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Nata

LumCAT: 1-0919-M
Luminaire: 92.70.132.00
Report No: NATA0100
Test No: GC2019091815
LampCAT: LUMILEDS LUXEON 1203
Lamp flux(lm): 1342.0
Number of Lamps: 1
Length(mm): 39
Phm Type: C

Voltage(V): 35.5800
Current(A): 0.3000
Power (W): 10.7000
PF: 0.0000
Ballast type: DC
Width(mm): 39
Height(mm): 0

Photometric Results

Lumens(lm): 1059.39
Efficiency(%): 78.94%
Lumens(lm)/Power(W): 99.01
Central intensity(cd): 5668.172
Maximum intensity(cd): 5668.172
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=24.0
[C90/270]Total=24.0
Field angle(10%Imax): [C0/180]Total=41.9
[C90/270]Total=41.9
Maximum s/h(1/2): C0_180=0.41 C90_270=0.41
Maximum s/h(1/4): C0_180=0.40 C90_270=0.40
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 78.94%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.518%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5668.172	0.000	0	.000%	.000%
1.0	5635.477	5.409	5.409	.403%	.511%
2.0	5561.297	16.071	21.479	1.198%	2.028%
3.0	5432.555	26.294	47.773	1.959%	4.509%
4.0	5268.656	35.820	83.593	2.669%	7.891%
5.0	5076.422	44.504	128.097	3.316%	12.092%
6.0	4842.633	52.127	180.225	3.884%	17.012%
7.0	4553.508	58.322	238.546	4.346%	22.517%
8.0	4264.383	63.108	301.654	4.703%	28.474%
9.0	3923.297	66.357	368.011	4.945%	34.738%
10.0	3544.875	67.584	435.595	5.036%	41.118%
11.0	3198.023	67.375	502.971	5.021%	47.477%
12.0	2835.633	65.957	568.927	4.915%	53.703%
13.0	2464.313	62.897	631.824	4.687%	59.641%
14.0	2132.719	58.842	690.666	4.385%	65.195%
15.0	1832.977	54.443	745.108	4.057%	70.334%
16.0	1535.302	49.355	794.463	3.678%	74.993%
17.0	1297.280	44.111	838.574	3.287%	79.157%
18.0	1067.527	38.991	877.565	2.905%	82.837%
19.0	887.667	34.016	911.581	2.535%	86.048%
20.0	719.163	29.409	940.99	2.191%	88.824%
21.0	559.603	24.555	965.545	1.830%	91.142%
22.0	415.835	19.602	985.147	1.461%	92.992%
23.0	317.630	15.390	1000.537	1.147%	94.445%
24.0	202.542	11.373	1011.91	.847%	95.518%
25.0	123.124	7.405	1019.315	.552%	96.217%
26.0	66.459	4.475	1023.79	.333%	96.640%
27.0	35.395	2.492	1026.282	.186%	96.875%
28.0	19.603	1.392	1027.675	.104%	97.006%
29.0	14.020	0.880	1028.554	.066%	97.090%
30.0	11.644	0.693	1029.247	.052%	97.155%
31.0	10.252	0.609	1029.856	.045%	97.212%
32.0	9.471	0.565	1030.421	.042%	97.266%
33.0	8.888	0.541	1030.962	.040%	97.317%
34.0	8.332	0.521	1031.483	.039%	97.366%
35.0	7.903	0.504	1031.988	.038%	97.414%
36.0	7.509	0.491	1032.478	.037%	97.460%
37.0	7.193	0.480	1032.958	.036%	97.505%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	6.919	0.471	1033.429	.035%	97.550%
39.0	6.694	0.465	1033.894	.035%	97.594%
40.0	6.483	0.460	1034.353	.034%	97.637%
41.0	6.328	0.456	1034.809	.034%	97.680%
42.0	6.180	0.454	1035.264	.034%	97.723%
43.0	6.033	0.452	1035.716	.034%	97.766%
44.0	5.941	0.452	1036.168	.034%	97.808%
45.0	5.864	0.454	1036.622	.034%	97.851%
46.0	5.773	0.455	1037.077	.034%	97.894%
47.0	5.688	0.456	1037.533	.034%	97.937%
48.0	5.618	0.457	1037.99	.034%	97.980%
49.0	5.569	0.459	1038.449	.034%	98.024%
50.0	5.527	0.463	1038.912	.034%	98.067%
51.0	5.477	0.466	1039.377	.035%	98.111%
52.0	5.428	0.468	1039.845	.035%	98.155%
53.0	5.400	0.471	1040.316	.035%	98.200%
54.0	5.344	0.474	1040.79	.035%	98.245%
55.0	5.337	0.477	1041.267	.036%	98.290%
56.0	5.288	0.480	1041.747	.036%	98.335%
57.0	5.259	0.482	1042.229	.036%	98.380%
58.0	5.217	0.484	1042.713	.036%	98.426%
59.0	5.196	0.487	1043.2	.036%	98.472%
60.0	5.182	0.490	1043.691	.037%	98.518%
61.0	5.147	0.493	1044.183	.037%	98.565%
62.0	5.147	0.496	1044.679	.037%	98.612%
63.0	5.119	0.499	1045.179	.037%	98.659%
64.0	5.098	0.501	1045.68	.037%	98.706%
65.0	5.091	0.504	1046.184	.038%	98.754%
66.0	5.070	0.507	1046.691	.038%	98.802%
67.0	5.055	0.509	1047.2	.038%	98.850%
68.0	5.034	0.511	1047.711	.038%	98.898%
69.0	5.034	0.514	1048.225	.038%	98.946%
70.0	5.020	0.516	1048.741	.038%	98.995%
71.0	5.013	0.519	1049.26	.039%	99.044%
72.0	5.006	0.521	1049.781	.039%	99.093%
73.0	4.999	0.523	1050.304	.039%	99.143%
74.0	4.985	0.525	1050.829	.039%	99.192%
75.0	4.985	0.527	1051.356	.039%	99.242%

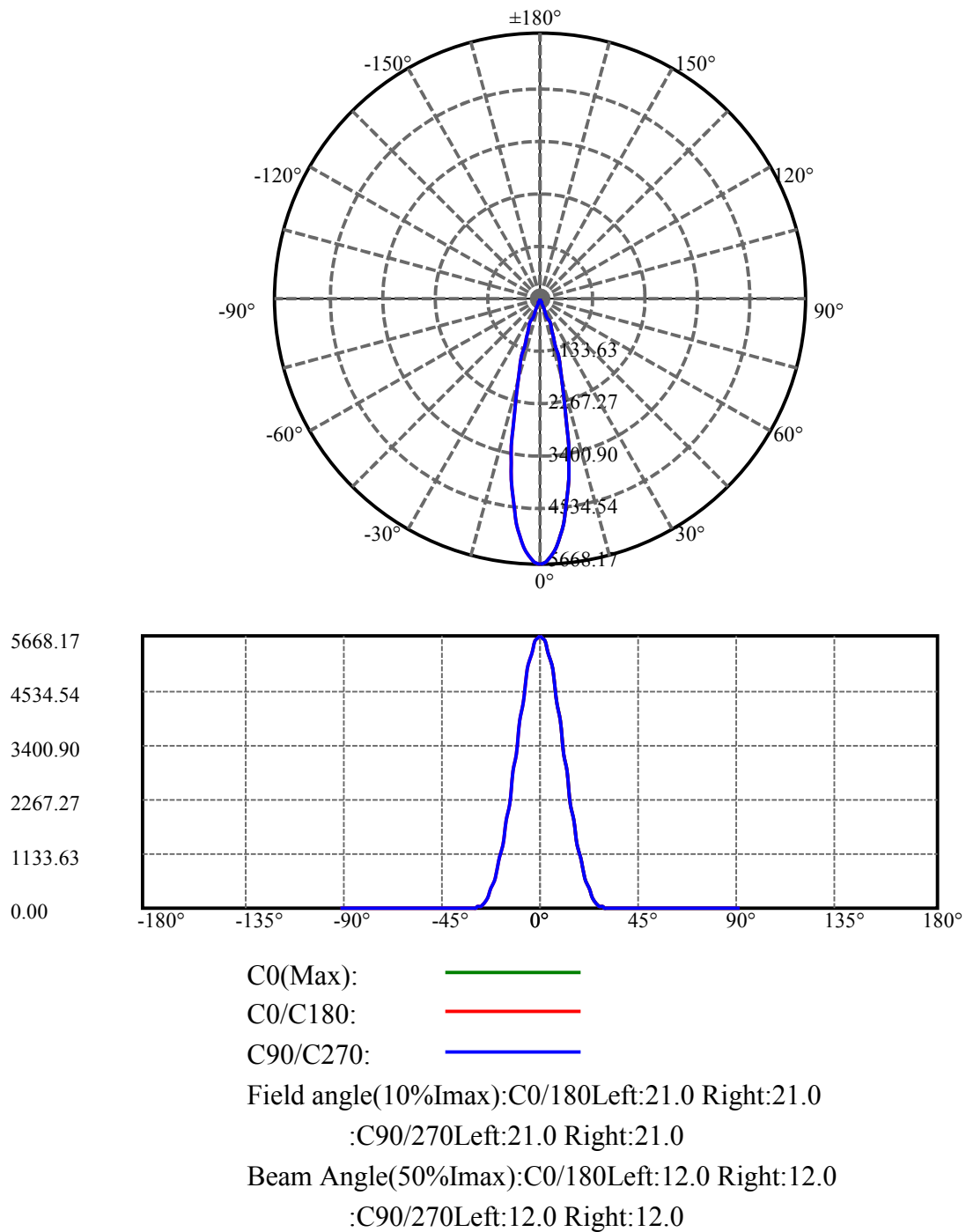
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.971	0.529	1051.884	.039%	99.292%
77.0	4.985	0.531	1052.415	.040%	99.342%
78.0	4.964	0.533	1052.948	.040%	99.392%
79.0	4.950	0.533	1053.481	.040%	99.442%
80.0	4.936	0.533	1054.014	.040%	99.493%
81.0	4.929	0.533	1054.547	.040%	99.543%
82.0	4.957	0.536	1055.083	.040%	99.594%
83.0	4.943	0.538	1055.621	.040%	99.645%
84.0	4.950	0.539	1056.16	.040%	99.695%
85.0	4.936	0.540	1056.7	.040%	99.746%
86.0	4.915	0.538	1057.238	.040%	99.797%
87.0	4.901	0.537	1057.775	.040%	99.848%
88.0	4.901	0.537	1058.312	.040%	99.899%
89.0	4.908	0.538	1058.85	.040%	99.949%
90.0	4.894	0.537	1059.387	.040%	100.000%

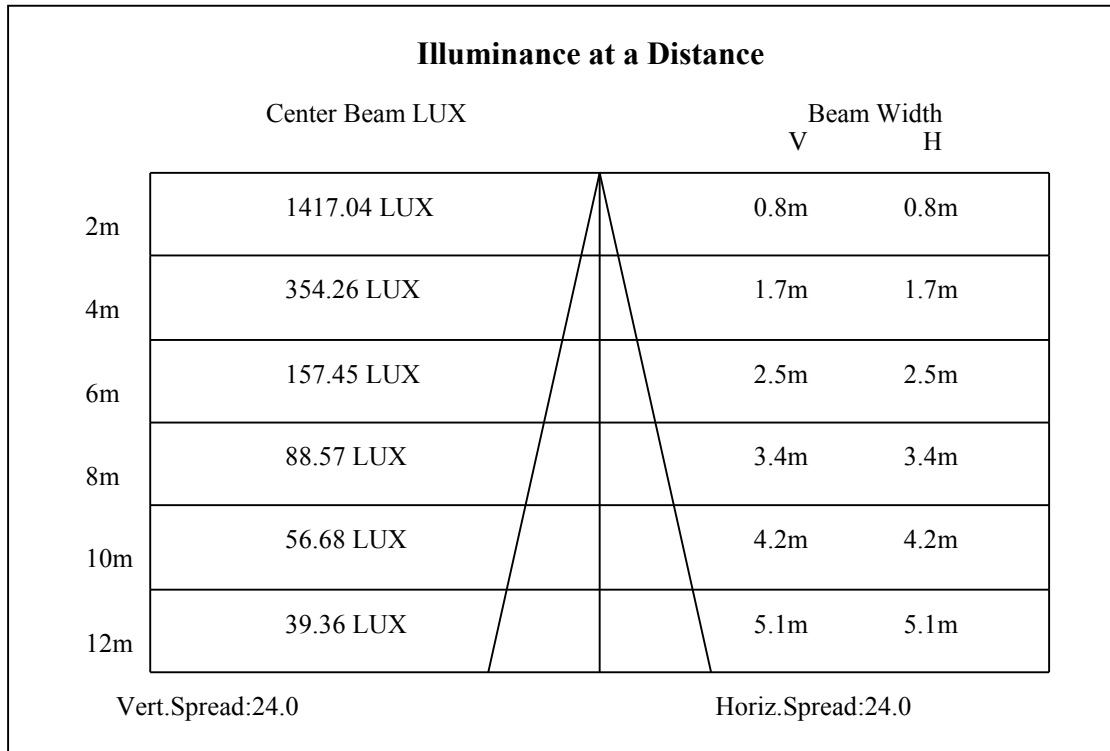
ZONAL LUMEN SUMMARY

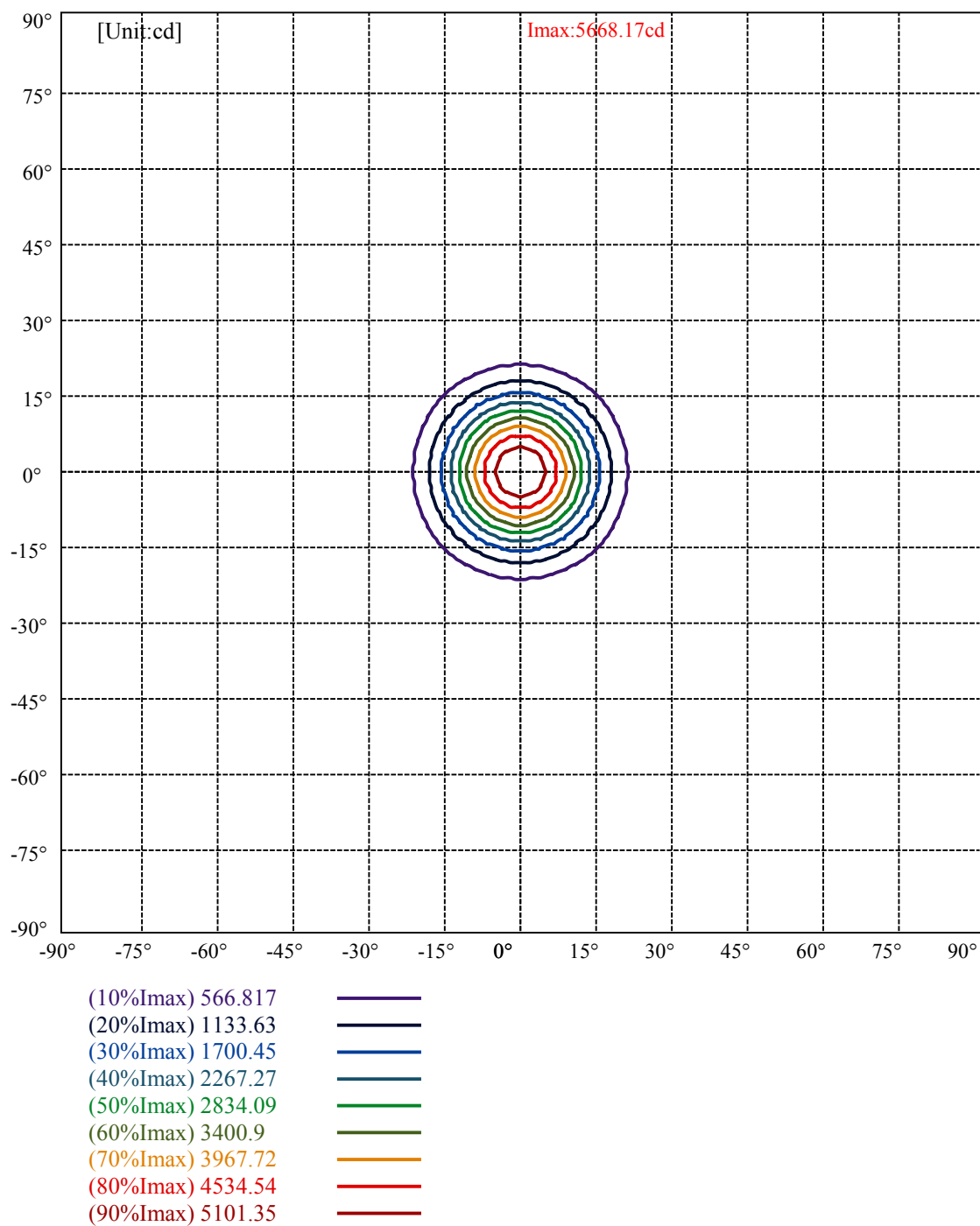
Zone	Lumens	%Lamp	%Fixt
0-30	1029.25	76.70%	97.15%
0-40	1034.35	77.08%	97.64%
0-60	1043.69	77.77%	98.52%
0-90	1058.85	78.90%	99.95%
0-120	1058.85	78.90%	99.95%
0-180	1059.39	78.94%	100.00%
60-90	15.65	1.17%	1.48%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-17.23	847.51	63.15%	80.00%

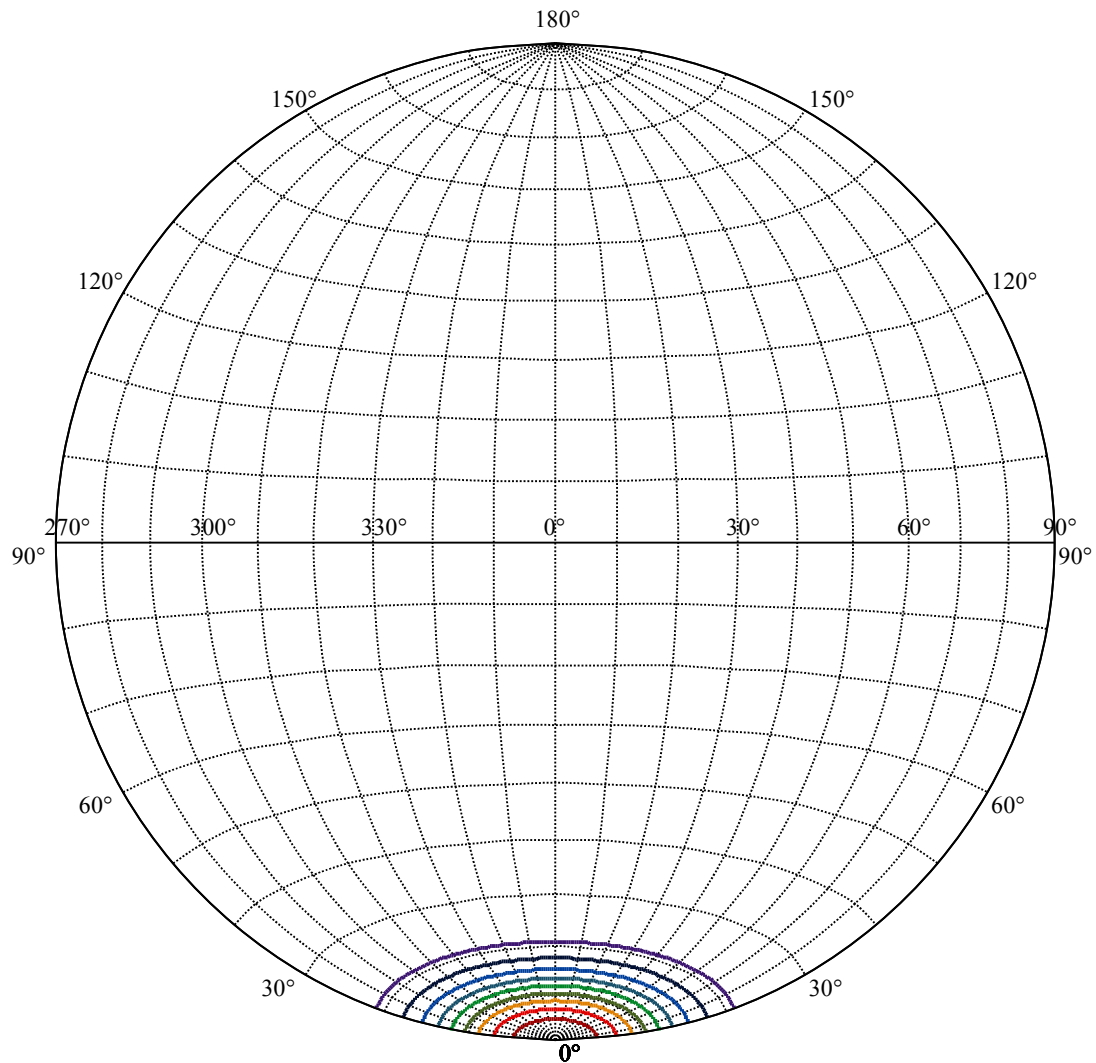
ZONAL LUMEN SUMMARY

0-10	435.60
10-20	505.40
20-30	88.26
30-40	5.11
40-50	4.56
50-60	4.78
60-70	5.05
70-80	5.27
80-90	4.84
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









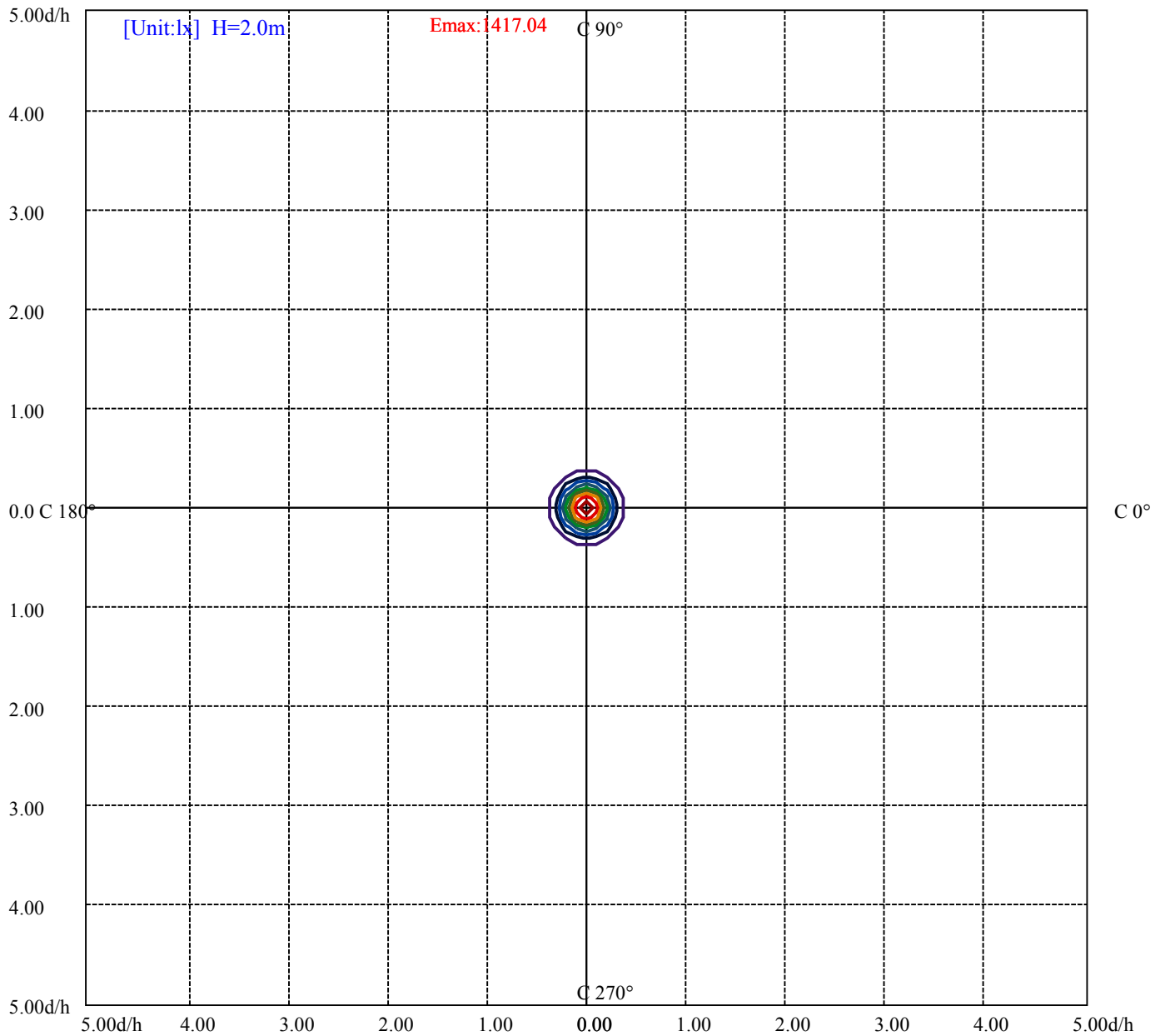
House

[Unit:cd]

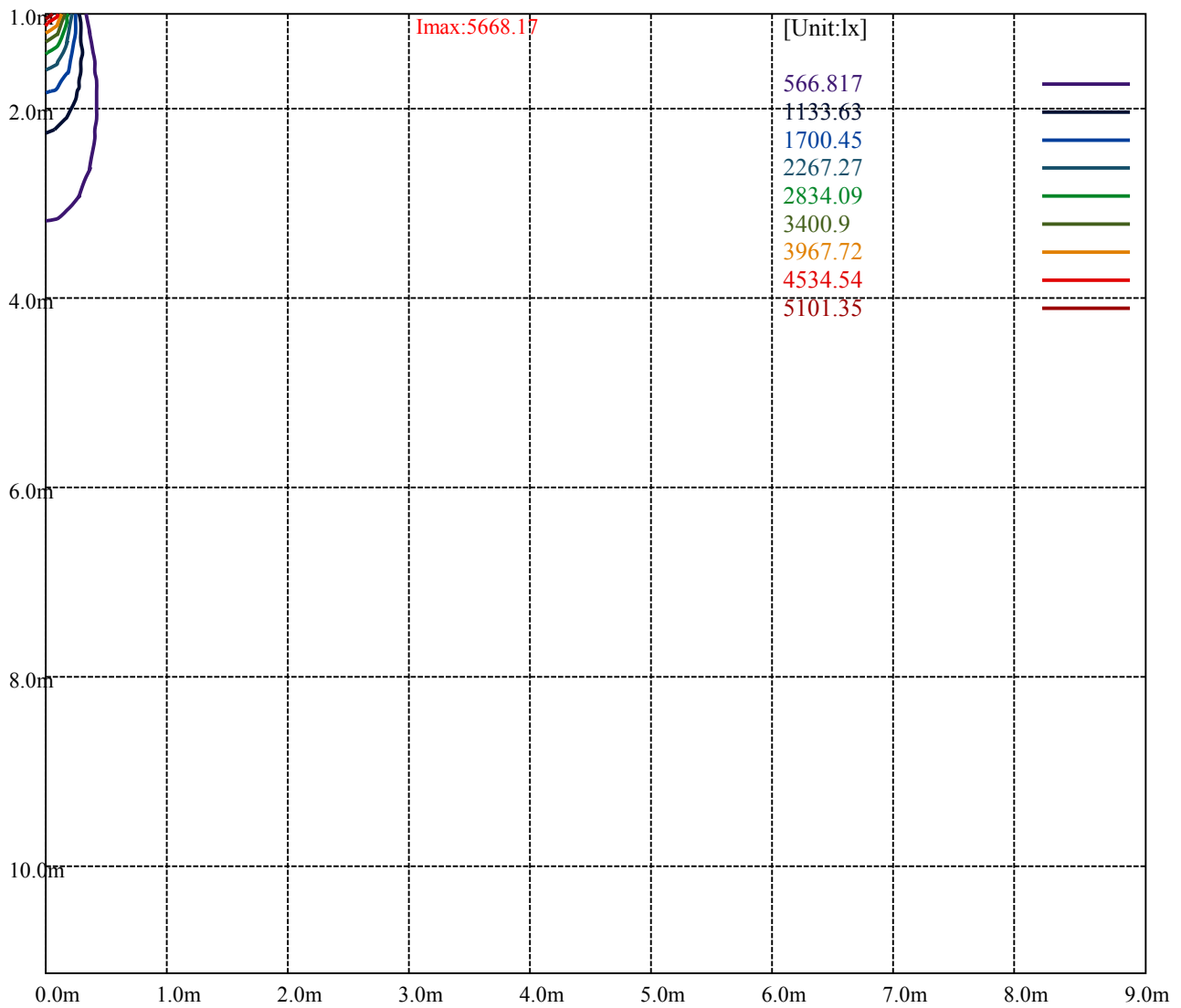
Road

Imax:5668.17

(10%Imax)	566.817	—
(20%Imax)	1133.63	—
(30%Imax)	1700.45	—
(40%Imax)	2267.27	—
(50%Imax)	2834.09	—
(60%Imax)	3400.9	—
(70%Imax)	3967.72	—
(80%Imax)	4534.54	—
(90%Imax)	5101.35	—



(10%Emax)	141.7043	—
(20%Emax)	283.4075	—
(30%Emax)	425.1125	—
(40%Emax)	566.8175	—
(50%Emax)	708.52	—
(60%Emax)	850.225	—
(70%Emax)	991.93	—
(80%Emax)	1133.632	—
(90%Emax)	1275.338	—



Luminance Table

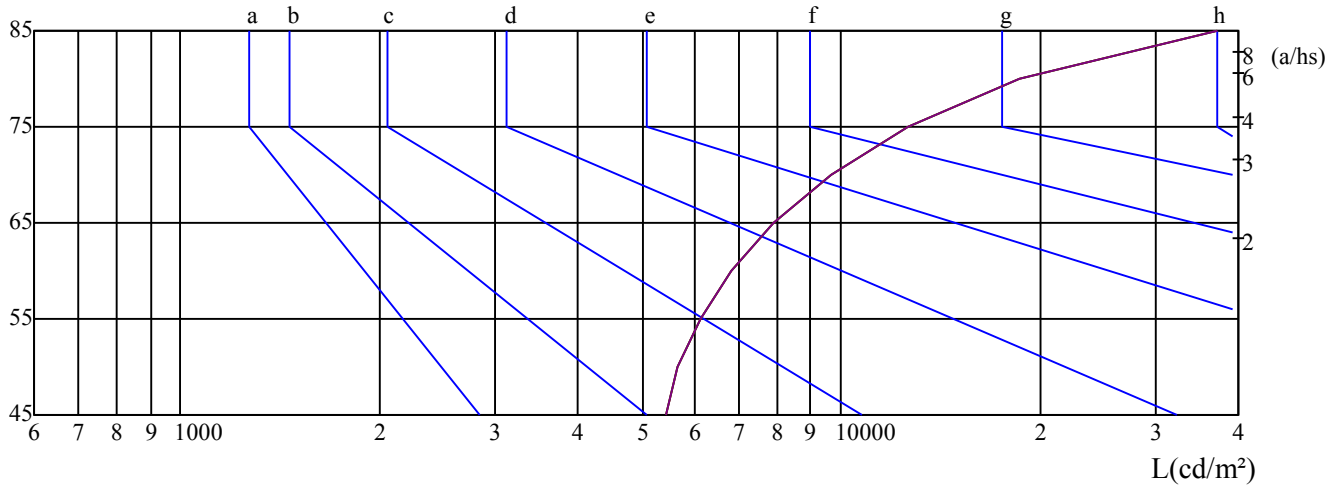
γ	45	50	55	60	65	70	75	80	85
C0	5452	5653	6117	6814	7919	9651	12663	18688	37234
C45	5452	5653	6117	6814	7919	9651	12663	18688	37234
C90	5452	5653	6117	6814	7919	9651	12663	18688	37234

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7919	7919	7919	12663	12663	12663	37234	37234	37234

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

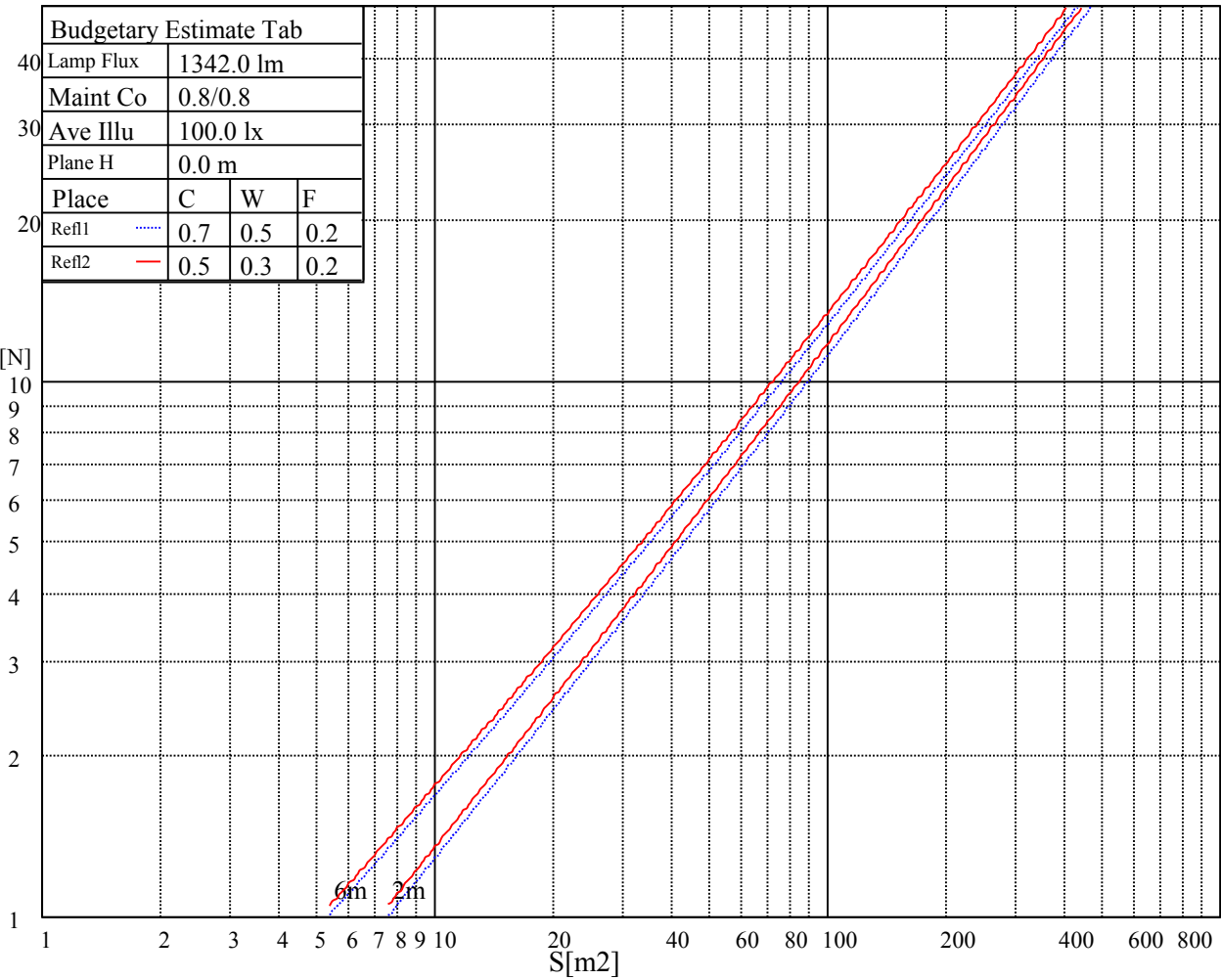
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

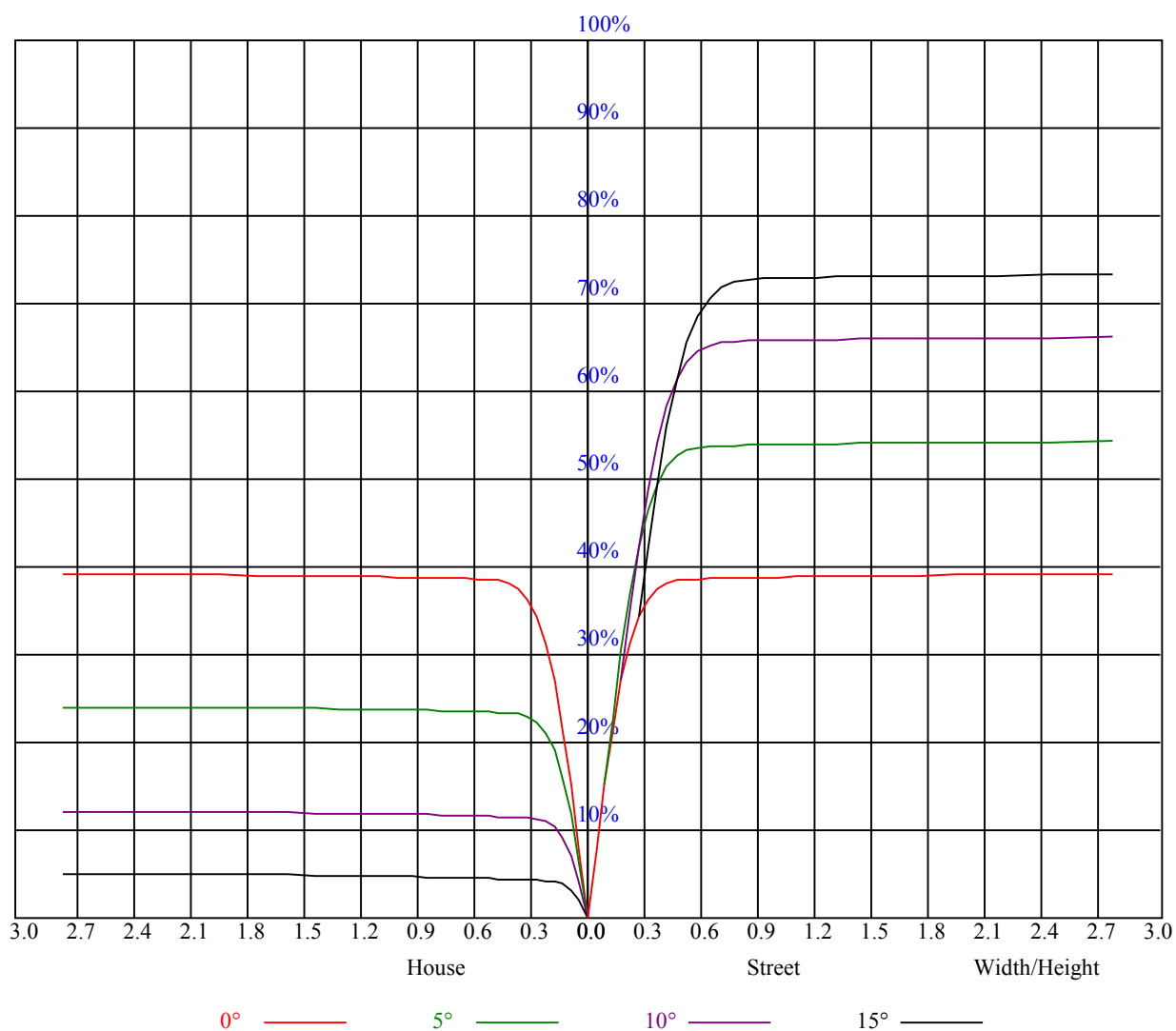
C0 ———

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	0.94	0.94	0.94	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.81	0.81	0.81	0.79
1	0.89	0.88	0.86	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.79	0.78	0.78	0.76
2	0.85	0.83	0.81	0.84	0.82	0.80	0.81	0.80	0.78	0.79	0.78	0.77	0.77	0.76	0.75	0.74
3	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.77	0.75	0.74	0.75	0.74	0.73	0.72
4	0.79	0.76	0.74	0.78	0.75	0.73	0.77	0.74	0.73	0.75	0.73	0.72	0.74	0.72	0.71	0.70
5	0.76	0.73	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.73	0.71	0.70	0.72	0.71	0.69	0.68
6	0.74	0.71	0.69	0.74	0.71	0.69	0.73	0.70	0.68	0.72	0.70	0.68	0.71	0.69	0.67	0.67
7	0.72	0.69	0.67	0.72	0.69	0.67	0.71	0.68	0.67	0.70	0.68	0.66	0.69	0.67	0.66	0.65
8	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.69	0.66	0.65	0.68	0.66	0.64	0.64
9	0.69	0.66	0.64	0.68	0.66	0.64	0.68	0.65	0.63	0.67	0.65	0.63	0.67	0.65	0.63	0.62
10	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.64	0.62	0.66	0.63	0.62	0.65	0.63	0.62	0.61



Nata 1-0919-M

Intensity data(cd)										Appendix Page: 16 Total:18	
C/ γ (°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0		
0.0	5683.50	5604.19	5475.94	5287.50	5089.50	4839.75	4526.44	4227.19	3909.38		
45.0	5663.81	5618.81	5531.63	5402.81	5225.63	5007.38	4767.75	4470.75	4169.81		
90.0	5672.25	5658.19	5603.06	5476.50	5351.06	5198.63	4940.44	4695.75	4408.88		
135.0	5653.13	5694.19	5692.50	5641.88	5551.31	5425.31	5293.69	5063.06	4839.19		
180.0	5683.50	5693.63	5678.44	5603.06	5480.44	5339.25	5169.38	4910.06	4645.13		
225.0	5663.81	5648.63	5594.06	5461.31	5314.50	5149.69	4923.00	4637.25	4353.19		
270.0	5672.25	5628.38	5522.63	5396.63	5194.13	4962.94	4712.63	4404.38	4104.00		
315.0	5653.13	5537.81	5392.13	5190.75	4942.69	4688.44	4407.75	4019.63	3685.50		
360.0	5683.50	5604.19	5475.94	5287.50	5089.50	4839.75	4526.44	4227.19	3909.38		
C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0		
0.0	3485.81	3139.31	2790.00	2412.00	2064.94	1783.13	1496.81	1246.50	1055.25		
45.0	3808.13	3418.31	3060.00	2709.00	2296.13	1988.44	1715.06	1410.19	1196.44		
90.0	4067.44	3681.56	3340.13	2910.38	2612.81	2243.81	1875.38	1641.38	1364.63		
135.0	4578.75	4206.38	3881.25	3540.94	3098.25	2745.56	2446.88	2018.25	1734.75		
180.0	4354.88	3965.63	3633.19	3292.88	2899.69	2514.38	2193.75	1864.13	1560.38		
225.0	4007.81	3678.19	3298.50	2901.38	2565.00	2208.94	1874.25	1607.06	1360.69		
270.0	3740.63	3367.13	3021.75	2684.25	2275.31	1972.13	1694.81	1384.31	1173.94		
315.0	3342.94	2902.50	2559.38	2234.25	1902.38	1605.38	1366.88	1110.60	932.18		
360.0	3485.81	3139.31	2790.00	2412.00	2064.94	1783.13	1496.81	1246.50	1055.25		
C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0		
0.0	864.00	708.19	550.69	402.19	287.44	225.51	109.52	46.24	23.23		
45.0	1000.13	817.88	649.13	505.69	363.38	284.06	156.21	94.11	39.43		
90.0	1076.23	940.50	777.32	589.28	457.48	342.51	239.29	135.84	75.88		
135.0	1496.25	1217.81	1006.31	852.75	640.13	510.19	383.06	285.19	158.18		
180.0	1238.63	1087.20	906.36	722.70	562.39	434.81	316.86	195.08	118.01		
225.0	1106.44	923.46	761.68	576.39	443.59	325.46	201.04	121.73	64.18		
270.0	987.19	801.56	630.56	495.00	356.63	288.00	145.74	79.76	34.71		
315.0	771.36	604.74	471.26	332.83	215.66	130.50	68.63	27.06	18.06		
360.0	864.00	708.19	550.69	402.19	287.44	225.51	109.52	46.24	23.23		
C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0		
0.0	16.03	12.21	10.91	10.07	9.23	8.66	8.21	7.71	7.31		
45.0	20.42	15.02	11.70	10.52	9.79	9.00	8.55	8.10	7.65		
90.0	38.08	19.24	13.67	11.48	10.29	9.51	8.94	8.44	7.99		
135.0	84.21	39.21	21.60	14.91	11.48	10.41	9.68	9.00	8.44		
180.0	63.73	25.99	17.27	13.05	10.91	10.01	9.34	8.66	8.27		
225.0	27.00	18.84	14.06	12.04	11.03	10.13	9.39	8.83	8.33		
270.0	19.86	14.74	12.32	11.25	10.18	9.56	8.94	8.33	7.93		
315.0	13.84	11.59	10.63	9.84	9.11	8.49	8.04	7.59	7.31		
360.0	16.03	12.21	10.91	10.07	9.23	8.66	8.21	7.71	7.31		
C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0		
0.0	6.98	6.69	6.47	6.30	6.13	6.02	5.85	5.74	5.68		
45.0	7.31	7.09	6.81	6.64	6.47	6.30	6.19	6.02	5.96		
90.0	7.59	7.26	7.03	6.81	6.58	6.41	6.24	6.13	6.02		
135.0	7.99	7.65	7.31	7.03	6.75	6.58	6.36	6.24	6.13		
180.0	7.82	7.43	7.14	6.86	6.58	6.41	6.30	6.08	5.96		
225.0	7.82	7.48	7.20	6.86	6.69	6.53	6.36	6.19	6.08		
270.0	7.59	7.26	6.92	6.75	6.53	6.36	6.24	6.08	5.96		
315.0	6.98	6.69	6.47	6.30	6.13	6.02	5.91	5.79	5.74		
360.0	6.98	6.69	6.47	6.30	6.13	6.02	5.85	5.74	5.68		

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	5.63	5.51	5.46	5.40	5.34	5.34	5.29	5.23	5.23
45.0	5.85	5.79	5.74	5.63	5.63	5.57	5.51	5.46	5.46
90.0	5.91	5.85	5.74	5.68	5.63	5.57	5.51	5.46	5.46
135.0	6.02	5.91	5.85	5.74	5.68	5.63	5.57	5.51	5.46
180.0	5.91	5.79	5.68	5.63	5.57	5.51	5.46	5.40	5.34
225.0	6.02	5.91	5.79	5.74	5.68	5.63	5.57	5.51	5.51
270.0	5.91	5.79	5.74	5.68	5.63	5.57	5.57	5.51	5.46
315.0	5.68	5.63	5.51	5.46	5.40	5.40	5.34	5.34	5.29
360.0	5.63	5.51	5.46	5.40	5.34	5.34	5.29	5.23	5.23
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.18	5.18	5.12	5.12	5.06	5.06	5.01	5.01	5.01
45.0	5.40	5.40	5.34	5.29	5.23	5.23	5.23	5.23	5.23
90.0	5.40	5.40	5.34	5.34	5.29	5.23	5.23	5.18	5.18
135.0	5.40	5.40	5.34	5.29	5.29	5.23	5.23	5.18	5.18
180.0	5.29	5.29	5.23	5.18	5.18	5.12	5.12	5.06	5.06
225.0	5.46	5.40	5.40	5.34	5.29	5.29	5.29	5.23	5.23
270.0	5.40	5.40	5.34	5.34	5.29	5.29	5.23	5.23	5.23
315.0	5.23	5.23	5.18	5.18	5.12	5.12	5.12	5.06	5.06
360.0	5.18	5.18	5.12	5.12	5.06	5.06	5.01	5.01	5.01
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	5.01	4.95	4.95	4.95	4.95	4.89	4.89	4.89	4.95
45.0	5.18	5.18	5.12	5.12	5.12	5.12	5.12	5.12	5.06
90.0	5.18	5.12	5.18	5.12	5.12	5.12	5.06	5.06	5.06
135.0	5.18	5.12	5.12	5.06	5.06	5.06	5.06	5.01	5.01
180.0	5.01	5.01	5.01	4.95	4.95	4.89	4.95	4.89	4.89
225.0	5.18	5.18	5.12	5.18	5.12	5.12	5.12	5.12	5.06
270.0	5.18	5.18	5.18	5.18	5.12	5.12	5.12	5.12	5.12
315.0	5.06	5.06	5.06	5.01	5.01	4.95	4.95	4.95	4.95
360.0	5.01	4.95	4.95	4.95	4.95	4.89	4.89	4.89	4.95
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.89	4.89	4.84	4.89	4.89	4.89	4.84	4.84	4.84
45.0	5.06	5.06	5.06	5.01	5.01	5.06	5.01	5.06	5.01
90.0	5.06	5.06	5.06	5.06	5.06	5.06	5.06	5.01	5.01
135.0	5.01	5.01	5.01	4.95	4.95	4.95	4.95	4.95	4.95
180.0	4.89	4.84	4.84	4.89	4.84	4.84	4.84	4.84	4.78
225.0	5.06	5.06	5.01	5.06	5.06	5.06	5.01	5.01	5.01
270.0	5.12	5.12	5.12	5.06	5.06	5.06	5.06	5.01	5.01
315.0	4.95	4.95	4.95	4.95	4.89	4.95	4.95	4.89	4.89
360.0	4.89	4.89	4.84	4.89	4.89	4.89	4.84	4.84	4.84
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.84	4.84	4.84	4.84	4.84	4.84	4.78	4.78	4.84
45.0	5.01	5.01	5.01	5.01	5.01	5.01	5.01	4.95	5.01
90.0	5.01	5.06	5.01	5.06	5.01	4.95	4.95	4.95	4.95
135.0	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89
180.0	4.78	4.84	4.84	4.84	4.84	4.78	4.78	4.78	4.78
225.0	5.01	5.01	5.01	5.01	5.01	5.01	4.95	5.01	4.95
270.0	5.01	5.06	5.06	5.06	5.01	4.95	4.95	4.95	4.95
315.0	4.89	4.95	4.89	4.89	4.89	4.89	4.89	4.89	4.89
360.0	4.84	4.84	4.84	4.84	4.84	4.84	4.78	4.78	4.84

Intensity data(cd)

Appendix Page: 18 Total:18

C/ γ (°)	90.0
0.0	4.78
45.0	4.95
90.0	4.95
135.0	4.89
180.0	4.78
225.0	4.95
270.0	4.95
315.0	4.89
360.0	4.78