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Nata

LumCAT: 3-1701-N
Luminaire: 92.70.045.00+92.70.061.00
Report No: NATA0100
Test No: GC2018062108
LampCAT: NICHIA NFCW108B-V3
Lamp flux(lm): 2292.0
Number of Lamps: 1
Length(mm): 86
Phm Type: C

Voltage(V): 33.6000
Current(A): 0.5000
Power (W): 16.8000
PF: 0.0000
Ballast type: DC
Width(mm): 86
Height(mm): 0

Photometric Results

Lumens(lm): 1778.20
Efficiency(%): 77.58%
Lumens(lm)/Power(W): 105.85
Central intensity(cd): 10506.410
Maximum intensity(cd): 10506.410
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=18.5
 [C90/270]Total=18.5
Field angle(10%Imax): [C0/180]Total=35.8
 [C90/270]Total=35.8
Beam angle of C0 plane : 18.49
Aveage BeamAngle(IEC 61341):18.49
Maximum s/h(1/2): C0_180=0.32 C90_270=0.32
Maximum s/h(1/4): C0_180=0.31 C90_270=0.31
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 78.01%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.240%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10506.413	10.054	10.054	.439%	.565%
2.0	10271.047	78.614	88.668	3.430%	4.986%
4.0	9511.750	145.516	234.184	6.349%	13.170%
6.0	8116.277	186.062	420.245	8.118%	23.633%
8.0	6395.489	195.206	615.452	8.517%	34.611%
10.0	4561.010	173.699	789.151	7.578%	44.379%
12.0	2956.322	134.802	923.952	5.881%	51.960%
14.0	1824.844	96.820	1020.773	4.224%	57.405%
16.0	1297.363	78.427	1099.199	3.422%	61.815%
18.0	1038.536	70.383	1169.583	3.071%	65.774%
20.0	874.000	65.558	1235.141	2.860%	69.460%
22.0	740.756	60.858	1295.999	2.655%	72.883%
24.0	620.857	55.382	1351.381	2.416%	75.997%
26.0	521.494	50.137	1401.518	2.187%	78.817%
28.0	440.685	45.374	1446.891	1.980%	81.368%
30.0	369.043	40.468	1487.359	1.766%	83.644%
32.0	311.137	36.160	1523.519	1.578%	85.678%
34.0	263.280	32.288	1555.808	1.409%	87.494%
36.0	222.311	28.658	1584.465	1.250%	89.105%
38.0	188.451	25.445	1609.911	1.110%	90.536%
40.0	160.999	22.696	1632.607	.990%	91.813%
42.0	135.102	19.826	1652.433	.865%	92.927%
44.0	111.138	16.932	1669.365	.739%	93.880%
46.0	91.690	14.465	1683.83	.631%	94.693%
48.0	75.420	12.292	1696.122	.536%	95.384%
50.0	62.523	10.504	1706.626	.458%	95.975%
52.0	51.553	8.910	1715.536	.389%	96.476%
54.0	41.258	7.320	1722.856	.319%	96.888%
56.0	33.667	6.121	1728.977	.267%	97.232%
58.0	27.948	5.198	1734.175	.227%	97.524%
60.0	23.488	4.461	1738.636	.195%	97.775%
62.0	20.281	3.927	1742.564	.171%	97.996%
64.0	18.334	3.614	1746.178	.158%	98.199%
66.0	17.136	3.433	1749.611	.150%	98.392%
68.0	16.070	3.268	1752.879	.143%	98.576%
70.0	15.085	3.109	1755.987	.136%	98.751%
72.0	14.198	2.961	1758.949	.129%	98.918%
74.0	13.544	2.855	1761.804	.125%	99.078%

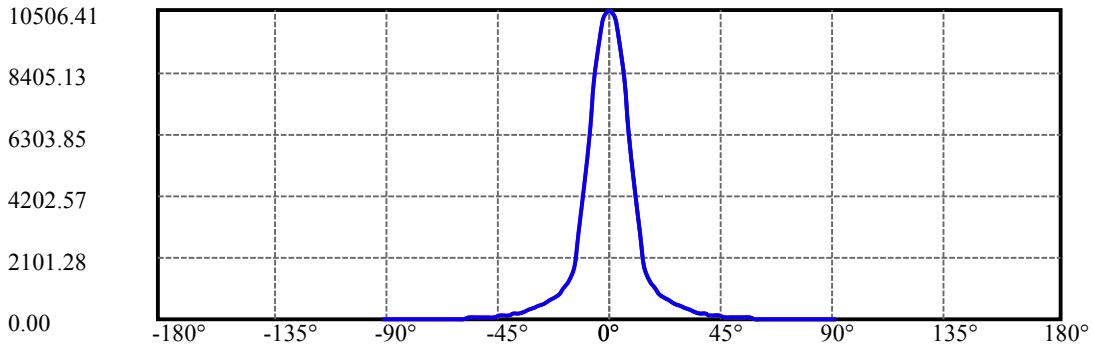
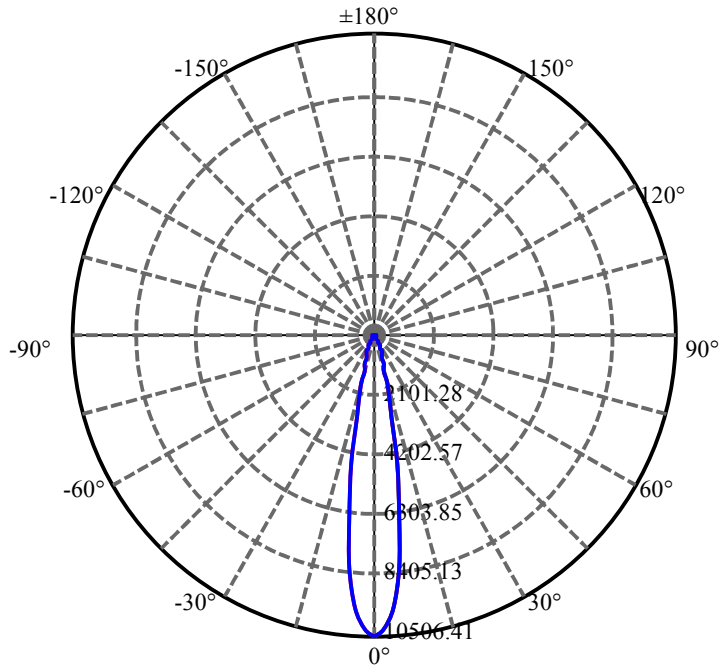
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	12.869	2.739	1764.543	.119%	99.232%
78.0	12.119	2.600	1767.143	.113%	99.378%
80.0	11.232	2.426	1769.568	.106%	99.515%
82.0	10.282	2.233	1771.801	.097%	99.640%
84.0	9.353	2.040	1773.841	.089%	99.755%
86.0	8.444	1.847	1775.689	.081%	99.859%
88.0	7.729	1.694	1777.383	.074%	99.954%
90.0	7.419	0.814	1778.196	.035%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1487.36	64.89%	83.64%
0-40	1632.61	71.23%	91.81%
0-60	1738.64	75.86%	97.78%
0-90	1777.38	77.55%	99.95%
0-120	1777.38	77.55%	99.95%
0-180	1778.20	77.58%	100.00%
60-90	43.21	1.89%	2.43%
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%
0-26.93	1422.56	62.07%	80.00%

ZONAL LUMEN SUMMARY

0-10	789.15
10-20	445.99
20-30	252.22
30-40	145.25
40-50	74.02
50-60	32.01
60-70	17.35
70-80	13.58
80-90	7.81
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



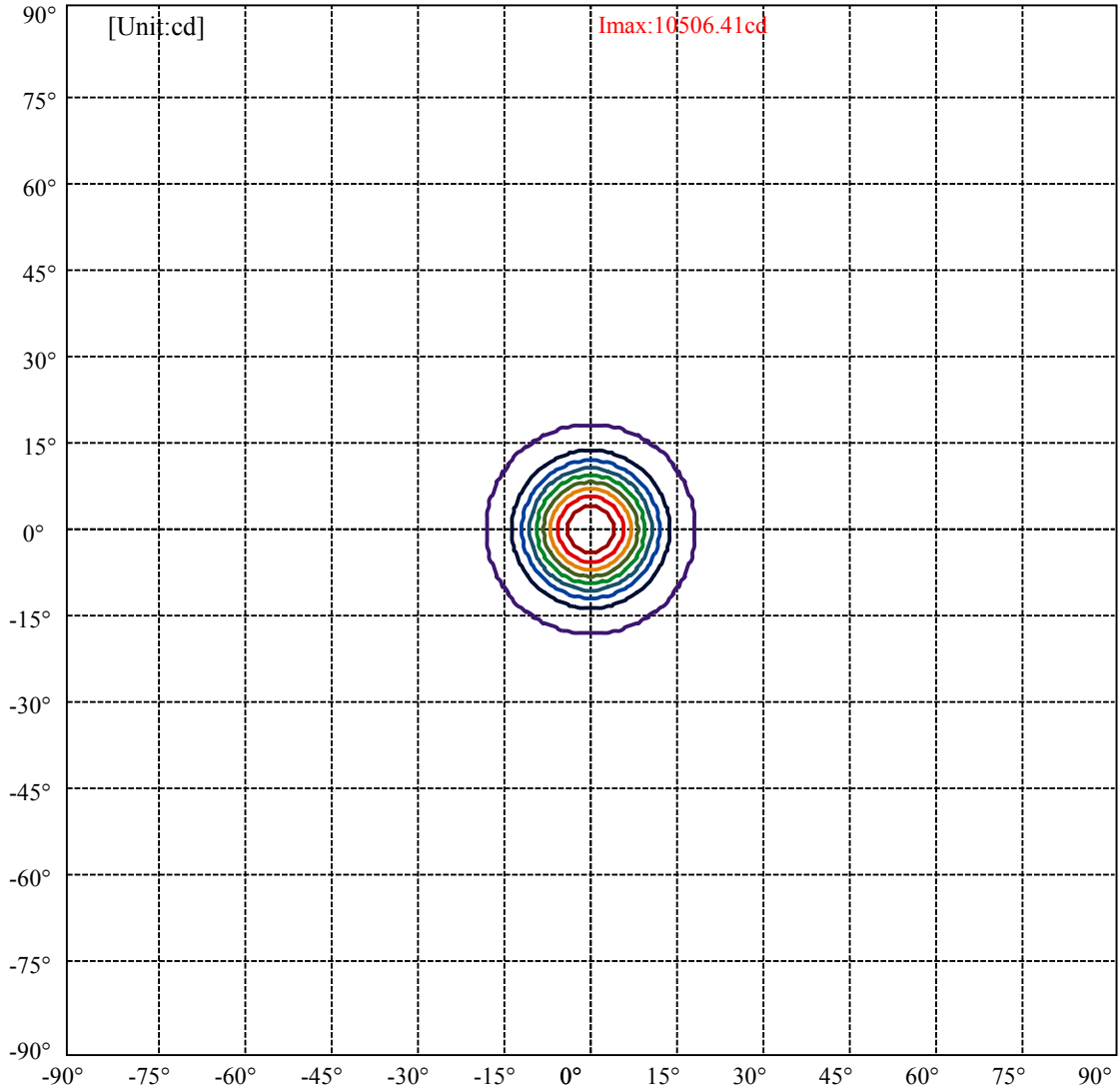
C0(Max): —————

C0/C180: —————

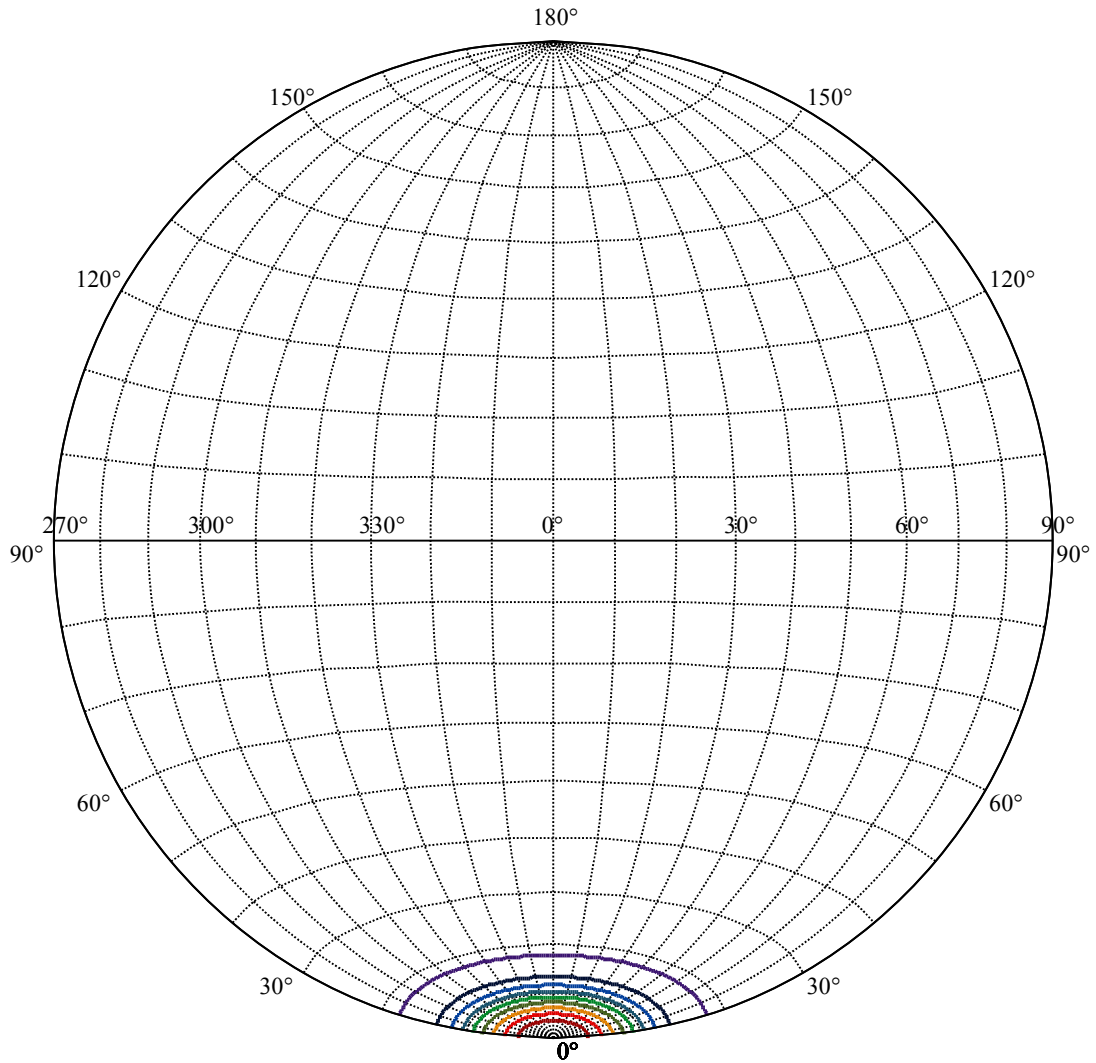
C90/C270: —————

Field angle(10%Imax):C0/180Left:17.9 Right:17.9
:C90/270Left:17.9 Right:17.9

Beam Angle(50%Imax):C0/180Left:9.2 Right:9.2
:C90/270Left:9.2 Right:9.2



(10%Imax) 1050.64	—
(20%Imax) 2101.28	—
(30%Imax) 3151.92	—
(40%Imax) 4202.57	—
(50%Imax) 5253.21	—
(60%Imax) 6303.85	—
(70%Imax) 7354.49	—
(80%Imax) 8405.13	—
(90%Imax) 9455.77	—



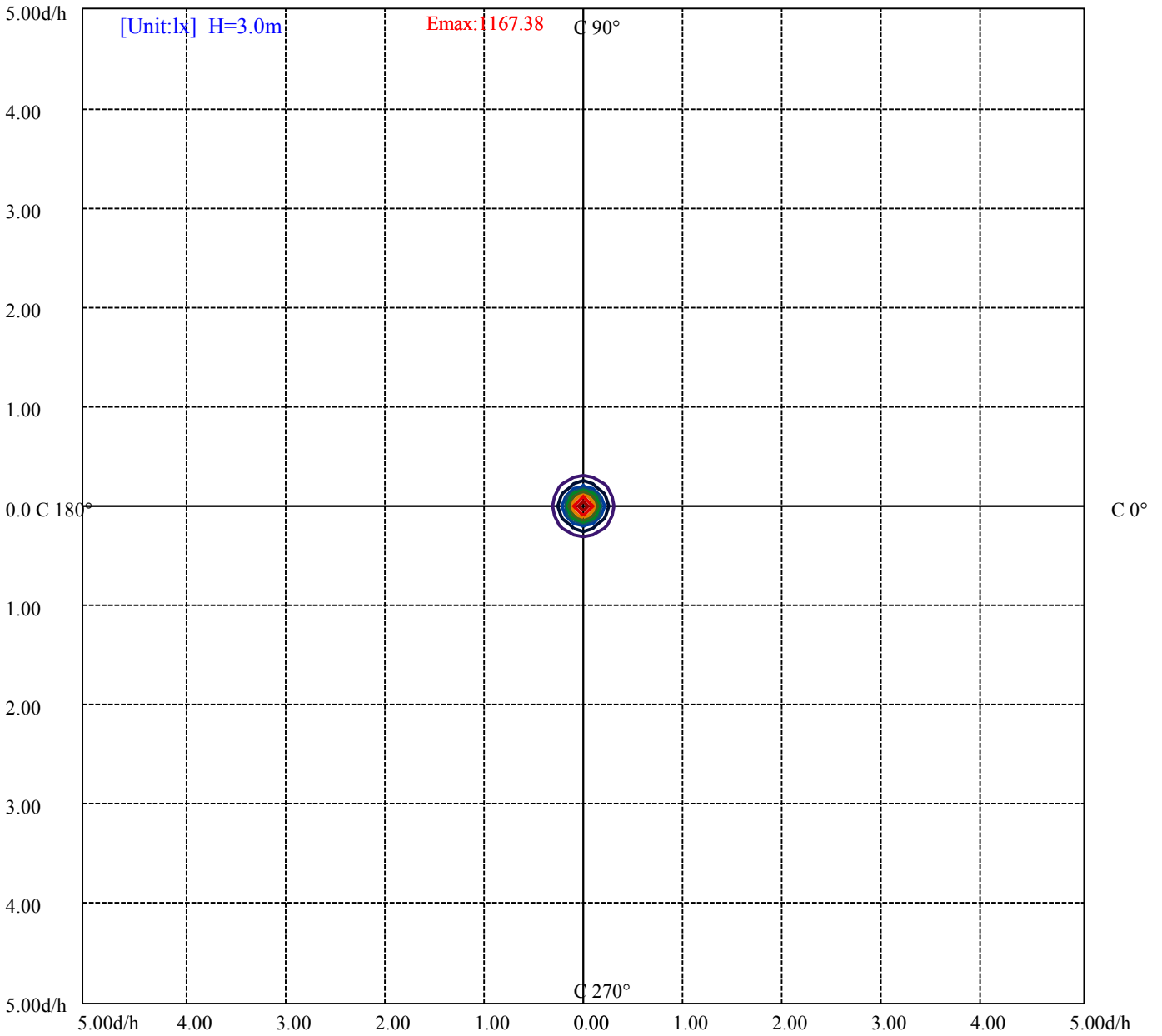
House

[Unit:cd]

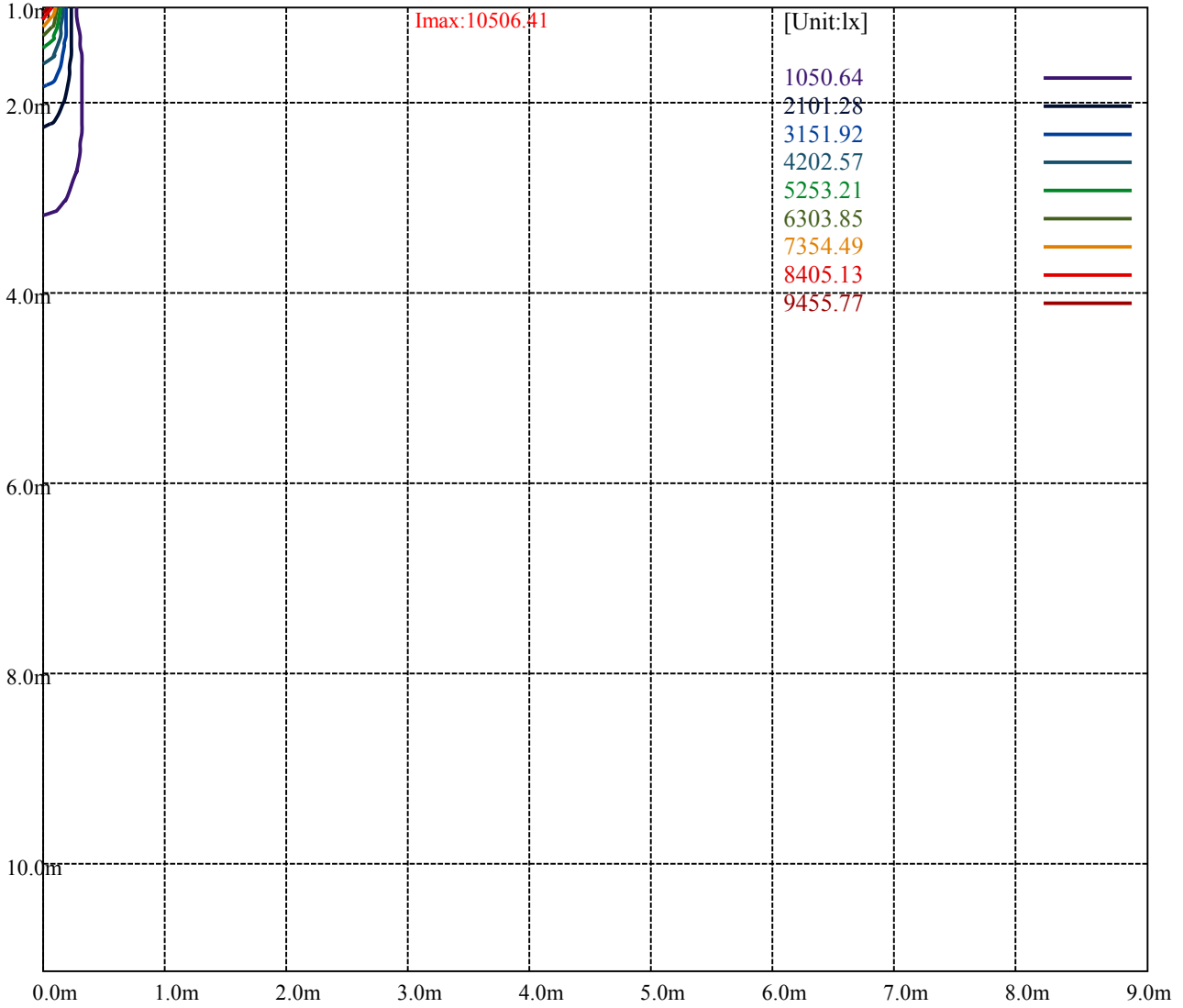
Road

Imax:10506.41

(10%Imax)	1050.64	—
(20%Imax)	2101.28	—
(30%Imax)	3151.92	—
(40%Imax)	4202.57	—
(50%Imax)	5253.21	—
(60%Imax)	6303.85	—
(70%Imax)	7354.49	—
(80%Imax)	8405.13	—
(90%Imax)	9455.77	—



(10%Emax) 116.7378	—
(20%Emax) 233.4756	—
(30%Emax) 350.2133	—
(40%Emax) 466.9511	—
(50%Emax) 583.6889	—
(60%Emax) 700.4266	—
(70%Emax) 817.1644	—
(80%Emax) 933.9022	—
(90%Emax) 1050.64	—



Luminance Table

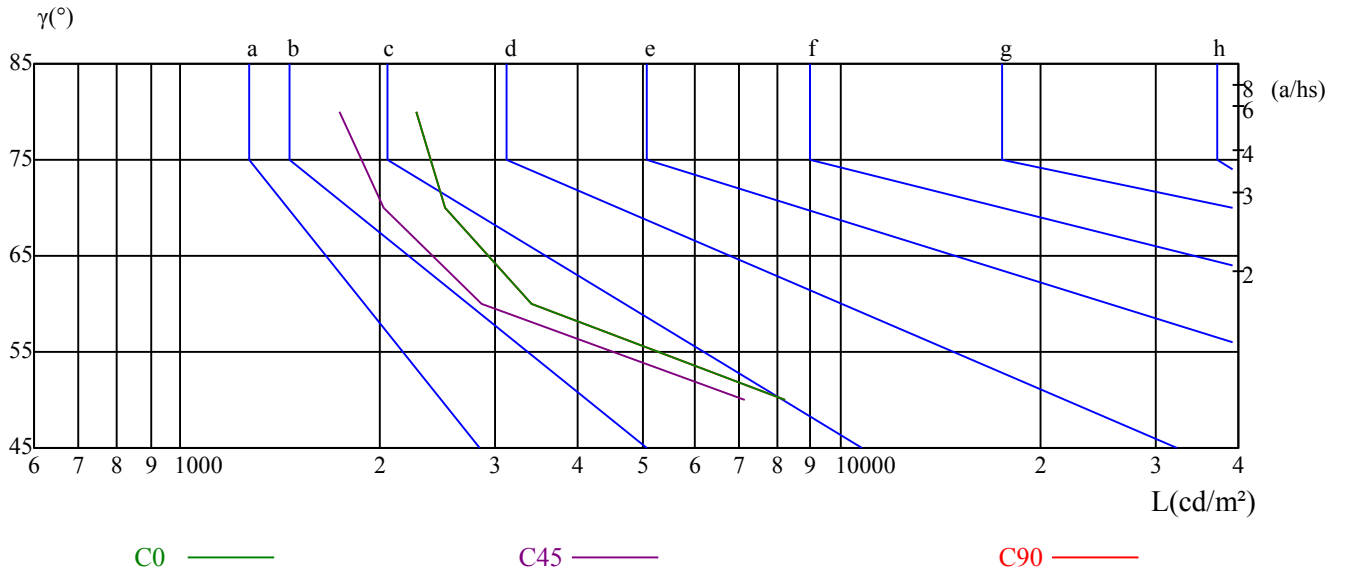
γ	45	50	55	60	65	70	75	80	85
C0	0	8241	0	3404	0	2512	0	2280	0
C45	0	7137	0	2855	0	2027	0	1745	0
C90	0	8241	0	3404	0	2512	0	2280	0

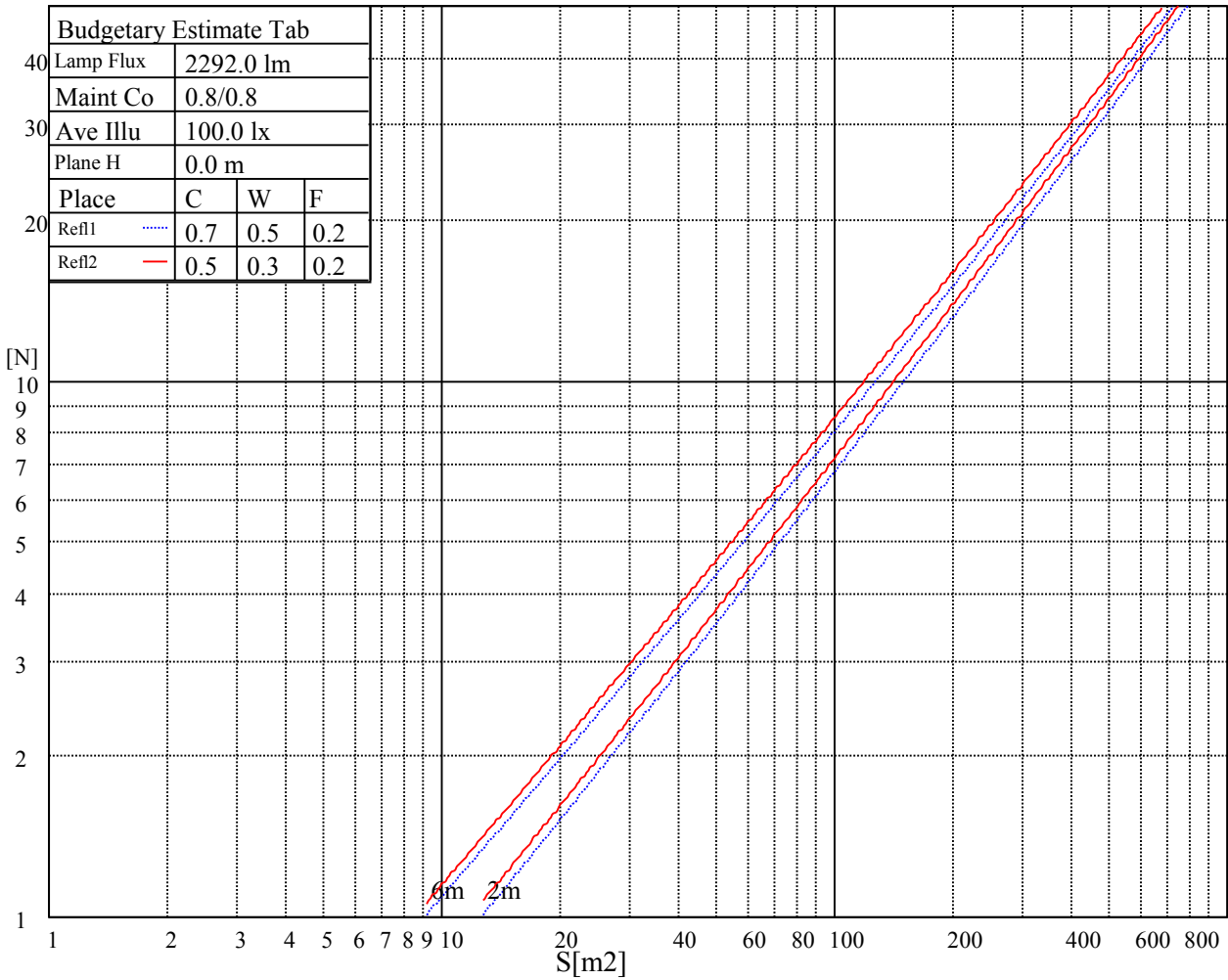
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5883	5883	5883	7018	7018	7018	13837	13837	13837

Glare Table

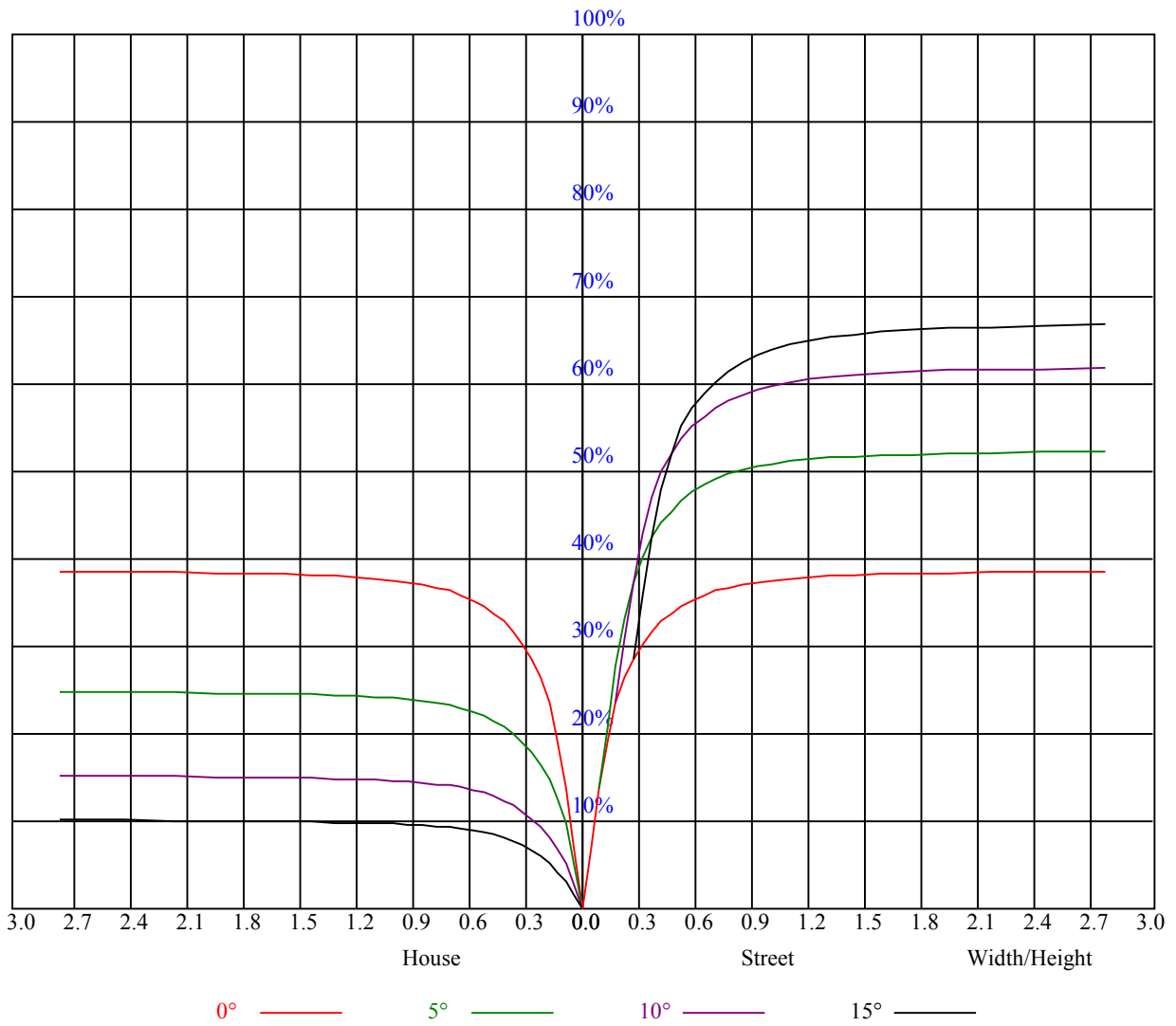
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	COEFFICIENTS OF UTILIZATION RHOFC=20 CU															
0	0.93	0.93	0.93	0.91	0.91	0.91	0.87	0.87	0.87	0.83	0.83	0.83	0.80	0.80	0.80	0.78
1	0.87	0.85	0.83	0.85	0.84	0.82	0.82	0.81	0.80	0.79	0.78	0.77	0.76	0.76	0.75	0.74
2	0.82	0.79	0.77	0.81	0.78	0.76	0.78	0.76	0.75	0.76	0.74	0.73	0.74	0.73	0.72	0.70
3	0.78	0.75	0.72	0.77	0.74	0.72	0.75	0.73	0.71	0.73	0.71	0.70	0.72	0.70	0.69	0.67
4	0.75	0.71	0.69	0.74	0.71	0.68	0.72	0.70	0.67	0.71	0.69	0.67	0.70	0.68	0.66	0.65
5	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.67	0.65	0.64	0.63
6	0.69	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.62	0.67	0.64	0.62	0.66	0.63	0.62	0.61
7	0.67	0.63	0.61	0.66	0.63	0.61	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.59
8	0.65	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.57
9	0.63	0.59	0.57	0.63	0.59	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.61	0.58	0.57	0.56
10	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.57	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.54



Intensity data(cd)

C/γ(°)	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0
0.0	10517.42	10492.65	10025.77	8791.96	7195.32	5442.88	3664.00	2181.89	1423.76
45.0	10512.47	9985.58	8875.64	7013.08	5183.56	3418.45	2051.95	1316.95	1053.23
90.0	10452.46	9873.81	8604.76	6786.80	4901.12	3032.51	1798.69	1223.90	1007.20
135.0	10543.30	10175.52	9256.08	7679.82	6130.53	4059.31	2429.09	1537.73	1134.16
180.0	10517.42	10085.23	9150.92	7635.22	5741.83	3825.87	2325.03	1511.30	1208.49
225.0	10512.47	10535.04	10124.87	9096.42	7328.56	5631.17	3775.22	2295.30	1532.22
270.0	10452.46	10548.26	10225.63	9212.59	7660.55	5898.19	4090.69	2442.85	1579.02
315.0	10543.30	10472.28	9830.32	8714.33	7022.44	5179.71	3515.90	2088.84	1440.83
360.0	10517.42	10492.65	10025.77	8791.96	7195.32	5442.88	3664.00	2181.89	1423.76
C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1108.84	911.73	780.70	651.87	552.22	458.07	387.05	324.83	279.69
45.0	881.45	744.91	635.35	526.34	443.75	379.89	321.53	279.69	227.82
90.0	831.68	707.64	586.19	489.18	411.77	348.18	288.99	244.67	208.00
135.0	934.31	798.87	668.38	553.32	466.88	393.10	329.24	279.14	231.24
180.0	991.95	840.71	712.71	601.66	502.06	427.62	352.42	291.63	250.56
225.0	1231.61	1047.61	889.71	757.25	638.60	538.51	453.83	384.90	325.38
270.0	1232.71	1017.44	873.19	731.15	612.78	518.08	432.19	362.82	311.07
315.0	1095.73	923.08	779.82	656.11	543.90	462.03	387.10	321.42	272.47
360.0	1108.84	911.73	780.70	651.87	552.22	458.07	387.05	324.83	279.69
C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	228.21	194.95	167.59	141.77	120.35	98.94	82.36	68.49	57.26
45.0	189.83	161.04	138.80	113.53	93.16	76.91	64.53	53.29	43.49
90.0	177.28	155.04	130.32	107.30	88.37	73.23	61.06	51.15	41.18
135.0	197.10	169.68	144.03	119.31	98.61	80.11	67.28	56.16	45.64
180.0	209.87	180.31	154.98	128.94	103.40	87.43	71.63	58.19	48.34
225.0	269.67	228.81	193.74	164.45	135.60	110.33	88.97	73.61	60.78
270.0	278.03	221.49	190.33	161.81	131.64	108.46	87.59	73.17	59.96
315.0	228.48	196.28	168.20	143.70	117.99	98.11	79.94	66.12	55.77
360.0	228.21	194.95	167.59	141.77	120.35	98.94	82.36	68.49	57.26
C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	46.19	37.11	30.72	25.44	21.53	18.72	17.56	16.46	15.42
45.0	34.74	28.57	24.39	20.70	18.61	17.34	16.30	15.31	14.37
90.0	33.03	28.08	23.73	20.21	18.55	17.34	16.24	15.36	14.42
135.0	36.17	29.95	25.16	21.25	18.94	17.73	16.68	15.58	14.70
180.0	37.82	30.94	25.82	21.64	18.83	17.73	16.52	15.58	14.65
225.0	48.45	39.03	31.66	26.37	22.13	19.32	17.95	16.85	15.69
270.0	48.84	39.20	31.93	27.03	22.52	19.55	18.22	17.01	15.97
315.0	44.82	36.45	30.17	25.27	21.14	18.94	17.62	16.41	15.47
360.0	46.19	37.11	30.72	25.44	21.53	18.72	17.56	16.46	15.42
C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	14.42	13.71	12.99	12.33	11.62	10.52	9.58	8.70	7.93
45.0	13.65	13.10	12.39	11.45	10.52	9.58	8.70	7.87	7.32
90.0	13.65	13.10	12.33	11.45	10.52	9.69	8.64	7.82	7.38
135.0	13.87	13.27	12.61	11.89	10.90	9.91	9.08	8.04	7.43
180.0	13.82	13.21	12.61	11.73	10.79	9.91	9.03	8.04	7.38
225.0	14.70	13.98	13.32	12.72	11.84	10.90	9.91	9.08	8.15
270.0	14.98	14.26	13.60	12.94	12.17	11.12	10.19	9.19	8.26
315.0	14.48	13.71	13.10	12.44	11.51	10.63	9.69	8.81	7.98
360.0	14.42	13.71	12.99	12.33	11.62	10.52	9.58	8.70	7.93

Intensity data(cd)

C/γ(°)	90.0
0.0	7.38
45.0	7.38
90.0	7.32
135.0	7.38
180.0	7.38
225.0	7.49
270.0	7.54
315.0	7.49
360.0	7.38