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NATA

LumCAT: 1536-A
Luminaire:

Report No: NATA0100	Voltage(V): 28.8000
Test No: GC2019010903	Current(A): 0.3600
LampCAT: XICATO XTM LES 9MM	Power (W): 10.3680
Lamp flux(lm): 568.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 25	Width(mm): 25
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 499.87
Efficiency(%): 88.01%
Lumens(lm)/Power(W): 48.41
Central intensity(cd): 413.944
Maximum intensity(cd): 414.696
Angle of maximum intensity: C=0.0 γ=5.0
Beam Angle(50%Imax): [C0/180]Total=69.8
[C90/270]Total=69.8
Field angle(10%Imax): [C0/180]Total=94.4
[C90/270]Total=94.4
Maximum s/h(1/2): C0_180=1.07 C90_270=1.07
Maximum s/h(1/4): C0_180=1.02 C90_270=1.02
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.36%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.786%

Equipment: GMS1980	Date: 2019/1/9	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	413.944	2.475	2.475	.436%	.495%
5.0	414.696	19.811	22.287	3.488%	4.459%
10.0	411.370	39.155	61.442	6.894%	12.292%
15.0	401.182	56.915	118.357	10.020%	23.678%
20.0	375.082	70.318	188.676	12.380%	37.745%
25.0	336.544	77.961	266.637	13.726%	53.341%
30.0	282.734	77.488	344.125	13.642%	68.843%
35.0	205.615	64.645	408.77	11.381%	81.775%
40.0	128.552	45.294	454.064	7.974%	90.836%
45.0	60.300	23.372	477.436	4.115%	95.512%
50.0	17.550	7.369	484.805	1.297%	96.986%
55.0	7.636	3.429	488.234	.604%	97.672%
60.0	5.323	2.527	490.76	.445%	98.177%
65.0	4.317	2.145	492.905	.378%	98.606%
70.0	3.748	1.930	494.835	.340%	98.993%
75.0	3.305	1.750	496.585	.308%	99.343%
80.0	2.876	1.552	498.137	.273%	99.653%
85.0	2.159	1.179	499.316	.208%	99.889%
90.0	2.025	0.555	499.871	.098%	100.000%

Zonal flux distribution table

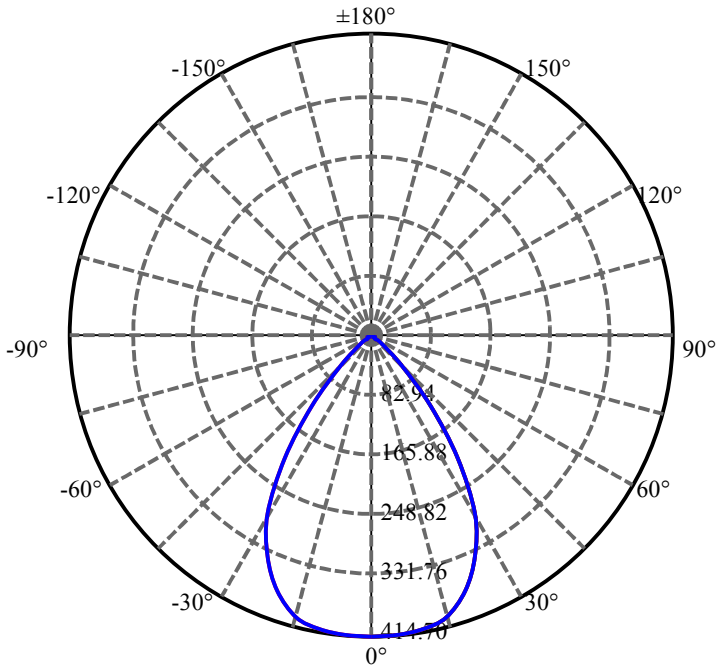
ZONAL LUMEN SUMMARY

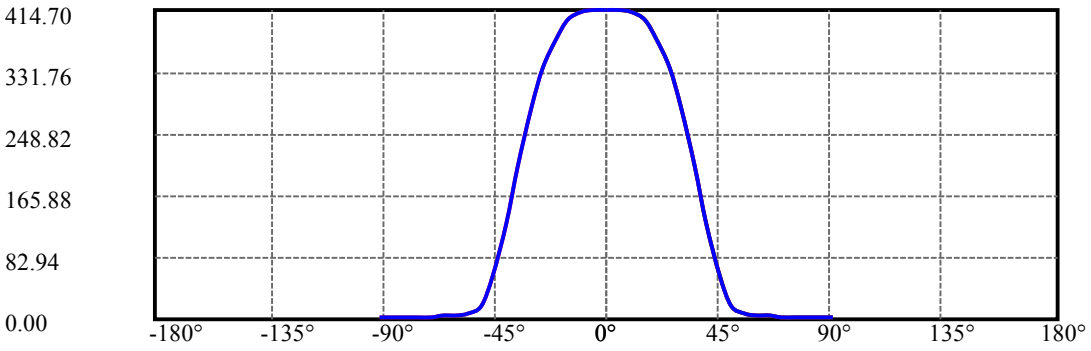
Zone	Lumens	%Lamp	%Fixt
0-30	344.13	60.59%	68.84%
0-40	454.06	79.94%	90.84%
0-60	490.76	86.40%	98.18%
0-90	499.32	87.91%	99.89%
0-120	499.32	87.91%	99.89%
0-180	499.87	88.01%	100.00%
60-90	11.08	1.95%	2.22%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-34.31	399.90	70.40%	80.00%

ZONAL LUMEN SUMMARY

0-10	61.44
10-20	127.23
20-30	155.45
30-40	109.94
40-50	30.74
50-60	5.96
60-70	4.08
70-80	3.30
80-90	1.18
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):

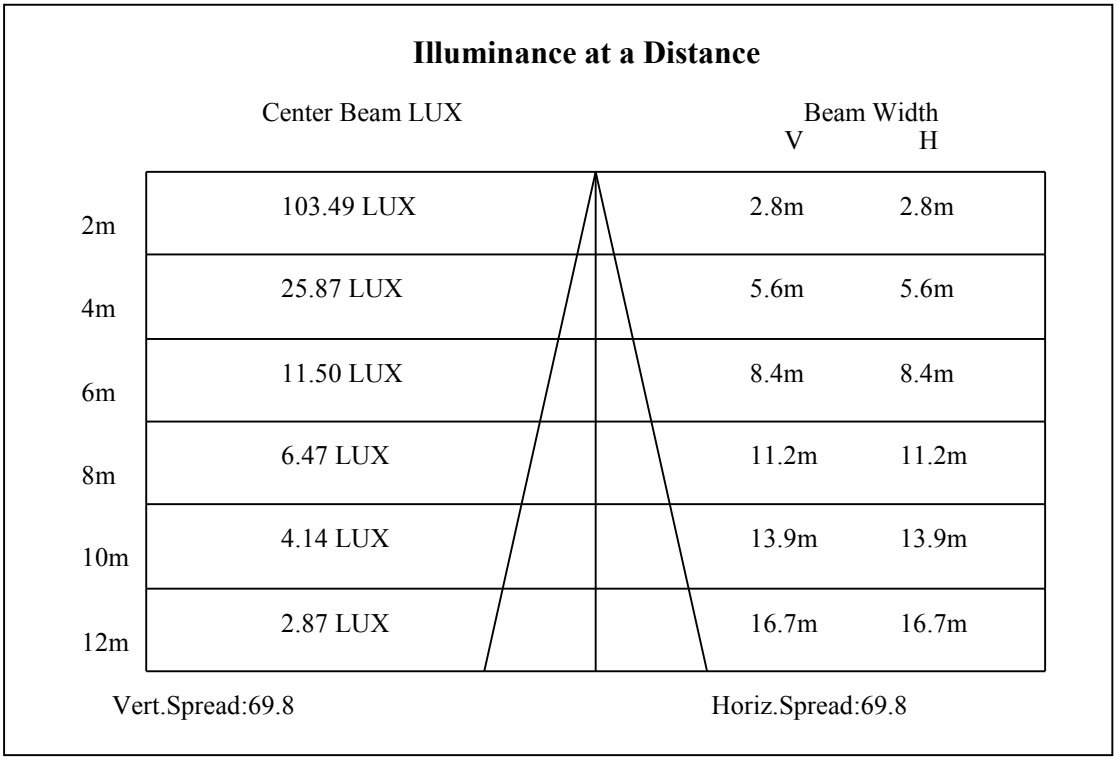
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:52.2 Right:42.2
:C90/270Left:52.2 Right:42.2

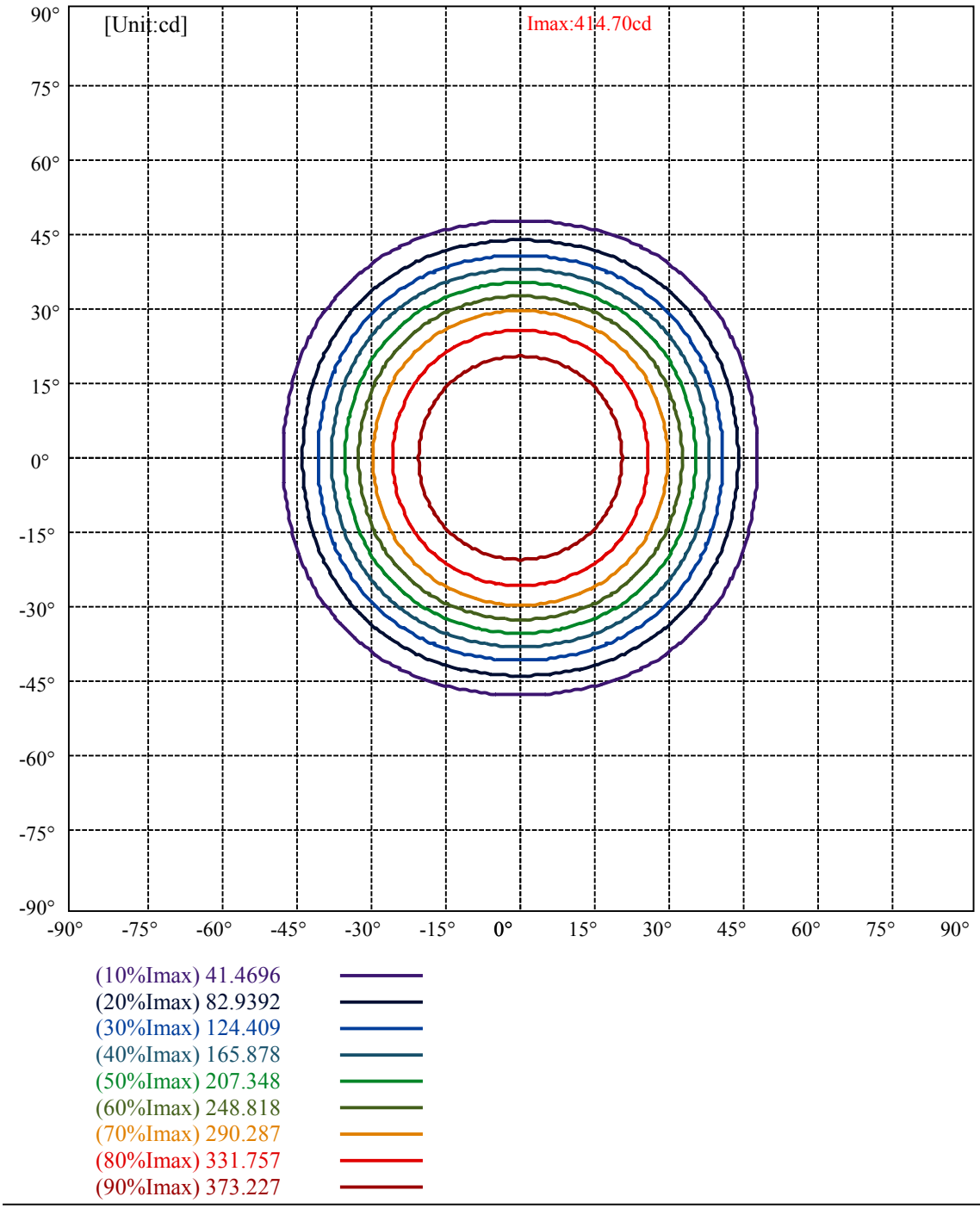
Beam Angle(50%Imax):C0/180Left:39.9 Right:29.9
:C90/270Left:39.9 Right:29.9

Lux distance Curve



Equipment: GMS1980 Date: 2019/1/9 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

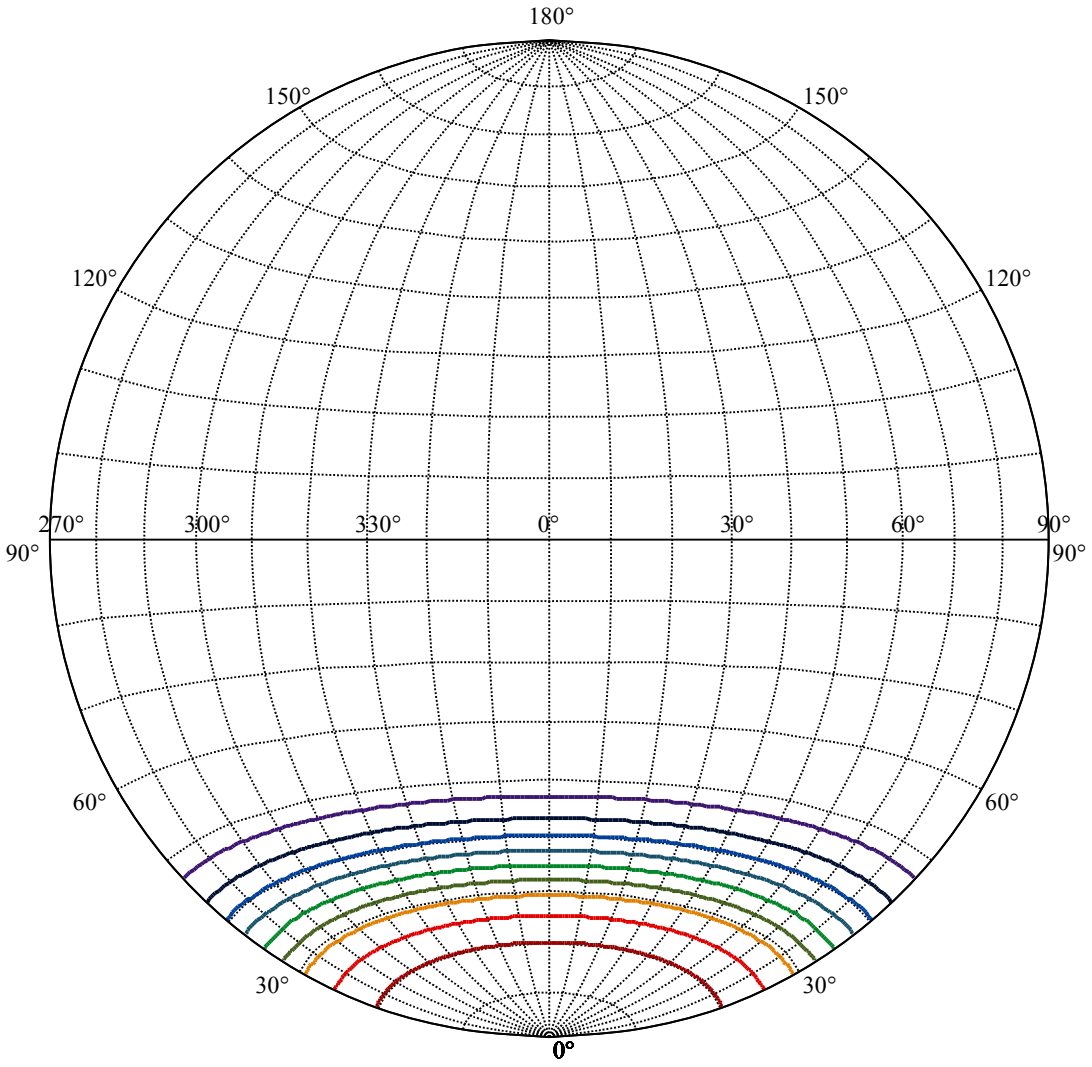


Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



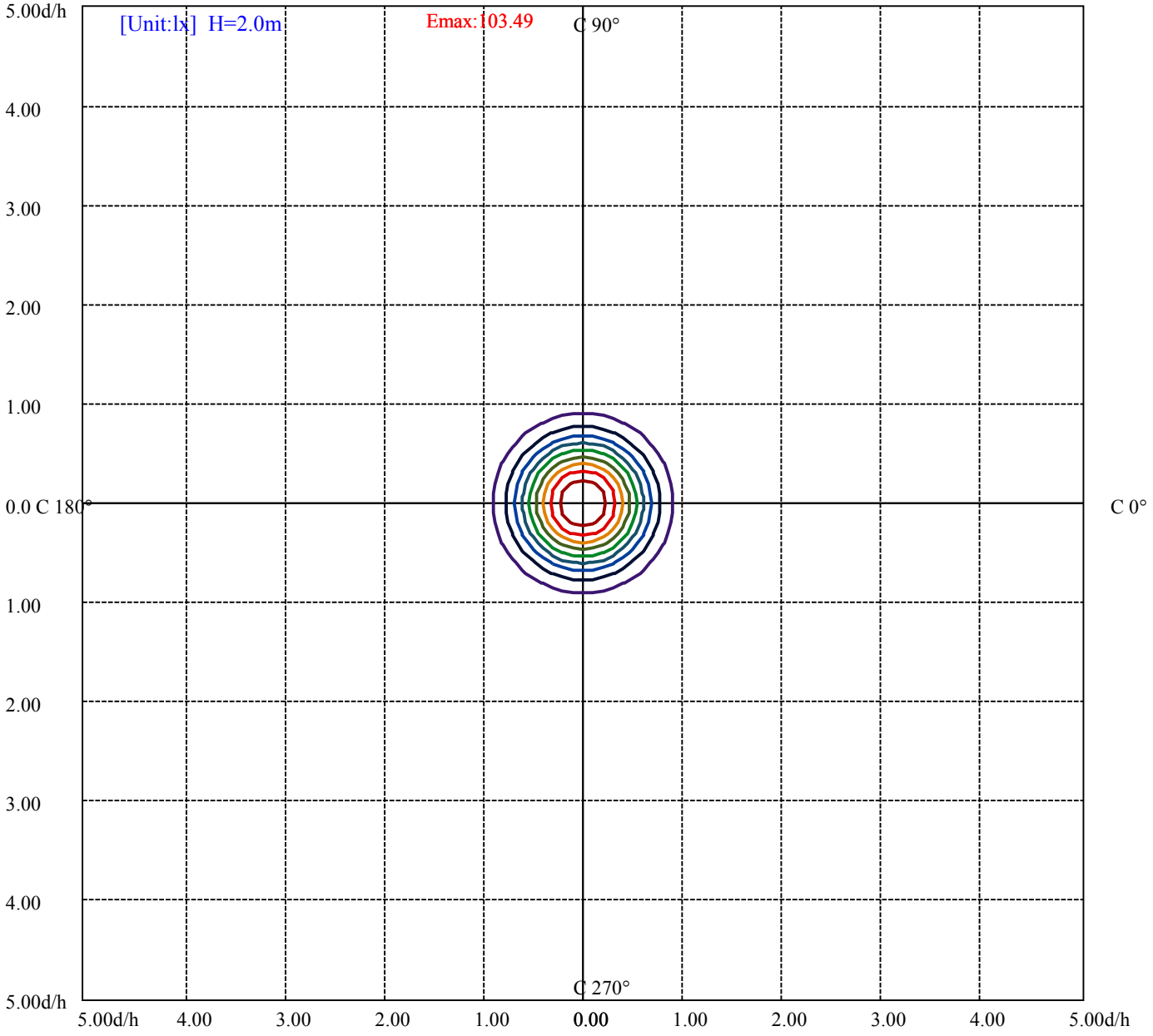
House [Unit:cd] Road

Imax:414.70

(10%Imax) 41.4696
(20%Imax) 82.9392
(30%Imax) 124.409
(40%Imax) 165.878
(50%Imax) 207.348
(60%Imax) 248.818
(70%Imax) 290.287
(80%Imax) 331.757
(90%Imax) 373.227

Equipment: GMS1980 Date: 2019/1/9 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

ISO illuminance diagram



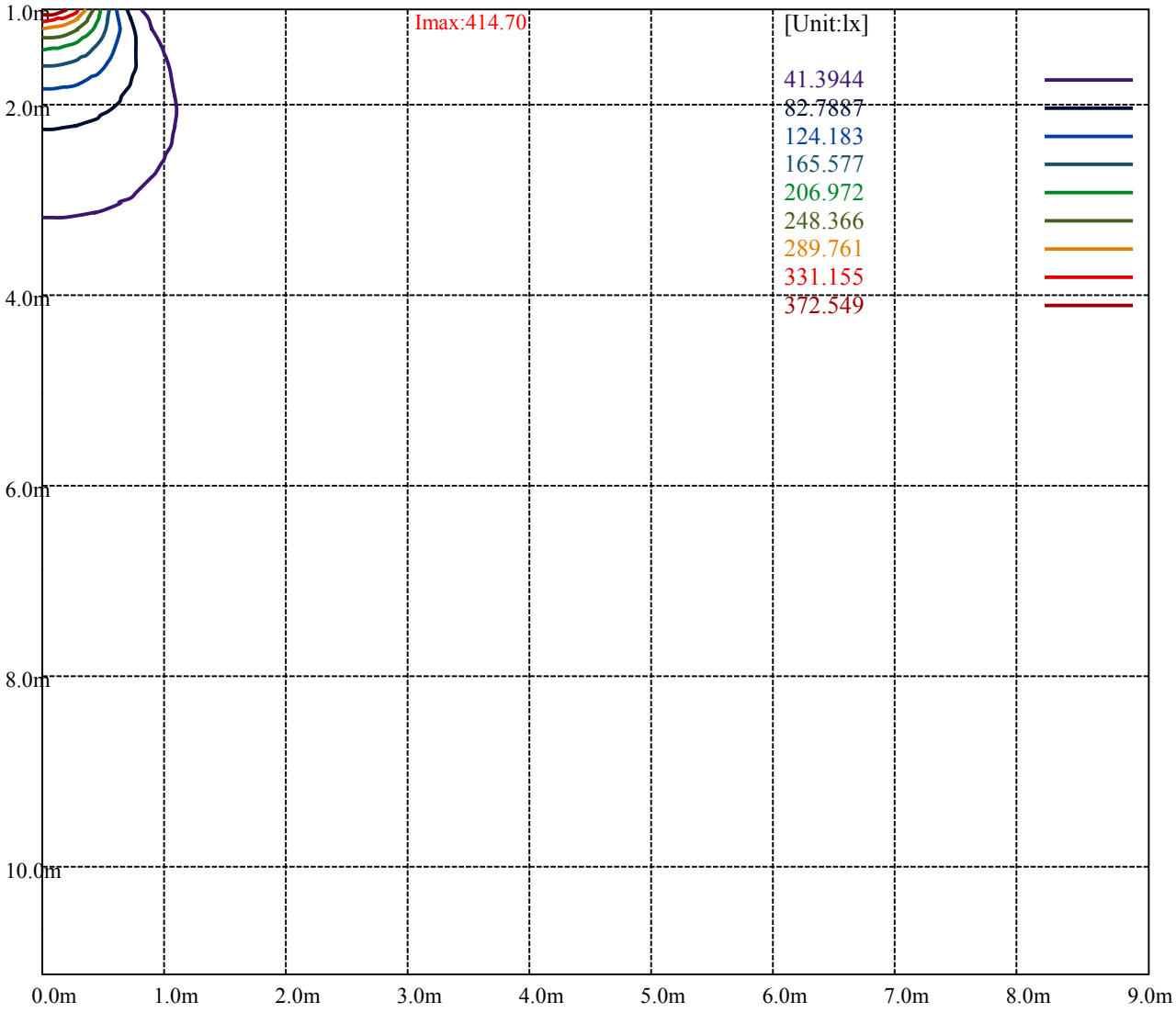
(10%Emax) 10.3486
(20%Emax) 20.6972
(30%Emax) 31.04575
(40%Emax) 41.3945
(50%Emax) 51.743
(60%Emax) 62.0915
(70%Emax) 72.44025
(80%Emax) 82.78875
(90%Emax) 93.13725

Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 10.0

Date: 2019/1/9
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

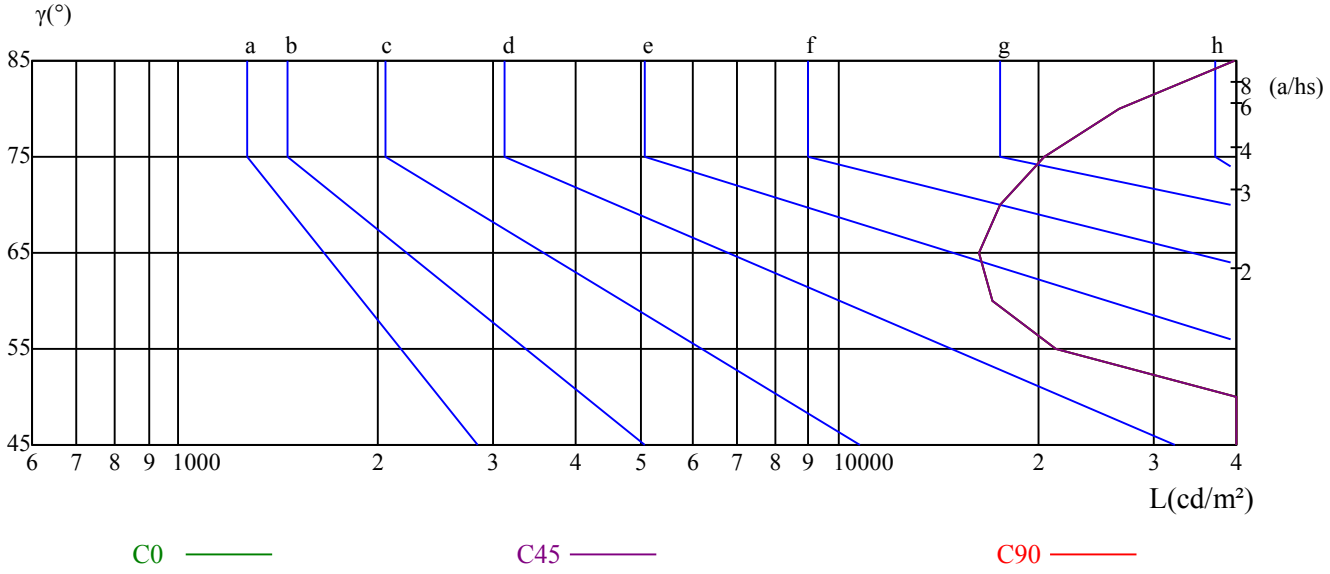
γ	45	50	55	60	65	70	75	80	85
C0	136443	43685	21301	17033	16345	17532	20429	26498	39627
C45	136443	43685	21301	17033	16345	17532	20429	26498	39627
C90	136443	43685	21301	17033	16345	17532	20429	26498	39627

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
16345	16345	16345	20429	20429	20429	39627	39627	39627

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

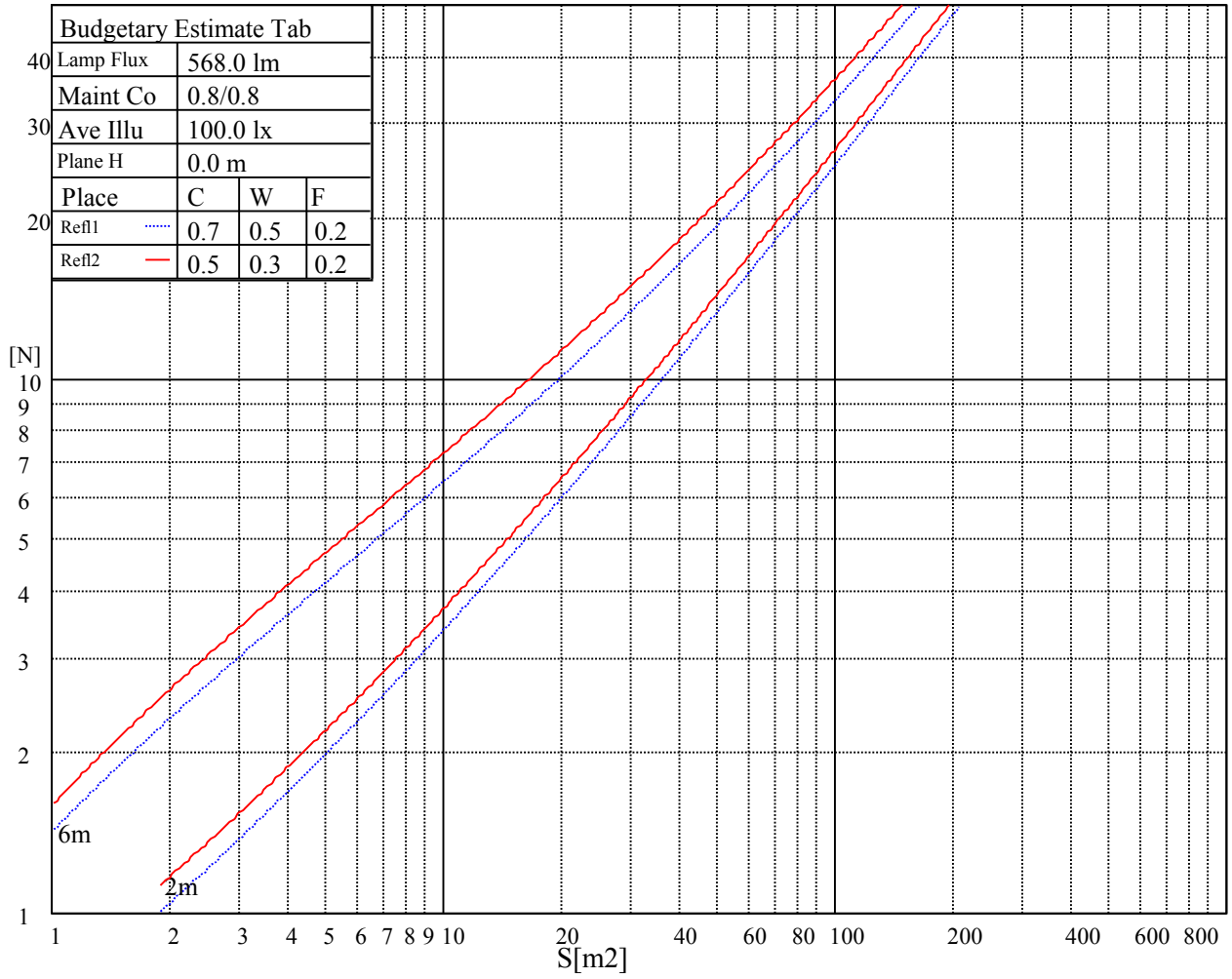


UGR Glare

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	17.34	18.40	17.71	18.71	19.02	16.04	17.10	16.41	17.41	17.73
	3H	19.30	20.23	19.68	20.56	20.93	17.50	18.43	17.88	18.76	19.13
	4H	20.38	21.24	20.78	21.59	21.98	18.34	19.21	18.75	19.56	19.95
	6H	21.41	22.20	21.83	22.58	22.97	19.37	20.16	19.79	20.54	20.93
	8H	21.90	22.64	22.33	23.03	23.44	19.98	20.72	20.42	21.11	21.52
	12H	22.65	23.36	23.09	23.75	24.18	21.07	21.78	21.51	22.16	22.59
4H	2H	17.62	18.48	18.02	18.83	19.22	16.55	17.41	16.96	17.76	18.15
	3H	19.89	20.59	20.31	21.00	21.41	18.38	19.08	18.79	19.49	19.89
	4H	21.18	21.81	21.62	22.23	22.68	19.46	20.08	19.90	20.51	20.95
	6H	22.34	22.88	22.81	23.33	23.80	20.65	21.19	21.12	21.64	22.11
	8H	22.96	23.46	23.44	23.91	24.39	21.38	21.88	21.86	22.33	22.81
	12H	23.77	24.20	24.26	24.69	25.16	22.46	22.90	22.95	23.39	23.86
8H	4H	21.53	22.03	22.01	22.48	22.96	20.11	20.61	20.59	21.06	21.54
	6H	22.98	23.38	23.49	23.89	24.37	21.64	22.04	22.15	22.54	23.02
	8H	23.77	24.13	24.30	24.65	25.15	22.54	22.90	23.07	23.42	23.91
	12H	24.87	25.19	25.39	25.68	26.26	23.83	24.15	24.35	24.64	25.22
12H	4H	21.60	22.03	22.09	22.52	23.00	20.27	20.71	20.77	21.20	21.67
	6H	23.48	23.51	23.68	23.98	24.52	22.25	22.28	22.46	22.75	23.30
	8H	24.04	24.36	24.56	24.85	25.43	22.94	23.25	23.46	23.75	24.33

Variation with the observer position at spacings:		
S = 1.0H	3.4/-7.7	3.4/-7.7
S = 1.5H	5.8/-6.6	5.8/-6.6
S = 2.0H	7.5/-5.7	7.5/-5.7
Standard tables:	BK1	BK1
Uncorrected UGR	7.8	7.8

Budgetary Estimate Table

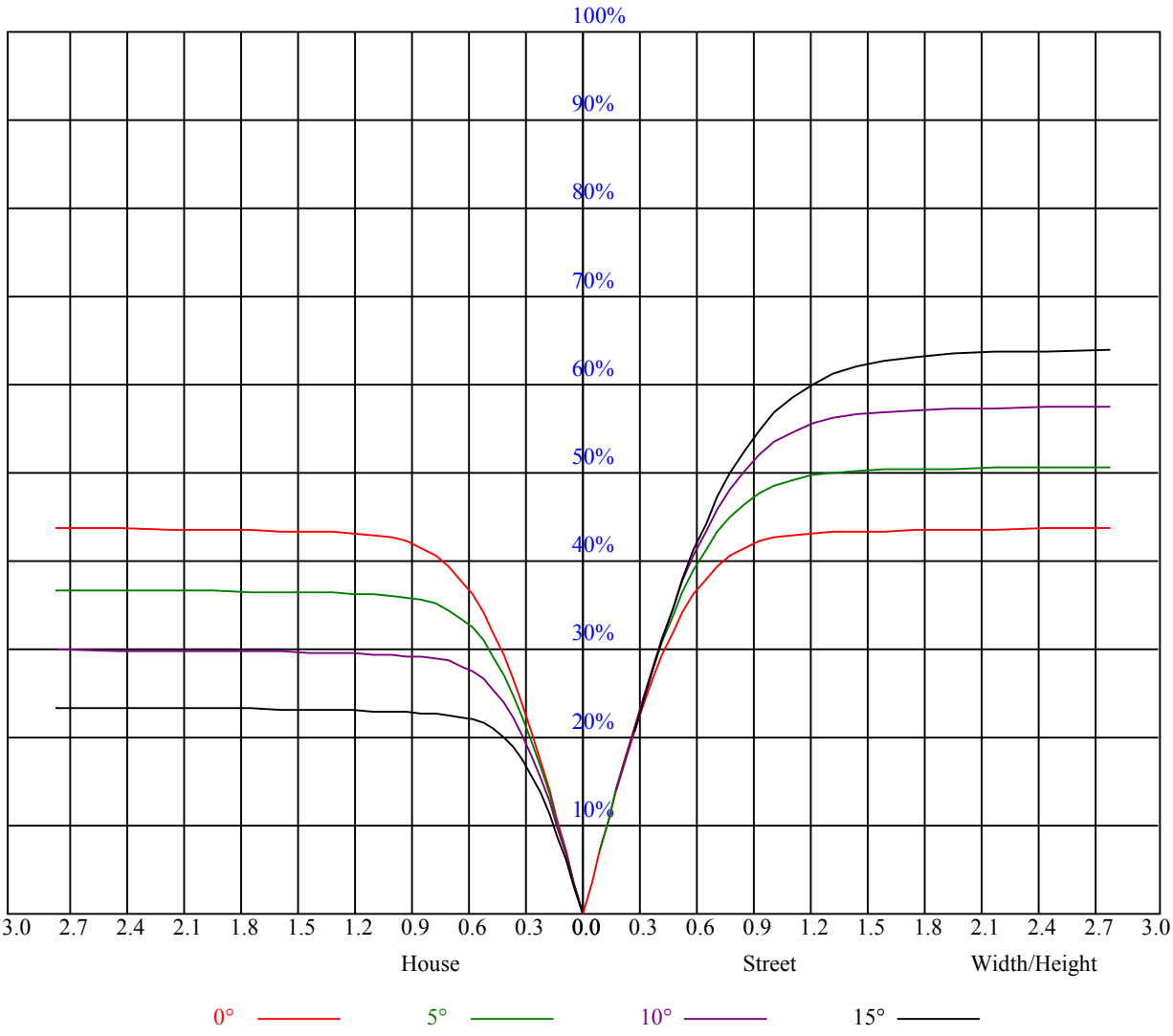


Equipment: GMS1980 Date: 2019/1/9 Operator: NT07
Temperature(°C): 10.0 Humidity(%): 65.0% Distance(m): 7.50

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	0.92	0.95	0.93	0.91	0.91	0.90	0.88	0.88	0.87	0.85	0.85	0.84	0.83	0.81
2	0.90	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.80	0.83	0.81	0.79	0.80	0.79	0.77	0.75
3	0.84	0.79	0.76	0.83	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.71	0.70
4	0.78	0.73	0.69	0.77	0.72	0.69	0.75	0.71	0.68	0.73	0.70	0.67	0.72	0.69	0.66	0.65
5	0.73	0.68	0.64	0.72	0.67	0.64	0.71	0.66	0.63	0.69	0.65	0.62	0.68	0.65	0.62	0.61
6	0.69	0.63	0.59	0.68	0.63	0.59	0.67	0.62	0.59	0.65	0.61	0.58	0.64	0.61	0.58	0.57
7	0.64	0.59	0.55	0.64	0.59	0.55	0.63	0.58	0.55	0.62	0.58	0.54	0.61	0.57	0.54	0.53
8	0.61	0.55	0.52	0.60	0.55	0.52	0.59	0.55	0.51	0.58	0.54	0.51	0.57	0.54	0.51	0.50
9	0.57	0.52	0.48	0.57	0.52	0.48	0.56	0.51	0.48	0.55	0.51	0.48	0.55	0.51	0.48	0.47
10	0.54	0.49	0.46	0.54	0.49	0.46	0.53	0.49	0.45	0.52	0.48	0.45	0.52	0.48	0.45	0.44

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/1/9	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	414.51	418.28	420.41	415.46	396.00	366.02	319.05	241.14	155.14
45.0	412.31	417.04	416.48	408.83	388.58	353.93	307.01	228.71	147.71
90.0	414.73	416.19	412.20	400.33	373.28	333.51	277.76	198.51	118.74
135.0	414.23	415.18	411.75	397.91	371.36	333.79	280.46	206.10	131.91
180.0	414.51	413.33	406.63	390.66	362.14	315.90	262.41	186.13	111.49
225.0	412.31	409.61	403.59	391.61	361.07	317.53	256.11	179.78	110.53
270.0	414.73	412.54	407.59	401.01	368.83	326.81	270.84	195.19	122.91
315.0	414.23	415.41	412.31	403.65	379.41	344.87	288.23	209.36	129.99
360.0	414.51	418.28	420.41	415.46	396.00	366.02	319.05	241.14	155.14

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	79.54	22.61	6.81	4.50	3.49	2.93	2.64	2.36	2.08
45.0	77.06	21.83	7.93	5.51	4.67	4.16	3.94	3.88	2.36
90.0	55.13	16.31	8.21	6.24	5.51	5.01	4.22	2.98	2.14
135.0	61.48	16.93	7.93	5.34	4.22	3.60	3.09	2.64	2.08
180.0	45.11	13.39	6.53	4.39	3.38	2.93	2.42	2.19	2.14
225.0	45.28	14.91	7.37	5.06	3.88	3.26	2.87	2.59	2.14
270.0	60.36	19.01	9.39	6.53	5.23	4.56	3.88	3.09	2.14
315.0	58.44	15.41	6.92	5.01	4.16	3.54	3.38	3.26	2.19
360.0	79.54	22.61	6.81	4.50	3.49	2.93	2.64	2.36	2.08

C/γ(°)	90.0
0.0	2.14
45.0	2.03
90.0	1.91
135.0	1.97
180.0	1.97
225.0	1.97
270.0	1.97
315.0	2.25
360.0	2.14