



NATA LIGHTING CO.,LTD.
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NATA

Client:

LumCAT: 3-1701-N

Luminaire: 92.70.045.00+92.70.061.00

Report No: nata-0100

Voltage(V): 35.2000

Test No: GC2018102010

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): 86

Width(mm): 86

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 2814.63, Efficiency(%): 76.63% , Luminous Efficacy(lm/W): 114.23

Central intensity(cd): 15825.940, Maximum intensity(cd): 15825.940

Angle of maximum intensity: C=0.0 γ =0.0

Beam Angle(50%Imax): [C0/180]Total=19.0

[C90/270]Total=19.0

Field angle(10%Imax): [C0/180]Total=35.6

[C90/270]Total=35.6

Maximum s/h(1/2): C0_180=0.33 C90_270=0.33

Maximum s/h(1/4): C0_180=0.31 C90_270=0.31

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 76.73%

Up flux rate of LUM(%): - -

Down flux rate of LUM(%): 100.00%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 97.526%

Equipment:
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	15825.938	3.786	3.786	.103%	.135%
1.0	15776.719	30.194	33.98	.822%	1.207%
2.0	15570.000	59.588	93.569	1.622%	3.324%
3.0	15201.563	87.245	180.813	2.375%	6.424%
4.0	14668.594	112.208	293.022	3.055%	10.411%
5.0	13744.688	131.366	424.388	3.577%	15.078%
6.0	12610.547	144.551	568.938	3.935%	20.214%
7.0	11188.266	149.523	718.462	4.071%	25.526%
8.0	10025.297	153.005	871.466	4.166%	30.962%
9.0	8621.719	147.903	1019.37	4.027%	36.217%
10.0	7223.203	137.547	1156.917	3.745%	41.104%
11.0	5799.938	121.360	1278.276	3.304%	45.415%
12.0	4593.867	104.739	1383.015	2.852%	49.137%
13.0	3530.320	87.087	1470.103	2.371%	52.231%
14.0	2746.125	72.853	1542.955	1.983%	54.819%
15.0	2266.313	64.323	1607.279	1.751%	57.104%
16.0	1929.445	58.321	1665.599	1.588%	59.176%
17.0	1712.953	54.920	1720.52	1.495%	61.128%
18.0	1558.195	52.803	1773.322	1.438%	63.004%
19.0	1440.914	51.444	1824.766	1.401%	64.831%
20.0	1324.898	49.692	1874.458	1.353%	66.597%
21.0	1223.114	48.067	1922.525	1.309%	68.305%
22.0	1129.627	46.405	1968.93	1.263%	69.953%
23.0	1055.869	45.242	2014.171	1.232%	71.561%
24.0	966.263	43.098	2057.27	1.173%	73.092%
25.0	893.559	41.412	2098.681	1.127%	74.563%
26.0	826.966	39.754	2138.436	1.082%	75.976%
27.0	763.088	37.990	2176.426	1.034%	77.325%
28.0	708.019	36.451	2212.877	.992%	78.620%
29.0	656.142	34.884	2247.76	.950%	79.860%
30.0	608.344	33.356	2281.116	.908%	81.045%
31.0	564.391	31.877	2312.992	.868%	82.177%
32.0	522.900	30.386	2343.379	.827%	83.257%
33.0	486.000	29.027	2372.406	.790%	84.288%
34.0	454.071	27.844	2400.25	.758%	85.278%
35.0	423.598	26.644	2426.894	.725%	86.224%
36.0	393.863	25.387	2452.281	.691%	87.126%
37.0	369.338	24.375	2476.656	.664%	87.992%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	345.227	23.308	2499.963	.635%	88.820%
39.0	320.027	22.086	2522.049	.601%	89.605%
40.0	300.579	21.187	2543.236	.577%	90.358%
41.0	284.196	20.446	2563.683	.557%	91.084%
42.0	258.173	18.944	2582.627	.516%	91.757%
43.0	233.564	17.468	2600.095	.476%	92.378%
44.0	212.906	16.219	2616.313	.442%	92.954%
45.0	190.849	14.799	2631.112	.403%	93.480%
46.0	171.809	13.553	2644.665	.369%	93.961%
47.0	155.306	12.456	2657.12	.339%	94.404%
48.0	140.126	11.419	2668.54	.311%	94.809%
49.0	127.680	10.567	2679.107	.288%	95.185%
50.0	115.495	9.702	2688.809	.264%	95.530%
51.0	104.119	8.873	2697.682	.242%	95.845%
52.0	94.212	8.141	2705.824	.222%	96.134%
53.0	83.918	7.349	2713.173	.200%	96.395%
54.0	73.737	6.542	2719.715	.178%	96.628%
55.0	66.305	5.956	2725.671	.162%	96.839%
56.0	59.822	5.439	2731.109	.148%	97.032%
57.0	53.445	4.915	2736.025	.134%	97.207%
58.0	48.755	4.534	2740.559	.123%	97.368%
59.0	44.648	4.197	2744.756	.114%	97.517%
60.0	40.366	3.834	2748.589	.104%	97.654%
61.0	37.034	3.552	2752.141	.097%	97.780%
62.0	34.446	3.335	2755.476	.091%	97.898%
63.0	32.400	3.166	2758.642	.086%	98.011%
64.0	31.064	3.062	2761.704	.083%	98.119%
65.0	29.967	2.978	2764.682	.081%	98.225%
66.0	28.835	2.889	2767.571	.079%	98.328%
67.0	27.851	2.811	2770.382	.077%	98.428%
68.0	26.909	2.736	2773.118	.074%	98.525%
69.0	25.868	2.648	2775.767	.072%	98.619%
70.0	25.045	2.581	2778.347	.070%	98.711%
71.0	24.216	2.511	2780.858	.068%	98.800%
72.0	23.379	2.438	2783.297	.066%	98.887%
73.0	22.697	2.380	2785.677	.065%	98.971%
74.0	22.085	2.328	2788.005	.063%	99.054%
75.0	21.347	2.261	2790.266	.062%	99.134%

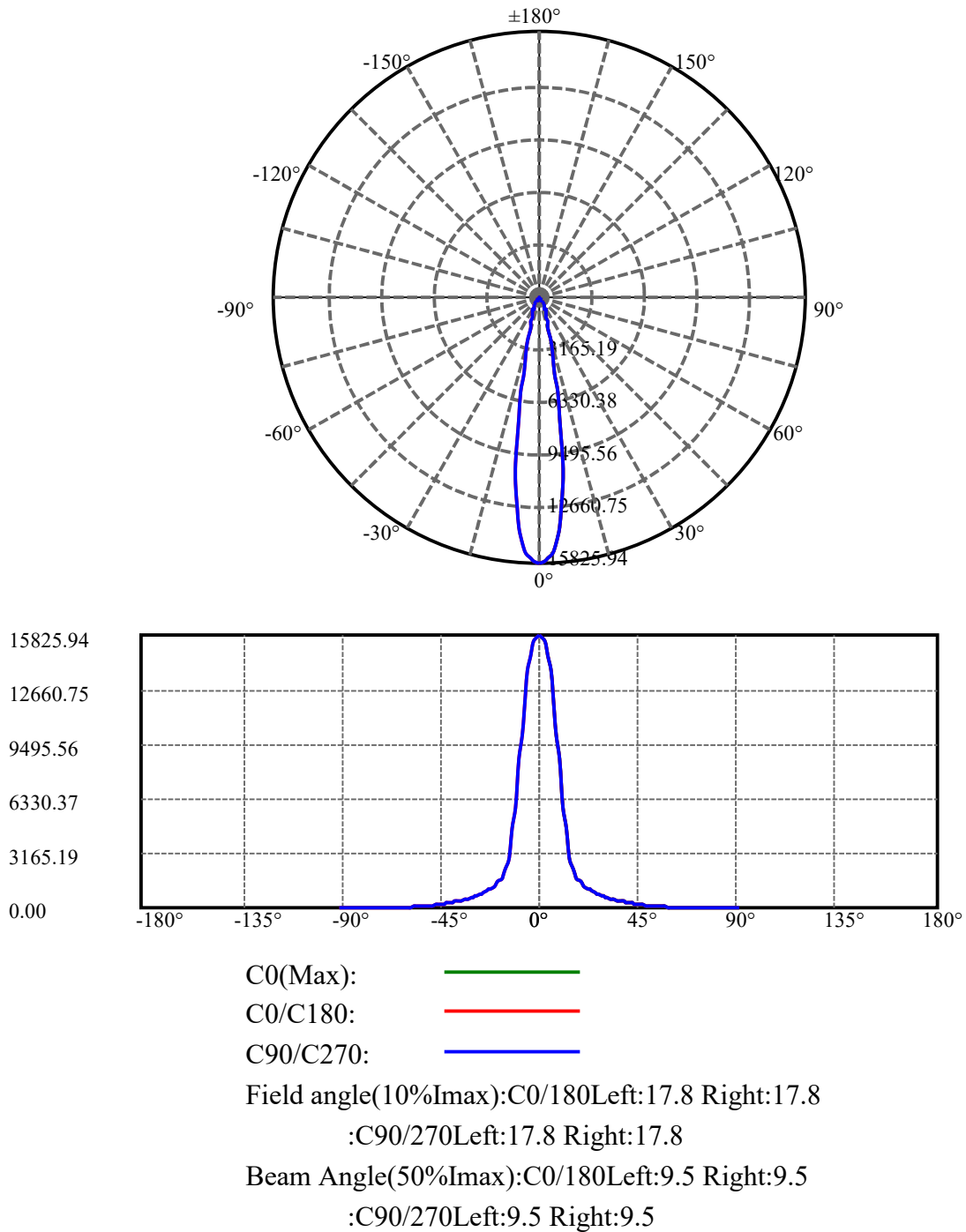
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	20.735	2.206	2792.472	.060%	99.213%
77.0	20.138	2.152	2794.624	.059%	99.289%
78.0	19.364	2.077	2796.701	.057%	99.363%
79.0	18.563	1.998	2798.699	.054%	99.434%
80.0	17.747	1.917	2800.616	.052%	99.502%
81.0	16.833	1.823	2802.439	.050%	99.567%
82.0	16.024	1.740	2804.179	.047%	99.629%
83.0	15.209	1.655	2805.834	.045%	99.687%
84.0	14.351	1.565	2807.399	.043%	99.743%
85.0	13.521	1.477	2808.877	.040%	99.795%
86.0	12.621	1.381	2810.257	.038%	99.844%
87.0	11.946	1.308	2811.565	.036%	99.891%
88.0	11.419	1.251	2812.817	.034%	99.935%
89.0	11.095	1.217	2814.033	.033%	99.979%
90.0	10.955	0.601	2814.634	.016%	100.000%

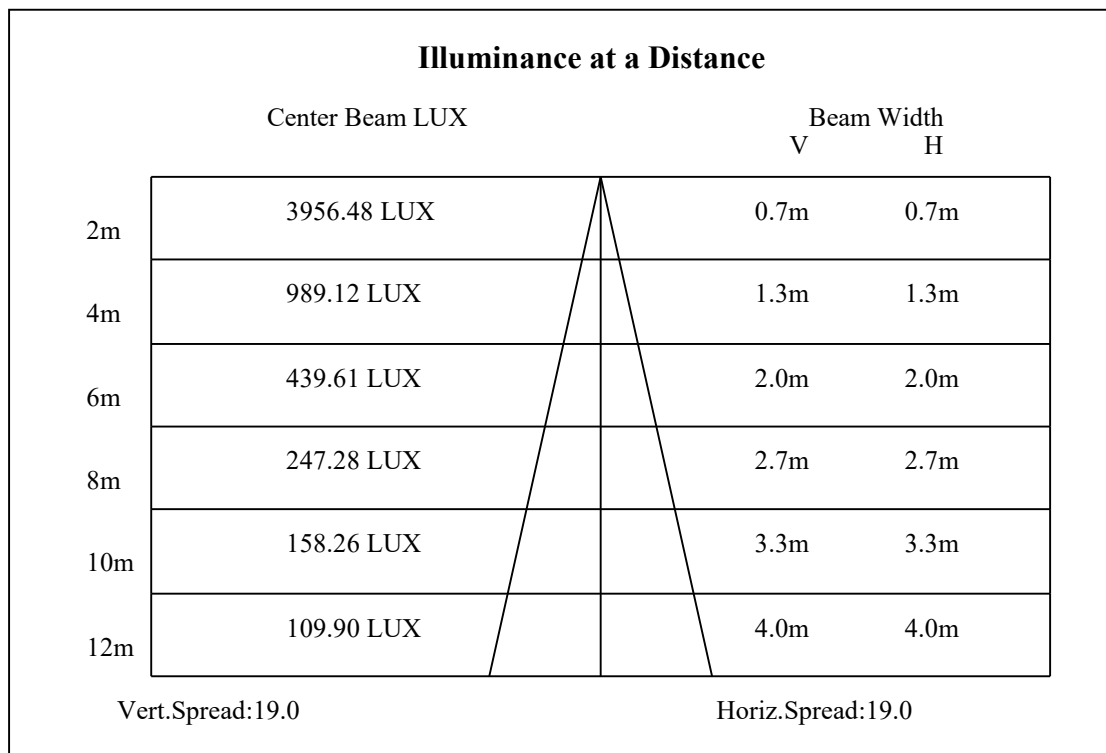
ZONAL LUMEN SUMMARY

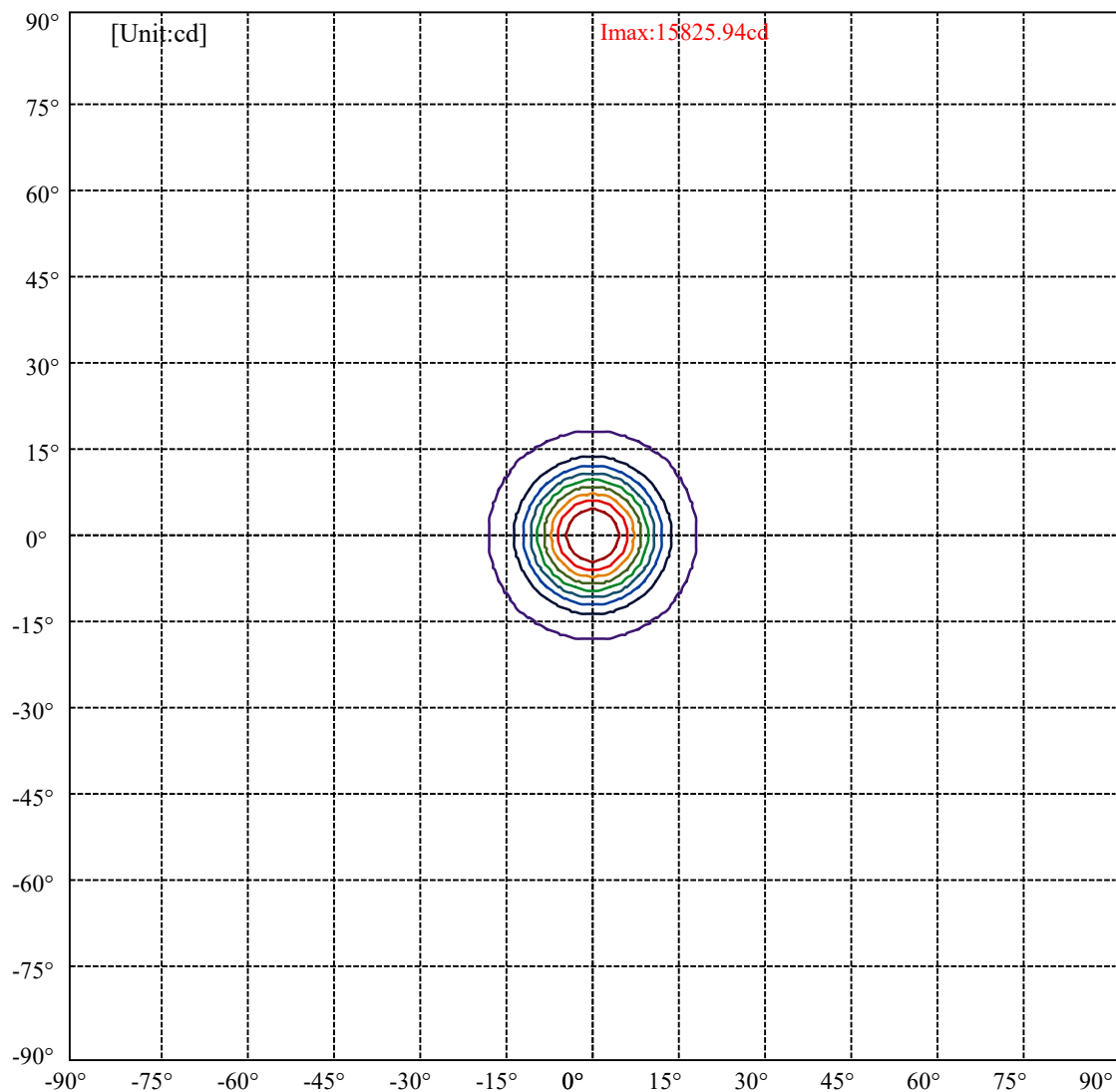
Zone	Lumens	%Lamp	%Fixt
0-30	2281.12	62.10%	81.04%
0-40	2543.24	69.24%	90.36%
0-60	2748.59	74.83%	97.65%
0-90	2814.03	76.61%	99.98%
0-120	2814.03	76.61%	99.98%
0-180	2814.63	76.63%	100.00%
60-90	69.28	1.89%	2.46%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-29.12	2251.71	61.30%	80.00%

ZONAL LUMEN SUMMARY

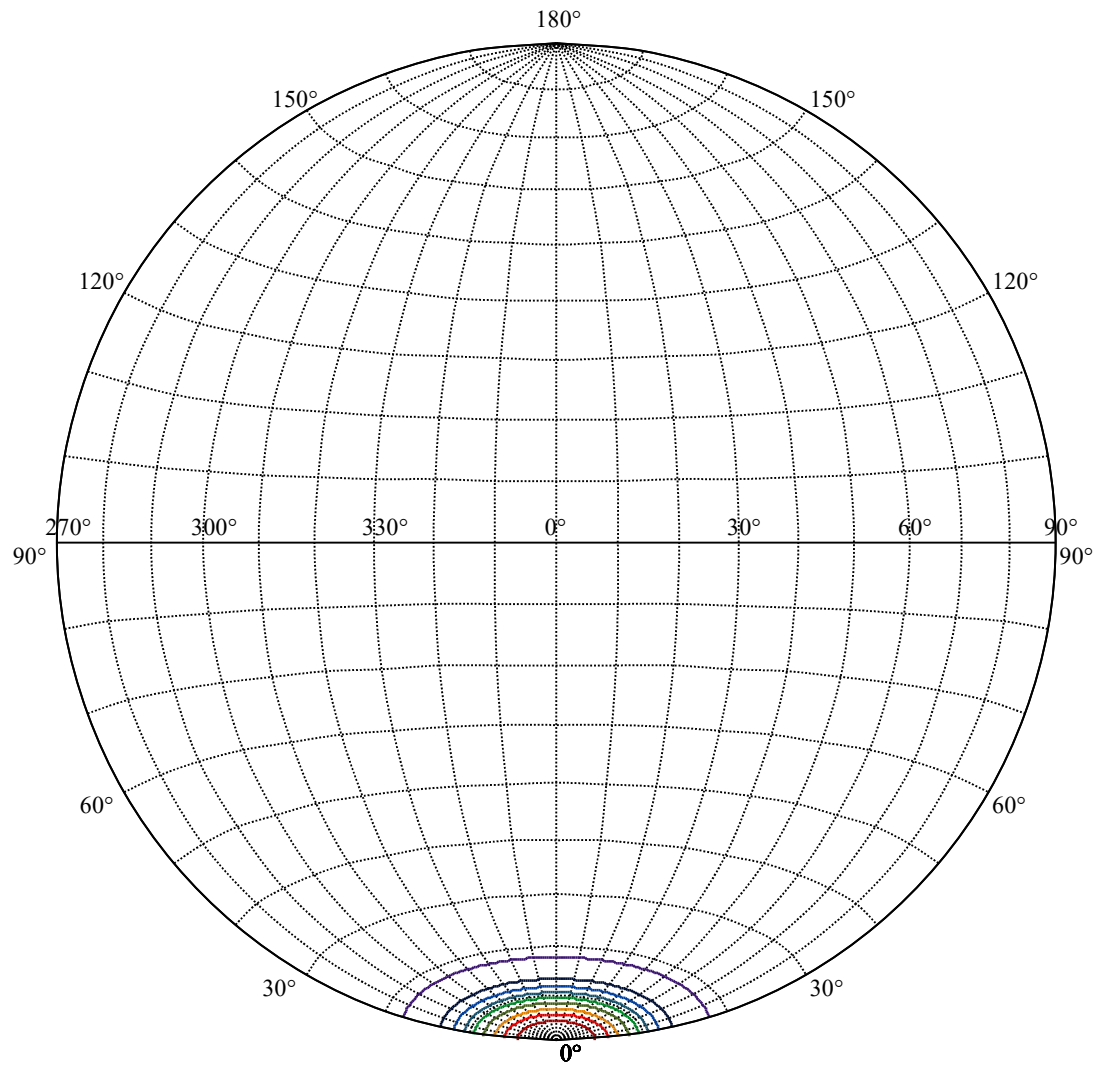
0-10	1156.92
10-20	717.54
20-30	406.66
30-40	262.12
40-50	145.57
50-60	59.78
60-70	29.76
70-80	22.27
80-90	13.42
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00







(10%Imax) 1582.59	—
(20%Imax) 3165.19	—
(30%Imax) 4747.78	—
(40%Imax) 6330.37	—
(50%Imax) 7912.97	—
(60%Imax) 9495.56	—
(70%Imax) 11078.2	—
(80%Imax) 12660.7	—
(90%Imax) 14243.3	—

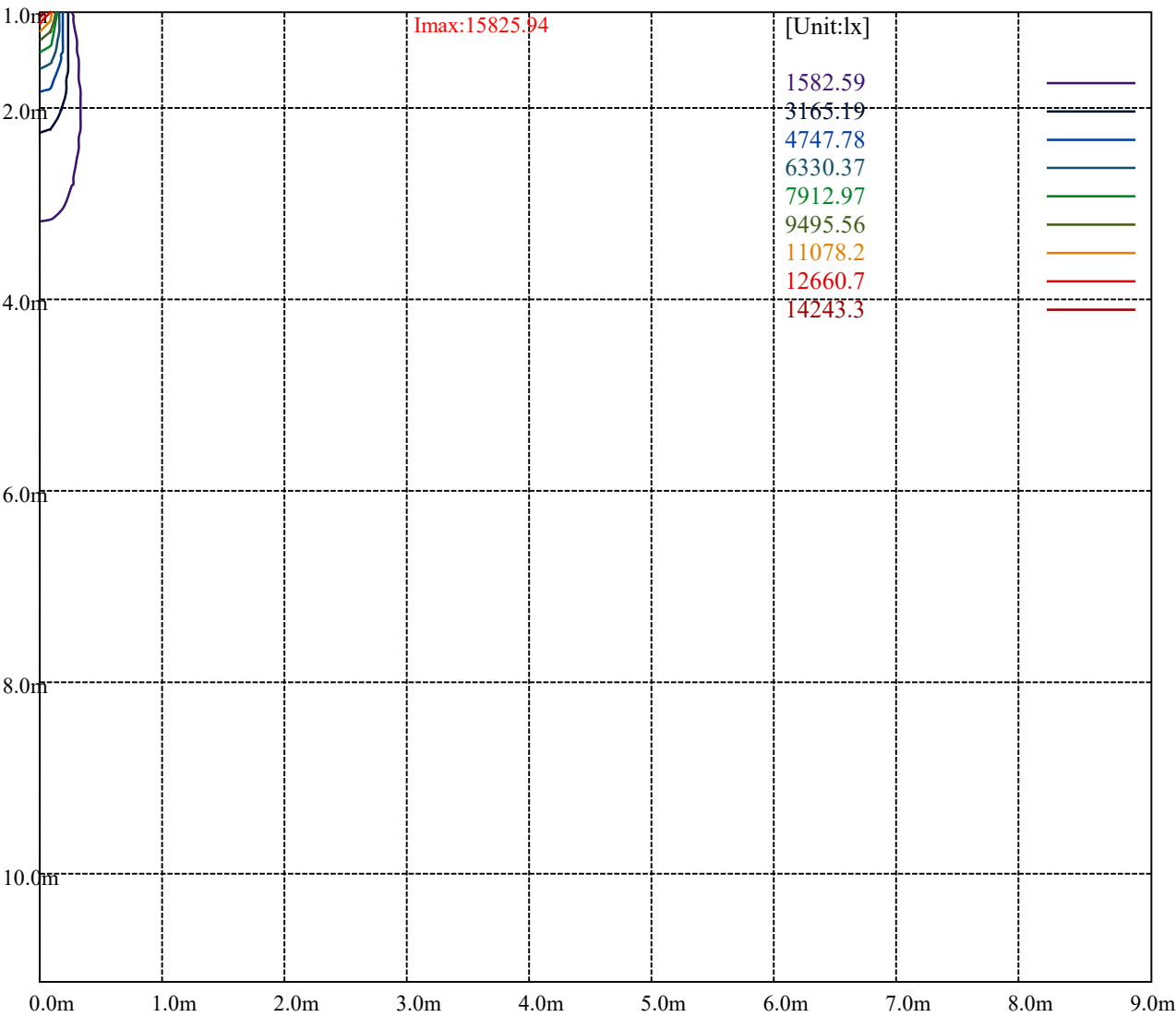


House

[Unit:cd]

Road

Imax:15825.94		
(10%Imax)	1582.59	—
(20%Imax)	3165.19	—
(30%Imax)	4747.78	—
(40%Imax)	6330.37	—
(50%Imax)	7912.97	—
(60%Imax)	9495.56	—
(70%Imax)	11078.2	—
(80%Imax)	12660.7	—
(90%Imax)	14243.3	—



Luminance Table

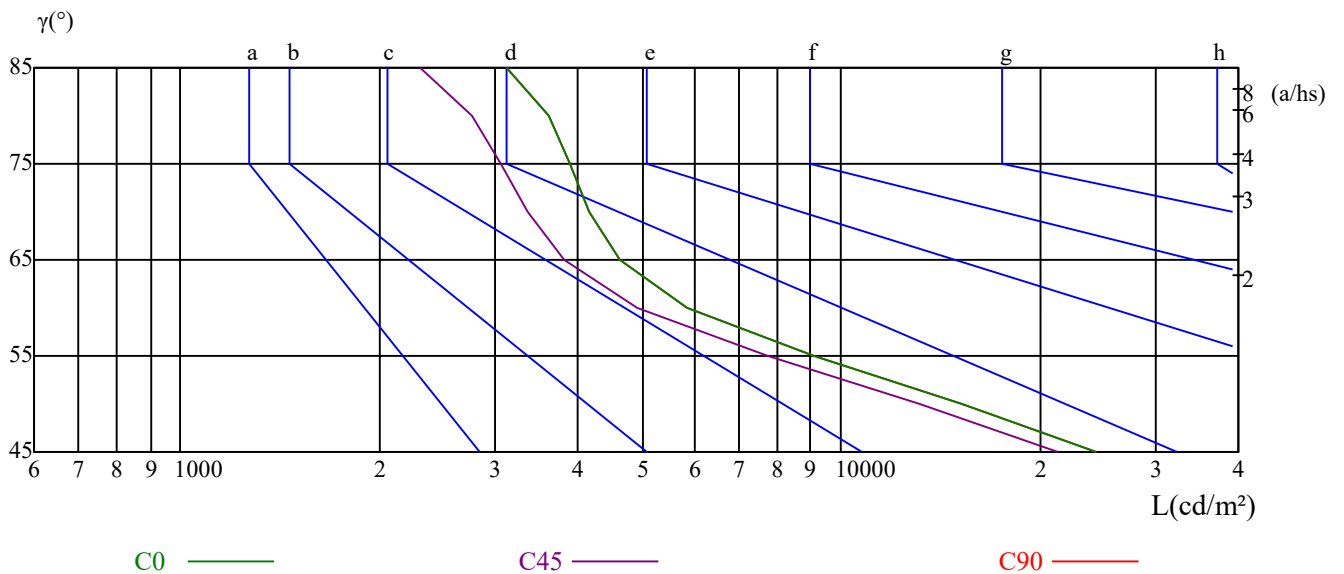
γ	45	50	55	60	65	70	75	80	85
C0	24329	15223	9119	5850	4627	4171	3891	3603	3124
C45	21377	13184	7777	4907	3810	3365	3065	2758	2310
C90	24329	15223	9119	5850	4627	4171	3891	3603	3124

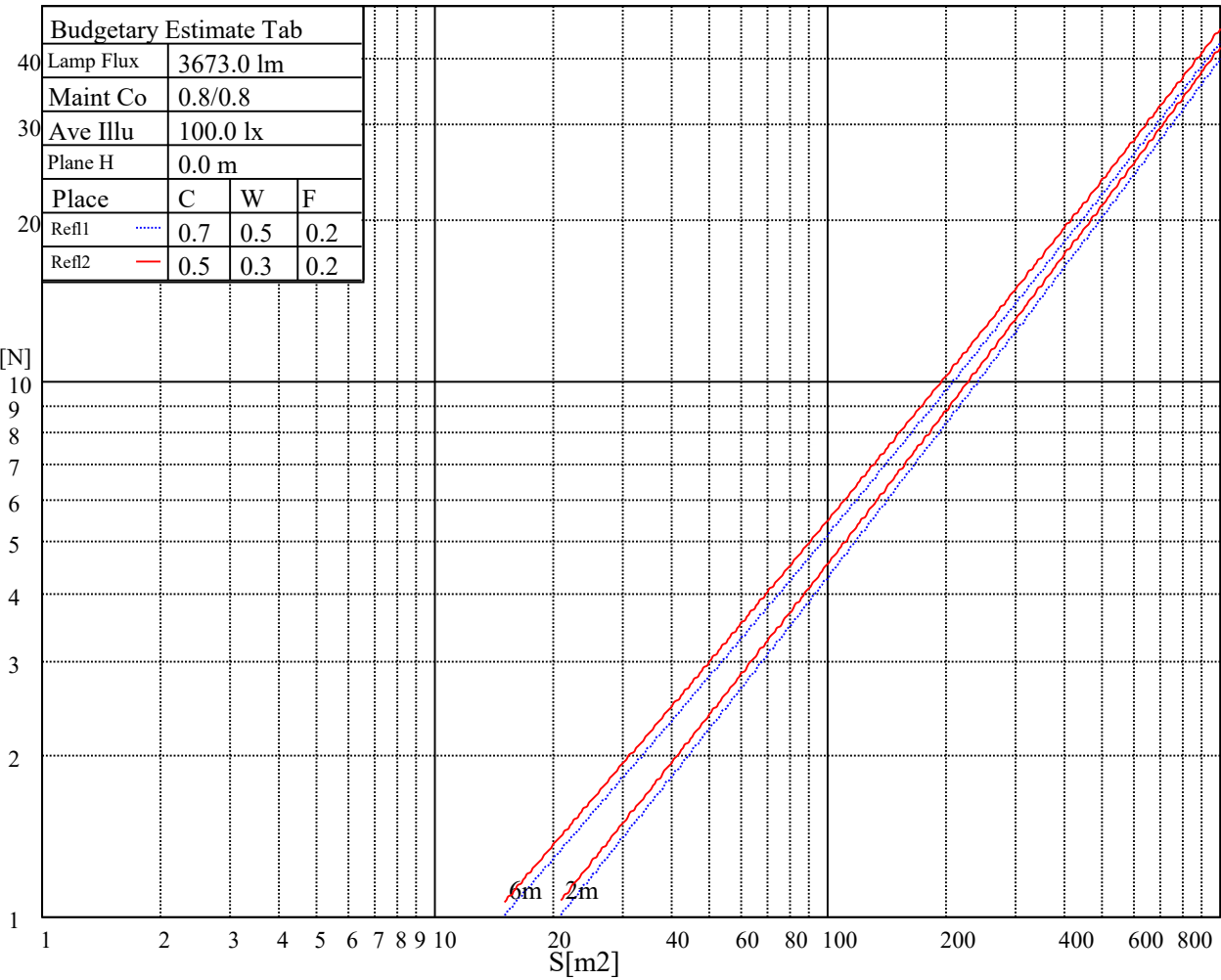
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
9587	9587	9587	11152	11152	11152	20976	20976	20976

Glare Table

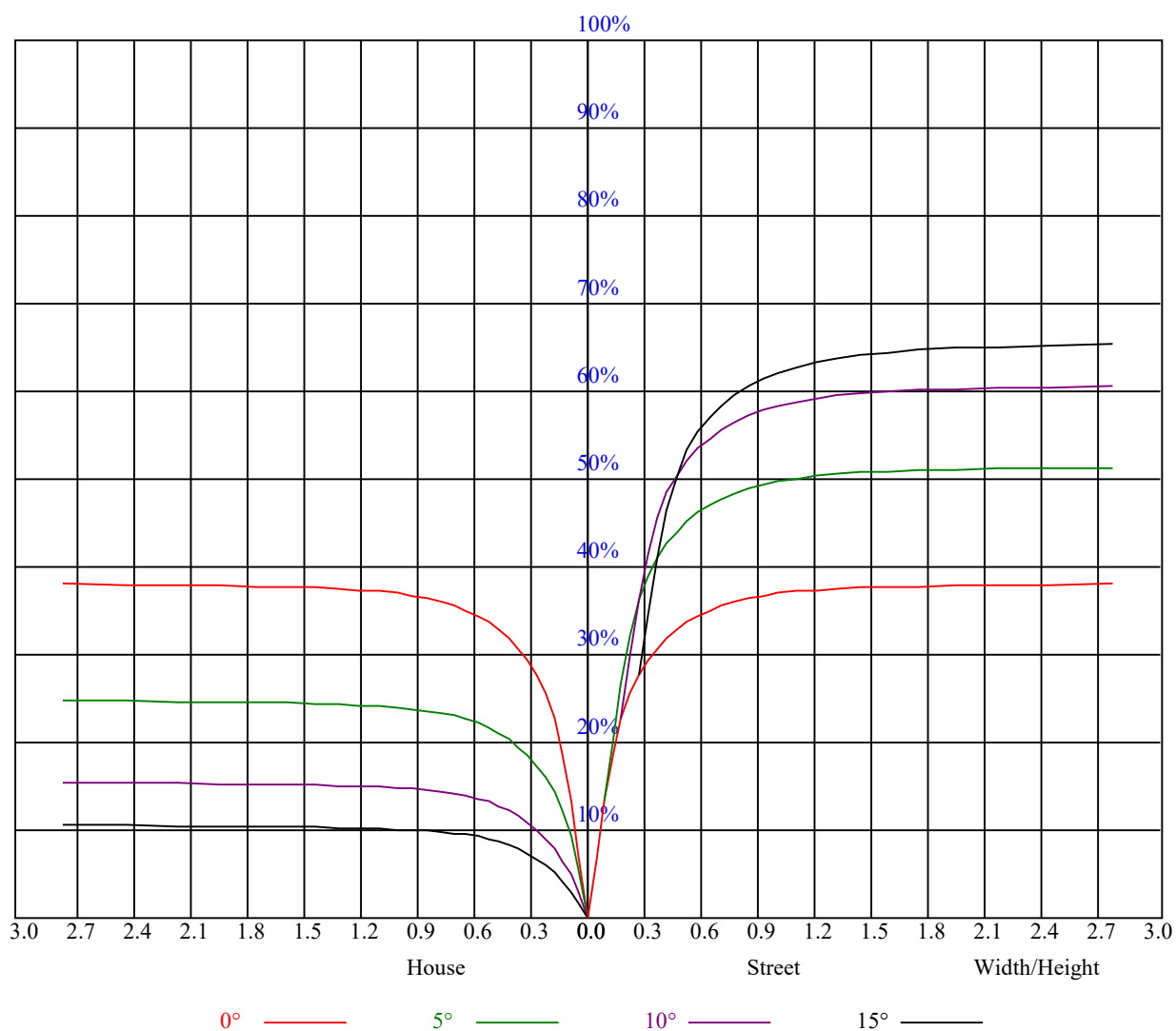
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

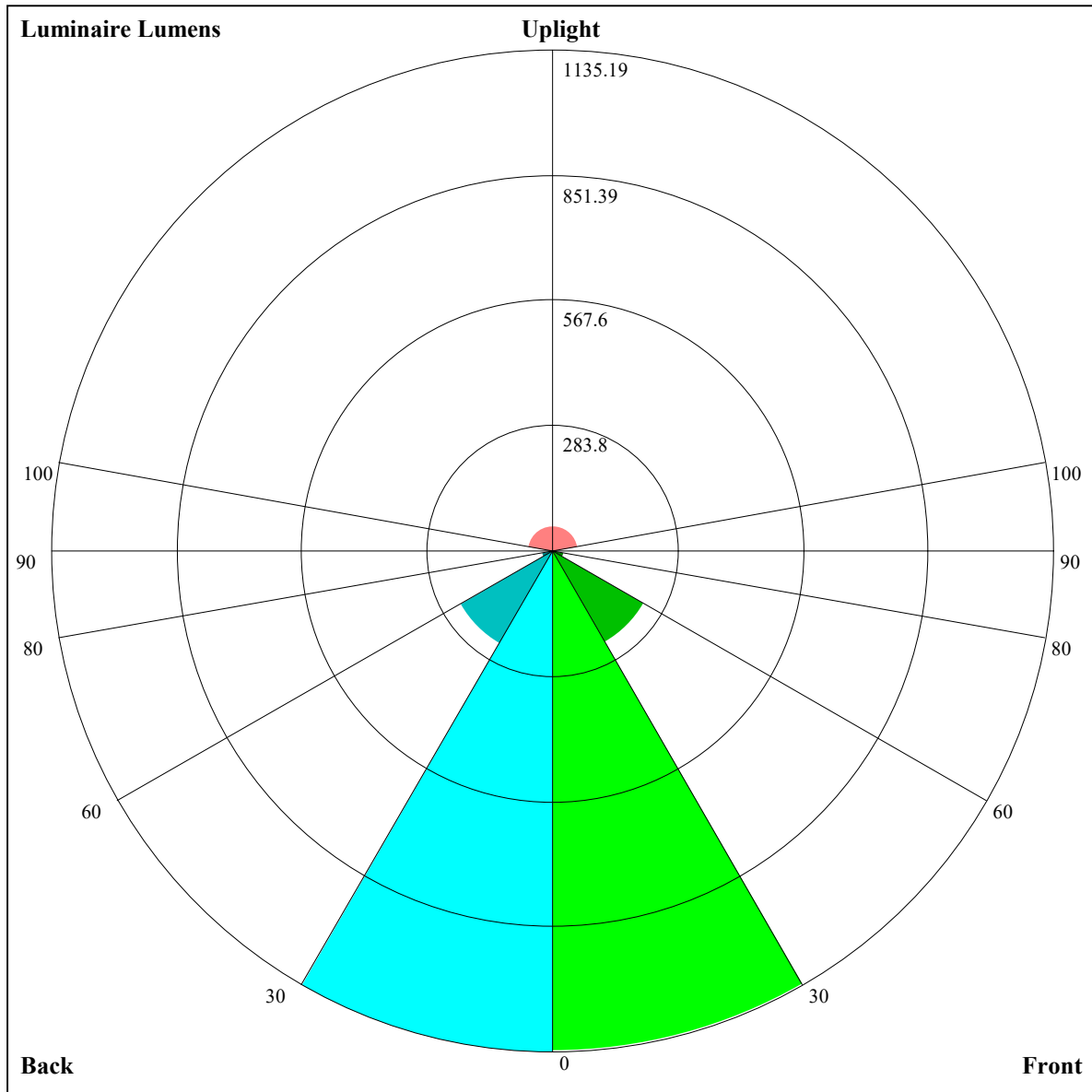
Luminance Limiting Curve





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	0.91	0.91	0.91	0.89	0.89	0.89	0.85	0.85	0.85	0.82	0.82	0.82	0.78	0.78	0.78	0.77
1	0.86	0.84	0.82	0.84	0.82	0.81	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73
2	0.81	0.78	0.76	0.80	0.77	0.75	0.77	0.75	0.73	0.75	0.73	0.72	0.73	0.72	0.70	0.69
3	0.77	0.74	0.71	0.76	0.73	0.70	0.74	0.71	0.69	0.72	0.70	0.68	0.70	0.69	0.67	0.66
4	0.73	0.70	0.67	0.72	0.69	0.67	0.71	0.68	0.66	0.69	0.67	0.65	0.68	0.66	0.64	0.63
5	0.70	0.66	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.67	0.64	0.62	0.66	0.64	0.62	0.61
6	0.67	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.61	0.65	0.62	0.60	0.64	0.62	0.60	0.59
7	0.65	0.61	0.59	0.64	0.61	0.59	0.64	0.61	0.58	0.63	0.60	0.58	0.62	0.60	0.58	0.57
8	0.63	0.59	0.57	0.62	0.59	0.57	0.62	0.59	0.56	0.61	0.58	0.56	0.60	0.58	0.56	0.55
9	0.61	0.57	0.55	0.60	0.57	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.59	0.56	0.54	0.54
10	0.59	0.56	0.53	0.59	0.56	0.53	0.58	0.55	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.52





Luminaire Lumens:

FL=1132.65,FM=240.21,FH=26.49,FVH=7.51

BL=1135.19,BM=242.11,BH=26.65,BVH=7.52

UL=11.95,UH=56.88

BUG Rating:B3-U2-G0

NATA 3-1701-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	15817.50	15806.25	15654.38	15356.25	14956.88	14175.00	13106.25	11992.50	10816.88		
45.0	15828.75	15800.63	15423.75	14968.13	14383.13	13201.88	11880.00	10625.63	9157.50		
90.0	15834.38	15626.25	15266.25	14596.88	13747.50	12498.75	11115.00	9740.81	8030.81		
135.0	15823.13	15806.25	15457.50	15052.50	14473.13	13466.25	12211.88	11036.25	9635.63		
180.0	15817.50	15733.13	15525.00	15108.75	14394.38	13516.88	12408.75	11102.06	9691.88		
225.0	15828.75	15806.25	15761.25	15541.88	15170.63	14315.63	13320.00	11088.00	10932.19		
270.0	15834.38	15811.88	15828.75	15660.00	15367.50	14670.00	13848.75	12763.13	11407.50		
315.0	15823.13	15823.13	15643.13	15328.13	14855.63	14113.13	12993.75	11157.75	10530.00		
360.0	15817.50	15806.25	15654.38	15356.25	14956.88	14175.00	13106.25	11992.50	10816.88		
C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0		
0.0	9213.75	7863.75	6496.88	5040.00	3768.75	2913.75	2315.25	1977.19	1780.31		
45.0	7633.13	6249.38	4803.75	3690.00	2857.50	2235.38	1958.63	1767.94	1587.38		
90.0	6829.31	5355.00	3922.88	3144.94	2509.88	2022.75	1846.69	1695.94	1553.63		
135.0	8218.13	6930.00	5512.50	4359.38	3301.88	2936.25	2177.44	1923.75	1708.31		
180.0	8391.38	6923.81	5504.63	4361.06	3409.88	2568.94	2158.31	1899.56	1688.63		
225.0	9531.56	8097.75	6802.88	5393.25	4111.88	3187.69	2467.13	2076.19	1806.75		
270.0	9928.13	8611.88	7104.38	5805.00	4455.00	3318.75	2925.00	2109.38	1838.81		
315.0	9228.38	7754.06	6251.63	4957.31	3827.81	2785.50	2282.06	1985.63	1739.81		
360.0	9213.75	7863.75	6496.88	5040.00	3768.75	2913.75	2315.25	1977.19	1780.31		
C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0		
0.0	1613.81	1492.31	1377.00	1276.88	1193.06	1110.38	1009.69	935.44	866.25		
45.0	1465.88	1371.94	1262.81	1175.63	1098.56	1006.88	928.69	862.88	799.88		
90.0	1426.50	1327.50	1226.81	1115.66	1043.04	964.97	885.15	813.60	750.15		
135.0	1549.69	1429.31	1312.88	1212.19	1128.38	1059.19	950.63	883.69	830.25		
180.0	1528.31	1411.88	1299.38	1182.38	1116.17	1024.82	949.05	871.14	800.94		
225.0	1617.75	1486.69	1380.38	1266.19	1118.42	1097.61	997.26	922.44	855.17		
270.0	1674.56	1545.19	1408.50	1312.31	1223.44	1118.25	1033.88	954.00	879.19		
315.0	1589.06	1462.50	1331.44	1243.69	1115.94	1064.87	975.77	905.29	833.91		
360.0	1613.81	1492.31	1377.00	1276.88	1193.06	1110.38	1009.69	935.44	866.25		
C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0		
0.0	789.19	733.50	680.63	626.63	574.31	530.44	491.06	456.75	428.06		
45.0	748.69	694.69	645.19	601.31	557.44	519.75	483.75	453.94	419.63		
90.0	698.06	649.91	599.23	552.83	515.64	478.46	445.11	417.49	392.74		
135.0	763.31	708.75	666.00	613.13	568.69	538.31	495.00	462.38	430.31		
180.0	745.59	694.18	626.34	586.46	542.48	488.03	460.69	432.45	403.76		
225.0	788.40	728.72	681.58	632.70	591.98	549.56	509.91	476.49	444.04		
270.0	795.38	737.44	685.13	631.69	582.75	543.38	502.88	466.88	438.19		
315.0	776.08	716.96	665.04	622.01	581.85	535.28	499.61	466.20	432.06		
360.0	789.19	733.50	680.63	626.63	574.31	530.44	491.06	456.75	428.06		
C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0		
0.0	399.38	375.19	350.44	326.81	307.69	288.56	269.44	239.63	219.43		
45.0	395.44	367.31	338.63	315.00	293.63	285.75	240.30	218.59	197.72		
90.0	364.33	343.18	323.33	298.91	279.96	255.77	231.19	207.51	187.59		
135.0	395.44	367.31	341.44	313.88	293.63	284.63	245.87	225.39	205.37		
180.0	377.78	356.12	334.52	313.99	295.82	276.64	255.32	232.54	210.54		
225.0	413.27	389.64	367.43	338.68	318.60	300.49	281.31	254.81	233.55		
270.0	408.94	385.31	360.56	337.50	318.94	303.19	285.75	256.67	236.14		
315.0	396.34	370.63	345.49	315.45	296.38	278.55	256.22	233.38	212.91		
360.0	399.38	375.19	350.44	326.81	307.69	288.56	269.44	239.63	219.43		

Equipment:
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

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Intensity data(cd)										Appendix Page: 18 Total:19	
C/ γ (°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	195.41	177.08	160.59	144.56	130.56	118.91	107.33	97.71	86.85		
45.0	176.63	157.95	143.94	130.73	119.76	108.06	97.03	86.85	75.94		
90.0	167.74	152.33	137.76	124.82	114.13	102.71	91.46	81.79	72.84		
135.0	183.83	164.36	148.95	134.44	123.08	111.49	100.52	90.56	80.10		
180.0	191.70	174.15	154.58	140.63	128.25	114.41	104.18	93.88	83.03		
225.0	210.43	188.27	170.66	153.51	140.51	126.84	114.19	103.67	93.49		
270.0	210.88	191.08	173.14	154.97	139.28	127.29	115.14	105.36	94.56		
315.0	190.18	169.26	152.83	137.36	125.89	114.24	103.11	93.88	84.54		
360.0	195.41	177.08	160.59	144.56	130.56	118.91	107.33	97.71	86.85		
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	76.39	68.51	61.20	55.24	50.40	45.96	41.06	37.63	34.59		
45.0	67.22	60.81	56.14	49.39	45.17	41.91	37.69	34.71	33.02		
90.0	63.73	57.83	52.82	47.81	43.43	40.16	36.73	33.81	32.23		
135.0	70.71	63.79	57.88	51.75	47.42	43.65	39.60	36.39	34.14		
180.0	73.52	66.38	59.51	54.28	48.99	44.38	40.73	37.13	33.98		
225.0	81.39	72.73	65.31	56.87	52.31	47.59	42.58	39.04	35.89		
270.0	83.70	74.76	66.38	59.46	54.23	49.50	44.33	40.67	37.41		
315.0	73.24	65.64	59.34	52.76	48.09	44.04	40.22	36.90	34.31		
360.0	76.39	68.51	61.20	55.24	50.40	45.96	41.06	37.63	34.59		
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	32.51	31.16	30.15	29.14	27.90	27.00	26.16	25.26	24.30		
45.0	31.50	30.15	29.19	27.96	27.06	26.16	25.09	24.30	23.57		
90.0	30.94	29.81	28.69	27.62	26.66	25.82	24.75	24.02	23.29		
135.0	32.40	31.16	30.15	28.91	28.07	27.00	25.99	25.14	24.30		
180.0	32.34	31.22	29.81	28.80	27.79	26.89	25.76	24.86	24.08		
225.0	32.85	31.56	30.38	29.14	28.24	27.23	26.04	25.31	24.47		
270.0	34.31	32.34	31.28	30.09	28.97	28.01	27.00	26.10	25.14		
315.0	32.34	31.11	30.09	29.03	28.13	27.17	26.16	25.37	24.58		
360.0	32.51	31.16	30.15	29.14	27.90	27.00	26.16	25.26	24.30		
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	23.63	22.84	22.22	21.43	20.87	20.31	19.63	18.84	18.06		
45.0	22.78	22.11	21.60	20.81	20.19	19.58	18.73	17.83	17.04		
90.0	22.56	21.94	21.32	20.70	19.97	19.29	18.39	17.61	16.76		
135.0	23.51	22.89	22.28	21.49	20.87	20.25	19.46	18.62	17.78		
180.0	23.18	22.44	21.83	21.15	20.48	19.86	19.07	18.28	17.33		
225.0	23.51	22.89	22.28	21.54	21.04	20.48	19.74	18.90	18.17		
270.0	24.19	23.46	22.78	21.99	21.38	20.81	20.03	19.41	18.62		
315.0	23.68	23.01	22.39	21.66	21.09	20.53	19.86	19.01	18.23		
360.0	23.63	22.84	22.22	21.43	20.87	20.31	19.63	18.84	18.06		
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	17.16	16.20	15.36	14.46	13.67	12.77	12.04	11.48	11.14		
45.0	16.14	15.36	14.51	13.61	12.83	12.04	11.48	11.03	10.91		
90.0	15.86	15.08	14.23	13.33	12.60	11.87	11.31	10.97	10.91		
135.0	16.82	16.09	15.41	14.51	13.39	12.38	11.76	11.31	10.97		
180.0	16.43	15.58	14.68	13.95	13.22	12.38	11.76	11.31	10.97		
225.0	17.27	16.48	15.58	14.68	13.95	13.11	12.43	11.81	11.31		
270.0	17.61	16.82	16.09	15.19	14.40	13.39	12.66	11.93	11.42		
315.0	17.38	16.59	15.81	15.08	14.12	13.05	12.15	11.53	11.14		
360.0	17.16	16.20	15.36	14.46	13.67	12.77	12.04	11.48	11.14		

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	10.91
45.0	10.91
90.0	10.91
135.0	10.97
180.0	10.97
225.0	10.97
270.0	11.03
315.0	10.97
360.0	10.91