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NATA

LumCAT: 3-1701-N
Luminaire: 92.70.045.00+92.70.061.00
Report No: NATA0100
Test No: GC2018110812
LampCAT: PHILIPS 1205 G7
Lamp flux(lm): 2969.0
Number of Lamps: 1
Length(mm): 86
Phm Type: C

Voltage(V): 35.8000
Current(A): 0.6000
Power (W): 21.4800
PF: 1.0000
Ballast type: DC
Width(mm): 86
Height(mm): 0

Photometric Results

Lumens(lm): 2345.51
Efficiency(%): 79.00%
Lumens(lm)/Power(W): 109.36
Central intensity(cd): 15028.590
Maximum intensity(cd): 15028.590
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=17.5
[C90/270]Total=17.5
Field angle(10%Imax): [C0/180]Total=32.4
[C90/270]Total=32.4
Maximum s/h(1/2): C0_180=0.30 C90_270=0.30
Maximum s/h(1/4): C0_180=0.29 C90_270=0.29
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 79.12%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.551%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15028.594	3.596	3.596	.121%	.153%
1.0	14923.125	28.561	32.156	.962%	1.371%
2.0	14665.078	56.125	88.281	1.890%	3.764%
3.0	14158.125	81.256	169.537	2.737%	7.228%
4.0	13432.500	102.753	272.29	3.461%	11.609%
5.0	12288.234	117.446	389.736	3.956%	16.616%
6.0	10961.578	125.649	515.385	4.232%	21.973%
7.0	9906.469	132.393	647.778	4.459%	27.618%
8.0	8599.430	131.243	779.021	4.420%	33.213%
9.0	7191.352	123.366	902.387	4.155%	38.473%
10.0	5873.836	111.852	1014.239	3.767%	43.242%
11.0	4614.961	96.565	1110.804	3.252%	47.359%
12.0	3571.383	81.427	1192.23	2.743%	50.830%
13.0	2754.914	67.959	1260.189	2.289%	53.728%
14.0	2157.680	57.242	1317.431	1.928%	56.168%
15.0	1748.320	49.621	1367.053	1.671%	58.284%
16.0	1533.797	46.362	1413.414	1.562%	60.260%
17.0	1392.539	44.647	1458.061	1.504%	62.164%
18.0	1263.952	42.832	1500.893	1.443%	63.990%
19.0	1169.121	41.740	1542.633	1.406%	65.770%
20.0	1080.127	40.511	1583.145	1.364%	67.497%
21.0	1007.093	39.578	1622.722	1.333%	69.184%
22.0	935.888	38.446	1661.168	1.295%	70.823%
23.0	861.265	36.903	1698.072	1.243%	72.397%
24.0	789.919	35.233	1733.304	1.187%	73.899%
25.0	727.636	33.722	1767.027	1.136%	75.337%
26.0	671.210	32.267	1799.293	1.087%	76.712%
27.0	618.279	30.781	1830.074	1.037%	78.025%
28.0	575.009	29.603	1859.677	.997%	79.287%
29.0	529.376	28.144	1887.821	.948%	80.487%
30.0	492.251	26.990	1914.811	.909%	81.637%
31.0	456.518	25.784	1940.595	.868%	82.737%
32.0	421.404	24.488	1965.084	.825%	83.781%
33.0	393.560	23.506	1988.589	.792%	84.783%
34.0	367.439	22.532	2011.121	.759%	85.744%
35.0	342.759	21.559	2032.68	.726%	86.663%
36.0	318.523	20.531	2053.212	.692%	87.538%
37.0	299.426	19.761	2072.972	.666%	88.381%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	279.190	18.849	2091.822	.635%	89.184%
39.0	260.641	17.987	2109.809	.606%	89.951%
40.0	241.699	17.037	2126.846	.574%	90.677%
41.0	224.065	16.120	2142.966	.543%	91.365%
42.0	206.648	15.163	2158.129	.511%	92.011%
43.0	188.044	14.064	2172.193	.474%	92.611%
44.0	170.473	12.986	2185.179	.437%	93.164%
45.0	153.098	11.872	2197.05	.400%	93.671%
46.0	138.832	10.952	2208.002	.369%	94.138%
47.0	124.453	9.981	2217.983	.336%	94.563%
48.0	112.767	9.190	2227.173	.310%	94.955%
49.0	102.234	8.461	2235.634	.285%	95.316%
50.0	92.194	7.745	2243.379	.261%	95.646%
51.0	83.377	7.106	2250.485	.239%	95.949%
52.0	75.277	6.505	2256.99	.219%	96.226%
53.0	67.247	5.889	2262.879	.198%	96.477%
54.0	59.456	5.275	2268.154	.178%	96.702%
55.0	53.529	4.808	2272.962	.162%	96.907%
56.0	48.150	4.377	2277.34	.147%	97.094%
57.0	43.334	3.985	2281.325	.134%	97.264%
58.0	39.389	3.663	2284.988	.123%	97.420%
59.0	36.049	3.389	2288.377	.114%	97.564%
60.0	32.738	3.109	2291.486	.105%	97.697%
61.0	30.080	2.885	2294.371	.097%	97.820%
62.0	28.069	2.718	2297.088	.092%	97.936%
63.0	26.473	2.587	2299.675	.087%	98.046%
64.0	25.305	2.494	2302.169	.084%	98.152%
65.0	24.349	2.420	2304.589	.082%	98.255%
66.0	23.463	2.351	2306.94	.079%	98.356%
67.0	22.634	2.285	2309.224	.077%	98.453%
68.0	21.874	2.224	2311.449	.075%	98.548%
69.0	21.052	2.155	2313.604	.073%	98.640%
70.0	20.370	2.099	2315.703	.071%	98.729%
71.0	19.695	2.042	2317.745	.069%	98.816%
72.0	19.013	1.983	2319.728	.067%	98.901%
73.0	18.457	1.936	2321.663	.065%	98.983%
74.0	17.944	1.892	2323.555	.064%	99.064%
75.0	17.381	1.841	2325.396	.062%	99.143%

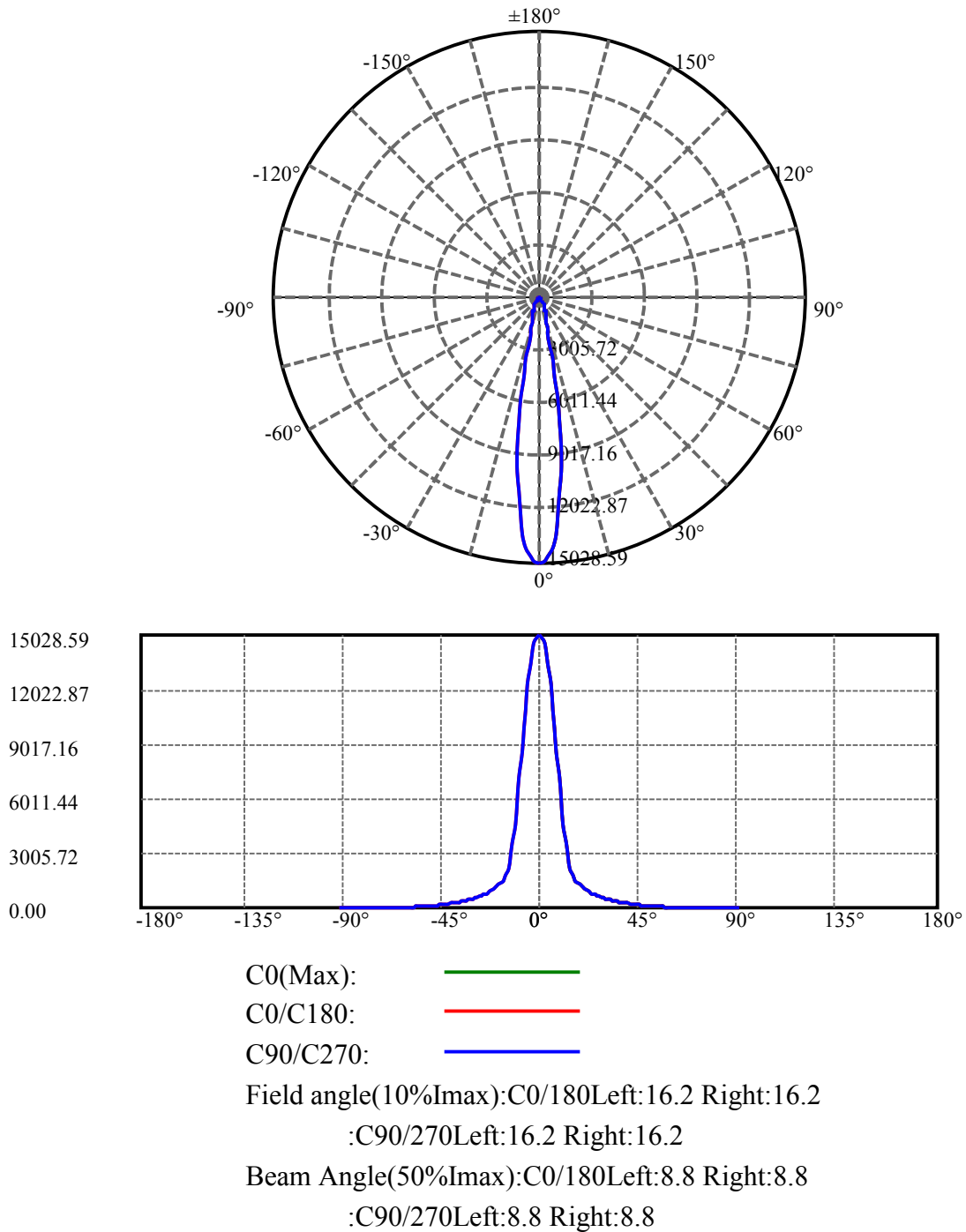
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	16.882	1.796	2327.192	.061%	99.219%
77.0	16.404	1.753	2328.945	.059%	99.294%
78.0	15.778	1.692	2330.637	.057%	99.366%
79.0	15.180	1.634	2332.272	.055%	99.436%
80.0	14.555	1.572	2333.843	.053%	99.503%
81.0	13.838	1.499	2335.342	.050%	99.567%
82.0	13.198	1.433	2336.775	.048%	99.628%
83.0	12.523	1.363	2338.138	.046%	99.686%
84.0	11.841	1.291	2339.43	.043%	99.741%
85.0	11.222	1.226	2340.656	.041%	99.793%
86.0	10.561	1.155	2341.811	.039%	99.842%
87.0	10.041	1.100	2342.91	.037%	99.889%
88.0	9.633	1.056	2343.966	.036%	99.934%
89.0	9.415	1.032	2344.998	.035%	99.978%
90.0	9.281	0.509	2345.507	.017%	100.000%

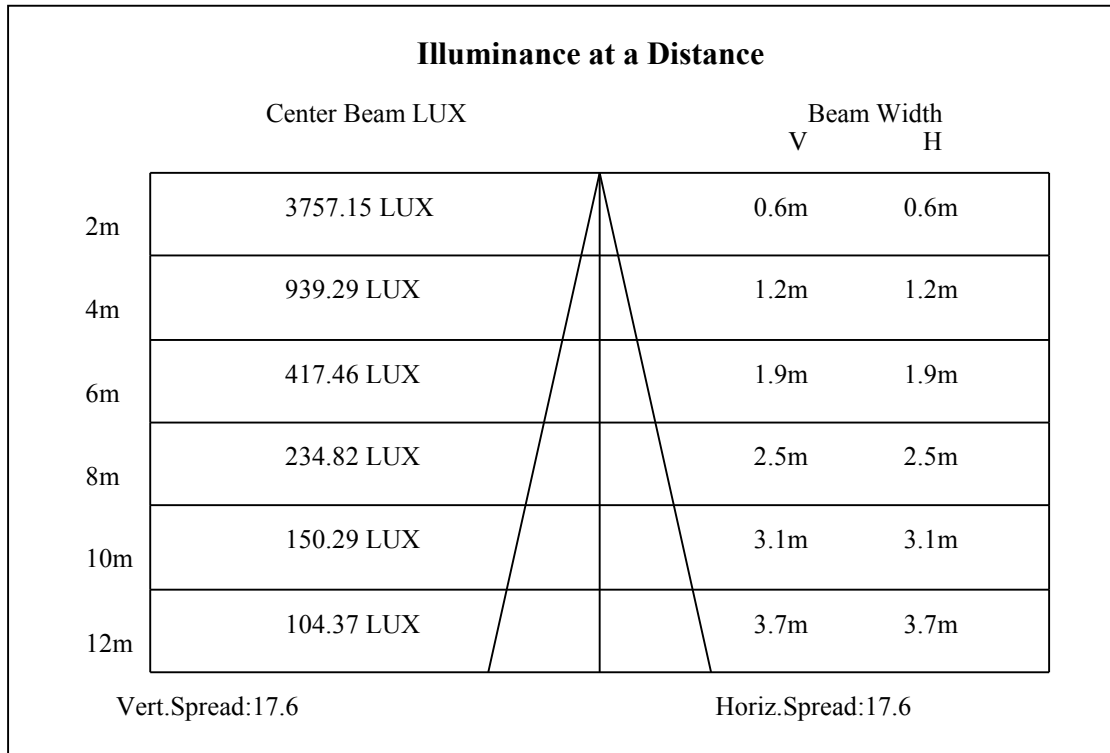
ZONAL LUMEN SUMMARY

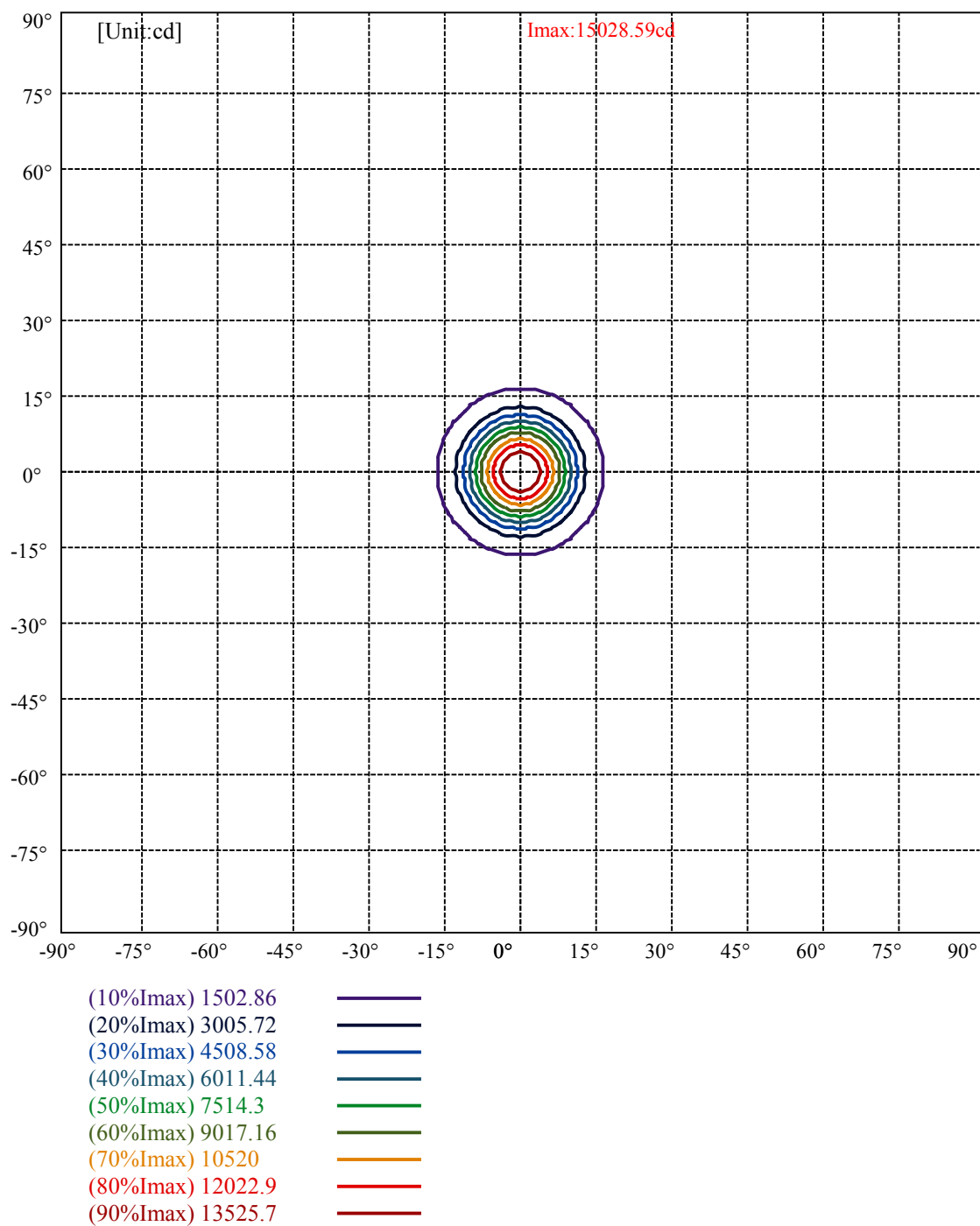
Zone	Lumens	%Lamp	%Fixt
0-30	1914.81	64.49%	81.64%
0-40	2126.85	71.64%	90.68%
0-60	2291.49	77.18%	97.70%
0-90	2345.00	78.98%	99.98%
0-120	2345.00	78.98%	99.98%
0-180	2345.51	79.00%	100.00%
60-90	56.62	1.91%	2.41%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.59	1876.41	63.20%	80.00%

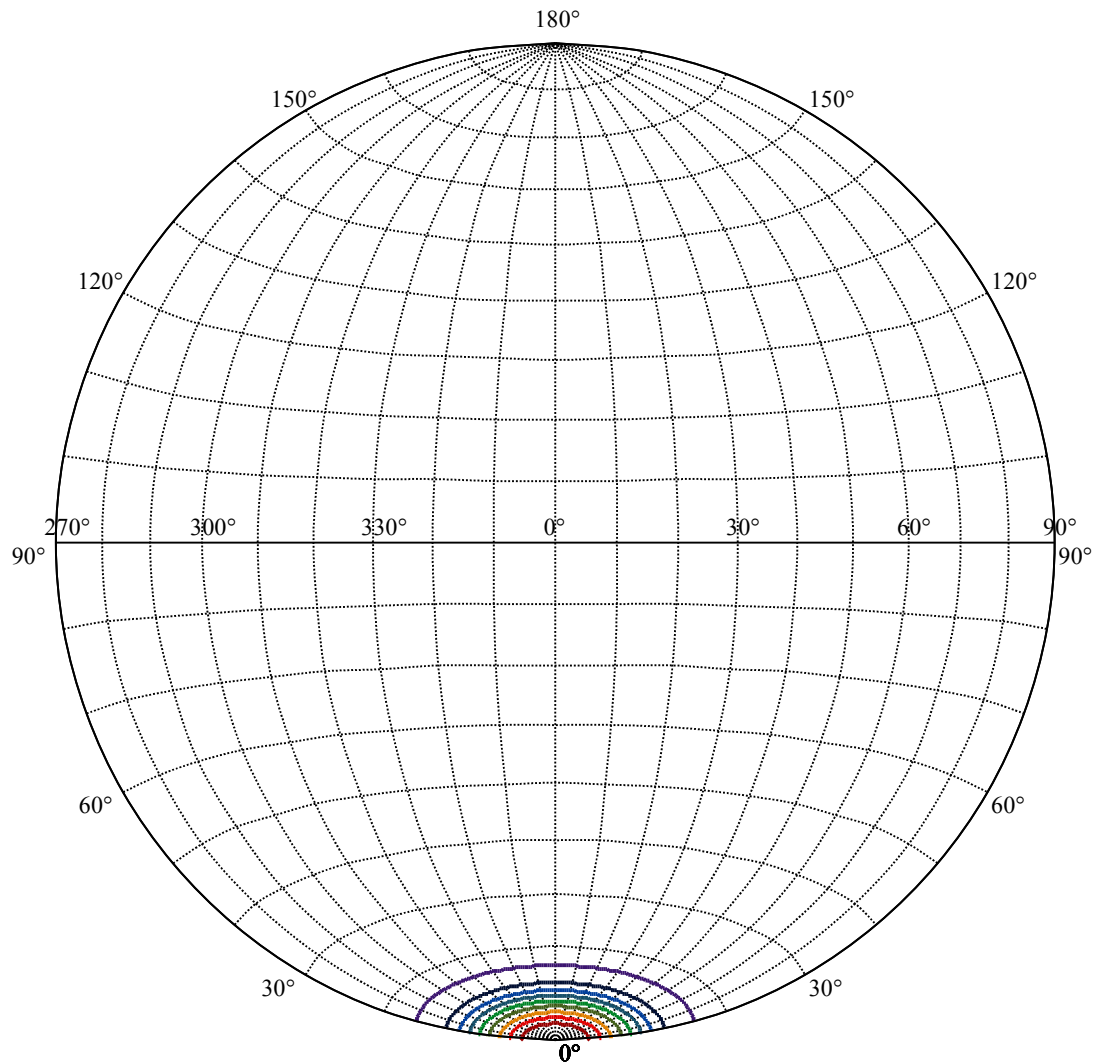
ZONAL LUMEN SUMMARY

0-10	1014.24
10-20	568.91
20-30	331.67
30-40	212.03
40-50	116.53
50-60	48.11
60-70	24.22
70-80	18.14
80-90	11.16
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









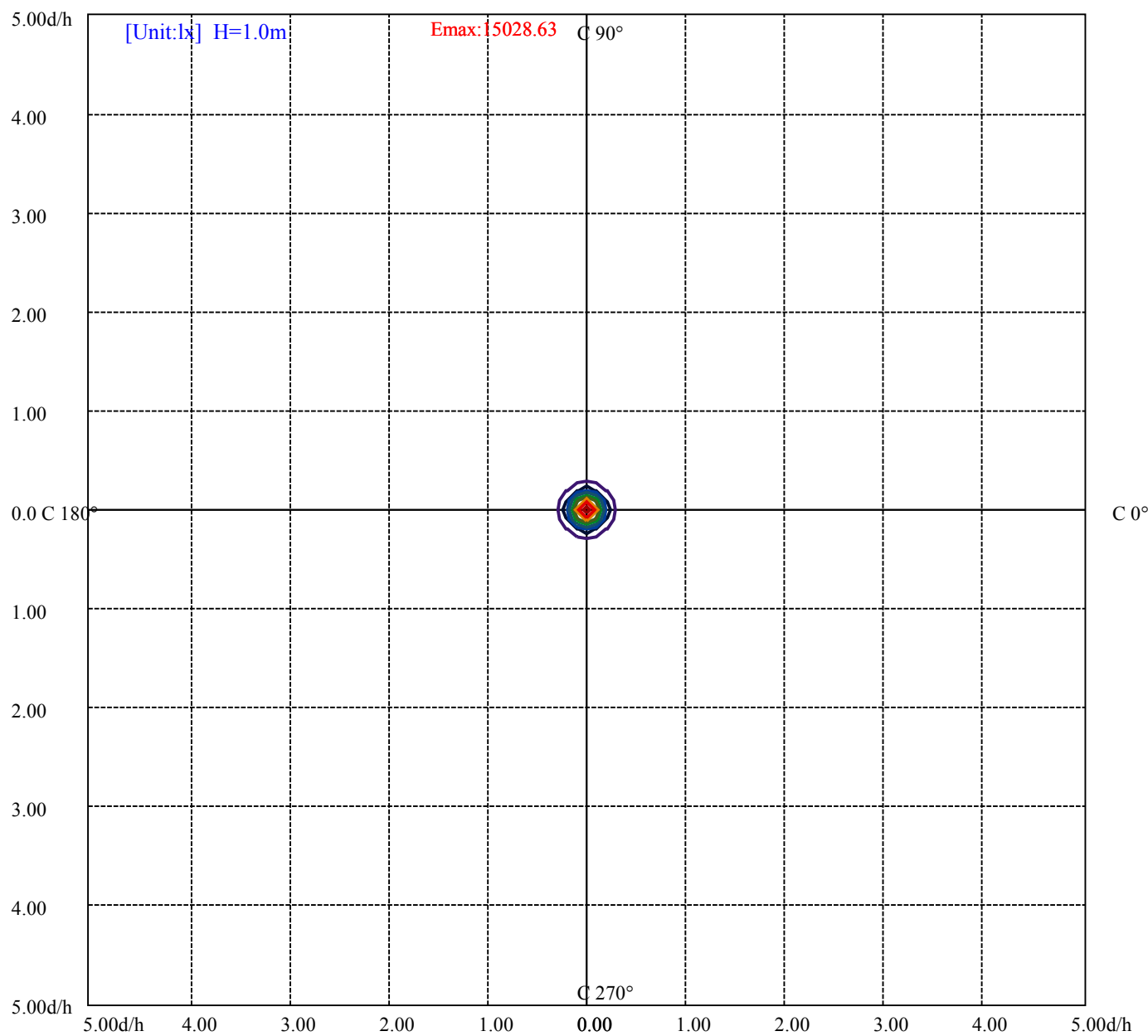
House

[Unit:cd]

Road

Imax:15028.59

(10%Imax)	1502.86	—
(20%Imax)	3005.72	—
(30%Imax)	4508.58	—
(40%Imax)	6011.44	—
(50%Imax)	7514.3	—
(60%Imax)	9017.16	—
(70%Imax)	10520	—
(80%Imax)	12022.9	—
(90%Imax)	13525.7	—



(10%Emax) 1502.86

(20%Emax) 3005.72

(30%Emax) 4508.57

(40%Emax) 6011.43

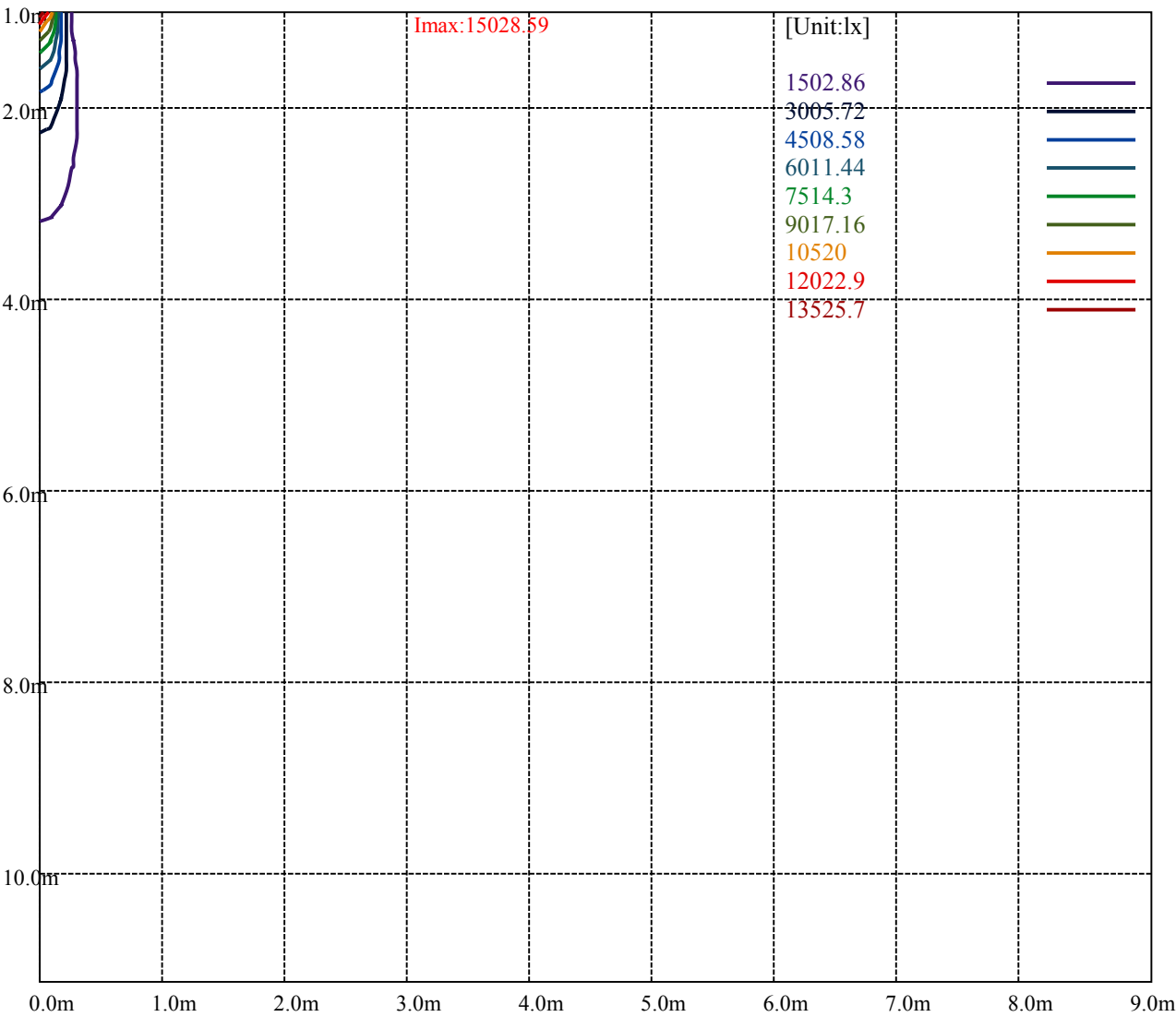
(50%Emax) 7514.29

(60%Emax) 9017.15

(70%Emax) 10520

(80%Emax) 12022.9

(90%Emax) 13525.7



Luminance Table

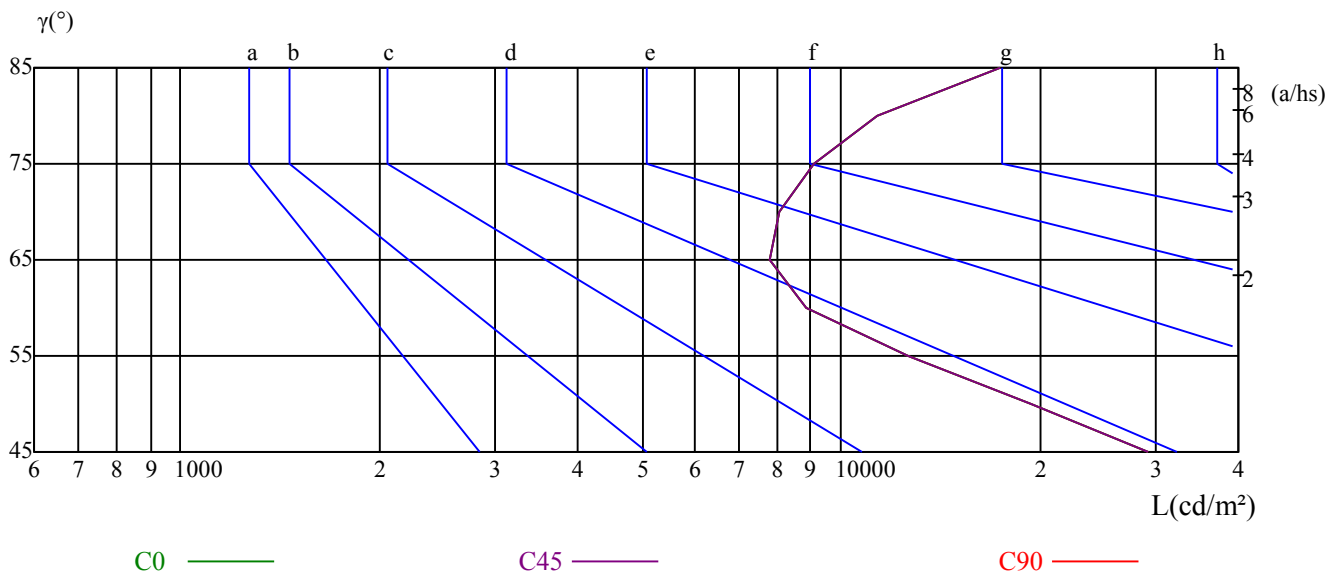
γ	45	50	55	60	65	70	75	80	85
C0	29274	19393	12618	8853	7790	8053	9080	11333	17409
C45	29274	19393	12618	8853	7790	8053	9080	11333	17409
C90	29274	19393	12618	8853	7790	8053	9080	11333	17409

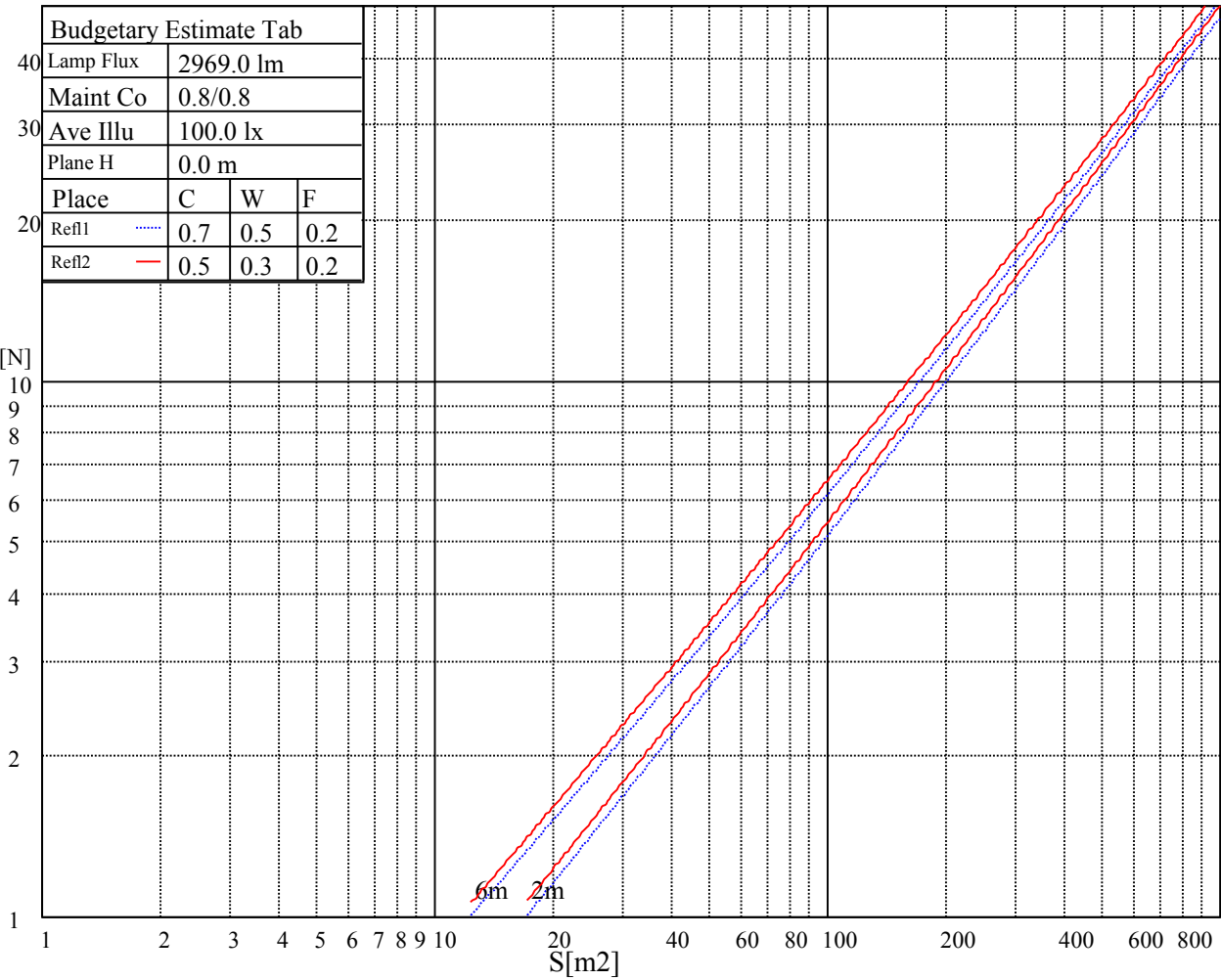
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
7790	7790	7790	9080	9080	9080	17409	17409	17409

Glare Table

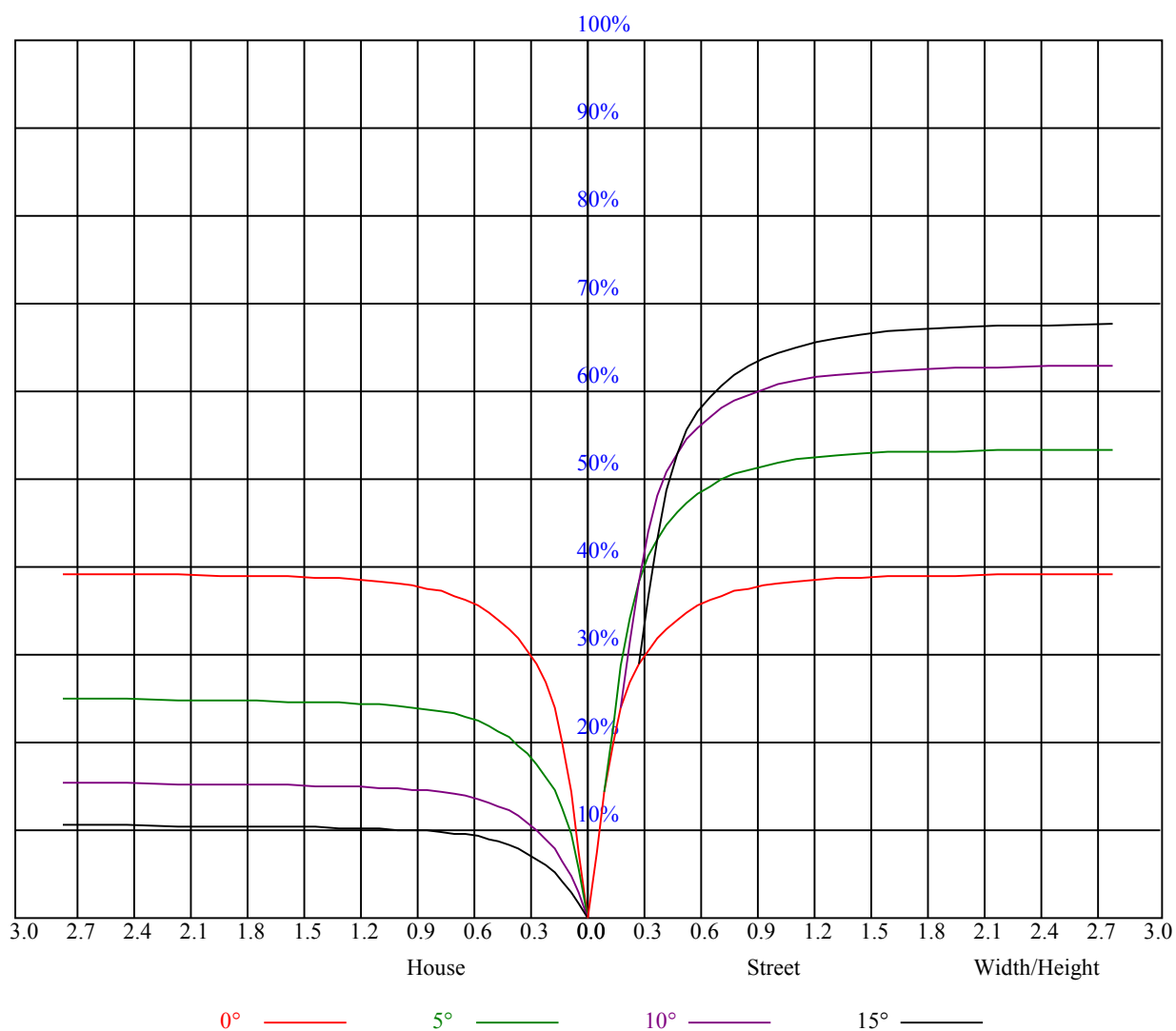
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

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	0.94	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	0.88	0.87	0.85	0.87	0.85	0.84	0.83	0.82	0.81	0.81	0.80	0.79	0.78	0.77	0.76	0.75
2	0.84	0.81	0.78	0.82	0.80	0.78	0.80	0.78	0.76	0.77	0.76	0.74	0.75	0.74	0.73	0.72
3	0.79	0.76	0.74	0.78	0.75	0.73	0.76	0.74	0.72	0.74	0.72	0.71	0.73	0.71	0.70	0.69
4	0.76	0.72	0.70	0.75	0.72	0.69	0.73	0.71	0.68	0.72	0.69	0.68	0.70	0.68	0.67	0.66
5	0.73	0.69	0.66	0.72	0.69	0.66	0.71	0.68	0.65	0.69	0.67	0.65	0.68	0.66	0.64	0.63
6	0.70	0.66	0.64	0.69	0.66	0.63	0.68	0.65	0.63	0.67	0.65	0.63	0.66	0.64	0.62	0.61
7	0.67	0.64	0.61	0.67	0.64	0.61	0.66	0.63	0.61	0.65	0.63	0.60	0.64	0.62	0.60	0.59
8	0.65	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.60	0.58	0.58
9	0.63	0.60	0.57	0.63	0.60	0.57	0.62	0.59	0.57	0.62	0.59	0.57	0.61	0.59	0.57	0.56
10	0.62	0.58	0.56	0.61	0.58	0.56	0.61	0.58	0.56	0.60	0.57	0.56	0.60	0.57	0.55	0.55



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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	15035.63	15018.75	14917.50	14653.13	14079.38	13111.88	11851.88	10620.00	9506.25	
45.0	15018.75	14895.00	14338.13	13651.88	12712.50	11261.25	9945.00	8617.50	7346.25	
90.0	15001.88	14686.88	14135.63	13336.88	12414.38	11109.94	9916.88	8542.69	7130.81	
135.0	15058.13	14906.25	14478.75	13966.88	13190.63	11986.88	10839.38	9708.75	8510.63	
180.0	15035.63	14799.38	14428.13	13663.13	12695.63	11162.81	10408.50	9088.31	7704.56	
225.0	15018.75	15058.13	15007.50	14658.75	14141.25	13224.38	11112.19	10802.81	9397.13	
270.0	15001.88	15030.00	15080.63	14827.50	14360.63	13488.75	12498.75	11334.38	9978.75	
315.0	15058.13	14990.63	14934.38	14506.88	13865.63	12960.00	11120.06	10537.31	9221.06	
360.0	15035.63	15018.75	14917.50	14653.13	14079.38	13111.88	11851.88	10620.00	9506.25	
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	
0.0	7830.00	6648.75	5596.88	4151.25	3043.13	2840.63	1824.75	1553.63	1405.13	
45.0	5754.38	4533.75	3453.75	2896.88	1960.31	1684.69	1500.75	1360.69	1265.06	
90.0	5823.56	4443.19	3256.88	2495.25	2011.50	1686.38	1514.25	1379.81	1257.19	
135.0	6885.00	5540.63	4286.25	3116.25	2913.75	1934.44	1675.13	1487.81	1371.38	
180.0	6428.81	4971.94	3664.69	2782.69	2190.38	1791.00	1601.44	1456.31	1330.31	
225.0	8137.13	6738.19	5315.06	4129.88	3128.06	2283.75	1901.25	1685.81	1519.31	
270.0	8662.50	7492.50	6142.50	4966.88	3746.25	2851.88	2173.50	1778.06	1592.44	
315.0	8009.44	6621.75	5203.69	4032.00	3045.94	2188.69	1795.50	1568.25	1399.50	
360.0	7830.00	6648.75	5596.88	4151.25	3043.13	2840.63	1824.75	1553.63	1405.13	
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	
0.0	1280.25	1190.81	1103.06	1022.63	954.00	885.94	802.69	741.94	685.13	
45.0	1163.25	1085.06	1006.88	914.06	842.63	776.25	696.94	644.06	599.06	
90.0	1112.74	1074.99	995.34	917.04	847.63	776.87	718.93	660.77	609.36	
135.0	1257.19	1175.63	1088.44	1006.88	933.75	865.69	782.44	725.63	675.00	
180.0	1224.56	1121.96	1048.84	976.84	906.02	832.16	771.86	711.62	658.29	
225.0	1390.50	1293.75	1118.70	1099.13	1022.18	927.45	865.35	791.16	718.09	
270.0	1407.38	1296.00	1192.50	1102.50	1029.94	960.75	874.69	809.44	756.00	
315.0	1275.75	1114.76	1087.26	1017.68	950.96	865.01	806.46	736.48	668.76	
360.0	1280.25	1190.81	1103.06	1022.63	954.00	885.94	802.69	741.94	685.13	
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0	
0.0	623.25	579.94	541.69	503.44	467.44	437.63	407.25	381.38	354.38	
45.0	545.06	505.69	469.13	431.44	398.81	372.38	346.50	322.88	303.75	
90.0	568.35	530.44	486.45	454.78	425.25	391.73	367.37	344.70	323.10	
135.0	615.38	572.63	532.69	487.13	442.69	413.44	382.50	355.50	333.56	
180.0	614.81	573.92	527.74	494.33	463.39	426.66	400.11	374.96	345.66	
225.0	672.58	624.15	564.30	530.16	493.54	448.26	421.99	394.54	366.24	
270.0	680.63	632.25	588.38	545.06	505.69	473.06	438.19	405.56	380.81	
315.0	626.18	581.06	524.64	491.68	455.34	408.09	384.58	360.00	334.58	
360.0	623.25	579.94	541.69	503.44	467.44	437.63	407.25	381.38	354.38	
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	
0.0	330.75	309.94	289.13	284.63	249.36	235.13	219.15	200.14	183.54	
45.0	284.63	273.71	250.76	235.07	221.12	204.98	184.33	168.13	152.16	
90.0	295.43	274.84	255.38	234.62	219.71	199.74	183.09	164.36	148.50	
135.0	310.50	292.50	284.06	253.52	237.32	220.44	198.23	181.07	164.64	
180.0	321.30	299.36	273.77	255.21	238.50	214.88	198.73	178.54	157.56	
225.0	339.69	319.16	298.24	278.16	261.39	243.39	227.98	206.04	185.96	
270.0	354.38	333.00	307.69	286.31	262.63	244.91	226.63	209.64	192.88	
315.0	311.51	292.89	274.50	257.63	243.56	229.05	215.04	196.43	178.54	
360.0	330.75	309.94	289.13	284.63	249.36	235.13	219.15	200.14	183.54	

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Intensity data(cd)										Appendix Page: 17 Total:18	
C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	163.41	148.11	134.04	121.67	108.56	99.06	90.34	81.11	72.28		
45.0	134.27	122.01	111.26	100.74	91.29	83.59	74.70	67.11	59.29		
90.0	132.81	120.49	108.84	98.55	90.17	81.17	72.34	64.63	57.66		
135.0	145.52	132.36	120.21	108.28	97.88	89.44	80.27	72.34	64.29		
180.0	144.51	131.06	115.26	106.88	97.82	85.84	78.58	70.43	61.88		
225.0	168.86	152.33	133.99	121.39	110.93	99.17	90.17	81.96	74.08		
270.0	172.35	156.49	141.47	126.34	113.51	103.50	93.38	85.11	76.44		
315.0	163.07	147.83	130.56	118.29	107.72	95.79	87.24	79.54	72.06		
360.0	163.41	148.11	134.04	121.67	108.56	99.06	90.34	81.11	72.28		
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	64.91	57.49	51.53	46.41	42.36	38.81	35.10	31.95	29.48		
45.0	52.65	47.81	42.92	39.15	35.72	32.96	29.87	27.79	26.44		
90.0	50.57	45.90	41.85	37.86	34.37	31.67	29.08	27.11	25.99		
135.0	56.81	51.30	45.62	40.95	37.63	34.20	30.88	28.29	26.66		
180.0	54.73	49.61	44.61	40.22	36.84	33.47	30.83	28.29	26.61		
225.0	64.63	57.77	52.14	46.69	42.02	38.42	34.88	31.84	29.08		
270.0	67.95	60.92	54.28	48.71	44.44	40.67	36.51	33.53	30.94		
315.0	63.39	57.43	52.26	46.69	41.74	38.19	34.76	31.84	29.36		
360.0	64.91	57.49	51.53	46.41	42.36	38.81	35.10	31.95	29.48		
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	27.45	25.93	25.03	24.19	23.23	22.44	21.71	20.93	20.19		
45.0	25.37	24.36	23.51	22.73	21.94	21.15	20.42	19.74	19.13		
90.0	24.98	24.13	23.23	22.39	21.71	20.98	20.19	19.58	19.01		
135.0	25.54	24.47	23.63	22.78	21.94	21.21	20.53	19.91	19.24		
180.0	25.59	24.69	23.63	22.84	22.05	21.32	20.48	19.86	19.24		
225.0	27.17	26.04	24.98	24.02	23.18	22.44	21.43	20.76	20.08		
270.0	28.46	26.72	25.76	24.75	23.79	23.01	22.16	21.43	20.64		
315.0	27.23	26.10	25.03	24.02	23.23	22.44	21.49	20.76	20.03		
360.0	27.45	25.93	25.03	24.19	23.23	22.44	21.71	20.93	20.19		
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	19.58	18.90	18.45	17.83	17.33	16.93	16.31	15.69	15.08		
45.0	18.51	18.00	17.49	16.93	16.48	15.92	15.24	14.57	13.95		
90.0	18.34	17.83	17.38	16.88	16.31	15.81	15.13	14.51	13.84		
135.0	18.56	18.06	17.55	16.93	16.48	15.98	15.30	14.68	14.06		
180.0	18.56	18.06	17.55	16.99	16.43	15.92	15.24	14.63	13.89		
225.0	19.35	18.79	18.23	17.72	17.27	16.82	16.31	15.69	15.13		
270.0	19.91	19.29	18.73	18.11	17.66	17.21	16.59	16.09	15.58		
315.0	19.29	18.73	18.17	17.66	17.10	16.65	16.09	15.58	14.91		
360.0	19.58	18.90	18.45	17.83	17.33	16.93	16.31	15.69	15.08		
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	14.34	13.61	12.94	12.21	11.59	10.97	10.35	9.90	9.51		
45.0	13.28	12.66	12.04	11.19	10.58	10.01	9.62	9.34	9.23		
90.0	13.16	12.66	12.09	11.19	10.46	9.84	9.51	9.23	9.23		
135.0	13.28	12.66	12.04	11.48	10.86	10.13	9.68	9.34	9.28		
180.0	13.28	12.60	11.81	11.31	10.74	10.07	9.56	9.28	9.23		
225.0	14.46	13.84	13.11	12.49	11.87	11.14	10.52	9.96	9.56		
270.0	14.74	14.06	13.39	12.71	12.15	11.36	10.69	10.13	9.73		
315.0	14.18	13.50	12.77	12.15	11.53	10.97	10.41	9.90	9.56		
360.0	14.34	13.61	12.94	12.21	11.59	10.97	10.35	9.90	9.51		

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	9.23
45.0	9.23
90.0	9.28
135.0	9.28
180.0	9.23
225.0	9.28
270.0	9.39
315.0	9.34
360.0	9.23