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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

NATA

Client:
LumCAT: 1656-S
Luminaire: 92.70.124.00

Report No: nt0100	Voltage(V): 33.6700
Test No: GC2019122321	Current(A): 0.2970
LampCAT: LUMINUS CXM-9-AC40	Power (W): 9.9900
Lamp flux(lm): 1036.0	PF: 1.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 948.50, Efficiency(%): 91.55% , Luminous Efficacy(lm/W): 94.95
Central intensity(cd): 5569.453, Maximum intensity(cd): 5569.453
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.4
[C90/270]Total=16.4
Field angle(10%Imax): [C0/180]Total=39.0
[C90/270]Total=39.0
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.30 C90_270=0.30
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 91.55%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.354%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5569.453	0.000	0	.000%	.000%
1.0	5528.742	5.310	5.31	.513%	.560%
2.0	5390.578	15.672	20.983	1.513%	2.212%
3.0	5155.734	25.223	46.206	2.435%	4.871%
4.0	4828.148	33.419	79.625	3.226%	8.395%
5.0	4373.648	39.586	119.211	3.821%	12.568%
6.0	3833.508	43.131	162.342	4.163%	17.116%
7.0	3343.359	44.547	206.888	4.300%	21.812%
8.0	2892.234	44.627	251.515	4.308%	26.517%
9.0	2457.914	43.360	294.875	4.185%	31.089%
10.0	2074.992	41.021	335.897	3.960%	35.413%
11.0	1763.930	38.359	374.255	3.703%	39.458%
12.0	1497.375	35.651	409.906	3.441%	43.216%
13.0	1247.541	32.575	442.481	3.144%	46.651%
14.0	1072.336	29.694	472.175	2.866%	49.781%
15.0	931.802	27.514	499.689	2.656%	52.682%
16.0	811.083	25.538	525.227	2.465%	55.374%
17.0	714.101	23.751	548.978	2.293%	57.879%
18.0	638.550	22.302	571.281	2.153%	60.230%
19.0	579.909	21.199	592.479	2.046%	62.465%
20.0	533.749	20.383	612.863	1.967%	64.614%
21.0	495.759	19.769	632.631	1.908%	66.698%
22.0	465.898	19.325	651.956	1.865%	68.735%
23.0	442.688	19.065	671.021	1.840%	70.745%
24.0	422.072	18.907	689.927	1.825%	72.739%
25.0	406.027	18.829	708.757	1.817%	74.724%
26.0	393.173	18.865	727.622	1.821%	76.713%
27.0	381.495	18.952	746.574	1.829%	78.711%
28.0	371.271	19.058	765.633	1.840%	80.720%
29.0	361.786	19.179	784.811	1.851%	82.742%
30.0	347.562	19.152	803.964	1.849%	84.762%
31.0	322.425	18.645	822.608	1.800%	86.727%
32.0	293.681	17.651	840.259	1.704%	88.588%
33.0	262.673	16.390	856.65	1.582%	90.316%
34.0	223.889	14.725	871.374	1.421%	91.869%
35.0	183.038	12.638	884.012	1.220%	93.201%
36.0	145.765	10.469	894.481	1.011%	94.305%
37.0	112.057	8.409	902.89	.812%	95.191%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	79.692	6.400	909.29	.618%	95.866%
39.0	51.152	4.466	913.756	.431%	96.337%
40.0	30.635	2.852	916.609	.275%	96.638%
41.0	19.821	1.797	918.405	.173%	96.827%
42.0	16.151	1.307	919.712	.126%	96.965%
43.0	13.184	1.087	920.799	.105%	97.079%
44.0	11.159	0.919	921.718	.089%	97.176%
45.0	10.076	0.816	922.534	.079%	97.262%
46.0	9.577	0.769	923.302	.074%	97.343%
47.0	9.225	0.748	924.05	.072%	97.422%
48.0	8.902	0.733	924.783	.071%	97.499%
49.0	8.571	0.718	925.5	.069%	97.575%
50.0	8.269	0.702	926.203	.068%	97.649%
51.0	8.037	0.690	926.892	.067%	97.722%
52.0	7.847	0.682	927.574	.066%	97.794%
53.0	7.650	0.674	928.248	.065%	97.865%
54.0	7.502	0.668	928.916	.064%	97.935%
55.0	7.411	0.666	929.582	.064%	98.005%
56.0	7.313	0.665	930.247	.064%	98.076%
57.0	7.200	0.664	930.911	.064%	98.145%
58.0	7.151	0.664	931.574	.064%	98.215%
59.0	6.989	0.661	932.235	.064%	98.285%
60.0	6.848	0.654	932.889	.063%	98.354%
61.0	6.623	0.643	933.532	.062%	98.422%
62.0	6.370	0.626	934.158	.060%	98.488%
63.0	6.082	0.606	934.764	.058%	98.552%
64.0	5.787	0.582	935.346	.056%	98.613%
65.0	5.505	0.559	935.905	.054%	98.672%
66.0	5.316	0.540	936.445	.052%	98.729%
67.0	5.154	0.526	936.971	.051%	98.784%
68.0	5.041	0.516	937.488	.050%	98.839%
69.0	4.978	0.511	937.999	.049%	98.893%
70.0	4.929	0.509	938.508	.049%	98.946%
71.0	4.894	0.508	939.015	.049%	99.000%
72.0	4.845	0.506	939.522	.049%	99.053%
73.0	4.823	0.506	940.027	.049%	99.107%
74.0	4.802	0.506	940.533	.049%	99.160%
75.0	4.788	0.507	941.04	.049%	99.213%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.774	0.508	941.548	.049%	99.267%
77.0	4.753	0.508	942.056	.049%	99.320%
78.0	4.704	0.506	942.562	.049%	99.374%
79.0	4.697	0.505	943.067	.049%	99.427%
80.0	4.662	0.505	943.571	.049%	99.480%
81.0	4.648	0.503	944.075	.049%	99.533%
82.0	4.627	0.503	944.578	.049%	99.586%
83.0	4.584	0.501	945.078	.048%	99.639%
84.0	4.563	0.498	945.577	.048%	99.692%
85.0	4.521	0.496	946.073	.048%	99.744%
86.0	4.493	0.493	946.565	.048%	99.796%
87.0	4.458	0.490	947.055	.047%	99.848%
88.0	4.409	0.486	947.541	.047%	99.899%
89.0	4.373	0.481	948.022	.046%	99.950%
90.0	4.352	0.478	948.501	.046%	100.000%

Zonal flux distribution table

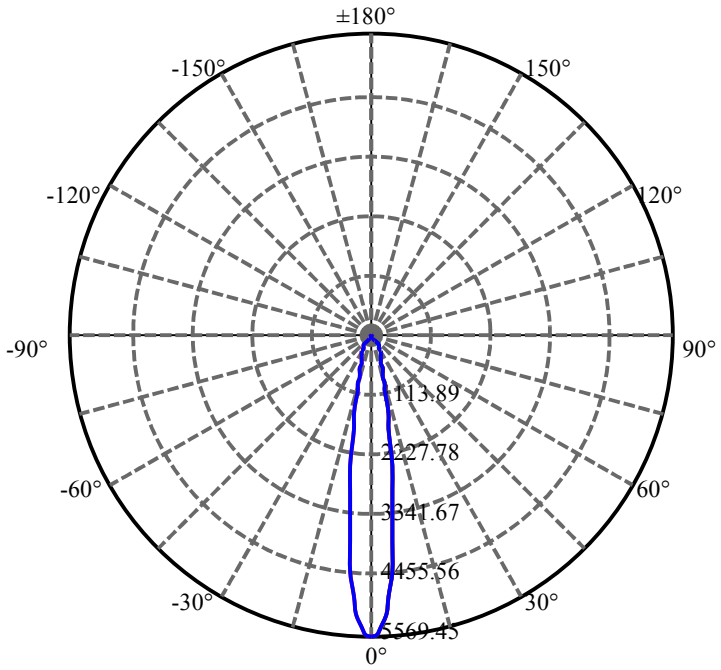
ZONAL LUMEN SUMMARY

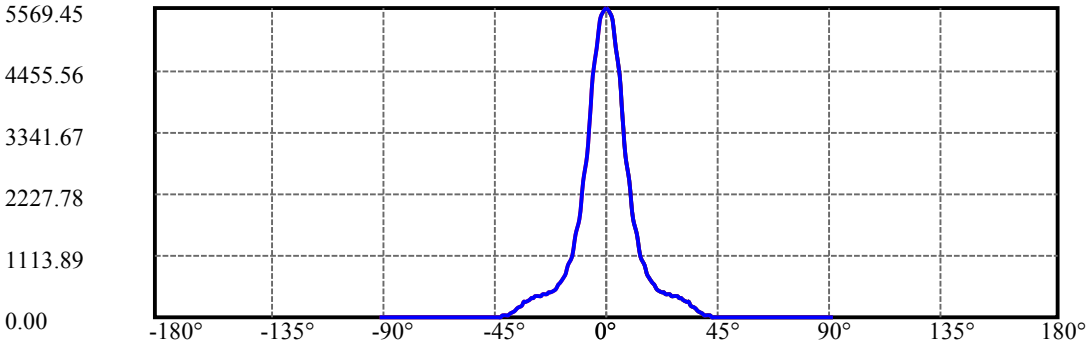
Zone	Lumens	%Lamp	%Fixt
0-30	803.96	77.60%	84.76%
0-40	916.61	88.48%	96.64%
0-60	932.89	90.05%	98.35%
0-90	948.02	91.51%	99.95%
0-120	948.02	91.51%	99.95%
0-180	948.50	91.55%	100.00%
60-90	15.79	1.52%	1.66%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.64	758.80	73.24%	80.00%

ZONAL LUMEN SUMMARY

0-10	335.90
10-20	276.97
20-30	191.10
30-40	112.65
40-50	9.59
50-60	6.69
60-70	5.62
70-80	5.06
80-90	4.45
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):

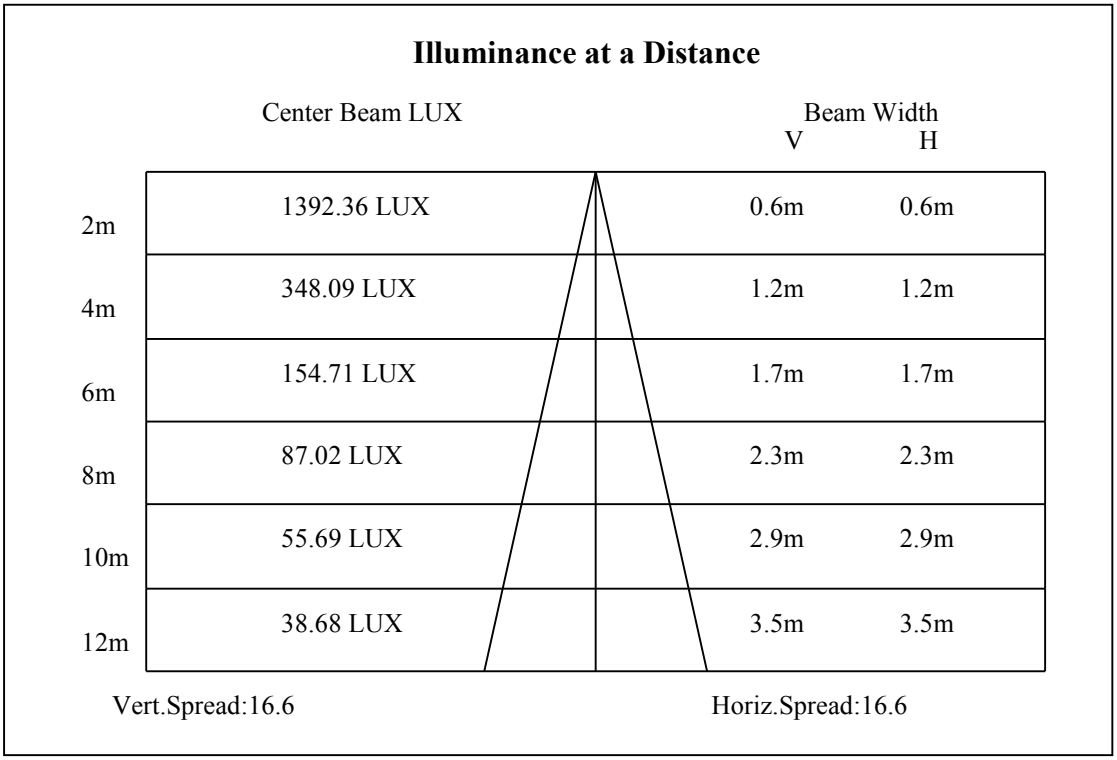
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:19.5 Right:19.5
:C90/270Left:19.5 Right:19.5

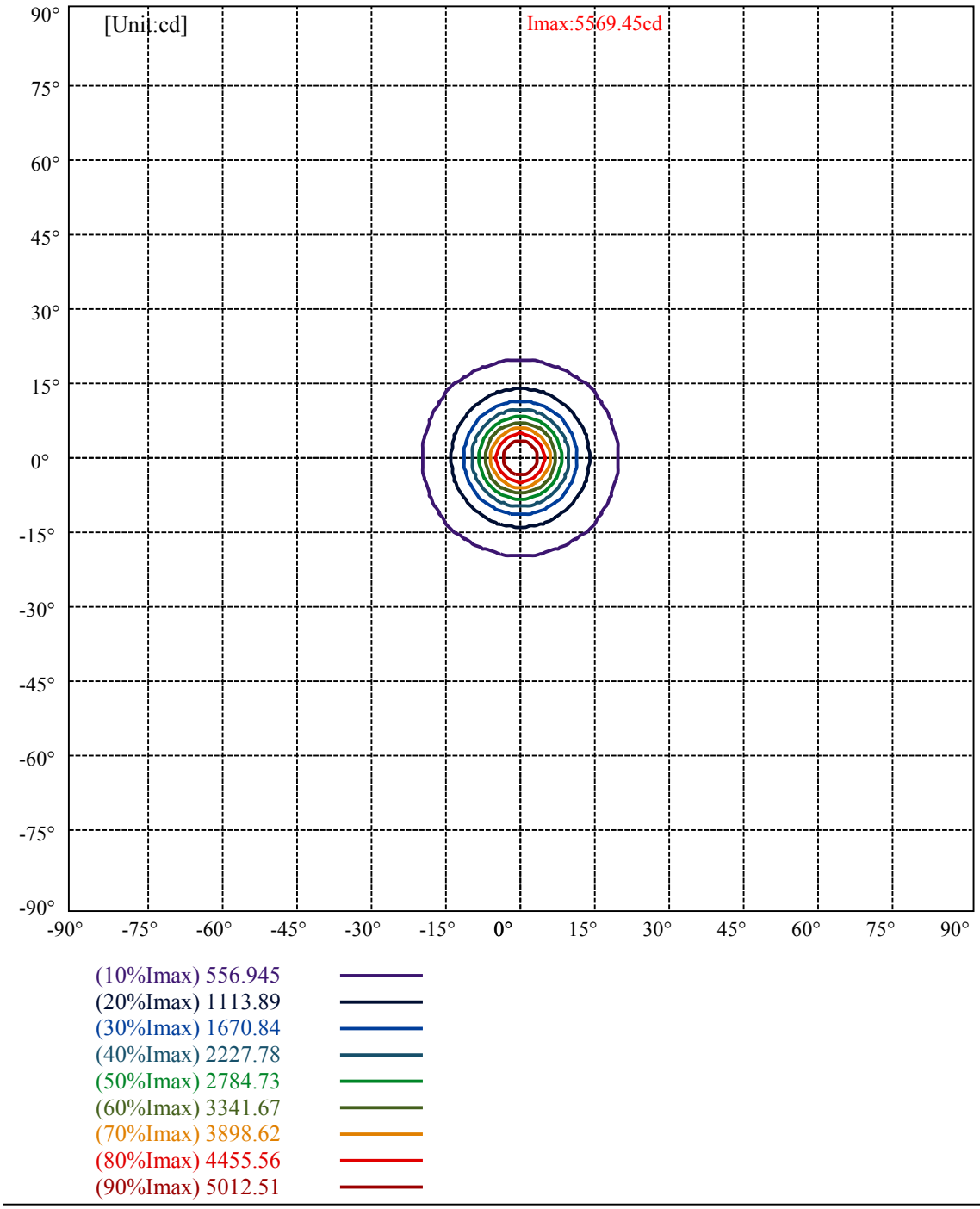
Beam Angle(50%Imax):C0/180Left:8.2 Right:8.2
:C90/270Left:8.2 Right:8.2

Lux distance Curve



Equipment: GMS1980 Date: 2019/12/23 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO-Intensity(V-H)

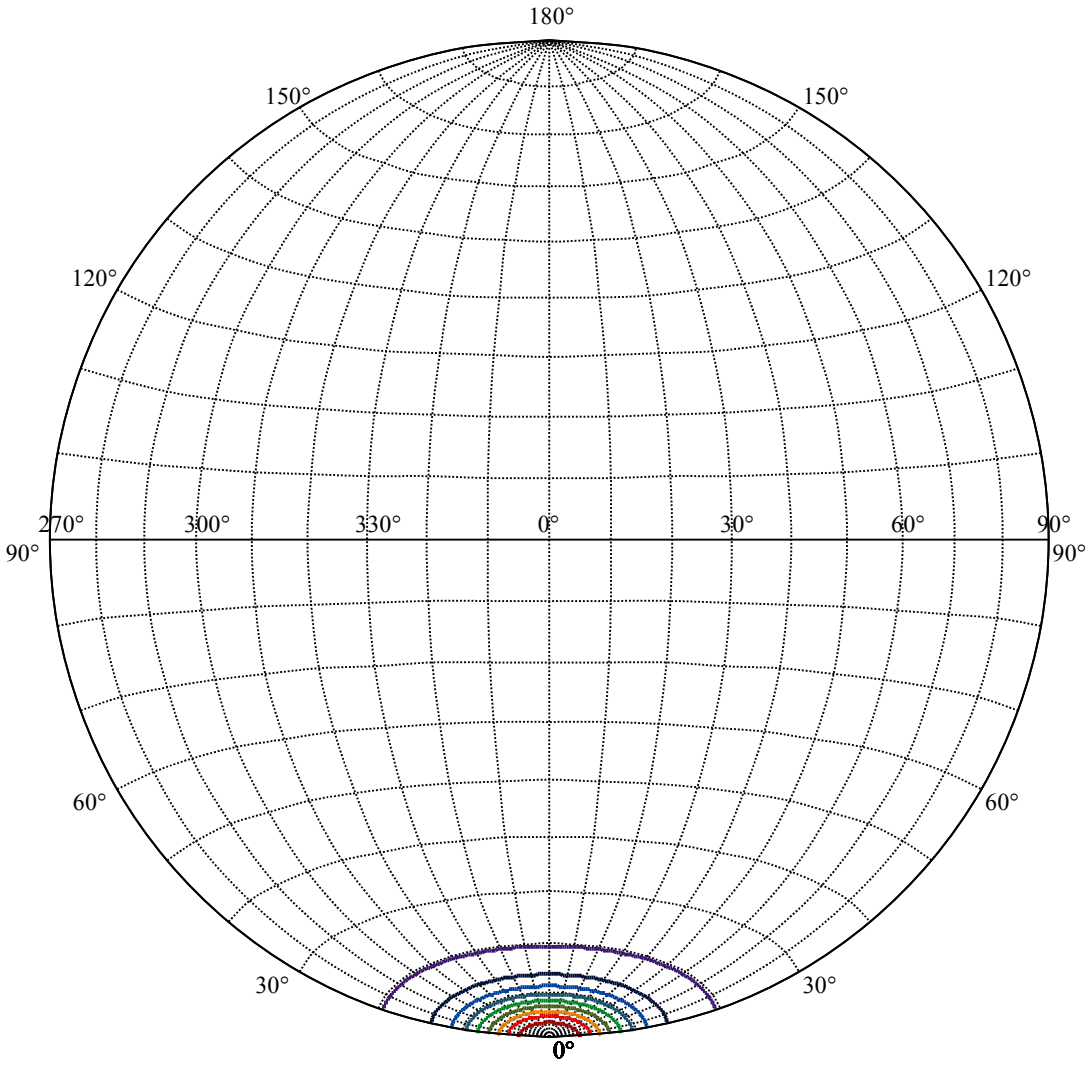


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



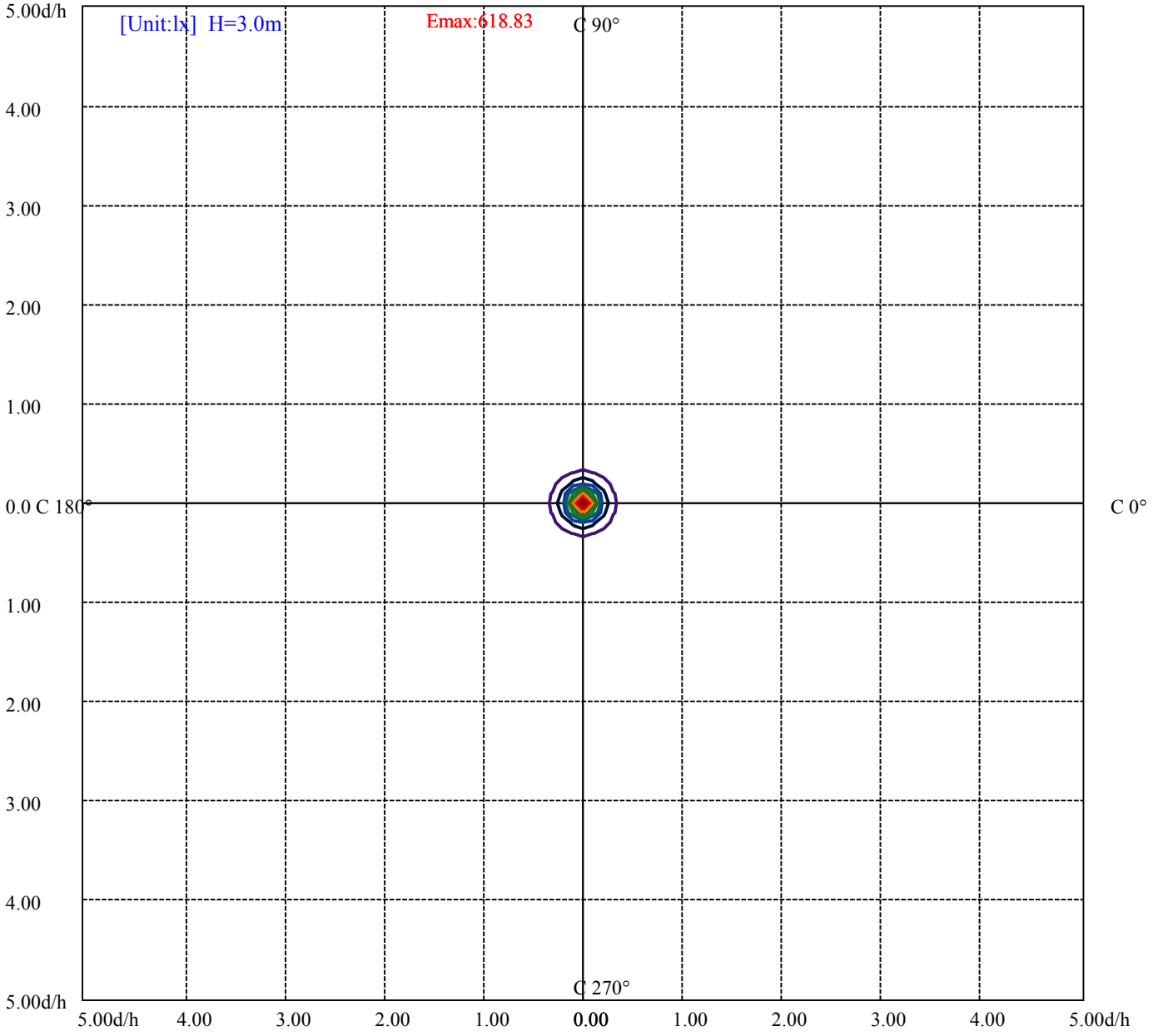
House [Unit:cd] Road

Imax:5569.45

(10%Imax) 556.945
(20%Imax) 1113.89
(30%Imax) 1670.84
(40%Imax) 2227.78
(50%Imax) 2784.73
(60%Imax) 3341.67
(70%Imax) 3898.62
(80%Imax) 4455.56
(90%Imax) 5012.51

Equipment: GMS1980 Date: 2019/12/23 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

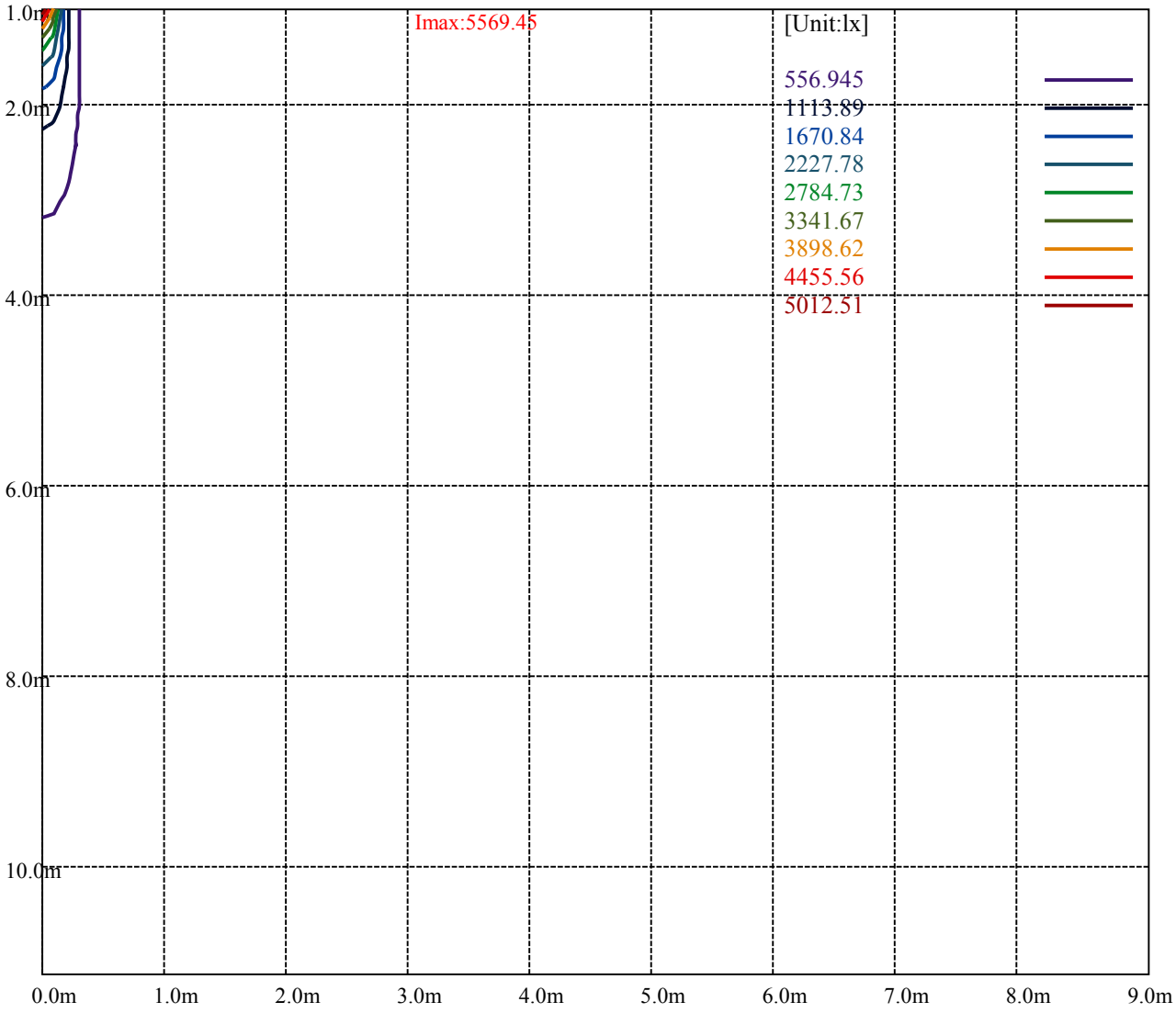
ISO illuminance diagram



(10%Emax) 61.88278
(20%Emax) 123.7656
(30%Emax) 185.6478
(40%Emax) 247.5311
(50%Emax) 309.4133
(60%Emax) 371.2967
(70%Emax) 433.1789
(80%Emax) 495.0622
(90%Emax) 556.9445

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2019/12/23
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

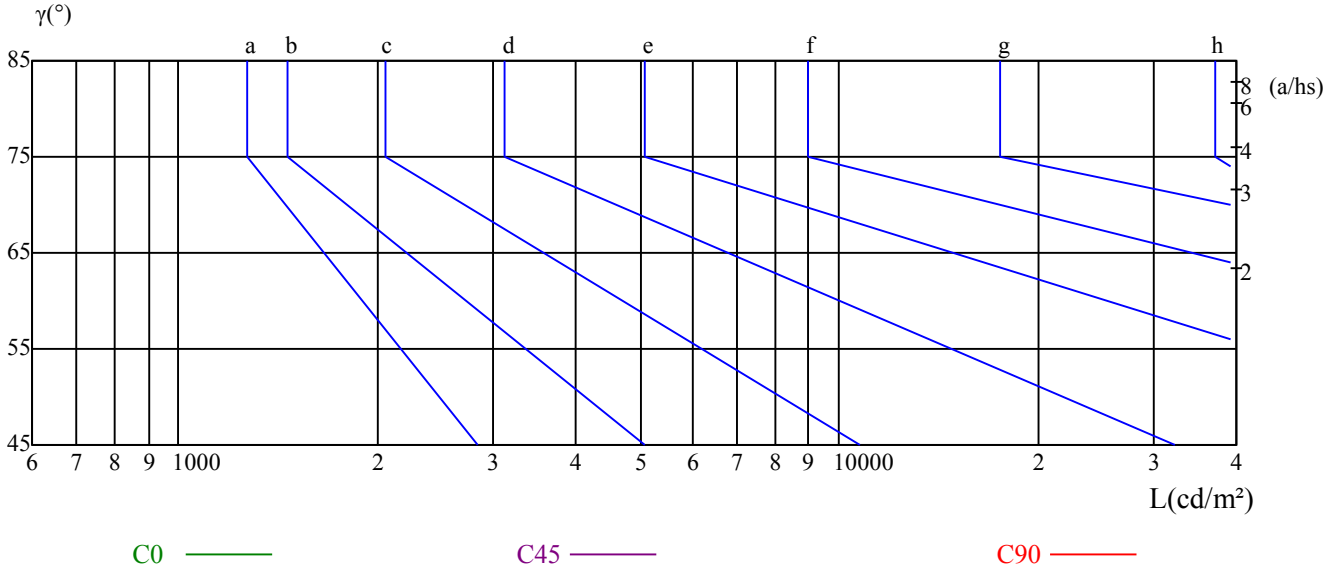
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

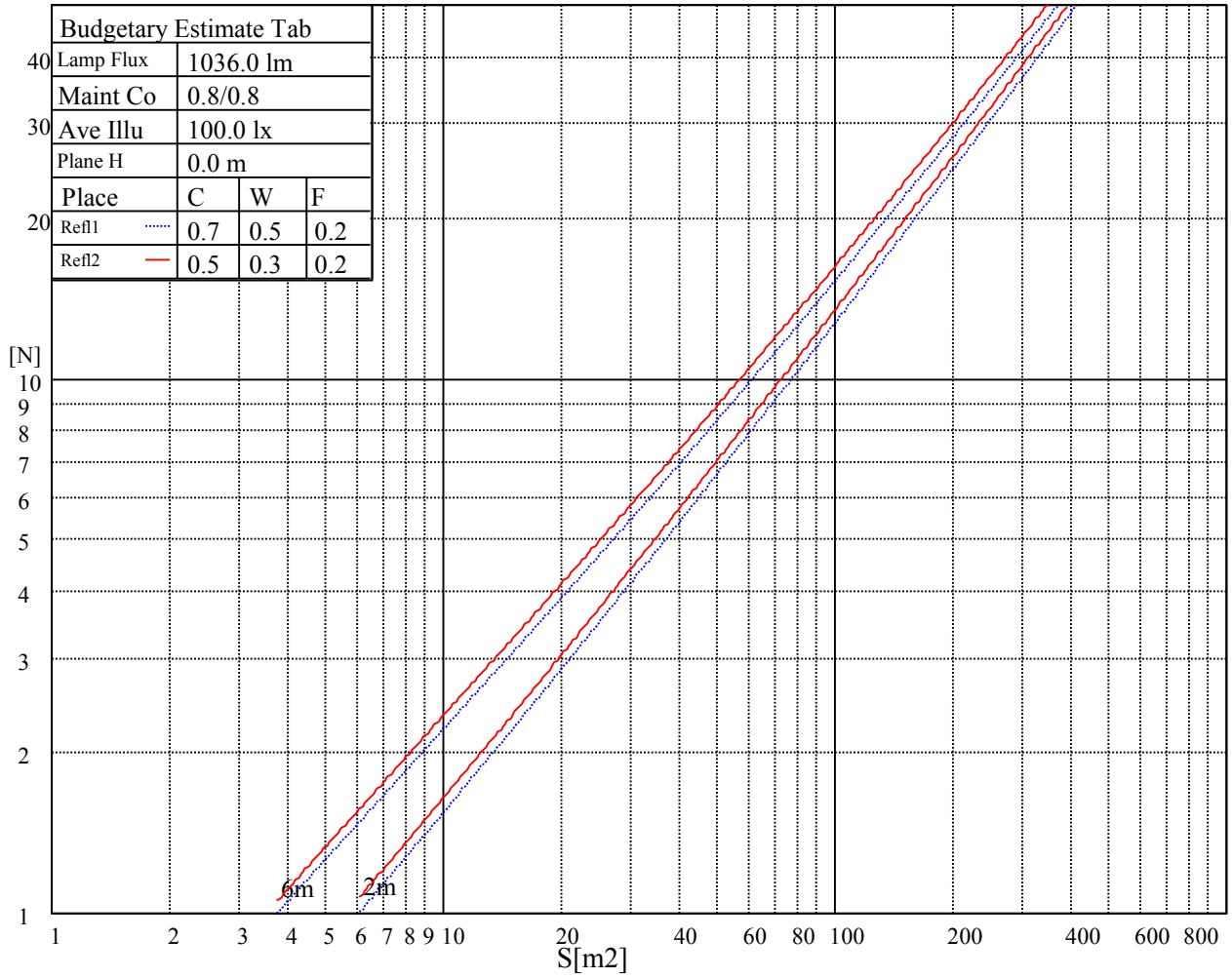
Glare Table

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

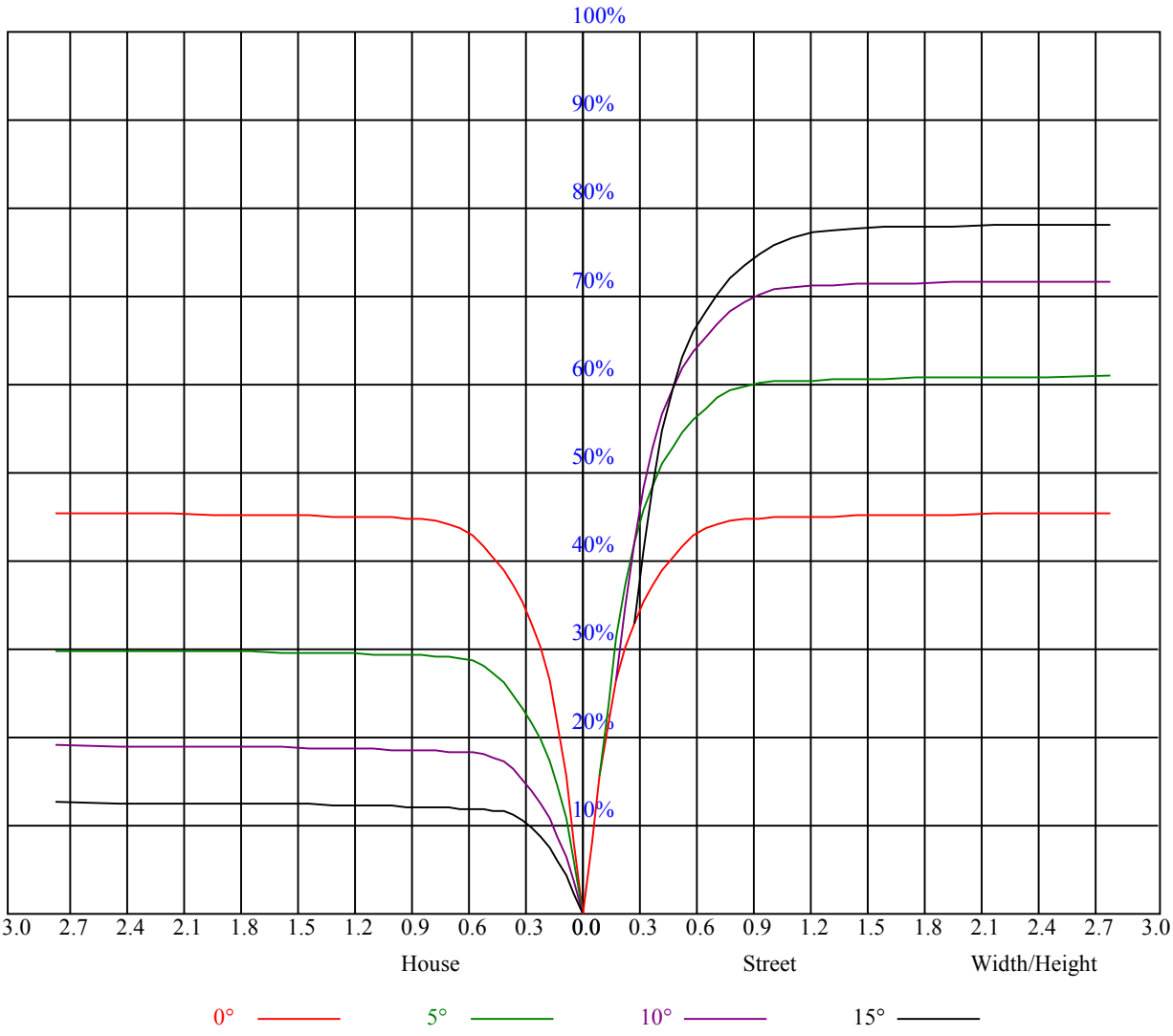


Equipment: GMS1980
Temperature(°C): 25.0
Date: 2019/12/23
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.50

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	1.02	1.01	0.99	1.01	0.99	0.97	0.97	0.95	0.94	0.93	0.92	0.91	0.90	0.90	0.89	0.87
2	0.97	0.94	0.91	0.95	0.93	0.90	0.93	0.90	0.88	0.90	0.88	0.86	0.87	0.86	0.85	0.83
3	0.92	0.88	0.85	0.91	0.88	0.85	0.89	0.86	0.83	0.87	0.84	0.82	0.85	0.83	0.81	0.80
4	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.81	0.79	0.82	0.80	0.78	0.76
5	0.84	0.80	0.77	0.83	0.79	0.77	0.82	0.78	0.76	0.80	0.78	0.75	0.79	0.77	0.75	0.73
6	0.81	0.77	0.73	0.80	0.76	0.73	0.79	0.75	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.77	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.68
8	0.75	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
9	0.73	0.68	0.66	0.72	0.68	0.65	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.64
10	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.62

Coefficient Utilization Curve

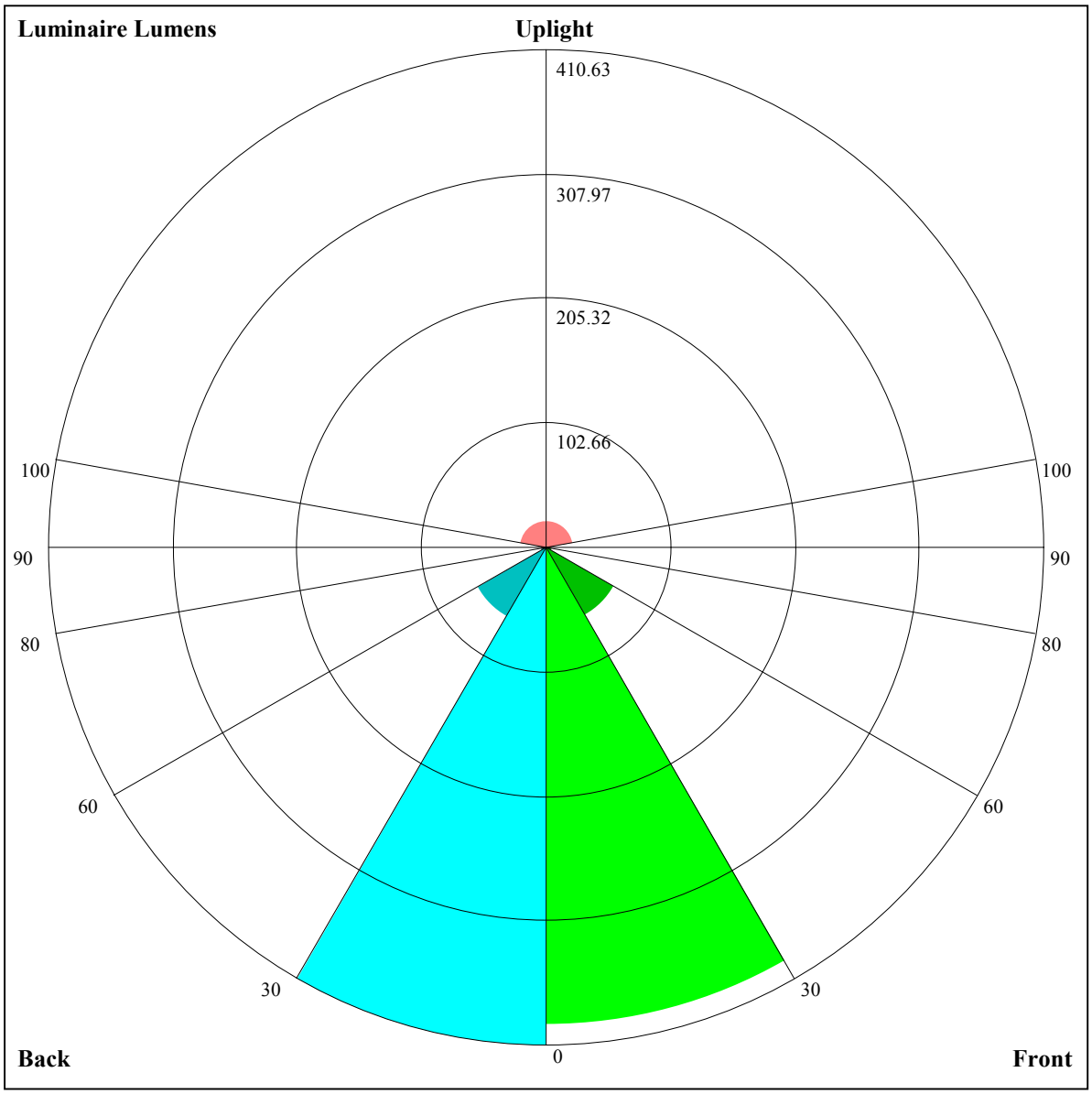


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/23
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

LCS Graph



Luminaire Lumens:

FL=394.39,FM=64.43,FH=5.29,FVH=2.46

BL=410.63,BM=65.46,BH=5.4,BVH=2.48

UL=4.75,UH=22.6

BUG Rating:B1-U2-G0

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	5571.56	5514.19	5356.69	5133.38	4754.25	4307.63	3745.69	3217.50	2793.38
45.0	5578.88	5537.25	5348.25	5116.50	4837.50	4257.56	3777.75	3359.81	2815.31
90.0	5566.50	5487.19	5331.94	5019.75	4655.25	4210.88	3665.25	3141.00	2718.00
135.0	5560.88	5555.81	5450.63	5277.94	4975.88	4595.63	4074.75	3531.38	3087.00
180.0	5571.56	5540.06	5420.81	5198.63	4888.13	4484.25	3838.50	3434.06	2995.88
225.0	5578.88	5551.88	5430.94	5211.00	4913.44	4455.00	3989.81	3480.19	2996.44
270.0	5566.50	5562.00	5461.88	5279.06	4962.38	4516.31	4043.25	3510.56	3071.81
315.0	5560.88	5481.56	5323.50	5009.63	4638.38	4161.94	3533.06	3072.38	2660.06
360.0	5571.56	5514.19	5356.69	5133.38	4754.25	4307.63	3745.69	3217.50	2793.38

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2360.81	1977.19	1683.00	1434.38	1180.69	1017.00	885.94	771.19	684.00
45.0	2388.38	2084.06	1703.81	1451.25	1241.44	1029.38	893.81	787.50	680.06
90.0	2287.13	1913.06	1633.50	1371.94	1110.66	993.99	852.53	754.54	672.92
135.0	2632.50	2219.06	1896.75	1626.75	1348.31	1163.25	1008.00	867.38	756.00
180.0	2539.13	2133.56	1825.31	1541.25	1302.75	1103.74	978.30	846.11	739.24
225.0	2592.56	2184.75	1870.31	1573.31	1350.56	1120.56	973.01	849.21	748.41
270.0	2616.75	2203.88	1885.50	1619.44	1338.19	1150.88	995.63	840.94	745.88
315.0	2246.06	1884.38	1613.25	1360.69	1107.73	999.90	867.21	771.81	686.31
360.0	2360.81	1977.19	1683.00	1434.38	1180.69	1017.00	885.94	771.19	684.00

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	621.56	569.25	525.38	495.00	465.75	446.63	426.94	412.88	401.06
45.0	607.50	549.00	498.38	466.31	437.06	411.19	390.94	374.63	361.69
90.0	597.15	550.80	512.94	477.23	452.98	433.13	414.68	399.83	388.52
135.0	676.13	600.75	552.94	515.25	479.25	455.63	433.69	416.25	403.88
180.0	664.43	597.15	550.91	507.99	475.20	452.14	431.94	415.18	402.86
225.0	650.53	589.50	540.62	491.51	460.35	435.77	412.37	393.24	378.79
270.0	671.06	609.19	552.38	514.69	484.31	456.19	437.06	421.88	406.69
315.0	620.04	573.64	536.46	498.09	472.28	450.84	428.96	414.34	401.91
360.0	621.56	569.25	525.38	495.00	465.75	446.63	426.94	412.88	401.06

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	392.06	381.38	372.38	360.00	333.00	306.00	286.31	231.81	189.34
45.0	347.63	340.31	331.31	320.63	298.69	285.75	237.66	201.71	167.91
90.0	377.61	368.83	357.41	334.13	307.13	273.43	237.04	203.01	169.88
135.0	393.19	381.38	372.38	358.88	327.94	298.13	286.31	228.83	185.29
180.0	392.06	380.53	371.48	357.13	332.49	301.05	269.55	230.01	187.43
225.0	363.15	352.41	342.62	329.29	310.67	281.42	249.19	216.45	183.60
270.0	395.44	387.00	378.00	368.44	346.50	315.56	285.19	263.76	205.20
315.0	390.83	378.34	368.72	352.01	322.99	288.11	250.14	215.55	175.67
360.0	392.06	381.38	372.38	360.00	333.00	306.00	286.31	231.81	189.34

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	150.08	110.14	79.14	50.51	30.38	20.93	17.38	14.01	12.09
45.0	136.46	105.92	71.27	47.14	29.48	20.25	16.99	14.40	12.43
90.0	128.36	97.99	69.69	39.94	23.18	16.48	13.33	10.80	9.23
135.0	151.65	118.86	83.53	52.37	30.54	16.82	13.33	10.91	8.78
180.0	148.95	111.04	80.38	51.41	29.08	17.66	14.57	11.59	9.68
225.0	143.10	112.56	84.94	57.26	34.31	22.95	18.39	15.64	13.61
270.0	170.44	135.90	95.29	66.66	42.64	24.86	19.86	16.59	13.61
315.0	137.08	104.06	73.29	43.93	25.48	18.62	15.36	11.53	9.84
360.0	150.08	110.14	79.14	50.51	30.38	20.93	17.38	14.01	12.09

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	11.19	10.58	10.18	9.73	9.23	8.72	8.38	8.10	7.71
45.0	11.53	11.25	11.03	10.74	10.58	10.35	10.13	10.01	9.84
90.0	8.44	8.16	7.82	7.54	7.31	7.03	6.92	6.81	6.75
135.0	7.59	7.09	6.75	6.53	6.30	6.13	6.02	5.85	5.68
180.0	8.61	8.10	7.82	7.59	7.31	7.09	6.92	6.75	6.64
225.0	12.15	11.70	11.36	11.14	10.91	10.74	10.52	10.52	10.41
270.0	12.15	11.53	11.08	10.58	10.01	9.51	9.06	8.66	8.27
315.0	8.94	8.21	7.76	7.37	6.92	6.58	6.36	6.08	5.91
360.0	11.19	10.58	10.18	9.73	9.23	8.72	8.38	8.10	7.71

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.48	7.26	7.03	6.86	6.75	6.58	6.41	6.30	6.08
45.0	9.73	9.56	9.45	9.17	9.00	8.55	8.10	7.54	6.92
90.0	6.69	6.75	6.81	6.92	7.09	7.20	7.31	7.14	6.98
135.0	5.63	5.63	5.51	5.46	5.46	5.40	5.40	5.34	5.29
180.0	6.53	6.53	6.53	6.58	6.64	6.75	6.81	6.86	6.81
225.0	10.24	10.24	10.13	9.84	9.62	9.11	8.66	7.99	7.43
270.0	7.93	7.65	7.43	7.20	7.14	6.92	6.69	6.47	6.19
315.0	5.79	5.68	5.63	5.57	5.51	5.40	5.40	5.34	5.29
360.0	7.48	7.26	7.03	6.86	6.75	6.58	6.41	6.30	6.08

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.85	5.57	5.29	5.12	5.01	4.95	4.89	4.84	4.78
45.0	6.36	5.91	5.51	5.34	5.18	5.06	5.01	5.01	5.01
90.0	6.58	6.13	5.74	5.40	5.23	5.12	5.01	4.95	4.89
135.0	5.29	5.23	5.18	5.12	5.06	5.01	4.95	4.95	4.89
180.0	6.64	6.30	5.91	5.63	5.29	5.12	5.01	4.95	4.89
225.0	6.75	6.24	5.79	5.51	5.34	5.18	5.12	5.06	5.06
270.0	5.91	5.68	5.40	5.23	5.06	4.95	4.89	4.84	4.84
315.0	5.29	5.23	5.23	5.18	5.06	4.95	4.95	4.84	4.78
360.0	5.85	5.57	5.29	5.12	5.01	4.95	4.89	4.84	4.78

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.73	4.67	4.67	4.61	4.61	4.61	4.56	4.56	4.56
45.0	4.95	4.95	4.89	4.89	4.89	4.84	4.78	4.78	4.73
90.0	4.89	4.84	4.84	4.84	4.84	4.78	4.78	4.78	4.73
135.0	4.84	4.78	4.78	4.78	4.73	4.73	4.67	4.67	4.61
180.0	4.84	4.84	4.78	4.78	4.78	4.78	4.73	4.67	4.67
225.0	5.01	5.01	5.01	5.01	4.95	4.95	4.89	4.89	4.78
270.0	4.73	4.78	4.73	4.73	4.73	4.67	4.61	4.61	4.61
315.0	4.78	4.73	4.73	4.67	4.67	4.67	4.61	4.61	4.61
360.0	4.73	4.67	4.67	4.61	4.61	4.61	4.56	4.56	4.56

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.56	4.56	4.50	4.44	4.44	4.39	4.39	4.39	4.39
45.0	4.73	4.67	4.56	4.56	4.44	4.44	4.39	4.39	4.33
90.0	4.73	4.73	4.67	4.61	4.56	4.50	4.44	4.39	4.33
135.0	4.61	4.56	4.56	4.56	4.56	4.56	4.50	4.50	4.44
180.0	4.61	4.61	4.56	4.56	4.56	4.50	4.56	4.39	4.39
225.0	4.78	4.73	4.67	4.61	4.56	4.56	4.50	4.44	4.39
270.0	4.61	4.61	4.61	4.61	4.61	4.50	4.44	4.39	4.33
315.0	4.56	4.56	4.56	4.56	4.44	4.50	4.44	4.39	4.39
360.0	4.56	4.56	4.50	4.44	4.44	4.39	4.39	4.39	4.39

Intensity data(cd)

C/γ(°)	90.0
0.0	4.39
45.0	4.33
90.0	4.33
135.0	4.33
180.0	4.33
225.0	4.33
270.0	4.39
315.0	4.39
360.0	4.39