
NATA

Client:

LumCAT: 3-1700-N

Luminaire: 92.70.045.00+92.70.089.00

Report No: nata-0100

Voltage(V): 35.2000

Test No: GC2018102005

Current(A): 0.7000

LampCAT: PHILIPS 1208 G7

Power (W): 24.6400

Lamp flux(lm): 3673.0

PF: 0.0000

Number of Lamps: 1

Ballast type: DC

Length(mm): 79

Width(mm): 79

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2771.98, Efficiency(%): 75.47% , Luminous Efficacy(lm/W): 112.50

Central intensity(cd): 5618.813, Maximum intensity(cd): 5618.813

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=37.8

[C90/270]Total=37.8

Field angle(10%Imax): [C0/180]Total=67.6

[C90/270]Total=67.6

Maximum s/h(1/2): C0_180=0.62 C90_270=0.62

Maximum s/h(1/4): C0_180=0.60 C90_270=0.60

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 75.50%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.632%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5618.813	1.344	1.344	.037%	.048%
1.0	5608.336	10.733	12.078	.292%	.436%
2.0	5570.578	21.319	33.397	.580%	1.205%
3.0	5511.094	31.629	65.026	.861%	2.346%
4.0	5436.844	41.589	106.616	1.132%	3.846%
5.0	5338.898	51.027	157.643	1.389%	5.687%
6.0	5210.859	59.730	217.373	1.626%	7.842%
7.0	5083.805	67.941	285.315	1.850%	10.293%
8.0	4949.086	75.532	360.847	2.056%	13.018%
9.0	4803.469	82.402	443.249	2.243%	15.990%
10.0	4650.961	88.566	531.815	2.411%	19.185%
11.0	4496.133	94.078	625.893	2.561%	22.579%
12.0	4331.461	98.756	724.649	2.689%	26.142%
13.0	4140.492	102.139	826.788	2.781%	29.827%
14.0	3945.656	104.676	931.464	2.850%	33.603%
15.0	3743.859	106.259	1037.723	2.893%	37.436%
16.0	3534.469	106.835	1144.559	2.909%	41.290%
17.0	3276.703	105.057	1249.615	2.860%	45.080%
18.0	3032.930	102.777	1352.392	2.798%	48.788%
19.0	2794.570	99.772	1452.164	2.716%	52.387%
20.0	2532.938	95.001	1547.165	2.586%	55.814%
21.0	2258.930	88.774	1635.939	2.417%	59.017%
22.0	2025.703	83.215	1719.154	2.266%	62.019%
23.0	1795.219	76.921	1796.076	2.094%	64.794%
24.0	1556.227	69.413	1865.488	1.890%	67.298%
25.0	1352.545	62.683	1928.171	1.707%	69.559%
26.0	1202.259	57.795	1985.967	1.574%	71.644%
27.0	1069.362	53.238	2039.205	1.449%	73.565%
28.0	955.005	49.166	2088.371	1.339%	75.339%
29.0	862.214	45.839	2134.21	1.248%	76.992%
30.0	783.028	42.934	2177.144	1.169%	78.541%
31.0	716.175	40.449	2217.593	1.101%	80.000%
32.0	653.273	37.963	2255.556	1.034%	81.370%
33.0	598.929	35.771	2291.327	.974%	82.660%
34.0	554.491	34.002	2325.33	.926%	83.887%
35.0	506.320	31.847	2357.177	.867%	85.036%
36.0	465.877	30.029	2387.206	.818%	86.119%
37.0	431.972	28.508	2415.714	.776%	87.148%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	396.752	26.786	2442.5	.729%	88.114%
39.0	360.288	24.864	2467.364	.677%	89.011%
40.0	332.888	23.465	2490.829	.639%	89.857%
41.0	304.102	21.878	2512.707	.596%	90.647%
42.0	280.062	20.550	2533.258	.559%	91.388%
43.0	251.585	18.816	2552.073	.512%	92.067%
44.0	224.452	17.098	2569.171	.466%	92.684%
45.0	203.224	15.758	2584.93	.429%	93.252%
46.0	182.700	14.412	2599.342	.392%	93.772%
47.0	164.503	13.193	2612.535	.359%	94.248%
48.0	148.268	12.083	2624.618	.329%	94.684%
49.0	134.269	11.112	2635.73	.303%	95.085%
50.0	119.348	10.026	2645.756	.273%	95.446%
51.0	107.318	9.146	2654.902	.249%	95.776%
52.0	97.207	8.400	2663.302	.229%	96.079%
53.0	86.745	7.597	2670.899	.207%	96.353%
54.0	77.456	6.872	2677.771	.187%	96.601%
55.0	69.891	6.278	2684.049	.171%	96.828%
56.0	62.655	5.696	2689.745	.155%	97.033%
57.0	55.371	5.092	2694.838	.139%	97.217%
58.0	49.964	4.647	2699.484	.127%	97.385%
59.0	44.880	4.219	2703.703	.115%	97.537%
60.0	40.605	3.856	2707.559	.105%	97.676%
61.0	37.259	3.574	2711.133	.097%	97.805%
62.0	34.917	3.381	2714.514	.092%	97.927%
63.0	33.159	3.240	2717.754	.088%	98.044%
64.0	31.388	3.094	2720.847	.084%	98.155%
65.0	29.918	2.973	2723.821	.081%	98.263%
66.0	28.631	2.868	2726.689	.078%	98.366%
67.0	27.499	2.776	2729.465	.076%	98.466%
68.0	26.311	2.675	2732.14	.073%	98.563%
69.0	25.320	2.592	2734.732	.071%	98.656%
70.0	24.427	2.517	2737.249	.069%	98.747%
71.0	23.498	2.436	2739.686	.066%	98.835%
72.0	22.584	2.355	2742.041	.064%	98.920%
73.0	21.797	2.286	2744.327	.062%	99.002%
74.0	20.974	2.211	2746.538	.060%	99.082%
75.0	20.138	2.133	2748.671	.058%	99.159%

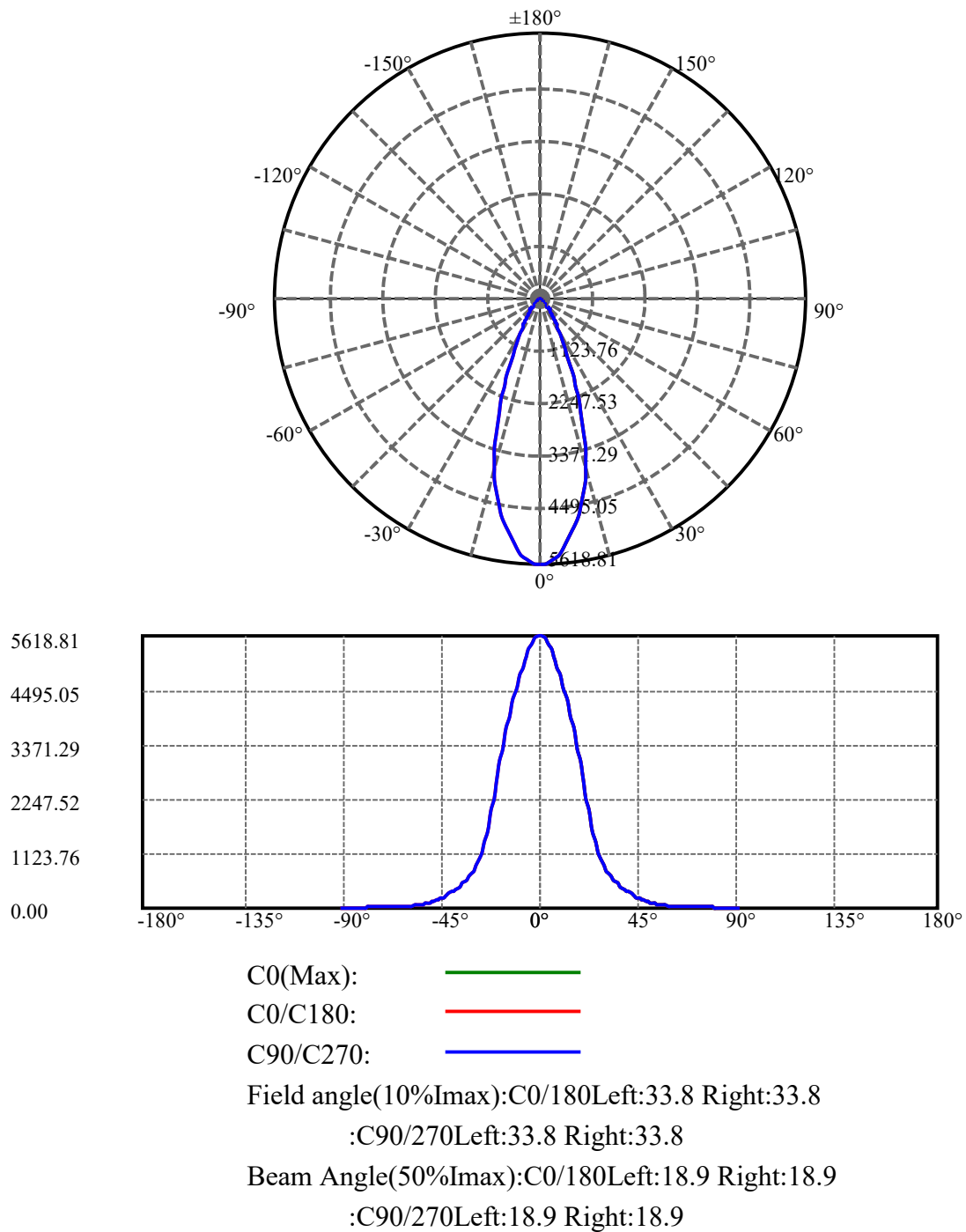
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	19.427	2.067	2750.738	.056%	99.234%
77.0	18.654	1.993	2752.731	.054%	99.306%
78.0	17.965	1.927	2754.658	.052%	99.375%
79.0	17.227	1.854	2756.513	.050%	99.442%
80.0	16.545	1.787	2758.299	.049%	99.506%
81.0	15.926	1.725	2760.024	.047%	99.569%
82.0	15.265	1.658	2761.682	.045%	99.628%
83.0	14.611	1.590	2763.272	.043%	99.686%
84.0	13.929	1.519	2764.791	.041%	99.741%
85.0	13.226	1.445	2766.236	.039%	99.793%
86.0	12.466	1.364	2767.6	.037%	99.842%
87.0	11.862	1.299	2768.899	.035%	99.889%
88.0	11.419	1.251	2770.15	.034%	99.934%
89.0	11.180	1.226	2771.376	.033%	99.978%
90.0	11.060	0.606	2771.983	.017%	100.000%

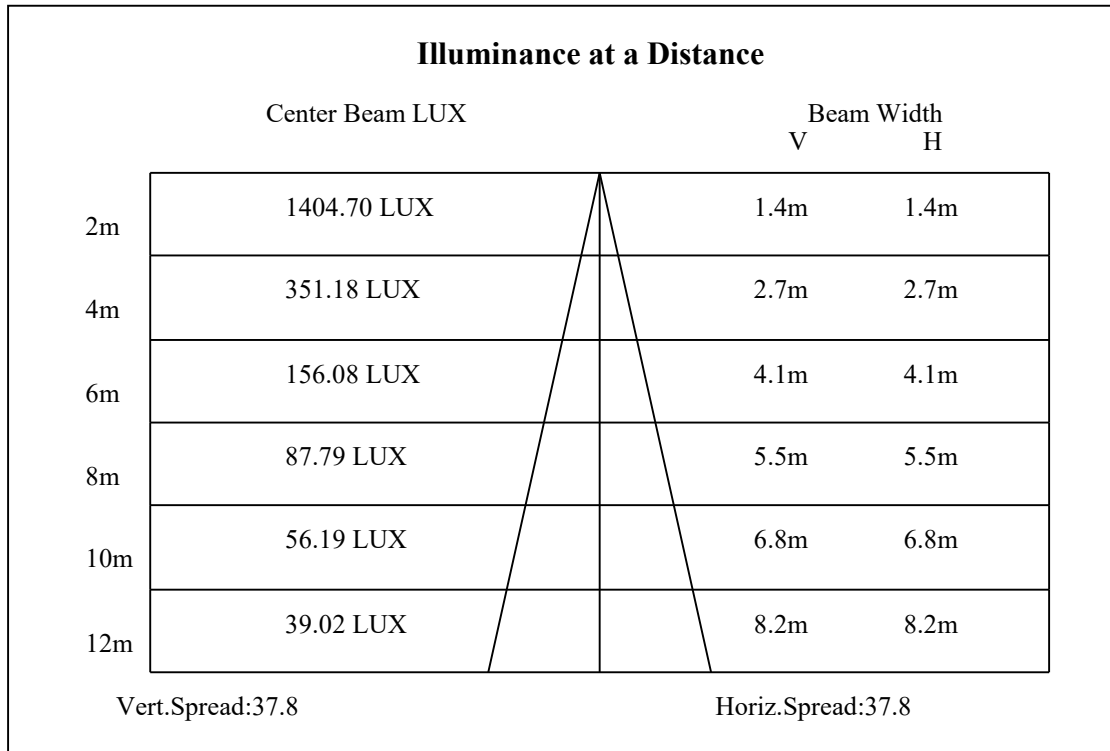
ZONAL LUMEN SUMMARY

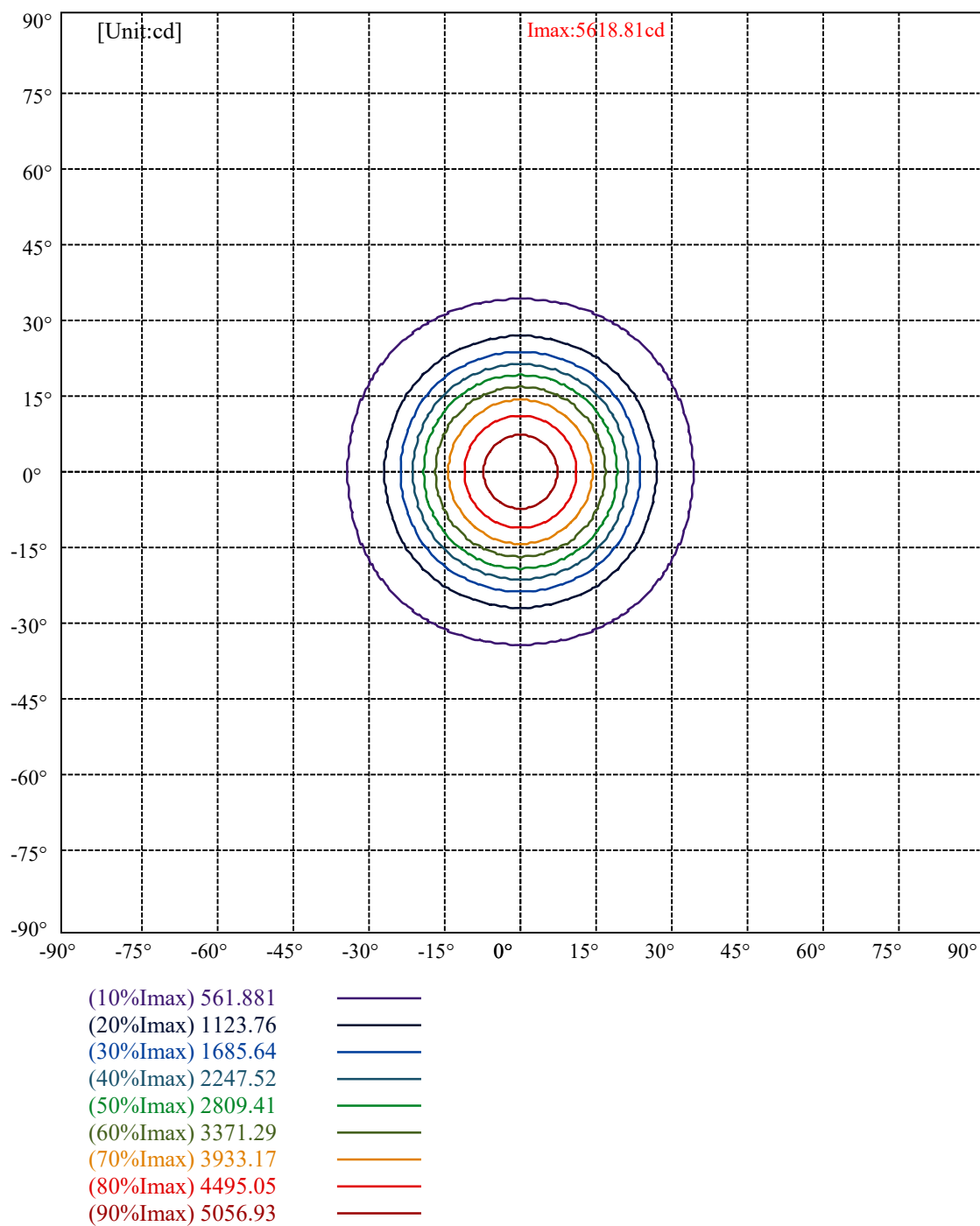
Zone	Lumens	%Lamp	%Fixt
0-30	2177.14	59.27%	78.54%
0-40	2490.83	67.81%	89.86%
0-60	2707.56	73.72%	97.68%
0-90	2771.38	75.45%	99.98%
0-120	2771.38	75.45%	99.98%
0-180	2771.98	75.47%	100.00%
60-90	67.67	1.84%	2.44%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-31.00	2217.59	60.38%	80.00%

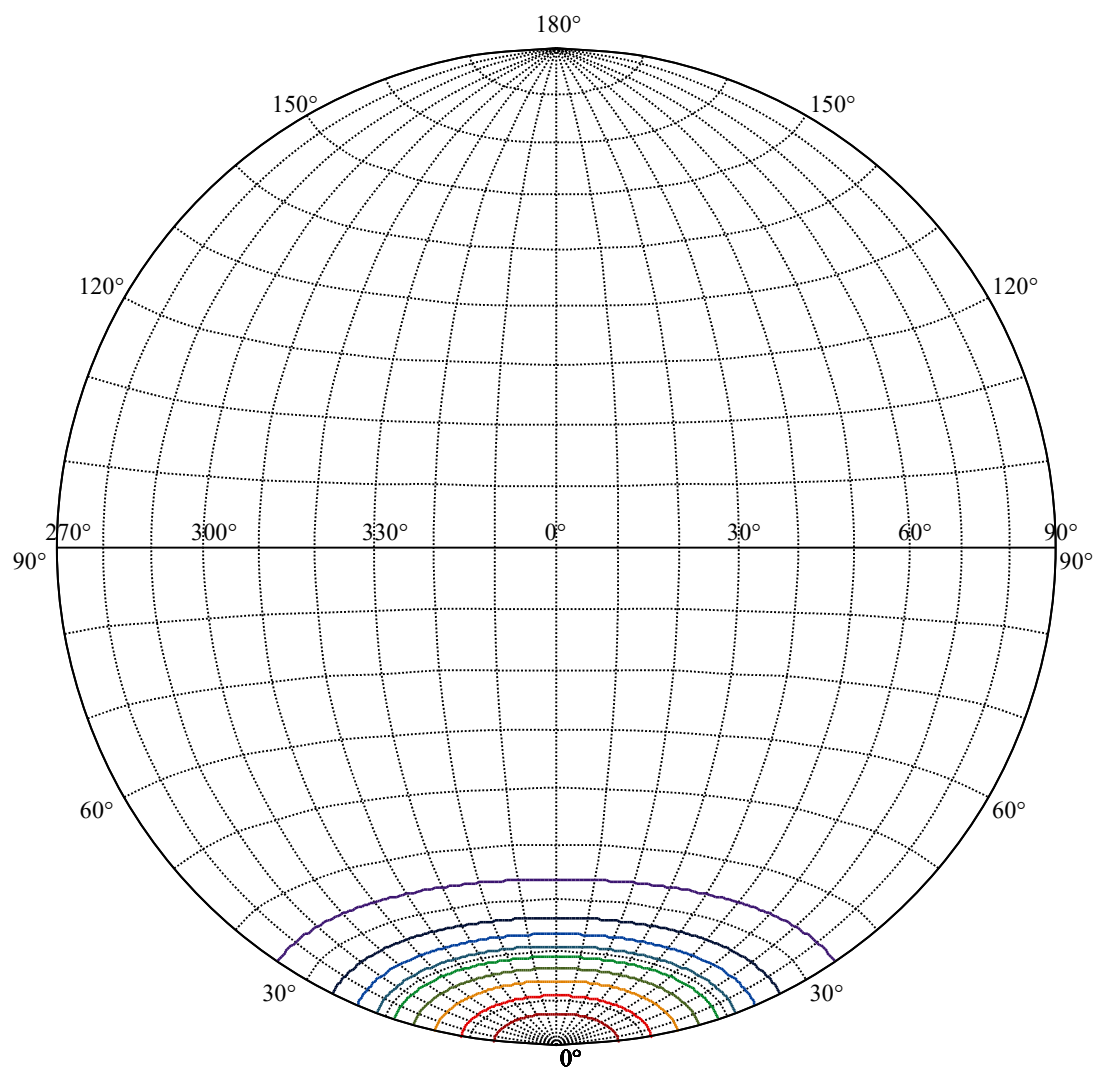
ZONAL LUMEN SUMMARY

0-10	531.81
10-20	1015.35
20-30	629.98
30-40	313.69
40-50	154.93
50-60	61.80
60-70	29.69
70-80	21.05
80-90	13.08
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









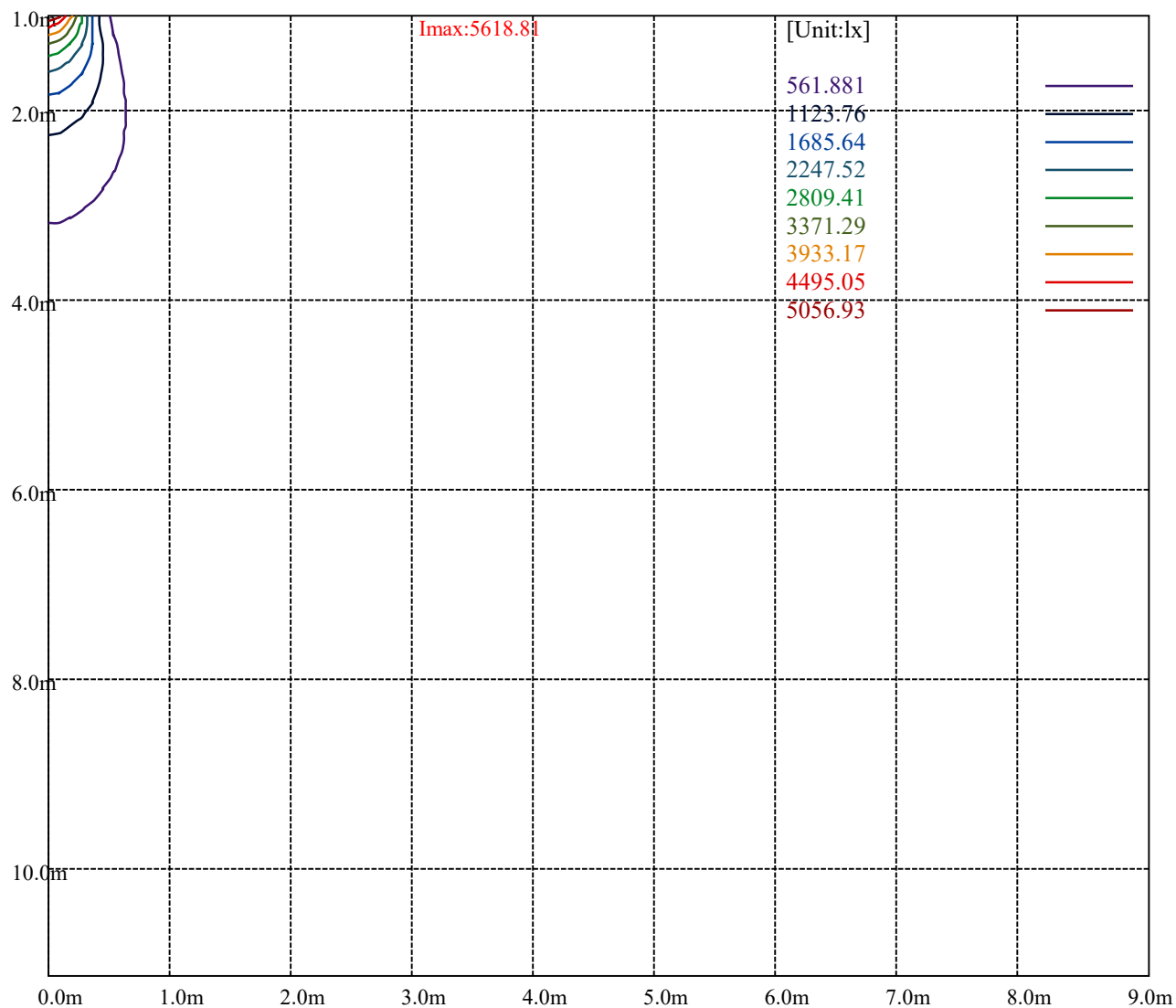
House

[Unit:cd]

Road

Imax:5618.81

(10%Imax)	561.881	—
(20%Imax)	1123.76	—
(30%Imax)	1685.64	—
(40%Imax)	2247.52	—
(50%Imax)	2809.41	—
(60%Imax)	3371.29	—
(70%Imax)	3933.17	—
(80%Imax)	4495.05	—
(90%Imax)	5056.93	—



Luminance Table

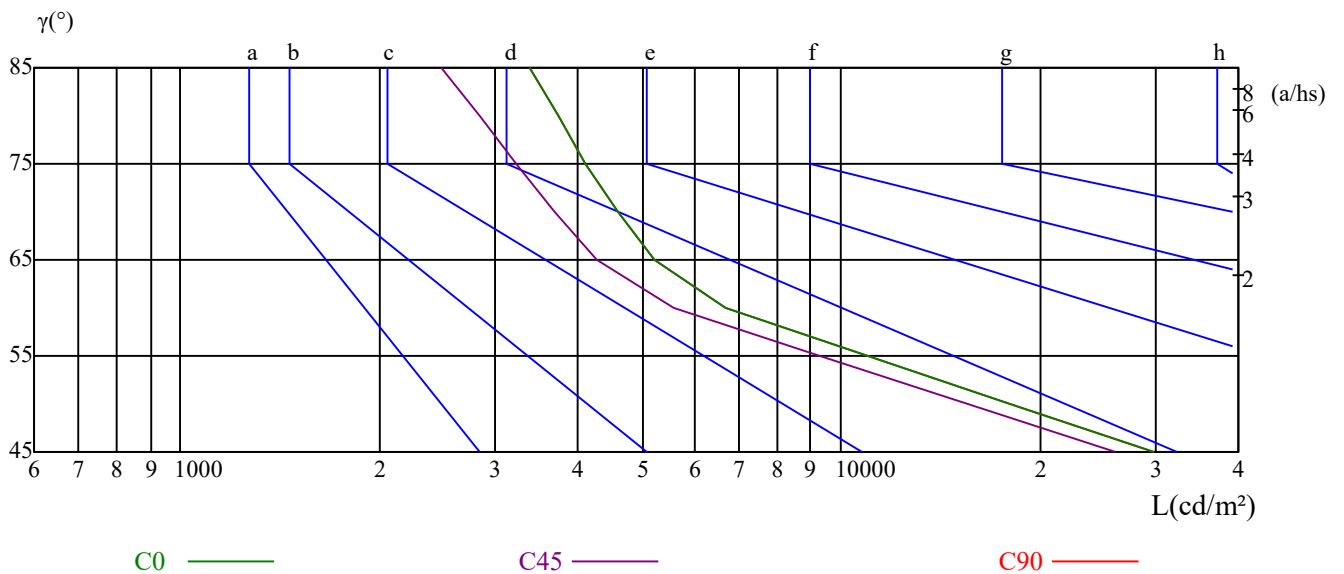
γ	45	50	55	60	65	70	75	80	85
C0	29820	18045	10985	6698	5234	4586	4113	3735	3367
C45	26021	15516	9300	5577	4279	3674	3219	2845	2482
C90	29820	18045	10985	6698	5234	4586	4113	3735	3367

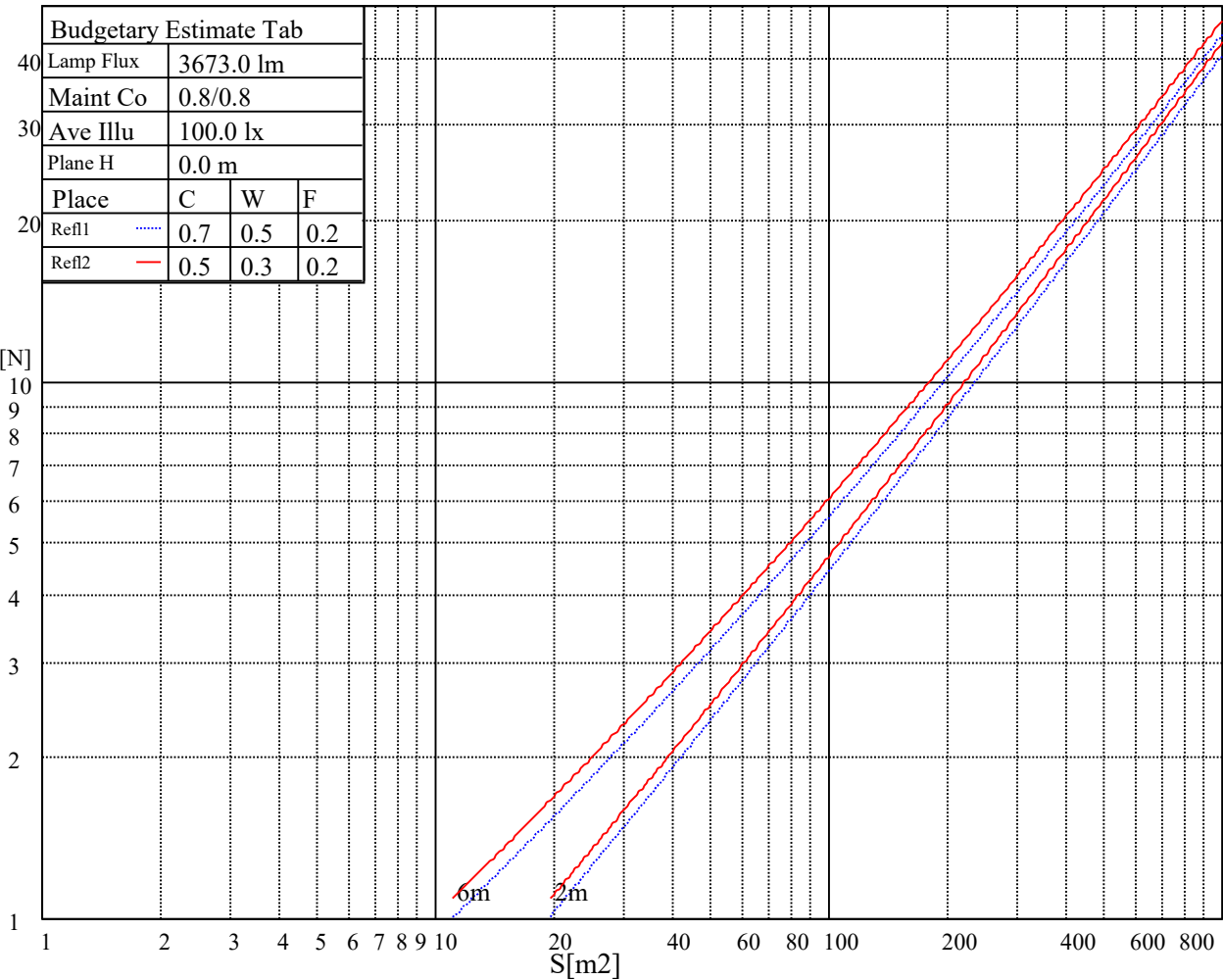
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
11343	11343	11343	12467	12467	12467	24315	24315	24315

Glare Table

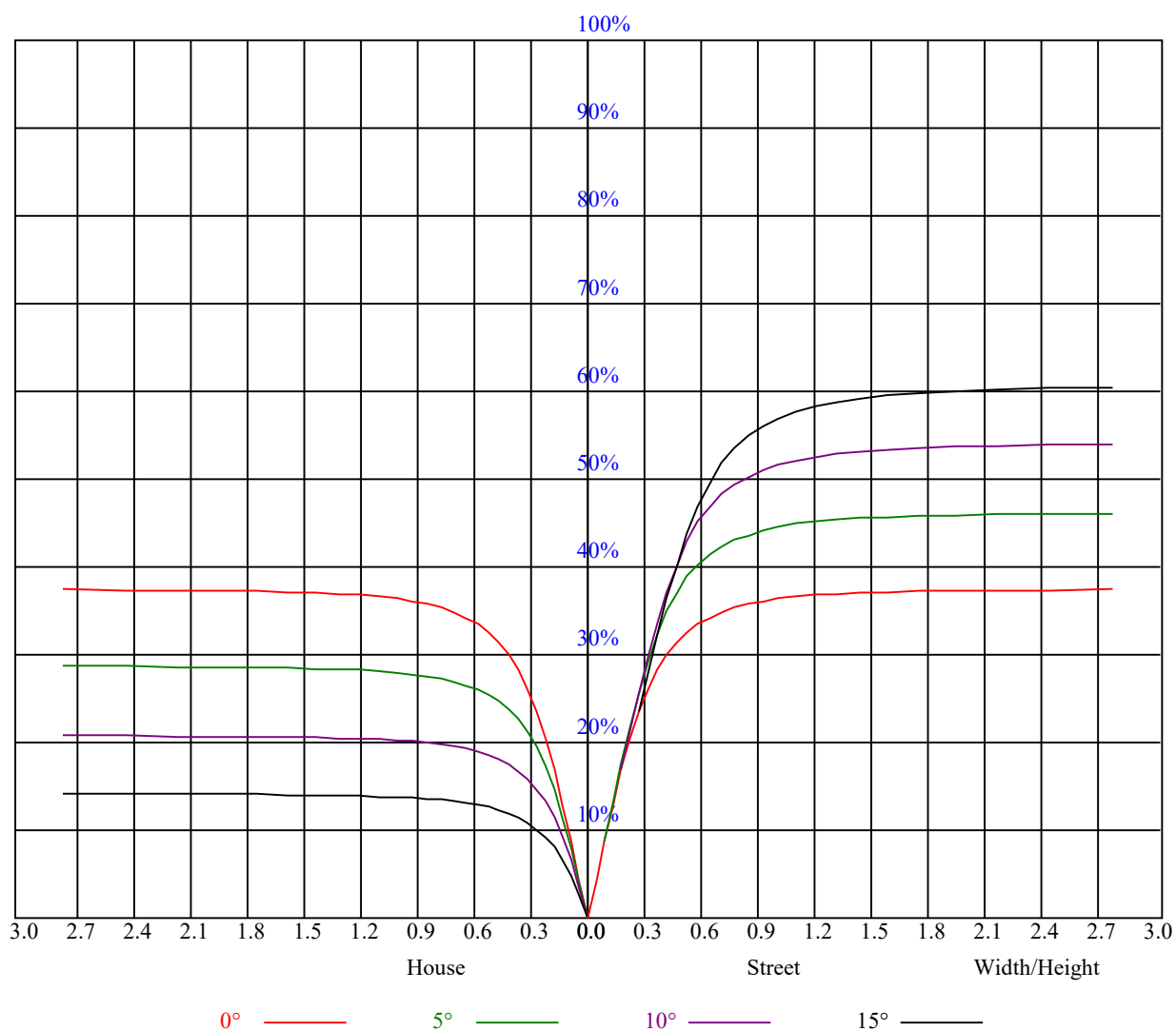
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

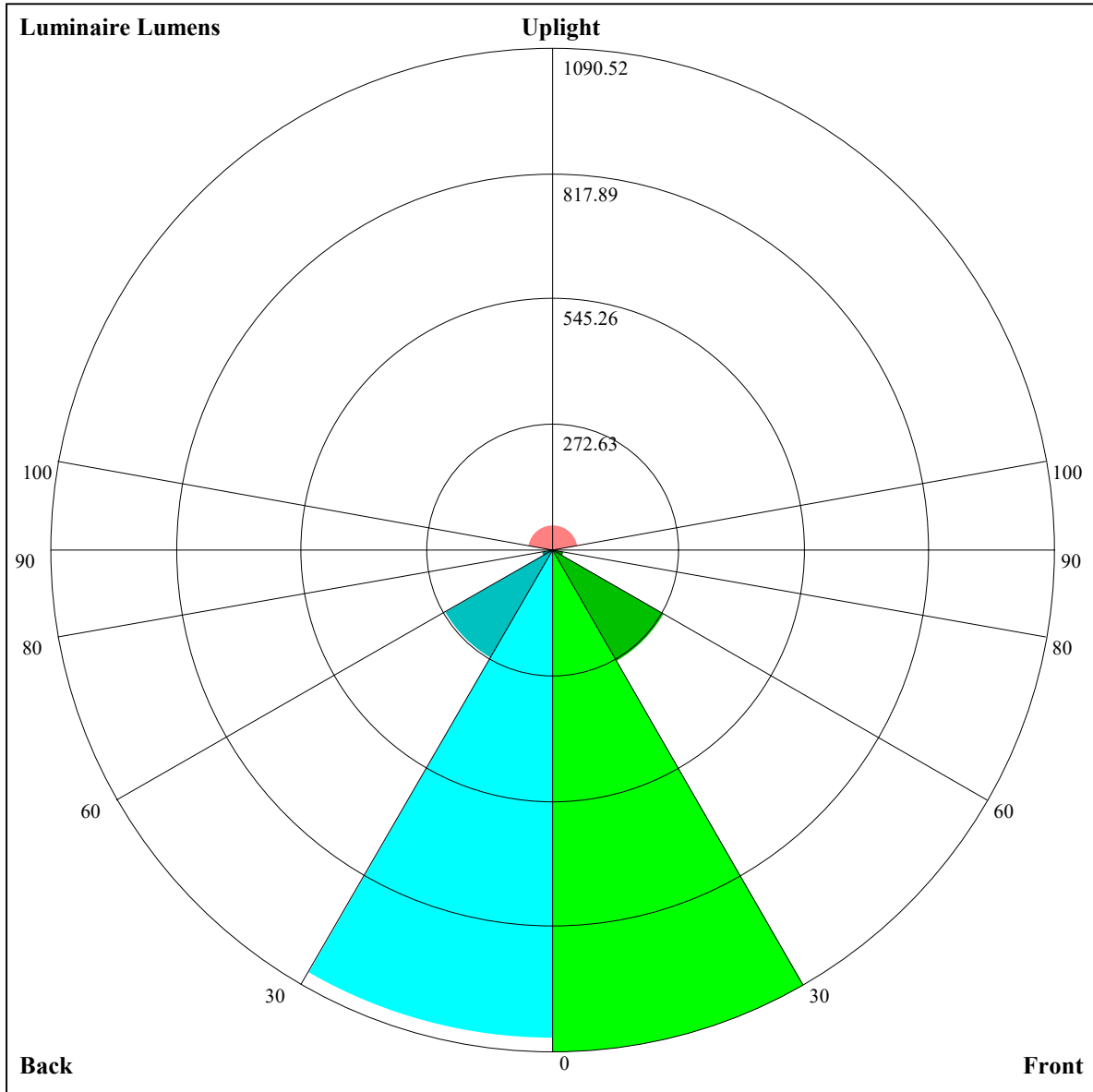
Luminance Limiting Curve





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





Luminaire Lumens:

FL=1090.52,FM=279.86,FH=26.04,FVH=7.31

BL=1062.52,BM=272.15,BH=25.94,BVH=7.3

UL=12.07,UH=57.43

BUG Rating:B3-U2-G0

NATA 3-1700-N

Intensity data(cd)									Appendix Page: 17 Total:19	
C/ γ (°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	
0.0	5630.63	5632.88	5621.06	5578.88	5504.63	5420.25	5303.81	5173.88	5045.06	
45.0	5616.00	5600.25	5537.81	5471.44	5398.88	5274.56	5144.06	5029.88	4863.94	
90.0	5590.13	5548.50	5487.19	5388.19	5295.38	5184.00	5024.81	4889.25	4753.69	
135.0	5638.50	5607.56	5545.69	5472.56	5379.75	5277.94	5150.25	5004.00	4874.63	
180.0	5630.63	5598.00	5543.44	5468.06	5382.00	5281.31	5137.31	5010.75	4879.69	
225.0	5616.00	5621.06	5583.38	5546.25	5483.81	5391.56	5277.94	5163.75	5026.50	
270.0	5590.13	5615.44	5614.88	5581.69	5536.69	5456.25	5352.19	5227.31	5103.56	
315.0	5638.50	5643.00	5631.19	5581.69	5513.63	5425.31	5296.50	5171.63	5045.63	
360.0	5630.63	5632.88	5621.06	5578.88	5504.63	5420.25	5303.81	5173.88	5045.06	
C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	
0.0	4901.06	4749.75	4606.31	4460.06	4260.38	4088.81	3904.88	3683.25	3442.50	
45.0	4730.06	4587.19	4405.50	4242.94	4071.94	3846.94	3651.75	3450.94	3172.50	
90.0	4590.56	4426.88	4275.56	4088.25	3884.06	3697.31	3469.50	3258.56	3004.31	
135.0	4724.44	4564.69	4422.94	4261.50	4041.56	3858.19	3665.25	3453.19	3178.69	
180.0	4725.00	4561.88	4408.88	4225.50	4021.31	3831.19	3602.25	3382.31	3118.50	
225.0	4901.06	4742.44	4580.44	4420.69	4231.13	4025.81	3830.06	3621.38	3373.88	
270.0	4955.63	4828.50	4669.31	4523.63	4345.31	4150.13	3966.19	3765.94	3502.13	
315.0	4899.94	4746.38	4600.13	4429.13	4268.25	4066.88	3861.00	3660.19	3421.13	
360.0	4901.06	4749.75	4606.31	4460.06	4260.38	4088.81	3904.88	3683.25	3442.50	
C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	
0.0	3219.19	2958.19	2694.94	2461.50	2198.81	1972.69	1729.69	1508.06	1328.06	
45.0	2945.25	2716.31	2449.69	2181.38	1958.06	1728.00	1492.88	1326.94	1157.63	
90.0	2734.88	2499.75	2261.81	1971.56	1753.88	1558.13	1335.38	1112.06	1051.20	
135.0	2945.81	2705.63	2403.00	2145.38	1927.69	1668.94	1452.94	1284.75	1128.38	
180.0	2844.56	2598.75	2351.25	2049.75	1821.94	1616.06	1382.06	1120.05	1090.69	
225.0	3121.31	2883.38	2642.63	2341.13	2101.50	1869.75	1600.31	1412.44	1207.69	
270.0	3278.81	3053.25	2759.63	2518.88	2278.69	2014.31	1766.81	1585.69	1352.25	
315.0	3173.63	2941.31	2700.56	2401.88	2165.06	1933.88	1689.75	1470.38	1302.19	
360.0	3219.19	2958.19	2694.94	2461.50	2198.81	1972.69	1729.69	1508.06	1328.06	
C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0	
0.0	1173.38	1020.38	921.94	839.81	751.50	690.19	636.75	583.31	536.63	
45.0	1042.88	937.69	841.50	771.19	709.88	643.50	588.94	544.50	494.44	
90.0	938.42	842.74	769.56	698.68	644.68	588.38	540.28	500.85	459.45	
135.0	1015.31	916.31	824.06	754.31	686.25	628.31	579.38	540.56	487.69	
180.0	971.10	872.78	797.85	720.73	663.81	608.40	558.23	517.67	475.54	
225.0	1099.01	979.14	893.31	810.39	747.84	681.92	622.74	574.03	524.93	
270.0	1192.50	1063.69	936.56	853.31	771.19	702.00	648.56	600.75	546.75	
315.0	1122.30	1007.33	912.94	815.79	754.26	683.49	616.56	574.26	525.15	
360.0	1173.38	1020.38	921.94	839.81	751.50	690.19	636.75	583.31	536.63	
C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	
0.0	496.13	459.00	419.63	382.50	349.31	323.44	293.63	284.06	239.40	
45.0	457.88	421.31	385.31	351.56	324.56	292.50	284.63	236.64	212.29	
90.0	421.31	390.99	362.70	329.74	303.98	276.24	245.03	223.43	202.73	
135.0	452.25	423.56	384.19	352.13	326.81	292.50	285.19	237.54	213.98	
180.0	435.71	403.14	372.60	337.33	312.19	284.63	259.14	232.03	211.61	
225.0	479.64	443.08	409.22	369.39	340.82	314.38	282.26	254.14	231.92	
270.0	506.81	468.56	428.06	391.50	361.69	331.88	303.19	286.31	247.95	
315.0	477.28	446.12	412.31	368.16	343.74	317.25	287.44	258.53	235.74	
360.0	496.13	459.00	419.63	382.50	349.31	323.44	293.63	284.06	239.40	

Equipment:
Temperature(°C): 25.0

Date: 2018/10/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.50

NATA 3-1700-N

Appendix Page: 18 Total:19

Intensity data(cd)

C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	218.42	198.68	175.95	159.24	144.00	126.79	114.58	104.01	92.19
45.0	192.49	172.35	154.01	139.50	126.06	111.43	100.74	90.96	79.93
90.0	179.49	162.62	147.38	130.44	119.64	107.27	94.78	86.79	77.34
135.0	194.57	174.32	156.49	141.64	128.31	113.68	102.71	92.81	81.39
180.0	192.43	170.78	155.25	141.08	126.34	113.46	102.83	91.80	83.08
225.0	209.25	187.48	170.16	152.16	137.70	122.96	109.74	99.39	90.06
270.0	226.63	204.75	184.28	167.51	152.04	134.10	121.33	110.25	97.76
315.0	212.51	190.63	172.52	154.58	140.06	125.10	111.83	101.64	92.19
360.0	218.42	198.68	175.95	159.24	144.00	126.79	114.58	104.01	92.19
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	83.42	75.49	67.22	59.91	54.06	48.09	42.81	38.70	35.94
45.0	71.94	64.74	57.66	51.02	46.01	41.29	37.74	35.21	33.19
90.0	67.84	61.93	55.86	48.38	44.10	39.88	36.68	34.43	32.74
135.0	73.29	65.98	58.95	52.26	47.48	42.47	38.64	36.34	34.31
180.0	73.97	65.81	59.40	52.88	47.14	42.53	38.81	36.11	34.14
225.0	79.31	71.61	64.46	56.81	51.24	46.35	41.68	37.80	35.61
270.0	88.54	80.04	71.44	63.68	57.43	51.24	45.79	41.18	37.46
315.0	81.34	73.52	66.26	58.05	52.26	47.19	42.69	38.31	35.94
360.0	83.42	75.49	67.22	59.91	54.06	48.09	42.81	38.70	35.94
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	34.09	32.18	30.54	29.25	28.13	26.83	25.88	24.98	23.85
45.0	31.67	29.98	28.58	27.39	26.33	25.20	24.36	23.51	22.78
90.0	31.16	29.76	28.46	27.23	26.27	25.26	24.19	23.46	22.56
135.0	32.74	31.22	29.70	28.46	27.51	26.27	25.26	24.47	23.51
180.0	32.57	30.77	29.48	28.35	27.11	26.10	25.09	24.13	23.34
225.0	33.64	31.78	30.38	28.86	27.73	26.49	25.43	24.47	23.63
270.0	35.38	33.36	31.61	30.26	28.97	27.56	26.55	25.65	24.41
315.0	34.03	32.06	30.60	29.25	27.96	26.78	25.82	24.75	23.91
360.0	34.09	32.18	30.54	29.25	28.13	26.83	25.88	24.98	23.85
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	23.06	22.22	21.38	20.59	19.80	19.07	18.34	17.55	16.88
45.0	21.71	21.04	20.31	19.29	18.73	17.89	17.21	16.59	15.92
90.0	21.66	20.98	20.14	19.29	18.62	17.89	17.21	16.59	15.92
135.0	22.67	21.94	21.09	20.25	19.63	18.79	18.11	17.44	16.71
180.0	22.33	21.54	20.70	19.86	19.13	18.34	17.61	16.88	16.14
225.0	22.61	21.77	21.04	20.19	19.46	18.79	18.06	17.21	16.65
270.0	23.57	22.78	21.77	20.98	20.31	19.35	18.73	18.00	17.16
315.0	23.06	22.11	21.38	20.64	19.74	19.13	18.45	17.55	16.99
360.0	23.06	22.22	21.38	20.59	19.80	19.07	18.34	17.55	16.88
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	16.20	15.36	14.74	14.06	13.33	12.71	12.09	11.64	11.25
45.0	15.19	14.63	14.01	13.33	12.77	11.98	11.59	11.19	11.03
90.0	15.36	14.79	14.12	13.33	12.54	11.81	11.36	11.08	11.03
135.0	16.20	15.69	15.13	14.40	13.33	12.32	11.70	11.31	11.08
180.0	15.58	14.91	14.23	13.50	12.99	12.32	11.64	11.31	11.08
225.0	15.92	15.13	14.57	13.89	13.33	12.66	12.04	11.48	11.25
270.0	16.54	15.92	15.08	14.40	13.78	12.99	12.38	11.76	11.42
315.0	16.43	15.69	15.02	14.51	13.73	12.94	12.09	11.59	11.31
360.0	16.20	15.36	14.74	14.06	13.33	12.71	12.09	11.64	11.25

Equipment:
Temperature(°C): 25.0

Date: 2018/10/20
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.50

Intensity data(cd)

Appendix Page: 19 Total:19

C/ γ (°)	90.0
0.0	11.08
45.0	10.97
90.0	11.03
135.0	11.08
180.0	11.08
225.0	10.97
270.0	11.19
315.0	11.08
360.0	11.08