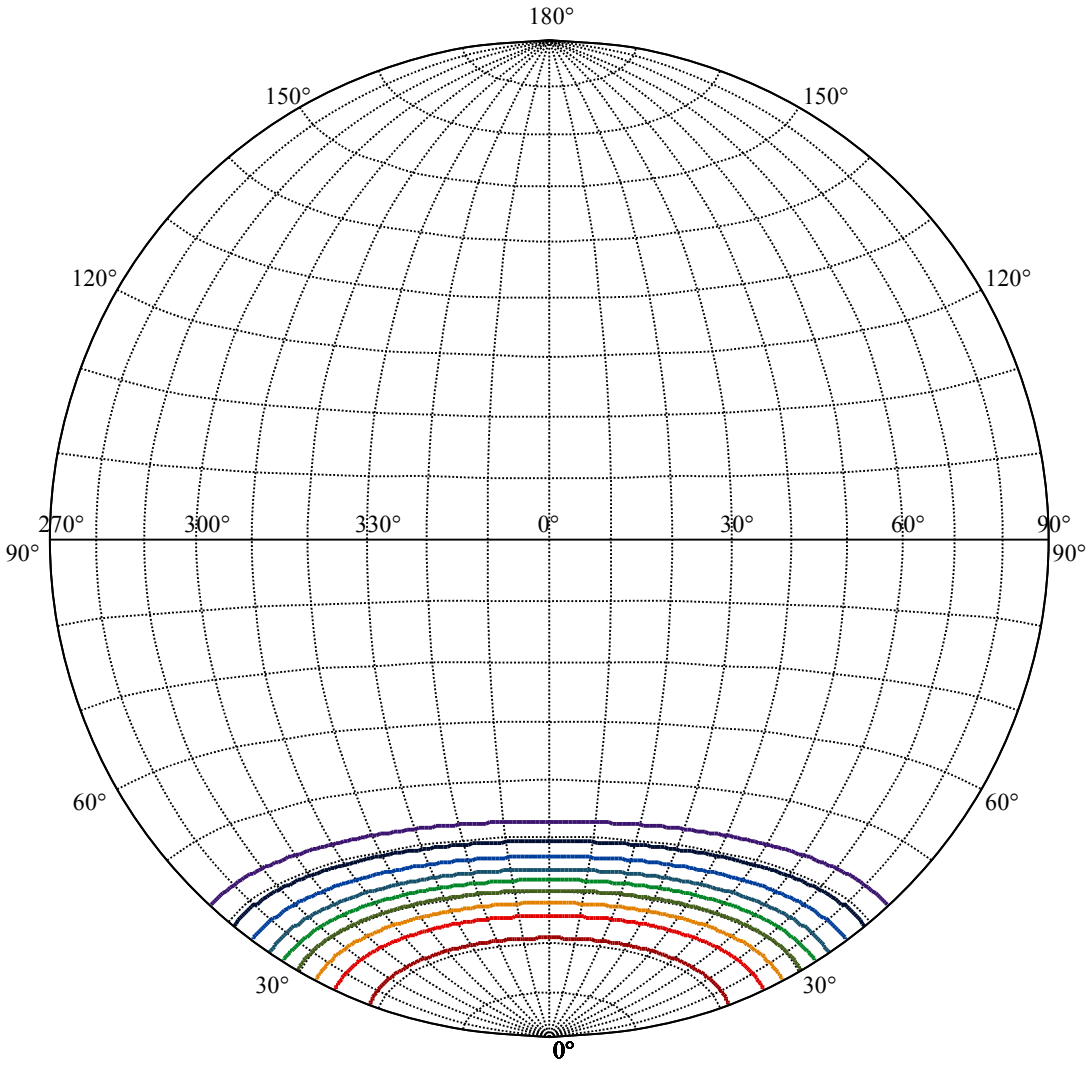
(10%Imax) 133.327
(20%Imax) 266.653
(30%Imax) 399.98
(40%Imax) 533.306
(50%Imax) 666.633
(60%Imax) 799.959
(70%Imax) 933.286
(80%Imax) 1066.61
(90%Imax) 1199.94

Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/2/22
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web

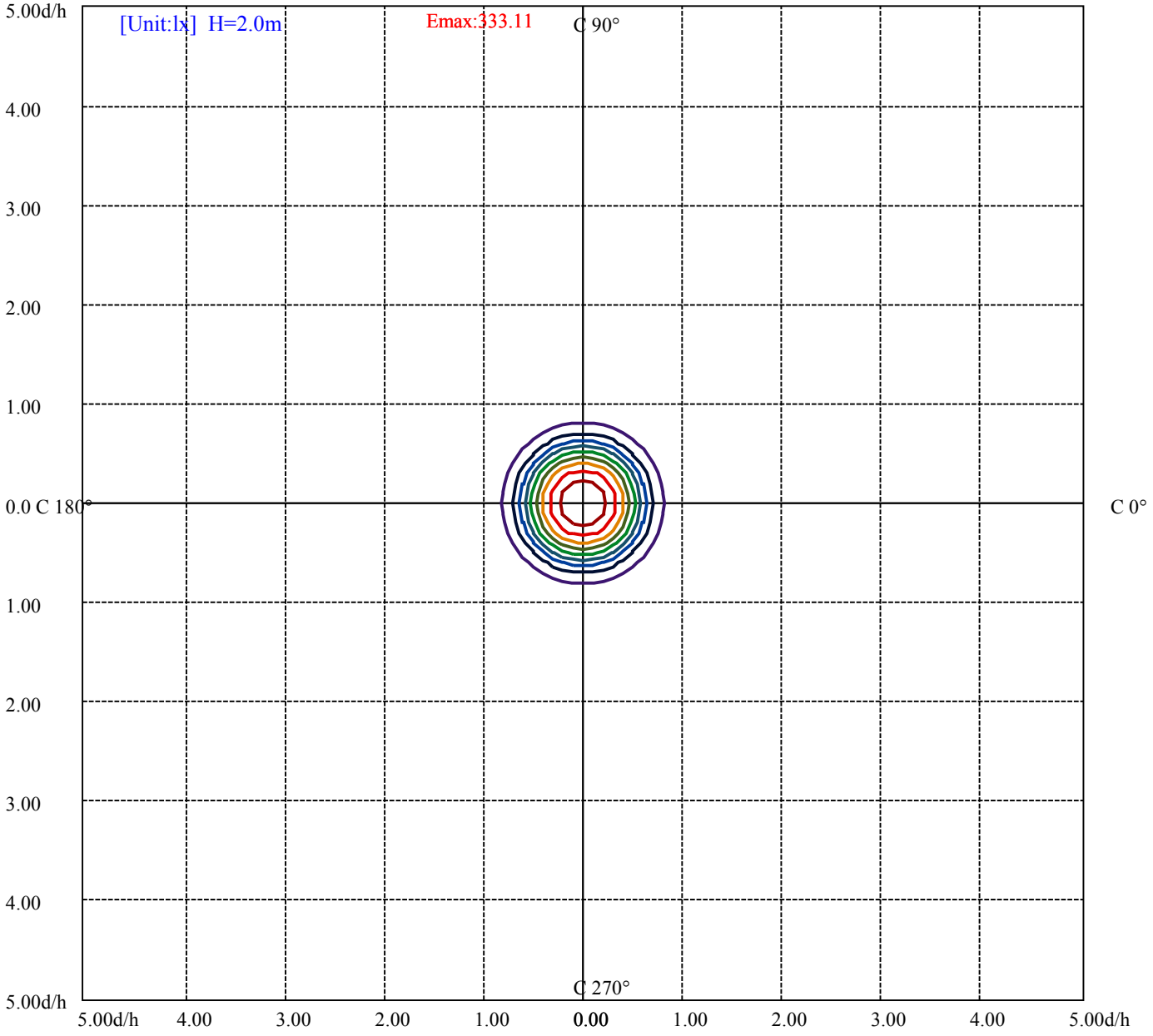


House [Unit:cd] Road

Imax:1333.27

(10%Imax) 133.327
(20%Imax) 266.653
(30%Imax) 399.98
(40%Imax) 533.306
(50%Imax) 666.633
(60%Imax) 799.959
(70%Imax) 933.286
(80%Imax) 1066.61
(90%Imax) 1199.94

ISO illuminance diagram

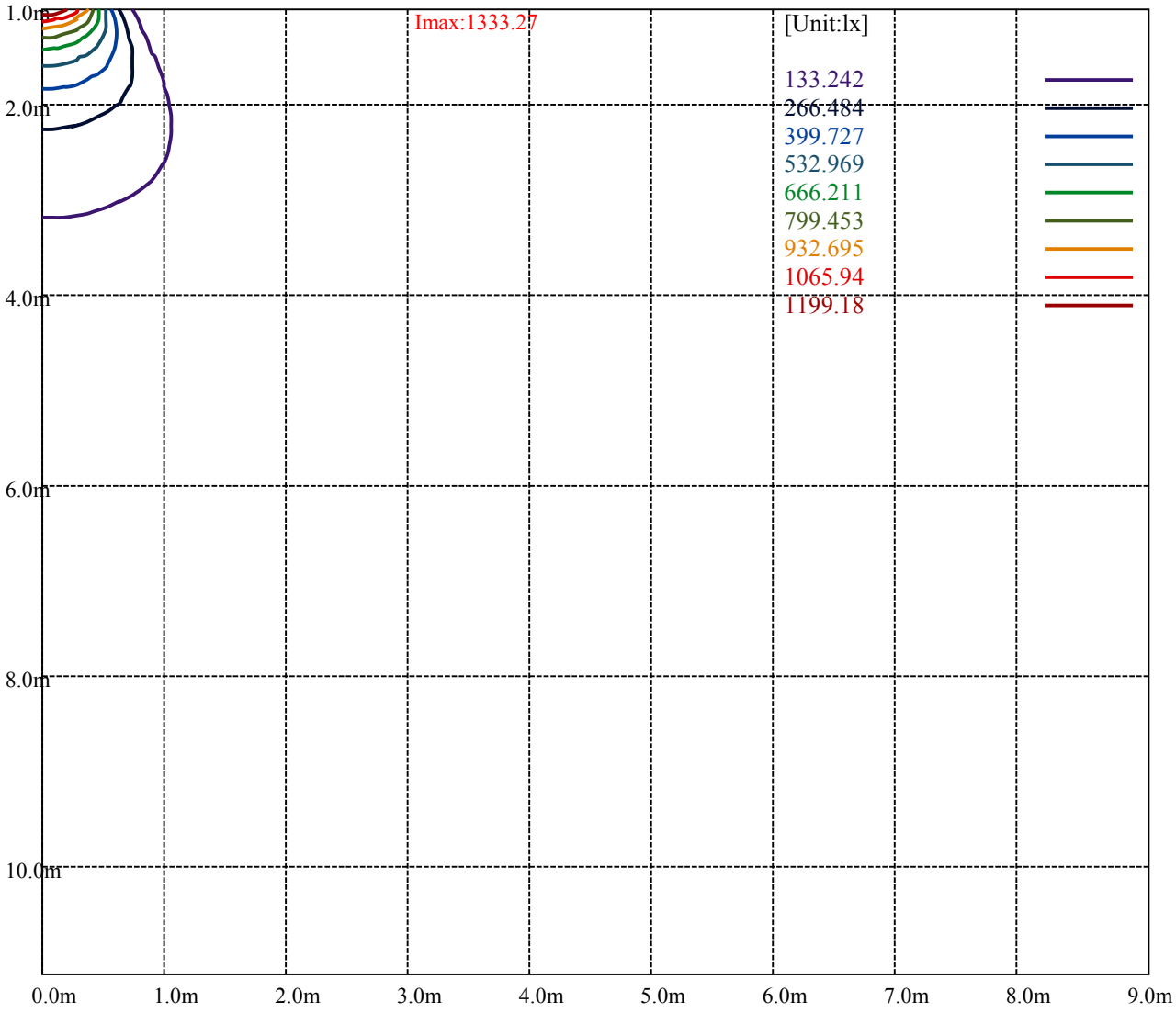


Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/2/22
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/2/22
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

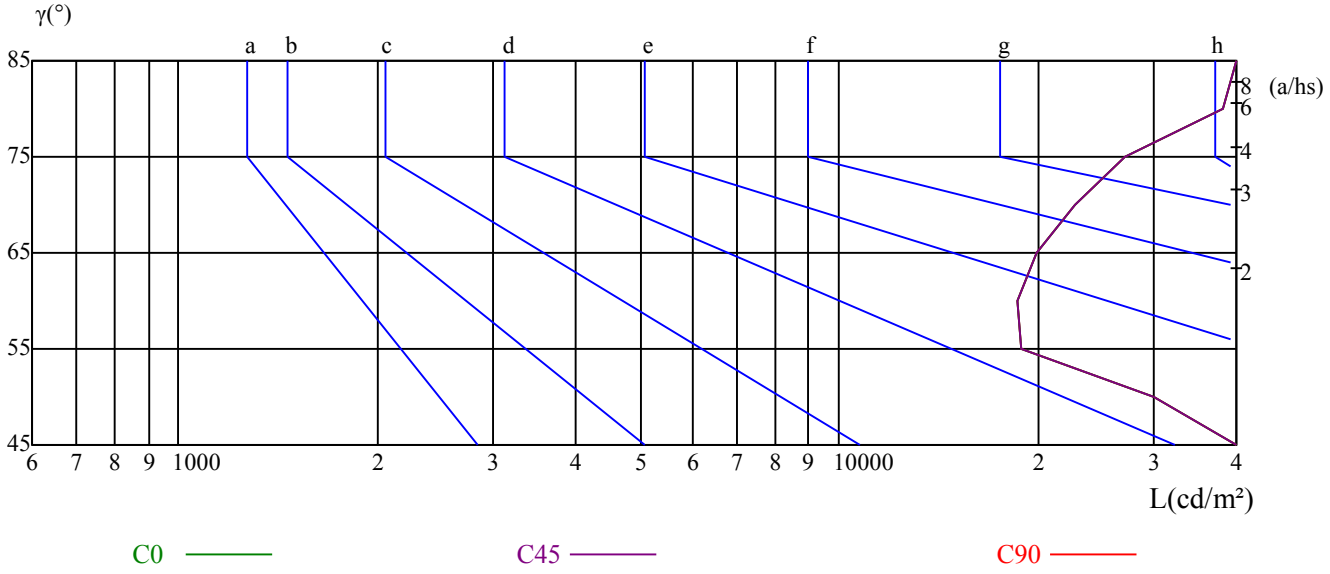
γ	45	50	55	60	65	70	75	80	85
C0	80016	29900	18939	18608	19903	22807	27061	38198	68069
C45	80016	29900	18939	18608	19903	22807	27061	38198	68069
C90	80016	29900	18939	18608	19903	22807	27061	38198	68069

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
19903	19903	19903	27061	27061	27061	68069	68069	68069

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

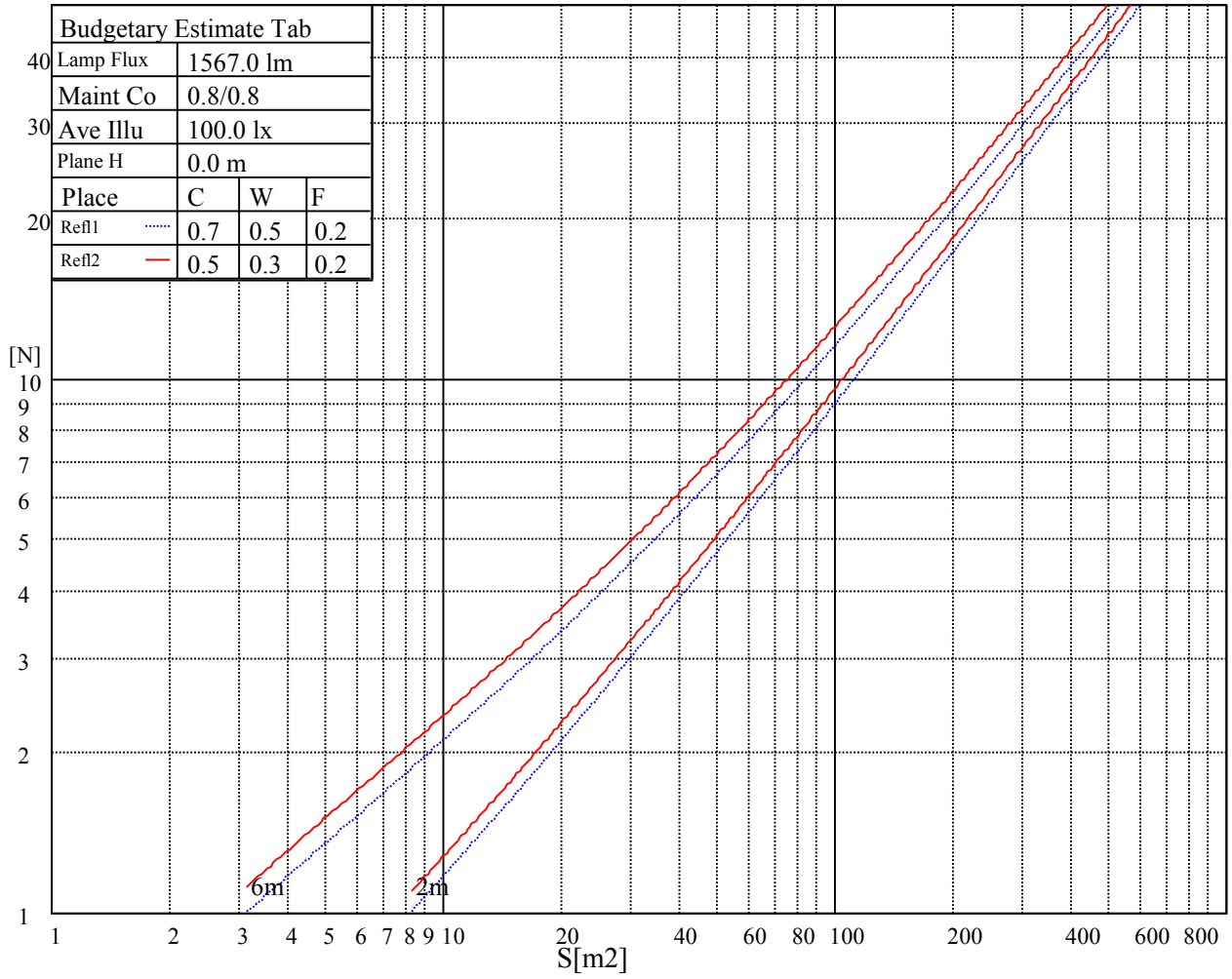


UGR Glare

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	11.76	12.72	12.12	13.03	13.34	11.06	12.02	11.43	12.33	12.65
	3H	14.69	15.54	15.08	15.87	16.24	13.46	14.30	13.84	14.64	15.00
	4H	16.10	16.88	16.50	17.23	17.63	14.77	15.56	15.18	15.91	16.30
	6H	17.60	18.31	18.02	18.69	19.09	16.33	17.05	16.75	17.42	17.82
	8H	18.36	19.03	18.80	19.43	19.84	17.25	17.92	17.68	18.31	18.72
	12H	19.56	20.20	19.99	20.58	21.02	18.81	19.46	19.25	19.84	20.27
4H	2H	12.23	13.01	12.64	13.37	13.76	11.69	12.47	12.09	12.82	13.21
	3H	15.43	16.07	15.85	16.48	16.89	14.40	15.04	14.82	15.45	15.86
	4H	17.03	17.60	17.47	18.03	18.48	15.92	16.49	16.36	16.92	17.37
	6H	18.64	19.13	19.11	19.58	20.06	17.64	18.13	18.11	18.58	19.06
	8H	19.57	20.02	20.04	20.47	20.95	18.69	19.15	19.17	19.60	20.07
	12H	20.78	21.18	21.28	21.67	22.15	20.21	20.60	20.70	21.09	21.57
8H	4H	17.46	17.92	17.94	18.37	18.85	16.57	17.02	17.04	17.47	17.95
	6H	19.39	19.75	19.90	20.25	20.74	18.59	18.96	19.10	19.46	19.95
	8H	20.50	20.83	21.04	21.35	21.85	19.83	20.15	20.36	20.67	21.17
	12H	21.96	22.24	22.49	22.74	23.32	21.52	21.79	22.04	22.29	22.87
12H	4H	17.58	17.97	18.07	18.46	18.94	16.76	17.15	17.25	17.64	18.12
	6H	19.85	19.93	20.14	20.40	20.95	19.14	19.22	19.43	19.69	20.24
	8H	20.84	21.12	21.36	21.62	22.20	20.25	20.53	20.77	21.02	21.61
Variation with the observer position at spacings:											
S = 1.0H		4.8/-8.4					4.8/-8.4				
S = 1.5H		7.3/-6.7					7.3/-6.7				
S = 2.0H		8.9/-5.6					8.9/-5.6				
Standard tables:		BK1					BK1				
Uncorrected UGR		7.9					7.9				

Equipment: GMS1980 Date: 2019/2/22 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

Budgetary Estimate Table

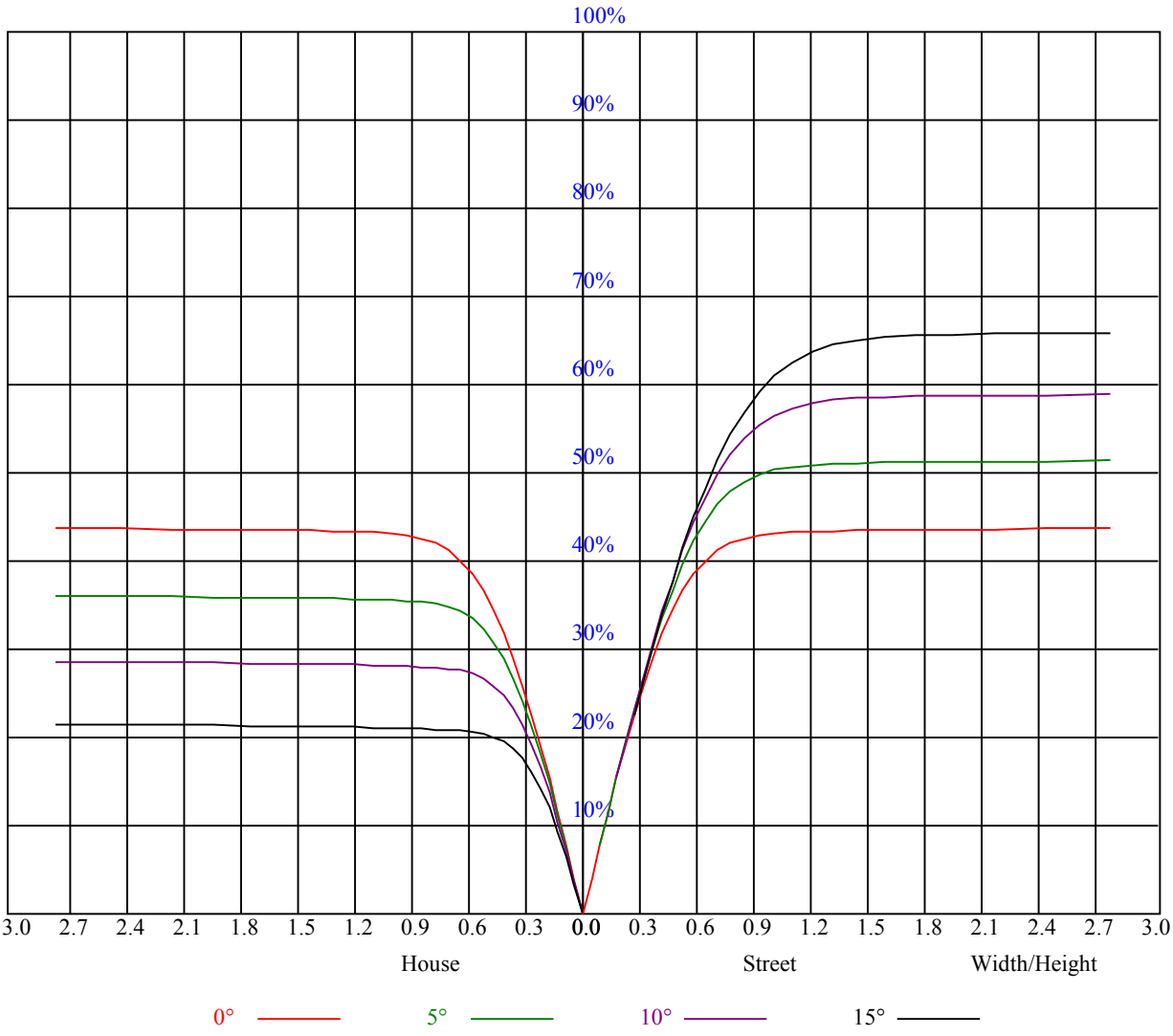


Equipment: GMS1980 Date: 2019/2/22 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.05	1.05	1.05	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.88
1	0.97	0.95	0.93	0.95	0.93	0.91	0.92	0.90	0.89	0.89	0.87	0.86	0.85	0.84	0.83	0.82
2	0.91	0.87	0.84	0.89	0.86	0.83	0.87	0.84	0.82	0.84	0.82	0.80	0.81	0.80	0.78	0.77
3	0.85	0.81	0.77	0.84	0.80	0.77	0.82	0.78	0.76	0.80	0.77	0.74	0.78	0.75	0.73	0.72
4	0.80	0.75	0.72	0.79	0.75	0.71	0.77	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
5	0.75	0.70	0.67	0.75	0.70	0.66	0.73	0.69	0.66	0.72	0.68	0.65	0.70	0.67	0.65	0.64
6	0.71	0.66	0.63	0.71	0.66	0.62	0.69	0.65	0.62	0.68	0.64	0.61	0.67	0.64	0.61	0.60
7	0.67	0.62	0.59	0.67	0.62	0.59	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.56
8	0.64	0.59	0.55	0.63	0.59	0.55	0.62	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.53
9	0.61	0.56	0.52	0.60	0.55	0.52	0.59	0.55	0.52	0.59	0.55	0.52	0.58	0.54	0.52	0.51
10	0.58	0.53	0.50	0.57	0.53	0.49	0.57	0.52	0.49	0.56	0.52	0.49	0.55	0.52	0.49	0.48

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/2/22	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	1330.31	1342.13	1333.13	1314.56	1281.38	1158.19	873.56	517.50	291.94
45.0	1335.94	1337.63	1321.88	1279.69	1225.69	1091.81	818.44	494.44	290.81
90.0	1331.44	1325.81	1303.88	1253.25	1182.94	1040.34	761.96	431.83	179.38
135.0	1332.00	1319.63	1305.56	1263.94	1229.63	1113.75	870.75	520.88	309.94
180.0	1330.31	1324.13	1294.88	1267.88	1216.13	1058.29	787.28	446.01	169.71
225.0	1335.94	1333.69	1310.63	1274.63	1224.00	1067.23	786.32	457.71	172.07
270.0	1331.44	1339.88	1323.56	1292.63	1239.75	1099.13	852.19	490.50	298.13
315.0	1332.00	1343.25	1327.50	1303.31	1251.56	1088.33	793.58	426.38	148.67
360.0	1330.31	1342.13	1333.13	1314.56	1281.38	1158.19	873.56	517.50	291.94

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	59.29	18.79	10.97	8.94	7.88	7.37	6.58	6.24	6.24
45.0	61.03	23.01	11.08	9.00	7.93	7.26	6.58	6.30	5.85
90.0	56.36	20.03	12.94	12.38	11.70	10.52	8.38	7.09	5.79
135.0	70.48	21.71	11.14	9.17	8.16	7.37	6.75	6.47	5.96
180.0	56.36	19.35	11.03	8.89	7.82	7.31	6.75	6.47	6.36
225.0	53.49	19.07	10.86	9.00	7.99	7.54	7.20	7.65	6.19
270.0	62.21	19.80	11.08	10.18	9.79	9.39	8.66	7.93	6.19
315.0	44.27	15.69	9.90	8.66	7.65	7.14	6.47	6.19	6.02
360.0	59.29	18.79	10.97	8.94	7.88	7.37	6.58	6.24	6.24

C/γ(°)	90.0
0.0	5.51
45.0	5.34
90.0	5.18
135.0	5.68
180.0	6.02
225.0	5.68
270.0	5.29
315.0	5.34
360.0	5.51