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NATA

LumCAT: 2-1676-M	
Luminaire: 92.70.131.00	
Report No: NATA0100	Voltage(V): 36.1000
Test No: GC2018111213	Current(A): 0.5500
LampCAT: OSRAM SOLERIQ S15	Power (W): 19.8550
Lamp flux(lm): 2582.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2311.69
Efficiency(%): 89.53%
Lumens(lm)/Power(W): 117.90
Central intensity(cd): 5251.078
Maximum intensity(cd): 5251.078
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=35.2
[C90/270]Total=35.2
Field angle(10%Imax): [C0/180]Total=70.7
[C90/270]Total=70.7
Maximum s/h(1/2): C0_180=0.58 C90_270=0.58
Maximum s/h(1/4): C0_180=0.58 C90_270=0.58
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 90.66%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.505%

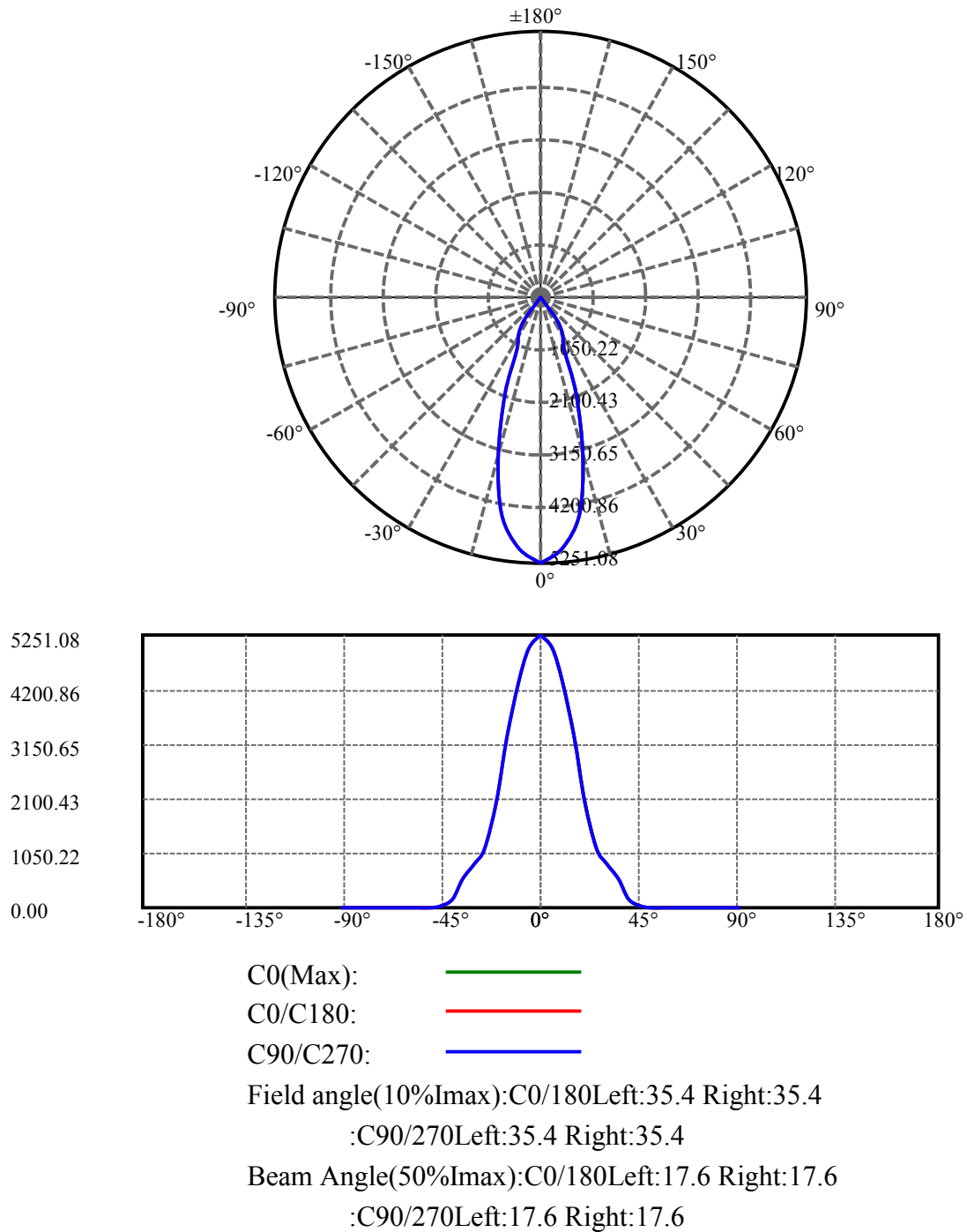
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5251.078	31.402	31.402	1.216%	1.358%
5.0	4980.867	237.953	269.355	9.216%	11.652%
10.0	4334.625	412.583	681.938	15.979%	29.500%
15.0	3265.664	463.295	1145.232	17.943%	49.541%
20.0	2044.406	383.273	1528.506	14.844%	66.121%
25.0	1139.780	264.033	1792.539	10.226%	77.542%
30.0	863.480	236.653	2029.192	9.165%	87.780%
35.0	554.745	174.411	2203.602	6.755%	95.324%
40.0	156.038	54.978	2258.58	2.129%	97.703%
45.0	19.983	7.745	2266.325	.300%	98.038%
50.0	13.155	5.524	2271.849	.214%	98.277%
55.0	11.904	5.345	2277.194	.207%	98.508%
60.0	11.138	5.287	2282.481	.205%	98.737%
65.0	10.638	5.285	2287.766	.205%	98.965%
70.0	10.315	5.313	2293.079	.206%	99.195%
75.0	10.048	5.320	2298.399	.206%	99.425%
80.0	9.886	5.337	2303.735	.207%	99.656%
85.0	9.738	5.318	2309.053	.206%	99.886%
90.0	9.619	2.636	2311.689	.102%	100.000%

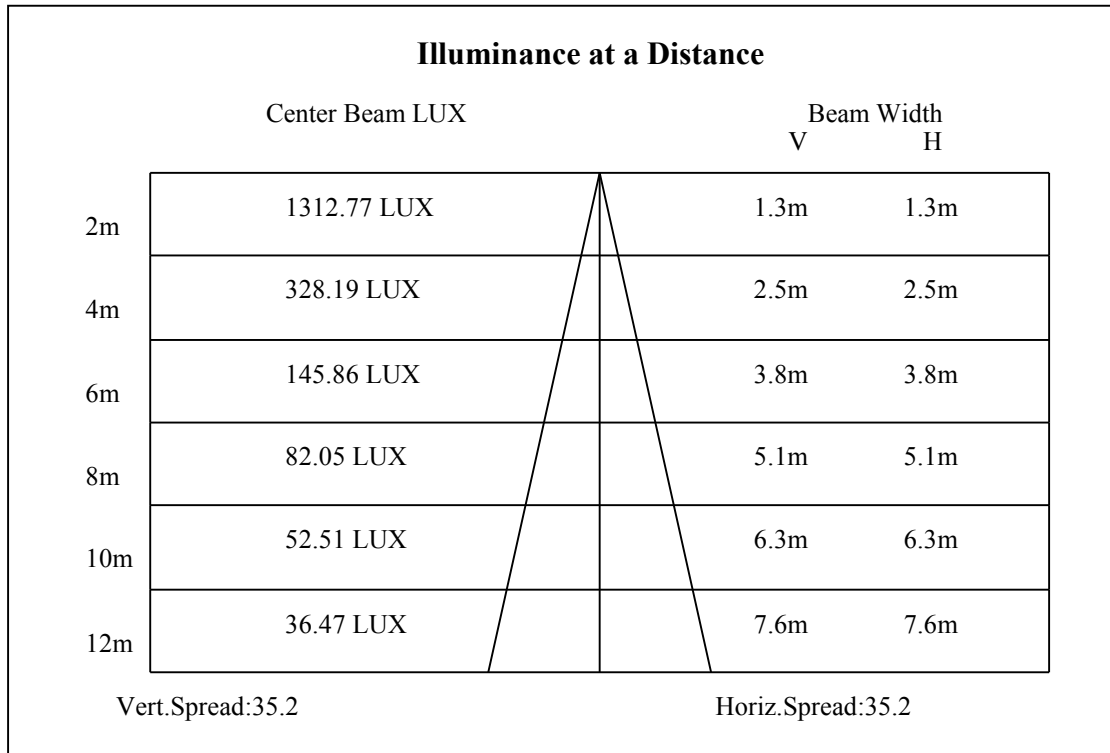
ZONAL LUMEN SUMMARY

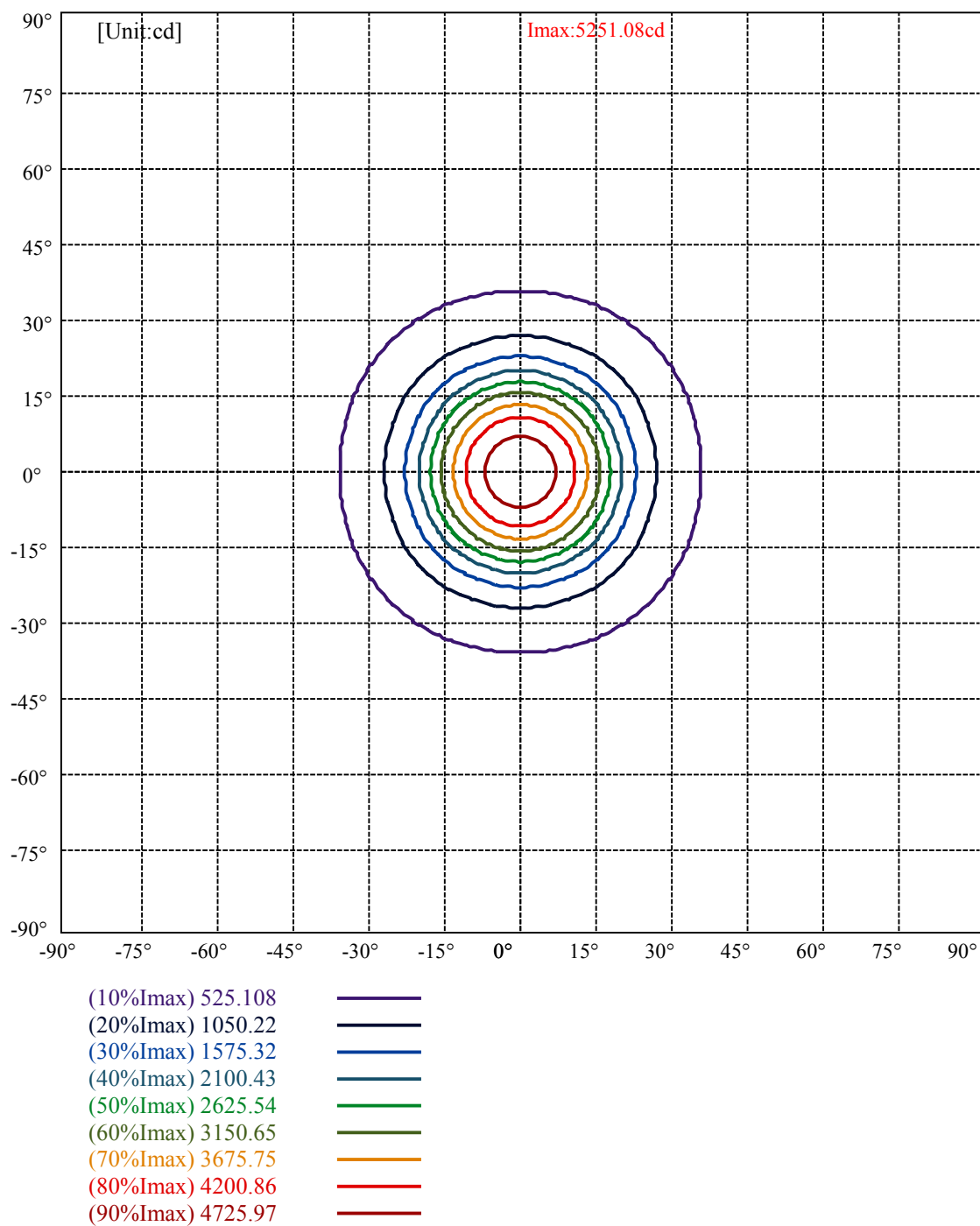
Zone	Lumens	%Lamp	%Fixt
0-30	2029.19	78.59%	87.78%
0-40	2258.58	87.47%	97.70%
0-60	2282.48	88.40%	98.74%
0-90	2309.05	89.43%	99.89%
0-120	2309.05	89.43%	99.89%
0-180	2311.69	89.53%	100.00%
60-90	31.86	1.23%	1.38%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-26.20	1849.35	71.62%	80.00%

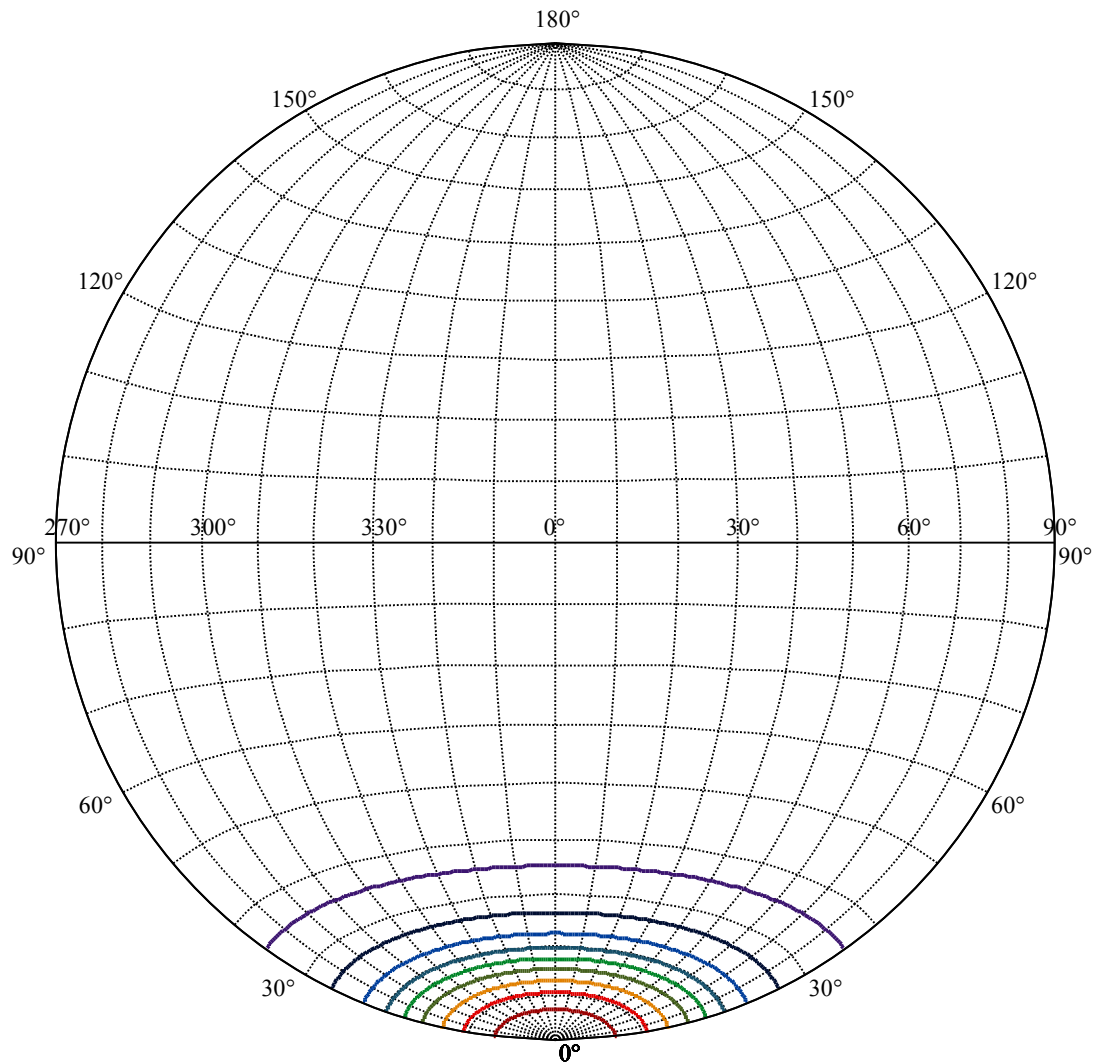
ZONAL LUMEN SUMMARY

0-10	681.94
10-20	846.57
20-30	500.69
30-40	229.39
40-50	13.27
50-60	10.63
60-70	10.60
70-80	10.66
80-90	5.32
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:5251.08

(10%Imax) 525.108

(20%Imax) 1050.22

(30%Imax) 1575.32

(40%Imax) 2100.43

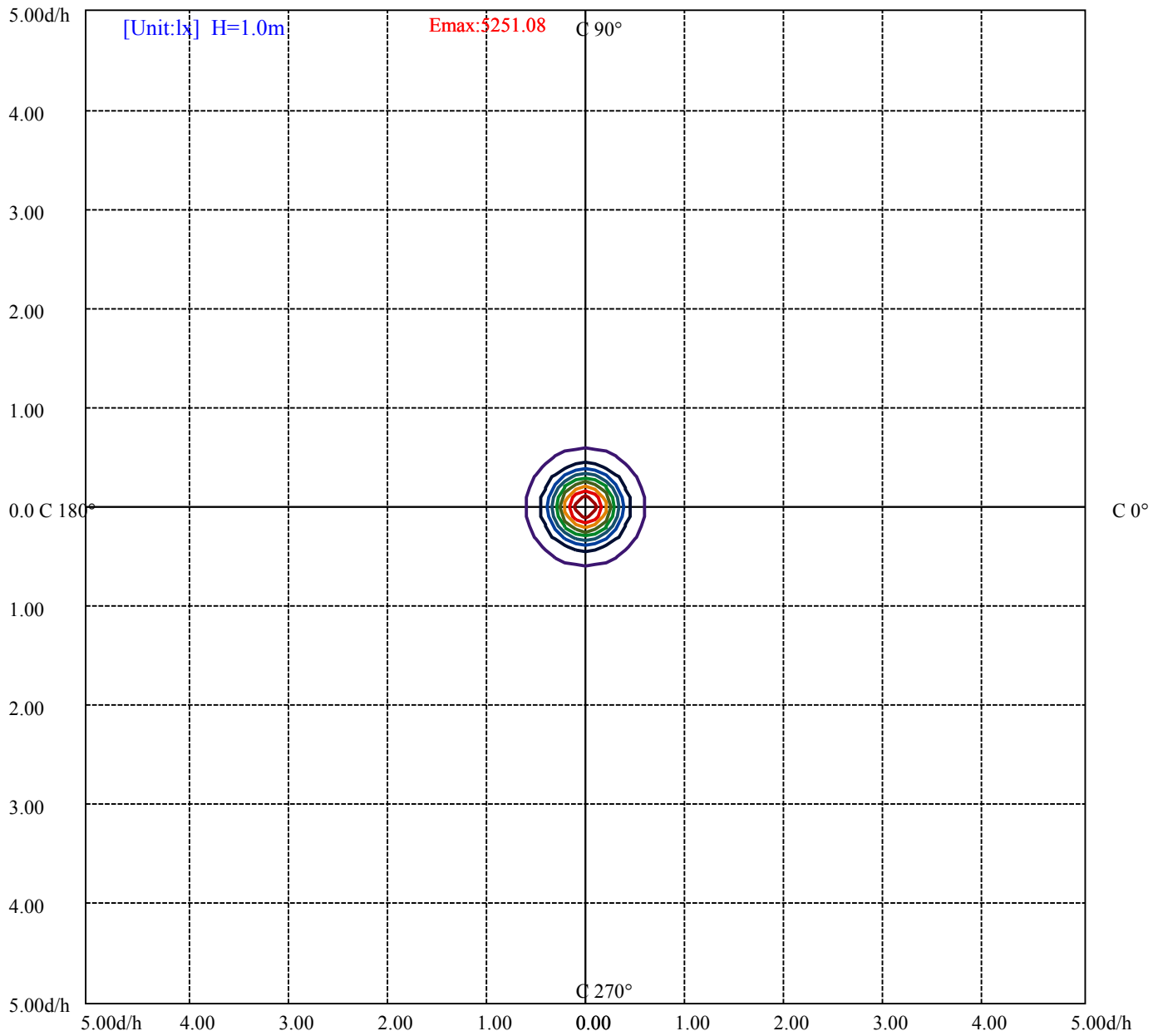
(50%Imax) 2625.54

(60%Imax) 3150.65

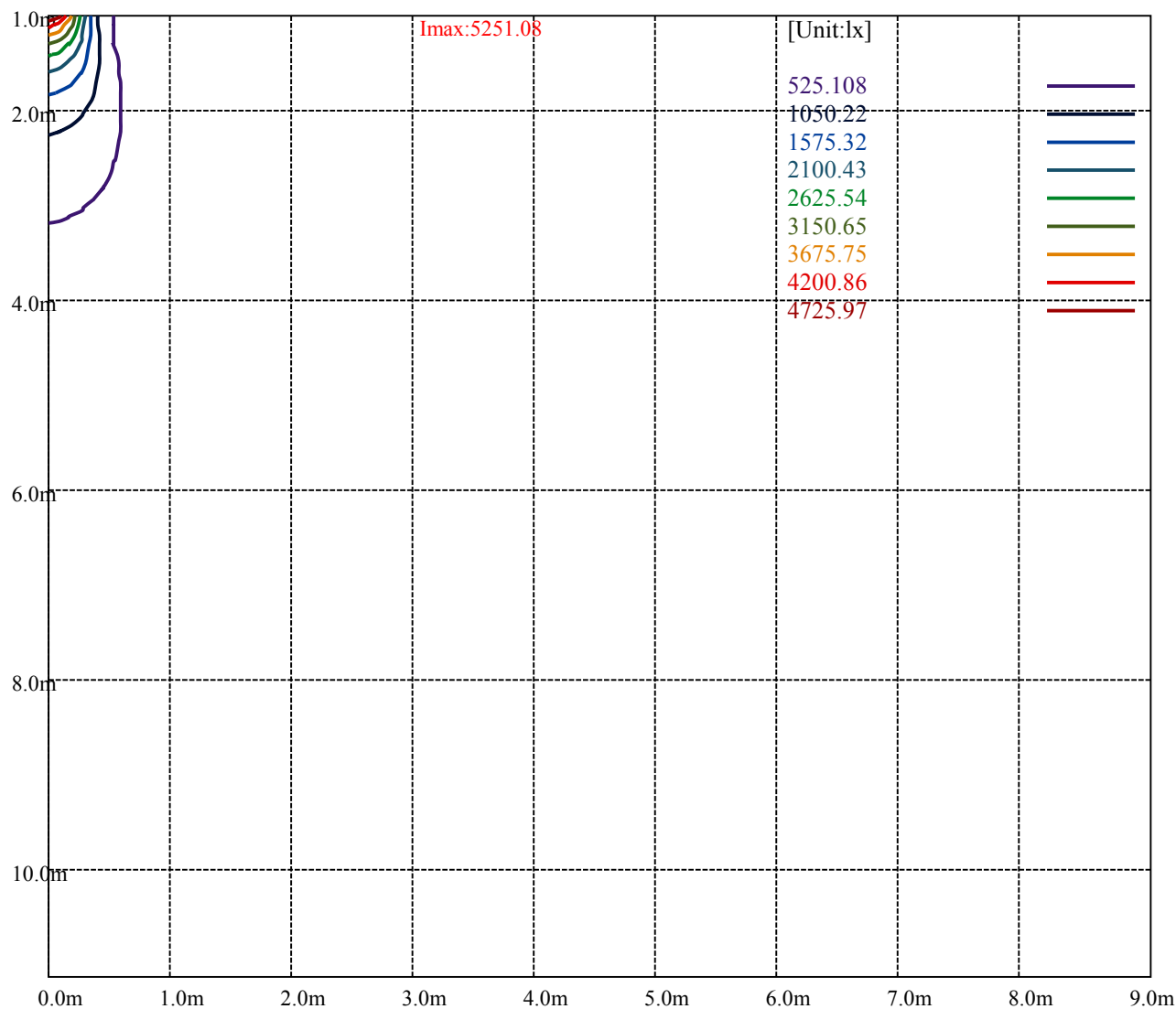
(70%Imax) 3675.75

(80%Imax) 4200.86

(90%Imax) 4725.97



(10%Emax) 525.107	—
(20%Emax) 1050.21	—
(30%Emax) 1575.32	—
(40%Emax) 2100.43	—
(50%Emax) 2625.53	—
(60%Emax) 3150.64	—
(70%Emax) 3675.75	—
(80%Emax) 4200.86	—
(90%Emax) 4725.96	—



Luminance Table

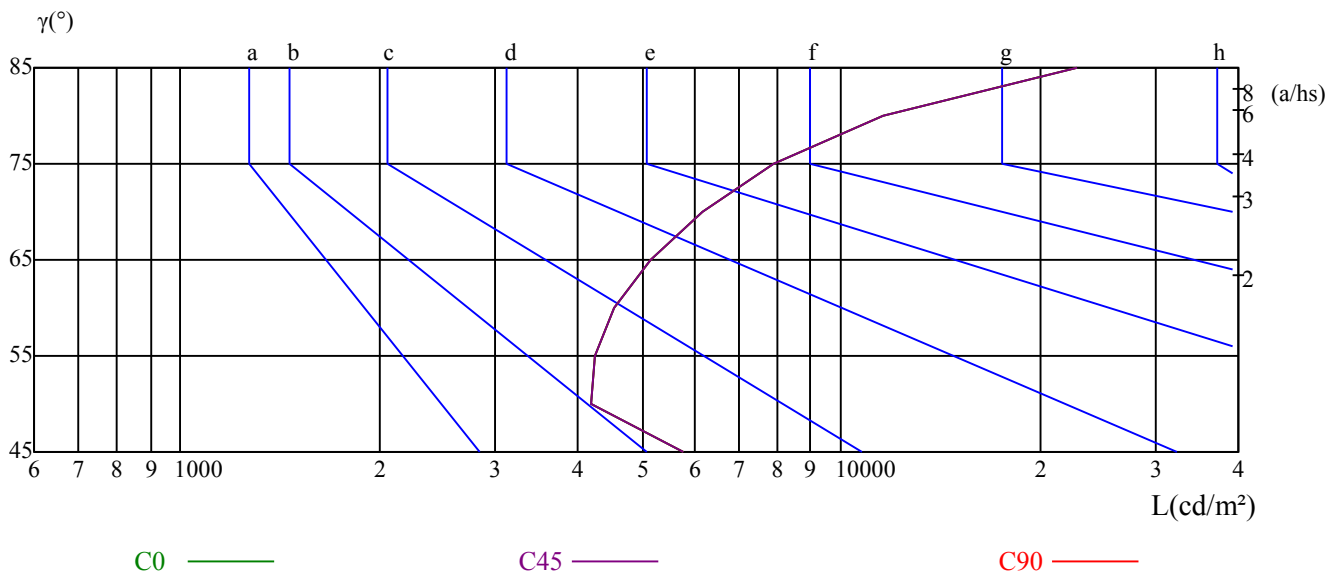
γ	45	50	55	60	65	70	75	80	85
C0	5767	4177	4235	4546	5137	6155	7923	11619	22803
C45	5767	4177	4235	4546	5137	6155	7923	11619	22803
C90	5767	4177	4235	4546	5137	6155	7923	11619	22803

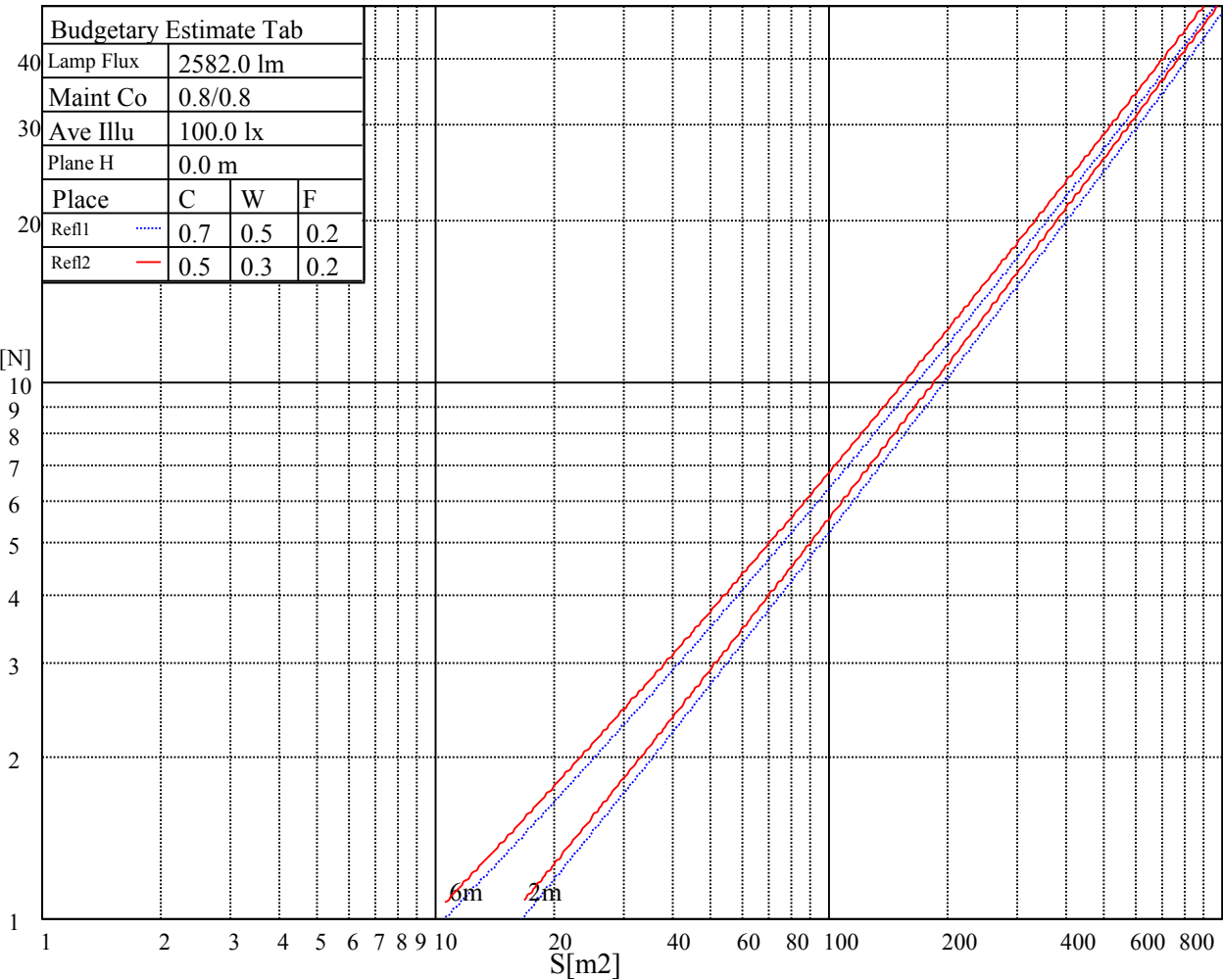
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
5137	5137	5137	7923	7923	7923	22803	22803	22803

Glare Table

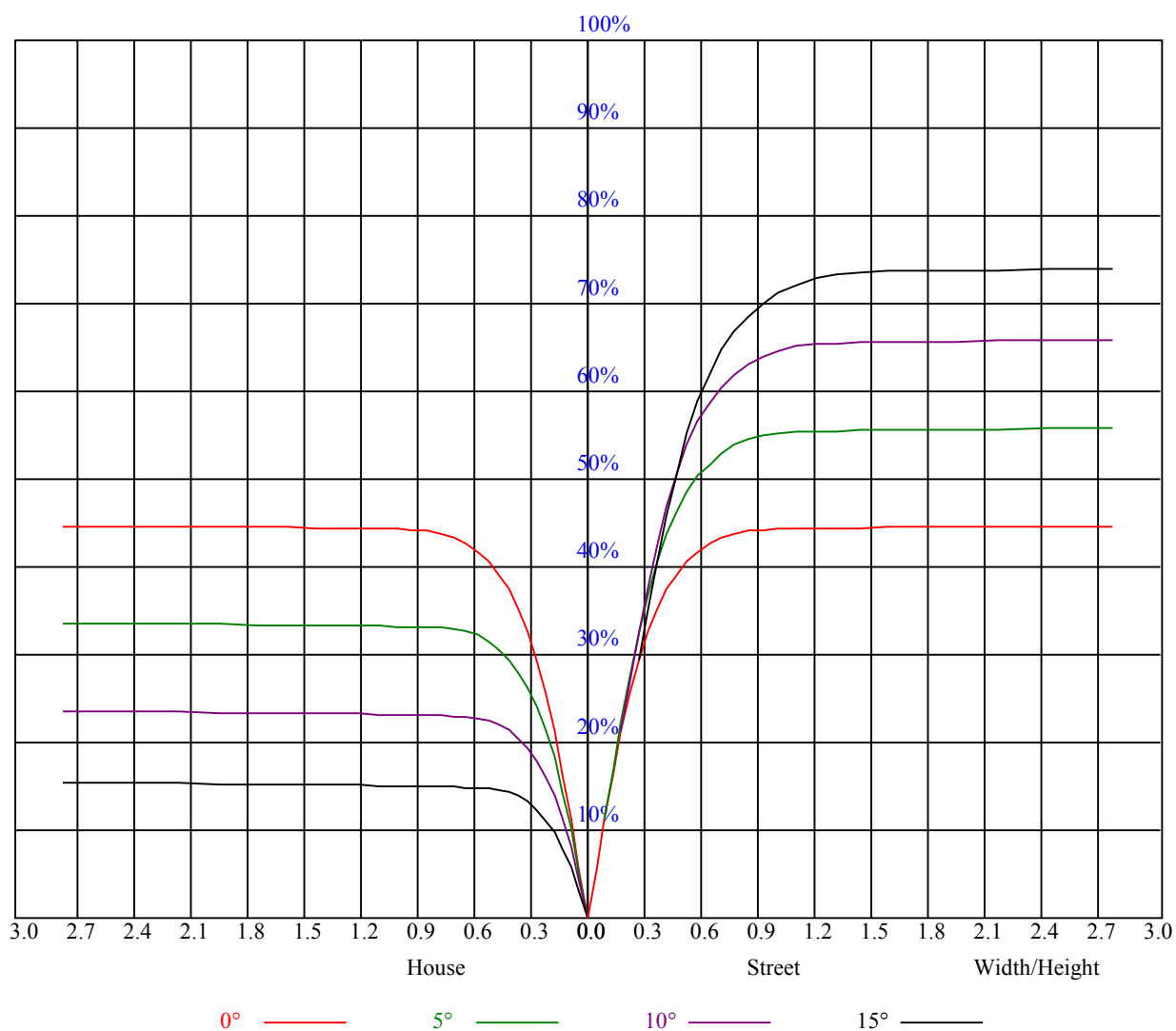
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	0.96	0.96	0.96	0.93	0.93	0.93	0.91
1	1.00	0.98	0.95	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.88	0.88	0.87	0.86	0.84
2	0.94	0.91	0.88	0.93	0.90	0.87	0.90	0.87	0.85	0.87	0.85	0.83	0.85	0.83	0.82	0.80
3	0.90	0.86	0.82	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.81	0.79	0.82	0.80	0.78	0.77
4	0.85	0.81	0.78	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.76	0.79	0.77	0.75	0.74
5	0.82	0.77	0.74	0.81	0.77	0.74	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.71
6	0.78	0.74	0.70	0.78	0.73	0.70	0.76	0.73	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.68
7	0.75	0.71	0.67	0.75	0.70	0.67	0.73	0.70	0.67	0.72	0.69	0.67	0.72	0.69	0.66	0.65
8	0.72	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.63
9	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.62	0.61
10	0.67	0.63	0.60	0.67	0.63	0.60	0.66	0.62	0.60	0.66	0.62	0.60	0.65	0.62	0.60	0.59



NATA 2-1676-M

Intensity data(cd)										Appendix Page: 14 Total:14	
C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	5261.06	5047.31	4458.38	3460.50	2304.00	1266.19	911.25	689.63	291.38		
45.0	5261.63	4847.06	4151.81	3081.38	1834.88	1085.06	828.00	471.38	68.74		
90.0	5216.63	4761.00	4020.75	2855.25	1633.50	1035.11	792.96	376.09	43.59		
135.0	5265.00	4913.44	4282.31	3157.31	1906.88	1110.94	837.00	497.25	103.89		
180.0	5261.06	4932.56	4170.94	2974.50	1787.06	1042.99	809.04	478.52	74.53		
225.0	5261.63	5142.38	4541.06	3497.06	2284.88	1121.79	890.55	620.83	211.05		
270.0	5216.63	5159.81	4666.50	3731.63	2479.50	1350.00	952.31	705.38	291.38		
315.0	5265.00	5043.38	4385.25	3367.69	2124.56	1106.16	886.73	598.89	163.74		
360.0	5261.06	5047.31	4458.38	3460.50	2304.00	1266.19	911.25	689.63	291.38		
C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	22.78	13.56	11.98	11.14	10.69	10.35	10.01	9.84	9.73		
45.0	16.76	12.94	11.81	11.08	10.63	10.29	10.07	9.90	9.73		
90.0	15.92	12.83	11.70	11.14	10.63	10.35	10.07	10.01	9.68		
135.0	18.06	13.11	12.09	11.14	10.58	10.29	10.01	9.84	9.68		
180.0	17.10	12.83	11.76	10.97	10.52	10.18	9.96	9.73	9.68		
225.0	22.78	13.39	11.98	11.19	10.63	10.29	10.07	9.90	9.73		
270.0	25.59	13.61	12.15	11.36	10.80	10.46	10.18	10.01	9.96		
315.0	20.87	12.99	11.76	11.08	10.63	10.29	10.01	9.84	9.73		
360.0	22.78	13.56	11.98	11.14	10.69	10.35	10.01	9.84	9.73		
C/ γ (°)	90.0										
0.0	9.62										
45.0	9.62										
90.0	9.62										
135.0	9.62										
180.0	9.62										
225.0	9.62										
270.0	9.62										
315.0	9.62										
360.0	9.62										