
Nata

LumCAT: 3-1698-N
Luminaire: 92.70.065.00+92.70.089.00
Report No: NT2018041601
Test No: nata-0100
LampCAT: CITIZEN CLU038
Lamp flux(lm): 2449.1
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 36.6000
Current(A): 0.6000
Power (W): 21.9600
PF: 0.0000
Ballast type: DC
Width(mm): 79
Height(mm): 0

Photometric Results

Lumens(lm): 1974.79
Efficiency(%): 80.63%
Lumens(lm)/Power(W): 93.16
Central intensity(cd): 12185.360
Maximum intensity(cd): 12185.360
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=18.1
[C90/270]Total=18.1
Field angle(10%Imax): [C0/180]Total=36.3
[C90/270]Total=36.3
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.32 C90_270=0.32
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 83.53%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 95.019%

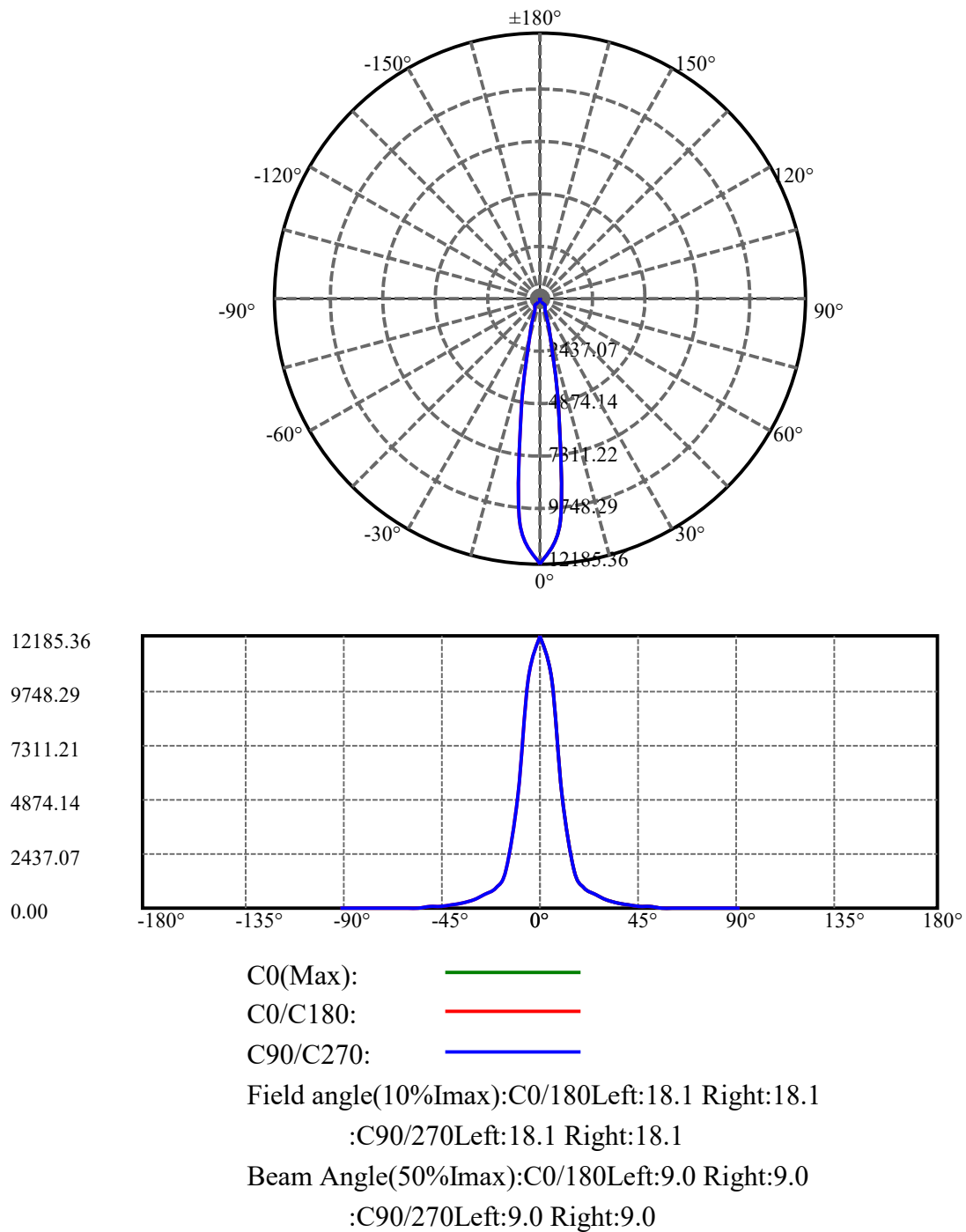
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	12185.358	72.871	72.871	2.975%	3.690%
5.0	10252.328	489.788	562.659	19.999%	28.492%
10.0	5086.730	484.170	1046.829	19.769%	53.010%
15.0	1742.914	247.264	1294.093	10.096%	65.531%
20.0	908.286	170.280	1464.373	6.953%	74.153%
25.0	596.639	138.213	1602.587	5.643%	81.152%
30.0	393.447	107.831	1710.418	4.403%	86.613%
35.0	262.406	82.500	1792.918	3.369%	90.790%
40.0	171.150	60.302	1853.22	2.462%	93.844%
45.0	109.810	42.561	1895.782	1.738%	95.999%
50.0	63.274	26.568	1922.35	1.085%	97.344%
55.0	30.756	13.810	1936.16	.564%	98.044%
60.0	16.255	7.716	1943.876	.315%	98.434%
65.0	13.172	6.544	1950.42	.267%	98.766%
70.0	11.837	6.097	1956.517	.249%	99.075%
75.0	10.825	5.732	1962.249	.234%	99.365%
80.0	10.296	5.558	1967.806	.227%	99.646%
85.0	8.933	4.878	1972.684	.199%	99.893%
90.0	7.694	2.109	1974.793	.086%	100.000%

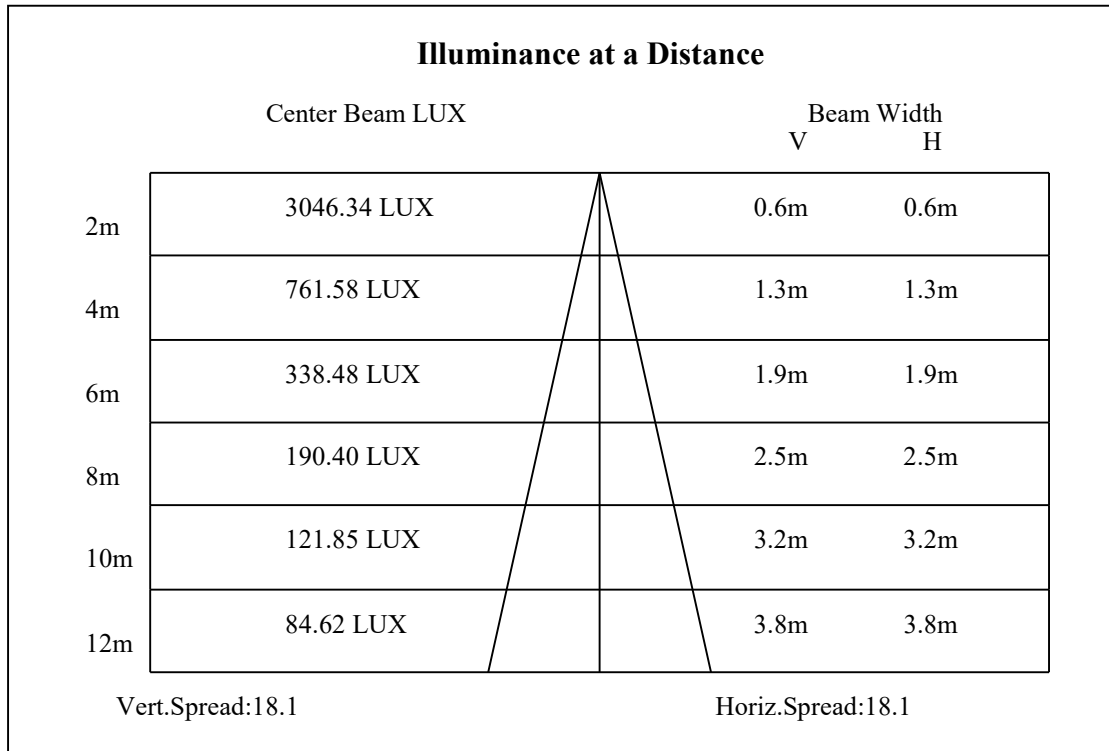
ZONAL LUMEN SUMMARY

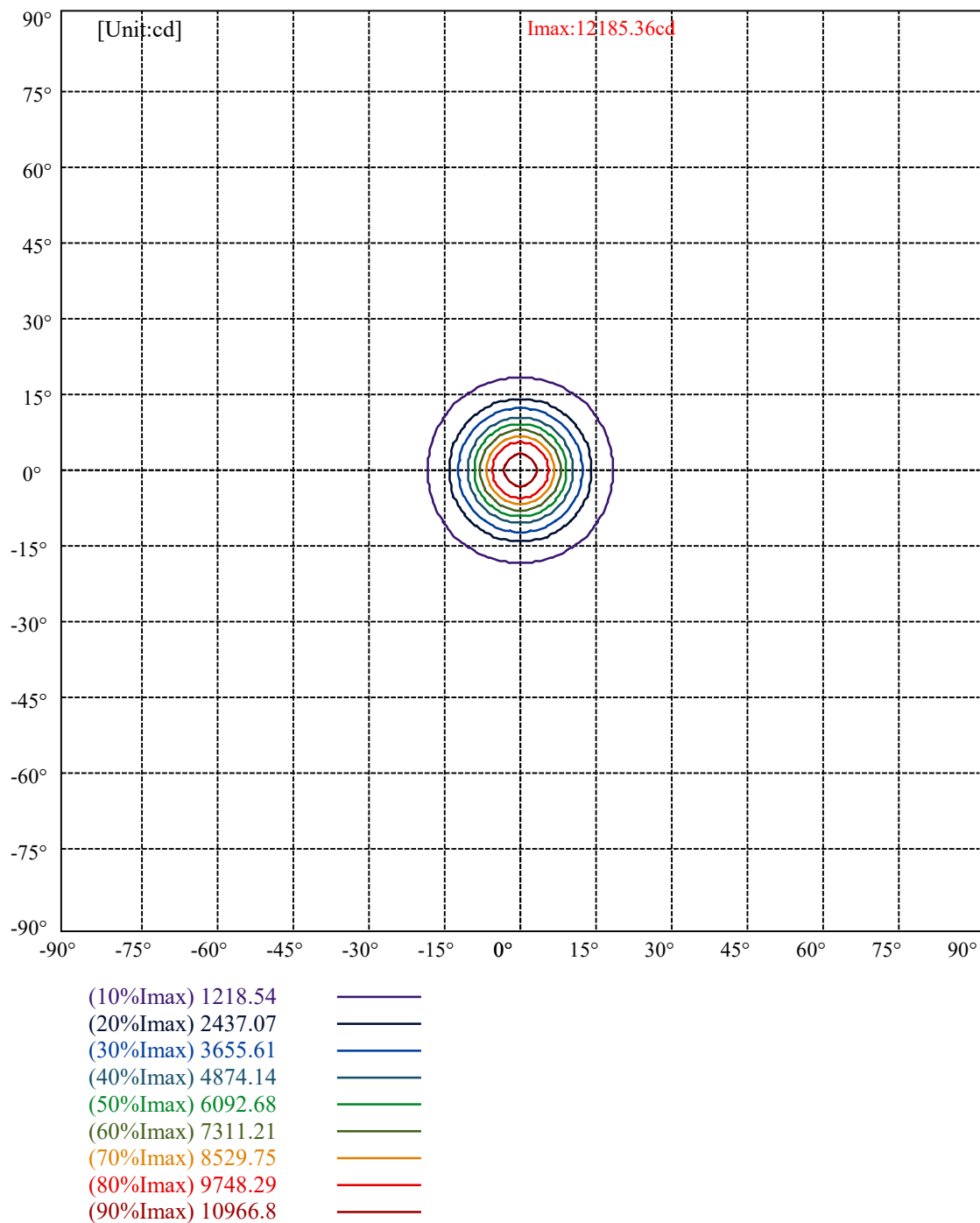
Zone	Lumens	%Lamp	%Fixt
0-30	1710.42	69.84%	86.61%
0-40	1853.22	75.67%	93.84%
0-60	1943.88	79.37%	98.43%
0-90	1972.68	80.55%	99.89%
0-120	1972.68	80.55%	99.89%
0-180	1974.79	80.63%	100.00%
60-90	36.52	1.49%	1.85%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.18	1579.83	64.51%	80.00%

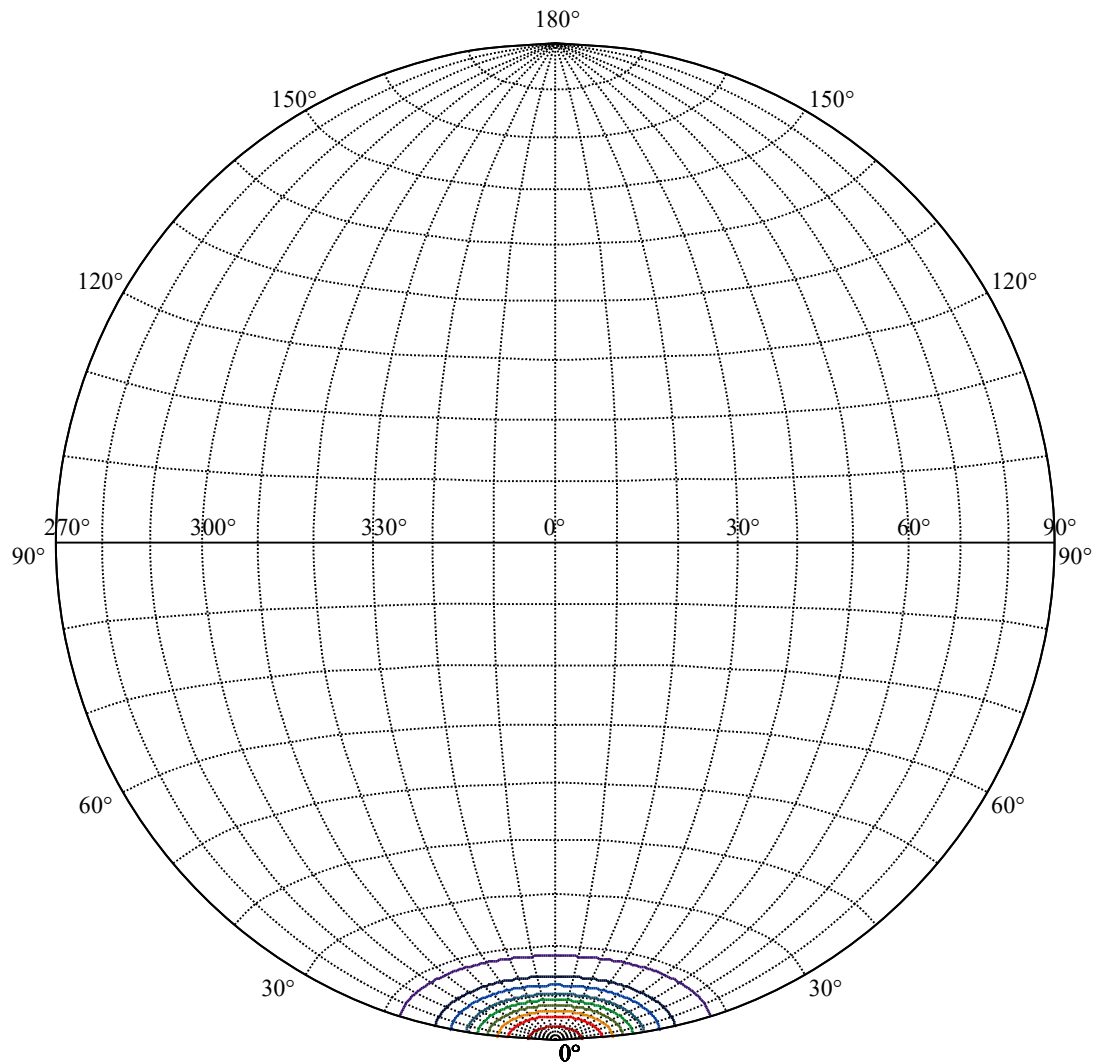
ZONAL LUMEN SUMMARY

0-10	1046.83
10-20	417.54
20-30	246.04
30-40	142.80
40-50	69.13
50-60	21.53
60-70	12.64
70-80	11.29
80-90	4.88
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









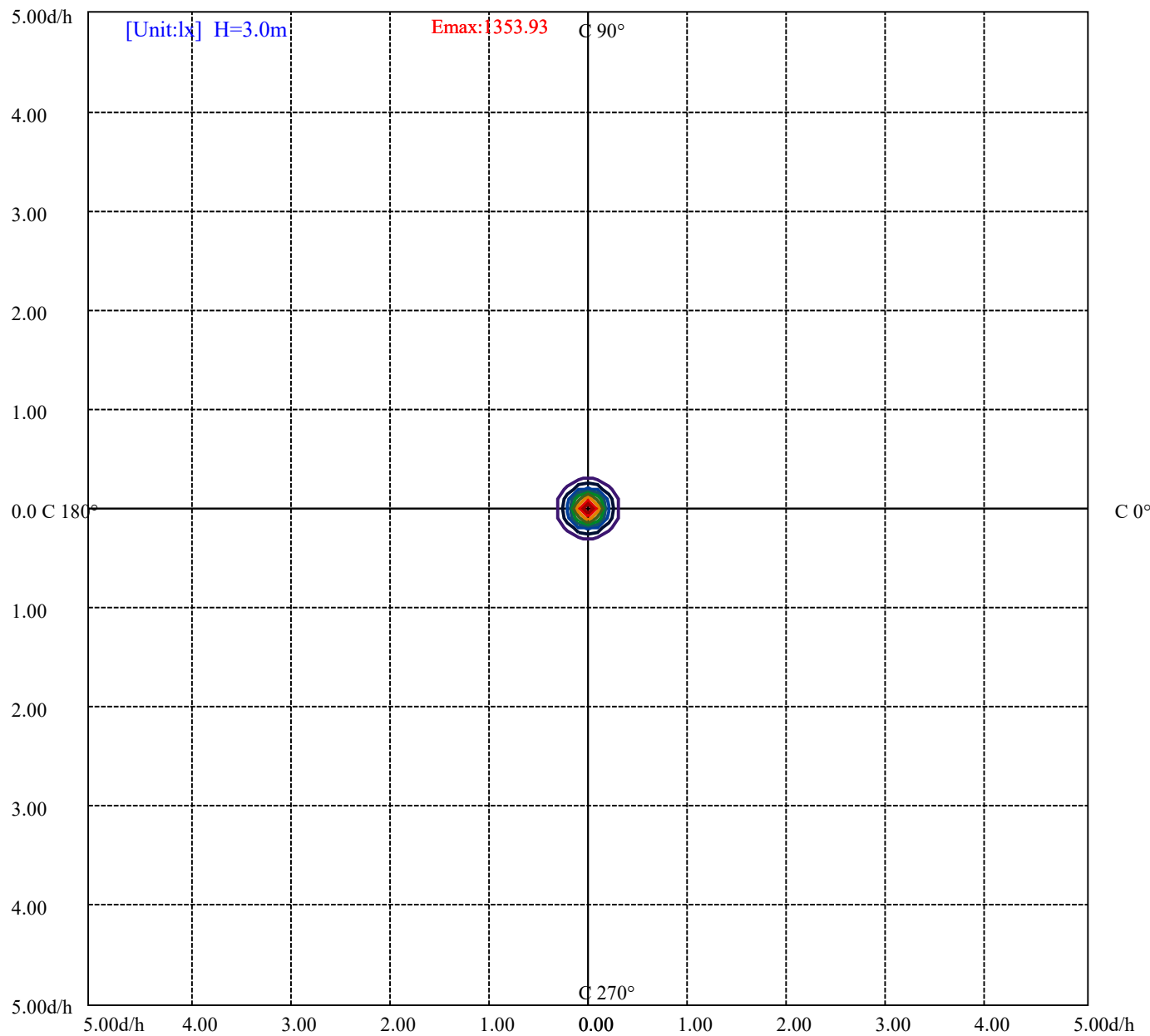
House

[Unit:cd]

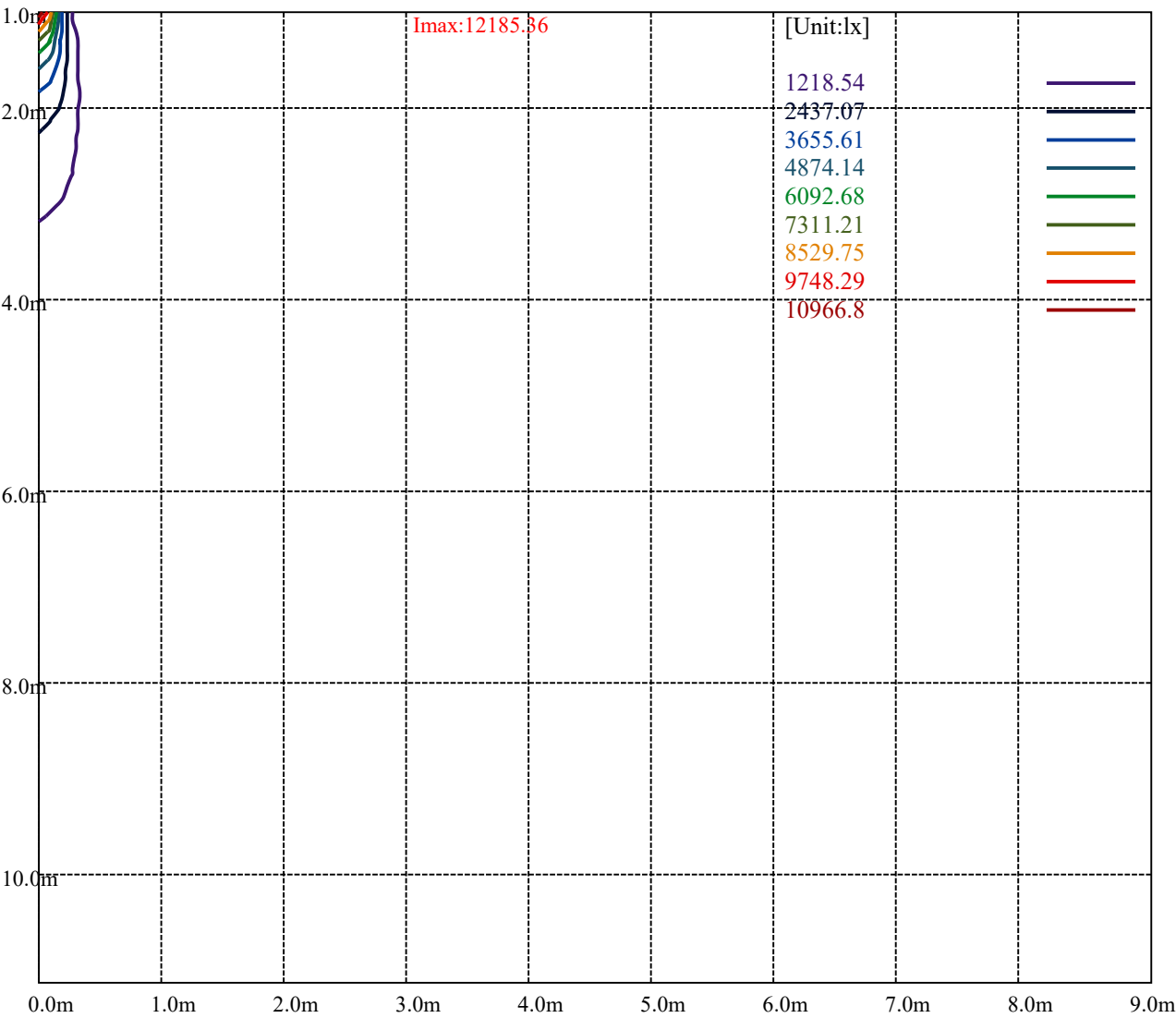
Road

Imax:12185.36

(10%Imax)	1218.54	—
(20%Imax)	2437.07	—
(30%Imax)	3655.61	—
(40%Imax)	4874.14	—
(50%Imax)	6092.68	—
(60%Imax)	7311.21	—
(70%Imax)	8529.75	—
(80%Imax)	9748.29	—
(90%Imax)	10966.8	—



(10%Emax)	135.3922	—
(20%Emax)	270.7845	—
(30%Emax)	406.1767	—
(40%Emax)	541.5689	—
(50%Emax)	676.9611	—
(60%Emax)	812.3533	—
(70%Emax)	947.7455	—
(80%Emax)	1083.138	—
(90%Emax)	1218.533	—



Luminance Table

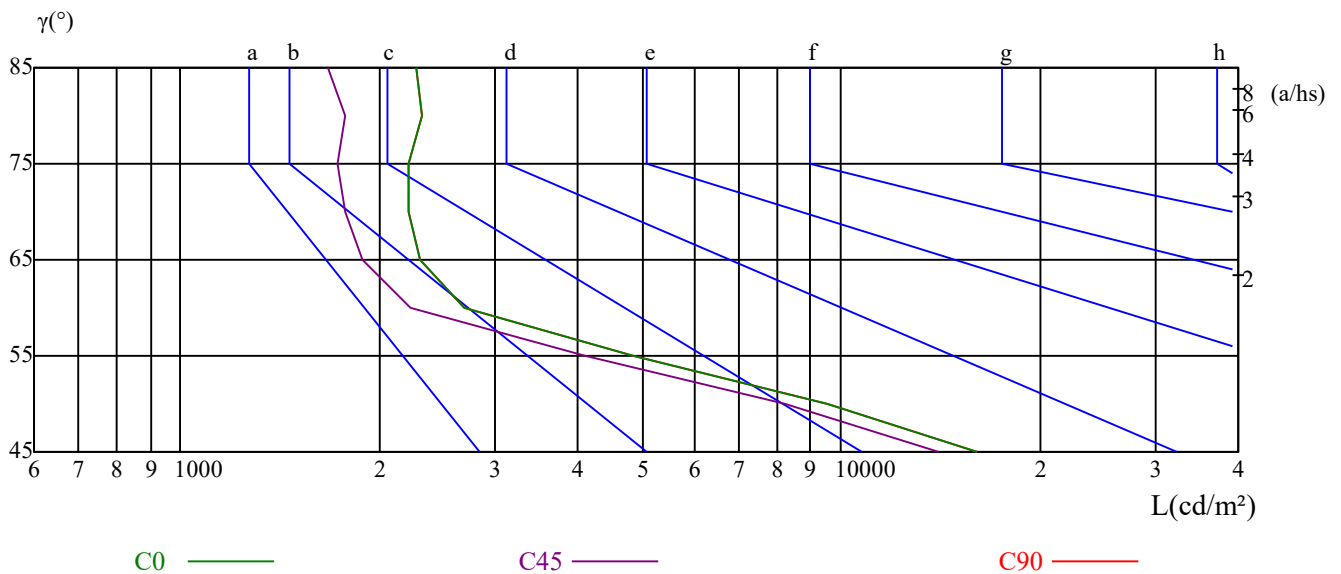
γ	45	50	55	60	65	70	75	80	85
C0	16113	9567	4834	2681	2304	2222	2211	2325	2274
C45	14060	8226	4093	2233	1884	1780	1731	1771	1676
C90	16113	9567	4834	2681	2304	2222	2211	2325	2274

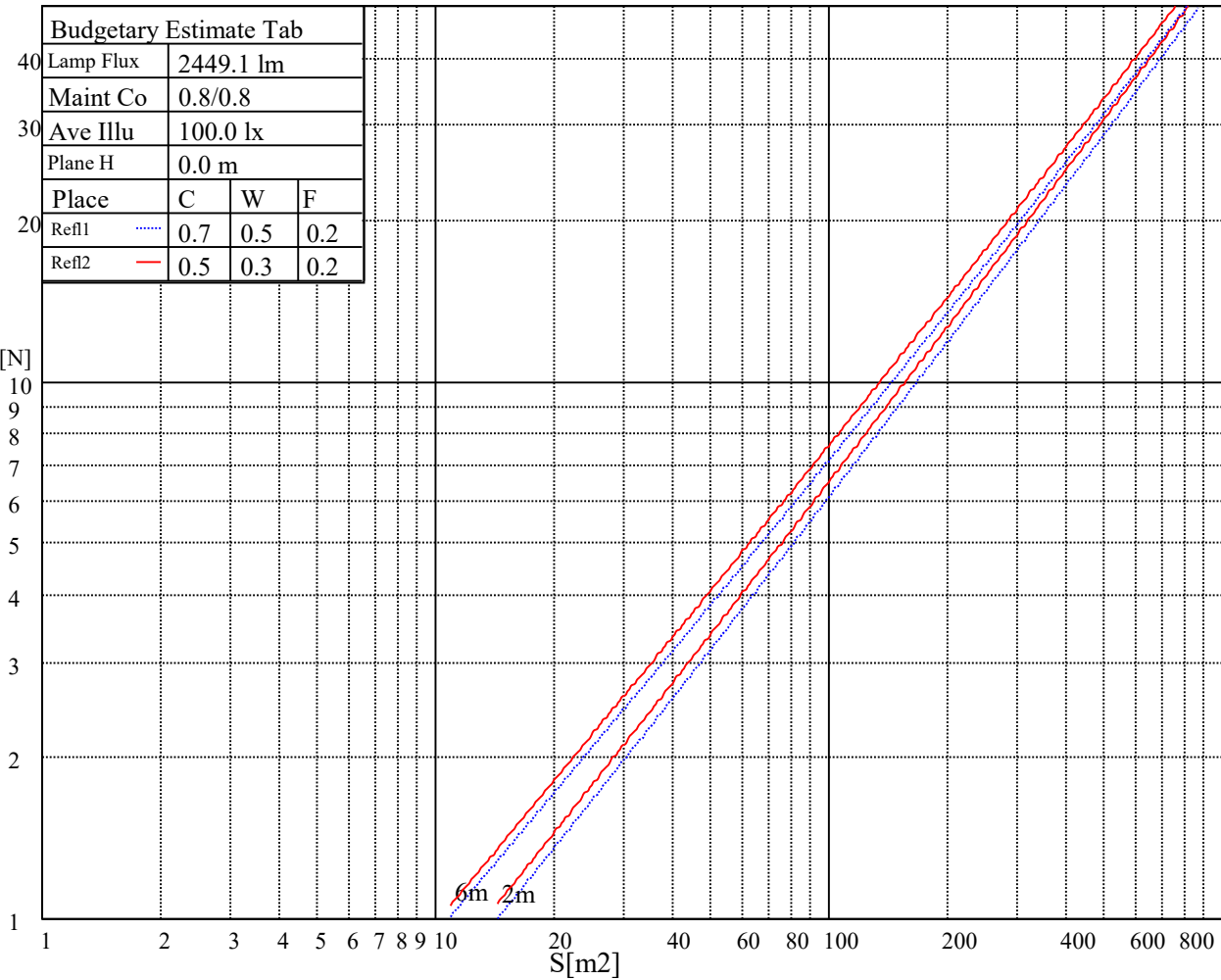
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4994	4994	4994	6702	6702	6702	16423	16423	16423

Glare Table

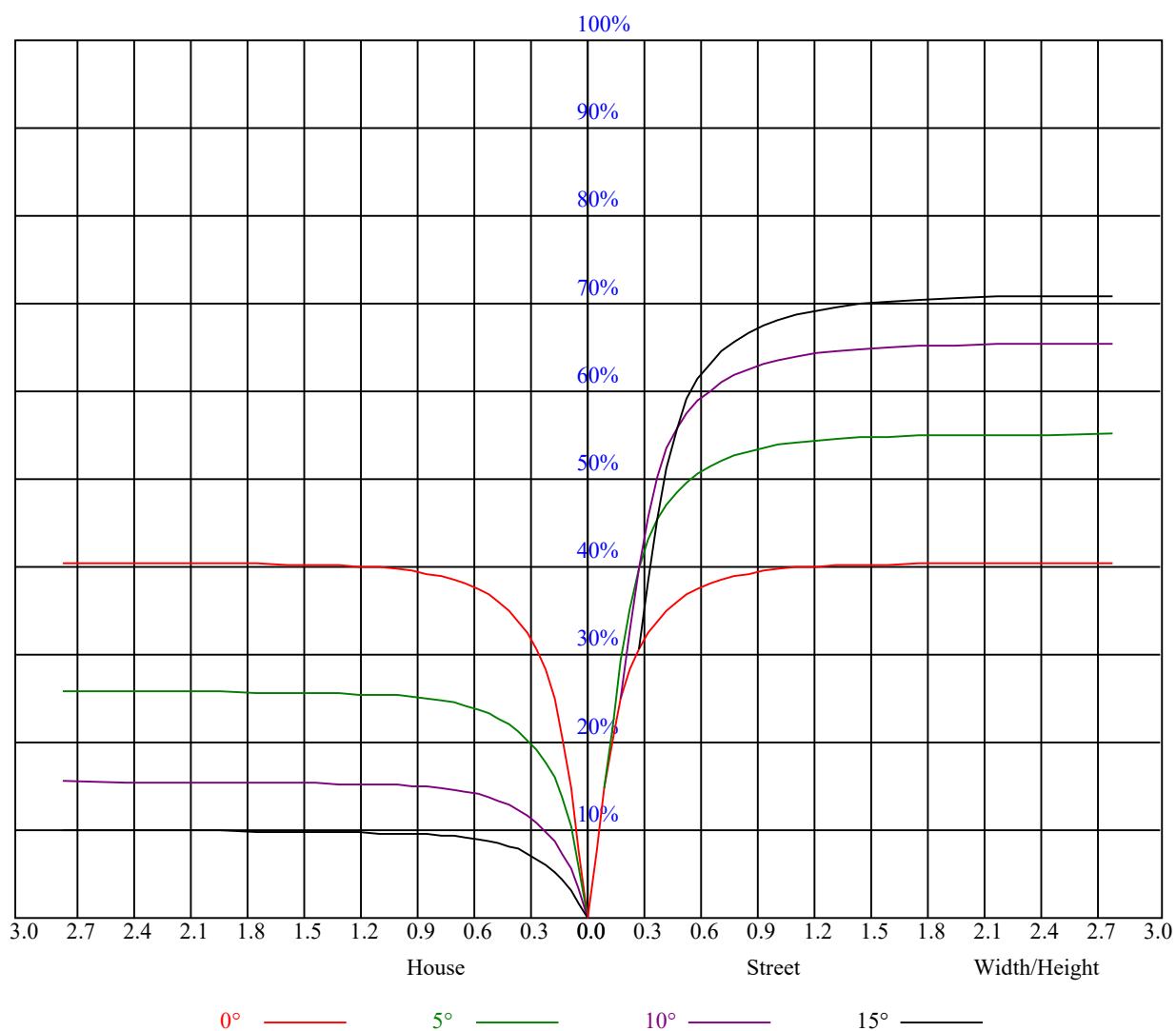
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	0.99	0.99	0.99	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.85	0.85	0.85	0.84
1	0.90	0.87	0.85	0.88	0.86	0.84	0.85	0.83	0.81	0.82	0.80	0.79	0.79	0.77	0.76	0.75
2	0.86	0.82	0.79	0.84	0.81	0.78	0.81	0.79	0.76	0.79	0.77	0.75	0.77	0.75	0.73	0.72
3	0.82	0.78	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.74	0.72	0.71	0.69
4	0.78	0.74	0.71	0.77	0.74	0.71	0.76	0.72	0.70	0.74	0.71	0.69	0.73	0.70	0.68	0.67
5	0.75	0.71	0.68	0.75	0.71	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.65
6	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.63
7	0.71	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.62
8	0.69	0.65	0.62	0.68	0.65	0.62	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.61	0.60
9	0.67	0.63	0.61	0.66	0.63	0.60	0.66	0.63	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.59
10	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.58



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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	12217.02	9695.43	4481.59	1485.97	880.35	572.04	380.44	282.99	163.41		
45.0	12200.50	10422.18	5698.34	2147.20	934.31	633.70	411.82	280.24	179.65		
90.0	12206.00	10514.12	5095.47	1647.29	908.21	589.76	394.64	252.38	173.98		
135.0	12117.91	11325.10	6771.94	2940.01	1054.88	686.55	447.61	292.90	195.89		
180.0	12217.02	10917.68	5620.71	1704.55	920.76	618.28	404.66	254.03	177.67		
225.0	12200.50	9992.19	4743.66	1462.30	862.57	570.22	378.90	238.61	163.96		
270.0	12206.00	10113.86	4833.95	1495.88	895.22	582.50	379.89	278.03	165.39		
315.0	12117.91	9038.06	3448.18	1060.11	809.99	520.06	349.61	220.06	149.26		
360.0	12217.02	9695.43	4481.59	1485.97	880.35	572.04	380.44	282.99	163.41		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	107.14	59.35	28.41	15.42	12.72	11.45	10.52	10.02	8.48		
45.0	115.07	66.45	32.21	16.90	13.38	11.95	11.01	10.52	9.03		
90.0	108.74	64.86	31.44	16.19	13.32	11.89	10.85	10.52	9.14		
135.0	128.01	76.14	38.10	18.88	13.93	12.44	11.40	10.90	9.74		
180.0	115.78	66.89	33.75	16.90	13.21	11.84	10.74	10.35	9.19		
225.0	105.76	59.68	27.80	15.69	13.10	11.84	10.85	10.35	8.92		
270.0	106.64	61.77	30.01	15.58	12.99	11.78	10.68	10.02	8.64		
315.0	91.34	51.04	24.33	14.48	12.72	11.51	10.57	9.69	8.31		
360.0	107.14	59.35	28.41	15.42	12.72	11.45	10.52	10.02	8.48		
C/γ(°)	90.0										
0.0	7.60										
45.0	7.76										
90.0	7.71										
135.0	7.76										
180.0	7.60										
225.0	7.76										
270.0	7.71										
315.0	7.65										
360.0	7.60										