



NATA LIGHTING CO.,LTD

www.nata.cn

Email:info@nata.cn

Tel:+86 0750-377 0000(10 lines) Fax:+86 0750-377 1111

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

Nata

LumCAT: 3-2040-M

Luminaire: 92.70.135.00

Report No: GC2017103103

Test No: NT-0010

LampCAT: NICHIA NFCWD084B-V2

Lamp flux(lm): 2537.0

Number of Lamps: 1

Length(mm): 79

Phm Type: C

Voltage(V): 34.3000

Current(A): 0.5000

Power (W): 17.1500

PF: 0.0000

Ballast type: DC

Width(mm): 79

Height(mm): 0

Photometric Results

Lumens(lm): 2264.03

Efficiency(%): 89.24%

Lumens(lm)/Power(W): 132.01

Central intensity(cd): 10482.050

Maximum intensity(cd): 10482.050

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=20.4

[C90/270]Total=20.4

Field angle(10%Imax): [C0/180]Total=46.2

[C90/270]Total=46.2

Maximum s/h(1/2): C0_180=0.35 C90_270=0.35

Maximum s/h(1/4): C0_180=0.36 C90_270=0.36

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 89.24%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 98.573%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10482.050	0.000	0	.000%	.000%
1.0	10395.543	9.990	9.99	.394%	.441%
2.0	10138.292	29.472	39.462	1.162%	1.743%
3.0	9713.669	47.479	86.941	1.871%	3.840%
4.0	9223.874	63.390	150.331	2.499%	6.640%
5.0	8686.524	77.050	227.381	3.037%	10.043%
6.0	8039.611	87.900	315.281	3.465%	13.926%
7.0	7392.973	95.790	411.071	3.776%	18.157%
8.0	6771.387	101.372	512.442	3.996%	22.634%
9.0	6052.144	103.928	616.37	4.096%	27.224%
10.0	5359.190	103.268	719.638	4.070%	31.786%
11.0	4749.027	101.002	820.64	3.981%	36.247%
12.0	4125.376	97.010	917.65	3.824%	40.532%
13.0	3517.897	90.706	1008.357	3.575%	44.538%
14.0	3044.550	83.999	1092.355	3.311%	48.248%
15.0	2620.753	77.776	1170.131	3.066%	51.684%
16.0	2258.689	71.497	1241.629	2.818%	54.842%
17.0	1961.866	65.725	1307.354	2.591%	57.745%
18.0	1718.448	60.680	1368.034	2.392%	60.425%
19.0	1539.515	56.682	1424.716	2.234%	62.928%
20.0	1381.984	53.472	1478.188	2.108%	65.290%
21.0	1245.658	50.456	1528.644	1.989%	67.519%
22.0	1140.115	47.943	1576.587	1.890%	69.636%
23.0	1056.828	46.098	1622.685	1.817%	71.672%
24.0	983.307	44.605	1667.29	1.758%	73.643%
25.0	924.954	43.390	1710.679	1.710%	75.559%
26.0	881.095	42.632	1753.311	1.680%	77.442%
27.0	846.767	42.273	1795.584	1.666%	79.309%
28.0	821.965	42.249	1837.833	1.665%	81.175%
29.0	803.294	42.521	1880.354	1.676%	83.053%
30.0	787.630	42.955	1923.309	1.693%	84.951%
31.0	764.706	43.199	1966.508	1.703%	86.859%
32.0	723.352	42.631	2009.139	1.680%	88.742%
33.0	665.074	40.904	2050.042	1.612%	90.548%
34.0	586.241	37.868	2087.911	1.493%	92.221%
35.0	486.410	33.313	2121.223	1.313%	93.692%
36.0	382.484	27.666	2148.889	1.090%	94.914%
37.0	296.541	22.146	2171.035	.873%	95.892%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	193.496	16.357	2187.392	.645%	96.615%
39.0	127.132	10.944	2198.336	.431%	97.098%
40.0	62.104	6.600	2204.936	.260%	97.390%
41.0	35.738	3.484	2208.42	.137%	97.544%
42.0	24.658	2.194	2210.614	.086%	97.641%
43.0	21.025	1.692	2212.306	.067%	97.715%
44.0	18.258	1.483	2213.789	.058%	97.781%
45.0	16.242	1.326	2215.115	.052%	97.839%
46.0	15.147	1.228	2216.342	.048%	97.894%
47.0	14.432	1.176	2217.519	.046%	97.946%
48.0	14.026	1.150	2218.669	.045%	97.996%
49.0	13.640	1.136	2219.805	.045%	98.047%
50.0	13.282	1.122	2220.928	.044%	98.096%
51.0	13.000	1.112	2222.04	.044%	98.145%
52.0	12.725	1.104	2223.144	.044%	98.194%
53.0	12.429	1.094	2224.238	.043%	98.242%
54.0	12.174	1.084	2225.322	.043%	98.290%
55.0	11.954	1.077	2226.399	.042%	98.338%
56.0	11.720	1.070	2227.469	.042%	98.385%
57.0	11.555	1.064	2228.533	.042%	98.432%
58.0	11.404	1.062	2229.595	.042%	98.479%
59.0	11.266	1.060	2230.655	.042%	98.526%
60.0	11.142	1.059	2231.713	.042%	98.573%
61.0	11.032	1.058	2232.772	.042%	98.619%
62.0	10.956	1.060	2233.831	.042%	98.666%
63.0	10.860	1.061	2234.892	.042%	98.713%
64.0	10.784	1.062	2235.954	.042%	98.760%
65.0	10.695	1.063	2237.017	.042%	98.807%
66.0	10.633	1.064	2238.081	.042%	98.854%
67.0	10.571	1.066	2239.148	.042%	98.901%
68.0	10.495	1.067	2240.215	.042%	98.948%
69.0	10.461	1.069	2241.284	.042%	98.995%
70.0	10.406	1.072	2242.355	.042%	99.043%
71.0	10.351	1.073	2243.428	.042%	99.090%
72.0	10.302	1.074	2244.502	.042%	99.137%
73.0	10.275	1.076	2245.578	.042%	99.185%
74.0	10.240	1.079	2246.657	.043%	99.233%
75.0	10.206	1.080	2247.737	.043%	99.280%

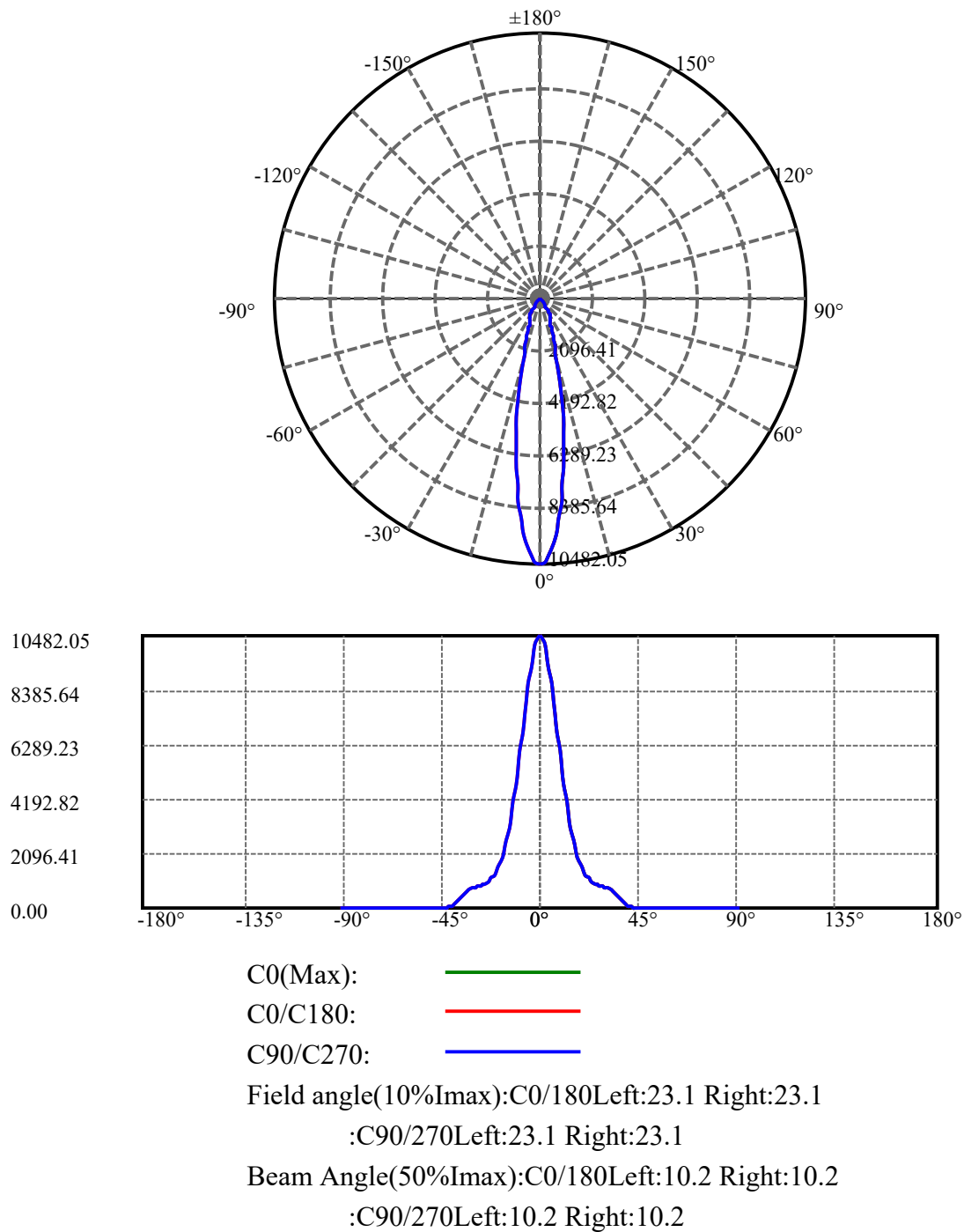
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.158	1.081	2248.818	.043%	99.328%
77.0	10.137	1.082	2249.9	.043%	99.376%
78.0	10.117	1.084	2250.984	.043%	99.424%
79.0	10.068	1.085	2252.069	.043%	99.472%
80.0	10.062	1.085	2253.154	.043%	99.520%
81.0	10.041	1.087	2254.241	.043%	99.568%
82.0	10.020	1.088	2255.329	.043%	99.616%
83.0	10.007	1.089	2256.418	.043%	99.664%
84.0	9.986	1.089	2257.507	.043%	99.712%
85.0	9.979	1.090	2258.596	.043%	99.760%
86.0	9.958	1.090	2259.686	.043%	99.808%
87.0	9.924	1.088	2260.774	.043%	99.856%
88.0	9.910	1.086	2261.861	.043%	99.904%
89.0	9.890	1.085	2262.946	.043%	99.952%
90.0	9.890	1.084	2264.031	.043%	100.000%

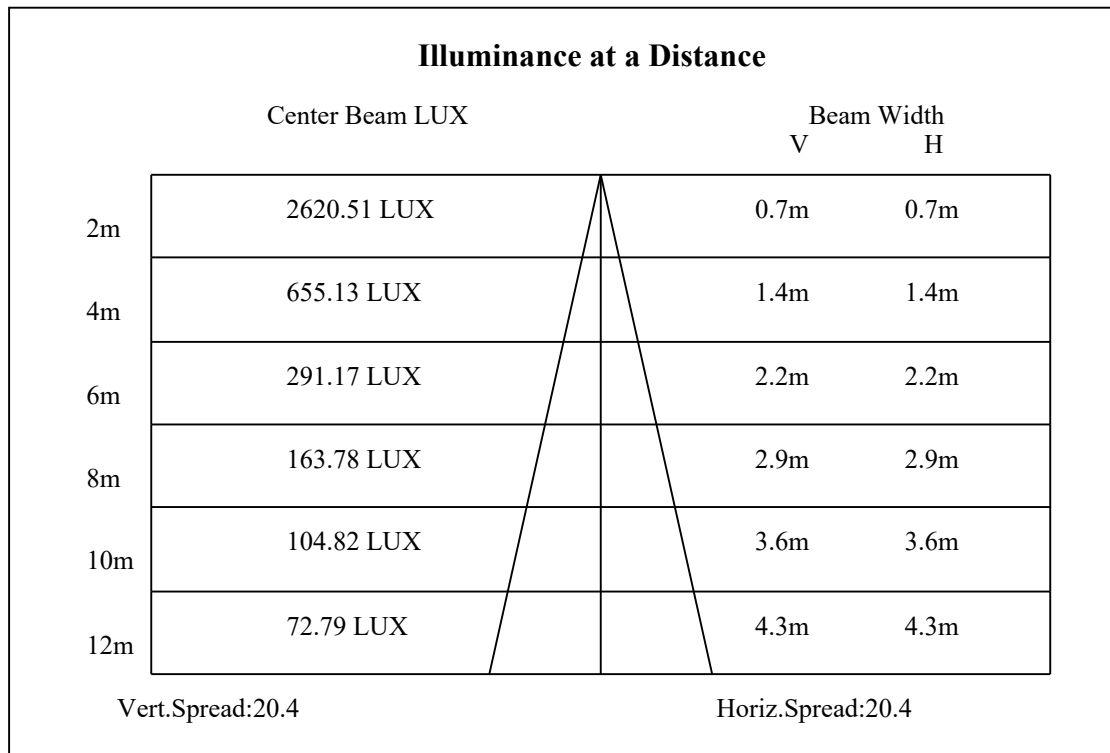
ZONAL LUMEN SUMMARY

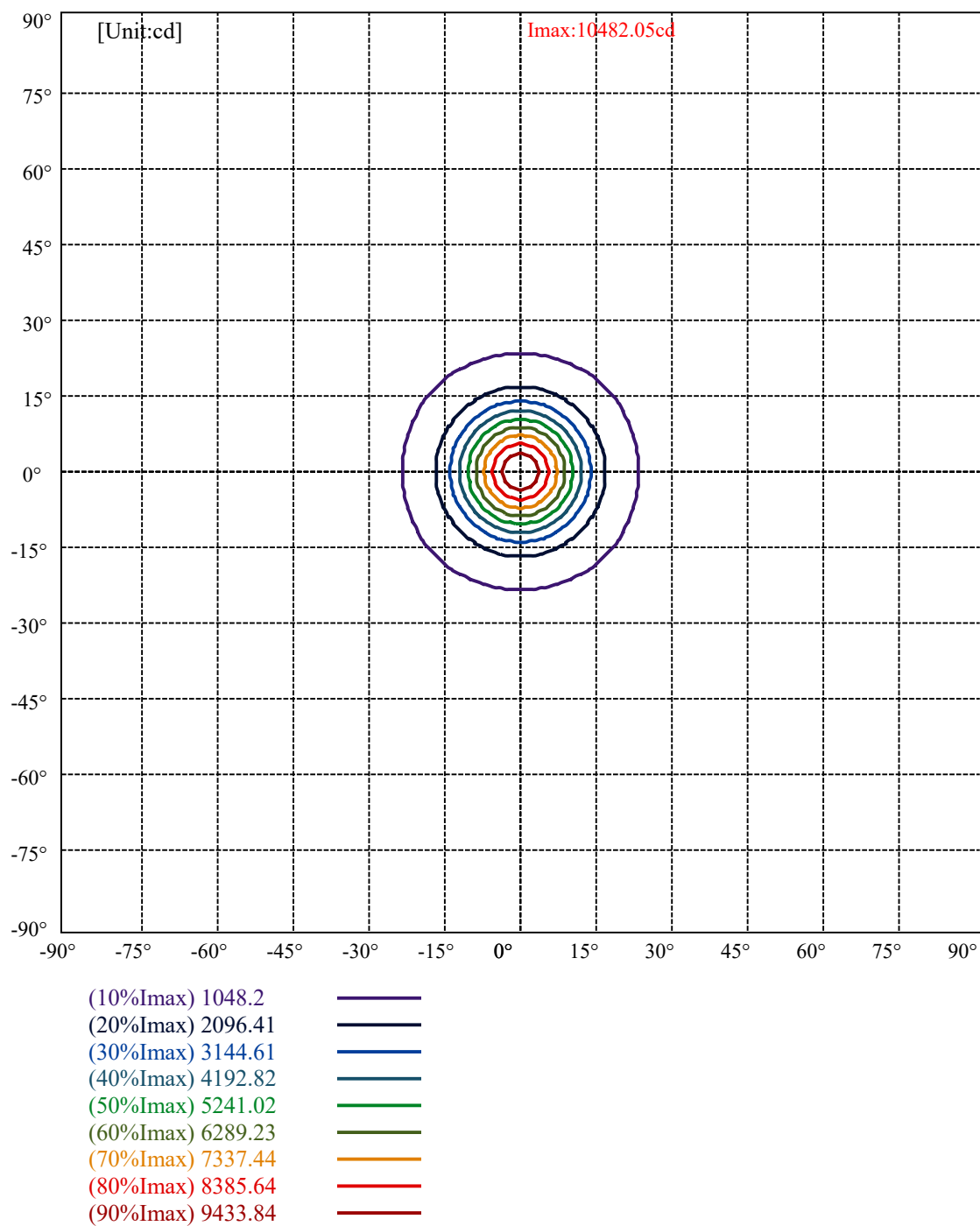
Zone	Lumens	%Lamp	%Fixt
0-30	1923.31	75.81%	84.95%
0-40	2204.94	86.91%	97.39%
0-60	2231.71	87.97%	98.57%
0-90	2262.95	89.20%	99.95%
0-120	2262.95	89.20%	99.95%
0-180	2264.03	89.24%	100.00%
60-90	32.29	1.27%	1.43%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.37	1811.22	71.39%	80.00%

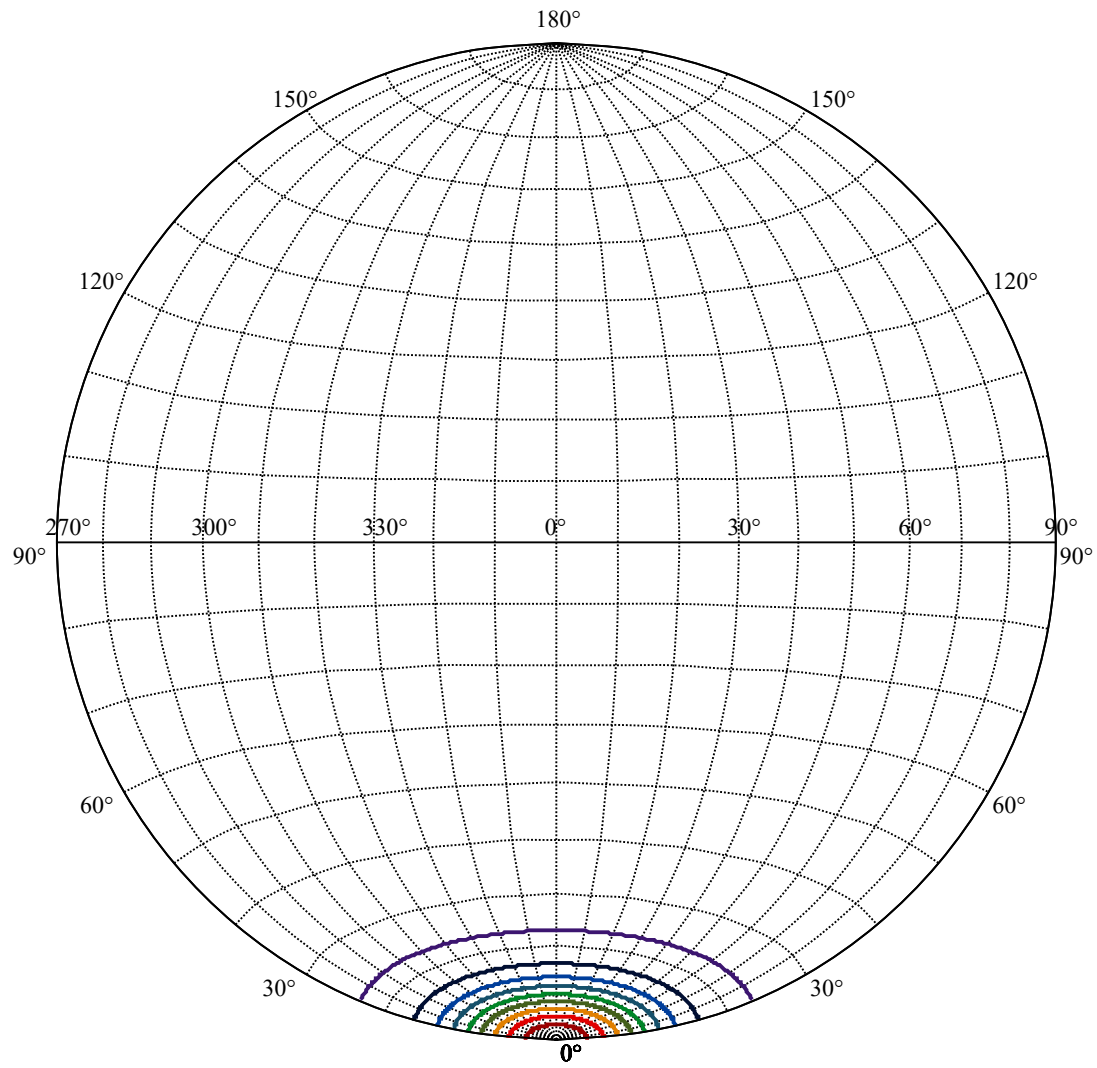
ZONAL LUMEN SUMMARY

0-10	719.64
10-20	758.55
20-30	445.12
30-40	281.63
40-50	15.99
50-60	10.79
60-70	10.64
70-80	10.80
80-90	9.79
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







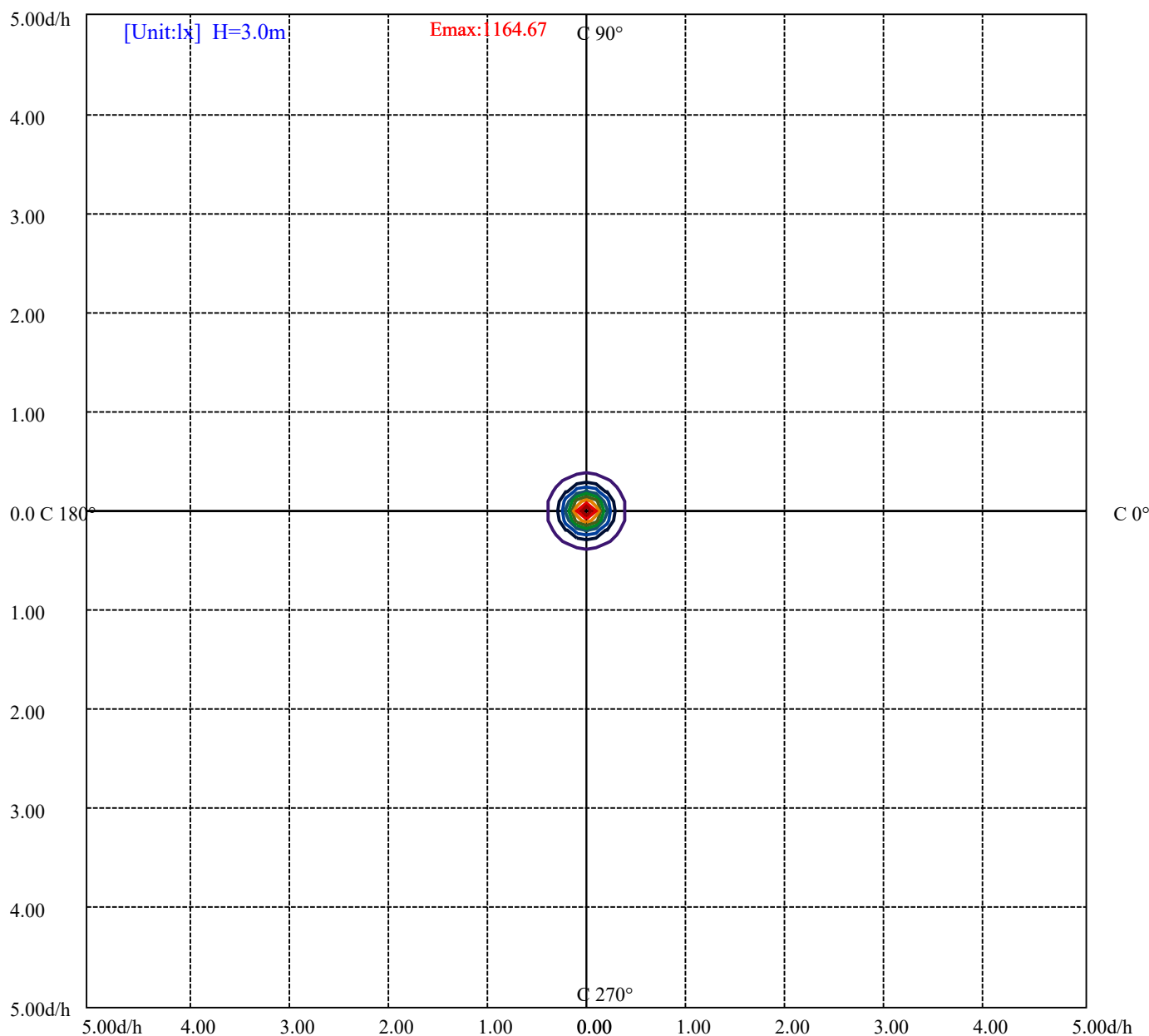


House

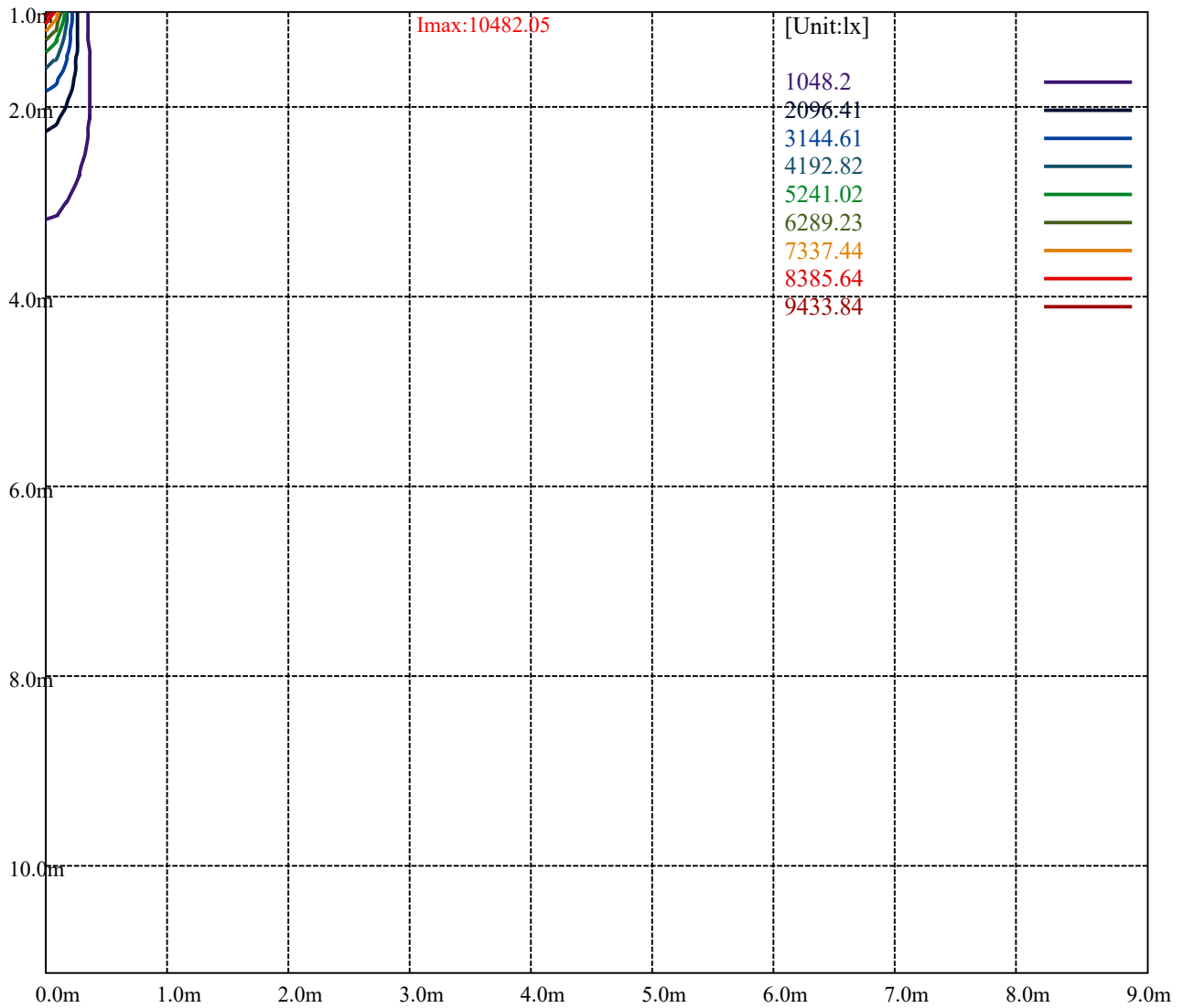
[Unit:cd]

Road

Imax:10482.05	
(10%Imax)	1048.2
(20%Imax)	2096.41
(30%Imax)	3144.61
(40%Imax)	4192.82
(50%Imax)	5241.02
(60%Imax)	6289.23
(70%Imax)	7337.44
(80%Imax)	8385.64
(90%Imax)	9433.84



(10%Emax)	116.4667	—
(20%Emax)	232.9344	—
(30%Emax)	349.4011	—
(40%Emax)	465.8678	—
(50%Emax)	582.3356	—
(60%Emax)	698.8022	—
(70%Emax)	815.27	—
(80%Emax)	931.7366	—
(90%Emax)	1048.203	—



Luminance Table

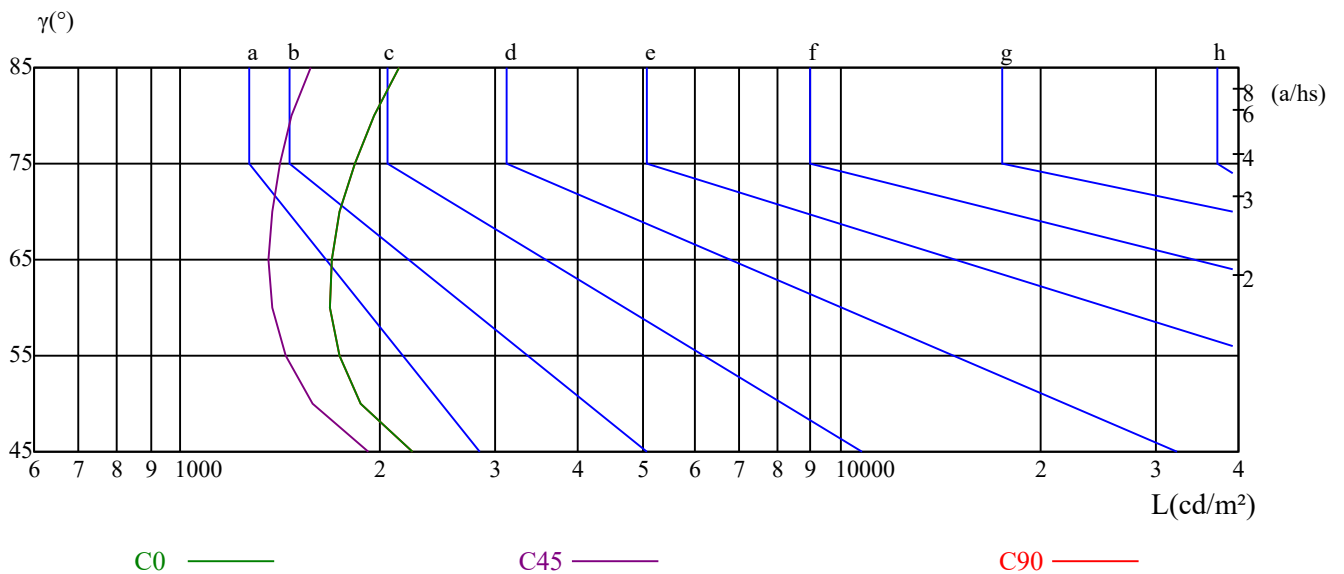
γ	45	50	55	60	65	70	75	80	85
C0	2248	1877	1739	1683	1693	1744	1833	1962	2147
C45	1925	1583	1444	1375	1359	1374	1413	1477	1570
C90	2248	1877	1739	1683	1693	1744	1833	1962	2147

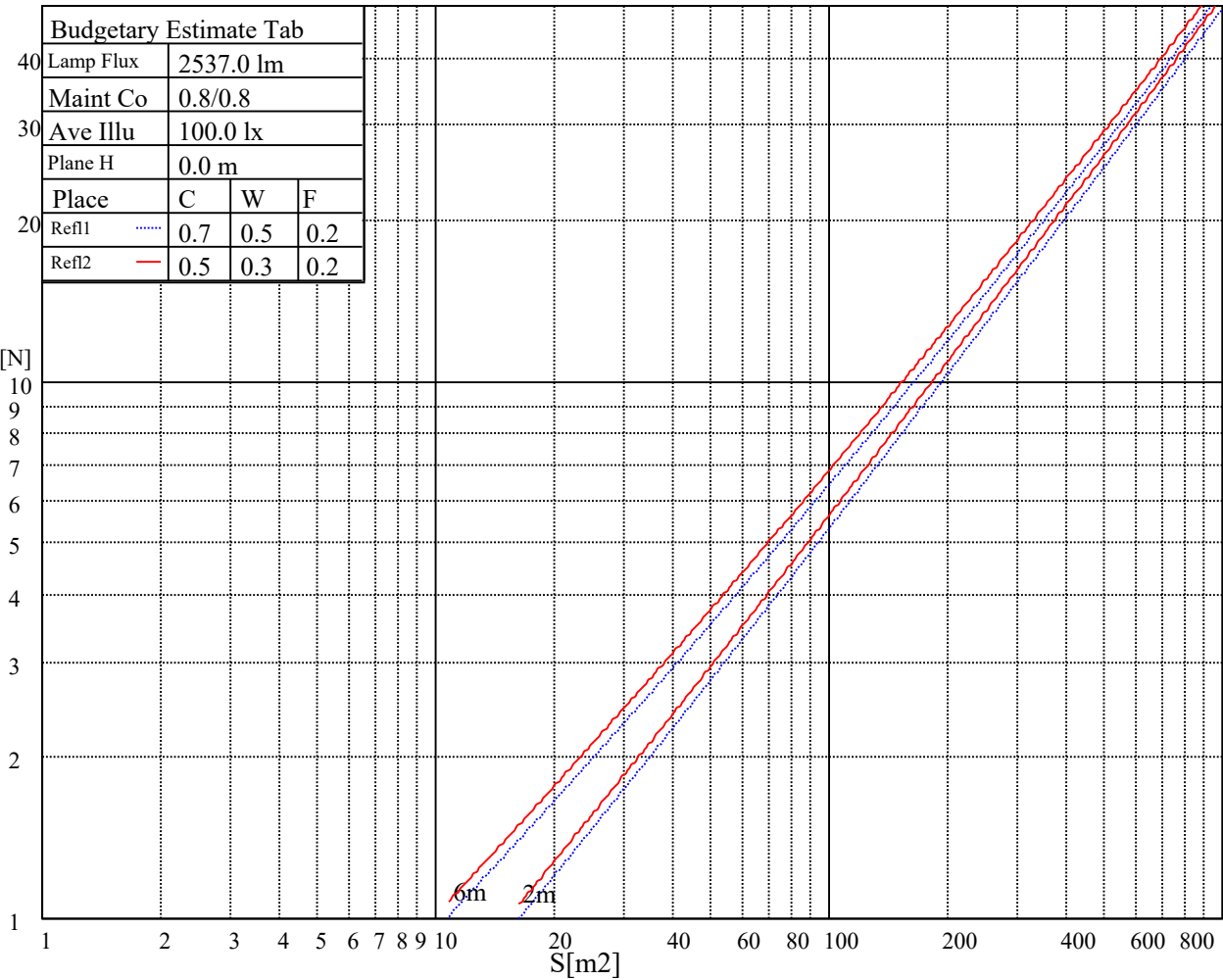
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4159	4159	4159	6481	6481	6481	18819	18819	18819

Glare Table

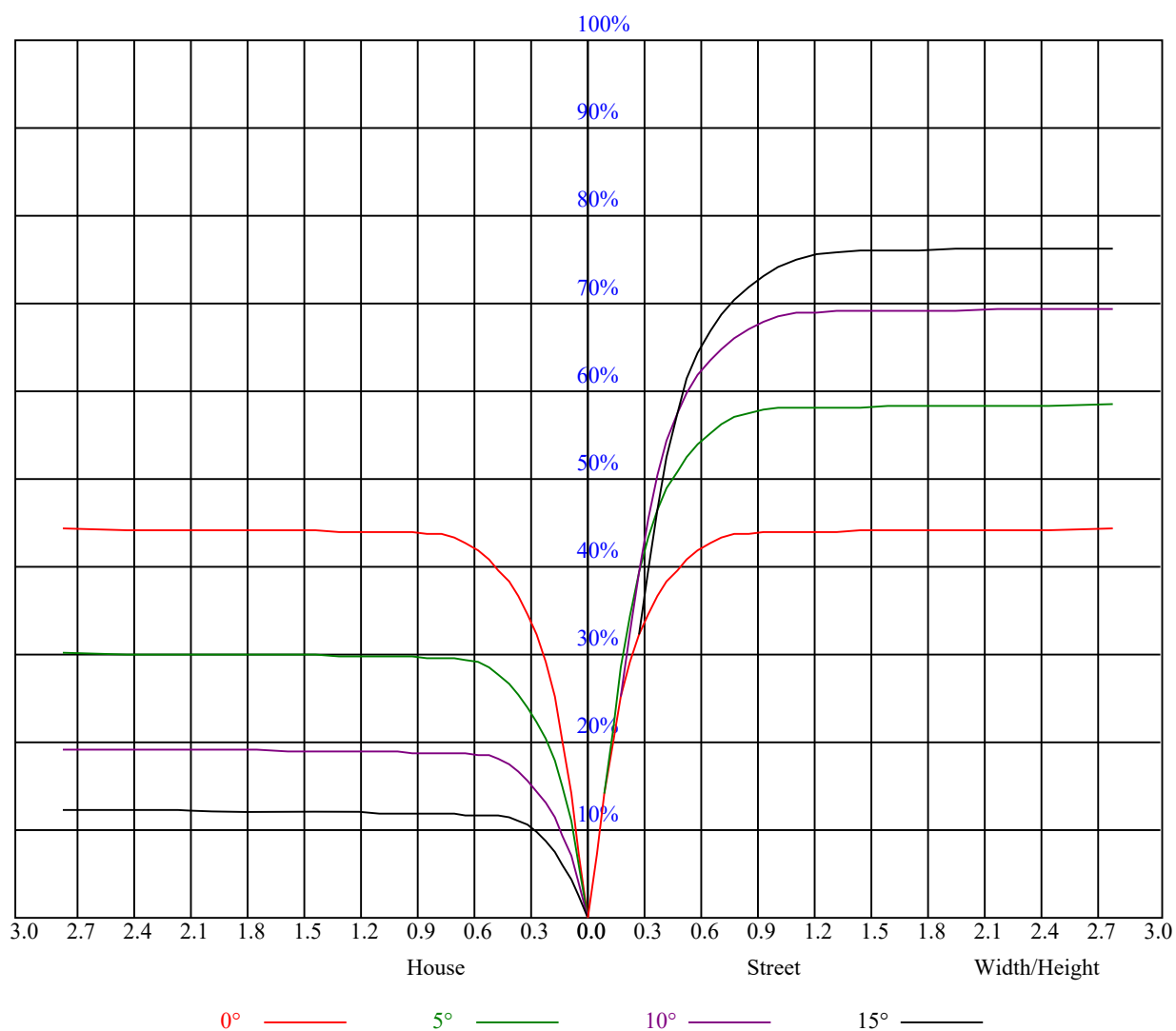
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





RHOC	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	1.06	1.06	1.06	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	1.00	0.98	0.96	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85
2	0.94	0.91	0.89	0.93	0.90	0.88	0.90	0.88	0.86	0.88	0.86	0.84	0.85	0.84	0.82	0.81
3	0.90	0.86	0.83	0.89	0.85	0.83	0.86	0.84	0.81	0.84	0.82	0.80	0.82	0.80	0.79	0.78
4	0.86	0.82	0.79	0.85	0.81	0.78	0.83	0.80	0.77	0.81	0.78	0.76	0.80	0.77	0.75	0.74
5	0.82	0.78	0.75	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.75	0.73	0.77	0.74	0.72	0.71
6	0.78	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.75	0.72	0.70	0.74	0.72	0.70	0.69
7	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
8	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
9	0.70	0.66	0.63	0.70	0.66	0.63	0.69	0.65	0.63	0.68	0.65	0.63	0.68	0.65	0.63	0.62
10	0.68	0.64	0.61	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.66	0.63	0.61	0.60



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	10423.28	10599.46	10541.65	10298.85	9868.86	9334.26	8810.13	8176.98	7581.27
45.0	10530.64	10437.04	10137.53	9747.74	9221.95	8700.01	8067.41	7386.92	6771.39
90.0	10430.99	10154.05	9771.41	9182.86	8655.97	8093.29	7413.34	6693.21	6036.93
135.0	10543.30	10256.46	9826.47	9361.24	8777.64	8219.37	7548.78	6829.20	6175.13
180.0	10423.28	10112.21	9702.04	9096.97	8557.97	7986.48	7230.01	6594.11	5938.93
225.0	10530.64	10413.37	10135.33	9647.53	9179.55	8650.46	7931.98	7343.42	6739.45
270.0	10430.99	10562.57	10465.12	10200.85	9763.70	9227.45	8704.42	8073.47	7483.27
315.0	10543.30	10629.19	10526.78	10173.32	9765.35	9280.86	8610.82	8046.49	7444.73
360.0	10423.28	10599.46	10541.65	10298.85	9868.86	9334.26	8810.13	8176.98	7581.27

C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6889.21	6191.64	5567.85	4944.62	4195.85	3646.39	3159.69	2633.90	2290.35
45.0	6063.91	5352.58	4738.15	4146.30	3480.12	3024.80	2636.10	2309.07	1974.87
90.0	5306.34	4613.73	4035.08	3446.53	2989.56	2555.17	2193.45	1928.63	1708.95
135.0	5445.08	4733.20	4133.08	3581.97	2984.61	2585.45	2249.60	1939.64	1691.88
180.0	5130.16	4519.58	3950.85	3316.05	2926.80	2502.86	2116.92	1896.14	1686.93
225.0	6042.99	5343.22	4728.24	4069.22	3476.81	3020.94	2588.75	2258.41	1954.50
270.0	6798.91	6098.05	5463.80	4836.70	4095.65	3558.85	3080.41	2563.98	2223.73
315.0	6740.56	6021.52	5375.16	4661.63	3993.79	3461.95	2941.11	2539.75	2163.72
360.0	6889.21	6191.64	5567.85	4944.62	4195.85	3646.39	3159.69	2633.90	2290.35

C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2013.96	1761.25	1561.40	1416.05	1280.61	1166.65	1080.21	997.62	936.51
45.0	1744.19	1578.47	1405.59	1288.87	1185.36	1088.47	1004.78	940.91	885.86
90.0	1490.93	1351.08	1234.92	1090.23	1032.58	967.45	905.57	867.85	843.96
135.0	1505.24	1351.08	1221.70	1125.90	1037.81	971.75	916.14	873.75	846.77
180.0	1457.34	1338.97	1226.11	1094.47	1027.79	964.64	913.61	862.68	835.98
225.0	1718.31	1548.19	1406.14	1258.59	1089.68	1069.47	980.50	924.07	877.54
270.0	1948.45	1726.57	1508.55	1369.25	1254.74	1134.16	1052.13	982.76	921.09
315.0	1869.16	1660.50	1491.48	1321.90	1212.34	1092.04	1013.53	950.00	901.05
360.0	2013.96	1761.25	1561.40	1416.05	1280.61	1166.65	1080.21	997.62	936.51

C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	880.90	845.67	824.74	808.78	790.06	776.30	751.52	676.09	596.26
45.0	854.48	831.35	812.08	797.77	777.40	730.60	663.98	589.10	464.68
90.0	823.92	807.84	791.49	776.08	744.42	674.28	579.41	487.14	392.28
135.0	828.05	809.88	795.01	782.35	752.07	695.91	622.69	530.74	411.27
180.0	816.10	797.93	781.03	767.65	730.60	654.40	572.75	470.07	373.61
225.0	838.07	816.16	798.65	778.99	766.50	726.69	644.99	571.49	465.78
270.0	870.99	839.61	815.39	798.87	780.15	766.39	745.46	687.10	597.36
315.0	861.63	827.28	807.95	790.55	776.46	762.26	739.79	678.18	590.04
360.0	880.90	845.67	824.74	808.78	790.06	776.30	751.52	676.09	596.26

C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	505.97	395.30	285.74	228.92	105.98	51.09	29.29	26.10	22.02
45.0	363.92	278.59	166.27	84.79	41.68	26.92	23.29	19.82	17.40
90.0	274.84	185.15	106.75	46.74	26.43	23.45	19.55	16.52	15.20
135.0	313.27	280.79	129.27	59.41	30.34	24.78	20.92	17.78	16.24
180.0	267.02	170.23	97.67	45.04	27.14	23.95	20.15	17.29	15.47
225.0	342.73	260.91	175.74	79.45	42.23	28.08	24.11	19.43	16.79
270.0	507.07	412.92	293.45	281.89	116.39	54.07	29.57	25.99	21.47
315.0	485.05	388.42	293.07	190.83	106.64	53.57	30.39	25.27	21.47
360.0	505.97	395.30	285.74	228.92	105.98	51.09	29.29	26.10	22.02

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	18.55	16.74	15.53	15.09	14.59	14.15	13.82	13.49	13.16
45.0	16.19	14.92	14.42	14.04	13.71	13.32	13.10	12.83	12.50
90.0	14.42	13.98	13.60	13.27	12.94	12.66	12.39	12.11	11.89
135.0	14.65	14.15	13.76	13.43	13.10	12.83	12.55	12.33	12.00
180.0	14.76	14.31	13.87	13.54	13.21	12.94	12.66	12.39	12.11
225.0	15.25	14.59	14.20	13.76	13.38	13.05	12.72	12.50	12.22
270.0	17.89	16.57	15.09	14.53	14.09	13.65	13.38	13.10	12.77
315.0	18.22	15.91	14.98	14.53	14.09	13.65	13.38	13.05	12.77
360.0	18.55	16.74	15.53	15.09	14.59	14.15	13.82	13.49	13.16
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	12.88	12.61	12.22	12.06	11.84	11.67	11.51	11.40	11.29
45.0	12.22	11.95	11.73	11.62	11.40	11.29	11.12	11.01	10.96
90.0	11.67	11.51	11.40	11.23	11.12	11.01	10.90	10.79	10.74
135.0	11.78	11.67	11.45	11.34	11.23	11.12	11.01	10.96	10.85
180.0	11.89	11.67	11.56	11.40	11.29	11.18	11.07	10.96	10.90
225.0	11.95	11.73	11.56	11.40	11.23	11.12	11.01	10.90	10.85
270.0	12.50	12.28	11.89	11.67	11.56	11.34	11.23	11.07	11.01
315.0	12.50	12.22	11.95	11.73	11.56	11.40	11.29	11.18	11.07
360.0	12.88	12.61	12.22	12.06	11.84	11.67	11.51	11.40	11.29
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	11.18	11.07	10.96	10.85	10.79	10.68	10.63	10.57	10.52
45.0	10.85	10.74	10.68	10.63	10.52	10.46	10.46	10.41	10.35
90.0	10.68	10.63	10.52	10.52	10.41	10.35	10.30	10.30	10.24
135.0	10.74	10.68	10.57	10.52	10.52	10.46	10.41	10.35	10.30
180.0	10.79	10.74	10.68	10.57	10.57	10.46	10.46	10.41	10.35
225.0	10.79	10.68	10.63	10.57	10.52	10.46	10.41	10.35	10.30
270.0	10.90	10.85	10.74	10.68	10.57	10.52	10.46	10.41	10.35
315.0	10.96	10.90	10.79	10.74	10.68	10.57	10.57	10.46	10.41
360.0	11.18	11.07	10.96	10.85	10.79	10.68	10.63	10.57	10.52
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.46	10.46	10.41	10.35	10.30	10.30	10.24	10.19	10.19
45.0	10.30	10.24	10.24	10.19	10.13	10.08	10.08	10.02	10.02
90.0	10.19	10.13	10.13	10.13	10.08	10.08	10.02	10.02	9.97
135.0	10.24	10.24	10.19	10.19	10.13	10.13	10.08	10.02	10.02
180.0	10.30	10.30	10.24	10.24	10.19	10.13	10.13	10.08	10.08
225.0	10.24	10.19	10.19	10.13	10.08	10.08	10.08	10.02	10.02
270.0	10.35	10.30	10.24	10.19	10.19	10.13	10.13	10.08	10.08
315.0	10.35	10.35	10.30	10.24	10.19	10.19	10.19	10.13	10.13
360.0	10.46	10.46	10.41	10.35	10.30	10.30	10.24	10.19	10.19
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.13	10.13	10.08	10.08	10.08	10.08	10.02	10.02	9.97
45.0	9.97	9.97	9.97	9.97	9.91	9.91	9.91	9.86	9.86
90.0	9.97	9.97	9.97	9.91	9.91	9.91	9.86	9.86	9.86
135.0	10.02	10.02	9.97	9.97	9.97	9.97	9.91	9.91	9.91
180.0	10.08	10.02	10.02	10.02	10.02	9.97	9.91	9.97	9.91
225.0	10.02	9.97	9.97	9.97	9.97	9.91	9.91	9.86	9.86
270.0	10.02	10.02	10.02	9.97	9.97	9.91	9.91	9.91	9.86
315.0	10.13	10.08	10.08	10.02	10.02	10.02	9.97	9.91	9.91
360.0	10.13	10.13	10.08	10.08	10.08	10.08	10.02	10.02	9.97

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	9.97
45.0	9.86
90.0	9.86
135.0	9.91
180.0	9.91
225.0	9.86
270.0	9.86
315.0	9.91
360.0	9.97