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Nata

LumCAT: 4-2275-M	
Luminaire: 92.70.135.00	
Report No: NATA0100	Voltage(V): 34.0000
Test No: GC2018070413	Current(A): 0.5000
LampCAT: NICHIA NFCWD096B-V3	Power (W): 17.0000
Lamp flux(lm): 2202.0	PF: 1.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 100	Width(mm): 100
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1984.87
Efficiency(%): 90.14%
Lumens(lm)/Power(W): 117.31
Central intensity(cd): 10212.410
Maximum intensity(cd): 10212.410
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=19.6
[C90/270]Total=19.6
Field angle(10%Imax): [C0/180]Total=39.4
[C90/270]Total=39.4
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
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(%): 90.57%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.230%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10212.412	9.773	9.773	.444%	.492%
2.0	9979.730	76.384	86.157	3.469%	4.341%
4.0	9299.921	142.275	228.432	6.461%	11.509%
6.0	8127.839	186.327	414.759	8.462%	20.896%
8.0	6640.559	202.687	617.445	9.205%	31.108%
10.0	4958.930	188.853	806.298	8.576%	40.622%
12.0	3529.253	160.926	967.224	7.308%	48.730%
14.0	2391.237	126.871	1094.096	5.762%	55.122%
16.0	1699.798	102.754	1196.85	4.666%	60.299%
18.0	1236.980	83.832	1280.682	3.807%	64.522%
20.0	984.436	73.842	1354.524	3.353%	68.243%
22.0	830.897	68.263	1422.788	3.100%	71.682%
24.0	761.306	67.911	1490.698	3.084%	75.103%
26.0	725.368	69.737	1560.436	3.167%	78.617%
28.0	699.966	72.070	1632.505	3.273%	82.248%
30.0	677.524	74.295	1706.8	3.374%	85.991%
32.0	655.818	76.218	1783.018	3.461%	89.831%
34.0	594.754	72.940	1855.958	3.312%	93.505%
36.0	405.800	52.311	1908.269	2.376%	96.141%
38.0	214.059	28.903	1937.172	1.313%	97.597%
40.0	36.798	5.188	1942.36	.236%	97.858%
42.0	15.987	2.346	1944.706	.107%	97.977%
44.0	10.702	1.630	1946.336	.074%	98.059%
46.0	9.766	1.541	1947.877	.070%	98.136%
48.0	9.490	1.547	1949.424	.070%	98.214%
50.0	9.277	1.559	1950.982	.071%	98.293%
52.0	9.112	1.575	1952.557	.072%	98.372%
54.0	8.974	1.592	1954.149	.072%	98.452%
56.0	8.864	1.612	1955.761	.073%	98.534%
58.0	8.775	1.632	1957.393	.074%	98.616%
60.0	8.713	1.655	1959.048	.075%	98.699%
62.0	8.658	1.676	1960.724	.076%	98.784%
64.0	8.609	1.697	1962.421	.077%	98.869%
66.0	8.582	1.719	1964.141	.078%	98.956%
68.0	8.534	1.735	1965.876	.079%	99.043%
70.0	8.506	1.753	1967.629	.080%	99.131%
72.0	8.486	1.770	1969.399	.080%	99.221%
74.0	8.472	1.786	1971.185	.081%	99.311%

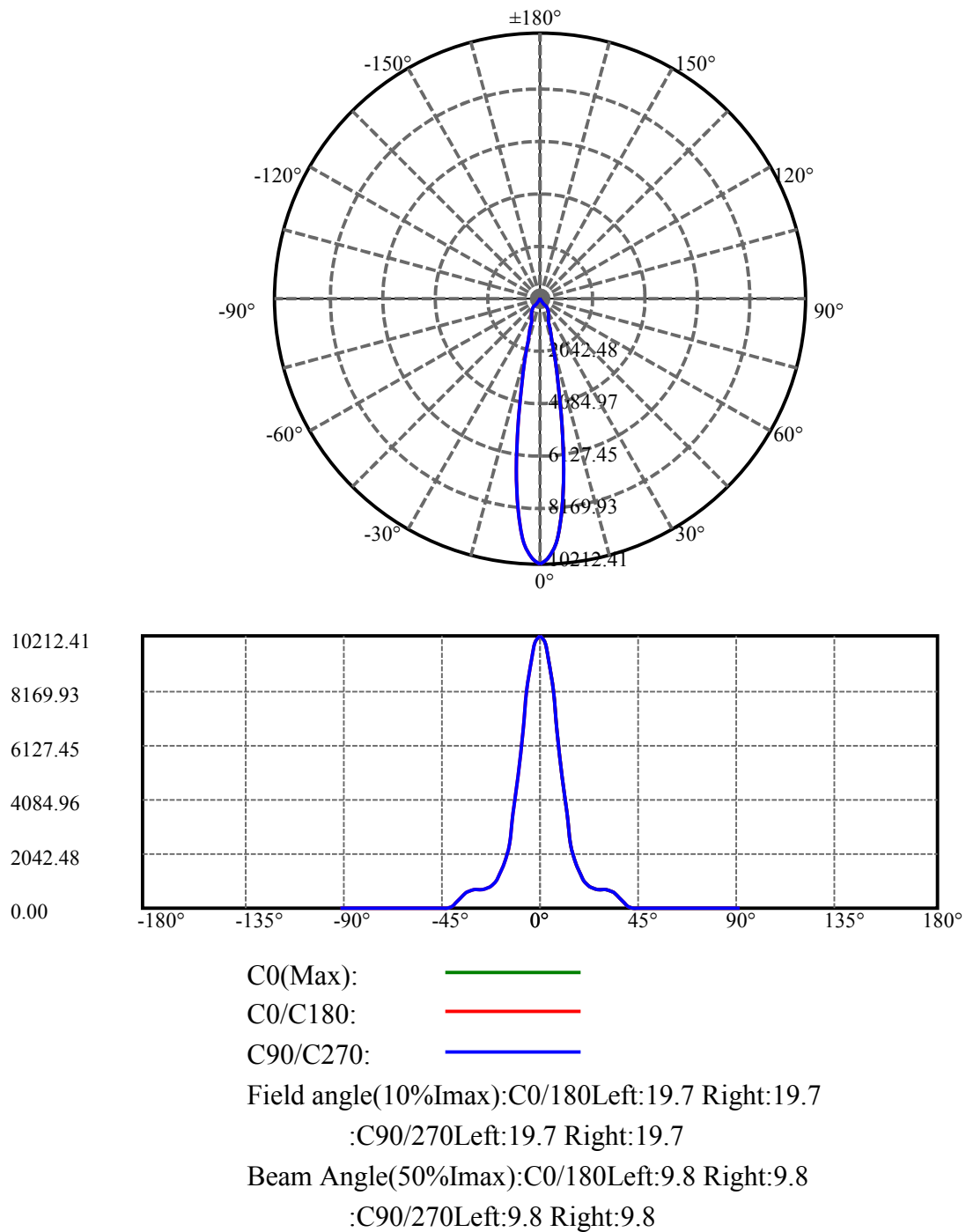
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.451	1.798	1972.983	.082%	99.401%
78.0	8.437	1.810	1974.793	.082%	99.492%
80.0	8.424	1.819	1976.613	.083%	99.584%
82.0	8.417	1.828	1978.44	.083%	99.676%
84.0	8.424	1.837	1980.278	.083%	99.769%
86.0	8.403	1.838	1982.116	.083%	99.861%
88.0	8.369	1.834	1983.95	.083%	99.954%
90.0	8.375	0.918	1984.869	.042%	100.000%

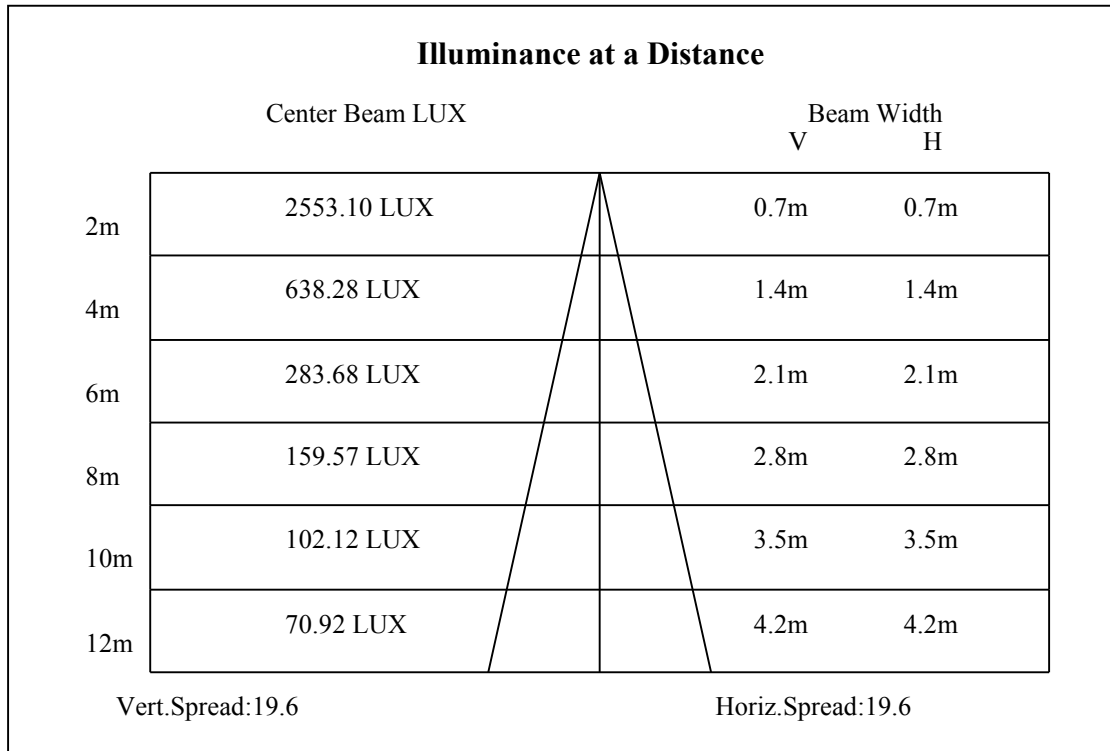
ZONAL LUMEN SUMMARY

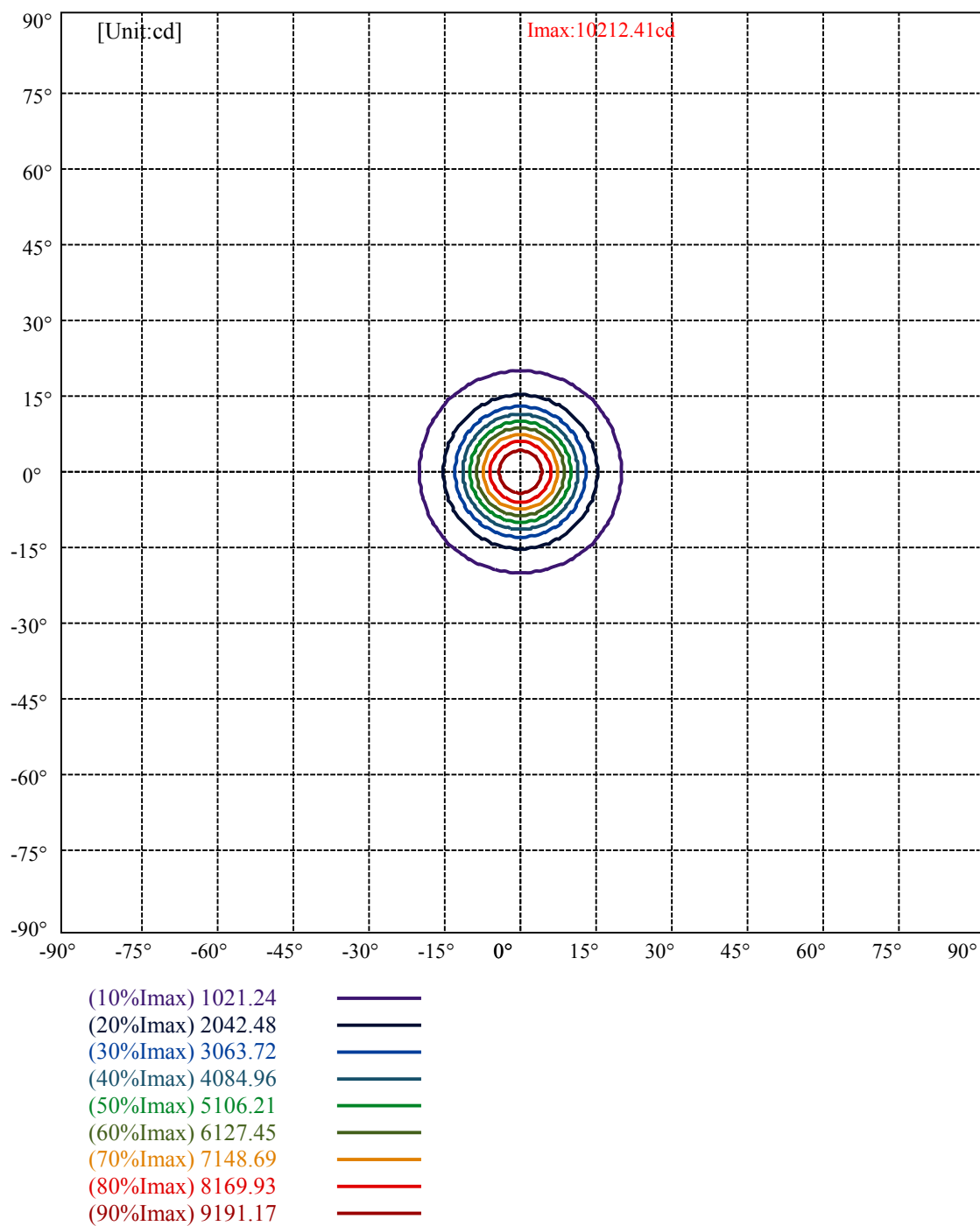
Zone	Lumens	%Lamp	%Fixt
0-30	1706.80	77.51%	85.99%
0-40	1942.36	88.21%	97.86%
0-60	1959.05	88.97%	98.70%
0-90	1983.95	90.10%	99.95%
0-120	1983.95	90.10%	99.95%
0-180	1984.87	90.14%	100.00%
60-90	26.56	1.21%	1.34%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.76	1587.90	72.11%	80.00%

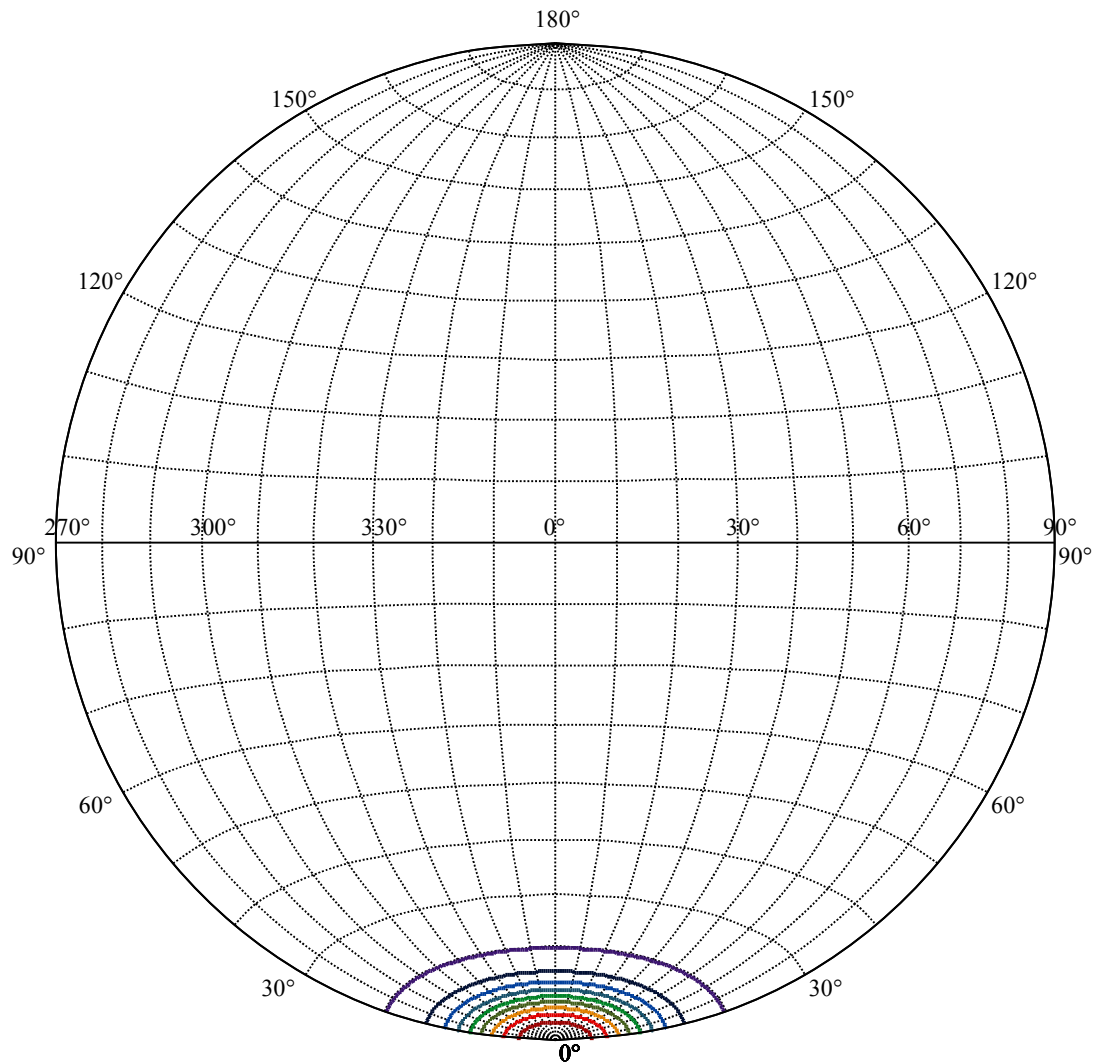
ZONAL LUMEN SUMMARY

0-10	806.30
10-20	548.23
20-30	352.28
30-40	235.56
40-50	8.62
50-60	8.07
60-70	8.58
70-80	8.98
80-90	7.34
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









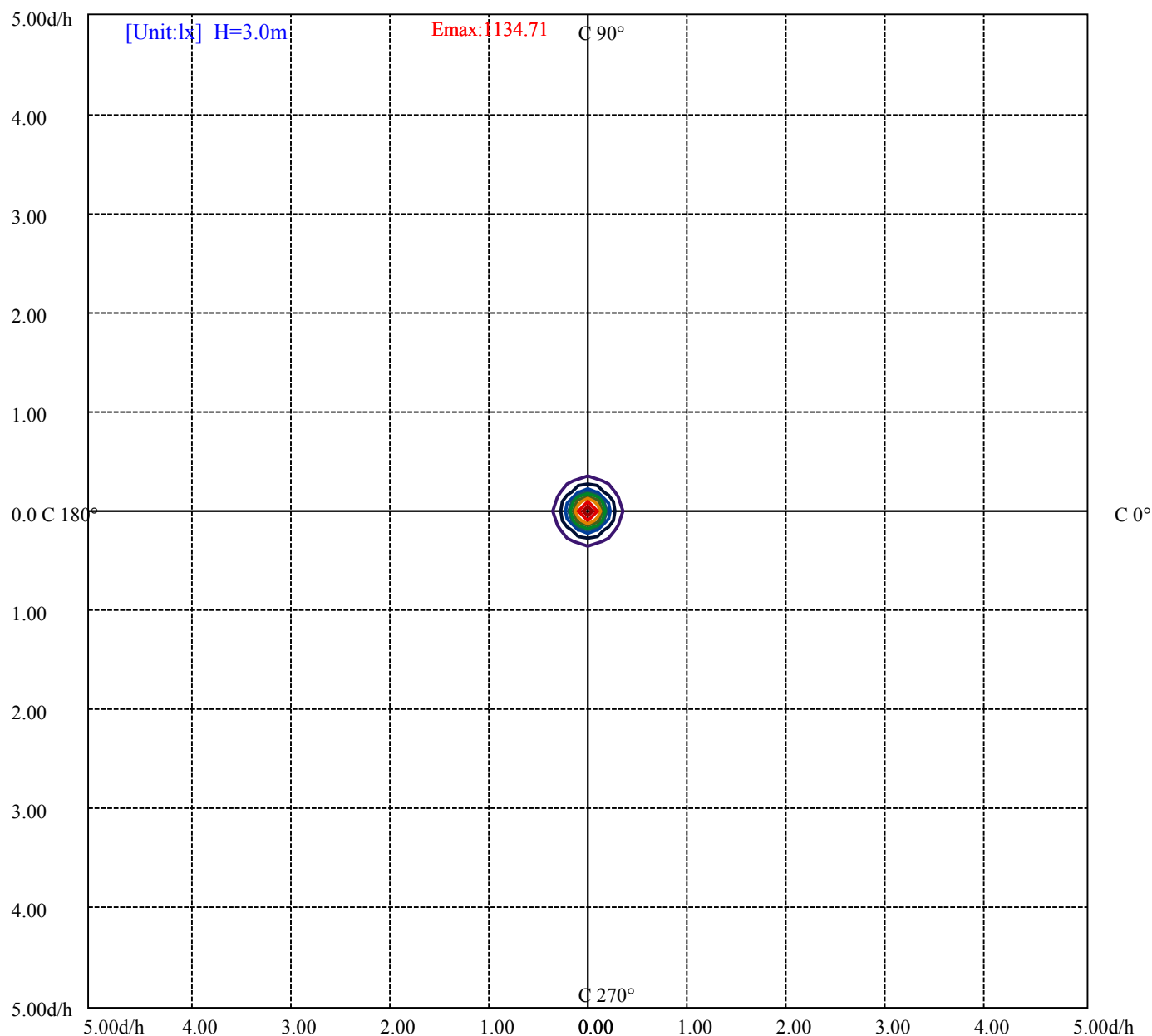
House

[Unit:cd]

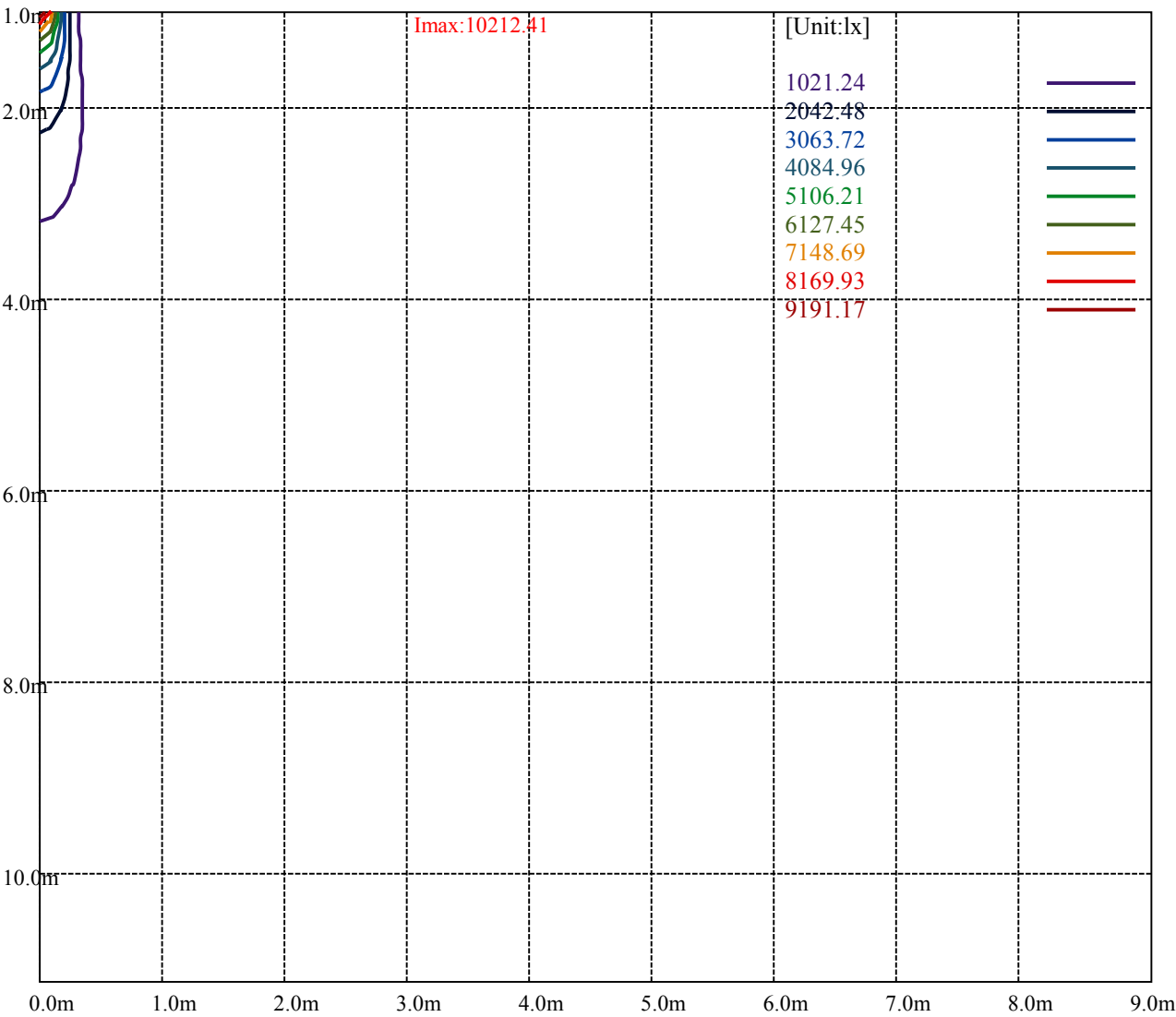
Road

Imax:10212.41

(10%Imax)	1021.24	—
(20%Imax)	2042.48	—
(30%Imax)	3063.72	—
(40%Imax)	4084.96	—
(50%Imax)	5106.21	—
(60%Imax)	6127.45	—
(70%Imax)	7148.69	—
(80%Imax)	8169.93	—
(90%Imax)	9191.17	—



(10%Emax)	113.4711	—
(20%Emax)	226.9422	—
(30%Emax)	340.4133	—
(40%Emax)	453.8844	—
(50%Emax)	567.3556	—
(60%Emax)	680.8267	—
(70%Emax)	794.2978	—
(80%Emax)	907.7689	—
(90%Emax)	1021.24	—



Luminance Table

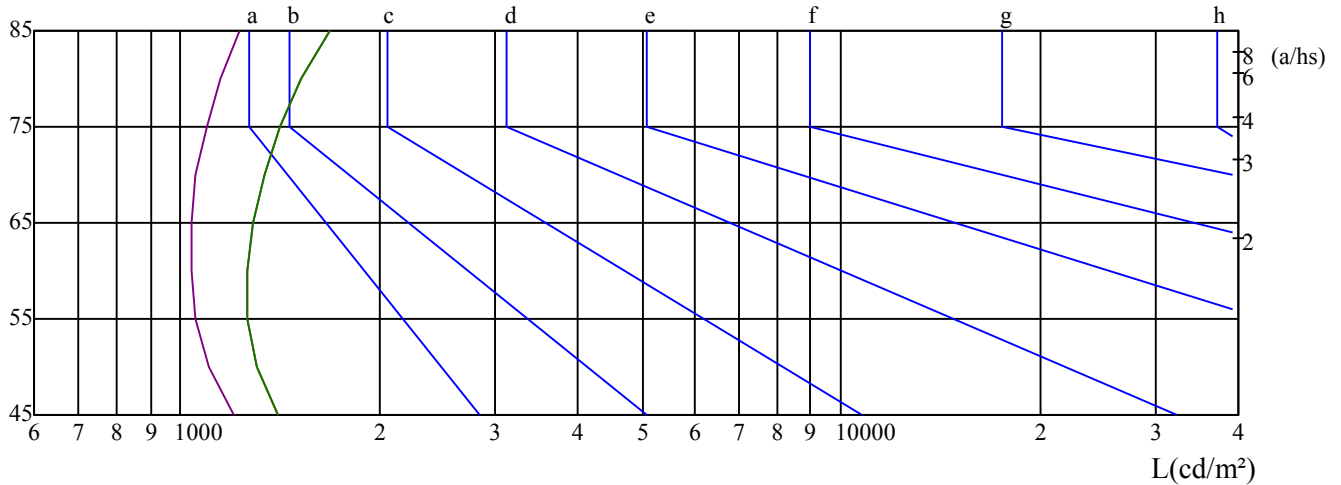
γ	45	50	55	60	65	70	75	80	85
C0	1400	1302	1265	1265	1290	1337	1418	1525	1678
C45	1203	1102	1054	1037	1039	1056	1096	1150	1229
C90	1400	1302	1265	1265	1290	1337	1418	1525	1678

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
3102	3102	3102	4884	4884	4884	14235	14235	14235

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

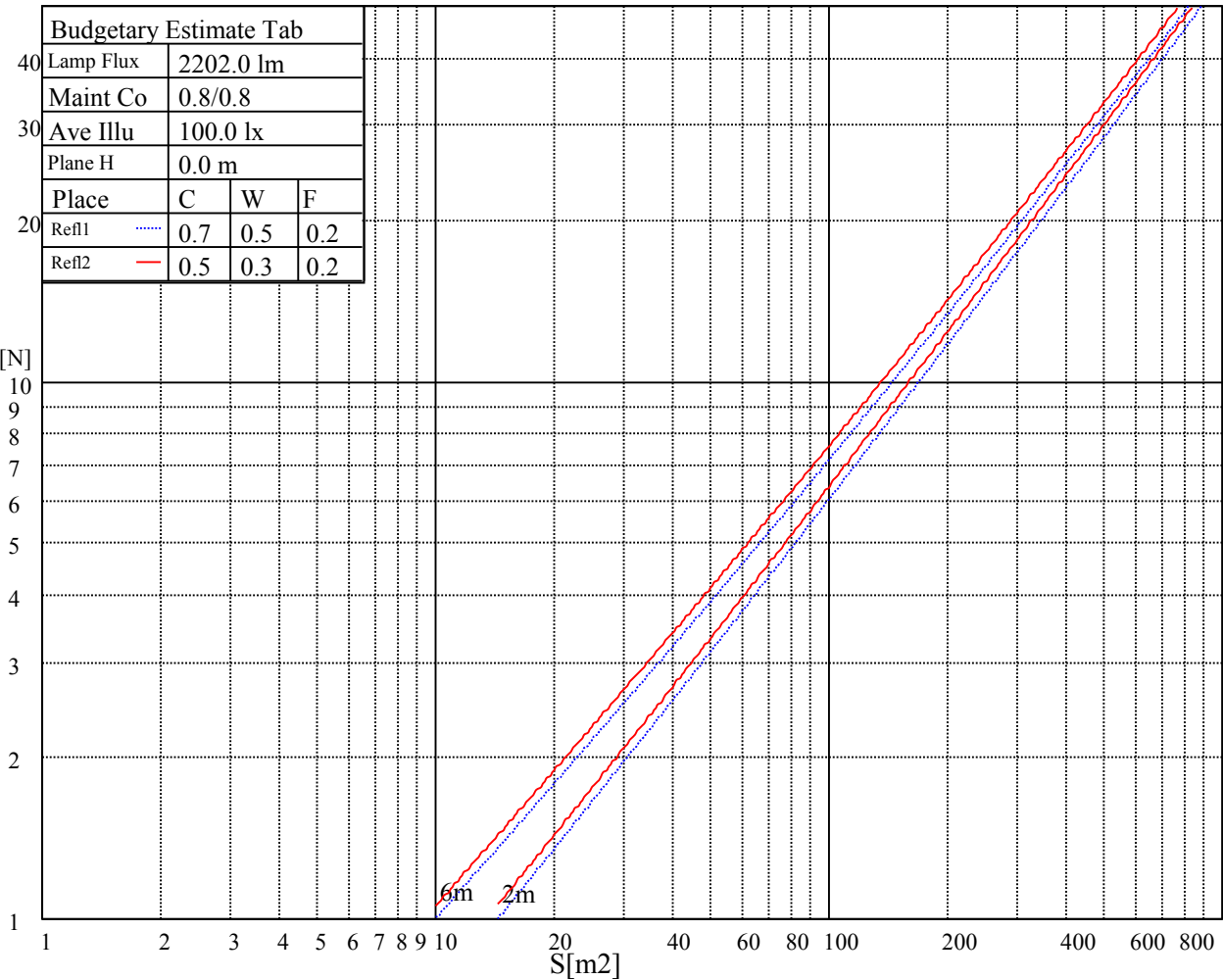
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

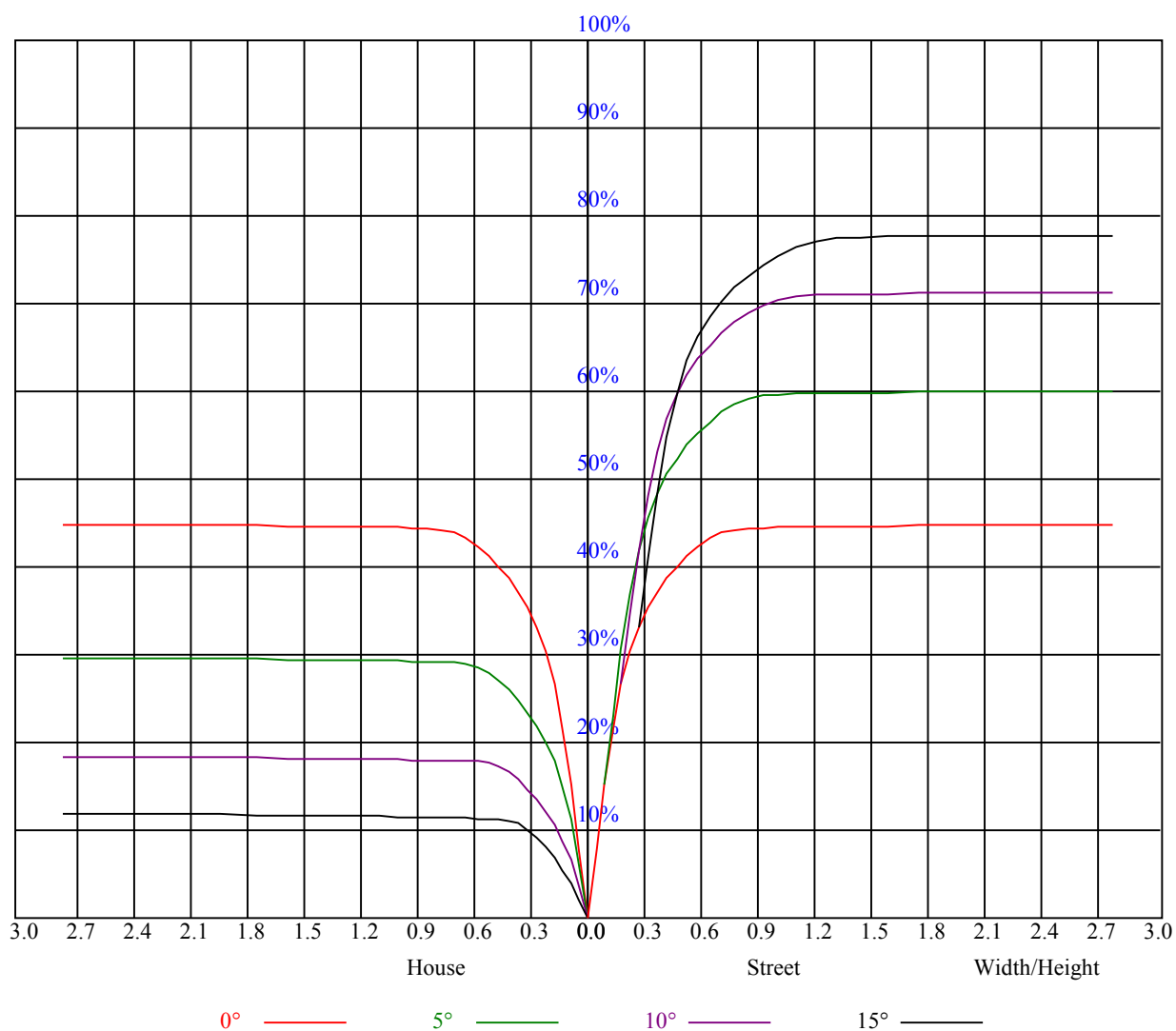
C0 ———

C45 ———

C90 ———



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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.92	0.92	0.92	0.91
1	1.01	0.99	0.97	0.99	0.97	0.96	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86
2	0.96	0.93	0.90	0.94	0.92	0.89	0.92	0.89	0.87	0.89	0.87	0.86	0.86	0.85	0.84	0.82
3	0.91	0.88	0.85	0.90	0.87	0.84	0.88	0.85	0.83	0.86	0.84	0.82	0.84	0.82	0.80	0.79
4	0.88	0.84	0.81	0.87	0.83	0.80	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
5	0.84	0.80	0.77	0.83	0.79	0.77	0.82	0.79	0.76	0.80	0.78	0.75	0.79	0.77	0.75	0.74
6	0.81	0.77	0.74	0.80	0.76	0.74	0.79	0.76	0.73	0.78	0.75	0.73	0.77	0.74	0.72	0.71
7	0.78	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
8	0.76	0.72	0.69	0.75	0.71	0.69	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.67
9	0.73	0.69	0.67	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
10	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.63



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	10214.06	9850.14	9072.19	7868.66	6305.61	4613.73	3276.41	2209.96	1590.58
45.0	10226.73	9981.73	9400.33	8249.65	6791.76	5172.55	3672.26	2467.63	1800.34
90.0	10215.72	9933.28	9174.60	7980.98	6520.33	4804.22	3407.44	2363.02	1701.79
135.0	10193.14	10107.25	9541.82	8603.11	7111.08	5482.52	3943.14	2697.21	1860.36
180.0	10214.06	10125.97	9542.93	8546.40	7076.40	5299.73	3872.12	2595.36	1813.01
225.0	10226.73	9966.31	9297.37	8057.50	6505.46	4845.51	3404.14	2279.89	1647.29
270.0	10215.72	10043.39	9406.94	8217.17	6729.54	5082.26	3590.23	2423.58	1685.83
315.0	10193.14	9829.77	8963.18	7499.23	6084.28	4370.93	3068.29	2093.24	1499.19
360.0	10214.06	9850.14	9072.19	7868.66	6305.61	4613.73	3276.41	2209.96	1590.58

C/γ(°)	18.0	20.0	22.0	24.0	26.0	28.0	30.0	32.0	34.0
0.0	1203.53	955.23	820.34	760.33	725.64	701.97	681.05	659.58	573.69
45.0	1316.95	1032.31	855.58	769.69	733.90	708.58	684.90	660.13	612.23
90.0	1252.53	1005.38	836.36	762.92	726.85	701.25	674.17	653.63	588.61
135.0	1379.16	1051.03	867.14	779.05	734.45	706.37	682.15	660.68	628.19
180.0	1307.04	995.92	832.56	763.25	724.05	697.18	675.71	653.79	617.57
225.0	1093.14	952.04	809.66	748.16	716.45	690.35	669.43	649.78	582.94
270.0	1258.59	966.79	829.70	758.13	725.09	699.77	679.40	658.47	616.08
315.0	1084.89	916.80	795.84	748.93	716.50	694.26	673.39	650.49	538.73
360.0	1203.53	955.23	820.34	760.33	725.64	701.97	681.05	659.58	573.69

C/γ(°)	36.0	38.0	40.0	42.0	44.0	46.0	48.0	50.0	52.0
0.0	368.33	147.17	21.91	14.37	10.13	9.69	9.47	9.19	9.03
45.0	414.02	280.79	37.82	16.30	10.52	9.74	9.47	9.30	9.14
90.0	385.17	183.61	29.29	15.80	10.35	9.74	9.47	9.30	9.14
135.0	482.84	278.59	68.27	18.11	12.00	9.80	9.52	9.30	9.19
180.0	450.80	238.28	51.53	17.67	10.90	9.69	9.47	9.25	9.08
225.0	380.05	179.54	28.85	15.53	10.85	9.80	9.47	9.25	9.08
270.0	427.79	281.89	36.83	16.41	10.79	9.97	9.63	9.41	9.19
315.0	337.39	122.61	19.88	13.71	10.08	9.69	9.41	9.19	9.03
360.0	368.33	147.17	21.91	14.37	10.13	9.69	9.47	9.19	9.03

C/γ(°)	54.0	56.0	58.0	60.0	62.0	64.0	66.0	68.0	70.0
0.0	8.92	8.81	8.75	8.70	8.64	8.59	8.59	8.53	8.48
45.0	8.97	8.92	8.81	8.75	8.70	8.64	8.59	8.59	8.53
90.0	8.97	8.86	8.81	8.75	8.64	8.59	8.59	8.53	8.48
135.0	9.03	8.92	8.81	8.75	8.70	8.64	8.59	8.53	8.53
180.0	8.97	8.86	8.75	8.64	8.64	8.59	8.59	8.53	8.48
225.0	8.97	8.81	8.75	8.70	8.64	8.59	8.59	8.53	8.53
270.0	9.03	8.92	8.81	8.75	8.70	8.64	8.59	8.53	8.53
315.0	8.92	8.81	8.70	8.64	8.59	8.59	8.53	8.48	8.48
360.0	8.92	8.81	8.75	8.70	8.64	8.59	8.59	8.53	8.48

C/γ(°)	72.0	74.0	76.0	78.0	80.0	82.0	84.0	86.0	88.0
0.0	8.48	8.48	8.42	8.42	8.42	8.42	8.42	8.42	8.37
45.0	8.53	8.48	8.48	8.48	8.48	8.42	8.42	8.37	8.37
90.0	8.48	8.48	8.42	8.42	8.37	8.42	8.37	8.37	8.37
135.0	8.53	8.48	8.48	8.42	8.42	8.42	8.42	8.42	8.37
180.0	8.48	8.48	8.42	8.42	8.42	8.37	8.42	8.42	8.37
225.0	8.48	8.48	8.48	8.48	8.48	8.48	8.48	8.42	8.37
270.0	8.48	8.48	8.48	8.42	8.42	8.42	8.42	8.42	8.37
315.0	8.42	8.42	8.42	8.42	8.37	8.37	8.42	8.37	8.37
360.0	8.48	8.48	8.42	8.42	8.42	8.42	8.42	8.42	8.37

Intensity data(cd)

Appendix Page: 16 Total:16

C/ γ (°)	90.0
0.0	8.42
45.0	8.37
90.0	8.37
135.0	8.37
180.0	8.37
225.0	8.37
270.0	8.37
315.0	8.37
360.0	8.42