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Nata

Client:

LumCAT: 2-2010-M

Luminaire: 92.70.131.00

Report No: GC2019091909

Test No: NATA07

LampCAT: OSRAM OPTO SOLERIQ S13

Lamp flux(lm): 1233.0

Number of Lamps: 1

Length(mm): 70

Phm Type: C

Voltage(V): 220.3000

Current(A): 0.0720

Power (W): 14.7100

PF: 0.9230

Ballast type: AC

Width(mm): 70

Height(mm): 0

Photometric Results

Lumens(lm): 1076.74, Efficiency(%): 87.33% , Luminous Efficacy(lm/W): 73.20

Central intensity(cd): 1143.541, Maximum intensity(cd): 1143.541

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=63.0

[C90/270]Total=63.0

Field angle(10%Imax): [C0/180]Total=84.6

[C90/270]Total=84.6

Maximum s/h(1/2): C0_180=0.97 C90_270=0.97

Maximum s/h(1/4): C0_180=0.93 C90_270=0.93

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 87.33%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 99.549%

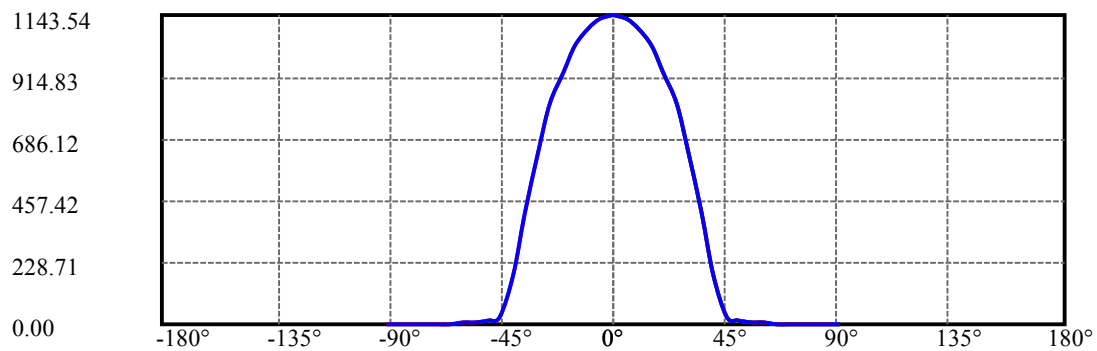
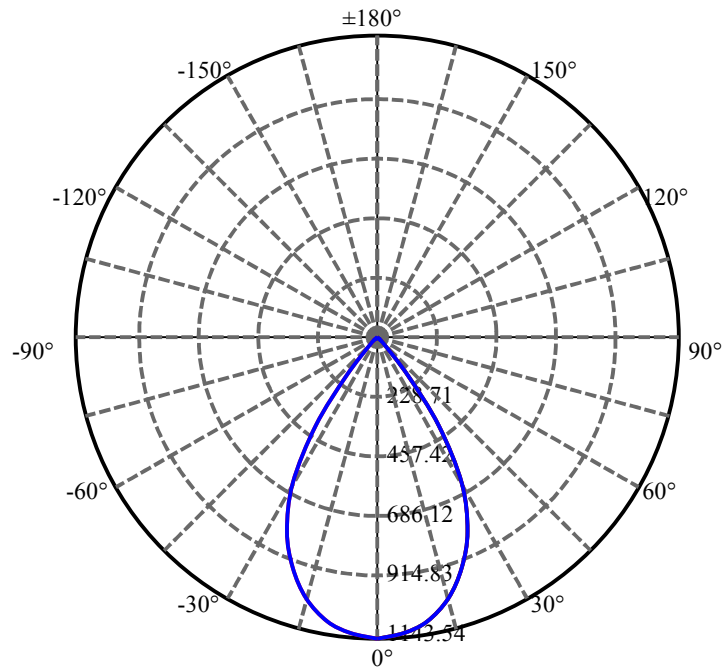
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1143.541	0.000	0	.000%	.000%
5.0	1129.562	27.174	27.174	2.204%	2.524%
10.0	1091.163	79.442	106.617	6.443%	9.902%
15.0	1028.188	125.718	232.335	10.196%	21.578%
20.0	933.867	161.701	394.036	13.114%	36.595%
25.0	813.636	183.281	577.317	14.865%	53.617%
30.0	641.909	184.200	761.517	14.939%	70.724%
35.0	410.461	154.969	916.486	12.568%	85.117%
40.0	185.840	99.488	1015.974	8.069%	94.356%
45.0	31.235	40.193	1056.167	3.260%	98.089%
50.0	13.300	8.999	1065.167	.730%	98.925%
55.0	6.682	4.345	1069.511	.352%	99.328%
60.0	3.614	2.380	1071.891	.193%	99.549%
65.0	2.001	1.365	1073.256	.111%	99.676%
70.0	1.305	0.837	1074.093	.068%	99.754%
75.0	1.230	0.663	1074.756	.054%	99.815%
80.0	1.206	0.652	1075.408	.053%	99.876%
85.0	1.212	0.657	1076.065	.053%	99.937%
90.0	1.264	0.678	1076.743	.055%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	761.52	61.76%	70.72%
0-40	1015.97	82.40%	94.36%
0-60	1071.89	86.93%	99.55%
0-90	1076.06	87.27%	99.94%
0-120	1076.06	87.27%	99.94%
0-180	1076.74	87.33%	100.00%
60-90	6.55	0.53%	0.61%
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%
0-33.22	861.39	69.86%	80.00%

ZONAL LUMEN SUMMARY

0-10	106.62
10-20	287.42
20-30	367.48
30-40	254.46
40-50	49.19
50-60	6.72
60-70	2.20
70-80	1.31
80-90	0.66
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



C0(Max):

C0/C180:

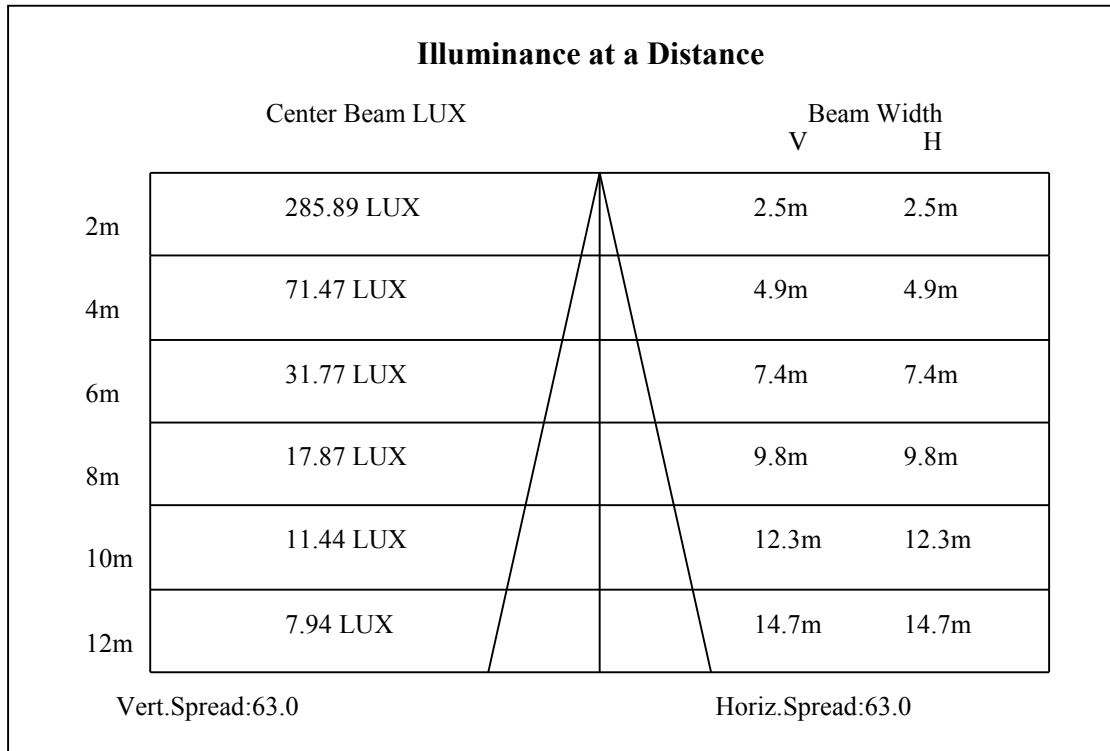
C90/C270:

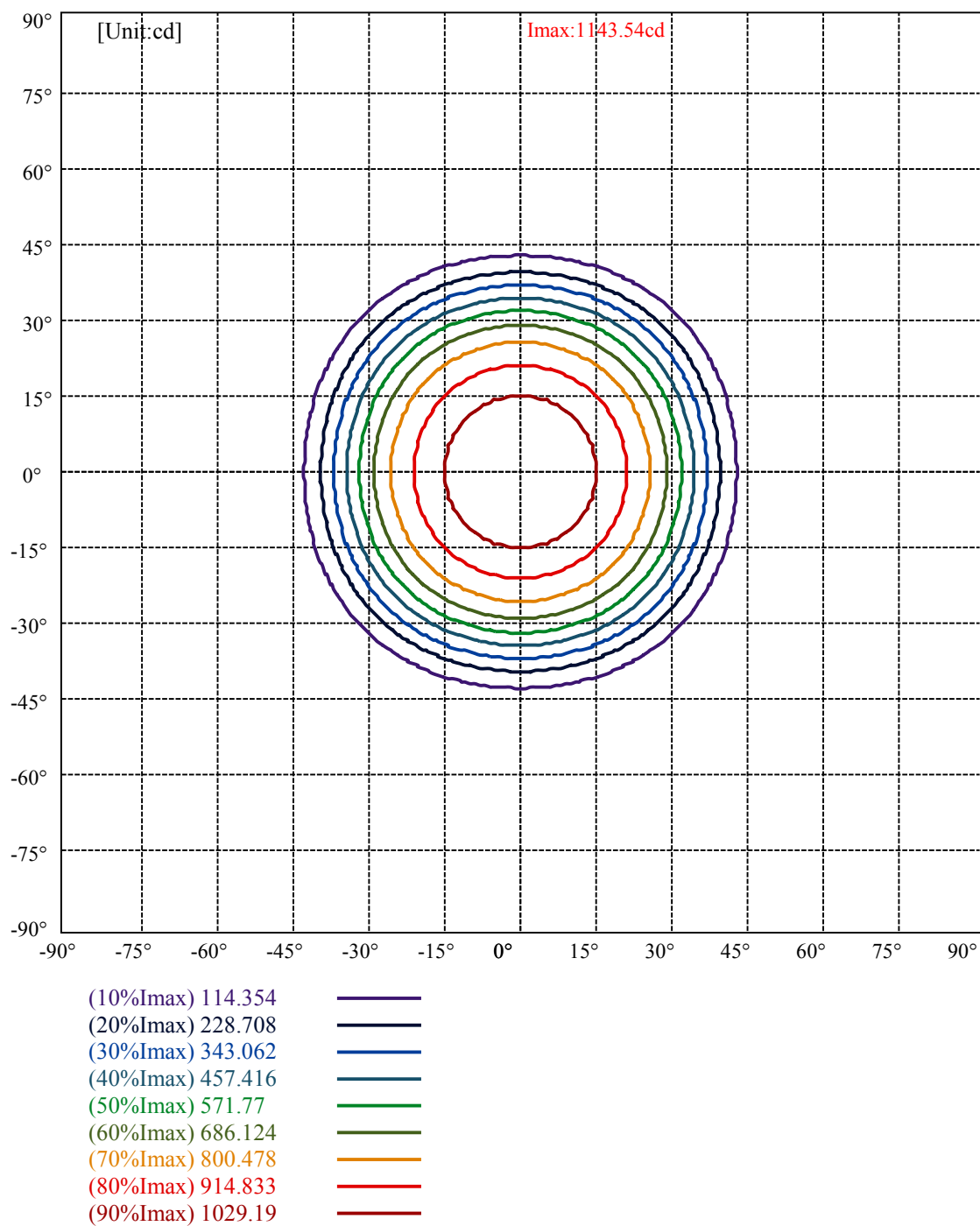
Field angle(10%Imax):C0/180Left:42.3 Right:42.3

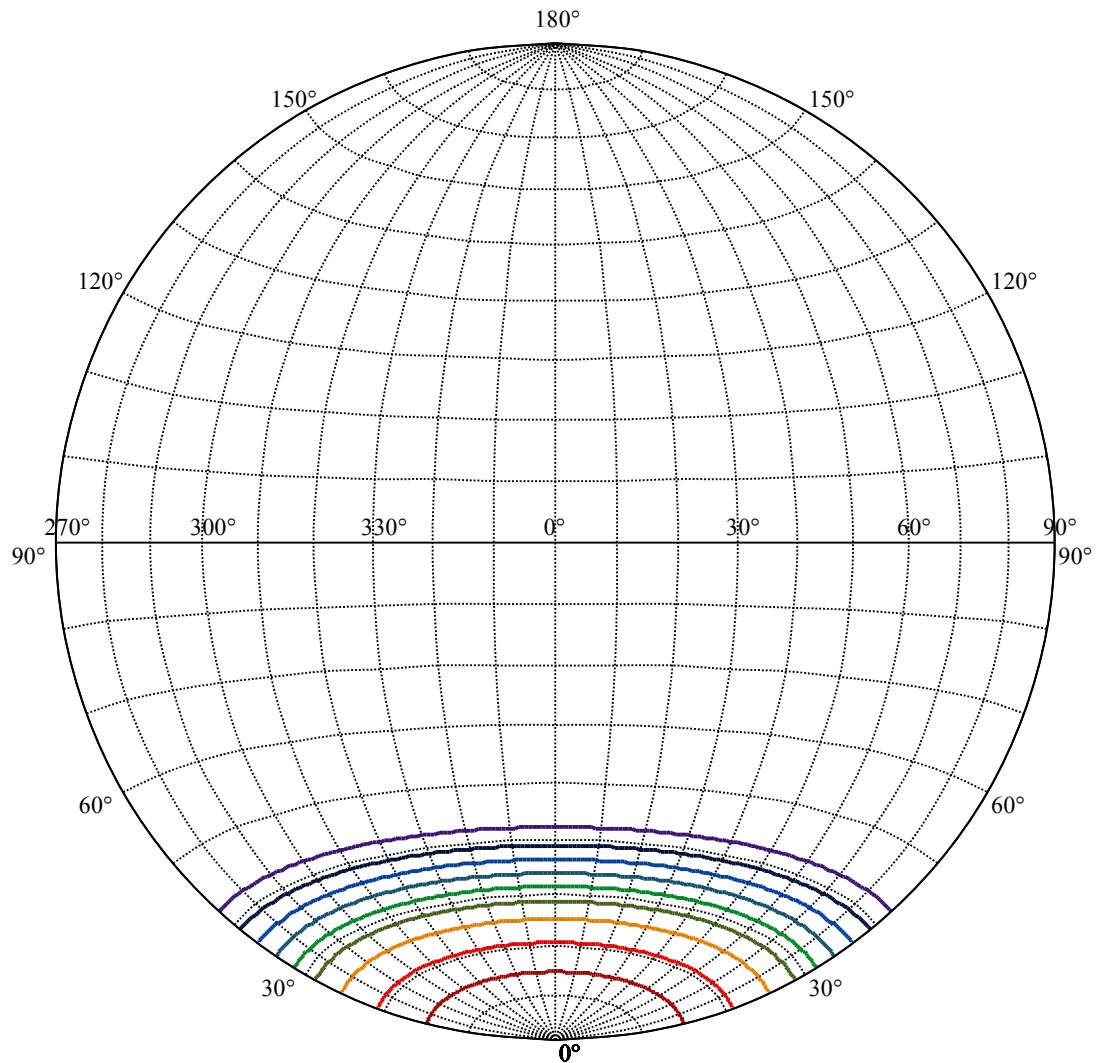
:C90/270Left:42.3 Right:42.3

Beam Angle(50%Imax):C0/180Left:31.5 Right:31.5

:C90/270Left:31.5 Right:31.5







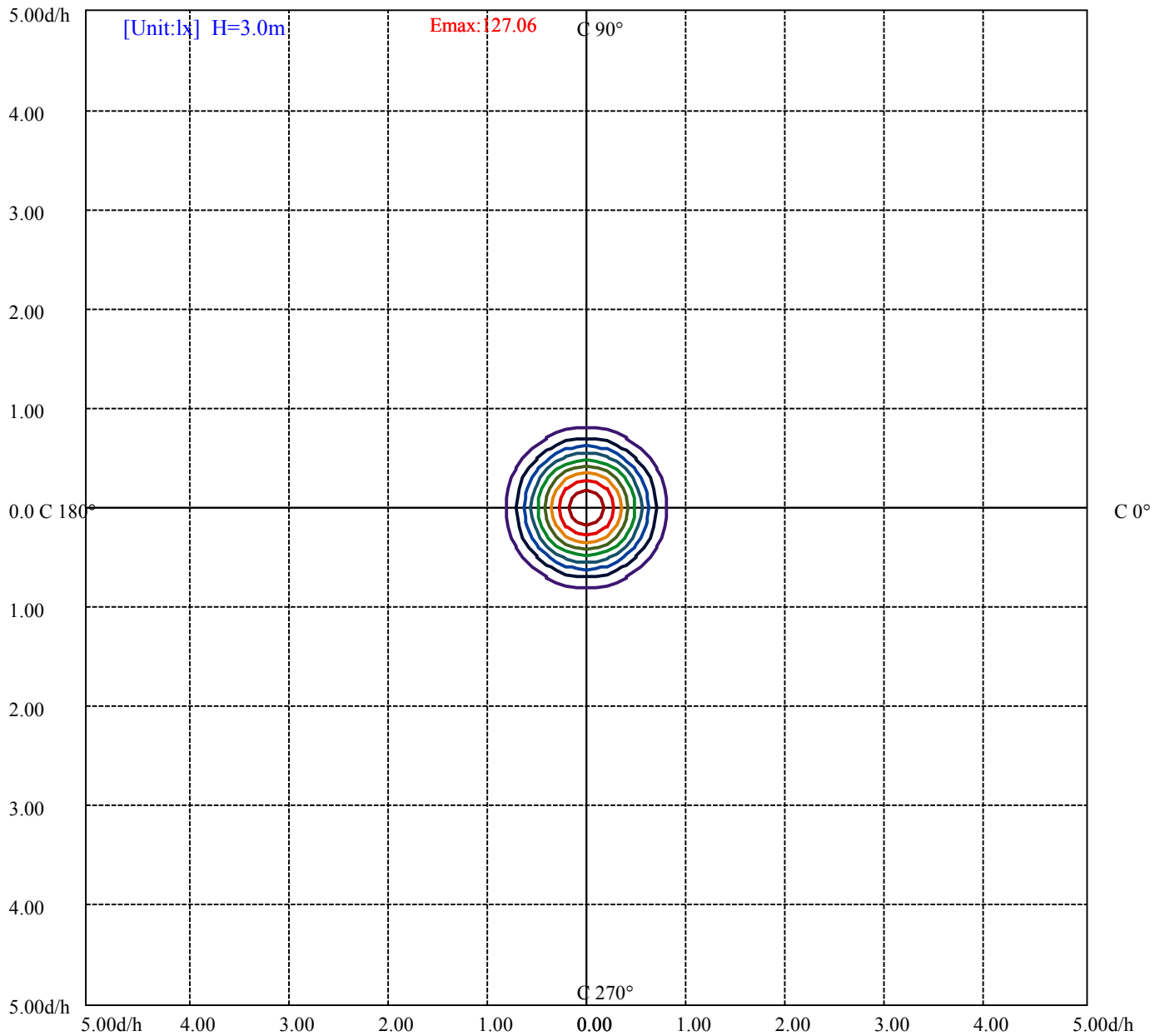
House

[Unit:cd]

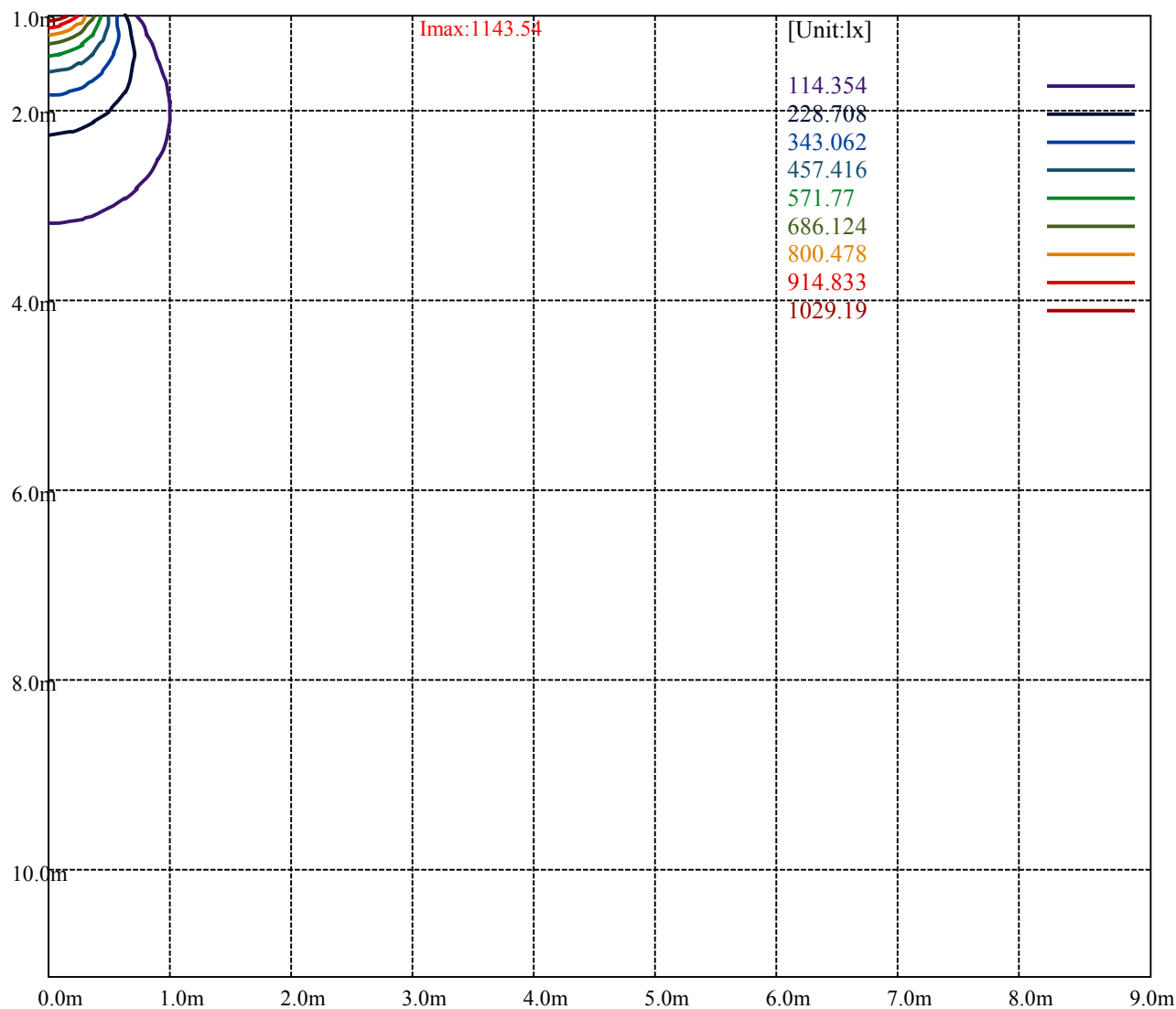
Road

Imax:1143.54

(10%Imax)	114.354	
(20%Imax)	228.708	
(30%Imax)	343.062	
(40%Imax)	457.416	
(50%Imax)	571.77	
(60%Imax)	686.124	
(70%Imax)	800.478	
(80%Imax)	914.833	
(90%Imax)	1029.19	



(10%Emax) 12.706	—
(20%Emax) 25.412	—
(30%Emax) 38.118	—
(40%Emax) 50.824	—
(50%Emax) 63.53	—
(60%Emax) 76.236	—
(70%Emax) 88.942	—
(80%Emax) 101.648	—
(90%Emax) 114.3544	—



Luminance Table

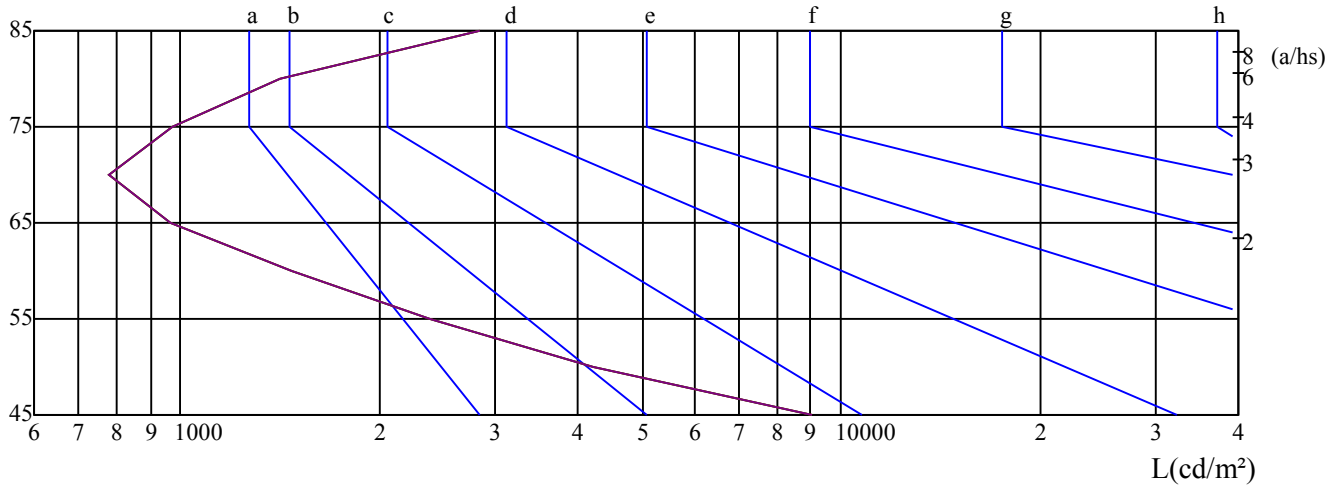
γ	45	50	55	60	65	70	75	80	85
C0	9015	4223	2378	1475	966	779	970	1418	2839
C45	9015	4223	2378	1475	966	779	970	1418	2839
C90	9015	4223	2378	1475	966	779	970	1418	2839

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
966	966	966	970	970	970	2839	2839	2839

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

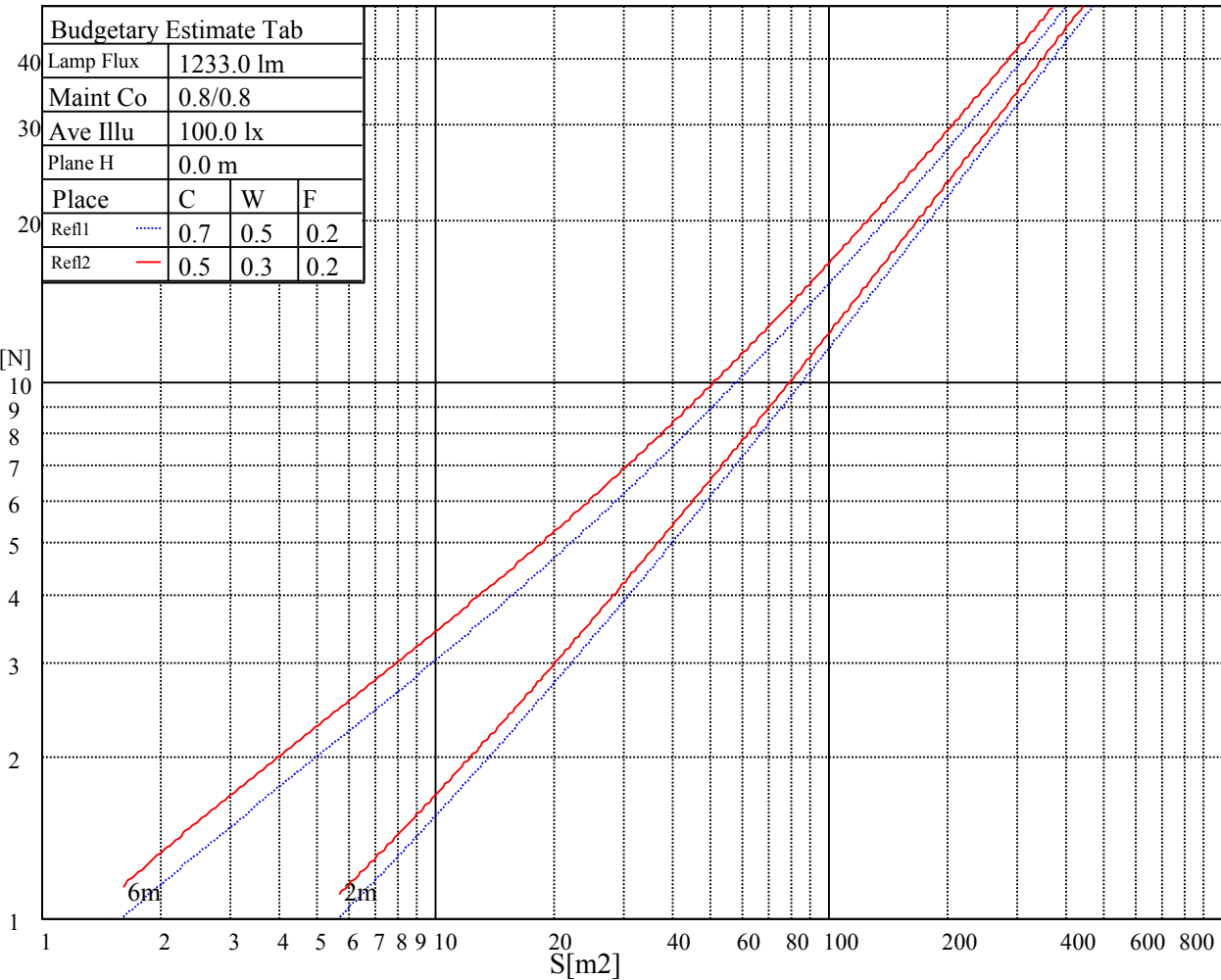
Luminance Limiting Curve

 $\gamma(^{\circ})$ 

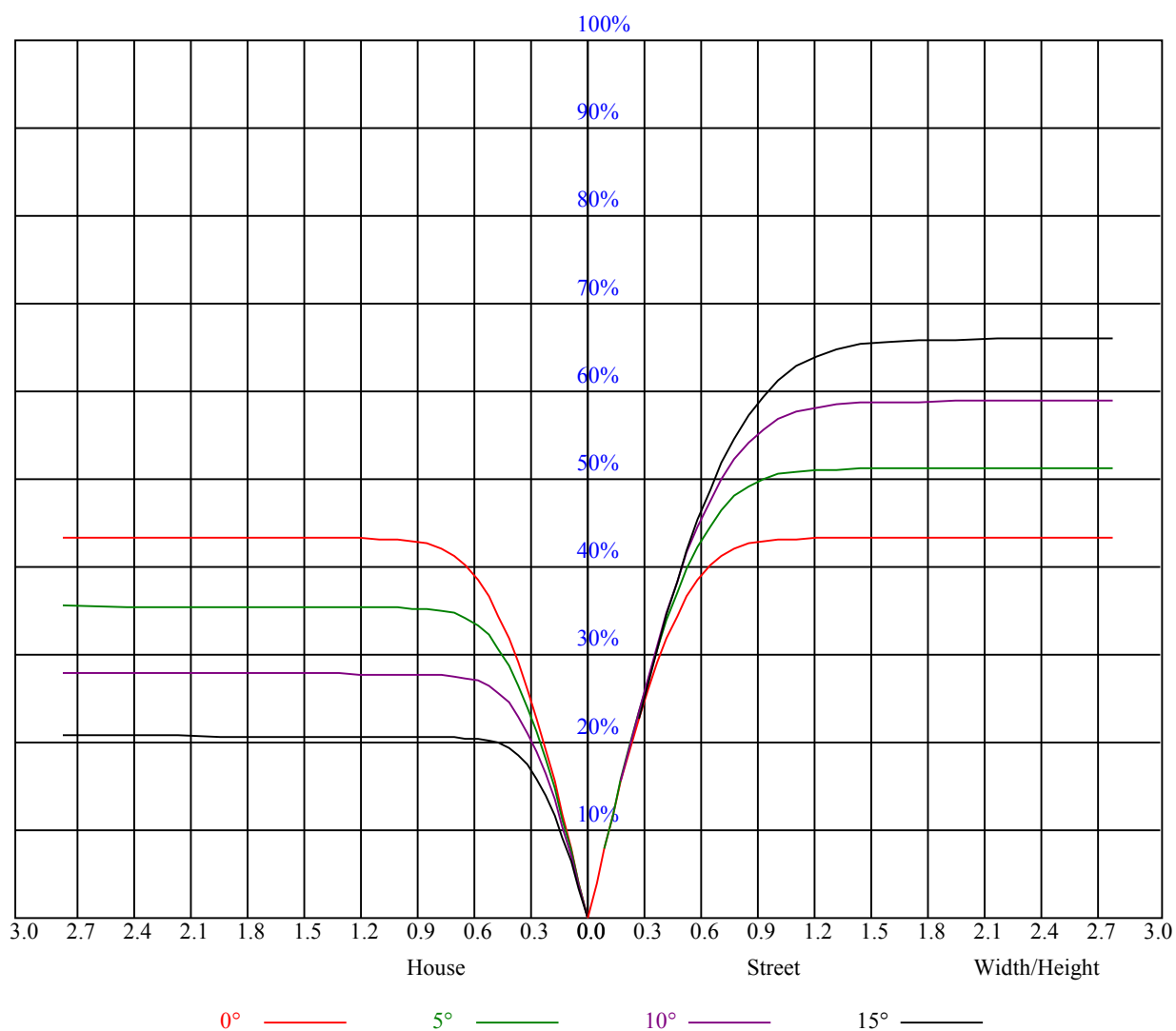
C0 ———

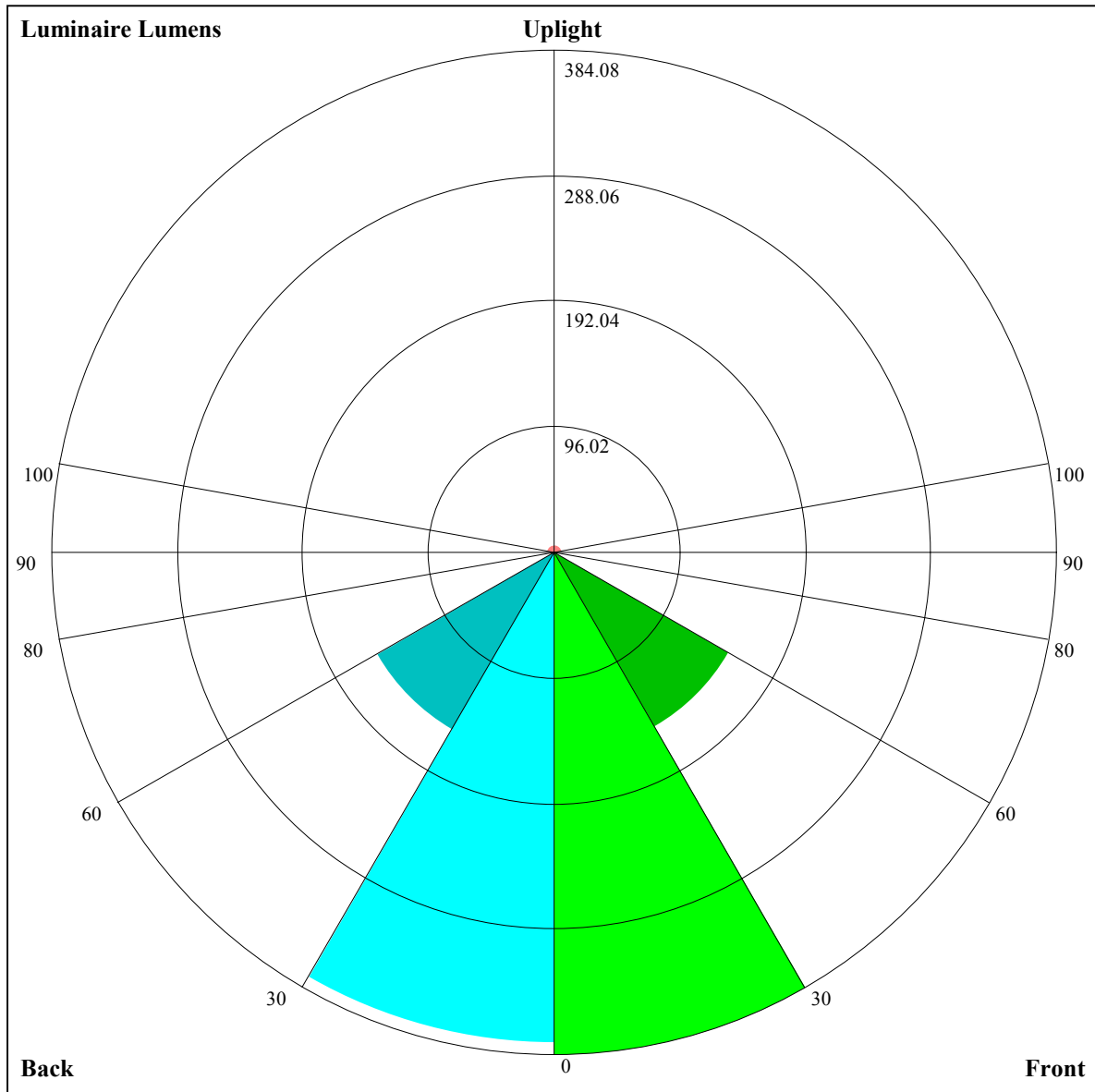
C45 ———

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	1.04	1.04	1.04	1.02	1.02	1.02	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.87
1	0.97	0.95	0.93	0.95	0.93	0.91	0.91	0.90	0.88	0.88	0.87	0.86	0.85	0.84	0.83	0.82
2	0.90	0.86	0.83	0.88	0.85	0.83	0.86	0.83	0.81	0.83	0.81	0.79	0.81	0.79	0.77	0.76
3	0.84	0.80	0.76	0.83	0.79	0.75	0.80	0.77	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.71
4	0.78	0.74	0.70	0.77	0.73	0.69	0.75	0.72	0.69	0.74	0.70	0.68	0.72	0.69	0.67	0.66
5	0.73	0.68	0.64	0.73	0.68	0.64	0.71	0.67	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.61
6	0.69	0.64	0.60	0.68	0.63	0.60	0.67	0.62	0.59	0.66	0.62	0.59	0.64	0.61	0.58	0.57
7	0.65	0.59	0.56	0.64	0.59	0.56	0.63	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.53
8	0.61	0.56	0.52	0.60	0.55	0.52	0.59	0.55	0.52	0.58	0.54	0.51	0.58	0.54	0.51	0.50
9	0.57	0.52	0.49	0.57	0.52	0.49	0.56	0.52	0.48	0.55	0.51	0.48	0.55	0.51	0.48	0.47
10	0.54	0.49	0.46	0.54	0.49	0.46	0.53	0.49	0.45	0.52	0.48	0.45	0.52	0.48	0.45	0.44





Luminaire Lumens:

FL=384.08,FM=154.55,FH=1.77,FVH=0.67

BL=374.79,BM=156.63,BH=1.75,BVH=0.67

UL=1.38,UH=6.57

BUG Rating:B1-U1-G0

Intensity data(cd)										Appendix Page: 15 Total:15	
C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0		
0.0	1149.46	1146.67	1115.12	1060.83	911.59	809.14	639.99	372.62	102.55		
45.0	1137.86	1154.56	1143.89	1093.31	1038.09	930.43	760.13	570.81	299.81		
90.0	1145.74	1142.96	1105.84	1052.94	906.81	845.00	655.08	460.04	173.59		
135.0	1141.10	1130.90	1100.73	1050.62	980.09	858.51	694.70	536.47	297.03		
180.0	1149.46	1125.33	1081.24	1034.38	941.57	822.31	661.76	442.73	260.83		
225.0	1137.86	1091.92	1036.70	909.23	860.50	696.42	528.77	206.22	42.60		
270.0	1145.74	1122.54	1077.07	1012.57	919.30	790.30	618.60	392.62	257.58		
315.0	1141.10	1121.62	1068.72	1011.64	912.99	756.98	576.24	302.18	52.71		
360.0	1149.46	1146.67	1115.12	1060.83	911.59	809.14	639.99	372.62	102.55		
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0		
0.0	25.43	10.63	5.66	3.20	1.81	1.25	1.25	1.16	1.21		
45.0	49.00	17.77	8.82	5.06	2.55	1.53	1.21	1.16	1.16		
90.0	32.99	15.36	7.15	4.04	2.18	1.30	1.30	1.30	1.30		
135.0	39.86	18.00	8.72	4.36	2.41	1.44	1.21	1.21	1.21		
180.0	34.43	14.76	6.87	3.67	2.13	1.21	1.25	1.21	1.21		
225.0	18.33	8.77	4.45	2.41	1.39	1.25	1.21	1.16	1.21		
270.0	31.04	12.06	6.73	3.34	1.95	1.25	1.21	1.25	1.21		
315.0	18.79	9.05	5.06	2.83	1.58	1.21	1.21	1.21	1.21		
360.0	25.43	10.63	5.66	3.20	1.81	1.25	1.25	1.16	1.21		
C/γ(°)	90.0										
0.0	1.35										
45.0	1.21										
90.0	1.30										
135.0	1.25										
180.0	1.21										
225.0	1.16										
270.0	1.44										
315.0	1.21										
360.0	1.35										