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NATA

LumCAT: 3-1698-N
Luminaire: 92.70.045.00+92.70.089.00
Report No: NATA0100
Test No: GC2018102006
LampCAT: PHILIPS 1208 G7
Lamp flux(lm): 3673.0
Number of Lamps: 1
Length(mm): 79
Phm Type: C

Voltage(V): 35.2000
Current(A): 0.7000
Power (W): 24.6400
PF: 0.0000
Ballast type: DC
Width(mm): 79
Height(mm): 43

Photometric Results

Lumens(lm): 2789.00
Efficiency(%): 75.93%
Lumens(lm)/Power(W): 113.34
Central intensity(cd): 16095.940
Maximum intensity(cd): 16095.940
Angle of maximum intensity: $C=0.0$ $\gamma=0.0$
Beam Angle(50%Imax): [C0/180]Total=18.6
[C90/270]Total=18.6
Field angle(10%Imax): [C0/180]Total=36.2
[C90/270]Total=36.2
Maximum s/h(1/2): C0_180=0.32 C90_270=0.32
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(%): 76.03%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 97.858%

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	16095.938	3.851	3.851	.105%	.138%
1.0	16041.797	30.702	34.552	.836%	1.239%
2.0	15832.266	60.592	95.144	1.650%	3.411%
3.0	15354.844	88.125	183.269	2.399%	6.571%
4.0	14642.578	112.009	295.278	3.050%	10.587%
5.0	13764.375	131.554	426.832	3.582%	15.304%
6.0	12467.602	142.912	569.744	3.891%	20.428%
7.0	11295.070	150.951	720.695	4.110%	25.841%
8.0	10004.695	152.690	873.385	4.157%	31.315%
9.0	8454.797	145.040	1018.425	3.949%	36.516%
10.0	6994.266	133.188	1151.613	3.626%	41.291%
11.0	5800.570	121.373	1272.985	3.304%	45.643%
12.0	4646.672	105.943	1378.928	2.884%	49.442%
13.0	3713.977	91.618	1470.546	2.494%	52.727%
14.0	2987.578	79.259	1549.805	2.158%	55.568%
15.0	2596.992	73.709	1623.513	2.007%	58.211%
16.0	2070.281	62.578	1686.091	1.704%	60.455%
17.0	1812.234	58.103	1744.194	1.582%	62.538%
18.0	1622.320	54.976	1799.17	1.497%	64.509%
19.0	1478.602	52.789	1851.959	1.437%	66.402%
20.0	1347.891	50.554	1902.513	1.376%	68.215%
21.0	1221.926	48.020	1950.534	1.307%	69.937%
22.0	1136.025	46.668	1997.201	1.271%	71.610%
23.0	1051.826	45.069	2042.27	1.227%	73.226%
24.0	965.672	43.072	2085.342	1.173%	74.770%
25.0	888.286	41.167	2126.509	1.121%	76.246%
26.0	820.139	39.426	2165.935	1.073%	77.660%
27.0	756.042	37.640	2203.575	1.025%	79.009%
28.0	700.418	36.059	2239.634	.982%	80.302%
29.0	643.894	34.232	2273.866	.932%	81.530%
30.0	593.859	32.562	2306.428	.887%	82.697%
31.0	544.648	30.761	2337.189	.838%	83.800%
32.0	500.034	29.058	2366.247	.791%	84.842%
33.0	461.876	27.586	2393.833	.751%	85.831%
34.0	426.171	26.133	2419.966	.712%	86.768%
35.0	392.477	24.686	2444.653	.672%	87.653%
36.0	363.312	23.418	2468.071	.638%	88.493%
37.0	337.247	22.257	2490.328	.606%	89.291%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	312.398	21.091	2511.419	.574%	90.047%
39.0	290.918	20.077	2531.496	.547%	90.767%
40.0	277.031	19.528	2551.023	.532%	91.467%
41.0	252.471	18.164	2569.187	.495%	92.118%
42.0	232.390	17.052	2586.239	.464%	92.730%
43.0	212.414	15.886	2602.125	.433%	93.299%
44.0	194.470	14.814	2616.939	.403%	93.831%
45.0	177.736	13.782	2630.721	.375%	94.325%
46.0	161.114	12.709	2643.431	.346%	94.780%
47.0	144.323	11.575	2655.006	.315%	95.195%
48.0	130.922	10.669	2665.675	.290%	95.578%
49.0	115.980	9.599	2675.274	.261%	95.922%
50.0	102.143	8.581	2683.854	.234%	96.230%
51.0	91.582	7.805	2691.659	.212%	96.510%
52.0	81.056	7.004	2698.663	.191%	96.761%
53.0	71.135	6.230	2704.893	.170%	96.984%
54.0	62.641	5.557	2710.451	.151%	97.183%
55.0	54.710	4.915	2715.365	.134%	97.360%
56.0	47.573	4.325	2719.69	.118%	97.515%
57.0	42.223	3.883	2723.574	.106%	97.654%
58.0	37.125	3.453	2727.026	.094%	97.778%
59.0	32.948	3.097	2730.123	.084%	97.889%
60.0	29.658	2.817	2732.94	.077%	97.990%
61.0	27.534	2.641	2735.581	.072%	98.085%
62.0	26.346	2.551	2738.132	.069%	98.176%
63.0	25.453	2.487	2740.619	.068%	98.265%
64.0	24.532	2.418	2743.037	.066%	98.352%
65.0	23.730	2.358	2745.395	.064%	98.436%
66.0	23.084	2.313	2747.708	.063%	98.519%
67.0	22.409	2.262	2749.97	.062%	98.600%
68.0	21.776	2.214	2752.184	.060%	98.680%
69.0	21.220	2.172	2754.356	.059%	98.758%
70.0	20.616	2.124	2756.48	.058%	98.834%
71.0	20.074	2.081	2758.562	.057%	98.909%
72.0	19.554	2.039	2760.601	.056%	98.982%
73.0	19.005	1.993	2762.594	.054%	99.053%
74.0	18.499	1.950	2764.544	.053%	99.123%
75.0	18.056	1.913	2766.457	.052%	99.192%

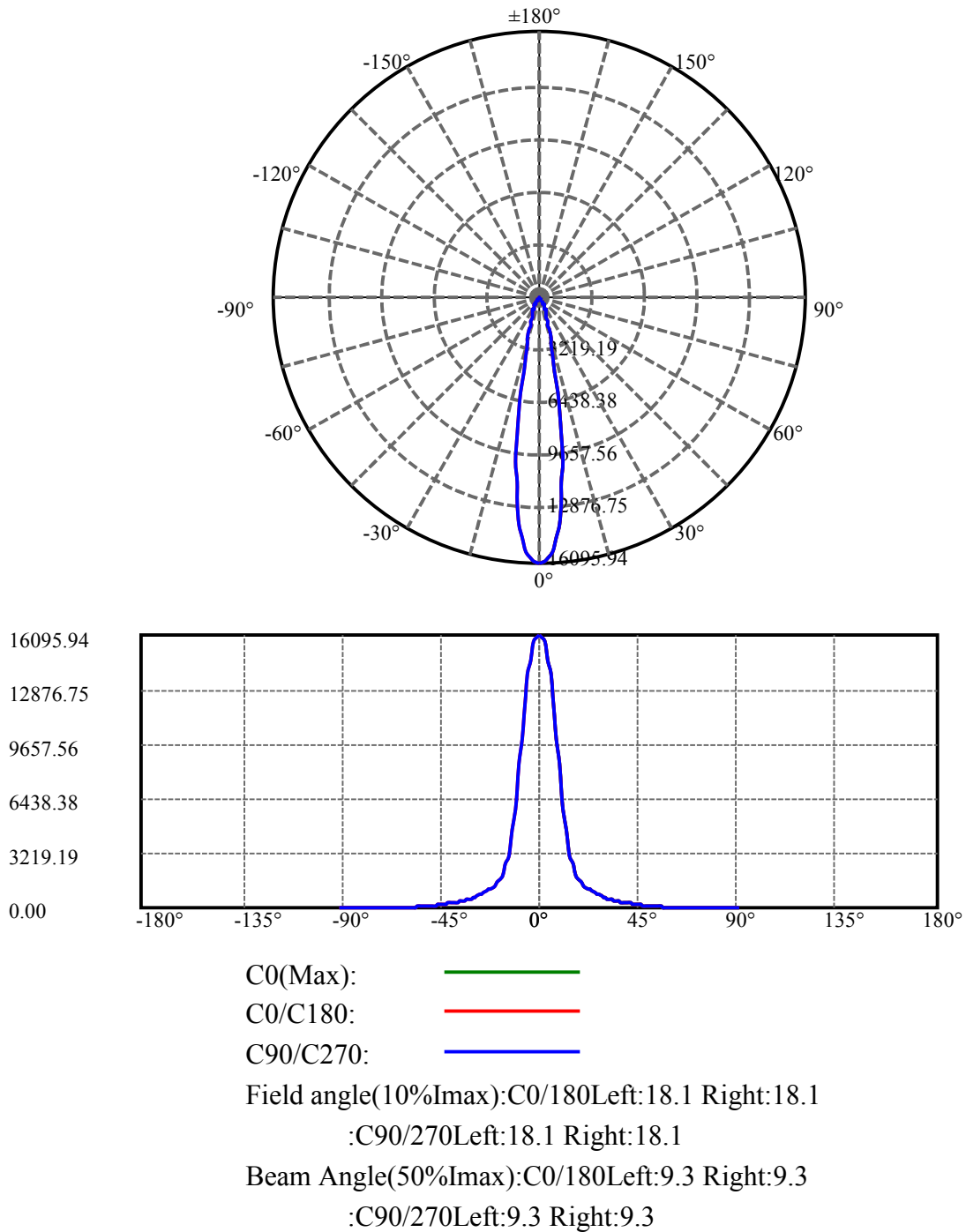
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	17.641	1.877	2768.334	.051%	99.259%
77.0	17.255	1.844	2770.178	.050%	99.325%
78.0	16.868	1.809	2771.987	.049%	99.390%
79.0	16.509	1.777	2773.764	.048%	99.454%
80.0	16.059	1.734	2775.499	.047%	99.516%
81.0	15.595	1.689	2777.188	.046%	99.576%
82.0	15.068	1.636	2778.824	.045%	99.635%
83.0	14.449	1.573	2780.397	.043%	99.691%
84.0	13.859	1.511	2781.908	.041%	99.746%
85.0	13.106	1.432	2783.34	.039%	99.797%
86.0	12.375	1.354	2784.694	.037%	99.845%
87.0	11.728	1.284	2785.978	.035%	99.892%
88.0	11.250	1.233	2787.211	.034%	99.936%
89.0	10.934	1.199	2788.41	.033%	99.979%
90.0	10.835	0.594	2789.004	.016%	100.000%

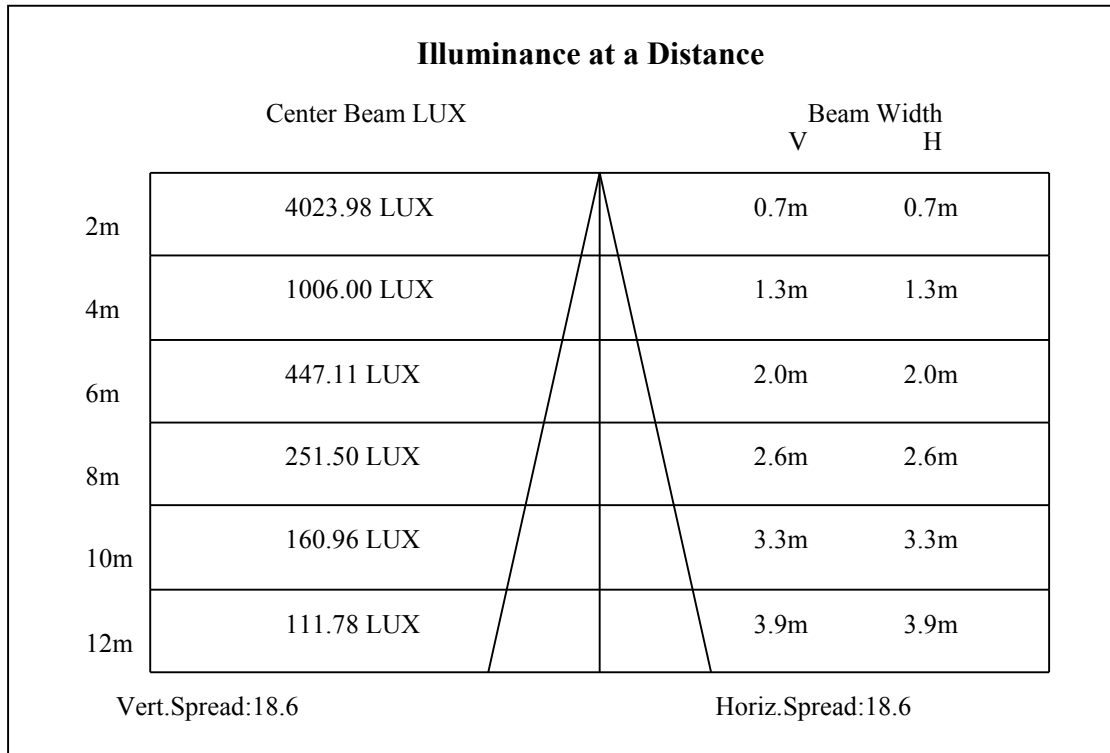
ZONAL LUMEN SUMMARY

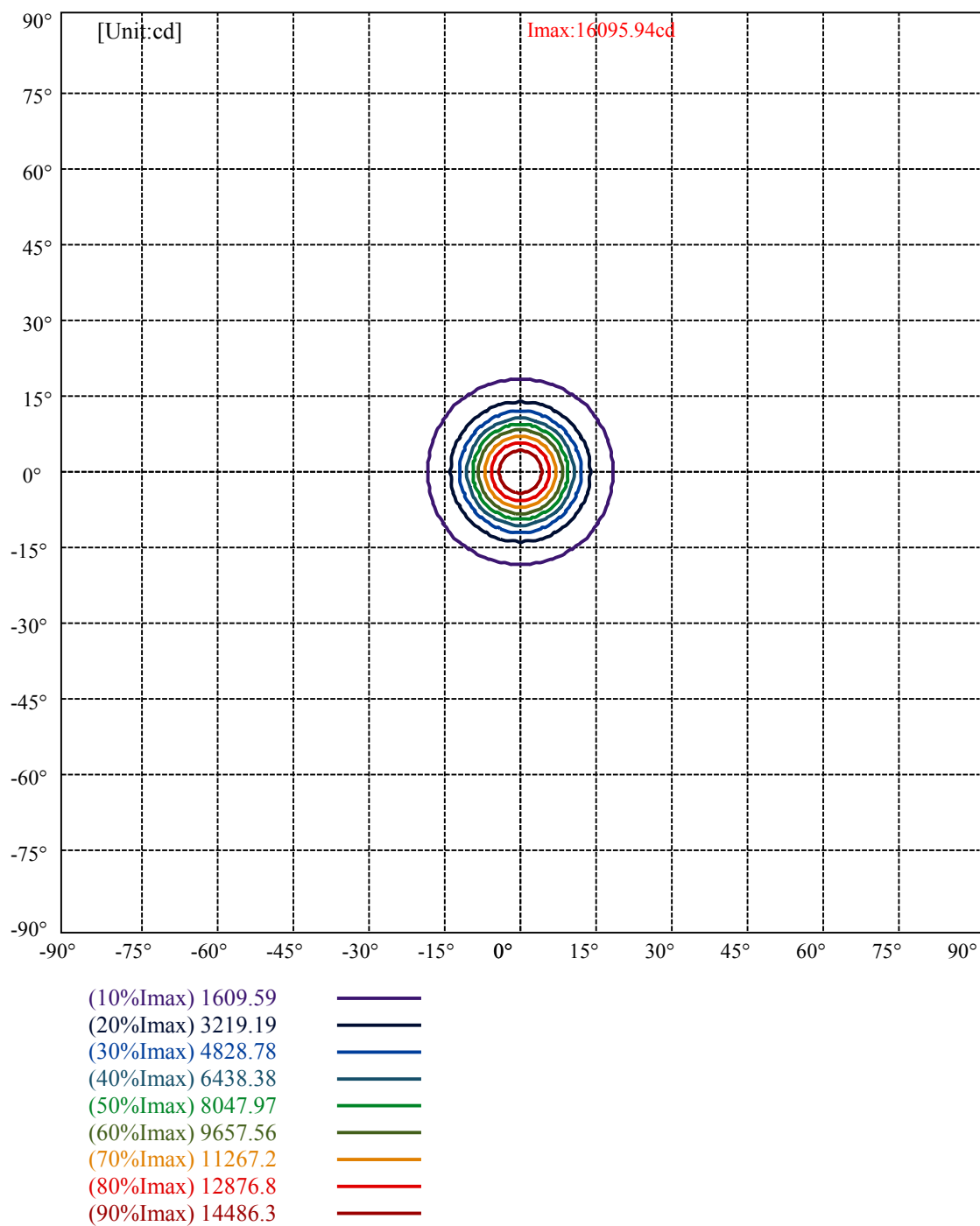
Zone	Lumens	%Lamp	%Fixt
0-30	2306.43	62.79%	82.70%
0-40	2551.02	69.45%	91.47%
0-60	2732.94	74.41%	97.99%
0-90	2788.41	75.92%	99.98%
0-120	2788.41	75.92%	99.98%
0-180	2789.00	75.93%	100.00%
60-90	58.29	1.59%	2.09%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-27.77	2231.20	60.75%	80.00%

ZONAL LUMEN SUMMARY

0-10	1151.61
10-20	750.90
20-30	403.91
30-40	244.60
40-50	132.83
50-60	49.09
60-70	23.54
70-80	19.02
80-90	12.91
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



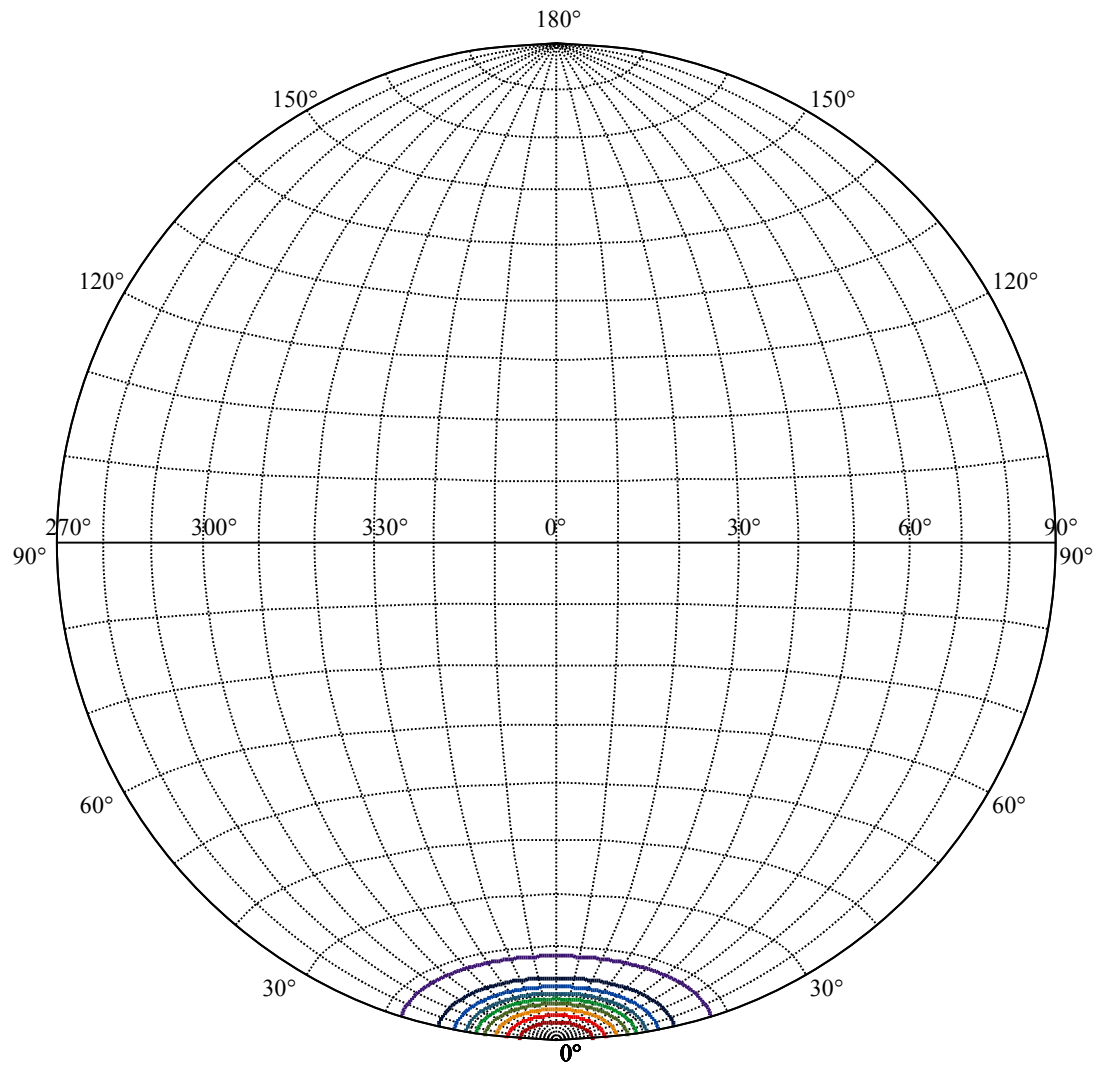




Equipment:
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

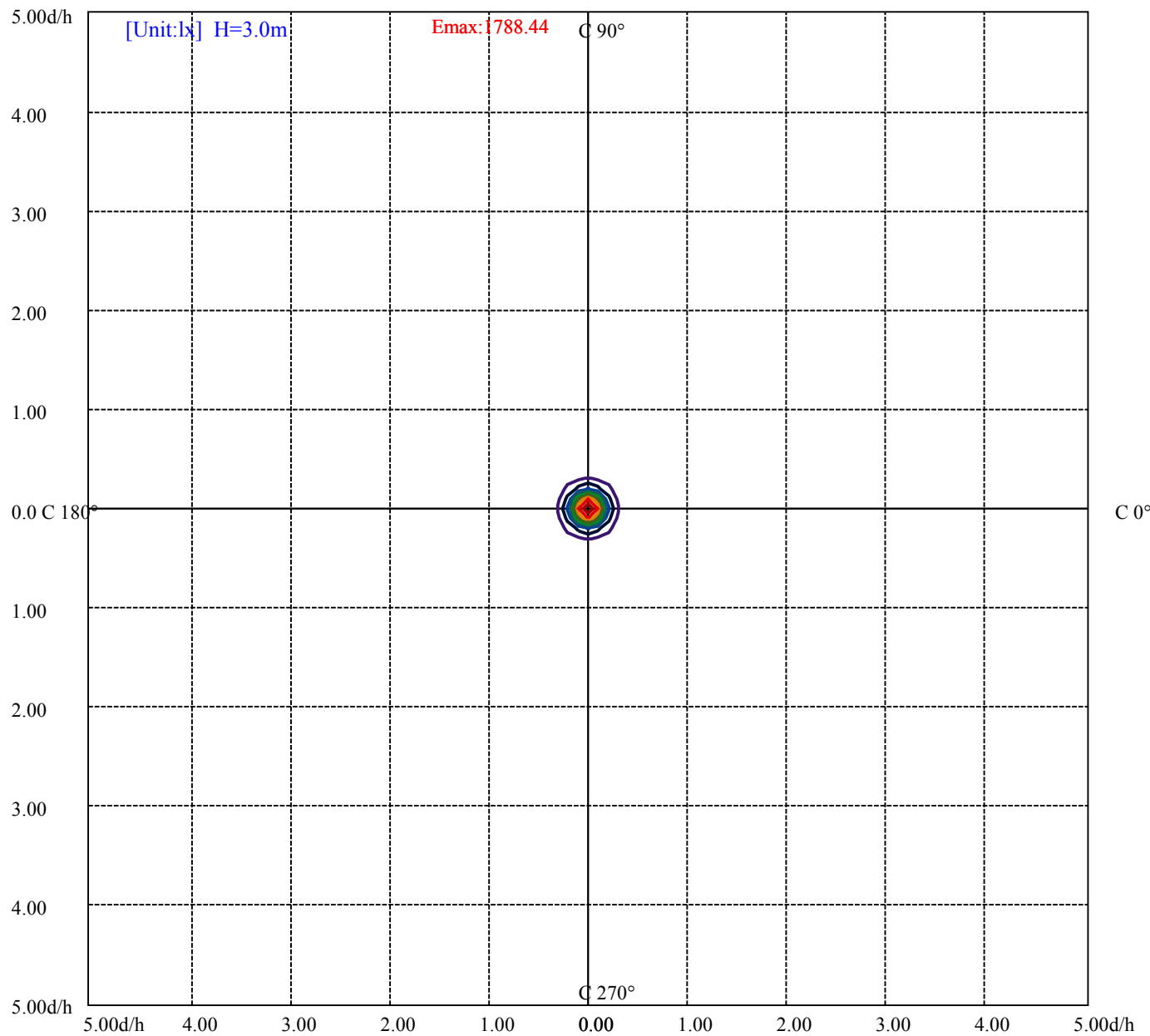


House

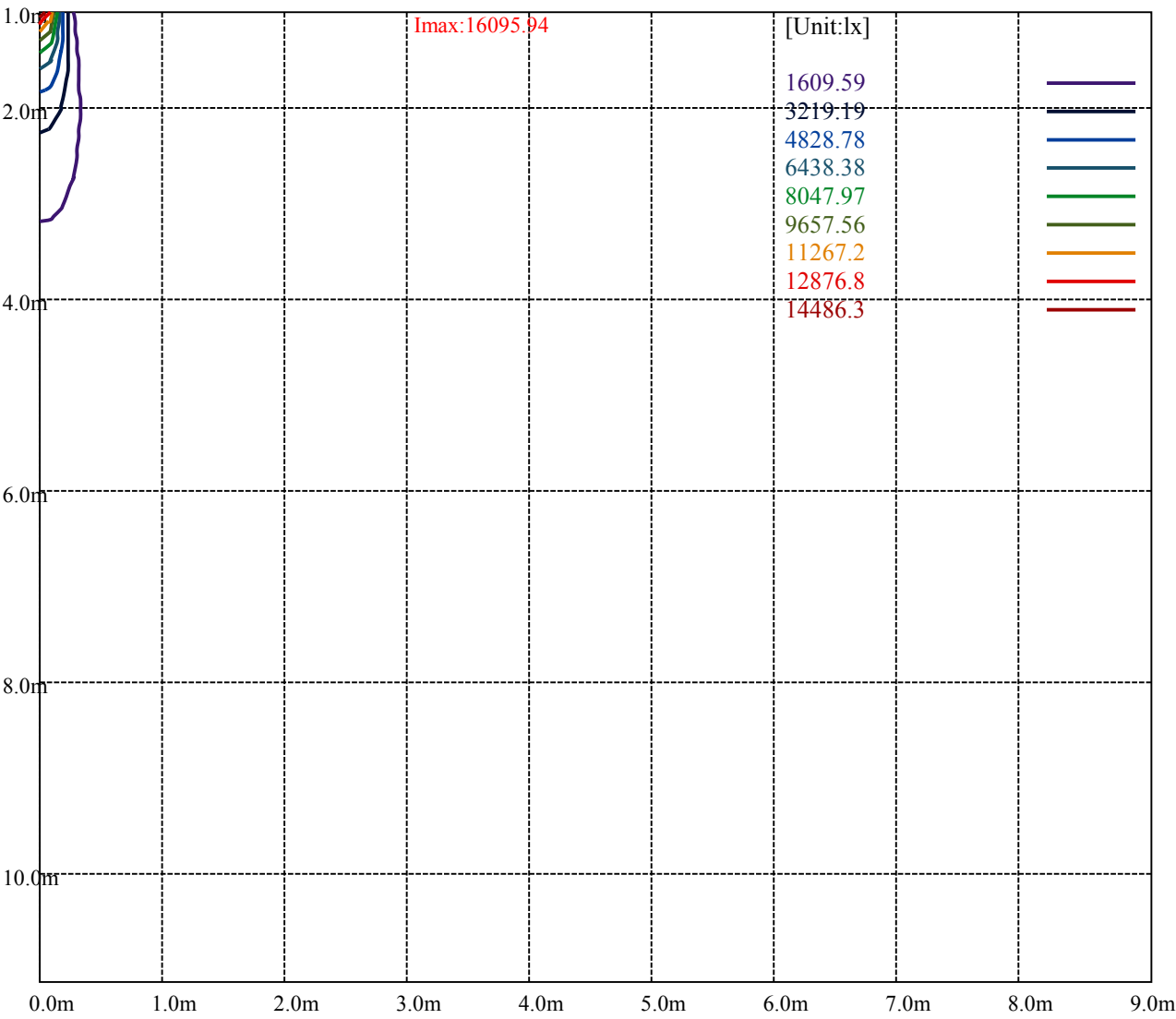
[Unit:cd]

Road

Imax:16095.94	
(10%Imax) 1609.59	—
(20%Imax) 3219.19	—
(30%Imax) 4828.78	—
(40%Imax) 6438.38	—
(50%Imax) 8047.97	—
(60%Imax) 9657.56	—
(70%Imax) 11267.2	—
(80%Imax) 12876.8	—
(90%Imax) 14486.3	—



(10%Emax)	178.8433	
(20%Emax)	357.6878	
(30%Emax)	536.5311	
(40%Emax)	715.3745	
(50%Emax)	894.2178	
(60%Emax)	1073.062	
(70%Emax)	1251.911	
(80%Emax)	1430.745	
(90%Emax)	1609.589	



Luminance Table

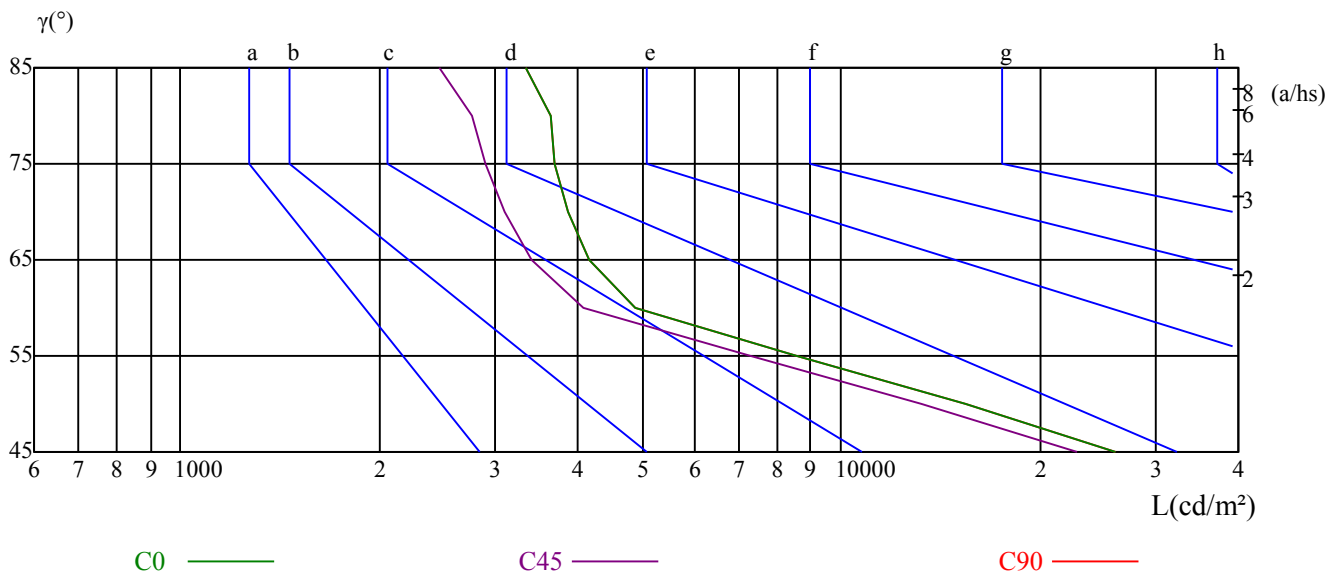
γ	45	50	55	60	65	70	75	80	85
C0	26080	15444	8599	4892	4151	3870	3688	3626	3337
C45	22757	13280	7280	4073	3394	3101	2886	2762	2459
C90	26080	15444	8599	4892	4151	3870	3688	3626	3337

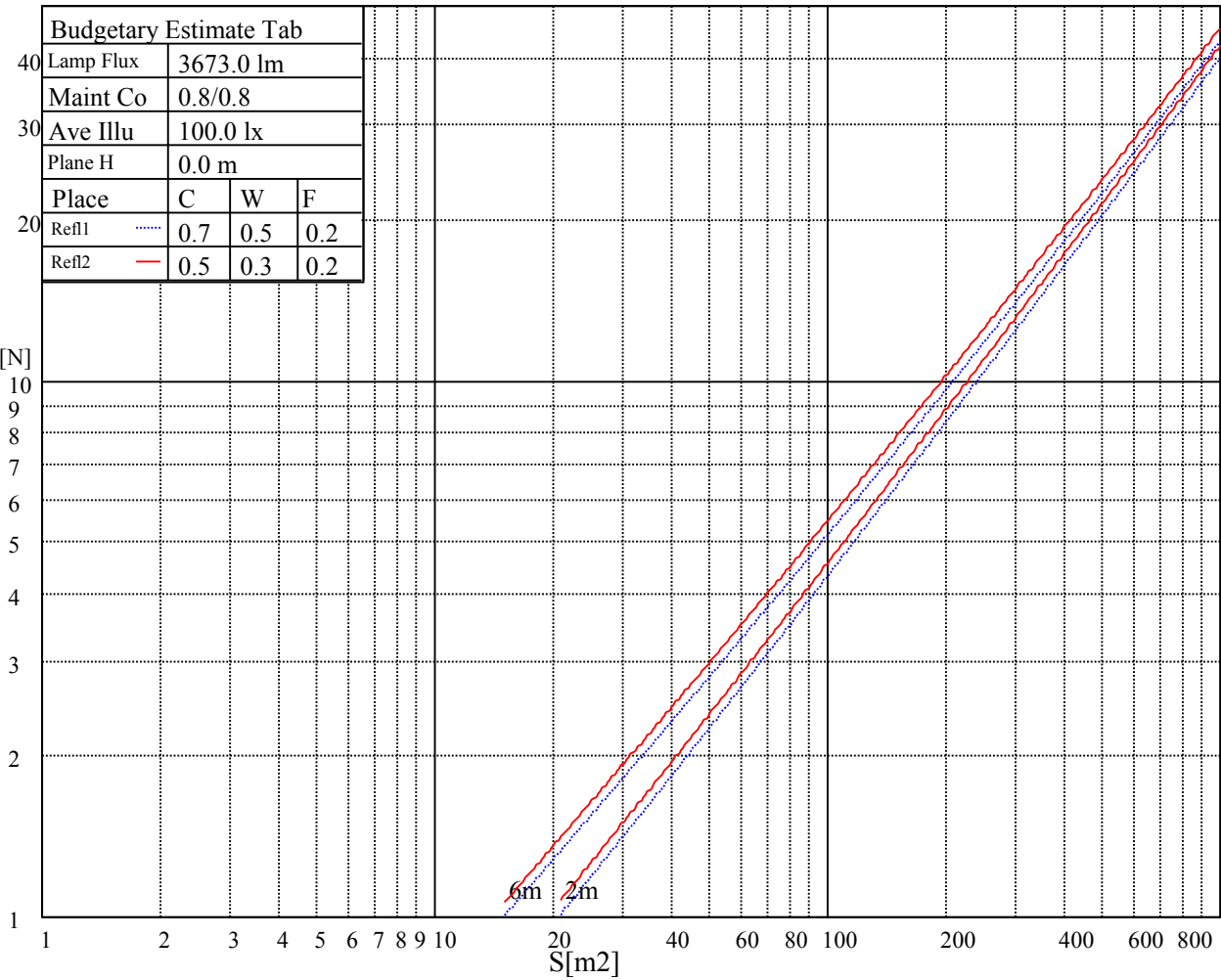
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8997	8997	8997	11178	11178	11178	24095	24095	24095

Glare Table

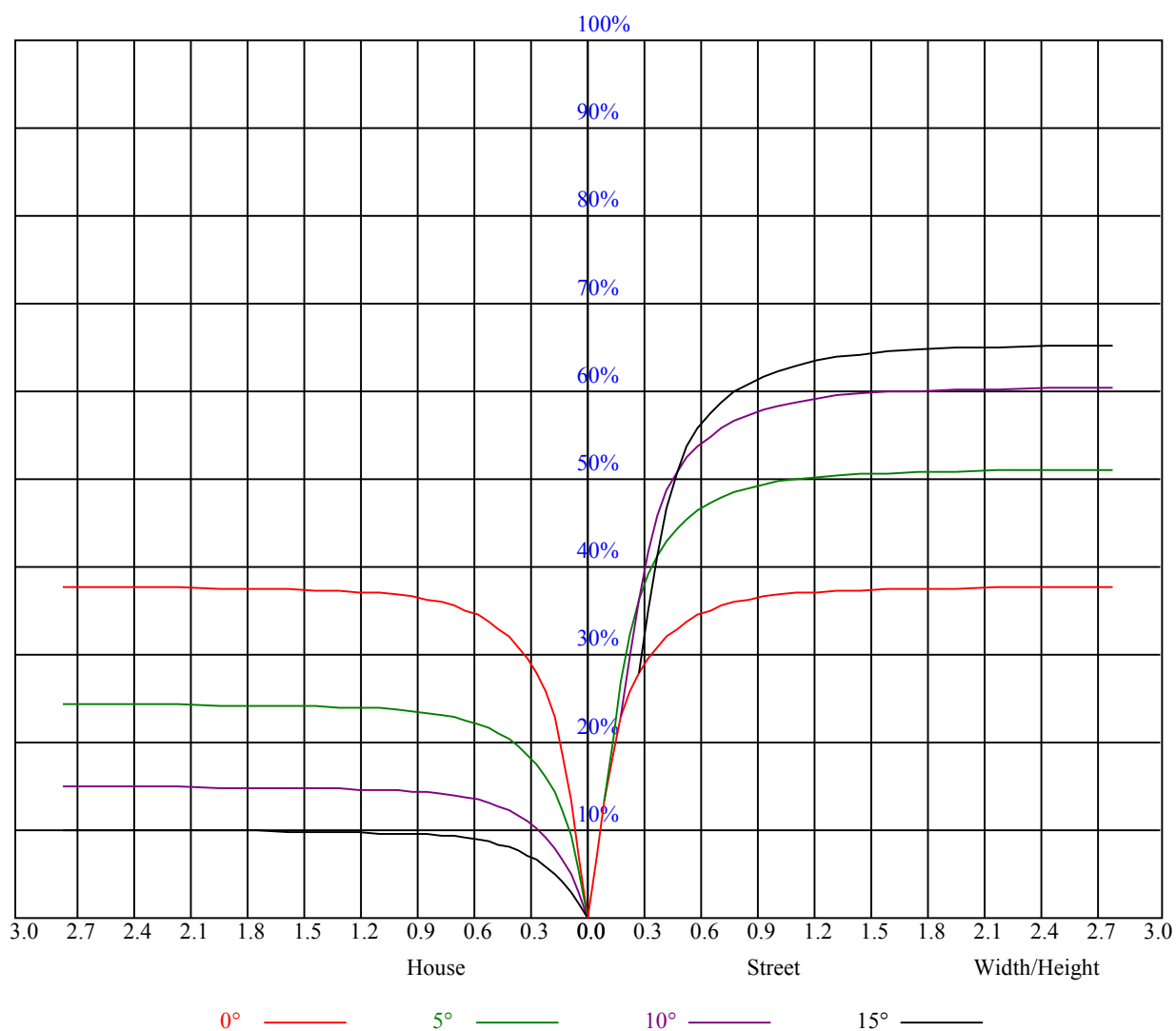
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





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	0.91	0.91	0.91	0.88	0.88	0.88	0.84	0.84	0.84	0.81	0.81	0.81	0.78	0.78	0.78	0.76
1	0.85	0.83	0.82	0.83	0.82	0.80	0.80	0.79	0.78	0.77	0.77	0.76	0.75	0.74	0.74	0.72
2	0.80	0.78	0.76	0.79	0.77	0.75	0.77	0.75	0.73	0.74	0.73	0.72	0.72	0.71	0.70	0.69
3	0.76	0.73	0.71	0.75	0.73	0.70	0.73	0.71	0.69	0.72	0.70	0.68	0.70	0.68	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	0.63	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	0.57	0.61	0.58	0.56	0.60	0.58	0.56	0.55
9	0.61	0.57	0.55	0.61	0.57	0.55	0.60	0.57	0.55	0.59	0.57	0.55	0.59	0.56	0.55	0.54
10	0.59	0.56	0.54	0.59	0.56	0.54	0.58	0.55	0.53	0.58	0.55	0.53	0.57	0.55	0.53	0.52



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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	16070.63	16104.38	15980.63	15631.88	15075.00	14191.88	13117.50	12015.00	10771.88	
45.0	16110.00	16098.75	15907.50	15474.38	14850.00	13955.63	12836.25	11643.75	10524.38	
90.0	16104.38	16020.00	15811.88	15305.63	14428.13	13657.50	12628.13	11098.69	9745.88	
135.0	16098.75	16076.25	15918.75	15508.13	14928.75	14135.63	12881.25	11711.25	10440.00	
180.0	16070.63	15946.88	15631.88	15024.38	14175.00	13235.63	11163.94	10513.13	9119.81	
225.0	16110.00	16003.13	15761.25	15204.38	14439.38	13561.88	12476.25	11095.88	9570.94	
270.0	16104.38	16059.38	15851.25	15435.00	14776.88	13820.63	12616.88	11458.13	10175.63	
315.0	16098.75	16025.63	15795.00	15255.00	14467.50	13556.25	12020.63	10824.75	9689.06	
360.0	16070.63	16104.38	15980.63	15631.88	15075.00	14191.88	13117.50	12015.00	10771.88	
C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	
0.0	9101.25	7768.13	6513.75	5253.75	4173.75	3375.00	2885.63	2215.13	1931.63	
45.0	8656.88	7295.63	6193.13	4685.63	3791.25	3150.00	2846.25	2070.00	1818.56	
90.0	8344.69	6859.69	5535.56	4525.31	3674.25	2840.63	2365.88	2029.50	1773.56	
135.0	8752.50	7396.88	6165.00	4944.38	3915.00	3178.13	2868.75	2171.25	1862.44	
180.0	7739.44	6157.13	5067.56	4138.88	3285.00	2636.44	2234.81	1918.69	1719.00	
225.0	8209.13	6724.13	5405.63	4415.06	3583.13	2783.25	2337.19	2023.31	1779.75	
270.0	8499.38	7183.13	5973.75	4668.75	3796.88	3088.13	2863.13	2091.38	1849.50	
315.0	8335.13	6569.44	5550.19	4541.63	3492.56	2849.06	2374.31	2043.00	1763.44	
360.0	9101.25	7768.13	6513.75	5253.75	4173.75	3375.00	2885.63	2215.13	1931.63	
C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	
0.0	1726.88	1552.50	1410.19	1302.75	1193.63	1109.81	1020.38	936.56	865.13	
45.0	1617.75	1480.50	1351.69	1231.88	1146.94	1064.81	963.56	891.00	825.75	
90.0	1585.69	1451.25	1321.88	1186.88	1119.09	1029.04	952.99	872.38	799.65	
135.0	1659.38	1510.31	1369.13	1239.19	1153.69	1062.56	965.81	891.00	825.75	
180.0	1542.94	1399.50	1288.69	1112.91	1081.80	1003.39	930.99	846.79	786.32	
225.0	1596.94	1464.19	1337.06	1227.94	1115.16	1042.88	966.60	887.74	817.88	
270.0	1650.38	1509.75	1374.75	1257.19	1166.06	1072.69	983.25	909.56	840.38	
315.0	1598.63	1460.81	1329.75	1216.69	1111.84	1029.43	941.79	871.26	800.27	
360.0	1726.88	1552.50	1410.19	1302.75	1193.63	1109.81	1020.38	936.56	865.13	
C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0	
0.0	792.56	727.31	674.44	629.44	561.94	518.63	484.88	437.63	405.56	
45.0	755.44	705.94	655.31	602.44	556.88	519.19	473.06	433.69	401.63	
90.0	740.64	686.25	621.00	570.99	525.04	476.61	442.24	410.96	378.84	
135.0	761.06	704.25	651.94	597.94	546.19	506.25	461.25	428.06	394.88	
180.0	731.53	678.21	613.07	562.16	518.40	471.43	438.47	407.59	375.81	
225.0	762.13	710.83	650.81	606.43	563.46	513.28	476.21	441.17	399.49	
270.0	761.63	705.38	653.06	596.25	545.63	505.69	465.75	429.75	399.94	
315.0	743.34	685.18	631.52	585.23	539.66	489.21	453.15	420.53	383.68	
360.0	792.56	727.31	674.44	629.44	561.94	518.63	484.88	437.63	405.56	
C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	
0.0	380.81	348.19	321.75	303.19	284.06	261.28	240.53	219.99	203.46	
45.0	368.44	339.19	315.00	291.38	285.19	253.97	228.32	210.43	194.46	
90.0	349.71	326.25	302.63	282.21	265.39	245.25	226.29	207.45	190.01	
135.0	363.94	338.63	315.00	289.69	284.63	252.56	233.66	212.06	195.86	
180.0	347.85	324.84	301.73	280.86	263.64	241.54	223.48	204.24	185.57	
225.0	369.56	343.41	315.00	295.14	278.33	253.91	236.31	215.44	192.99	
270.0	369.56	344.81	320.06	298.69	285.19	262.13	240.02	218.98	201.43	
315.0	356.63	332.66	308.03	286.20	269.83	249.13	230.51	210.71	191.98	
360.0	380.81	348.19	321.75	303.19	284.06	261.28	240.53	219.99	203.46	

Equipment:
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.50

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	185.91	169.03	154.18	139.95	123.13	110.64	99.11	87.41	76.95
45.0	175.44	160.71	146.19	132.19	115.54	103.56	92.53	81.06	70.93
90.0	174.77	159.69	141.47	127.58	114.69	100.24	89.72	80.38	70.54
135.0	180.11	161.44	147.04	134.66	118.35	104.85	93.49	82.01	71.89
180.0	169.71	154.86	136.86	123.47	111.15	96.81	86.46	76.89	67.05
225.0	177.92	161.33	139.84	127.35	114.30	97.54	88.14	78.81	69.30
270.0	182.42	163.91	148.16	135.23	116.49	104.23	94.67	82.74	73.01
315.0	175.61	157.95	140.85	126.96	114.19	99.28	88.54	79.14	69.41
360.0	185.91	169.03	154.18	139.95	123.13	110.64	99.11	87.41	76.95
C/ γ (°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	68.46	59.68	52.14	46.24	40.50	36.06	31.67	28.52	27.00
45.0	62.78	54.73	47.81	42.58	37.69	33.69	29.93	28.01	26.89
90.0	61.31	53.94	46.13	41.74	36.84	32.63	29.64	27.73	26.49
135.0	63.68	55.18	48.83	42.41	37.35	33.30	30.04	27.90	26.78
180.0	58.28	51.53	44.78	39.71	34.88	30.71	28.18	26.61	25.54
225.0	60.36	53.38	46.35	41.12	36.17	31.95	29.14	27.23	26.10
270.0	65.93	56.36	48.88	44.10	38.08	33.86	29.98	27.39	26.21
315.0	60.36	52.88	45.68	39.88	35.49	31.39	28.69	26.89	25.76
360.0	68.46	59.68	52.14	46.24	40.50	36.06	31.67	28.52	27.00
C/ γ (°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	25.93	24.81	24.02	23.29	22.56	21.88	21.32	20.70	20.08
45.0	26.10	24.92	24.13	23.51	22.67	22.11	21.60	20.93	20.36
90.0	25.54	24.69	23.68	23.12	22.50	21.77	21.21	20.64	20.03
135.0	25.93	24.92	24.19	23.51	22.84	22.16	21.66	20.98	20.53
180.0	24.69	23.96	23.12	22.50	21.94	21.26	20.70	20.19	19.69
225.0	25.26	24.53	23.68	22.95	22.39	21.77	21.09	20.48	19.97
270.0	25.26	24.30	23.63	22.95	22.16	21.66	21.09	20.48	19.91
315.0	24.92	24.13	23.40	22.84	22.22	21.60	21.09	20.53	20.03
360.0	25.93	24.81	24.02	23.29	22.56	21.88	21.32	20.70	20.08
C/ γ (°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	19.63	19.01	18.51	18.06	17.66	17.38	16.99	16.71	16.43
45.0	19.91	19.24	18.79	18.39	17.94	17.61	17.21	16.88	16.54
90.0	19.52	19.07	18.51	18.23	17.78	17.38	17.10	16.76	16.20
135.0	19.97	19.41	18.90	18.34	17.94	17.61	17.27	16.88	16.54
180.0	19.13	18.62	18.11	17.66	17.21	16.82	16.43	16.03	15.41
225.0	19.41	18.84	18.34	17.83	17.38	16.88	16.43	16.03	15.47
270.0	19.41	18.84	18.39	17.89	17.49	17.10	16.59	16.20	15.81
315.0	19.46	19.01	18.45	18.06	17.72	17.27	16.93	16.59	16.09
360.0	19.63	19.01	18.51	18.06	17.66	17.38	16.99	16.71	16.43
C/ γ (°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	15.86	15.36	14.79	14.23	13.44	12.83	12.15	11.48	11.08
45.0	16.03	15.41	14.85	14.18	13.50	12.71	11.93	11.42	11.03
90.0	15.86	15.36	14.63	14.01	13.22	12.38	11.70	11.25	10.91
135.0	16.09	15.64	15.08	14.51	13.44	12.49	11.81	11.31	10.91
180.0	14.96	14.40	13.67	13.05	12.38	11.81	11.31	10.97	10.80
225.0	15.02	14.46	13.78	13.33	12.77	12.21	11.64	11.19	10.91
270.0	15.30	14.68	14.12	13.50	12.88	12.26	11.70	11.25	10.97
315.0	15.64	15.24	14.68	14.06	13.22	12.32	11.59	11.14	10.86
360.0	15.86	15.36	14.79	14.23	13.44	12.83	12.15	11.48	11.08

Intensity data(cd)

C/γ(°)	90.0
0.0	10.86
45.0	10.86
90.0	10.86
135.0	10.80
180.0	10.80
225.0	10.86
270.0	10.86
315.0	10.80
360.0	10.86