



Shenzhen Belling Efficiency Testing Laboratory Co., Ltd.
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Address: Rm. 108, No. 1 Building, Meibaohe industrial park, No. 14 Shilongzi Road, Dalang street, Longhua district, Shenzhen, China

Client:

LumCAT:

Luminaire:

Report No:

Ballast type:

Test No:

Voltage(V): 120.04

LampCAT:

Current(A): 2.3720

Lamp flux(lm): -1.0

Power (W): 284.14

Number of Lamps: 1

PF: 0.9981

Length(mm): 1150

Width(mm): 310

Phm Type: C

Height(mm): 0

Photometric Results

Lumens(lm): 45640.76, Efficiency(%): 0.00% , Luminous Efficacy(lm/W): 160.63

Central intensity(cd): 19692.710, Maximum intensity(cd): 19820.930

Angle of maximum intensity: C=157.5 γ =5.0

Beam Angle(50%Imax): [C0/180]Total=91.7

[C90/270]Total=93.7

Field angle(10%Imax): [C0/180]Total=149.6

[C90/270]Total=149.5

Maximum s/h(1/2): C0_180=1.28 C90_270=1.28

Maximum s/h(1/4): C0_180=1.32 C90_270=1.34

Up flux rate of lamp(%): 0.00%

Down flux rate of lamp(%): 0.00%

Up flux rate of LUM(%): 0.27%

Down flux rate of LUM(%): 99.73%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 85.652%

Zonal flux distribution table

Appendix Page: 2 Total:11

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	19692.711	0.000	0	0.00%	0.00%
5.0	19615.604	469.920	469.92	0.00%	1.03%
10.0	19382.445	1395.083	1865.003	0.00%	4.09%
15.0	18978.656	2275.555	4140.557	0.00%	9.07%
20.0	18436.838	3083.562	7224.119	0.00%	15.83%
25.0	17699.322	3790.016	11014.136	0.00%	24.13%
30.0	16726.539	4356.622	15370.757	0.00%	33.68%
35.0	15354.398	4724.143	20094.9	0.00%	44.03%
40.0	13409.092	4798.971	24893.871	0.00%	54.54%
45.0	10822.098	4486.601	29380.472	0.00%	64.37%
50.0	8380.873	3880.241	33260.713	0.00%	72.88%
55.0	6460.742	3227.061	36487.775	0.00%	79.95%
60.0	4806.577	2604.409	39092.184	0.00%	85.65%
65.0	3615.744	2047.482	41139.666	0.00%	90.14%
70.0	2721.483	1604.627	42744.293	0.00%	93.65%
75.0	1979.036	1228.640	43972.933	0.00%	96.35%
80.0	1279.801	871.974	44844.907	0.00%	98.26%
85.0	568.668	502.273	45347.18	0.00%	99.36%
90.0	51.791	169.886	45517.067	0.00%	99.73%
95.0	7.983	16.367	45533.433	0.00%	99.76%
100.0	7.760	4.278	45537.711	0.00%	99.77%
105.0	8.610	4.380	45542.091	0.00%	99.78%
110.0	10.169	4.909	45547	0.00%	99.79%
115.0	12.445	5.726	45552.726	0.00%	99.81%
120.0	15.289	6.742	45559.468	0.00%	99.82%
125.0	18.206	7.742	45567.21	0.00%	99.84%
130.0	21.124	8.552	45575.762	0.00%	99.86%
135.0	23.998	9.118	45584.88	0.00%	99.88%
140.0	26.734	9.393	45594.273	0.00%	99.90%
145.0	29.171	9.327	45603.6	0.00%	99.92%
150.0	31.518	8.937	45612.537	0.00%	99.94%
155.0	33.334	8.207	45620.744	0.00%	99.96%
160.0	33.871	7.049	45627.793	0.00%	99.97%
165.0	33.847	5.581	45633.374	0.00%	99.98%
170.0	34.225	4.038	45637.412	0.00%	99.99%
175.0	35.167	2.482	45639.894	0.00%	100.00%
180.0	36.848	0.861	45640.755	0.00%	100.00%

Equipment: GMS-3000
Temperature($^{\circ}\text{C}$): 25

Date:
Humidity(%): 58%

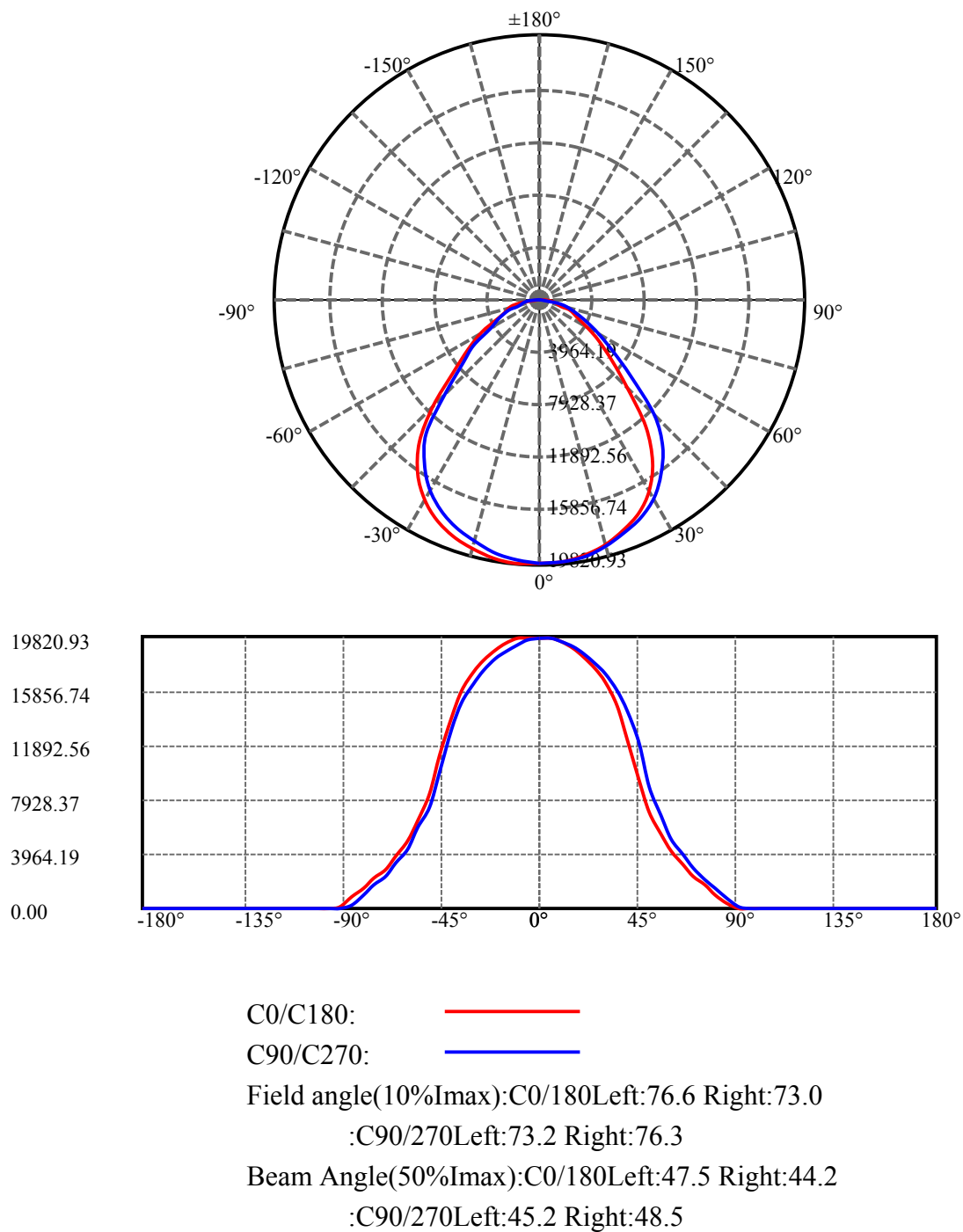
Operator: Sam

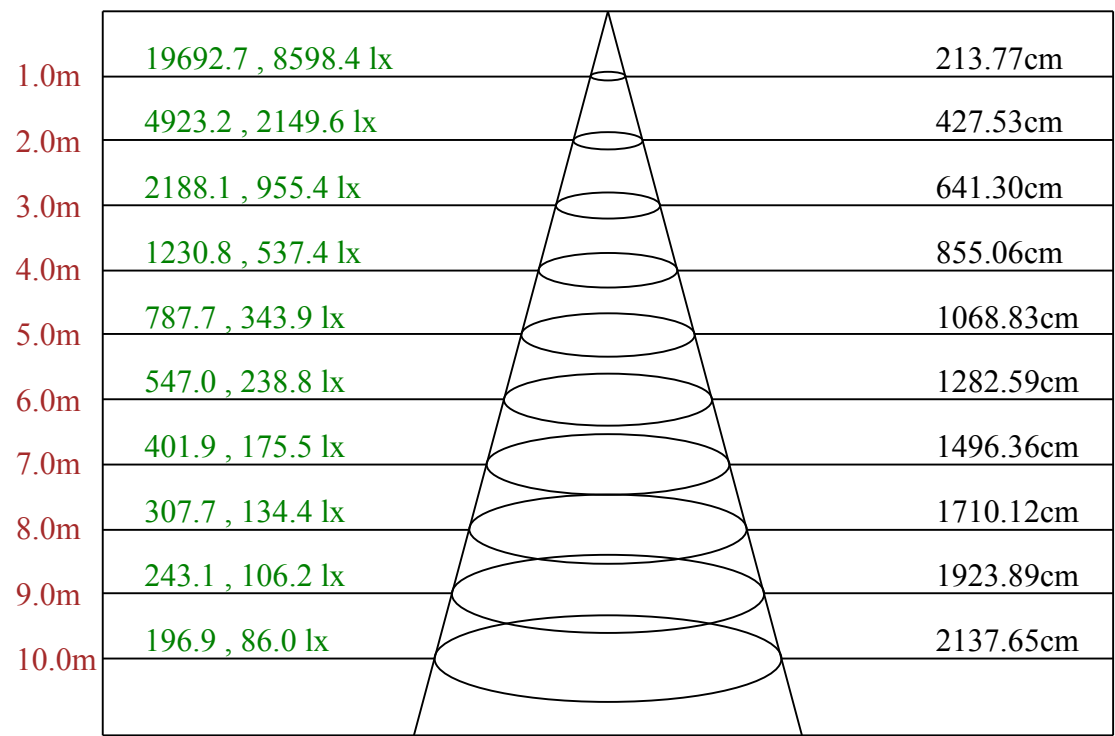
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	15370.76	N.A.	33.68%
0-40	24893.87	N.A.	54.54%
0-60	39092.18	N.A.	85.65%
0-90	45517.07	N.A.	99.73%
0-120	45559.47	N.A.	99.82%
0-180	45640.76	N.A.	100.00%
60-90	6424.88	N.A.	14.08%
90-120	42.40	N.A.	0.09%
90-130	58.70	N.A.	0.13%
90-150	95.47	N.A.	0.21%
90-180	122.83	N.A.	0.27%
0-55.05	36512.61	N.A.	80.00%

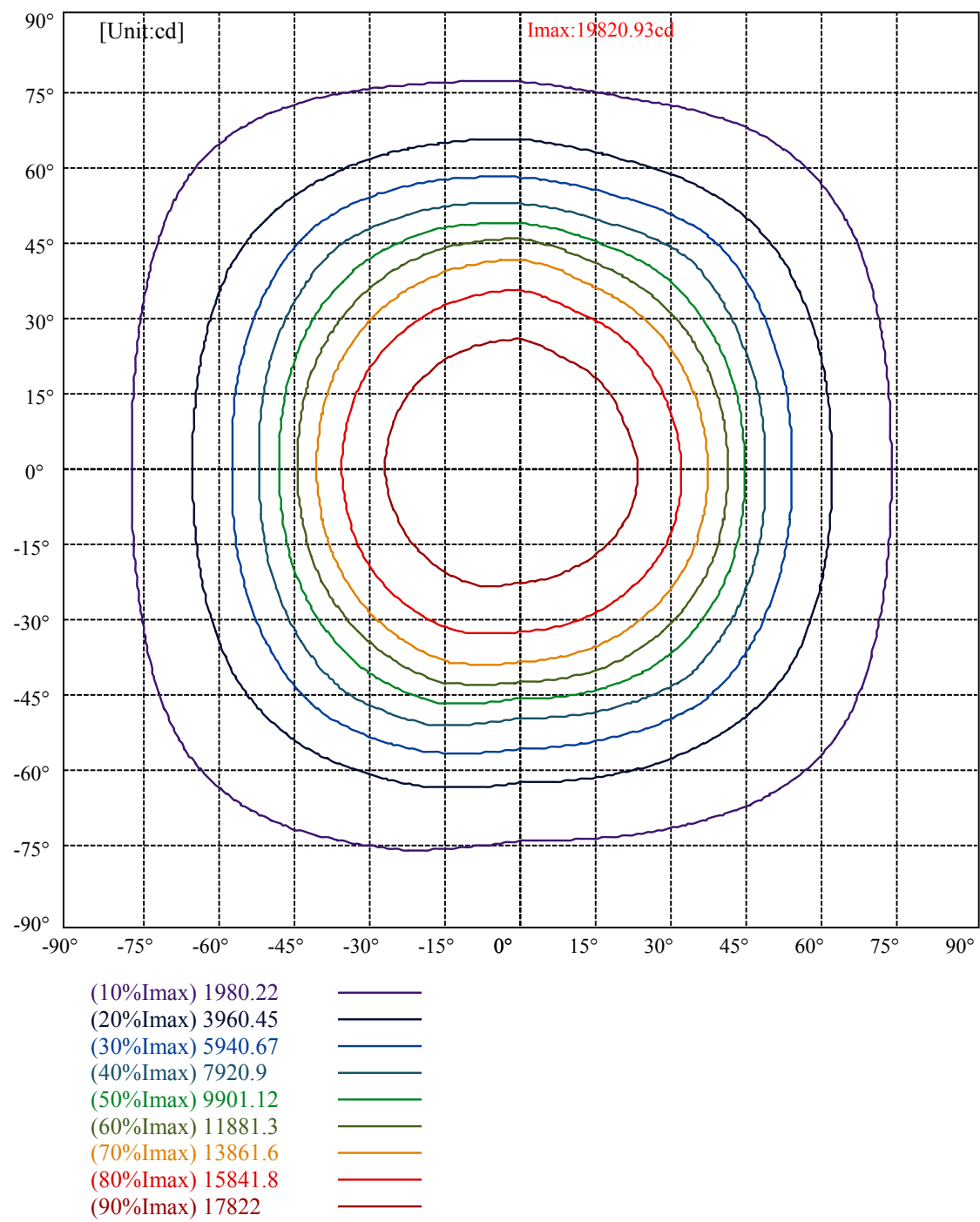
ZONAL LUMEN SUMMARY

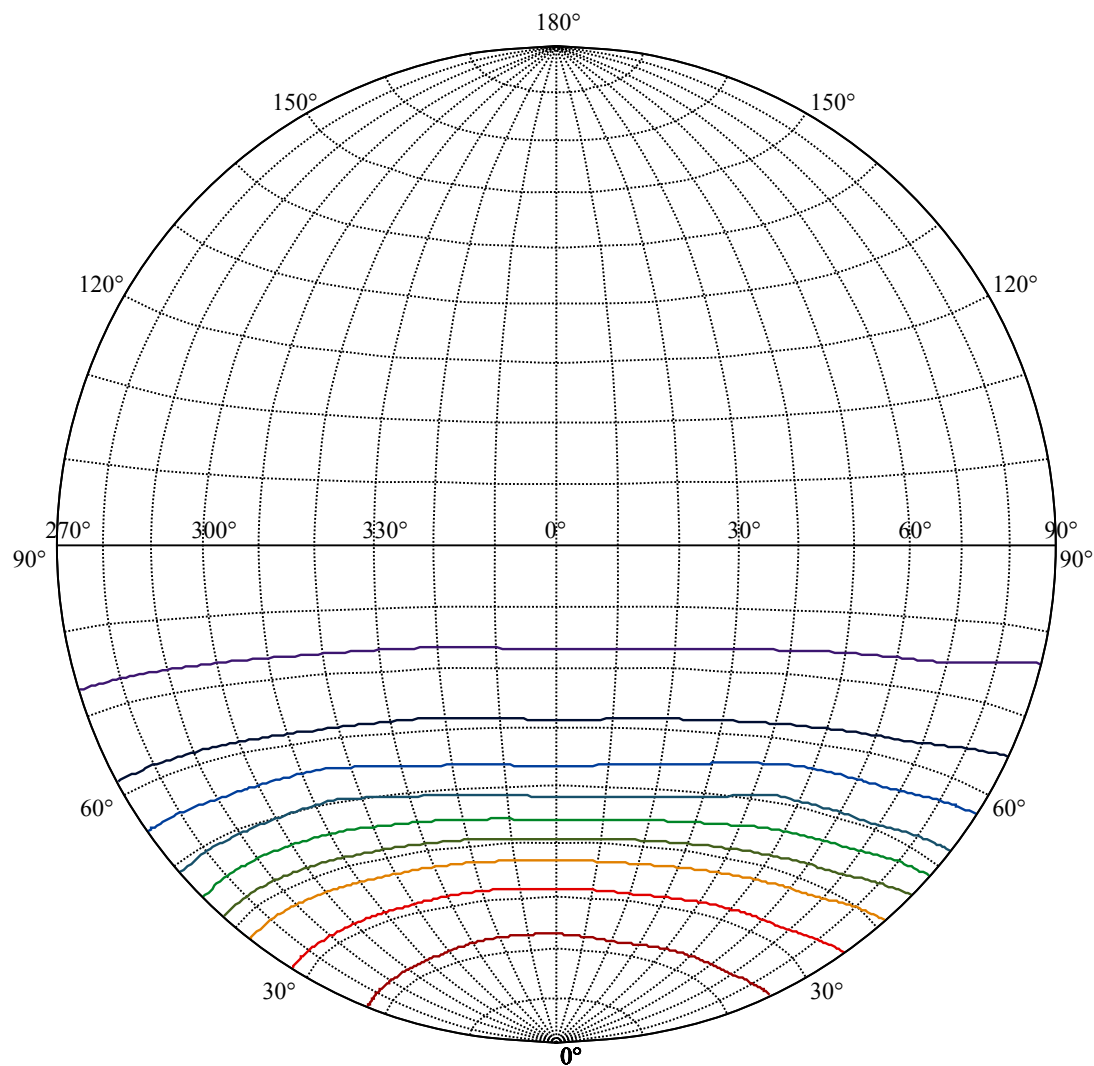
0-10	1865.00
10-20	5359.12
20-30	8146.64
30-40	9523.11
40-50	8366.84
50-60	5831.47
60-70	3652.11
70-80	2100.61
80-90	672.16
90-100	20.64
100-110	9.29
110-120	12.47
120-130	16.29
130-140	18.51
140-150	18.26
150-160	15.26
160-170	9.62
170-180	2.48





Max , Ave Beam angle of C157.5 plane 93.81





House

[Unit:cd]

Road

Imax:19820.93	
(10%Imax) 1981.87	
(20%Imax) 3963.75	
(30%Imax) 5945.62	
(40%Imax) 7927.5	
(50%Imax) 9909.37	
(60%Imax) 11891.2	
(70%Imax) 13873.1	
(80%Imax) 15855	
(90%Imax) 17836.9	

Luminance Limiting Curve(no luminous side)

Appendix Page: 8 Total:11

Luminance Table

γ	45	50	55	60	65	70	75	80	85
C0	37066	30735	26360	23561	21324	19290	18636	16560	10845
C45	40643	36569	31459	25458	22288	21103	19797	18244	13452
C90	48027	38581	32915	28452	26165	24006	23311	23757	23997

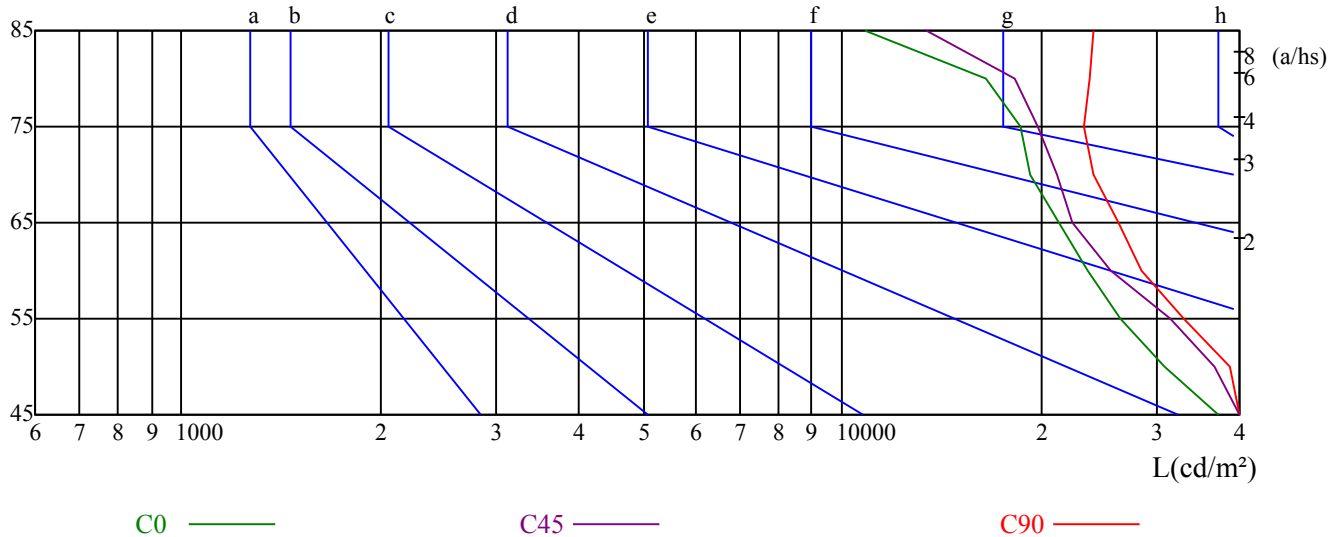
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
23373	23983	23791	21104	20973	21675	18679	16899	19041

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

$\gamma(^{\circ})$



Equipment: GMS-3000
Temperature($^{\circ}$ C): 25

Date:
Humidity(%): 58%

Operator: Sam

Illumination assessment according UGR											
Rf of Ceiling	70	70	50	50	30	70	70	50	50	30	
Rf of Wall	50	30	50	30	30	50	30	50	30	30	
Rf of Floor	20	20	20	20	20	20	20	20	20	20	
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	22.23	23.73	22.60	24.05	24.38	22.91	24.41	23.27	24.73	25.05
	3H	23.61	24.96	24.00	25.31	25.65	24.37	25.72	24.75	26.06	26.41
	4H	24.17	25.44	24.57	25.80	26.16	25.00	26.26	25.40	26.62	26.99
	6H	24.61	25.79	25.02	26.16	26.56	25.57	26.75	25.98	27.12	27.52
	8H	24.72	25.85	25.14	26.23	26.64	25.79	26.92	26.20	27.30	27.71
	12H	24.76	25.84	25.18	26.23	26.65	25.94	27.02	26.36	27.42	27.83
4H	2H	22.71	23.98	23.11	24.34	24.70	23.27	24.54	23.67	24.90	25.26
	3H	24.32	25.39	24.75	25.79	26.20	24.94	26.01	25.36	26.40	26.82
	4H	25.07	26.01	25.51	26.43	26.88	25.74	26.68	26.17	27.10	27.55
	6H	25.59	26.43	26.06	26.88	27.33	26.39	27.23	26.86	27.68	28.13
	8H	25.77	26.55	26.25	27.00	27.47	26.69	27.47	27.16	27.92	28.39
	12H	25.85	26.58	26.34	27.03	27.54	26.91	27.64	27.40	28.09	28.60
8H	4H	25.33	26.12	25.81	26.57	27.04	25.93	26.72	26.41	27.17	27.64
	6H	25.98	26.64	26.47	27.11	27.61	26.70	27.35	27.19	27.82	28.33
	8H	26.27	26.84	26.79	27.36	27.85	27.09	27.67	27.61	28.18	28.67
	12H	26.40	26.88	26.93	27.40	27.91	27.37	27.85	27.90	28.37	28.88
12H	4H	25.36	26.09	25.85	26.54	27.05	25.95	26.68	26.43	27.12	27.63
	6H	26.09	26.66	26.61	27.18	27.67	26.78	27.36	27.30	27.87	28.36
	8H	26.37	26.85	26.90	27.37	27.88	27.16	27.65	27.69	28.16	28.67
Variation with the observer position at spacings:											
S = 1.0H		0.2/-0.6					0.3/-0.7				
S = 1.5H		0.7/-1.0					0.8/-1.1				
S = 2.0H		1.5/-1.1					1.5/-1.3				
Standard tables:		BK3					BK3				
Uncorrected UGR		9.1					8.3				

UGR calculation is based on CIE Publ. 117 ,S/H = 1

Intensity data(cd)

Appendix Page: 10 Total:11

C/ γ (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	19692.71	19663.10	19408.45	18961.33	18321.73	17534.08	16435.52	14724.01	12346.25
22.5	19692.71	19612.39	19316.90	18789.05	18169.39	17386.22	16284.61	14683.83	12486.35
45.0	19692.71	19600.25	19276.64	18836.09	18297.65	17492.70	16448.44	14982.67	12777.22
67.5	19692.71	19568.31	19292.45	18886.78	18351.29	17558.88	16544.69	15170.81	13245.22
90.0	19692.71	19645.98	19427.91	19087.82	18586.77	17909.19	17055.08	15915.39	14414.84
112.5	19692.71	19666.55	19457.23	19101.39	18614.73	17952.77	17076.26	15901.48	14336.84
135.0	19692.71	19698.05	19468.77	19108.85	18647.63	17983.78	17066.66	15842.95	14211.33
157.5	19692.71	19820.93	19615.78	19271.02	18775.25	18102.82	17165.41	15925.98	14059.71
180.0	19692.71	19722.32	19666.06	19269.28	18774.78	18111.49	17193.55	15881.79	13891.94
202.5	19692.71	19529.19	19454.61	19179.21	18648.48	17971.45	17139.50	15839.95	13871.97
225.0	19692.71	19600.25	19333.75	19034.61	18517.92	17835.35	16948.81	15689.72	13864.99
247.5	19692.71	19611.58	19370.88	18948.98	18440.54	17750.89	16807.03	15592.71	13948.38
270.0	19692.71	19547.33	19230.61	18750.33	18189.57	17395.16	16395.67	14985.98	13070.06
292.5	19692.71	19538.34	19221.75	18737.71	18143.77	17340.53	16291.33	14896.76	12800.70
315.0	19692.71	19463.43	19220.83	18735.61	18167.74	17367.93	16296.18	14784.53	12614.37
337.5	19692.71	19561.65	19356.50	18960.45	18342.16	17495.93	16475.89	14851.81	12555.30
360.0	19692.71	19663.10	19408.45	18961.33	18321.73	17534.08	16435.52	14724.01	12346.25

C/ γ (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	9343.71	7042.95	5390.07	4199.71	3212.78	2351.99	1719.50	1025.13	336.97
22.5	9738.06	7359.85	5724.36	4335.01	3359.62	2468.58	1741.63	1059.44	355.16
45.0	10245.43	8379.91	6432.80	4537.90	3357.95	2573.12	1826.64	1129.38	417.98
67.5	10575.89	8155.38	6232.49	4591.68	3458.23	2601.99	1843.92	1149.14	404.86
90.0	12106.91	8841.02	6730.39	5071.48	3942.18	2927.10	2150.87	1470.69	745.60
112.5	12131.17	9553.97	7086.66	5406.90	3991.40	3036.39	2225.29	1492.69	808.48
135.0	11902.54	9577.75	7642.21	5640.01	3933.74	2952.64	2272.80	1566.30	858.47
157.5	11646.38	9127.63	6956.49	5292.52	4016.04	3098.58	2275.14	1551.43	855.35
180.0	11262.50	8399.13	6438.89	4922.81	3830.17	2864.85	2174.92	1523.48	823.78
202.5	11313.02	8817.18	6814.78	5193.92	3963.21	3027.99	2196.05	1475.99	796.95
225.0	11363.12	9190.30	7395.48	5369.50	3841.19	2886.67	2174.18	1480.73	766.61
247.5	11492.71	8969.43	6884.27	5047.92	3717.32	2895.15	2143.31	1421.21	714.80
270.0	9933.97	7353.45	5948.96	4298.62	3284.59	2398.80	1719.40	1025.20	304.52
292.5	10153.13	7683.21	5885.71	4305.37	3303.01	2471.24	1719.79	996.87	298.01
315.0	10113.63	8162.09	6154.56	4341.92	3204.85	2452.23	1726.00	1063.48	323.39
337.5	9831.40	7480.75	5653.80	4349.98	3435.65	2536.42	1755.15	1045.68	287.78
360.0	9343.71	7042.95	5390.07	4199.71	3212.78	2351.99	1719.50	1025.13	336.97

C/ γ (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	8.88	8.29	8.00	8.59	10.07	12.44	15.69	18.95	21.62
22.5	9.18	8.03	7.75	8.89	10.61	13.20	16.07	19.51	22.38
45.0	9.25	7.89	8.16	9.25	11.15	13.05	16.32	19.04	22.30
67.5	9.47	8.38	7.84	8.93	10.82	13.52	16.50	19.20	22.45
90.0	75.29	7.79	7.27	8.31	9.61	11.42	14.54	17.65	20.25
112.5	100.21	7.59	7.33	8.11	9.42	12.04	14.65	17.27	20.15
135.0	140.50	8.00	7.20	8.27	9.33	11.73	14.40	17.33	20.26
157.5	123.37	7.98	7.41	8.26	9.40	11.68	14.53	17.38	20.80
180.0	108.67	7.40	7.40	7.70	9.18	11.25	13.92	16.58	20.43
202.5	82.91	7.46	7.17	7.75	9.18	10.90	13.48	16.35	19.22
225.0	71.52	7.89	7.34	8.16	9.52	11.42	14.14	16.86	19.04
247.5	51.66	8.11	8.11	8.65	10.28	12.17	14.88	17.58	20.55
270.0	9.09	8.31	8.31	9.61	11.42	14.28	17.39	21.03	23.88
292.5	9.68	8.37	8.63	9.42	11.25	13.87	16.75	19.36	22.50
315.0	9.86	8.27	8.27	9.33	10.93	13.33	16.00	18.40	20.80
337.5	9.12	7.98	7.98	8.55	10.54	12.82	15.39	18.81	21.37
360.0	8.88	8.29	8.00	8.59	10.07	12.44	15.69	18.95	21.62

Intensity data(cd)									Appendix Page: 11 Total:11	
C/ γ (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0	
0.0	24.58	27.24	29.91	31.68	33.16	33.76	33.76	34.94	38.20	
22.5	25.25	26.97	29.55	31.56	33.57	33.85	35.00	35.86	37.58	
45.0	24.75	27.74	29.91	32.09	33.72	34.54	34.54	34.81	35.35	
67.5	25.69	28.40	30.56	33.27	34.62	34.62	34.89	34.35	35.16	
90.0	23.37	26.48	28.82	31.67	33.75	34.27	33.75	33.75	33.23	
112.5	23.81	26.43	29.04	31.40	33.49	34.54	33.75	34.28	33.23	
135.0	22.93	25.86	28.53	30.66	33.06	34.13	34.39	34.39	34.13	
157.5	23.65	26.21	28.21	30.77	32.77	33.62	34.48	35.62	36.47	
180.0	22.80	25.76	28.13	30.80	32.57	33.46	33.16	34.65	36.13	
202.5	21.80	24.67	27.54	30.12	32.13	32.99	33.28	33.28	34.43	
225.0	22.03	24.75	27.47	29.91	32.09	33.72	32.63	32.91	33.45	
247.5	23.80	26.50	28.94	31.64	33.27	33.81	33.54	34.08	33.54	
270.0	26.74	29.86	31.93	34.01	35.83	35.05	35.05	34.53	35.31	
292.5	25.12	28.26	30.35	32.18	33.75	33.49	33.23	33.49	34.54	
315.0	23.73	26.13	28.79	31.19	32.53	33.06	33.06	33.06	35.19	
337.5	23.93	26.50	29.06	31.34	33.05	33.05	33.05	33.62	36.76	
360.0	24.58	27.24	29.91	31.68	33.16	33.76	33.76	34.94	38.20	
C/ γ (°)	180.0									
0.0	36.85									
22.5	36.85									
45.0	36.85									
67.5	36.85									
90.0	36.85									
112.5	36.85									
135.0	36.85									
157.5	36.85									
180.0	36.85									
202.5	36.85									
225.0	36.85									
247.5	36.85									
270.0	36.85									
292.5	36.85									
315.0	36.85									
337.5	36.85									
360.0	36.85									