NATA LIGHTING CO.,LTD.
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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

Client:
LumCAT: CT01D03524AF
Luminaire:

Report No: GC2019091909	Voltage(V): 220.6000
Test No: NATA07	Current(A): 0.0180
LampCAT: CREE CXA1304	Power (W): 2.9800
Lamp flux(lm): 231.0	PF: 0.7290
Number of Lamps: 1	Ballast type: AC
Length(mm): 33	Width(mm): 33
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 215.62, Efficiency(%): 93.34% , Luminous Efficacy(lm/W): 72.36
Central intensity(cd): 875.782, Maximum intensity(cd): 875.782
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=21.0
[C90/270]Total=21.0
Field angle(10%Imax): [C0/180]Total=50.2
[C90/270]Total=50.2
Maximum s/h(1/2): C0_180=0.36 C90_270=0.36
Maximum s/h(1/4): C0_180=0.41 C90_270=0.41
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 93.34%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 92.283%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	875.782	0.000	0	.000%	.000%
1.0	874.662	0.838	0.838	.363%	.388%
2.0	856.211	2.484	3.322	1.075%	1.541%
3.0	823.462	4.017	7.339	1.739%	3.404%
4.0	789.373	5.399	12.738	2.337%	5.908%
5.0	741.206	6.584	19.322	2.850%	8.961%
6.0	686.201	7.501	26.824	3.247%	12.440%
7.0	630.726	8.174	34.998	3.539%	16.231%
8.0	571.857	8.607	43.604	3.726%	20.223%
9.0	515.953	8.816	52.421	3.816%	24.312%
10.0	464.434	8.872	61.293	3.841%	28.426%
11.0	415.704	8.794	70.087	3.807%	32.505%
12.0	372.915	8.621	78.708	3.732%	36.503%
13.0	334.000	8.389	87.097	3.632%	40.394%
14.0	299.186	8.105	95.202	3.509%	44.153%
15.0	276.228	7.900	103.101	3.420%	47.817%
16.0	246.303	7.657	110.758	3.315%	51.367%
17.0	222.510	7.301	118.059	3.160%	54.753%
18.0	200.196	6.969	125.028	3.017%	57.986%
19.0	181.431	6.640	131.668	2.874%	61.065%
20.0	164.355	6.329	137.996	2.740%	64.000%
21.0	149.100	6.019	144.015	2.606%	66.792%
22.0	130.747	5.624	149.639	2.434%	69.400%
23.0	115.011	5.157	154.796	2.232%	71.791%
24.0	101.055	4.724	159.52	2.045%	73.982%
25.0	88.654	4.314	163.833	1.867%	75.983%
26.0	76.223	3.892	167.725	1.685%	77.788%
27.0	65.841	3.476	171.201	1.505%	79.400%
28.0	56.061	3.086	174.287	1.336%	80.831%
29.0	47.714	2.715	177.002	1.175%	82.090%
30.0	39.588	2.357	179.359	1.020%	83.184%
31.0	33.167	2.025	181.384	.876%	84.123%
32.0	27.407	1.735	183.119	.751%	84.927%
33.0	22.575	1.472	184.592	.637%	85.610%
34.0	18.863	1.254	185.846	.543%	86.192%
35.0	15.777	1.076	186.922	.466%	86.691%
36.0	13.312	0.926	187.848	.401%	87.120%
37.0	11.282	0.802	188.65	.347%	87.492%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	9.542	0.695	189.345	.301%	87.815%
39.0	8.277	0.608	189.953	.263%	88.097%
40.0	7.477	0.549	190.503	.238%	88.352%
41.0	6.682	0.504	191.007	.218%	88.585%
42.0	6.212	0.468	191.475	.203%	88.803%
43.0	5.882	0.448	191.923	.194%	89.010%
44.0	5.621	0.434	192.357	.188%	89.212%
45.0	5.365	0.422	192.78	.183%	89.408%
46.0	5.180	0.412	193.192	.179%	89.599%
47.0	5.058	0.407	193.599	.176%	89.788%
48.0	4.977	0.406	194.005	.176%	89.976%
49.0	4.913	0.406	194.411	.176%	90.164%
50.0	4.878	0.408	194.819	.177%	90.354%
51.0	4.809	0.410	195.229	.177%	90.544%
52.0	4.780	0.411	195.64	.178%	90.734%
53.0	4.785	0.416	196.057	.180%	90.927%
54.0	4.693	0.418	196.474	.181%	91.121%
55.0	4.664	0.418	196.892	.181%	91.315%
56.0	4.646	0.421	197.313	.182%	91.510%
57.0	4.571	0.421	197.734	.182%	91.705%
58.0	4.466	0.418	198.152	.181%	91.899%
59.0	4.403	0.415	198.567	.179%	92.092%
60.0	4.333	0.413	198.979	.179%	92.283%
61.0	4.269	0.411	199.39	.178%	92.473%
62.0	4.223	0.409	199.799	.177%	92.663%
63.0	4.171	0.408	200.207	.177%	92.852%
64.0	4.118	0.407	200.614	.176%	93.041%
65.0	4.066	0.405	201.019	.175%	93.229%
66.0	4.020	0.403	201.422	.175%	93.416%
67.0	3.973	0.402	201.824	.174%	93.602%
68.0	3.904	0.399	202.223	.173%	93.787%
69.0	3.863	0.396	202.619	.172%	93.971%
70.0	3.863	0.397	203.016	.172%	94.155%
71.0	3.962	0.404	203.421	.175%	94.343%
72.0	4.107	0.420	203.84	.182%	94.537%
73.0	4.205	0.435	204.275	.188%	94.739%
74.0	4.403	0.453	204.727	.196%	94.949%
75.0	4.722	0.482	205.21	.209%	95.172%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	5.017	0.517	205.726	.224%	95.412%
77.0	5.365	0.554	206.28	.240%	95.669%
78.0	5.841	0.600	206.88	.260%	95.947%
79.0	6.380	0.657	207.537	.284%	96.252%
80.0	6.879	0.715	208.251	.309%	96.583%
81.0	7.297	0.767	209.018	.332%	96.939%
82.0	7.657	0.811	209.829	.351%	97.315%
83.0	7.680	0.834	210.663	.361%	97.701%
84.0	7.471	0.825	211.488	.357%	98.084%
85.0	7.210	0.801	212.289	.347%	98.456%
86.0	7.106	0.783	213.072	.339%	98.819%
87.0	6.044	0.720	213.791	.312%	99.153%
88.0	5.708	0.644	214.435	.279%	99.451%
89.0	5.400	0.609	215.044	.264%	99.733%
90.0	5.081	0.575	215.619	.249%	100.000%

Zonal flux distribution table

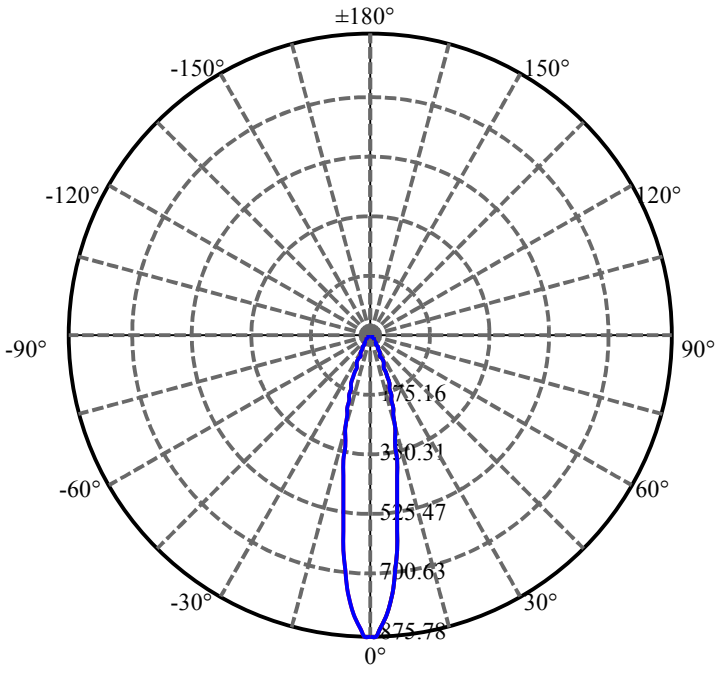
ZONAL LUMEN SUMMARY

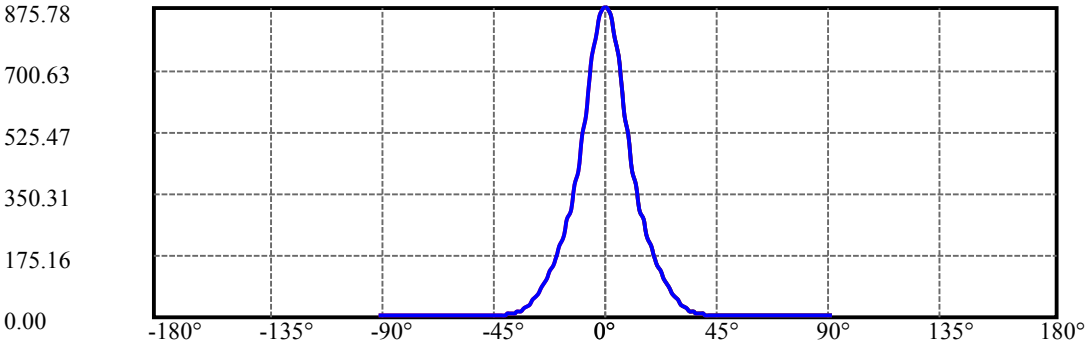
Zone	Lumens	%Lamp	%Fixt
0-30	179.36	77.64%	83.18%
0-40	190.50	82.47%	88.35%
0-60	198.98	86.14%	92.28%
0-90	215.04	93.09%	99.73%
0-120	215.04	93.09%	99.73%
0-180	215.62	93.34%	100.00%
60-90	16.48	7.13%	7.64%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.42	172.50	74.67%	80.00%

ZONAL LUMEN SUMMARY

0-10	61.29
10-20	76.70
20-30	41.36
30-40	11.14
40-50	4.32
50-60	4.16
60-70	4.04
70-80	5.24
80-90	6.79
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):

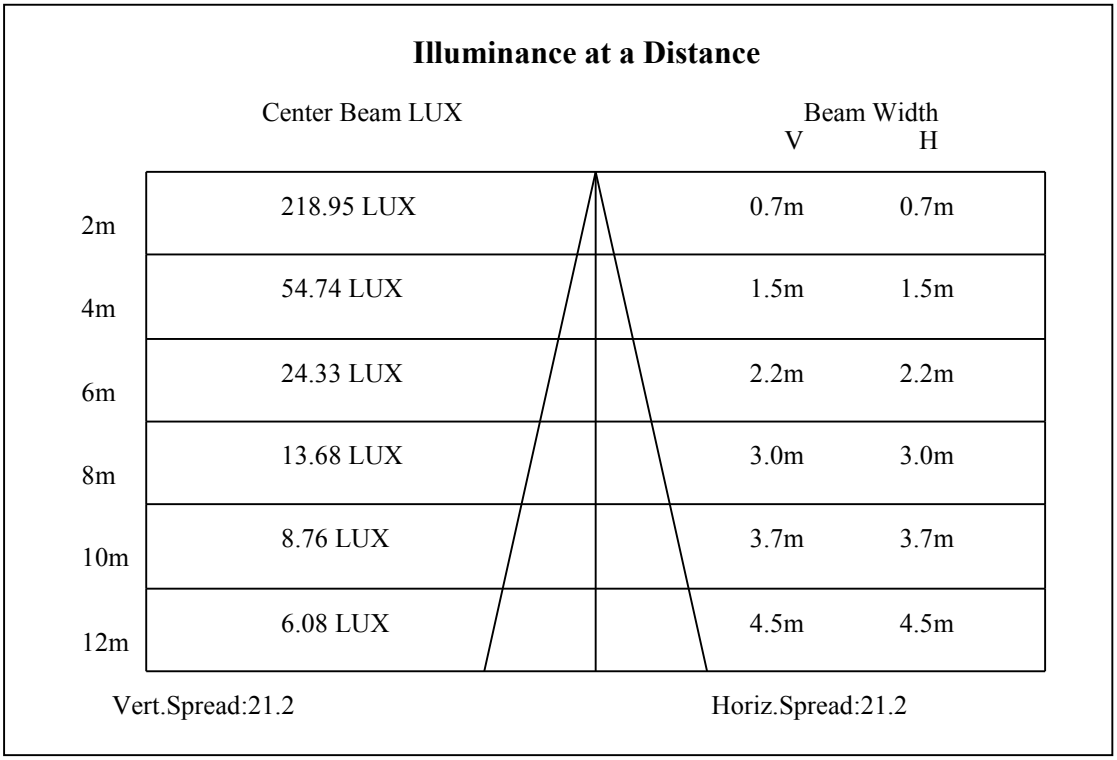
C0/C180:

C90/C270:

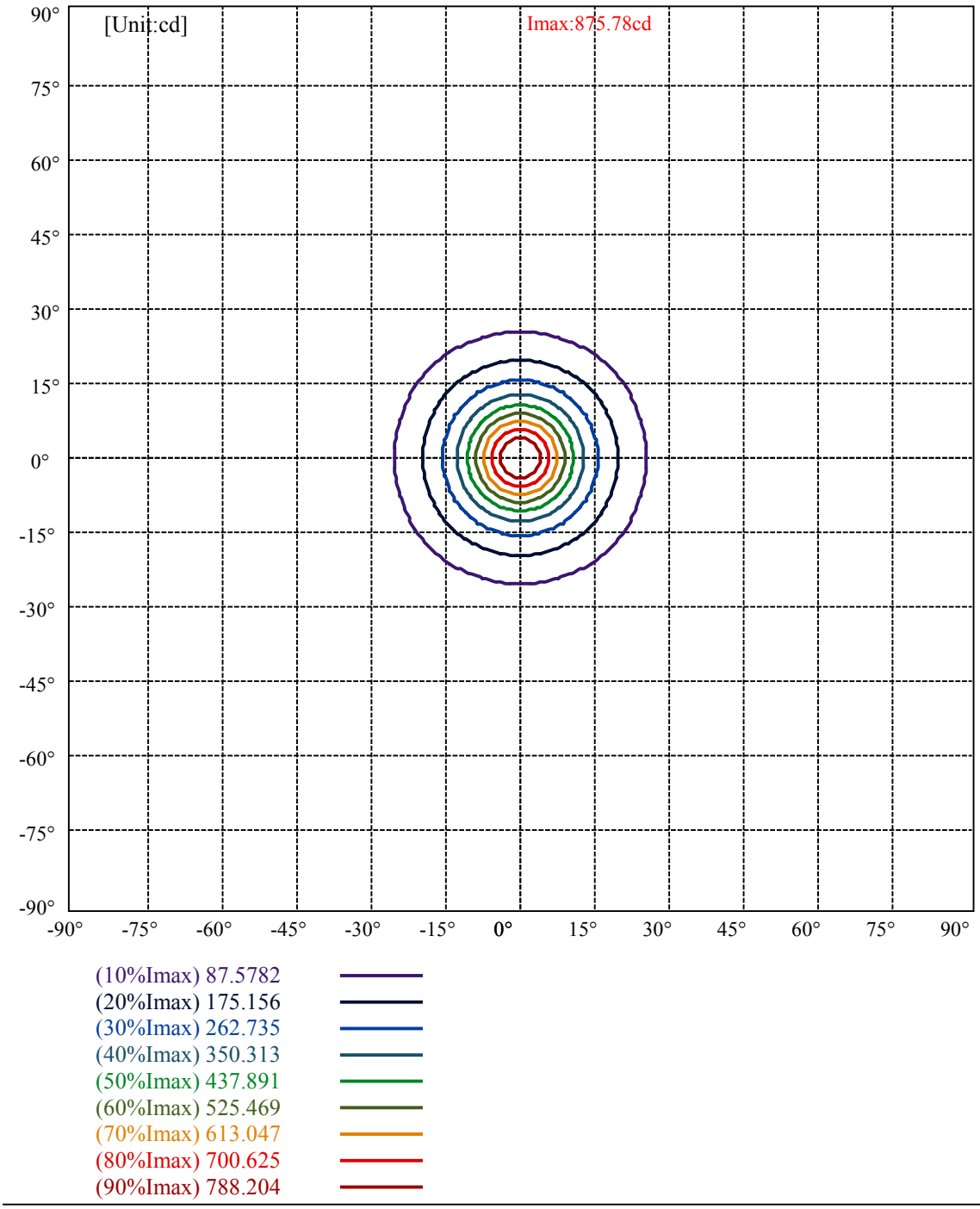
Field angle(10%Imax):C0/180Left:25.1 Right:25.1
:C90/270Left:25.1 Right:25.1

Beam Angle(50%Imax):C0/180Left:10.5 Right:10.5
:C90/270Left:10.5 Right:10.5

Lux distance Curve



ISO-Intensity(V-H)



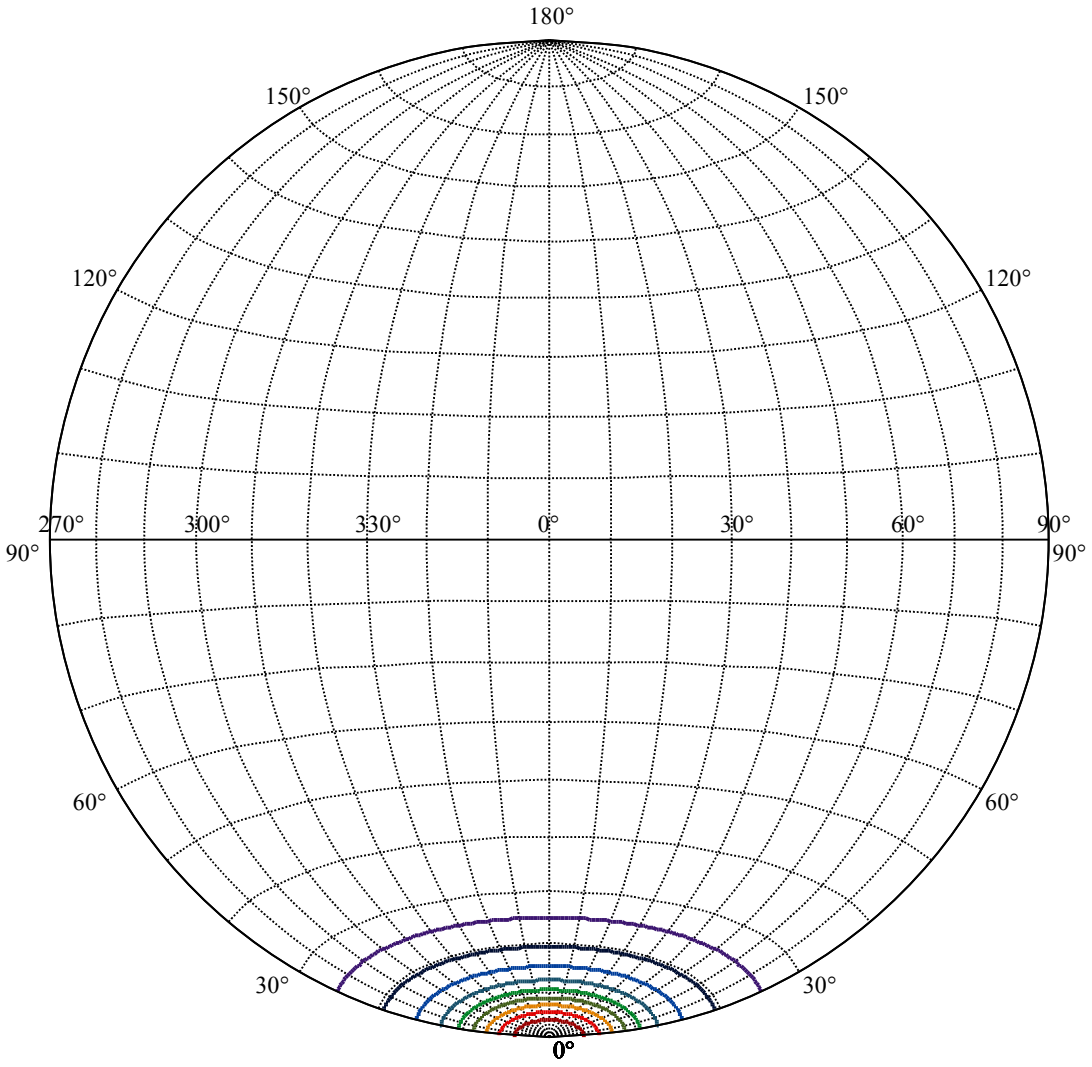
(10%Imax) 87.5782
(20%Imax) 175.156
(30%Imax) 262.735
(40%Imax) 350.313
(50%Imax) 437.891
(60%Imax) 525.469
(70%Imax) 613.047
(80%Imax) 700.625
(90%Imax) 788.204

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/26
Humidity(%): 60.0%

Operator: GC2019092610
Distance(m): 6.81

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:875.78

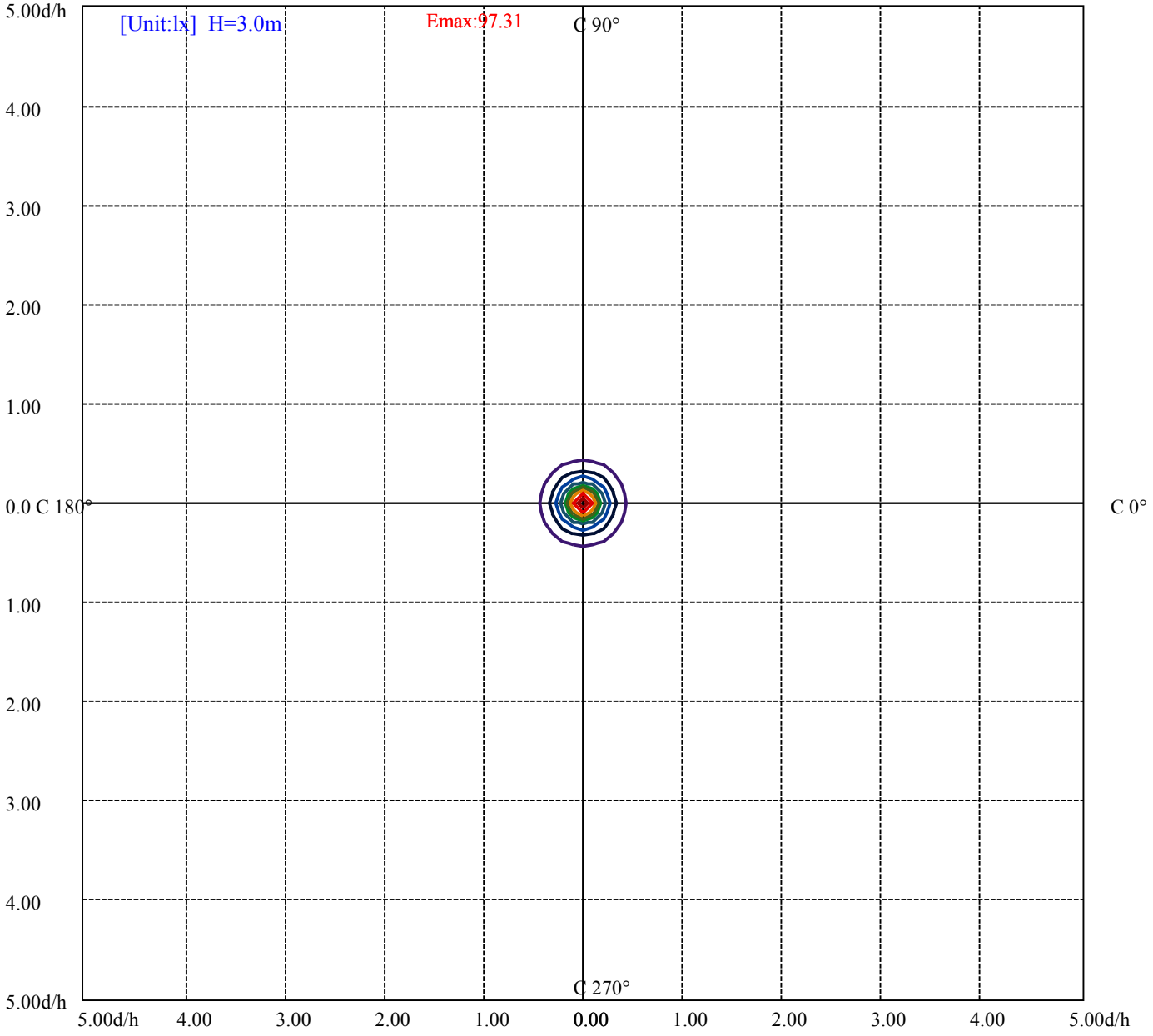
(10%Imax) 87.5782
(20%Imax) 175.156
(30%Imax) 262.735
(40%Imax) 350.313
(50%Imax) 437.891
(60%Imax) 525.469
(70%Imax) 613.047
(80%Imax) 700.625
(90%Imax) 788.204

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/26
Humidity(%): 60.0%

Operator: GC2019092610
Distance(m): 6.81

ISO illuminance diagram

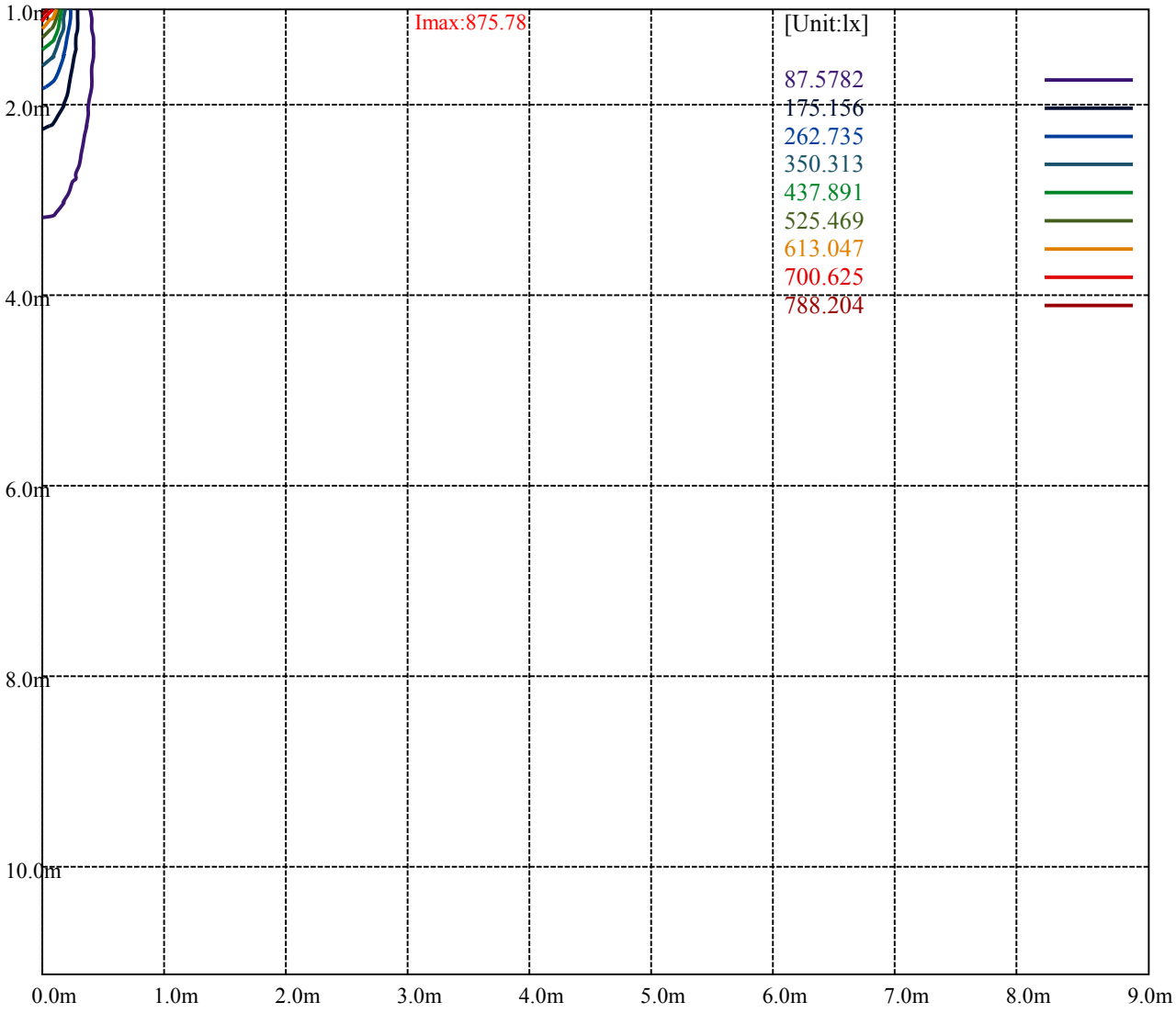


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/26
Humidity(%): 60.0%

Operator: GC2019092610
Distance(m): 6.81

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/26
Humidity(%): 60.0%

Operator: GC2019092610
Distance(m): 6.81

Nata CT01D03524AF

Luminance Limitting Curve(no luminous side)

Luminance Table

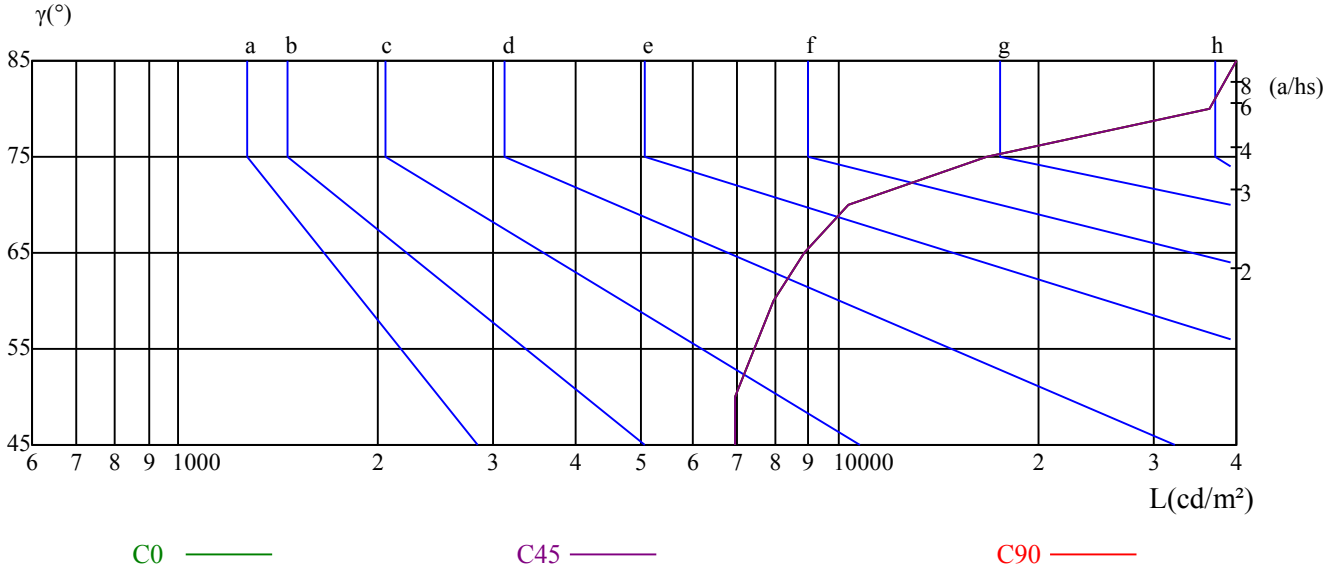
γ	45	50	55	60	65	70	75	80	85
C0	6968	6969	7466	7958	8835	10372	16752	36379	75964
C45	6968	6969	7466	7958	8835	10372	16752	36379	75964
C90	6968	6969	7466	7958	8835	10372	16752	36379	75964

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8835	8835	8835	16752	16752	16752	75964	75964	75964

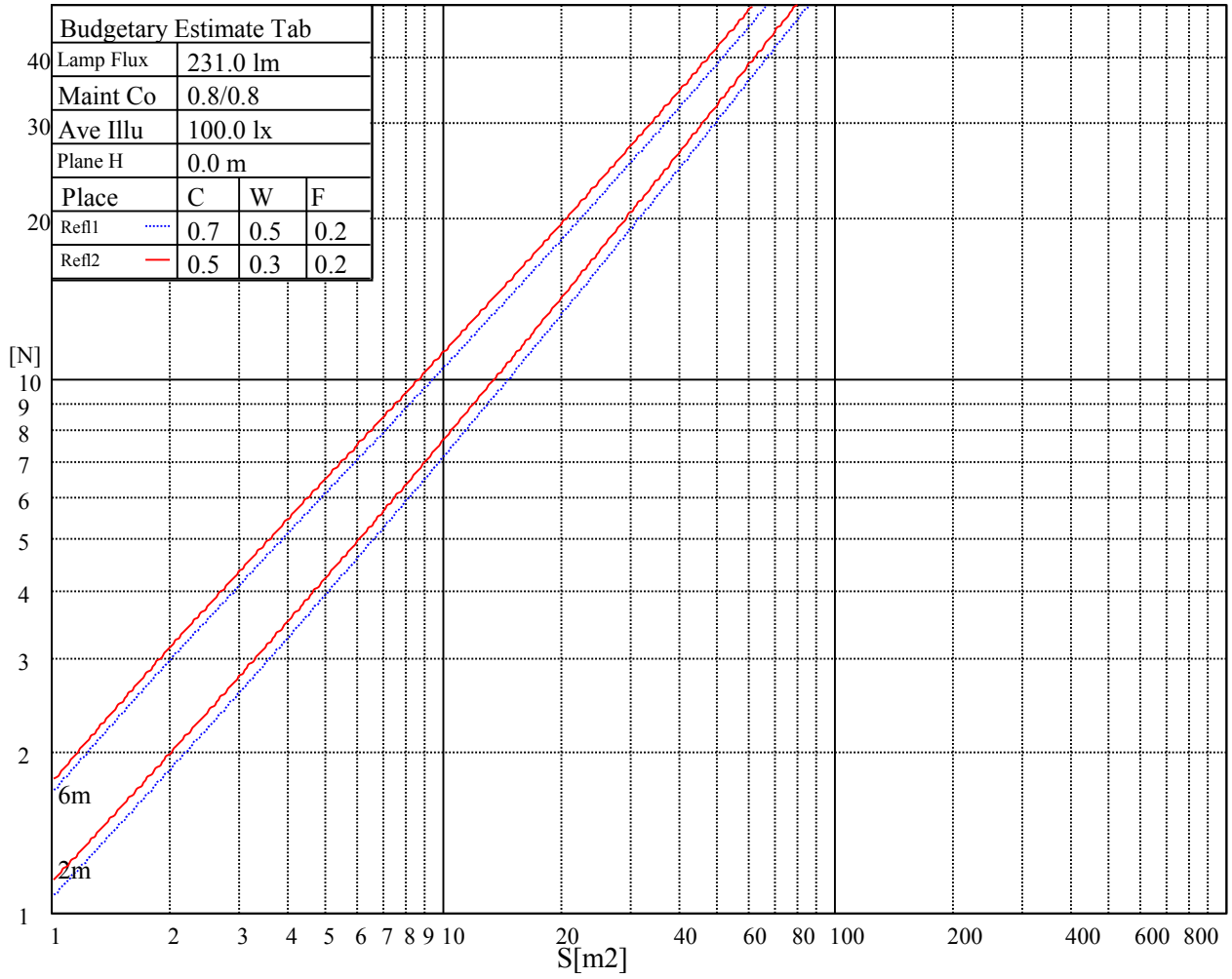
Glare Table

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

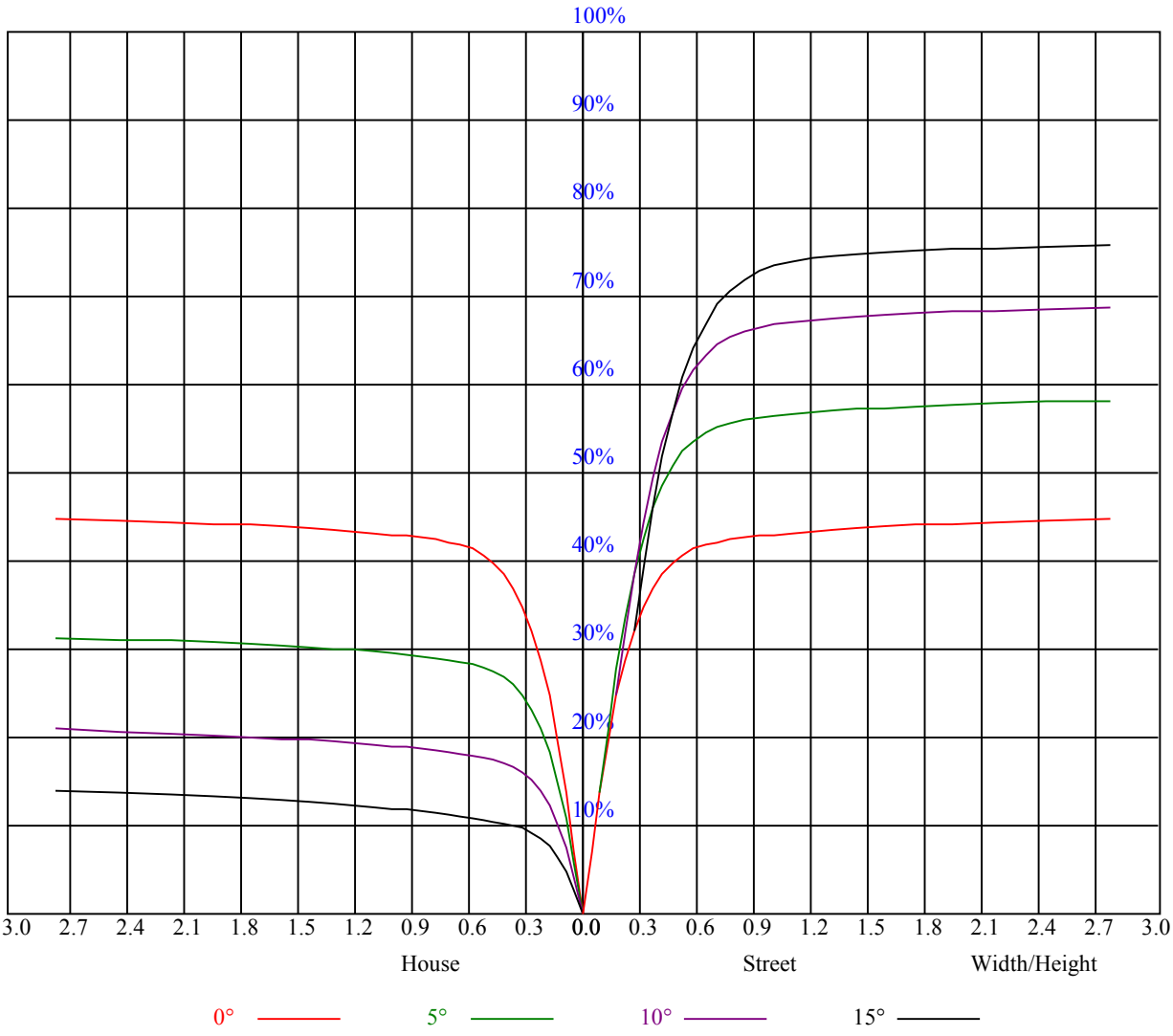


Equipment: GMS 1800	Date: 2019/9/26	Operator: GC2019092610
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 6.81

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	1.09	1.09	1.09	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.93
1	1.02	0.99	0.97	1.00	0.98	0.96	0.96	0.94	0.93	0.93	0.91	0.90	0.90	0.88	0.87	0.85
2	0.96	0.92	0.89	0.94	0.91	0.88	0.91	0.88	0.86	0.88	0.86	0.84	0.86	0.84	0.82	0.80
3	0.90	0.86	0.82	0.89	0.85	0.82	0.87	0.83	0.80	0.84	0.82	0.79	0.82	0.80	0.78	0.76
4	0.86	0.81	0.77	0.85	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.74	0.73
5	0.82	0.77	0.74	0.81	0.77	0.73	0.80	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.71	0.70
6	0.79	0.74	0.70	0.78	0.73	0.70	0.77	0.72	0.69	0.75	0.72	0.69	0.74	0.71	0.69	0.67
7	0.75	0.71	0.67	0.75	0.70	0.67	0.74	0.70	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.65
8	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.63
9	0.70	0.66	0.62	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.61
10	0.68	0.63	0.60	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.59

Coefficient Utilization Curve

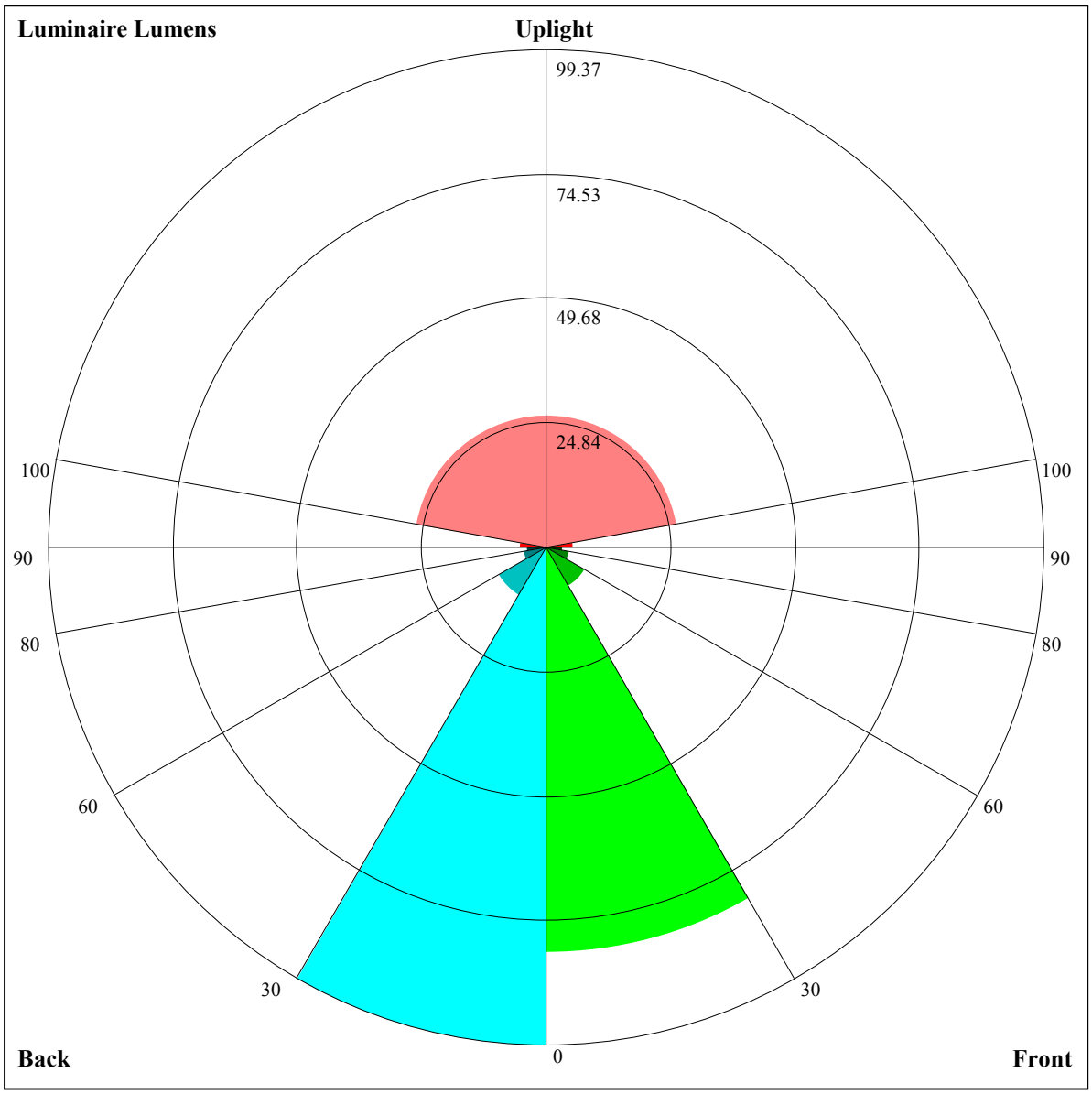


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2019/9/26
Humidity(%): 60.0%

Operator: GC2019092610
Distance(m): 6.81

LCS Graph



Luminaire Lumens:

FL=81.09,FM=8.91,FH=4.81,FVH=3.4

BL=99.37,BM=11.23,BH=4.65,BVH=3.99

UL=5.54,UH=26.38

BUG Rating:B0-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	862.55	835.77	780.41	734.19	669.46	603.85	538.19	480.18	428.63
45.0	892.85	870.57	826.03	744.82	704.45	635.77	563.38	497.95	442.73
90.0	863.94	820.41	764.50	699.44	629.69	560.74	497.30	440.04	391.64
135.0	883.80	873.73	852.52	817.77	773.36	715.96	652.48	586.54	522.18
180.0	862.55	886.81	898.55	901.90	891.55	863.52	819.90	770.99	715.35
225.0	892.85	932.29	942.50	926.21	926.21	900.92	859.99	808.67	749.97
270.0	863.94	895.54	918.37	925.10	925.10	909.55	878.93	834.38	776.37
315.0	883.80	882.17	866.81	838.28	795.17	739.34	679.44	627.05	547.98
360.0	862.55	835.77	780.41	734.19	669.46	603.85	538.19	480.18	428.63

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	384.08	345.43	311.88	281.90	254.66	229.56	206.40	184.92	165.61
45.0	395.87	354.57	318.84	287.75	259.91	235.31	235.31	211.23	174.01
90.0	352.25	318.65	288.81	261.02	235.87	213.83	201.20	174.20	163.15
135.0	463.85	414.01	371.55	348.21	313.55	273.73	258.28	233.87	211.09
180.0	647.70	581.43	519.11	460.79	412.34	371.69	335.50	304.59	276.61
225.0	684.59	613.45	545.42	483.52	431.32	385.84	361.02	311.23	293.08
270.0	712.80	645.52	576.38	509.09	449.69	400.51	357.82	321.16	290.07
315.0	486.49	442.41	393.64	351.04	314.66	283.01	254.29	229.23	206.45
360.0	384.08	345.43	311.88	281.90	254.66	229.56	206.40	184.92	165.61

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	147.93	131.41	115.82	101.21	92.99	75.13	63.80	57.63	44.96
45.0	156.38	143.34	127.61	112.85	99.12	86.08	73.97	62.46	51.55
90.0	145.98	130.07	114.89	100.93	87.98	76.19	65.10	54.85	45.57
135.0	190.39	170.72	152.67	135.87	120.83	106.73	93.92	82.09	70.77
180.0	250.16	235.96	205.61	185.89	174.24	155.64	138.14	122.09	107.10
225.0	264.87	239.21	215.59	194.29	175.54	157.72	140.79	124.73	109.84
270.0	260.83	235.78	235.78	231.14	179.53	160.37	142.88	127.28	112.76
315.0	185.01	164.96	146.87	130.63	115.73	102.23	89.84	78.10	67.24
360.0	147.93	131.41	115.82	101.21	92.99	75.13	63.80	57.63	44.96

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	40.14	32.99	26.82	21.53	17.17	13.60	10.90	9.10	7.93
45.0	42.18	34.38	27.93	22.55	18.10	14.52	11.79	9.84	8.40
90.0	37.45	30.39	24.69	19.91	16.06	12.95	10.67	9.14	8.03
135.0	60.32	50.81	42.37	34.99	28.82	23.62	20.93	17.12	12.99
180.0	93.13	80.00	68.31	57.59	48.07	39.91	33.04	27.47	22.51
225.0	96.57	84.41	72.44	61.30	51.41	42.74	35.13	28.82	25.57
270.0	99.44	86.91	75.31	64.92	55.36	46.82	39.21	32.62	27.15
315.0	57.49	48.58	43.85	33.92	30.35	25.10	18.93	16.80	13.64
360.0	40.14	32.99	26.82	21.53	17.17	13.60	10.90	9.10	7.93

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	7.15	6.54	6.08	5.80	5.48	5.29	5.10	5.01	4.87
45.0	7.47	7.05	6.45	5.89	5.66	5.34	5.01	4.87	4.92
90.0	7.42	6.64	6.31	5.94	5.71	5.43	5.20	5.29	5.29
135.0	11.69	9.98	8.63	7.75	7.10	6.50	6.13	5.75	5.43
180.0	18.24	16.06	12.02	9.98	9.10	7.61	7.19	6.64	6.17
225.0	20.84	15.41	13.55	11.04	9.28	7.98	7.05	6.45	6.03
270.0	22.32	18.98	14.94	12.30	10.58	8.86	8.03	7.38	6.82
315.0	11.37	9.61	8.35	7.52	6.91	6.45	5.99	5.66	5.43
360.0	7.15	6.54	6.08	5.80	5.48	5.29	5.10	5.01	4.87

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	4.69	4.64	4.64	4.69	4.83	4.83	4.73	4.64	4.59
45.0	4.83	4.64	4.50	4.50	4.45	4.50	4.41	4.41	4.41
90.0	5.15	5.01	5.01	5.06	5.10	5.06	4.97	4.83	4.73
135.0	5.20	5.20	5.06	4.92	4.87	4.92	4.87	4.92	4.97
180.0	5.85	5.52	5.29	5.10	4.83	4.64	4.50	4.55	4.64
225.0	5.66	5.34	5.06	4.92	4.87	4.78	4.78	4.73	4.69
270.0	6.36	5.99	5.80	5.52	5.34	5.29	5.24	5.20	5.15
315.0	5.20	5.10	5.10	5.10	5.01	5.01	4.97	4.97	5.10
360.0	4.69	4.64	4.64	4.69	4.83	4.83	4.73	4.64	4.59

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	4.45	4.36	4.36	4.32	4.18	4.13	4.08	4.04	3.94
45.0	4.32	4.18	4.18	4.13	4.04	3.99	3.90	3.85	3.76
90.0	4.59	4.55	4.45	4.36	4.27	4.22	4.22	4.18	4.22
135.0	4.83	4.73	4.64	4.55	4.41	4.36	4.27	4.22	4.18
180.0	4.55	4.55	4.59	4.50	4.36	4.32	4.27	4.27	4.27
225.0	4.69	4.83	4.83	4.73	4.64	4.59	4.55	4.45	4.41
270.0	5.10	5.10	5.24	5.15	5.10	4.97	4.92	4.83	4.69
315.0	5.01	5.01	4.87	4.83	4.73	4.64	4.45	4.32	4.32
360.0	4.45	4.36	4.36	4.32	4.18	4.13	4.08	4.04	3.94

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.94	3.85	3.85	3.81	3.76	3.71	3.71	3.67	3.85
45.0	3.81	3.85	3.76	3.67	3.62	3.62	3.62	3.57	3.76
90.0	4.13	4.08	4.04	3.99	3.94	3.85	3.90	4.13	4.59
135.0	4.08	4.04	4.04	3.90	3.94	3.90	3.76	3.76	3.76
180.0	4.18	4.13	4.04	4.08	3.99	3.90	3.85	3.85	3.81
225.0	4.36	4.32	4.22	4.13	4.08	4.04	3.94	3.85	3.85
270.0	4.64	4.55	4.50	4.50	4.41	4.32	4.27	4.27	4.27
315.0	4.22	4.13	4.08	4.08	4.04	3.90	3.85	3.81	3.81
360.0	3.94	3.85	3.85	3.81	3.76	3.71	3.71	3.67	3.85

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.36	4.69	5.01	5.43	6.08	6.54	7.01	7.75	8.86
45.0	4.08	4.36	4.45	4.69	5.29	5.71	5.71	5.85	5.94
90.0	5.24	5.43	5.71	6.64	6.87	7.10	7.70	8.54	8.68
135.0	3.76	3.94	4.55	4.97	5.10	5.38	6.36	6.96	7.47
180.0	3.67	3.62	3.62	3.67	3.67	3.90	4.55	5.15	5.61
225.0	3.81	3.71	3.71	3.76	3.99	4.36	4.64	5.29	5.71
270.0	4.18	4.04	4.04	4.04	4.04	4.55	5.01	5.29	5.85
315.0	3.76	3.85	4.13	4.59	5.10	5.38	5.75	6.22	6.91
360.0	4.36	4.69	5.01	5.43	6.08	6.54	7.01	7.75	8.86

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.56	9.88	9.79	8.72	7.56	6.45	5.24	4.45	3.85
45.0	5.85	6.13	5.89	5.24	4.64	4.32	3.90	3.53	3.25
90.0	8.45	8.35	7.10	6.31	5.71	5.01	4.78	4.45	4.18
135.0	8.17	8.68	8.77	8.54	8.58	9.00	6.82	6.17	5.48
180.0	6.26	6.87	7.33	7.89	9.19	9.98	10.21	9.28	8.12
225.0	5.99	6.36	6.54	6.68	6.82	7.01	6.96	6.96	6.87
270.0	6.73	7.10	7.75	8.03	8.31	8.63	8.86	9.51	10.21
315.0	7.38	7.89	8.26	8.35	6.87	6.45	1.58	1.30	1.25
360.0	9.56	9.88	9.79	8.72	7.56	6.45	5.24	4.45	3.85

Intensity data(cd)

C/γ(°)	90.0
0.0	3.57
45.0	2.92
90.0	3.85
135.0	4.83
180.0	7.75
225.0	6.77
270.0	9.70
315.0	1.25
360.0	3.57