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

Client:
LumCAT: 1405-S
Luminaire: 92.70.043.00

Report No: nt0100	Voltage(V): 34.5700
Test No: GC2019120507	Current(A): 0.1470
LampCAT: LUMINUS CXM-4-AC40	Power (W): 5.0800
Lamp flux(lm): 598.0	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): 522.53, Efficiency(%): 87.38% , Luminous Efficacy(lm/W): 102.86
Central intensity(cd): 1749.516, Maximum intensity(cd): 1749.516
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=18.0
[C90/270]Total=18.0
Field angle(10%Imax): [C0/180]Total=61.0
[C90/270]Total=61.0
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 87.38%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 95.404%

Equipment: GMS1980	Date: 2019/12/5	Operator: NT07
Temperature(°C): 25.0	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	1749.516	0.000	0	.000%	.000%
1.0	1733.133	1.666	1.666	.279%	.319%
2.0	1684.125	4.905	6.571	.820%	1.258%
3.0	1602.352	7.860	14.431	1.314%	2.762%
4.0	1500.820	10.387	24.819	1.737%	4.750%
5.0	1387.969	12.427	37.246	2.078%	7.128%
6.0	1238.084	13.801	51.047	2.308%	9.769%
7.0	1103.189	14.532	65.579	2.430%	12.550%
8.0	998.782	15.043	80.622	2.516%	15.429%
9.0	875.960	15.194	95.816	2.541%	18.337%
10.0	760.732	14.811	110.628	2.477%	21.171%
11.0	670.366	14.300	124.927	2.391%	23.908%
12.0	589.134	13.768	138.695	2.302%	26.543%
13.0	512.937	13.079	151.774	2.187%	29.046%
14.0	457.495	12.421	164.196	2.077%	31.423%
15.0	411.195	11.926	176.121	1.994%	33.705%
16.0	371.580	11.470	187.591	1.918%	35.900%
17.0	338.463	11.057	198.648	1.849%	38.016%
18.0	312.321	10.730	209.378	1.794%	40.070%
19.0	291.185	10.500	219.878	1.756%	42.079%
20.0	277.692	10.412	230.29	1.741%	44.072%
21.0	256.584	10.259	240.549	1.716%	46.035%
22.0	244.329	10.066	250.616	1.683%	47.962%
23.0	233.339	10.023	260.638	1.676%	49.880%
24.0	222.722	9.971	270.609	1.667%	51.788%
25.0	214.066	9.932	280.541	1.661%	53.689%
26.0	206.170	9.920	290.461	1.659%	55.587%
27.0	198.619	9.903	300.364	1.656%	57.482%
28.0	191.004	9.864	310.228	1.650%	59.370%
29.0	184.430	9.822	320.051	1.643%	61.250%
30.0	178.277	9.793	329.844	1.638%	63.124%
31.0	171.415	9.731	339.575	1.627%	64.986%
32.0	164.932	9.636	349.211	1.611%	66.830%
33.0	158.646	9.533	358.744	1.594%	68.655%
34.0	152.002	9.401	368.145	1.572%	70.454%
35.0	144.717	9.215	377.36	1.541%	72.217%
36.0	137.651	8.991	386.351	1.503%	73.938%
37.0	130.711	8.752	395.103	1.464%	75.613%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	123.061	8.471	403.574	1.416%	77.234%
39.0	114.919	8.123	411.697	1.358%	78.789%
40.0	107.142	7.745	419.441	1.295%	80.271%
41.0	99.415	7.355	426.797	1.230%	81.678%
42.0	91.266	6.928	433.724	1.158%	83.004%
43.0	83.426	6.471	440.196	1.082%	84.243%
44.0	76.240	6.026	446.222	1.008%	85.396%
45.0	69.314	5.594	451.816	.935%	86.466%
46.0	62.620	5.160	456.975	.863%	87.454%
47.0	56.623	4.743	461.718	.793%	88.361%
48.0	51.363	4.365	466.083	.730%	89.197%
49.0	46.568	4.022	470.105	.673%	89.966%
50.0	41.836	3.686	473.791	.616%	90.672%
51.0	38.053	3.380	477.171	.565%	91.319%
52.0	34.763	3.125	480.295	.523%	91.917%
53.0	31.605	2.887	483.182	.483%	92.469%
54.0	28.891	2.666	485.849	.446%	92.979%
55.0	26.655	2.480	488.328	.415%	93.454%
56.0	24.609	2.317	490.645	.387%	93.897%
57.0	22.655	2.161	492.806	.361%	94.311%
58.0	21.038	2.020	494.826	.338%	94.697%
59.0	19.617	1.901	496.727	.318%	95.061%
60.0	18.295	1.791	498.518	.300%	95.404%
61.0	17.044	1.686	500.204	.282%	95.727%
62.0	15.989	1.592	501.796	.266%	96.031%
63.0	14.998	1.507	503.303	.252%	96.320%
64.0	14.006	1.423	504.726	.238%	96.592%
65.0	13.134	1.343	506.07	.225%	96.849%
66.0	12.361	1.272	507.342	.213%	97.093%
67.0	11.623	1.206	508.548	.202%	97.323%
68.0	10.828	1.137	509.685	.190%	97.541%
69.0	10.188	1.072	510.757	.179%	97.746%
70.0	9.577	1.015	511.772	.170%	97.940%
71.0	8.944	0.957	512.729	.160%	98.124%
72.0	8.367	0.900	513.629	.151%	98.296%
73.0	7.826	0.847	514.476	.142%	98.458%
74.0	7.298	0.795	515.271	.133%	98.610%
75.0	6.778	0.744	516.015	.124%	98.753%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	6.314	0.695	516.71	.116%	98.886%
77.0	5.850	0.649	517.359	.108%	99.010%
78.0	5.421	0.603	517.962	.101%	99.125%
79.0	4.999	0.560	518.522	.094%	99.232%
80.0	4.634	0.519	519.041	.087%	99.332%
81.0	4.289	0.483	519.524	.081%	99.424%
82.0	3.923	0.445	519.969	.074%	99.509%
83.0	3.600	0.409	520.378	.068%	99.587%
84.0	3.312	0.377	520.755	.063%	99.660%
85.0	3.066	0.348	521.103	.058%	99.726%
86.0	2.883	0.325	521.428	.054%	99.788%
87.0	2.644	0.302	521.73	.051%	99.846%
88.0	2.482	0.281	522.011	.047%	99.900%
89.0	2.370	0.266	522.277	.044%	99.951%
90.0	2.313	0.257	522.534	.043%	100.000%

Zonal flux distribution table

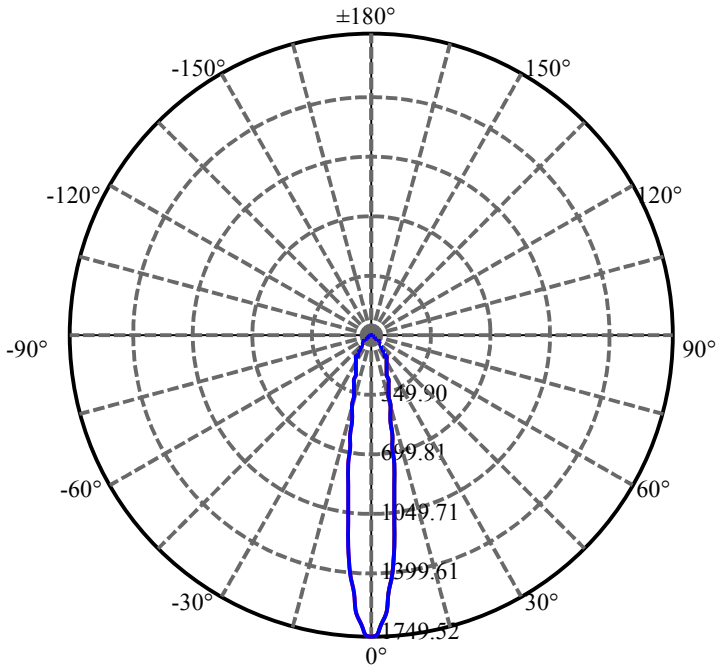
ZONAL LUMEN SUMMARY

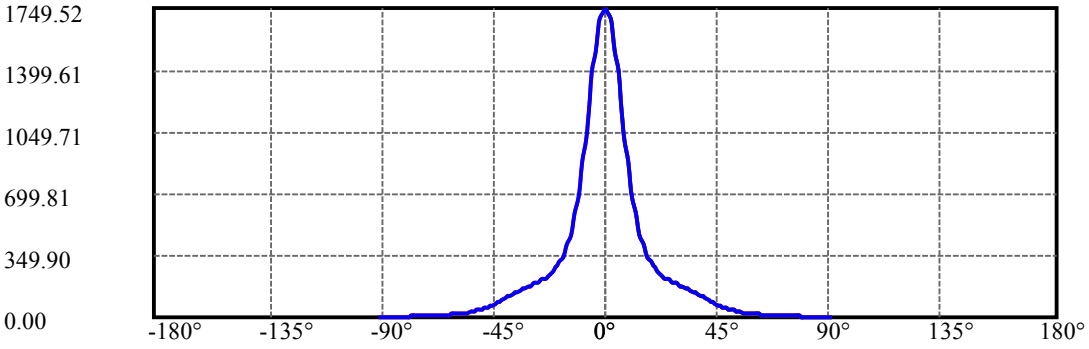
Zone	Lumens	%Lamp	%Fixt
0-30	329.84	55.16%	63.12%
0-40	419.44	70.14%	80.27%
0-60	498.52	83.36%	95.40%
0-90	522.28	87.34%	99.95%
0-120	522.28	87.34%	99.95%
0-180	522.53	87.38%	100.00%
60-90	25.55	4.27%	4.89%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-39.82	418.03	69.90%	80.00%

ZONAL LUMEN SUMMARY

0-10	110.63
10-20	119.66
20-30	99.55
30-40	89.60
40-50	54.35
50-60	24.73
60-70	13.25
70-80	7.27
80-90	3.24
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:30.5 Right:30.5
:C90/270Left:30.5 Right:30.5

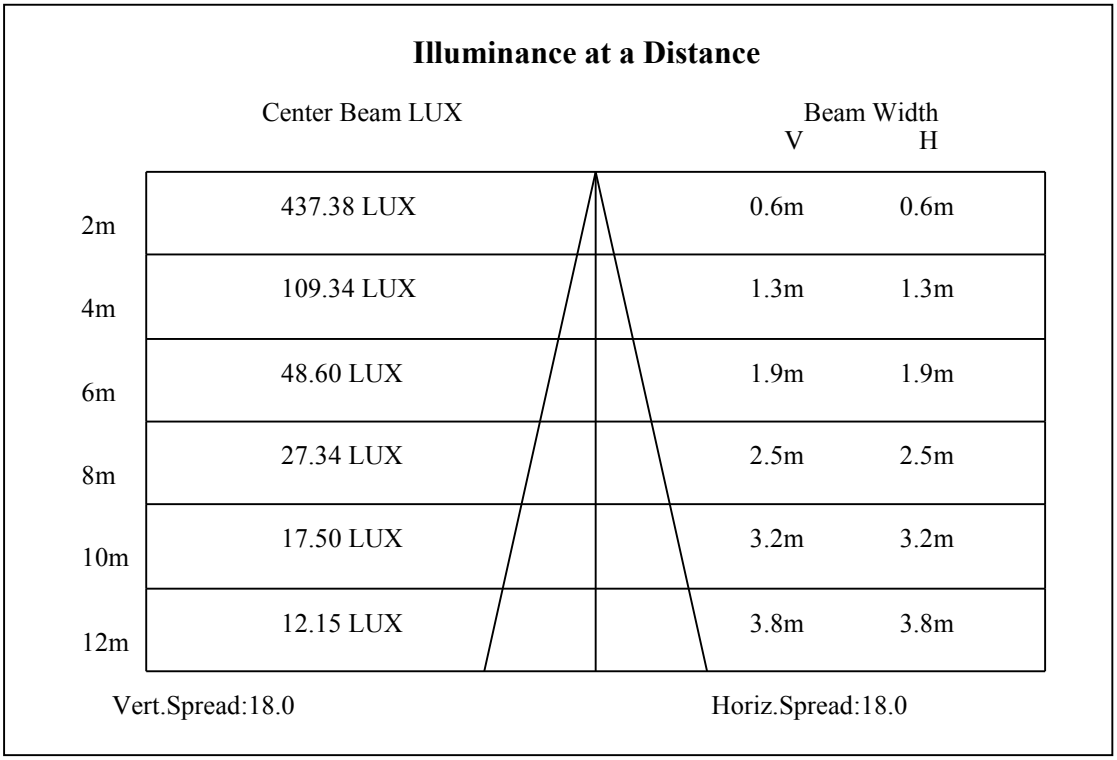
Beam Angle(50%Imax):C0/180Left:9.0 Right:9.0
:C90/270Left:9.0 Right:9.0

Equipment: GMS1980
Temperature(°C): 25.0

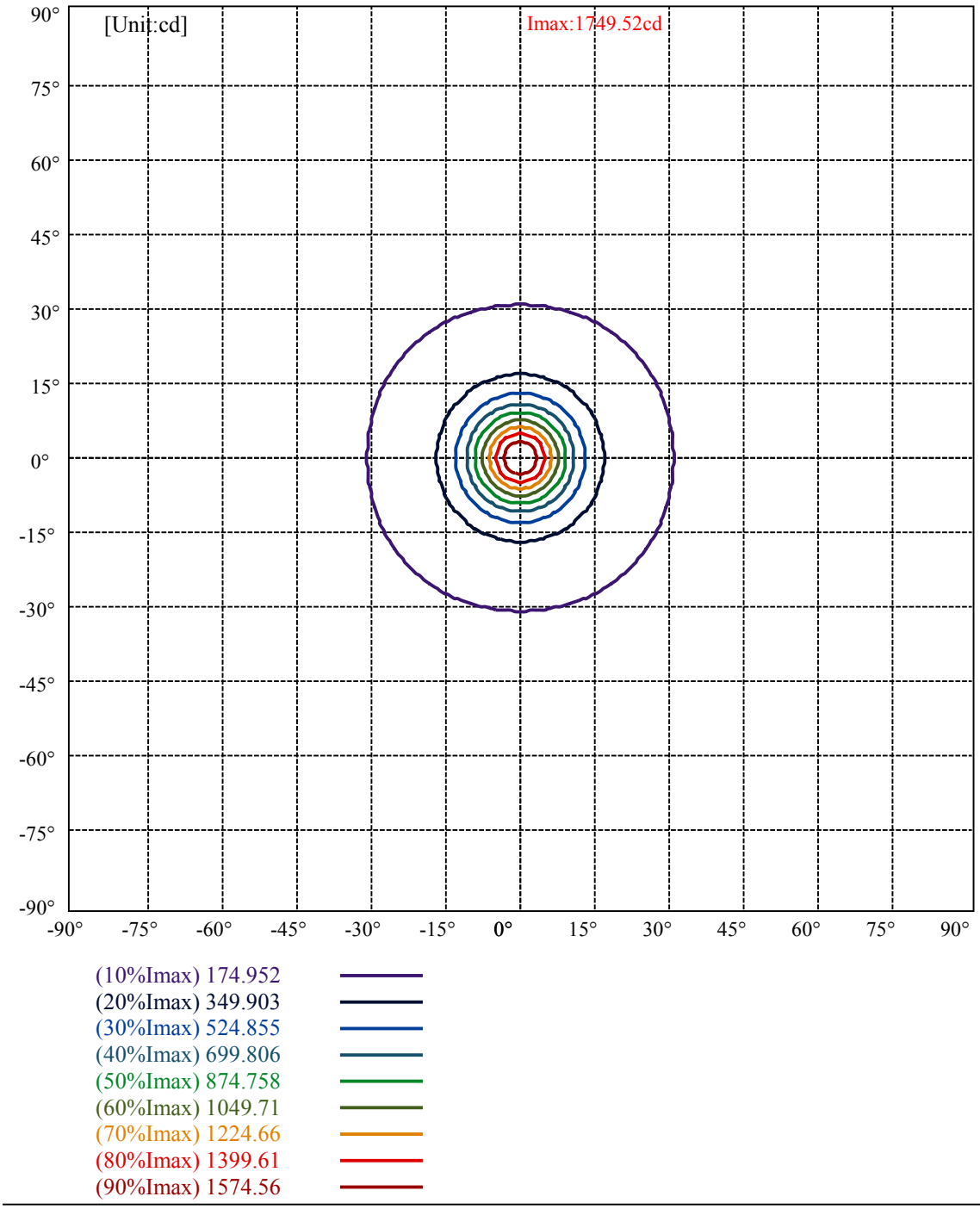
Date: 2019/12/5
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Lux distance Curve



ISO-Intensity(V-H)

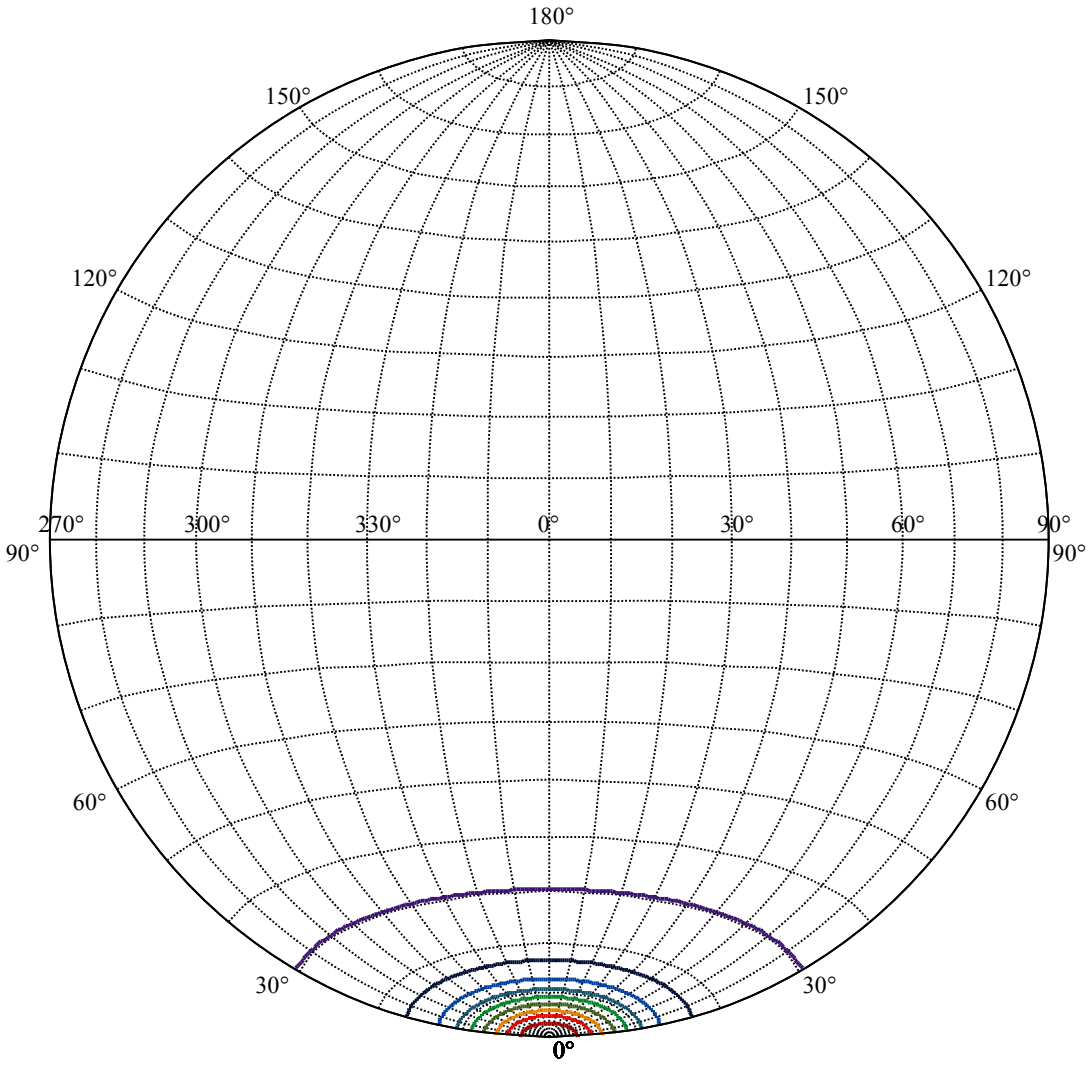


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/5
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



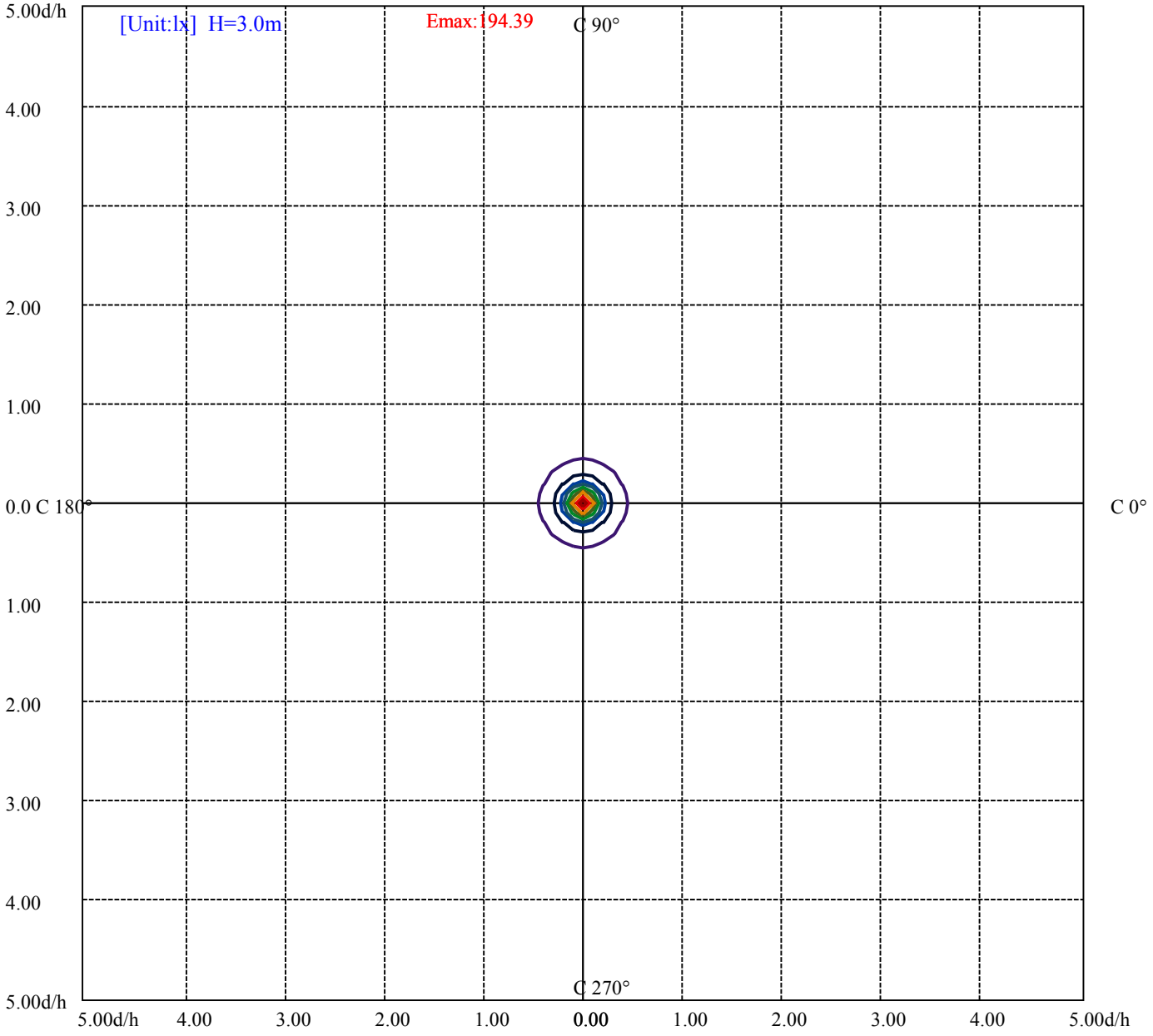
House [Unit:cd] Road

Imax:1749.52

(10%Imax) 174.952
(20%Imax) 349.903
(30%Imax) 524.855
(40%Imax) 699.806
(50%Imax) 874.758
(60%Imax) 1049.71
(70%Imax) 1224.66
(80%Imax) 1399.61
(90%Imax) 1574.56

Equipment: GMS1980 Date: 2019/12/5 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

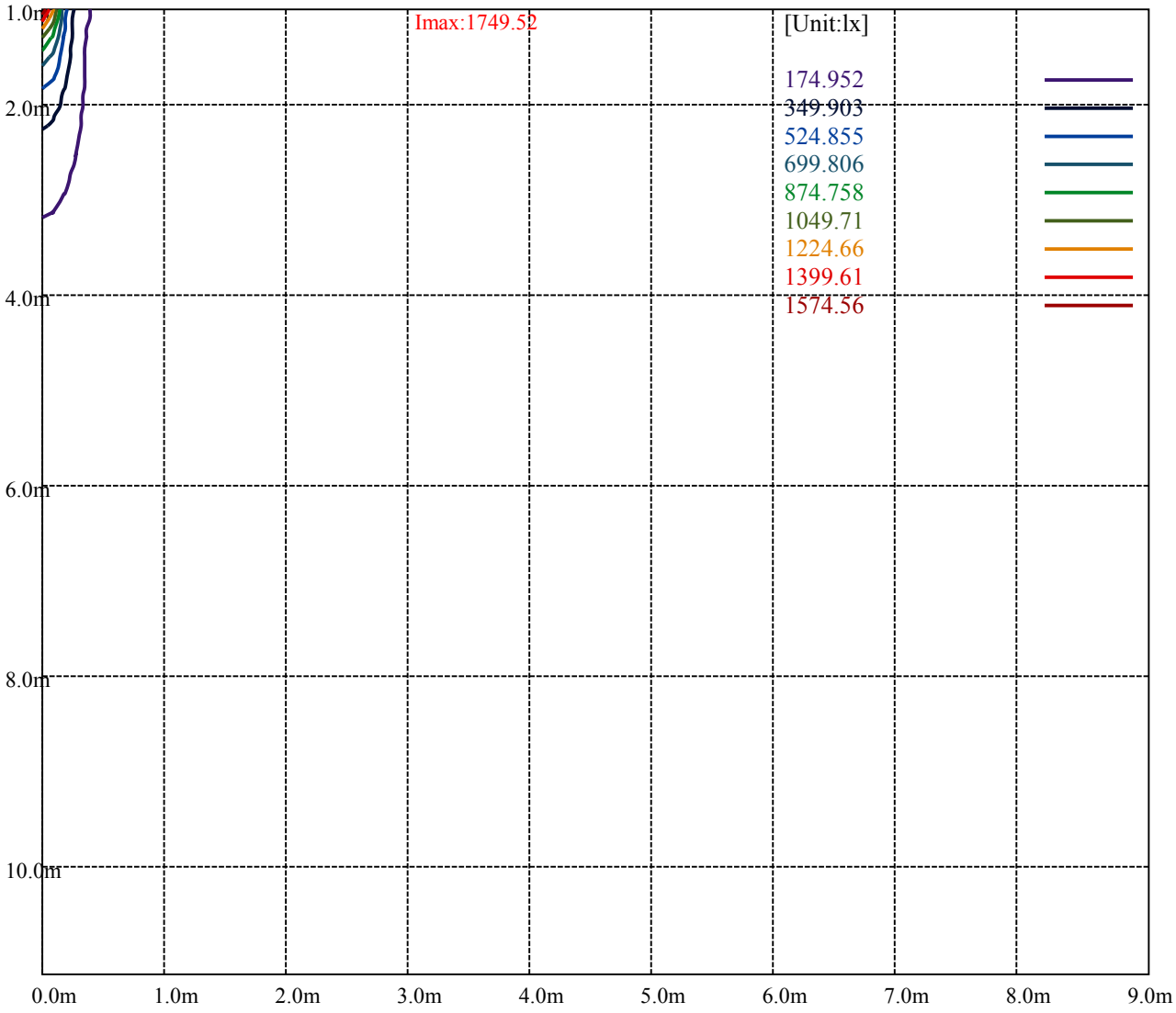
ISO illuminance diagram



(10%Emax) 19.439
(20%Emax) 38.87811
(30%Emax) 58.31711
(40%Emax) 77.75611
(50%Emax) 97.19522
(60%Emax) 116.6344
(70%Emax) 136.0733
(80%Emax) 155.5122
(90%Emax) 174.9511

Equipment: GMS1980	Date: 2019/12/5	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/12/5
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

1405-S

Luminance Limitting Curve(no luminous side)

Luminance Table

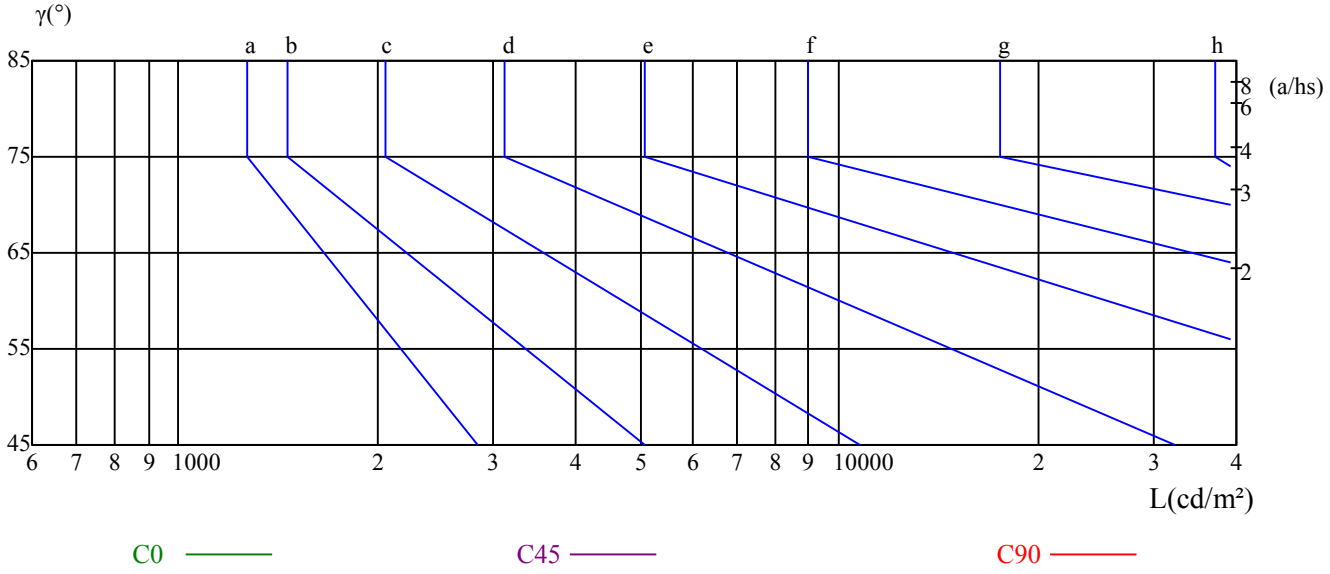
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

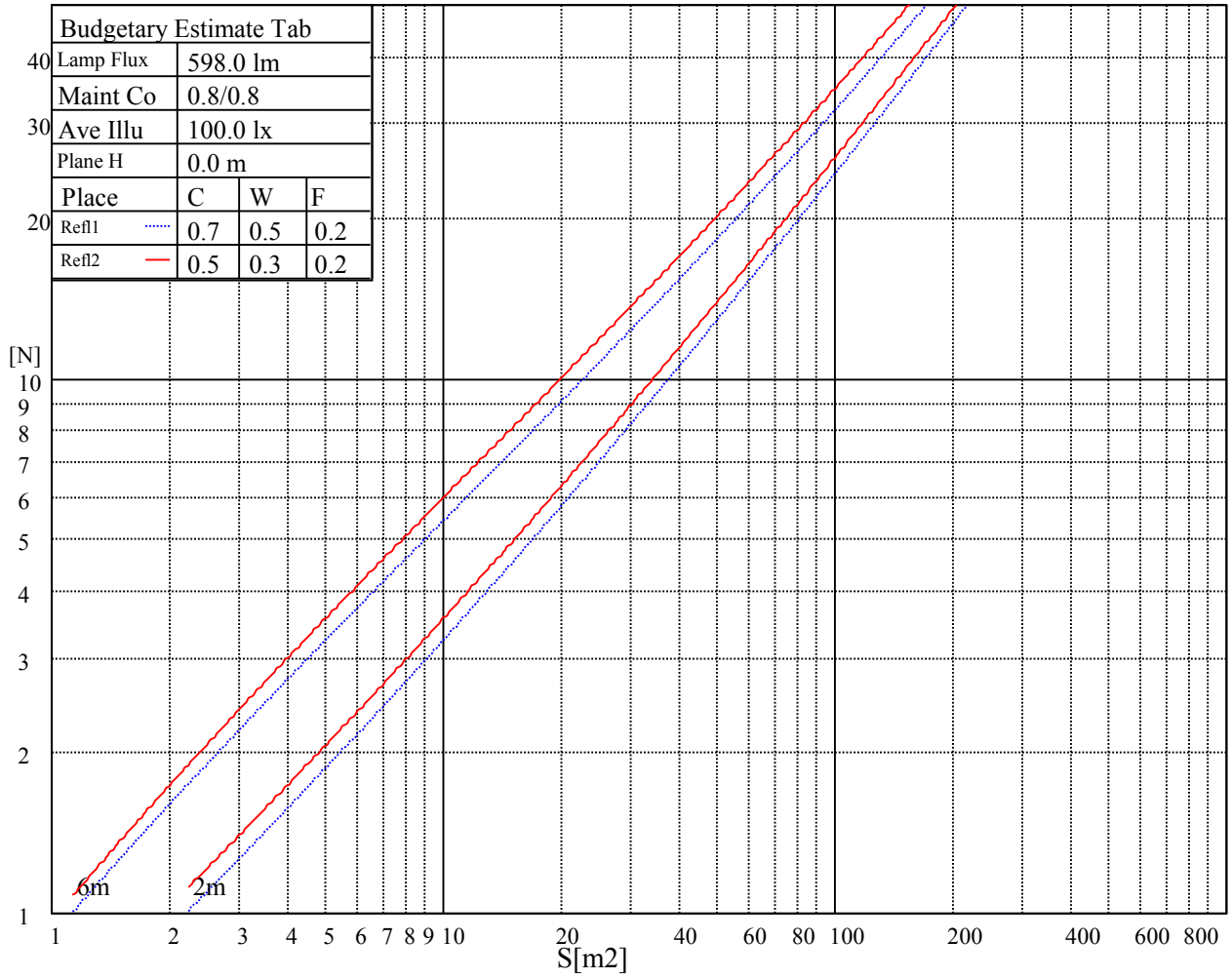
Glare Table

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

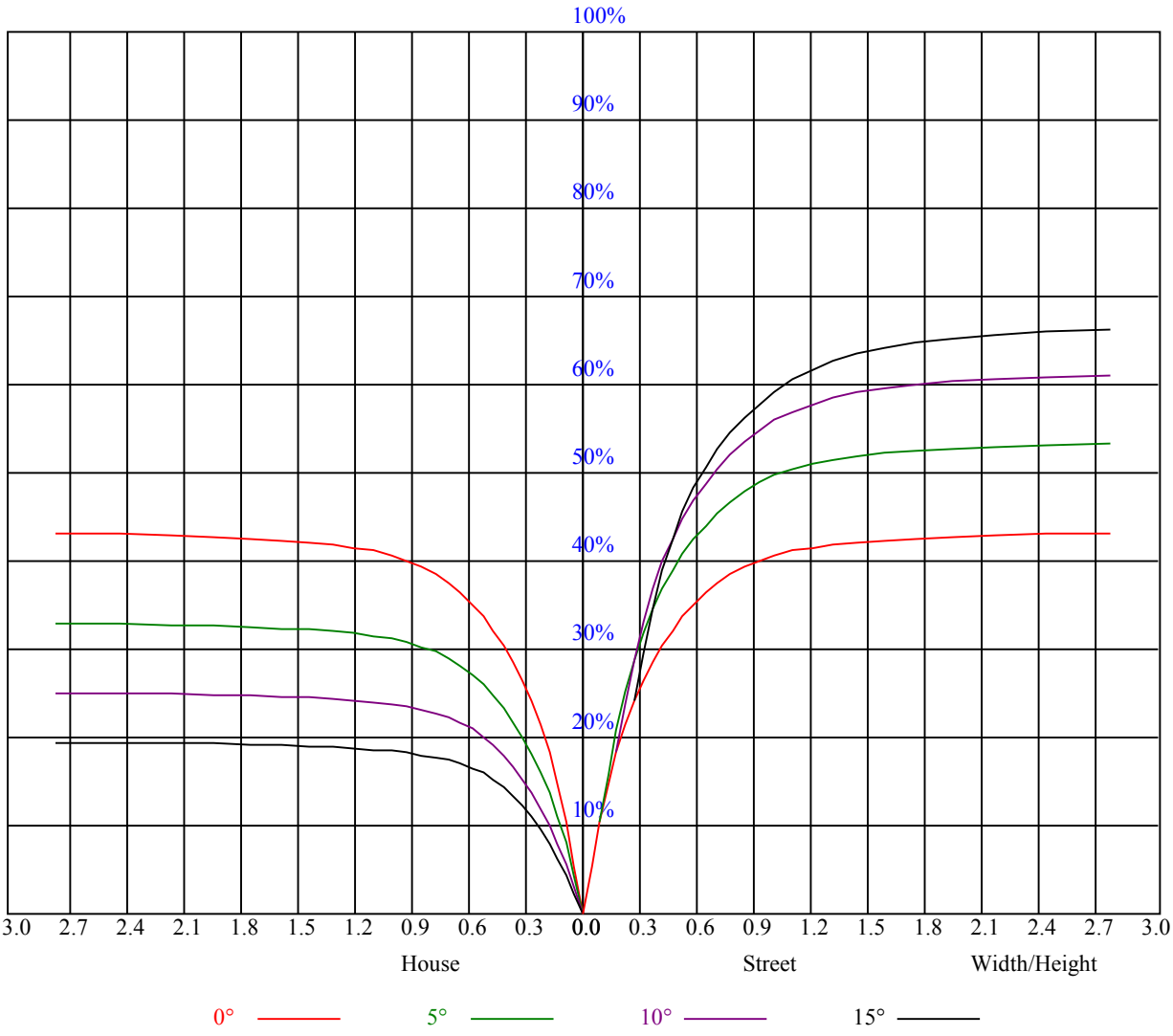


Equipment: GMS1980 Date: 2019/12/5 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

Utilization factor table for indoor luminaire

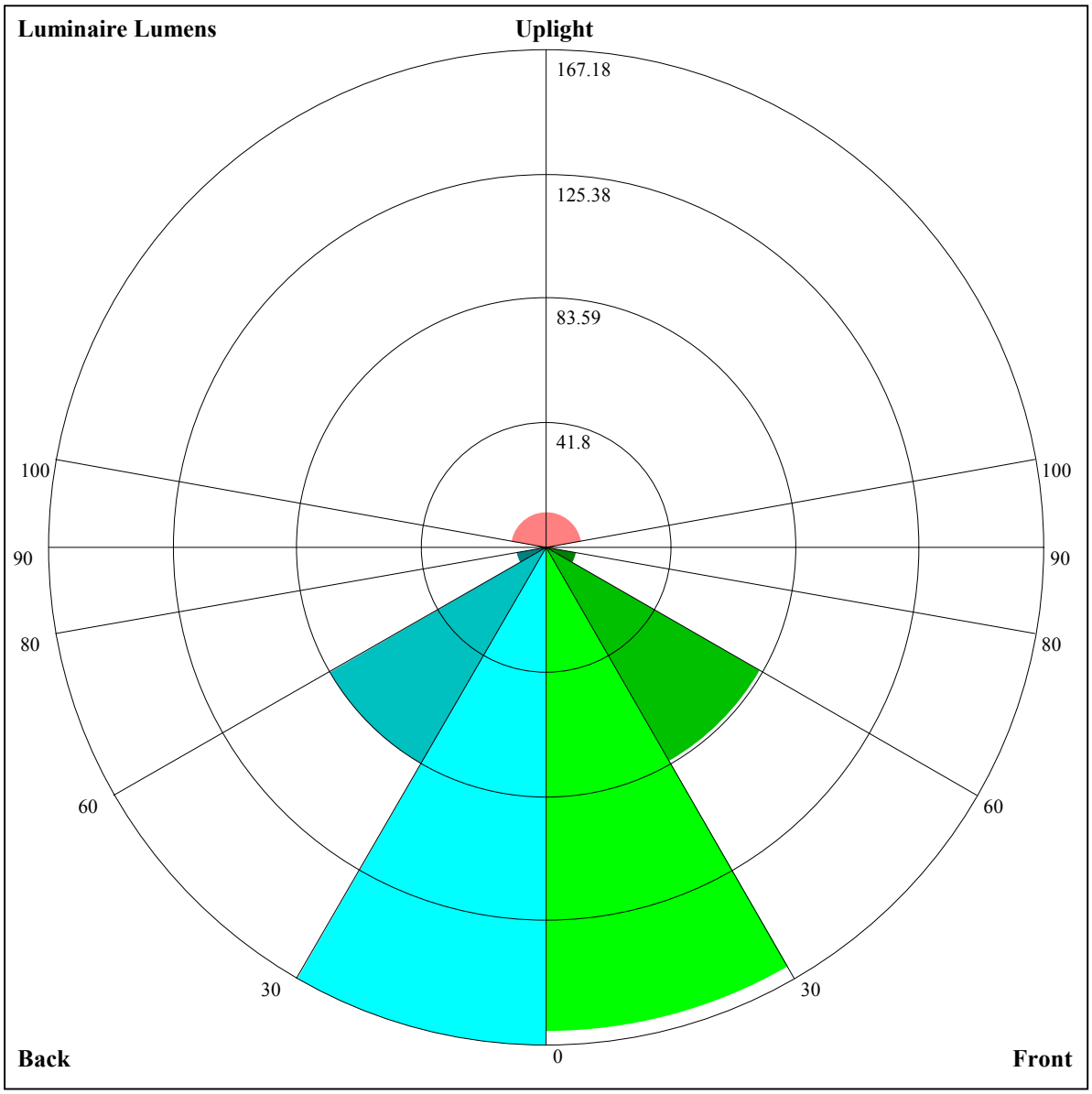
RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	1.04	1.04	1.04	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.87
1	0.96	0.94	0.91	0.94	0.92	0.90	0.90	0.89	0.87	0.87	0.86	0.85	0.84	0.83	0.82	0.80
2	0.89	0.85	0.82	0.87	0.84	0.81	0.84	0.81	0.79	0.82	0.79	0.77	0.79	0.77	0.76	0.74
3	0.82	0.78	0.74	0.81	0.77	0.73	0.79	0.75	0.72	0.77	0.74	0.71	0.75	0.72	0.70	0.68
4	0.77	0.72	0.68	0.76	0.71	0.67	0.74	0.70	0.67	0.72	0.69	0.66	0.70	0.67	0.65	0.64
5	0.72	0.67	0.63	0.71	0.66	0.62	0.70	0.65	0.62	0.68	0.64	0.61	0.67	0.63	0.61	0.59
6	0.68	0.62	0.58	0.67	0.62	0.58	0.66	0.61	0.58	0.64	0.60	0.57	0.63	0.60	0.57	0.56
7	0.64	0.59	0.55	0.63	0.58	0.55	0.62	0.58	0.54	0.61	0.57	0.54	0.60	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	0.58	0.52	0.49	0.57	0.52	0.49	0.56	0.52	0.49	0.56	0.52	0.49	0.55	0.51	0.48	0.47
10	0.55	0.50	0.47	0.55	0.50	0.47	0.54	0.49	0.46	0.53	0.49	0.46	0.53	0.49	0.46	0.45

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/12/5	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

LCS Graph



Luminaire Lumens:

FL=162.92,FM=83.03,FH=10.05,FVH=1.7

BL=167.18,BM=84.45,BH=10.5,BVH=1.79

UL=2.52,UH=12.01

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	1764.00	1734.75	1668.94	1595.25	1464.75	1331.44	1225.69	1077.75	965.25
45.0	1753.31	1711.69	1637.44	1550.81	1437.19	1325.81	1195.31	1064.81	953.44
90.0	1738.13	1702.69	1641.94	1537.31	1436.06	1323.56	1111.05	1052.10	938.03
135.0	1742.63	1742.63	1704.94	1640.25	1540.69	1433.81	1298.81	1156.50	1033.88
180.0	1764.00	1756.69	1720.13	1622.81	1537.88	1424.81	1284.19	1118.36	1007.78
225.0	1753.31	1760.06	1733.06	1671.19	1588.50	1484.44	1338.75	1115.72	1084.67
270.0	1738.13	1745.44	1717.31	1661.06	1568.25	1465.88	1335.94	1199.25	1078.88
315.0	1742.63	1711.13	1649.25	1540.13	1433.25	1314.00	1114.93	1041.02	928.35
360.0	1764.00	1734.75	1668.94	1595.25	1464.75	1331.44	1225.69	1077.75	965.25

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	861.75	744.19	662.63	589.50	513.00	461.25	416.81	372.38	343.13
45.0	838.13	731.81	644.06	573.75	497.81	445.50	405.00	371.25	335.81
90.0	805.56	711.45	629.04	542.19	483.08	433.69	383.40	354.32	323.10
135.0	903.94	783.00	683.44	606.38	522.00	463.50	420.19	378.00	344.25
180.0	888.47	755.61	664.31	585.79	511.14	450.84	407.25	367.37	338.46
225.0	949.44	824.34	723.49	625.39	543.49	483.24	426.83	385.82	348.69
270.0	948.38	827.44	730.13	643.50	552.38	489.94	438.75	390.38	352.13
315.0	812.03	708.02	625.84	546.58	480.60	432.00	391.33	353.14	322.14
360.0	861.75	744.19	662.63	589.50	513.00	461.25	416.81	372.38	343.13

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	319.50	296.44	284.06	262.35	248.85	237.09	227.93	218.64	211.16
45.0	311.63	292.50	285.75	257.79	246.99	235.80	226.24	218.48	210.38
90.0	295.14	279.17	263.31	244.97	235.07	225.17	212.51	205.20	197.33
135.0	318.94	294.75	285.75	258.81	244.86	234.17	223.48	213.92	205.93
180.0	311.79	290.03	274.11	258.81	245.59	235.18	226.01	215.61	208.01
225.0	319.84	298.58	280.86	262.86	250.93	240.58	229.28	221.40	214.14
270.0	324.56	299.25	284.63	260.27	246.60	232.76	220.84	211.16	200.98
315.0	297.17	278.78	263.08	246.83	235.74	225.96	215.49	208.13	201.43
360.0	319.50	296.44	284.06	262.35	248.85	237.09	227.93	218.64	211.16

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	203.40	196.26	190.35	184.73	177.41	171.51	165.43	157.56	150.98
45.0	203.34	195.64	188.27	182.14	174.60	167.23	160.59	153.62	145.01
90.0	188.89	180.90	173.93	166.44	159.69	152.33	144.84	138.49	131.18
135.0	198.79	190.29	184.05	178.03	170.27	164.03	157.73	150.53	143.33
180.0	200.81	193.11	185.74	179.38	172.52	165.71	159.47	152.44	146.08
225.0	206.61	199.46	193.61	187.14	181.29	174.66	167.85	161.61	154.29
270.0	192.71	184.44	176.91	171.11	164.25	158.96	154.01	149.57	142.20
315.0	194.40	187.93	182.59	177.24	171.28	165.04	159.24	152.21	144.68
360.0	203.40	196.26	190.35	184.73	177.41	171.51	165.43	157.56	150.98

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	144.06	135.96	127.41	119.64	110.98	103.22	94.56	86.01	78.69
45.0	137.98	130.61	122.23	113.91	106.31	97.71	89.44	82.41	74.98
90.0	123.81	117.23	110.59	102.15	95.40	88.71	81.51	74.59	68.74
135.0	136.74	130.05	122.29	114.69	106.88	99.84	91.91	84.38	77.91
180.0	138.54	130.84	123.75	116.49	107.33	99.84	92.48	83.64	76.78
225.0	146.76	139.84	132.58	123.13	115.65	108.00	98.16	90.28	82.74
270.0	136.58	131.57	123.64	116.16	110.31	101.64	93.66	87.41	78.64
315.0	136.74	129.60	122.01	113.18	104.29	96.36	88.43	78.69	71.44
360.0	144.06	135.96	127.41	119.64	110.98	103.22	94.56	86.01	78.69

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	70.99	63.79	57.88	52.54	46.46	42.08	38.31	34.54	31.22
45.0	68.74	62.44	56.59	51.86	47.42	42.47	38.93	35.72	32.12
90.0	62.49	56.81	52.14	47.36	43.43	39.43	35.83	32.96	30.38
135.0	71.72	65.19	59.12	54.11	49.50	44.33	40.50	37.01	33.24
180.0	70.20	63.39	57.21	52.14	46.97	42.47	38.93	35.27	32.40
225.0	73.74	66.83	60.41	53.33	48.88	43.54	38.53	35.49	32.40
270.0	72.06	65.70	58.33	53.10	48.15	42.75	38.93	35.66	32.06
315.0	64.58	56.81	51.30	46.46	41.74	37.63	34.48	31.44	29.03
360.0	70.99	63.79	57.88	52.54	46.46	42.08	38.31	34.54	31.22

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	28.52	26.16	23.96	22.16	20.31	18.90	17.55	16.37	15.36
45.0	29.70	27.45	25.20	23.23	21.66	20.08	18.68	17.44	16.26
90.0	27.79	25.54	23.79	21.88	20.48	19.24	18.06	16.76	15.81
135.0	30.60	28.29	26.04	24.02	22.44	20.81	19.41	18.23	16.99
180.0	29.64	27.17	25.26	23.57	21.60	20.25	18.96	17.49	16.48
225.0	28.80	26.78	24.75	22.33	20.98	19.63	18.23	16.99	15.98
270.0	29.48	27.34	25.09	23.01	21.38	19.80	18.39	17.27	16.09
315.0	26.61	24.53	22.78	21.04	19.46	18.23	17.10	15.81	14.96
360.0	28.52	26.16	23.96	22.16	20.31	18.90	17.55	16.37	15.36

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	14.40	13.44	12.66	11.93	11.03	10.41	9.84	9.22	8.66
45.0	15.19	14.12	13.16	12.32	11.59	10.69	10.01	9.45	8.66
90.0	14.85	13.84	12.99	12.26	11.48	10.69	10.07	9.34	8.78
135.0	15.98	14.96	13.95	13.16	12.49	11.48	10.80	10.29	9.45
180.0	15.53	14.46	13.50	12.71	11.93	11.25	10.46	9.79	9.28
225.0	14.96	14.06	13.22	12.38	11.76	10.97	10.29	9.73	9.17
270.0	15.08	14.12	13.22	12.49	11.76	10.91	10.35	9.73	9.06
315.0	14.01	13.05	12.38	11.64	10.97	10.24	9.68	9.06	8.49
360.0	14.40	13.44	12.66	11.93	11.03	10.41	9.84	9.22	8.66

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.10	7.59	7.09	6.58	6.13	5.68	5.23	4.95	4.56
45.0	8.16	7.59	6.98	6.53	6.08	5.57	5.18	4.78	4.39
90.0	8.16	7.54	7.03	6.53	6.02	5.57	5.12	4.67	4.33
135.0	8.89	8.38	7.76	7.20	6.75	6.19	5.79	5.34	4.89
180.0	8.66	8.04	7.59	7.09	6.53	6.08	5.63	5.18	4.84
225.0	8.55	8.04	7.54	6.98	6.58	6.13	5.68	5.23	4.89
270.0	8.49	7.99	7.43	6.92	6.47	6.02	5.63	5.18	4.78
315.0	7.93	7.43	6.98	6.41	5.96	5.57	5.12	4.67	4.39
360.0	8.10	7.59	7.09	6.58	6.13	5.68	5.23	4.95	4.56

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.16	3.83	3.54	3.26	3.04	2.81	2.70	2.42	2.31
45.0	4.11	3.77	3.49	3.21	2.98	2.87	2.53	2.42	2.31
90.0	3.99	3.66	3.32	3.04	2.87	2.76	2.42	2.31	2.25
135.0	4.56	4.16	3.77	3.49	3.21	3.04	2.70	2.59	2.42
180.0	4.50	4.05	3.77	3.49	3.15	2.93	2.76	2.59	2.48
225.0	4.56	4.16	3.83	3.49	3.26	3.04	2.81	2.64	2.48
270.0	4.44	4.11	3.71	3.43	3.15	2.93	2.76	2.53	2.42
315.0	3.99	3.66	3.38	3.09	2.87	2.70	2.48	2.36	2.31
360.0	4.16	3.83	3.54	3.26	3.04	2.81	2.70	2.42	2.31

Intensity data(cd)

C/γ(°)	90.0
0.0	2.31
45.0	2.31
90.0	2.25
135.0	2.31
180.0	2.36
225.0	2.36
270.0	2.36
315.0	2.25
360.0	2.31