
NATA

LumCAT: 2-1794-N	
Luminaire: 92.70.129.00	
Report No: NT2016061605	Voltage(V): 219.4000
Test No: nata-0100	Current(A): 0.0690
LampCAT: CREE CXA1816	Power (W): 14.1000
Lamp flux(lm): 1313.0	PF: 0.9220
Number of Lamps: 1	Ballast type: DC
Length(mm): 70	Width(mm): 70
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1128.26
Efficiency(%): 85.93%
Lumens(lm)/Power(W): 80.02
Central intensity(cd): 4413.596
Maximum intensity(cd): 4413.596
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=25.4
[C90/270]Total=25.4
Field angle(10%Imax): [C0/180]Total=53.7
[C90/270]Total=53.7
Maximum s/h(1/2): C0_180=0.43 C90_270=0.43
Maximum s/h(1/4): C0_180=0.45 C90_270=0.45
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 87.86%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.544%

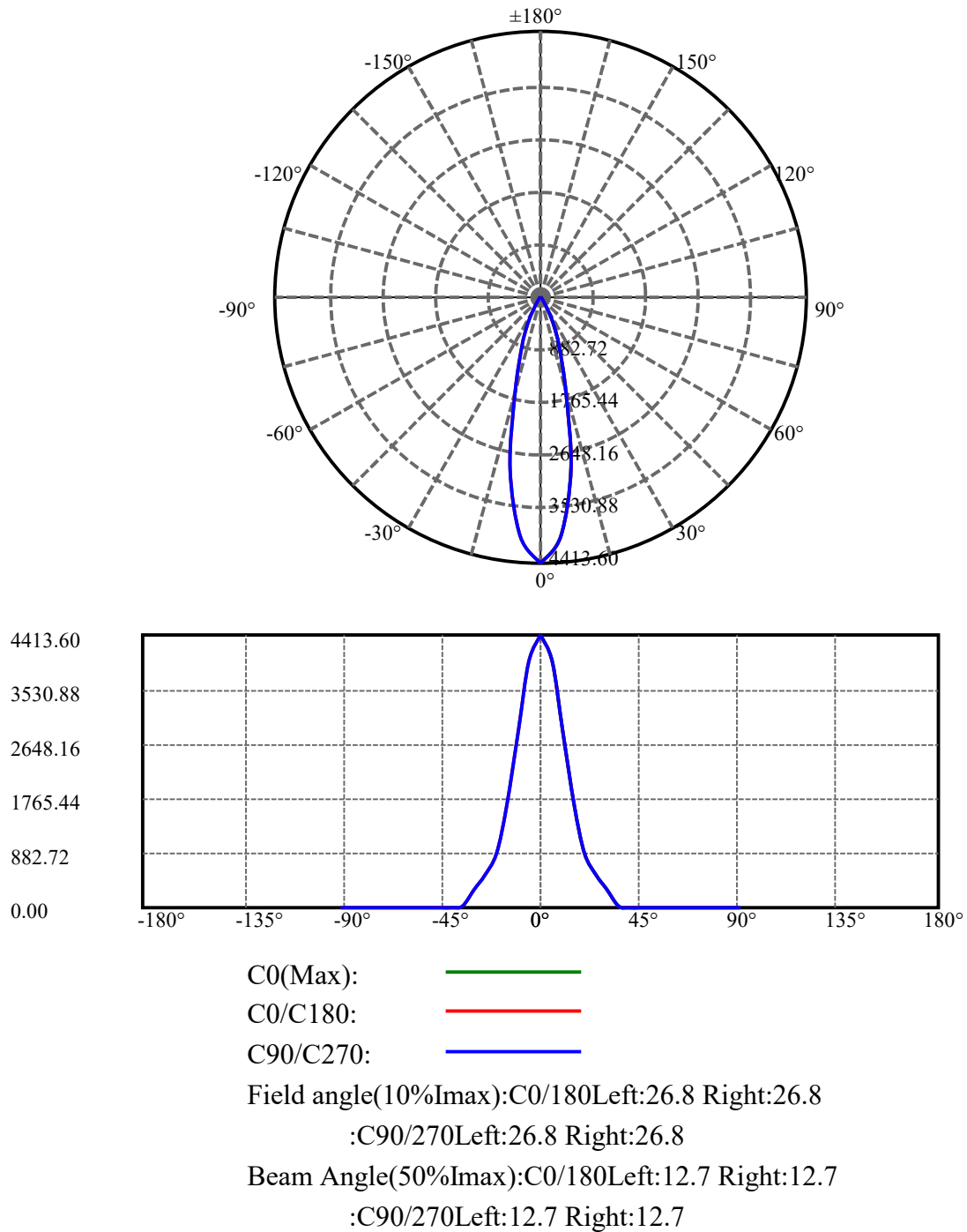
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	4413.596	26.394	26.394	2.010%	2.339%
5.0	3978.788	190.080	216.474	14.477%	19.186%
10.0	2890.667	275.143	491.617	20.955%	43.573%
15.0	1633.035	231.676	723.293	17.645%	64.107%
20.0	879.843	164.948	888.24	12.563%	78.726%
25.0	525.438	121.719	1009.959	9.270%	89.515%
30.0	297.662	81.580	1091.539	6.213%	96.745%
35.0	29.435	9.254	1100.794	.705%	97.565%
40.0	8.176	2.881	1103.674	.219%	97.821%
45.0	6.579	2.550	1106.224	.194%	98.047%
50.0	5.898	2.477	1108.701	.189%	98.266%
55.0	5.547	2.491	1111.191	.190%	98.487%
60.0	5.327	2.529	1113.72	.193%	98.711%
65.0	5.203	2.585	1116.305	.197%	98.940%
70.0	5.120	2.637	1118.942	.201%	99.174%
75.0	5.038	2.667	1121.609	.203%	99.410%
80.0	4.989	2.693	1124.303	.205%	99.649%
85.0	4.928	2.691	1126.993	.205%	99.887%
90.0	4.632	1.269	1128.263	.097%	100.000%

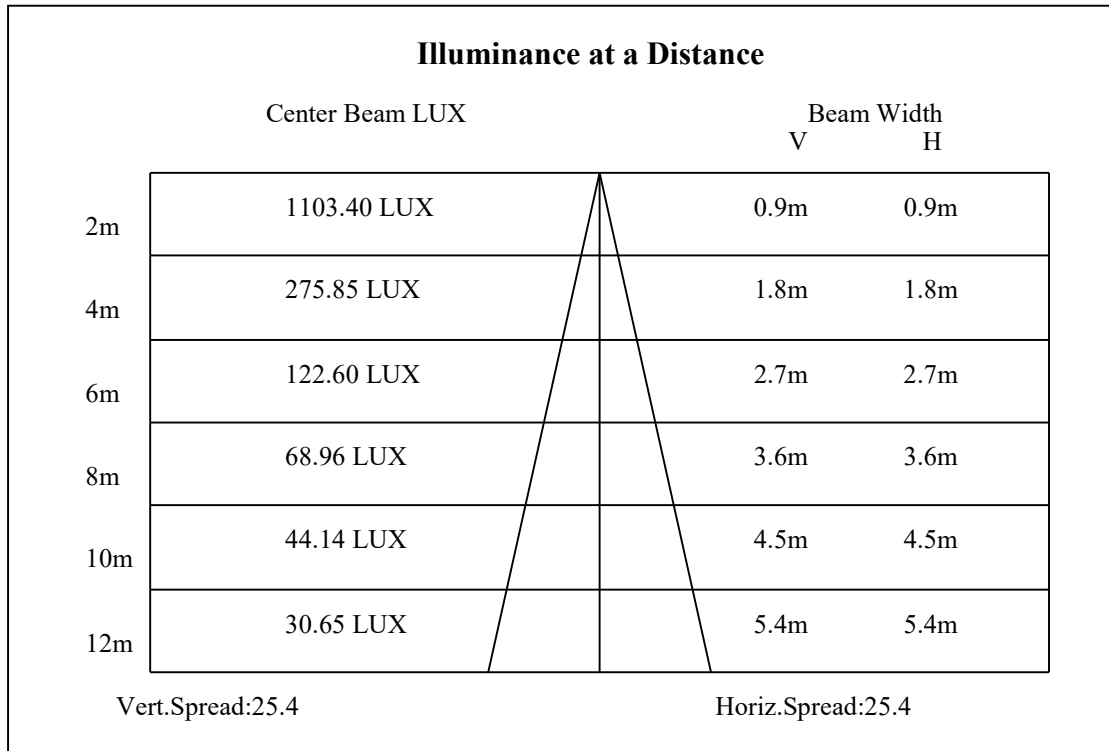
ZONAL LUMEN SUMMARY

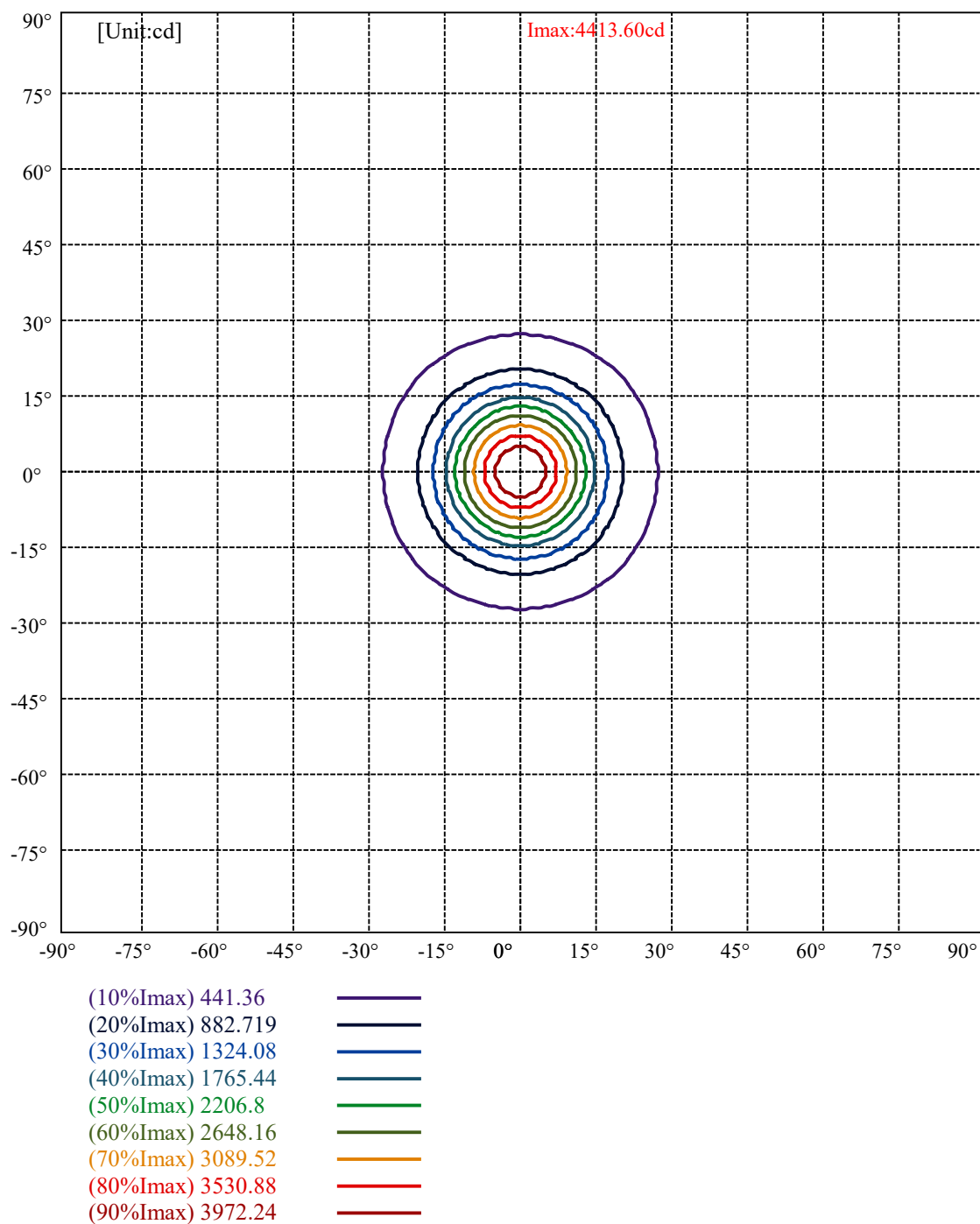
Zone	Lumens	%Lamp	%Fixt
0-30	1091.54	83.13%	96.75%
0-40	1103.67	84.06%	97.82%
0-60	1113.72	84.82%	98.71%
0-90	1126.99	85.83%	99.89%
0-120	1126.99	85.83%	99.89%
0-180	1128.26	85.93%	100.00%
60-90	15.80	1.20%	1.40%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-20.59	902.61	68.74%	80.00%

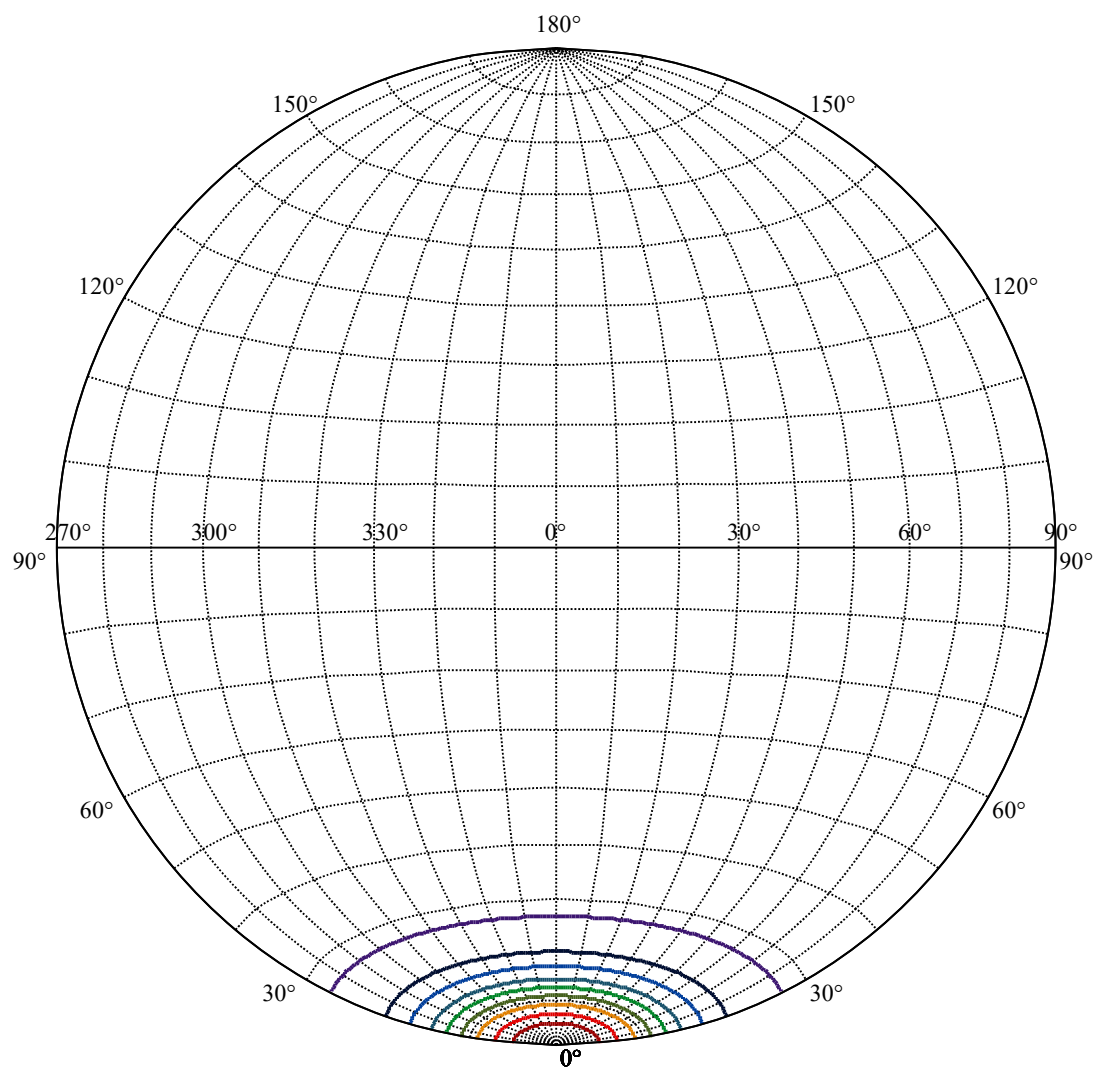
ZONAL LUMEN SUMMARY

0-10	491.62
10-20	396.62
20-30	203.30
30-40	12.13
40-50	5.03
50-60	5.02
60-70	5.22
70-80	5.36
80-90	2.69
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









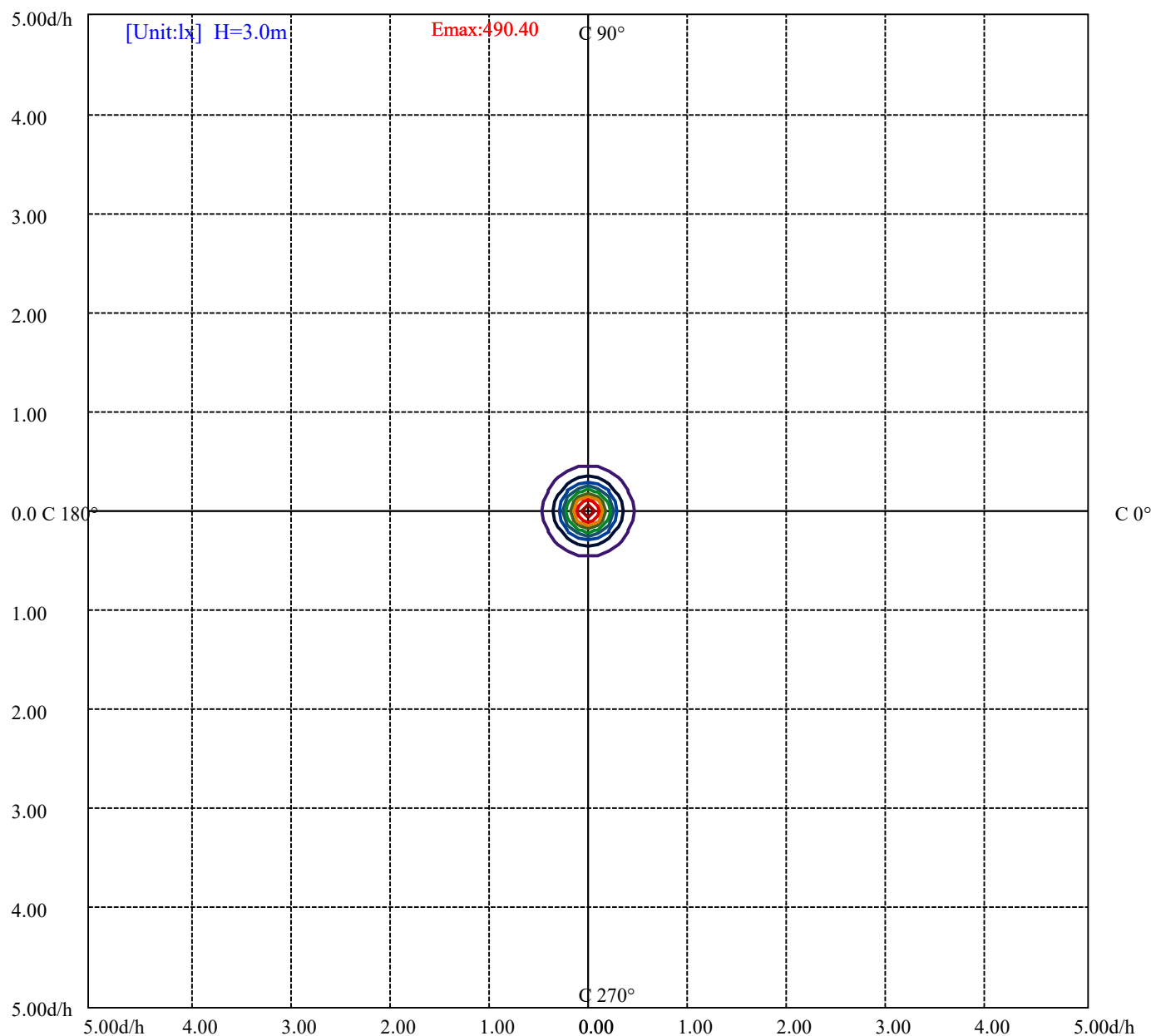
House

[Unit:cd]

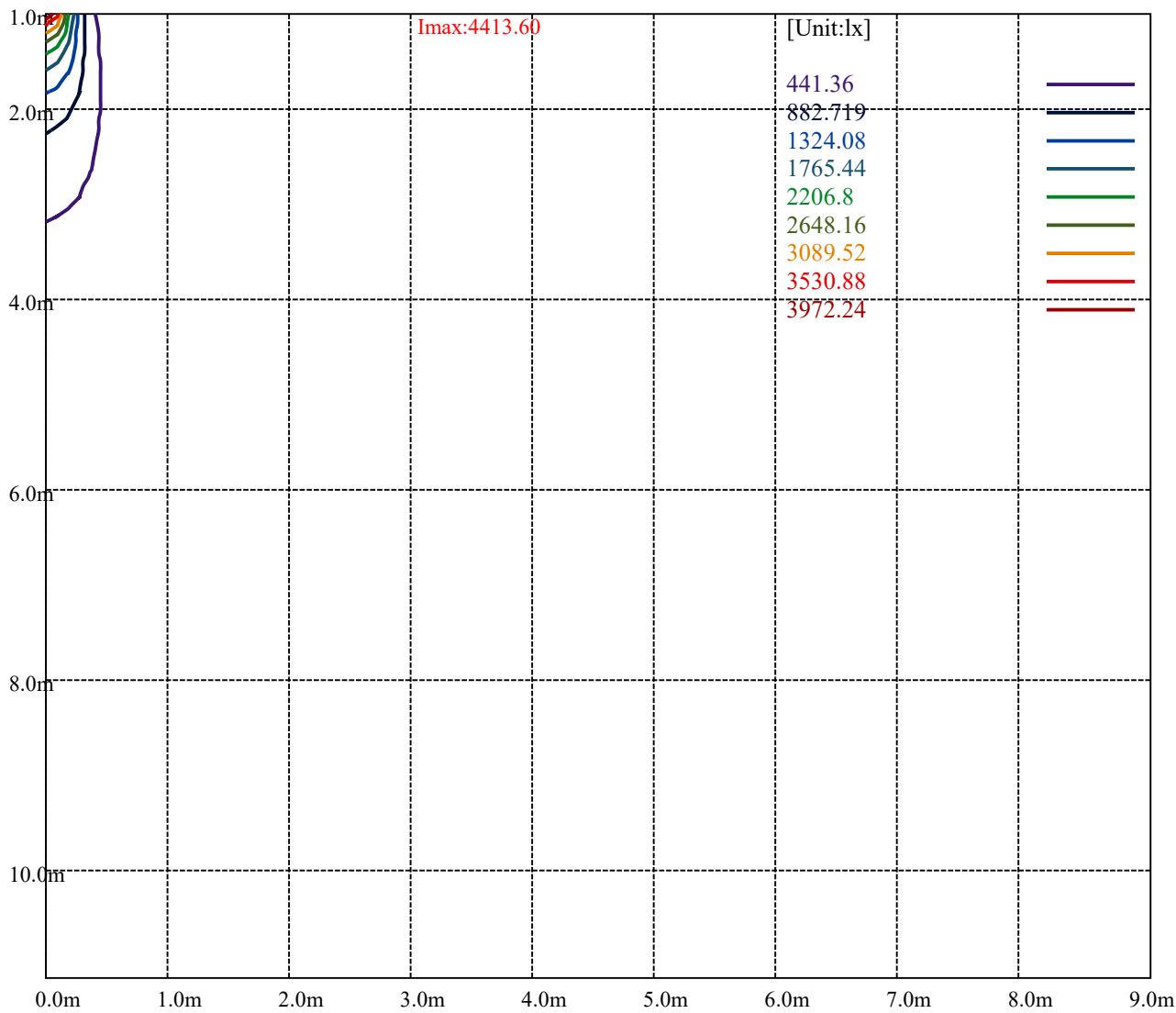
Road

Imax:4413.60

(10%Imax)	441.36	—
(20%Imax)	882.719	—
(30%Imax)	1324.08	—
(40%Imax)	1765.44	—
(50%Imax)	2206.8	—
(60%Imax)	2648.16	—
(70%Imax)	3089.52	—
(80%Imax)	3530.88	—
(90%Imax)	3972.24	—



(10%Emax)	49.03978	
(20%Emax)	98.07967	
(30%Emax)	147.1189	
(40%Emax)	196.1589	
(50%Emax)	245.1989	
(60%Emax)	294.2389	
(70%Emax)	343.2789	
(80%Emax)	392.3189	
(90%Emax)	441.3578	



Luminance Table

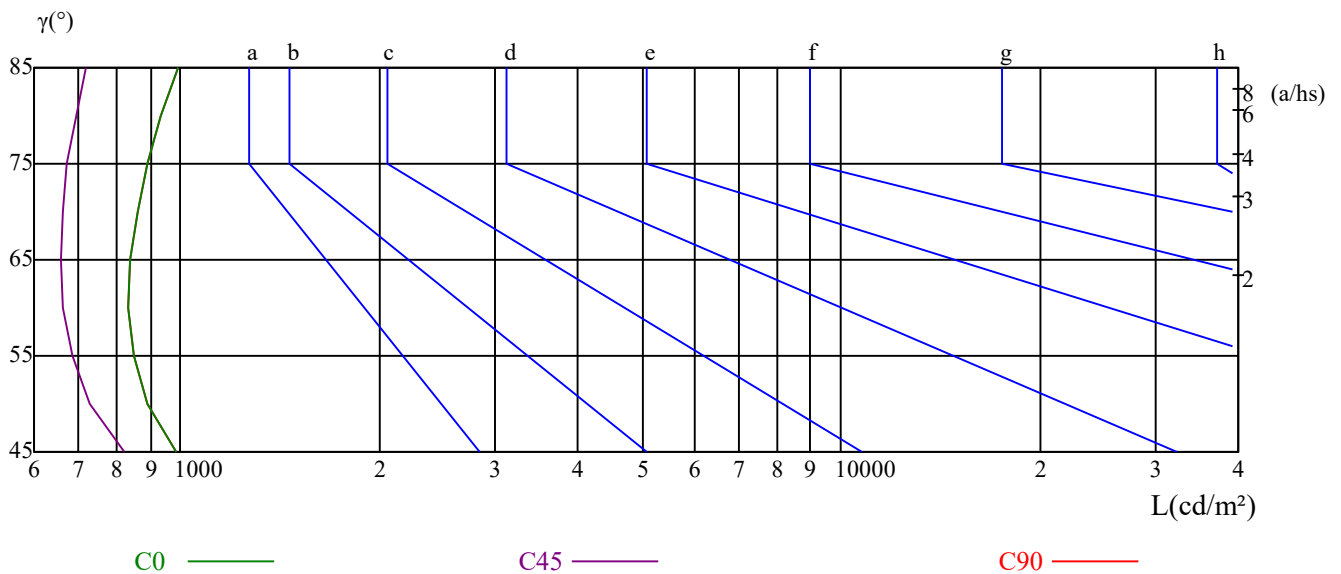
γ	45	50	55	60	65	70	75	80	85
C0	985	889	848	834	840	860	890	936	994
C45	821	730	686	664	658	663	673	694	721
C90	985	889	848	834	840	860	890	936	994

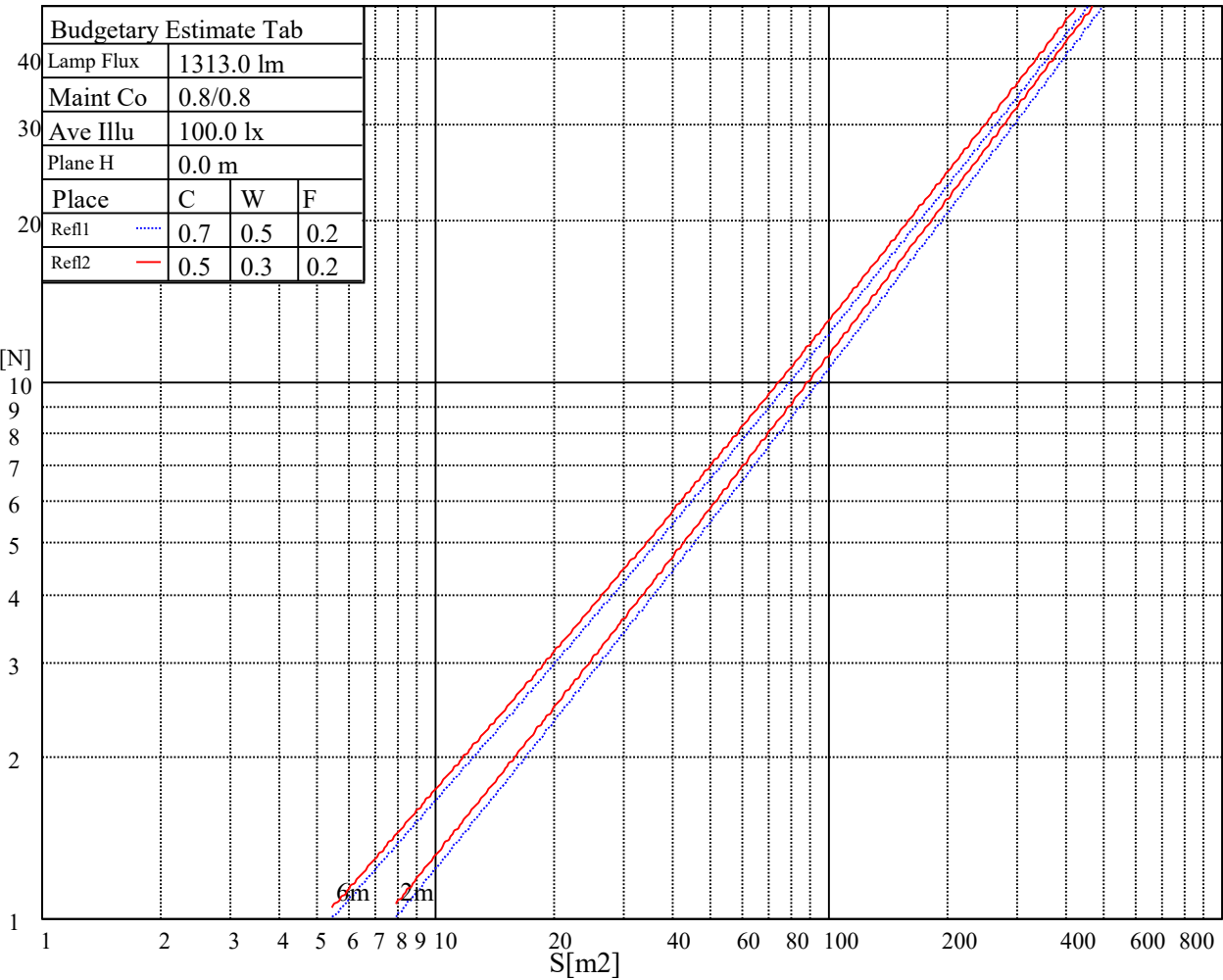
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2512	2512	2512	3972	3972	3972	11538	11538	11538

Glare Table

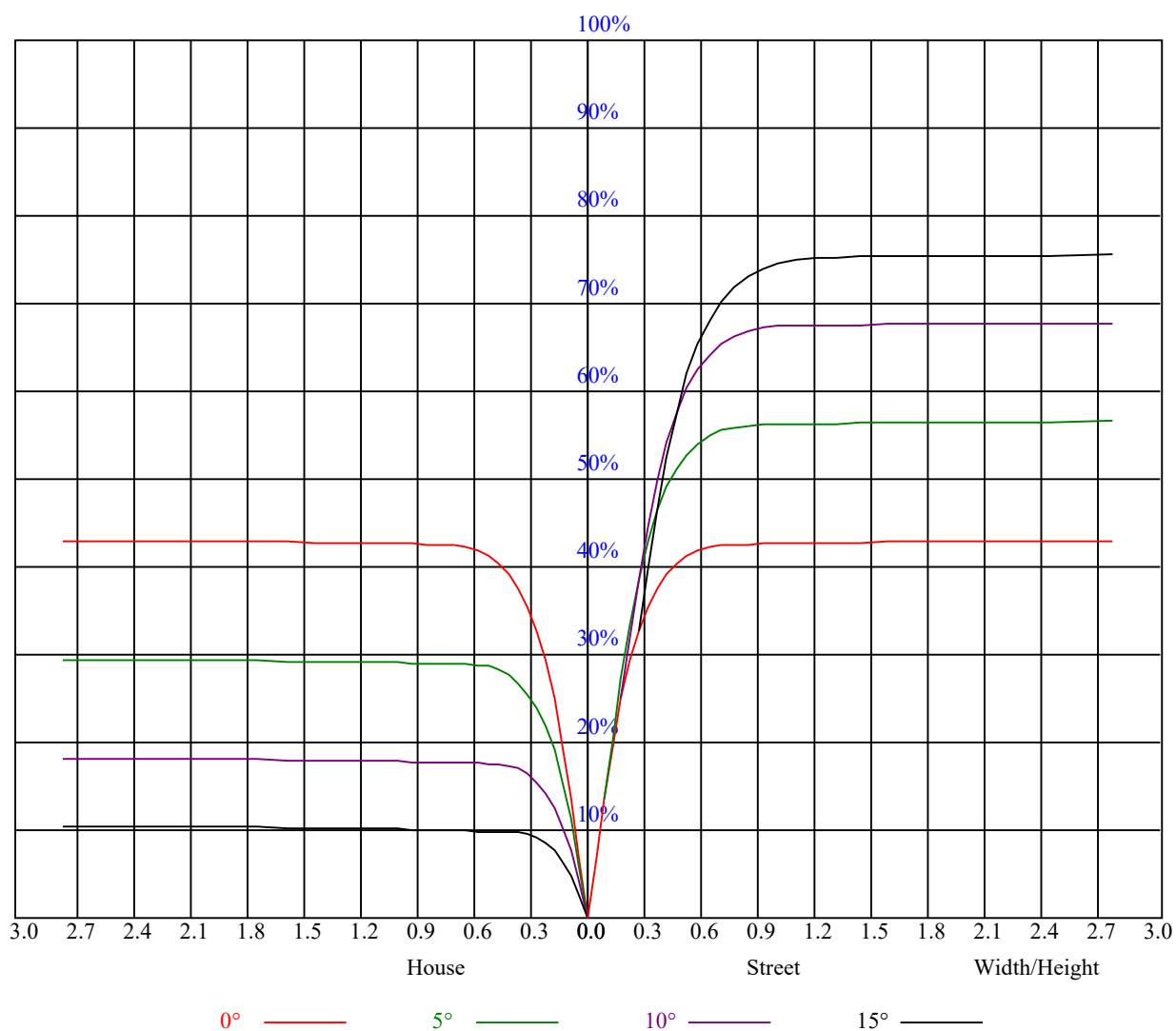
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	1.05	1.05	1.05	1.02	1.02	1.02	0.98	0.98	0.98	0.93	0.93	0.93	0.90	0.90	0.90	0.88
1	0.96	0.94	0.92	0.95	0.92	0.90	0.91	0.89	0.88	0.88	0.86	0.85	0.85	0.84	0.82	0.81
2	0.92	0.89	0.86	0.90	0.87	0.85	0.88	0.85	0.83	0.85	0.83	0.81	0.83	0.81	0.80	0.78
3	0.88	0.84	0.81	0.87	0.83	0.81	0.85	0.82	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.76
4	0.85	0.81	0.78	0.84	0.80	0.77	0.82	0.79	0.76	0.80	0.78	0.76	0.79	0.77	0.75	0.74
5	0.82	0.78	0.75	0.81	0.77	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.77	0.75	0.73	0.72
6	0.79	0.75	0.72	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.73	0.71	0.70
7	0.77	0.73	0.70	0.76	0.72	0.70	0.75	0.72	0.70	0.74	0.71	0.69	0.73	0.71	0.69	0.68
8	0.74	0.71	0.68	0.74	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.72	0.69	0.67	0.66
9	0.72	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.67	0.66	0.65
10	0.71	0.67	0.65	0.70	0.67	0.64	0.70	0.67	0.64	0.69	0.66	0.64	0.69	0.66	0.64	0.63



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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	4416.07	3936.53	2897.62	1607.10	847.32	526.89	291.80	20.21	8.59		
45.0	4417.17	4125.93	3165.19	1857.05	1016.34	567.08	354.01	58.91	7.82		
90.0	4433.14	4098.95	3038.56	1764.01	956.72	548.36	325.88	28.68	7.87		
135.0	4388.00	4156.21	3287.97	1964.41	1028.45	565.43	384.84	66.07	10.19		
180.0	4416.07	3986.63	2756.67	1642.88	866.64	525.51	296.92	20.21	8.31		
225.0	4417.17	3873.22	2676.29	1509.10	787.64	489.12	241.97	12.66	6.99		
270.0	4433.14	3923.32	2794.11	1651.14	832.45	507.62	289.05	15.58	7.27		
315.0	4388.00	3729.52	2508.92	1068.59	703.18	473.49	196.83	13.16	8.37		
360.0	4416.07	3936.53	2897.62	1607.10	847.32	526.89	291.80	20.21	8.59		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	6.72	6.00	5.56	5.29	5.12	5.07	4.90	4.90	4.84		
45.0	6.28	5.73	5.51	5.40	5.29	5.23	5.07	5.07	4.96		
90.0	6.28	5.78	5.51	5.29	5.18	5.07	5.01	4.90	4.84		
135.0	7.49	6.33	5.73	5.34	5.18	5.01	5.01	4.90	4.84		
180.0	6.77	6.00	5.56	5.29	5.12	5.01	4.96	4.84	4.73		
225.0	6.11	5.62	5.45	5.34	5.23	5.23	5.12	5.12	5.07		
270.0	6.17	5.67	5.45	5.34	5.29	5.18	5.12	5.07	5.18		
315.0	6.83	6.06	5.62	5.34	5.23	5.18	5.12	5.12	4.96		
360.0	6.72	6.00	5.56	5.29	5.12	5.07	4.90	4.90	4.84		
C/γ(°)	90.0										
0.0	4.51										
45.0	4.68										
90.0	4.68										
135.0	4.62										
180.0	4.51										
225.0	4.73										
270.0	4.68										
315.0	4.62										
360.0	4.51										