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

Nata

Client:
LumCAT: CR01D020024BW
Luminaire:

Report No: GC2019091909	Voltage(V): 3.4100
Test No: GC20191016013	Current(A): 0.2990
LampCAT: CREE XPE2	Power (W): 1.0200
Lamp flux(lm): 96.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 20	Width(mm): 20
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 91.12, Efficiency(%): 94.92% , Luminous Efficacy(lm/W): 89.33
Central intensity(cd): 320.189, Maximum intensity(cd): 320.189
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=24.8
[C90/270]Total=24.8
Field angle(10%Imax): [C0/180]Total=50.8
[C90/270]Total=50.8
Maximum s/h(1/2): C0_180=0.42 C90_270=0.42
Maximum s/h(1/4): C0_180=0.44 C90_270=0.44
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 94.92%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 94.663%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	320.189	0.000	0	.000%	.000%
1.0	318.459	0.306	0.306	.318%	.335%
2.0	314.170	0.908	1.214	.946%	1.332%
3.0	306.640	1.485	2.698	1.547%	2.961%
4.0	297.105	2.021	4.719	2.105%	5.179%
5.0	285.216	2.505	7.224	2.609%	7.928%
6.0	270.457	2.920	10.145	3.042%	11.133%
7.0	254.897	3.261	13.405	3.397%	14.712%
8.0	238.627	3.532	16.938	3.679%	18.588%
9.0	220.704	3.723	20.66	3.878%	22.673%
10.0	202.127	3.826	24.487	3.986%	26.873%
11.0	185.006	3.868	28.355	4.029%	31.118%
12.0	168.237	3.861	32.216	4.022%	35.356%
13.0	150.124	3.778	35.994	3.936%	39.502%
14.0	134.979	3.649	39.644	3.801%	43.507%
15.0	121.240	3.517	43.161	3.664%	47.367%
16.0	107.902	3.358	46.519	3.497%	51.052%
17.0	94.971	3.159	49.678	3.291%	54.519%
18.0	84.284	2.956	52.634	3.079%	57.763%
19.0	74.573	2.764	55.397	2.879%	60.796%
20.0	65.433	2.563	57.96	2.669%	63.608%
21.0	57.600	2.362	60.322	2.461%	66.201%
22.0	50.421	2.171	62.493	2.261%	68.583%
23.0	44.395	1.990	64.483	2.072%	70.766%
24.0	38.496	1.812	66.295	1.888%	72.755%
25.0	33.504	1.637	67.932	1.705%	74.552%
26.0	29.292	1.482	69.414	1.544%	76.179%
27.0	25.502	1.341	70.755	1.396%	77.650%
28.0	21.945	1.201	71.956	1.251%	78.968%
29.0	19.301	1.079	73.035	1.124%	80.153%
30.0	16.959	0.979	74.014	1.020%	81.227%
31.0	14.822	0.884	74.899	.921%	82.198%
32.0	13.113	0.800	75.699	.834%	83.076%
33.0	11.735	0.732	76.431	.763%	83.879%
34.0	10.477	0.672	77.103	.700%	84.617%
35.0	9.380	0.617	77.72	.642%	85.294%
36.0	8.466	0.568	78.288	.592%	85.917%
37.0	7.727	0.528	78.816	.550%	86.497%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	7.095	0.495	79.311	.515%	87.040%
39.0	6.490	0.464	79.775	.483%	87.549%
40.0	6.005	0.436	80.21	.454%	88.027%
41.0	5.583	0.413	80.623	.430%	88.480%
42.0	5.196	0.392	81.015	.408%	88.909%
43.0	4.880	0.373	81.388	.389%	89.319%
44.0	4.605	0.358	81.746	.373%	89.712%
45.0	4.366	0.345	82.091	.359%	90.090%
46.0	4.127	0.332	82.423	.346%	90.455%
47.0	3.923	0.320	82.743	.334%	90.806%
48.0	3.762	0.311	83.054	.324%	91.147%
49.0	3.600	0.302	83.356	.315%	91.479%
50.0	3.445	0.294	83.65	.306%	91.801%
51.0	3.319	0.286	83.936	.298%	92.115%
52.0	3.220	0.281	84.217	.292%	92.423%
53.0	3.080	0.274	84.491	.285%	92.724%
54.0	2.988	0.267	84.758	.279%	93.018%
55.0	2.890	0.262	85.02	.273%	93.306%
56.0	2.798	0.257	85.277	.268%	93.588%
57.0	2.728	0.253	85.53	.263%	93.865%
58.0	2.630	0.248	85.778	.258%	94.137%
59.0	2.552	0.242	86.02	.252%	94.403%
60.0	2.468	0.237	86.257	.247%	94.663%
61.0	2.384	0.232	86.489	.241%	94.917%
62.0	2.313	0.226	86.715	.236%	95.166%
63.0	2.243	0.222	86.937	.231%	95.409%
64.0	2.159	0.216	87.153	.225%	95.646%
65.0	2.088	0.210	87.363	.219%	95.876%
66.0	2.018	0.205	87.568	.213%	96.101%
67.0	1.962	0.200	87.768	.208%	96.321%
68.0	1.884	0.195	87.963	.203%	96.535%
69.0	1.828	0.189	88.152	.197%	96.743%
70.0	1.779	0.185	88.337	.193%	96.946%
71.0	1.723	0.181	88.518	.189%	97.144%
72.0	1.666	0.176	88.695	.184%	97.338%
73.0	1.631	0.172	88.867	.180%	97.527%
74.0	1.582	0.169	89.036	.176%	97.713%
75.0	1.526	0.164	89.2	.171%	97.893%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	1.498	0.160	89.361	.167%	98.069%
77.0	1.455	0.157	89.518	.164%	98.242%
78.0	1.434	0.155	89.673	.161%	98.411%
79.0	1.406	0.153	89.825	.159%	98.579%
80.0	1.371	0.150	89.975	.156%	98.743%
81.0	1.357	0.148	90.123	.154%	98.905%
82.0	1.336	0.146	90.269	.152%	99.065%
83.0	1.329	0.145	90.414	.151%	99.224%
84.0	1.280	0.142	90.556	.148%	99.380%
85.0	1.238	0.137	90.693	.143%	99.531%
86.0	1.146	0.130	90.823	.136%	99.674%
87.0	0.858	0.110	90.933	.114%	99.794%
88.0	0.605	0.080	91.013	.083%	99.882%
89.0	0.478	0.059	91.073	.062%	99.948%
90.0	0.394	0.048	91.12	.050%	100.000%

Zonal flux distribution table

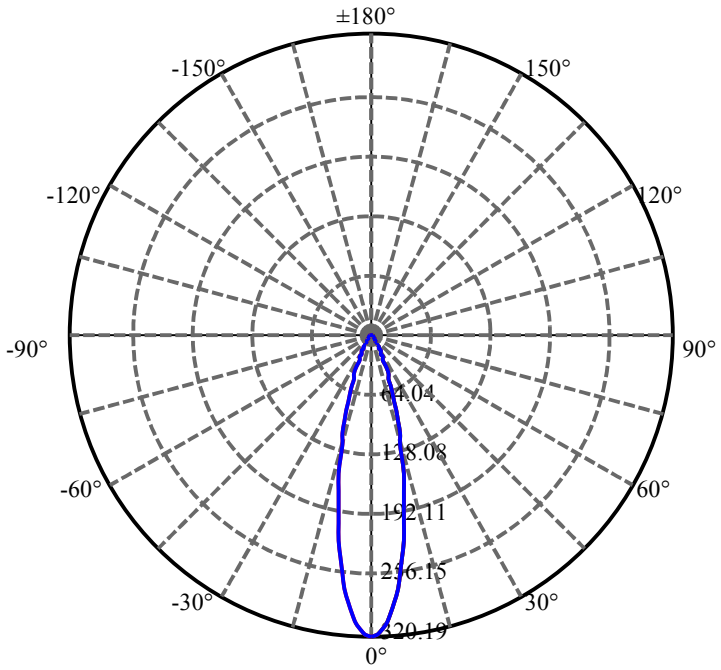
ZONAL LUMEN SUMMARY

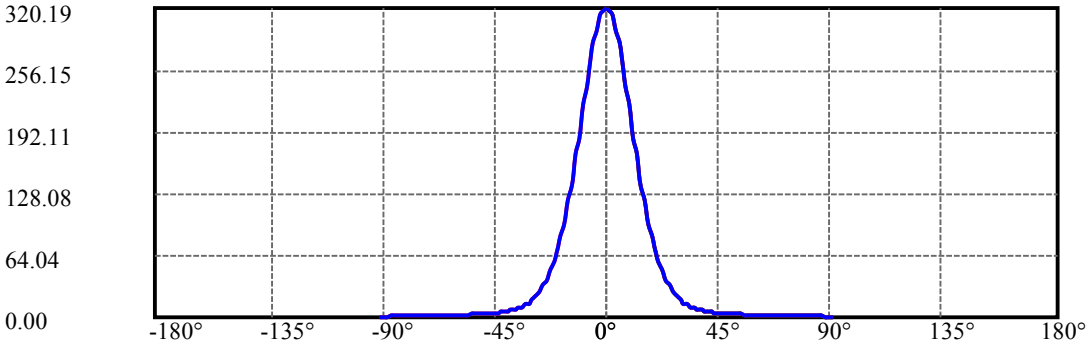
Zone	Lumens	%Lamp	%Fixt
0-30	74.01	77.10%	81.23%
0-40	80.21	83.55%	88.03%
0-60	86.26	89.85%	94.66%
0-90	91.07	94.87%	99.95%
0-120	91.07	94.87%	99.95%
0-180	91.12	94.92%	100.00%
60-90	5.05	5.26%	5.54%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.87	72.90	75.93%	80.00%

ZONAL LUMEN SUMMARY

0-10	24.49
10-20	33.47
20-30	16.05
30-40	6.20
40-50	3.44
50-60	2.61
60-70	2.08
70-80	1.64
80-90	1.10
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):

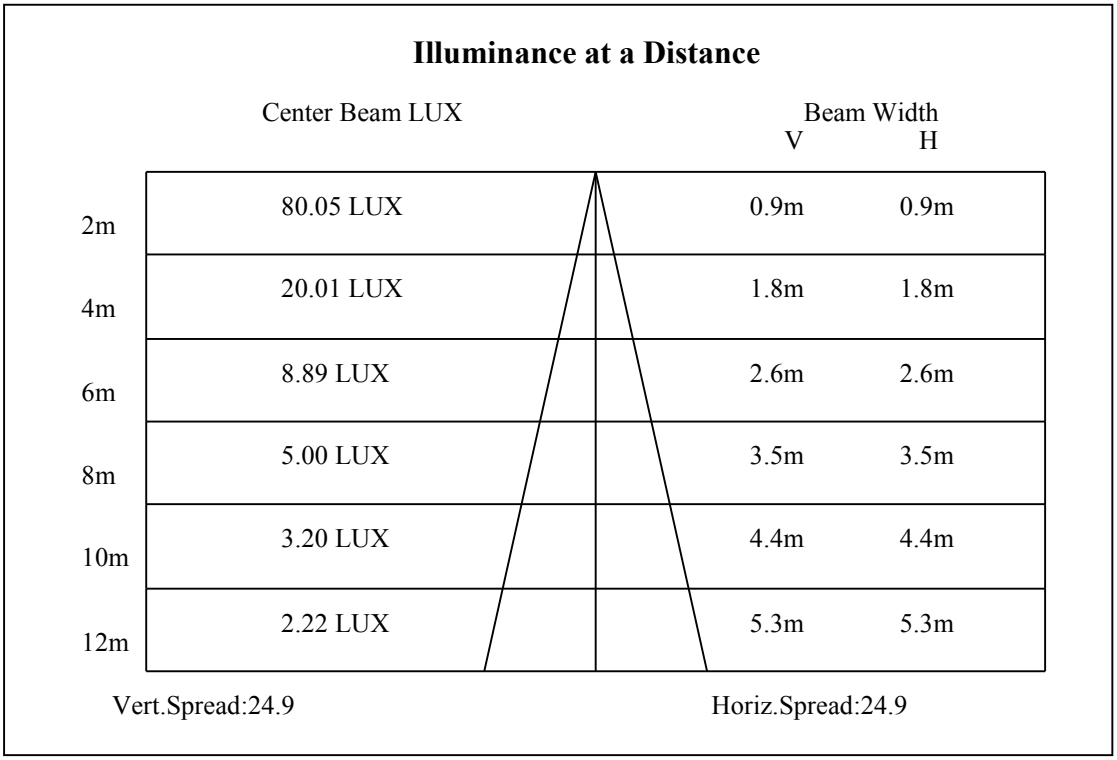
C0/C180:

C90/C270:

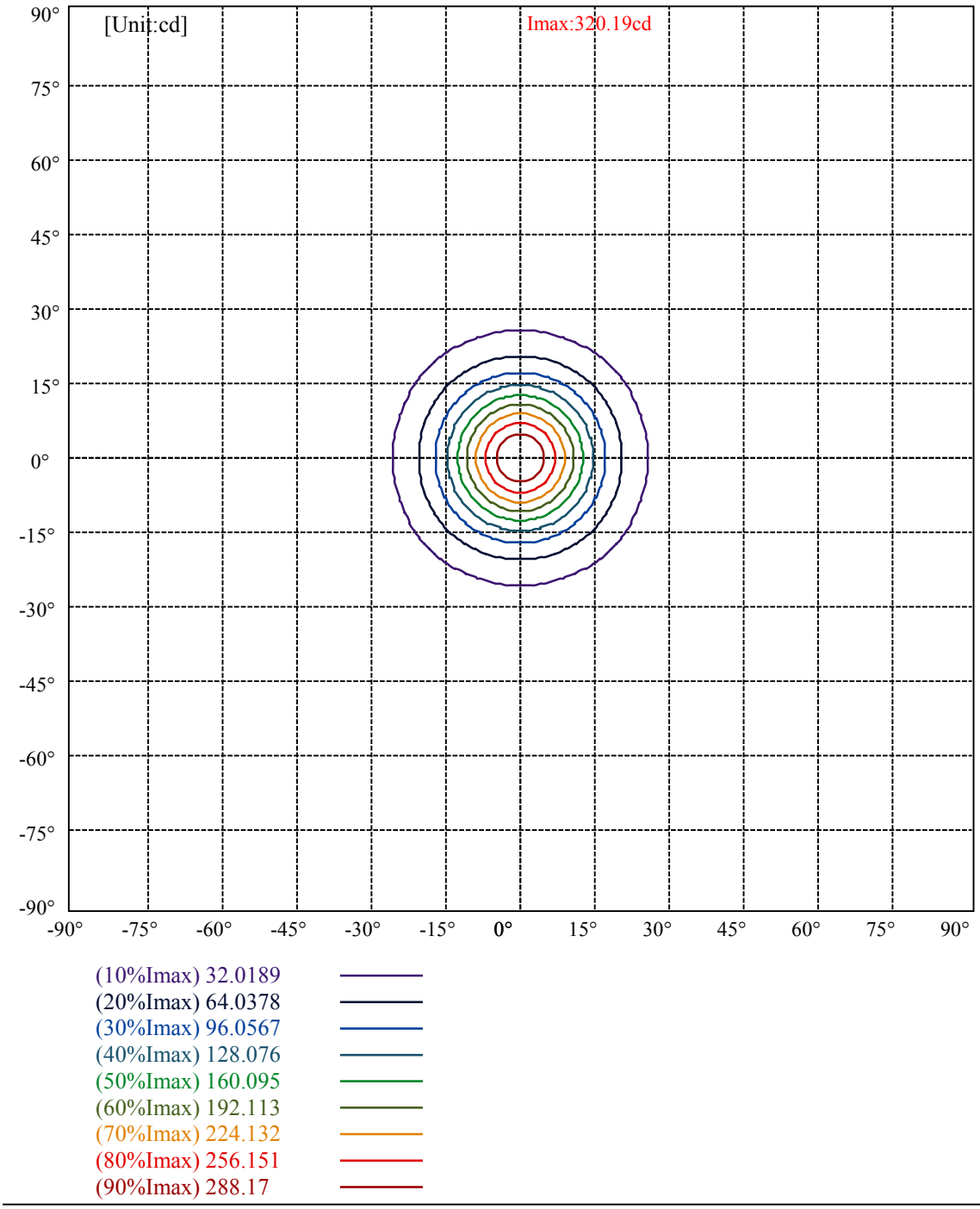
Field angle(10%Imax):C0/180Left:25.4 Right:25.4
:C90/270Left:25.4 Right:25.4

Beam Angle(50%Imax):C0/180Left:12.4 Right:12.4
:C90/270Left:12.4 Right:12.4

Lux distance Curve



ISO-Intensity(V-H)



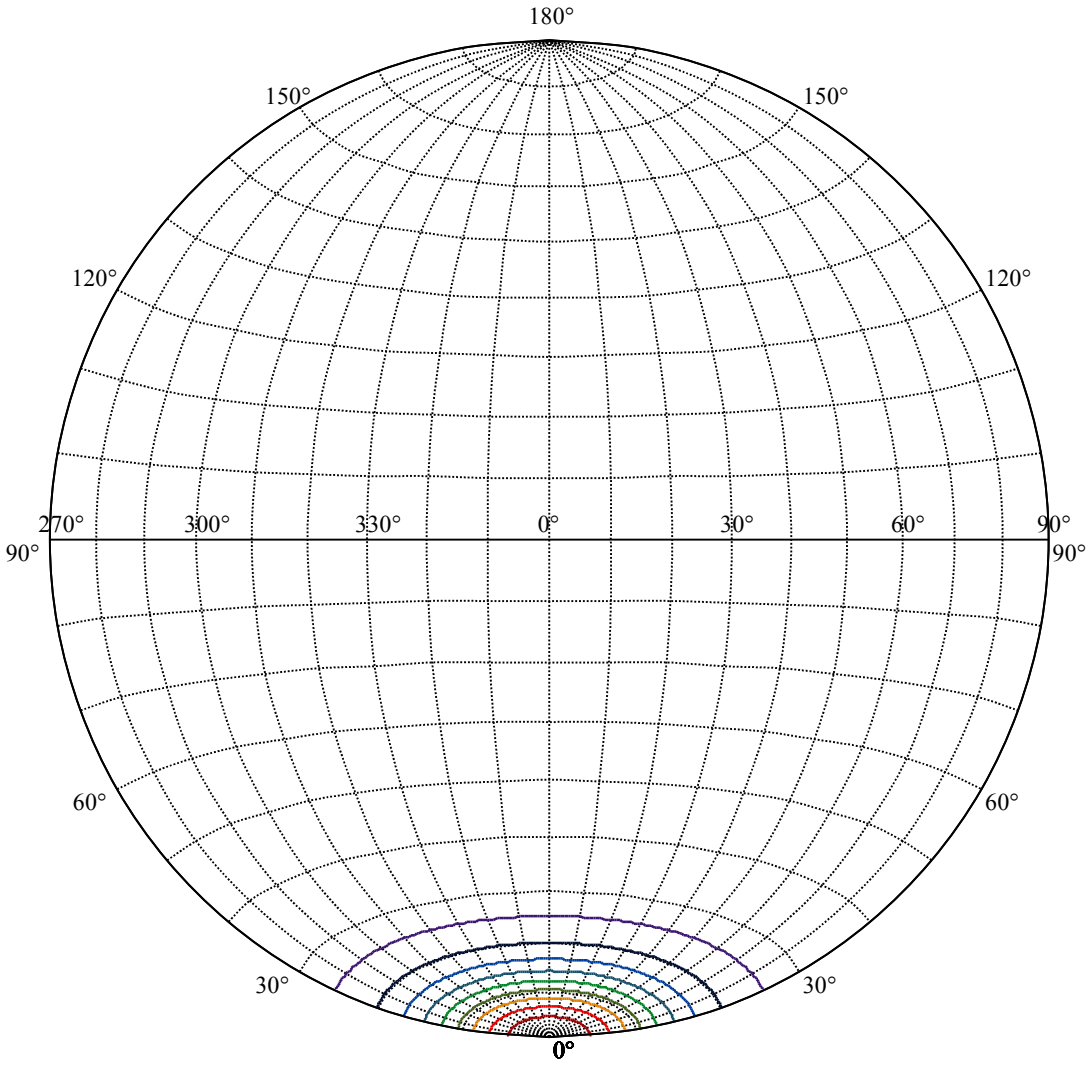
(10%Imax) 32.0189
(20%Imax) 64.0378
(30%Imax) 96.0567
(40%Imax) 128.076
(50%Imax) 160.095
(60%Imax) 192.113
(70%Imax) 224.132
(80%Imax) 256.151
(90%Imax) 288.17

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/10/16
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:320.19

(10%Imax) 32.0189
(20%Imax) 64.0378
(30%Imax) 96.0567
(40%Imax) 128.076
(50%Imax) 160.095
(60%Imax) 192.113
(70%Imax) 224.132
(80%Imax) 256.151
(90%Imax) 288.17

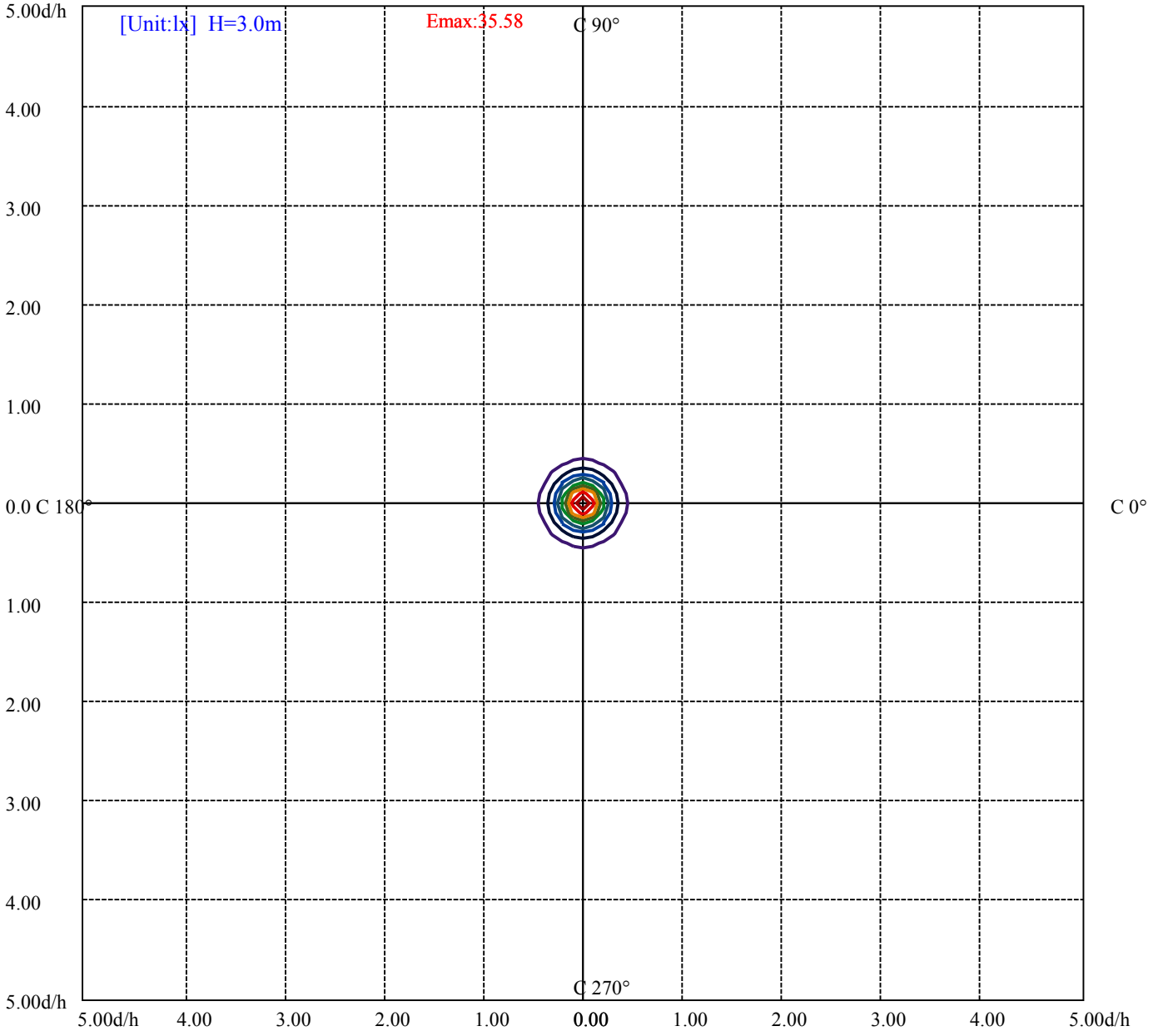
Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/10/16
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Nata CR01D020024BW

ISO illuminance diagram



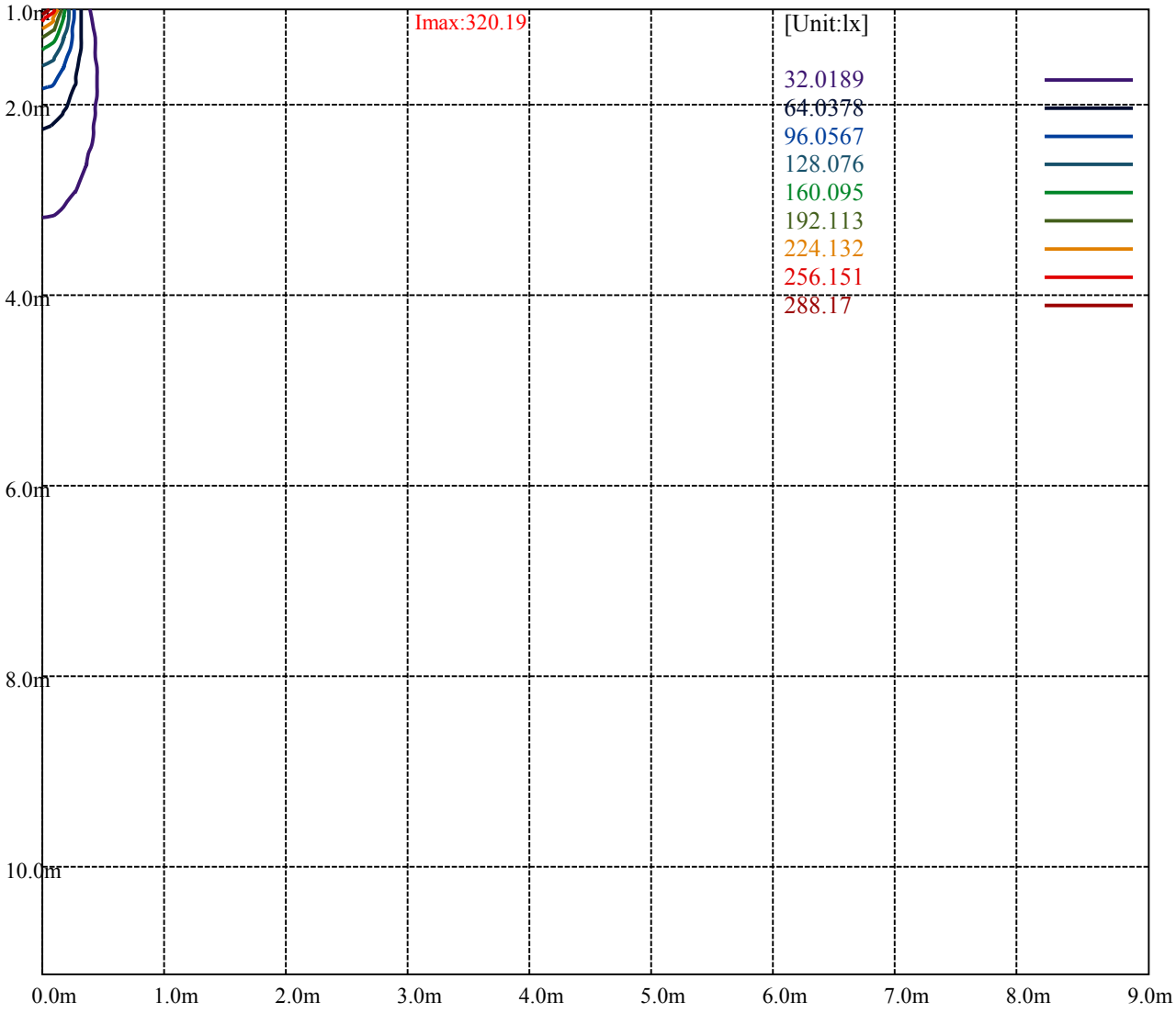
(10%Emax) 3.557656
(20%Emax) 7.115312
(30%Emax) 10.67296
(40%Emax) 14.23067
(50%Emax) 17.78822
(60%Emax) 21.34589
(70%Emax) 24.90356
(80%Emax) 28.46122
(90%Emax) 32.01889

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/10/16
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2019/10/16
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Nata CR01D020024BW

Luminance Limitting Curve(no luminous side)

Luminance Table

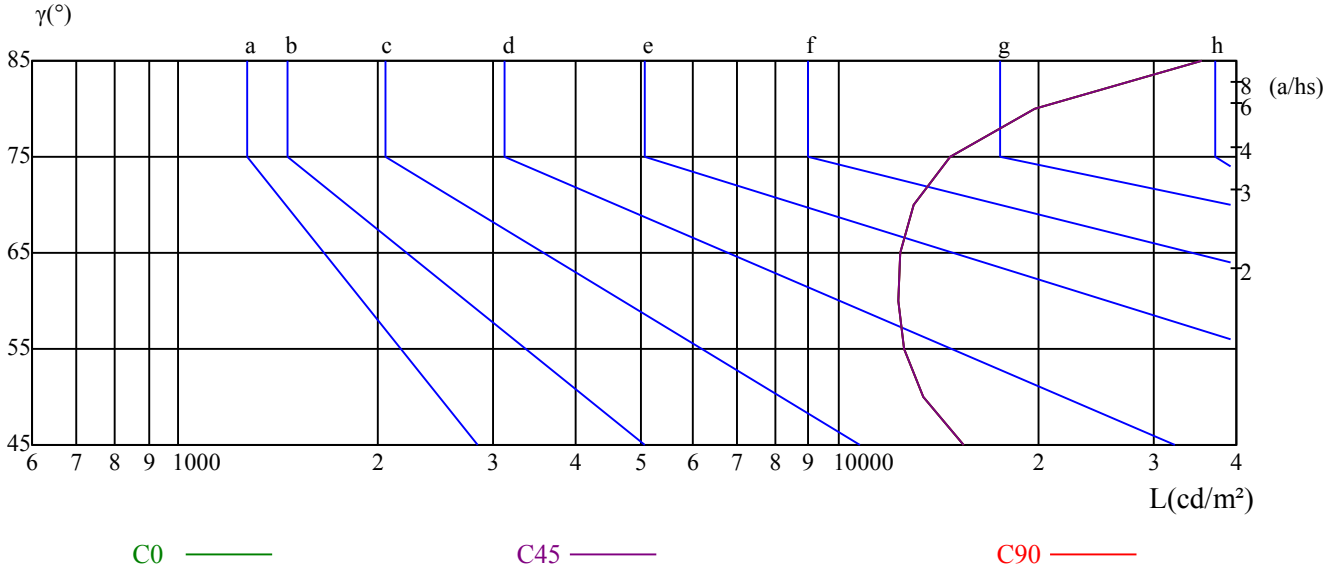
γ	45	50	55	60	65	70	75	80	85
C0	15438	13400	12596	12340	12353	13003	14738	19740	35497
C45	15438	13400	12596	12340	12353	13003	14738	19740	35497
C90	15438	13400	12596	12340	12353	13003	14738	19740	35497

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
12353	12353	12353	14738	14738	14738	35497	35497	35497

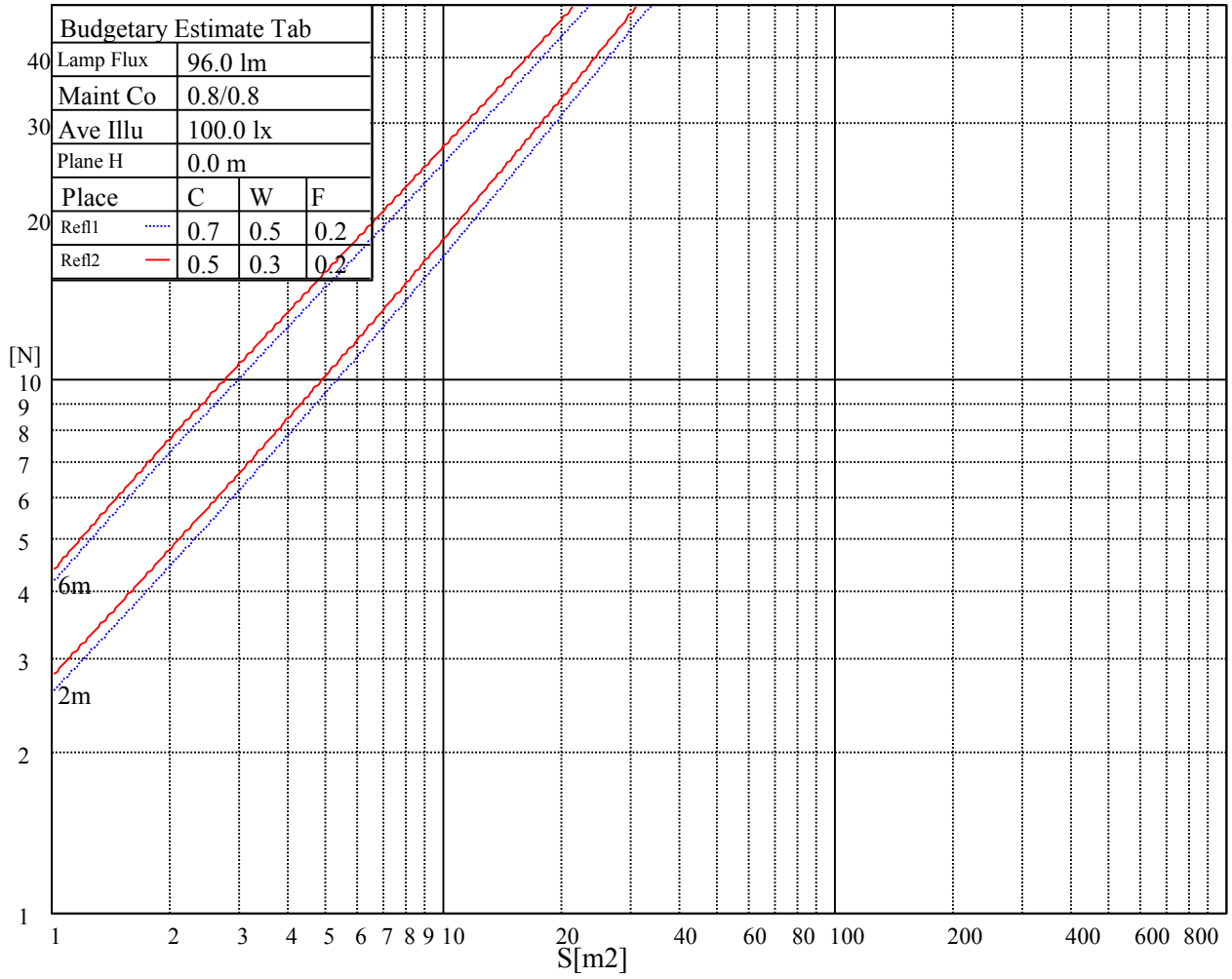
Glare Table

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

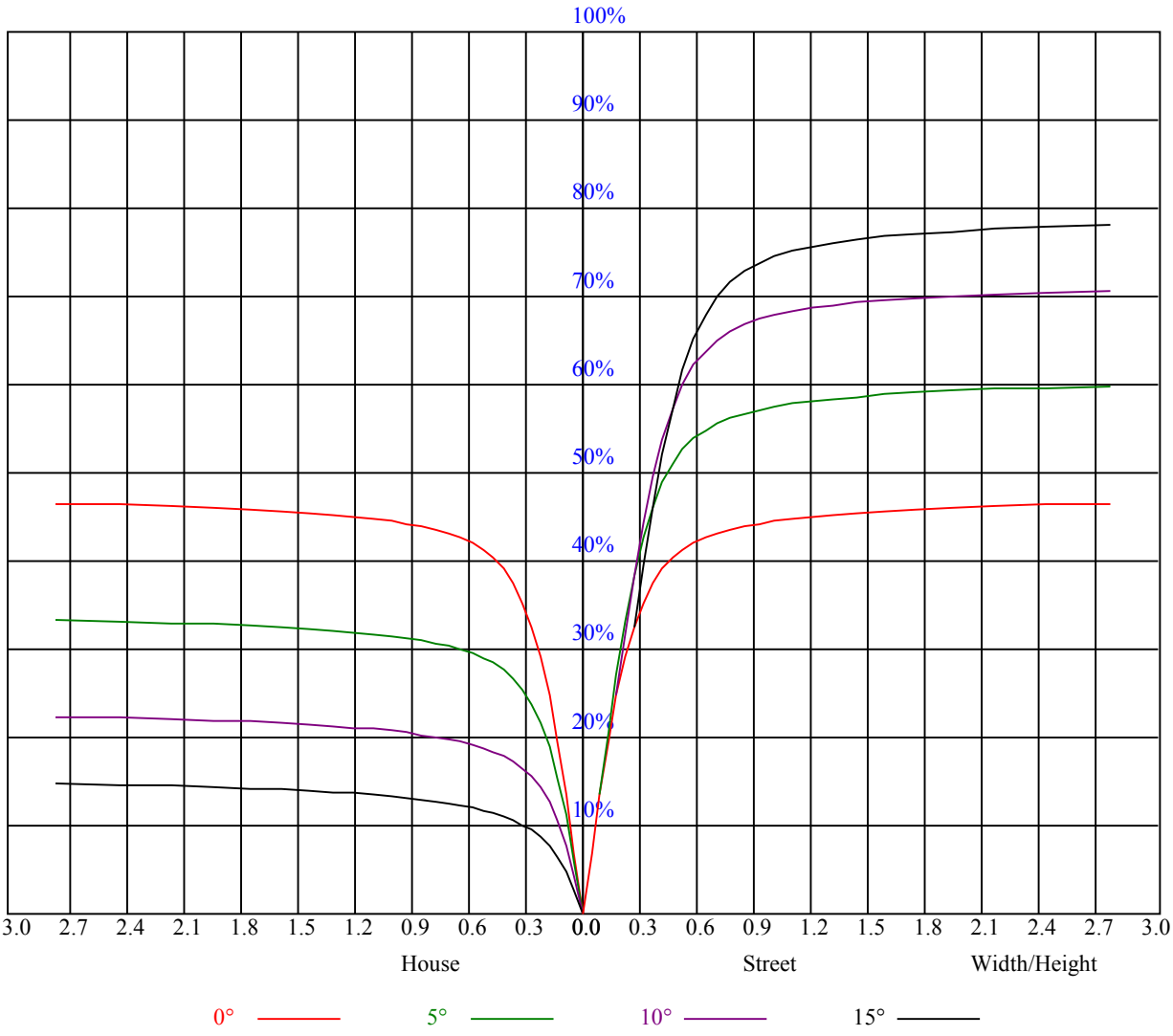


Equipment: GMS1980	Date: 2019/10/16	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

Utilization factor table for indoor luminaire

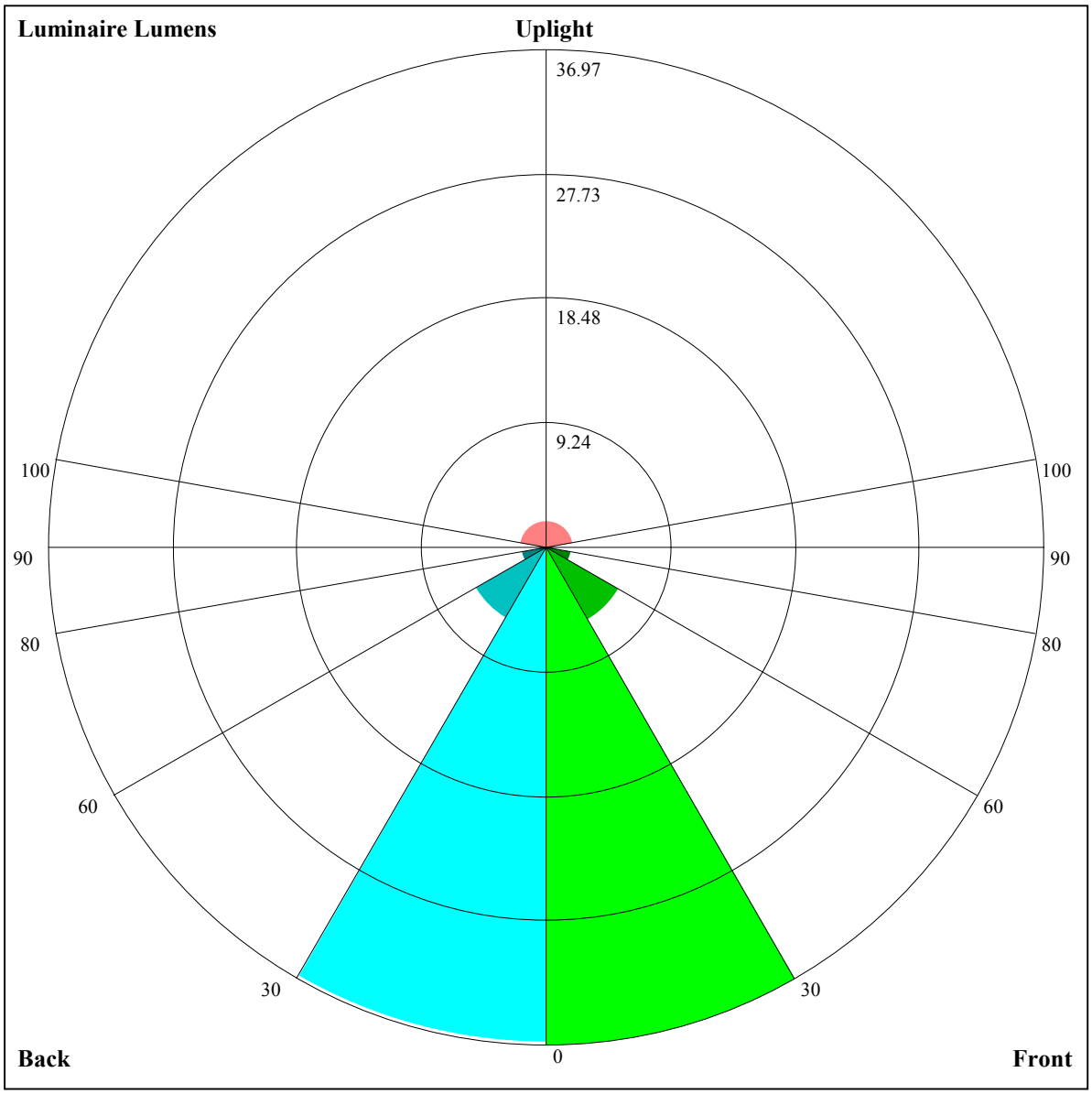
RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	1.13	1.13	1.13	1.10	1.10	1.10	1.05	1.05	1.05	1.01	1.01	1.01	0.97	0.97	0.97	0.95
1	1.05	1.02	1.00	1.03	1.01	0.99	0.99	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.88
2	0.98	0.94	0.91	0.97	0.93	0.90	0.94	0.91	0.88	0.91	0.88	0.86	0.88	0.86	0.85	0.83
3	0.93	0.88	0.85	0.91	0.87	0.84	0.89	0.85	0.83	0.87	0.84	0.81	0.84	0.82	0.80	0.79
4	0.88	0.83	0.79	0.87	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.75
5	0.84	0.79	0.75	0.83	0.78	0.75	0.81	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.73	0.71
6	0.80	0.75	0.71	0.79	0.74	0.71	0.78	0.74	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.68
7	0.77	0.72	0.68	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.70	0.67	0.73	0.69	0.67	0.66
8	0.74	0.69	0.65	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.63
9	0.71	0.66	0.63	0.70	0.66	0.63	0.70	0.65	0.63	0.69	0.65	0.62	0.68	0.65	0.62	0.61
10	0.68	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.63	0.60	0.59

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2019/10/16	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

LCS Graph



Luminaire Lumens:

FL=36.97,FM=6.26,FH=1.89,FVH=0.57

BL=36.72,BM=6.1,BH=1.84,BVH=0.56

UL=0.43,UH=2.04

BUG Rating:B0-U1-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	320.85	318.60	312.81	305.21	294.86	283.67	267.24	252.79	238.05
45.0	319.28	320.74	319.89	314.49	307.52	298.07	283.22	269.44	253.18
90.0	321.24	324.17	323.83	319.05	312.53	300.88	285.92	271.01	250.65
135.0	319.39	323.55	324.73	322.76	315.96	306.28	295.48	279.00	263.48
180.0	320.85	320.12	316.52	310.73	301.56	290.98	277.31	261.11	244.74
225.0	319.28	313.37	307.41	297.06	284.79	272.48	256.89	240.41	225.45
270.0	321.24	314.55	303.98	293.51	281.36	265.61	249.36	234.39	217.69
315.0	319.39	312.58	304.20	290.31	278.27	263.76	248.23	231.02	215.78
360.0	320.85	318.60	312.81	305.21	294.86	283.67	267.24	252.79	238.05

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	219.38	203.34	187.54	172.18	153.62	140.29	127.18	113.46	100.41
45.0	231.75	214.59	196.37	176.46	157.84	141.81	124.82	110.81	96.86
90.0	231.02	208.91	187.43	168.53	148.39	129.83	114.13	100.18	84.83
135.0	244.01	222.58	202.39	182.76	159.30	140.96	125.66	107.38	93.83
180.0	227.87	206.44	189.73	172.29	152.44	137.03	122.96	108.17	94.22
225.0	210.43	191.59	176.57	162.34	145.35	133.14	120.88	108.39	96.92
270.0	201.49	186.69	171.00	157.50	142.93	129.83	119.08	109.01	96.53
315.0	199.69	182.87	169.03	153.84	141.13	126.96	115.20	105.81	96.19
360.0	219.38	203.34	187.54	172.18	153.62	140.29	127.18	113.46	100.41

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	90.45	80.44	70.71	62.72	55.74	49.28	42.98	37.13	32.34
45.0	84.15	74.48	64.35	55.69	48.49	42.75	36.00	31.22	27.06
90.0	73.86	64.46	55.35	47.42	41.29	35.55	30.49	26.61	22.73
135.0	81.79	70.26	60.24	52.59	44.21	38.53	33.08	28.35	24.58
180.0	83.59	72.00	63.34	54.84	47.14	41.46	35.61	30.54	26.61
225.0	87.24	77.46	69.30	60.98	53.49	47.70	41.51	36.00	31.67
270.0	87.53	79.99	70.54	63.96	57.49	51.02	44.89	40.16	35.72
315.0	85.67	77.51	69.64	62.61	55.52	48.88	43.43	38.03	33.64
360.0	90.45	80.44	70.71	62.72	55.74	49.28	42.98	37.13	32.34

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	28.29	24.08	21.15	18.51	15.81	14.01	12.60	11.03	9.73
45.0	23.29	20.14	17.72	15.41	13.50	11.98	10.63	9.68	8.72
90.0	20.03	17.38	15.19	13.61	12.26	10.74	9.79	9.00	8.10
135.0	21.26	18.34	16.26	14.46	12.54	11.36	10.29	9.28	8.38
180.0	23.34	19.80	17.44	15.41	13.50	11.93	10.69	9.56	8.61
225.0	27.73	23.68	20.93	18.68	16.03	14.29	12.77	11.08	10.01
270.0	31.05	26.61	23.51	20.48	18.00	15.81	14.12	12.60	11.14
315.0	29.03	25.54	22.22	19.13	16.93	14.79	12.99	11.59	10.35
360.0	28.29	24.08	21.15	18.51	15.81	14.01	12.60	11.03	9.73

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	8.83	7.88	7.26	6.58	6.08	5.63	5.23	4.89	4.61
45.0	7.88	7.26	6.69	6.19	5.79	5.46	5.01	4.78	4.50
90.0	7.48	7.03	6.47	6.08	5.68	5.29	5.01	4.73	4.50
135.0	7.71	7.20	6.64	6.13	5.85	5.40	5.06	4.84	4.61
180.0	7.88	7.26	6.64	6.08	5.63	5.23	4.95	4.67	4.39
225.0	9.06	8.04	7.43	6.75	6.08	5.74	5.40	4.89	4.67
270.0	9.90	8.94	8.16	7.31	6.69	6.19	5.63	5.29	4.95
315.0	9.00	8.21	7.48	6.81	6.24	5.74	5.29	4.95	4.61
360.0	8.83	7.88	7.26	6.58	6.08	5.63	5.23	4.89	4.61

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	4.50	4.16	3.94	3.77	3.60	3.43	3.38	3.26	3.15
45.0	4.28	4.11	3.94	3.77	3.60	3.43	3.32	3.26	3.09
90.0	4.28	4.11	3.94	3.77	3.66	3.49	3.38	3.32	3.15
135.0	4.33	4.11	3.94	3.77	3.66	3.49	3.38	3.32	3.09
180.0	4.16	3.88	3.66	3.60	3.43	3.32	3.15	2.98	2.93
225.0	4.44	4.16	3.94	3.71	3.54	3.43	3.26	3.15	3.04
270.0	4.61	4.33	4.11	3.94	3.71	3.54	3.38	3.26	3.09
315.0	4.33	4.16	3.94	3.77	3.60	3.43	3.32	3.21	3.09
360.0	4.50	4.16	3.94	3.77	3.60	3.43	3.38	3.26	3.15

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.04	2.93	2.87	2.81	2.64	2.59	2.53	2.42	2.36
45.0	3.04	2.93	2.81	2.81	2.70	2.59	2.48	2.42	2.36
90.0	3.09	3.04	2.87	2.81	2.70	2.64	2.53	2.48	2.36
135.0	3.04	2.93	2.81	2.70	2.64	2.53	2.48	2.42	2.31
180.0	2.81	2.70	2.64	2.53	2.48	2.36	2.31	2.19	2.14
225.0	2.93	2.81	2.76	2.64	2.53	2.48	2.42	2.31	2.25
270.0	2.98	2.93	2.81	2.76	2.70	2.64	2.53	2.42	2.36
315.0	2.98	2.87	2.81	2.76	2.64	2.59	2.48	2.42	2.36
360.0	3.04	2.93	2.87	2.81	2.64	2.59	2.53	2.42	2.36

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	2.31	2.19	2.14	2.08	2.03	1.97	1.91	1.86	1.80
45.0	2.25	2.19	2.14	2.03	1.97	1.91	1.86	1.80	1.74
90.0	2.31	2.25	2.14	2.08	2.03	1.91	1.86	1.86	1.74
135.0	2.25	2.19	2.08	2.03	1.97	1.86	1.86	1.80	1.74
180.0	2.08	1.97	1.91	1.86	1.80	1.74	1.69	1.63	1.63
225.0	2.19	2.08	2.03	1.97	1.91	1.86	1.80	1.74	1.69
270.0	2.31	2.19	2.14	2.08	2.03	1.91	1.86	1.80	1.74
315.0	2.25	2.19	2.14	2.03	1.97	1.91	1.80	1.74	1.69
360.0	2.31	2.19	2.14	2.08	2.03	1.97	1.91	1.86	1.80

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	1.74	1.69	1.63	1.58	1.58	1.52	1.52	1.46	1.41
45.0	1.69	1.63	1.58	1.52	1.52	1.46	1.46	1.41	1.41
90.0	1.69	1.69	1.63	1.58	1.52	1.52	1.46	1.46	1.41
135.0	1.69	1.69	1.63	1.58	1.52	1.46	1.46	1.41	1.41
180.0	1.58	1.52	1.52	1.46	1.46	1.41	1.41	1.41	1.35
225.0	1.63	1.58	1.52	1.46	1.46	1.41	1.41	1.41	1.35
270.0	1.69	1.63	1.58	1.52	1.46	1.41	1.35	1.29	1.29
315.0	1.63	1.63	1.58	1.52	1.46	1.46	1.41	1.41	1.35
360.0	1.74	1.69	1.63	1.58	1.58	1.52	1.52	1.46	1.41

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	1.41	1.41	1.35	1.29	1.29	1.18	1.01	0.73	0.56
45.0	1.41	1.35	1.41	1.35	1.29	1.24	0.96	0.68	0.51
90.0	1.35	1.35	1.29	1.29	1.24	1.18	0.84	0.56	0.45
135.0	1.41	1.41	1.52	1.41	1.29	1.24	0.84	0.62	0.45
180.0	1.35	1.35	1.29	1.29	1.24	1.07	0.68	0.51	0.45
225.0	1.29	1.29	1.29	1.24	1.24	1.13	0.73	0.51	0.45
270.0	1.29	1.24	1.18	1.13	1.07	1.01	0.90	0.62	0.51
315.0	1.35	1.29	1.29	1.24	1.24	1.13	0.90	0.62	0.45
360.0	1.41	1.41	1.35	1.29	1.29	1.18	1.01	0.73	0.56

Intensity data(cd)

C/γ(°)	90.0
0.0	0.45
45.0	0.45
90.0	0.39
135.0	0.39
180.0	0.34
225.0	0.34
270.0	0.39
315.0	0.39
360.0	0.45