

KB-13-18X1W

LumCAT: KB-13-18X1W	Luminaire: LED PANEL LIGHT
Report No:	Voltage(V): 220.100
Test No:	Current(A): 0.168
LampCAT: LED	Power (W): 16.300
Lamp flux(lm)	PF: 0.441
Number of Lamps: 1	Ballast type:
Length(mm): 230	Width(mm): 230
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1186.87
Lumens(lm)/Power(W): 72.81
Central intensity(cd): 423.514
Maximum intensity(cd): 426.894
Angle of maximum intensity: C=30.0 γ =0.0
Beam Angle(50%Imax): [H]Left=54.1 Right=55.9
 [V]Left=57.9 Right=51.4
Field angle(10%Imax): [H]Left=79.1 Right=80.9
 [V]Left=82.8 Right=75.5
Beam angle of C30plane: 110.64

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Zonal flux distribution table

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	423.880	.000	.000	.000%	.000%
5.0	421.866	10.111	10.111	.852%	.852%
10.0	415.979	29.972	40.083	2.525%	3.377%
15.0	406.248	48.774	88.857	4.109%	7.487%
20.0	393.052	65.874	154.731	5.550%	13.037%
25.0	376.250	80.686	235.416	6.798%	19.835%
30.0	356.041	92.672	328.088	7.808%	27.643%
35.0	332.493	101.392	429.480	8.543%	36.186%
40.0	306.496	106.611	536.090	8.982%	45.168%
45.0	277.963	108.217	644.307	9.118%	54.286%
50.0	246.458	105.967	750.274	8.928%	63.214%
55.0	212.672	99.830	850.105	8.411%	71.626%
60.0	178.112	90.329	940.433	7.611%	79.236%
65.0	142.495	77.940	1018.373	6.567%	85.803%
70.0	106.019	62.925	1081.299	5.302%	91.105%
75.0	71.670	46.445	1127.744	3.913%	95.018%
80.0	41.630	30.316	1158.060	2.554%	97.572%
85.0	17.449	16.053	1174.113	1.353%	98.925%
90.0	3.704	5.792	1179.905	.488%	99.413%
95.0	-.113	.983	1180.889	.083%	99.496%
100.0	.000	-.031	1180.858	-.003%	99.493%
105.0	.183	.049	1180.907	.004%	99.497%
110.0	.493	.177	1181.083	.015%	99.512%
115.0	.634	.285	1181.369	.024%	99.536%
120.0	.803	.349	1181.718	.029%	99.566%
125.0	1.028	.423	1182.141	.036%	99.601%
130.0	1.239	.493	1182.634	.042%	99.643%
135.0	1.493	.552	1183.186	.047%	99.689%
140.0	1.563	.566	1183.752	.048%	99.737%
145.0	1.831	.566	1184.319	.048%	99.785%
150.0	2.070	.574	1184.893	.048%	99.833%
155.0	2.183	.538	1185.431	.045%	99.879%
160.0	2.366	.477	1185.908	.040%	99.919%
165.0	2.549	.405	1186.313	.034%	99.953%
170.0	2.605	.306	1186.619	.026%	99.979%
175.0	2.690	.189	1186.809	.016%	99.995%
180.0	2.732	.065	1186.873	.005%	100.000%

Equipment: GMS1800B
Temperature($^{\circ}$ C): 25.0

Date:
Humidity(%): 60.0%

Operator:
Distance(m): 13.00

Zonal flux distribution table

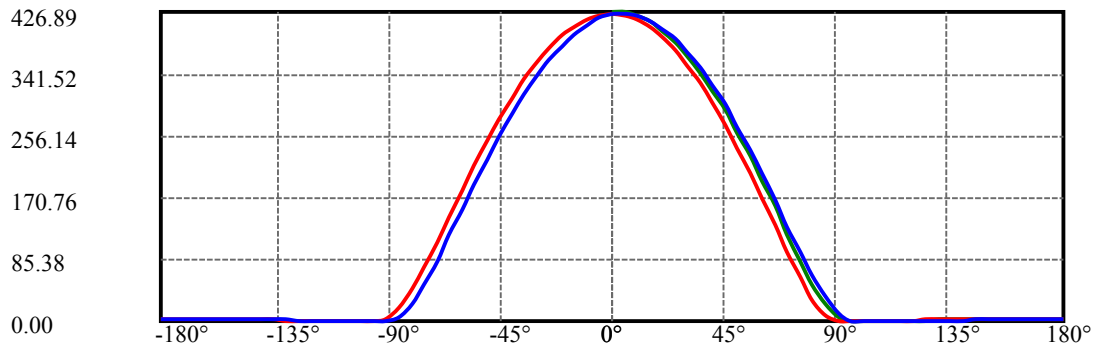
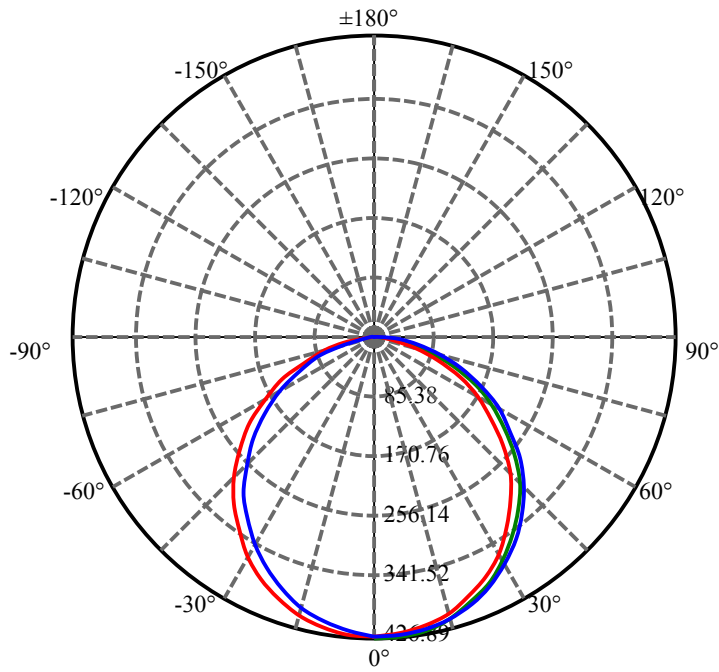
ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-30	328.09	27.64%
0-40	536.09	45.17%
0-60	940.43	79.24%
0-90	1179.91	99.41%
90-120	1.81	0.15%
90-130	2.73	0.23%
90-150	4.99	0.42%
90-180	6.90	0.58%
0-180	1186.87	100.00%

ZONAL LUMEN SUMMARY

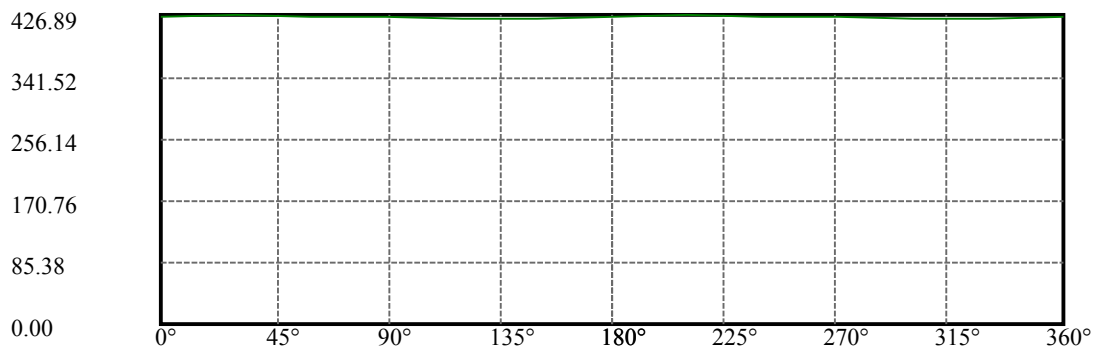
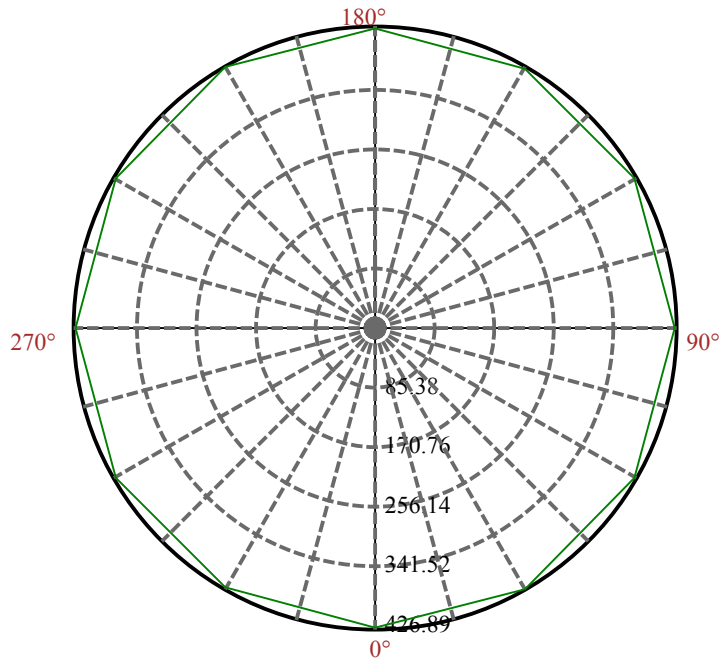
0-10	40.08
10-20	114.65
20-30	173.36
30-40	208.00
40-50	214.18
50-60	190.16
60-70	140.87
70-80	76.76
80-90	21.85
90-100	0.95
100-110	0.23
110-120	0.63
120-130	0.92
130-140	1.12
140-150	1.14
150-160	1.02
160-170	0.71
170-180	0.19

Light Distribution Curve [Unit: cd]



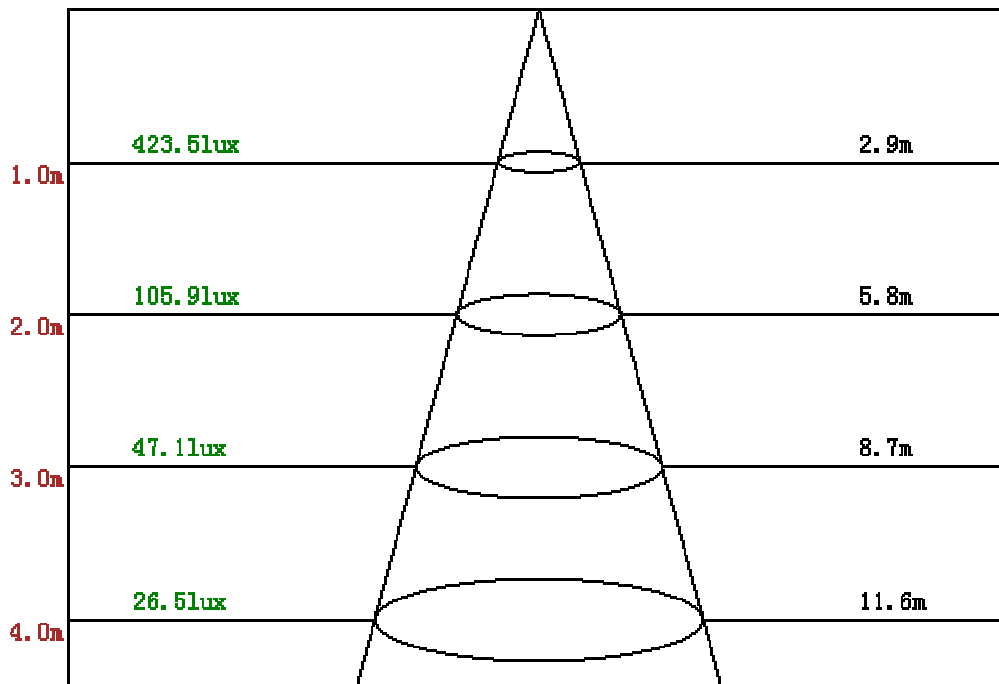
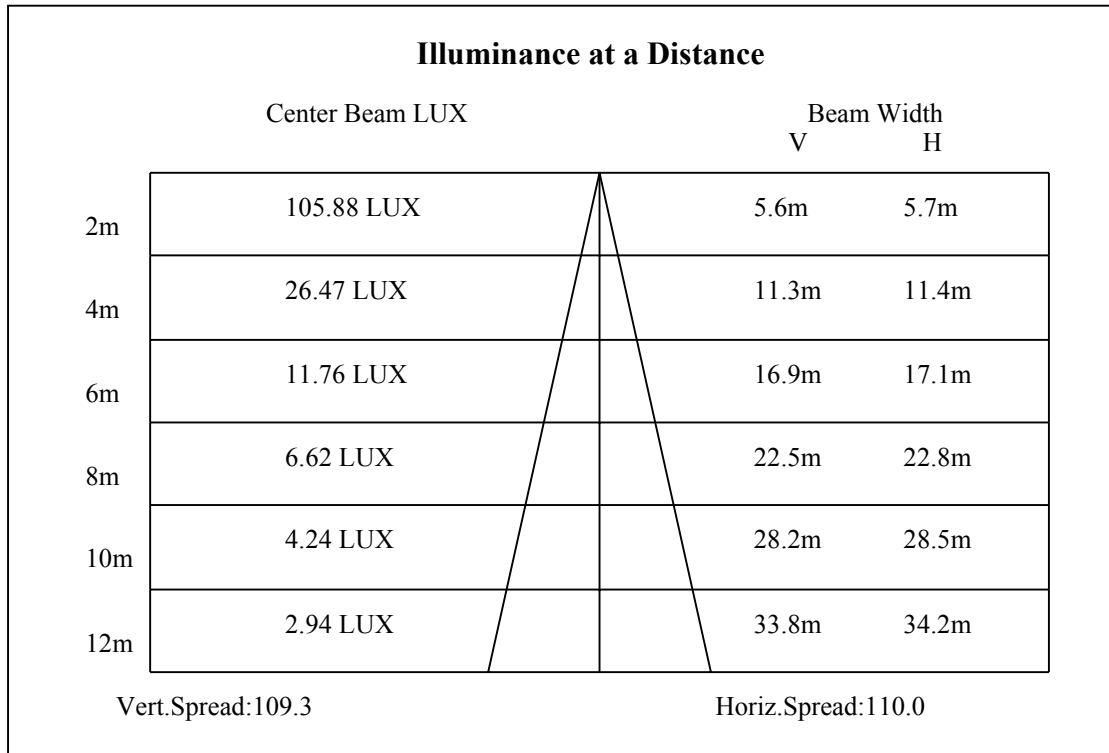
C30(Max): —
 C0/C180: —
 C90/C270: —

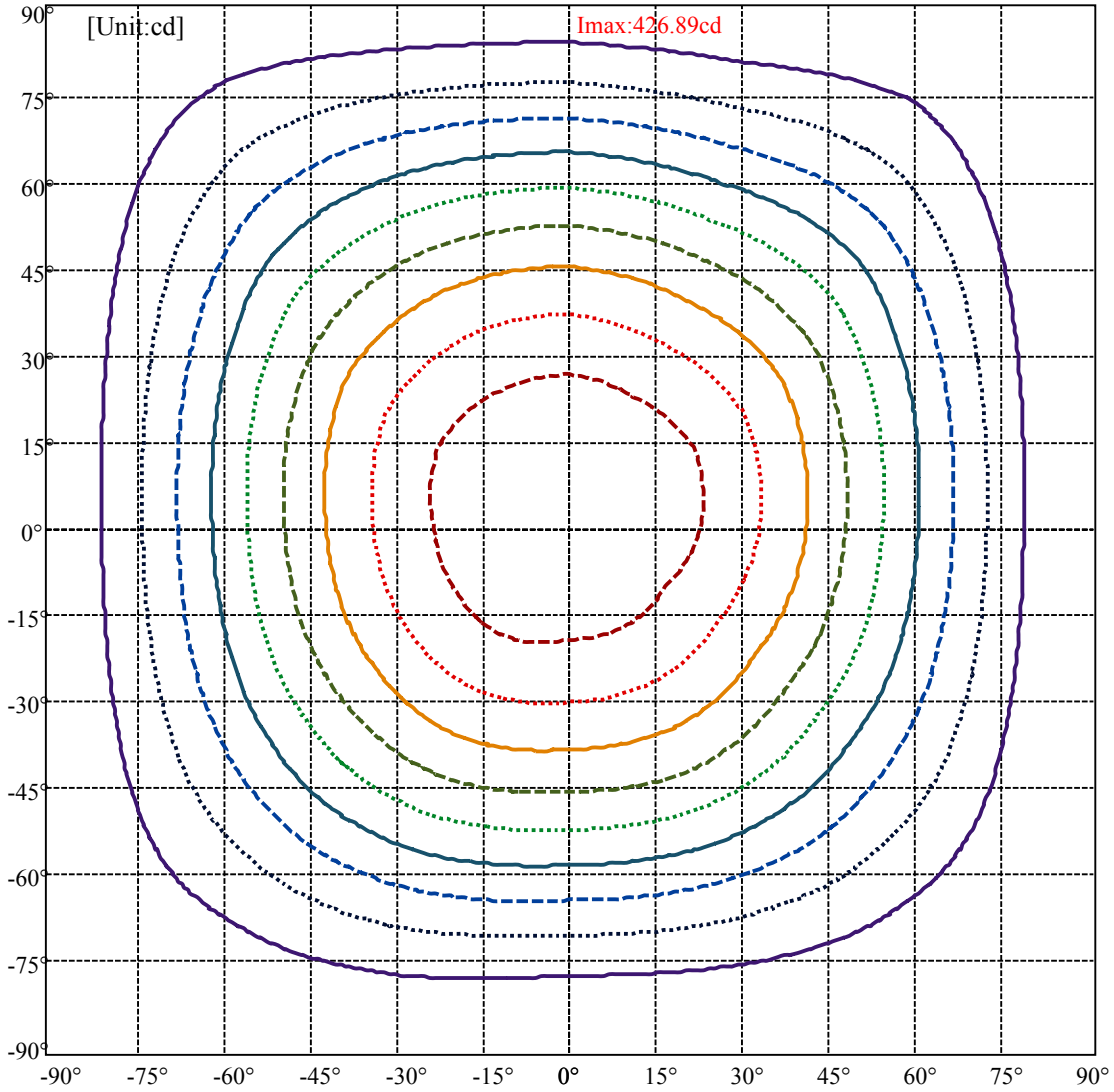
Light Distribution Curve [Unit: cd]



MaxG=0

Lux distance Curve





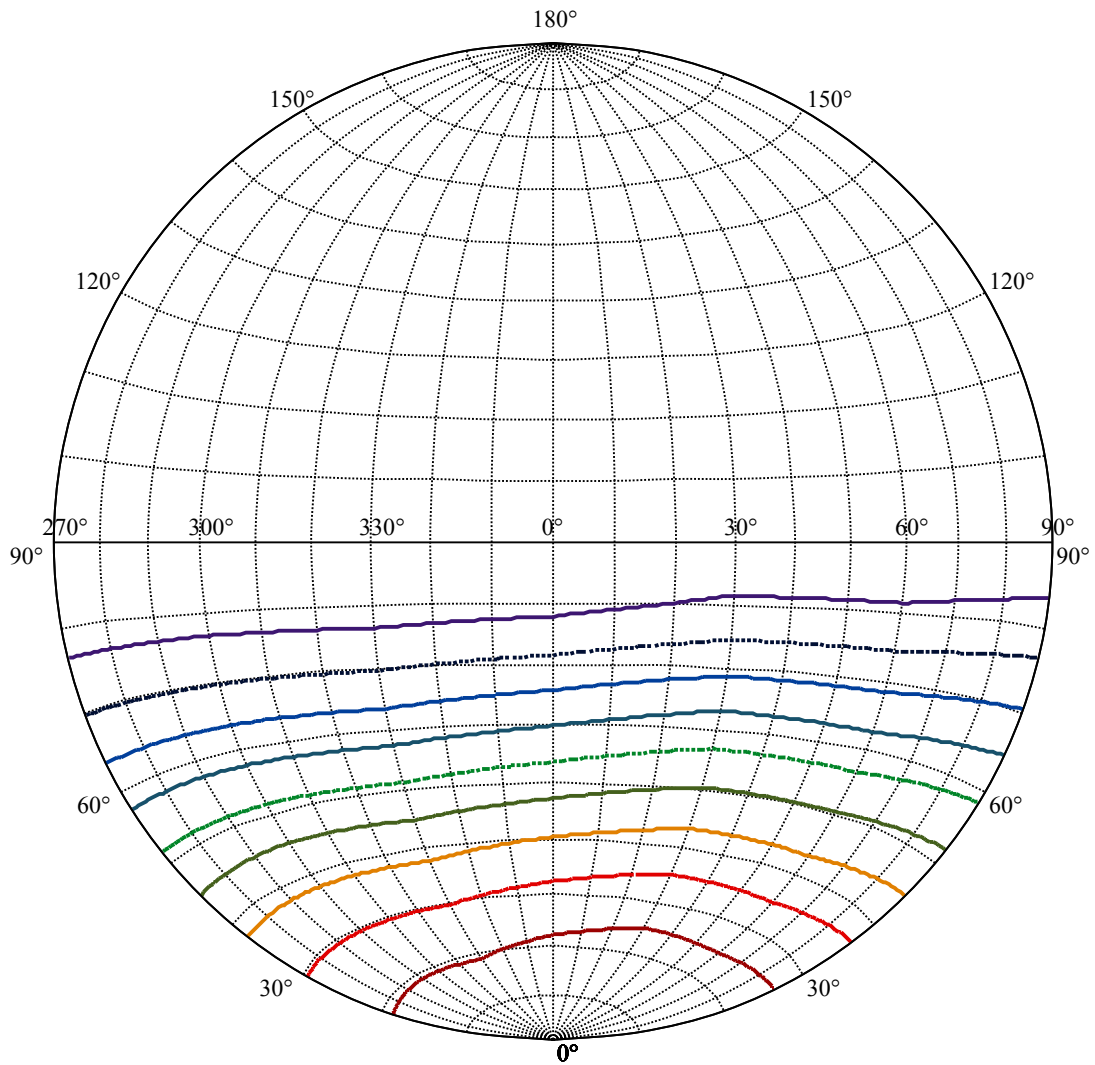
(10%Imax)	42.5992	———
(20%Imax)	85.1983
(30%Imax)	127.797	- - - - -
(40%Imax)	170.397	—————
(50%Imax)	212.996
(60%Imax)	255.595	- - - - -
(70%Imax)	298.194	—————
(80%Imax)	340.793
(90%Imax)	383.392	- - - - -

Equipment: GMS1800B
Temperature(°C): 25.0

Date:
Humidity(%): 60.0%

Operator:
Distance(m): 13.00

ISO candela diagram on circular web



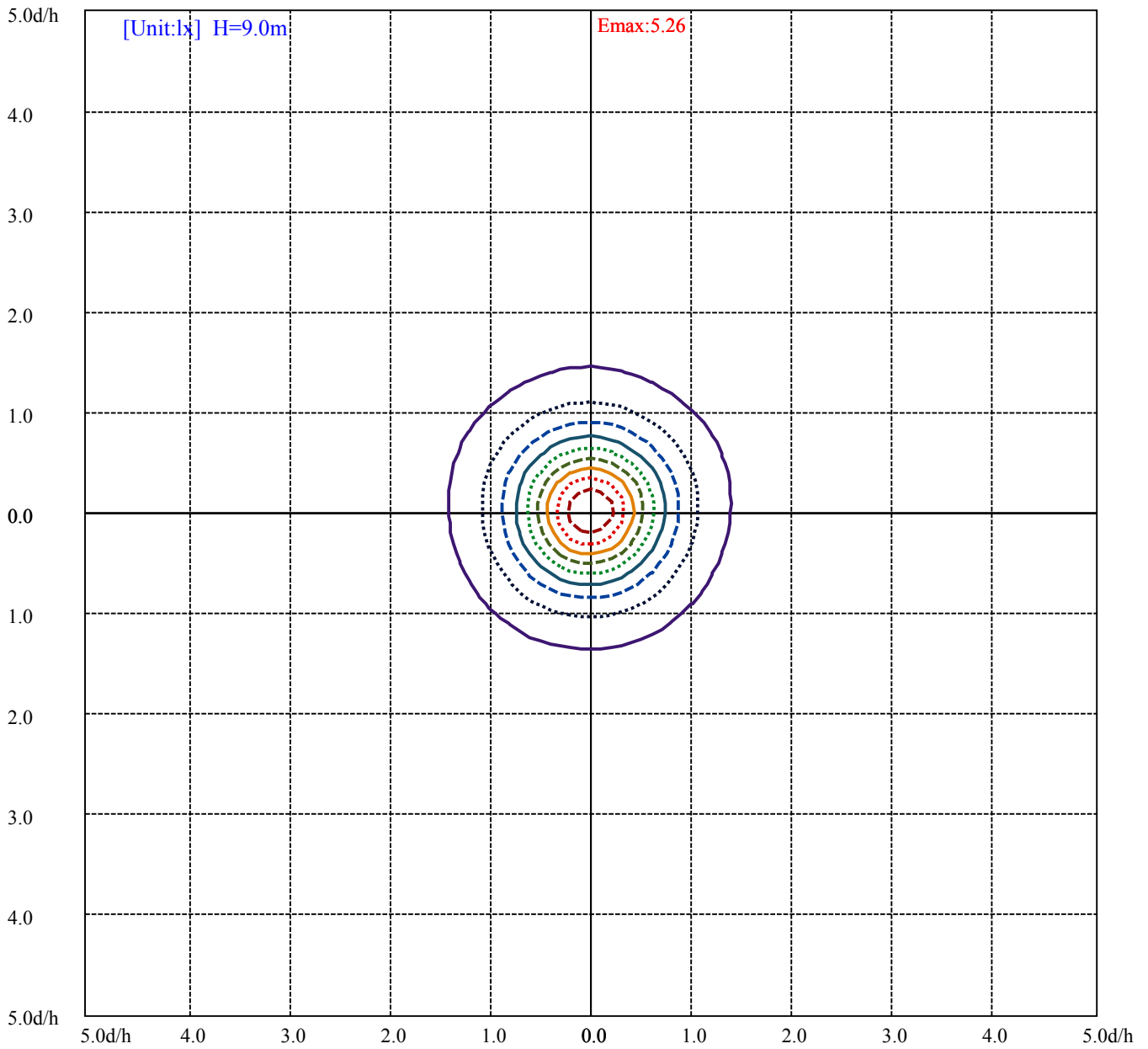
House

Road

Imax:426.89cd

(10%Imax) 42.6894	—
(20%Imax) 85.3788	⋯
(30%Imax) 128.068	- - -
(40%Imax) 170.758	—
(50%Imax) 213.447	⋯
(60%Imax) 256.136	- - -
(70%Imax) 298.826	—
(80%Imax) 341.515	⋯
(90%Imax) 384.205	- - -

ISO illuminance diagram



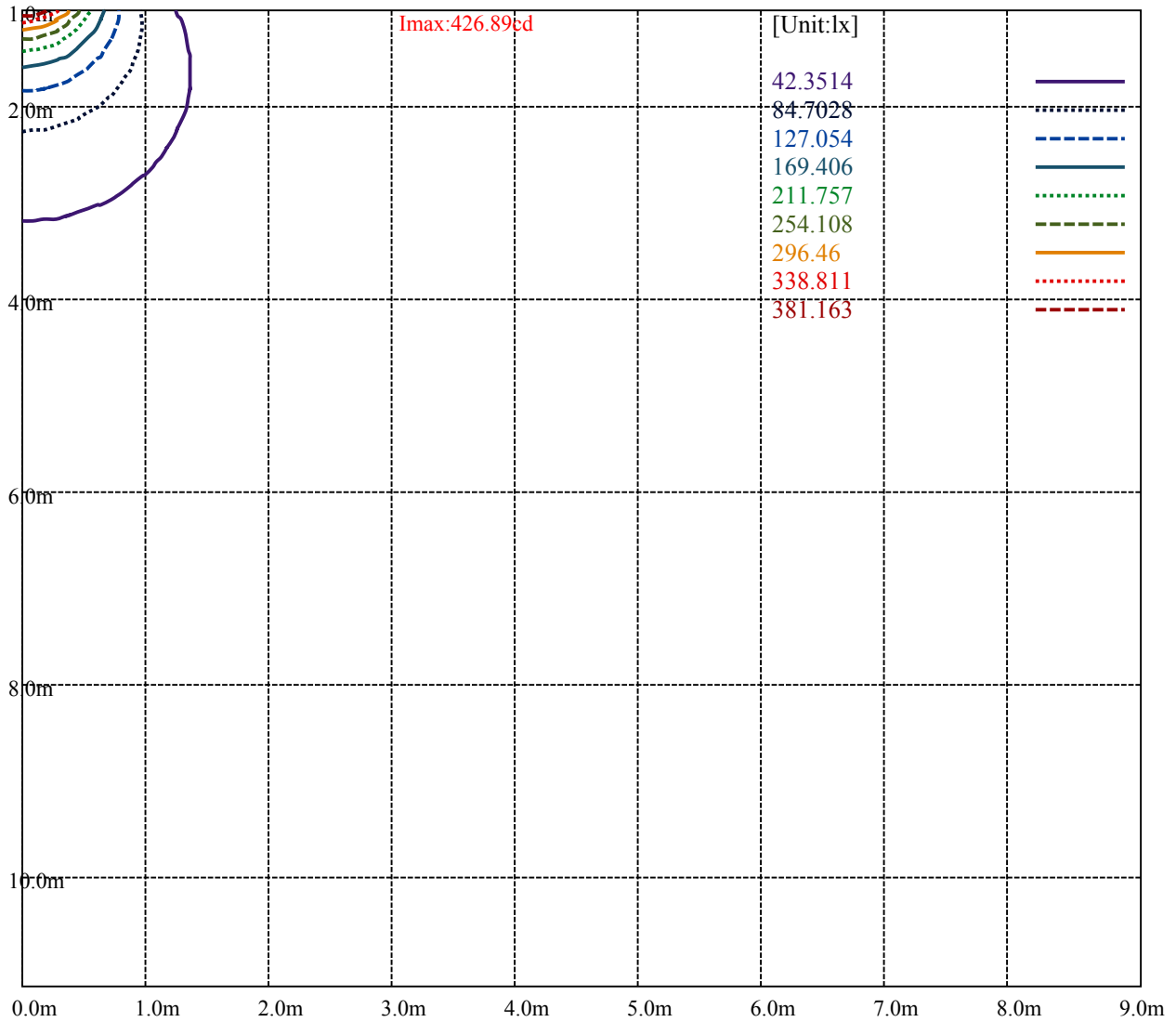
- (10%Emax) 0.5255691 ————
- (20%Emax) 1.051137
- (30%Emax) 1.576704 - - - - -
- (40%Emax) 2.102272 —————
- (50%Emax) 2.62784
- (60%Emax) 3.153407 - - - - -
- (70%Emax) 3.678975 —————
- (80%Emax) 4.204556
- (90%Emax) 4.730124 - - - - -

Equipment: GMS1800B
Temperature(°C): 25.0

Date:
Humidity(%): 60.0%

Operator:
Distance(m): 13.00

Space ISO Lux diagram



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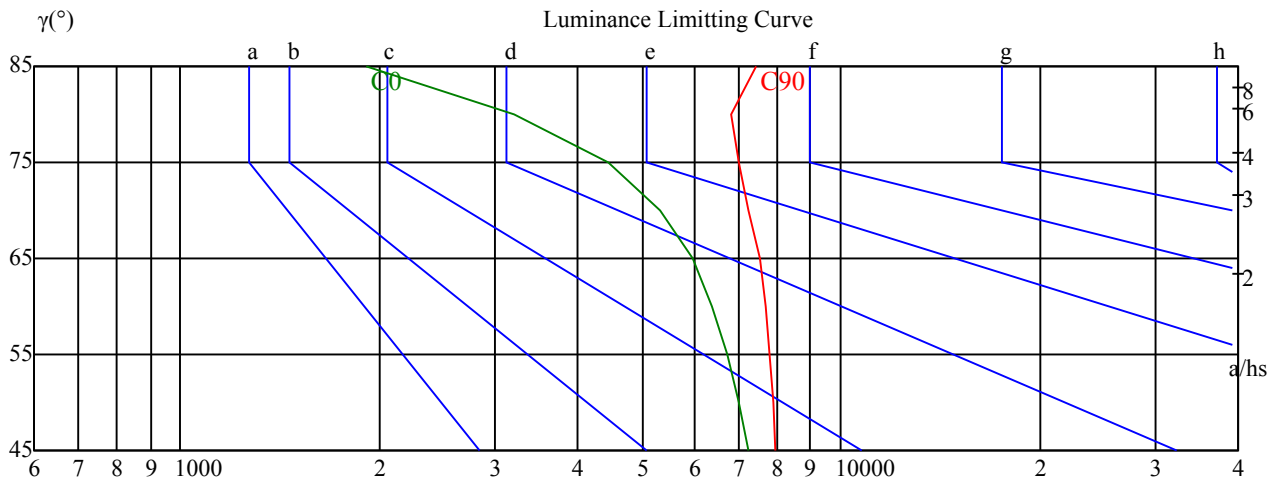
Luminance Limiting Curve(no luminous side)

Luminance Table

γ	45	50	55	60	65	70	75	80	85
C0	7256	7013	6723	6396	5972	5334	4431	3201	1906
C45	0	0	0	0	0	0	0	0	0
C90	7979	7892	7798	7693	7529	7239	7011	6844	7441

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



Equipment: GMS1800B
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UGR Glare

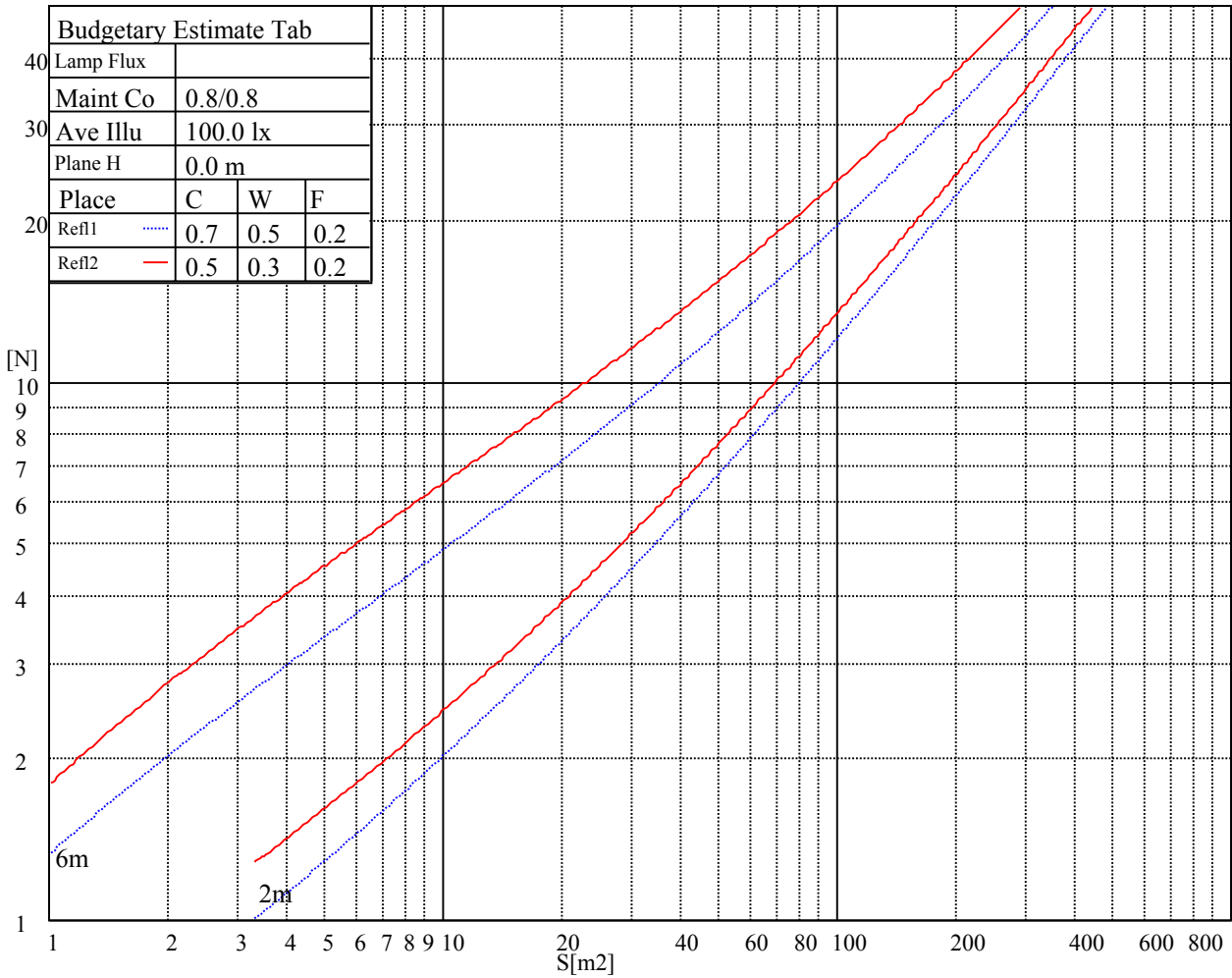
Illuminatin assessment according UGR											
Rf of Ceiling	70	70	50	50	30	70	70	50	50	30	
Rf of Wall	50	30	50	30	30	50	30	50	30	30	
Rf of Floor	20	20	20	20	20	20	20	20	20	20	
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	18.9	20.3	19.2	20.5	20.8	19.3	20.7	19.6	20.9	21.2
	3H	20.3	21.6	20.7	21.9	22.2	21.0	22.3	21.4	22.6	22.8
	4H	20.7	21.7	21.1	22.1	22.4	21.6	22.7	22.0	23.0	23.3
	6H	21.0	22.1	21.4	22.4	22.7	22.3	23.3	22.7	23.6	24.0
	8H	21.1	22.2	21.5	22.5	22.8	22.6	23.6	22.9	23.9	24.3
	12H	21.0	21.8	21.4	22.2	22.6	22.6	23.4	23.0	23.8	24.2
4H	2H	19.5	20.6	19.9	20.9	21.2	19.8	20.8	20.2	21.2	21.5
	3H	21.2	21.9	21.6	22.3	22.8	21.7	22.5	22.1	22.9	23.3
	4H	21.8	22.6	22.3	23.0	23.5	22.6	23.4	23.0	23.8	24.2
	6H	22.3	23.1	22.7	23.5	23.9	23.3	24.1	23.8	24.5	24.9
	8H	22.3	22.7	22.8	23.2	23.8	23.5	24.0	24.0	24.5	25.0
	12H	22.4	22.8	22.9	23.3	23.8	23.8	24.3	24.3	24.8	25.3
8H	4H	22.1	22.6	22.7	23.1	23.6	22.8	23.2	23.3	23.7	24.2
	6H	22.8	23.2	23.3	23.7	24.2	23.7	24.1	24.2	24.6	25.1
	8H	23.0	23.5	23.5	24.0	24.5	24.1	24.5	24.6	25.0	25.5
	12H	23.2	23.6	23.7	24.1	24.6	24.5	24.9	25.0	25.4	25.9
12H	4H	22.2	22.7	22.7	23.1	23.7	22.8	23.3	23.3	23.8	24.3
	6H	22.9	23.4	23.4	23.8	24.4	23.8	24.2	24.3	24.7	25.2
	8H	23.2	23.6	23.7	24.1	24.7	24.2	24.7	24.7	25.2	25.7
Variation with the observer position at spacings:											
S = 1.0H	0.3/-0.5					0.2/-0.7					
S = 1.5H	0.6/-0.7					0.6/-0.6					
S = 2.0H	0.8/-1.0					0.7/-0.6					
Standard tables:	BK4					BKBF					
Uncorrected UGR	4.8					8.6					
According 1000lm											

Equipment: GMS1800B
 Temperature(°C): 25.0

Date:
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Operator:
 Distance(m): 13.00

Budgetary Estimate Table



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Utilization factor table for indoor luminaire

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 RHOF=20 CU															
0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	0.99
1	1.04	1.00	0.96	1.02	0.98	0.94	0.97	0.94	0.91	0.93	0.91	0.88	0.90	0.87	0.86	0.83
2	0.91	0.84	0.78	0.89	0.83	0.77	0.85	0.80	0.75	0.82	0.77	0.74	0.79	0.75	0.72	0.70
3	0.80	0.72	0.65	0.78	0.71	0.64	0.75	0.69	0.63	0.72	0.67	0.62	0.70	0.65	0.61	0.59
4	0.71	0.62	0.55	0.69	0.61	0.55	0.67	0.60	0.54	0.64	0.58	0.53	0.62	0.57	0.52	0.50
5	0.63	0.54	0.48	0.62	0.54	0.47	0.60	0.52	0.47	0.58	0.51	0.46	0.56	0.50	0.46	0.43
6	0.57	0.48	0.41	0.56	0.47	0.41	0.54	0.46	0.41	0.52	0.46	0.40	0.51	0.45	0.40	0.38
7	0.52	0.43	0.37	0.51	0.42	0.36	0.49	0.42	0.36	0.48	0.41	0.36	0.46	0.40	0.36	0.34
8	0.47	0.39	0.33	0.46	0.38	0.33	0.45	0.38	0.32	0.44	0.37	0.32	0.42	0.36	0.32	0.30
9	0.43	0.35	0.29	0.43	0.35	0.29	0.41	0.34	0.29	0.40	0.34	0.29	0.39	0.33	0.29	0.27
10	0.40	0.32	0.27	0.39	0.32	0.27	0.38	0.31	0.26	0.37	0.31	0.26	0.36	0.30	0.26	0.24
RCR	COEFFICIENTS OF UTILIZATION RHOF=20 WLC															
1	0.31	0.17	0.06	0.30	0.17	0.05	0.28	0.16	0.05	0.27	0.16	0.05	0.26	0.15	0.05	
2	0.29	0.16	0.05	0.28	0.16	0.05	0.27	0.15	0.05	0.26	0.15	0.05	0.25	0.14	0.04	
3	0.27	0.14	0.04	0.26	0.14	0.04	0.25	0.14	0.04	0.24	0.13	0.04	0.23	0.13	0.04	
4	0.25	0.13	0.04	0.24	0.13	0.04	0.23	0.12	0.04	0.22	0.12	0.04	0.22	0.12	0.04	
5	0.23	0.12	0.03	0.22	0.11	0.03	0.22	0.11	0.03	0.21	0.11	0.03	0.20	0.11	0.03	
6	0.21	0.11	0.03	0.21	0.11	0.03	0.20	0.10	0.03	0.19	0.10	0.03	0.19	0.10	0.03	
7	0.20	0.10	0.03	0.19	0.10	0.03	0.19	0.09	0.03	0.18	0.09	0.03	0.18	0.09	0.03	
8	0.18	0.09	0.03	0.18	0.09	0.03	0.18	0.09	0.03	0.17	0.09	0.02	0.16	0.08	0.02	
9	0.17	0.08	0.02	0.17	0.08	0.02	0.16	0.08	0.02	0.16	0.08	0.02	0.15	0.08	0.02	
10	0.16	0.08	0.02	0.16	0.08	0.02	0.16	0.08	0.02	0.15	0.07	0.02	0.15	0.07	0.02	
RCR	COEFFICIENTS OF UTILIZATION RHOF=20 CCLU															
0	0.19	0.19	0.19	0.17	0.17	0.17	0.11	0.11	0.11	0.07	0.07	0.07	0.02	0.02	0.02	
1	0.15	0.14	0.13	0.14	0.13	0.12	0.10	0.09	0.08	0.06	0.05	0.05	0.02	0.02	0.02	
2	0.12	0.11	0.09	0.11	0.10	0.08	0.09	0.07	0.06	0.06	0.05	0.04	0.02	0.02	0.01	
3	0.10	0.08	0.07	0.10	0.08	0.06	0.08	0.06	0.04	0.05	0.04	0.03	0.02	0.01	0.01	
4	0.09	0.07	0.05	0.08	0.06	0.05	0.07	0.05	0.04	0.05	0.03	0.02	0.02	0.01	0.01	
5	0.07	0.05	0.04	0.08	0.05	0.04	0.07	0.05	0.03	0.05	0.03	0.02	0.02	0.01	0.01	
6	0.07	0.05	0.03	0.07	0.05	0.03	0.06	0.04	0.02	0.05	0.03	0.02	0.02	0.01	0.01	
7	0.06	0.04	0.03	0.06	0.04	0.02	0.06	0.04	0.02	0.04	0.03	0.01	0.02	0.01	0.00	
8	0.05	0.03	0.02	0.06	0.04	0.02	0.06	0.03	0.02	0.04	0.02	0.01	0.02	0.01	0.00	
9	0.05	0.03	0.02	0.05	0.03	0.02	0.05	0.03	0.02	0.04	0.02	0.01	0.02	0.01	0.00	
10	0.04	0.03	0.02	0.05	0.03	0.02	0.05	0.03	0.01	0.04	0.02	0.01	0.02	0.01	0.00	

Equipment: GMS1800B
 Temperature(°C): 25.0

Date:
 Humidity(%): 60.0%

Operator:
 Distance(m): 13.00

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Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	423.51	421.32	415.06	405.60	391.91	374.50	353.38	329.21	301.83
30.0	426.89	425.88	421.49	412.87	400.36	384.48	365.04	342.73	317.89
60.0	424.53	423.68	419.46	411.01	399.69	383.80	364.20	341.38	316.54
90.0	423.18	423.85	420.98	413.71	403.40	389.04	370.79	349.83	325.66
120.0	422.84	423.68	420.47	413.54	403.23	388.70	371.12	350.17	326.51
150.0	422.33	423.35	419.97	413.04	402.39	388.36	370.28	349.32	325.49
180.0	423.51	421.99	416.25	406.95	394.11	377.55	358.45	333.94	307.75
210.0	426.89	423.68	416.59	405.43	391.24	373.32	352.37	327.35	299.98
240.0	424.53	421.49	413.71	403.07	388.53	370.62	348.31	323.97	296.93
270.0	423.18	418.28	409.66	396.31	379.91	361.49	339.35	313.66	285.95
300.0	422.84	417.77	409.15	396.98	381.26	362.00	339.52	314.85	287.30
330.0	422.33	417.43	408.98	396.47	380.59	361.15	339.69	313.50	286.12
360.0	423.51	421.32	415.06	405.60	391.91	374.50	353.38	329.21	301.83
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	271.41	238.46	203.98	169.17	133.51	96.50	60.67	29.41	8.79
30.0	290.34	259.42	226.97	192.83	158.35	118.13	82.47	51.04	24.00
60.0	288.65	258.57	224.77	190.13	153.79	117.79	81.80	49.69	24.00
90.0	298.45	268.37	236.60	203.48	168.32	130.98	95.99	62.87	34.31
120.0	299.98	271.08	237.45	204.32	168.83	132.67	95.82	62.19	32.79
150.0	299.64	269.05	237.28	203.65	167.31	130.30	94.64	62.02	32.96
180.0	279.53	248.60	214.29	179.48	143.82	107.99	73.18	43.94	19.10
210.0	270.40	238.97	203.65	168.32	131.65	95.65	60.84	32.45	10.31
240.0	267.53	234.23	200.60	164.78	129.12	92.78	61.35	33.12	10.82
270.0	255.53	223.93	188.60	153.45	118.47	82.98	50.70	24.51	5.24
300.0	258.74	224.77	189.96	154.80	119.31	83.32	51.88	25.18	3.89
330.0	255.36	222.07	187.93	152.95	117.46	83.15	50.70	23.15	3.21
360.0	271.41	238.46	203.98	169.17	133.51	96.50	60.67	29.41	8.79
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	1.18	0.17	0.34	0.85	1.18	1.01	1.01	1.35	1.35
30.0	5.07	-0.51	0.00	0.17	0.34	0.51	0.51	1.01	1.35
60.0	5.58	-0.34	0.00	-0.17	0.17	0.34	0.85	0.85	0.85
90.0	11.32	-0.17	-0.17	0.00	0.34	0.51	0.51	0.51	1.01
120.0	8.96	-0.17	0.00	0.17	0.34	0.51	0.34	0.85	1.01
150.0	9.13	-0.34	-0.17	0.17	0.17	0.34	0.68	0.68	1.01
180.0	3.04	-0.17	-0.17	0.00	0.51	0.85	1.01	1.01	1.18
210.0	0.00	0.17	0.00	0.17	0.68	0.85	1.01	1.35	1.18
240.0	0.34	-0.17	0.00	0.00	0.85	0.51	1.18	1.18	1.52
270.0	0.00	0.17	0.17	0.34	0.34	0.68	0.68	1.18	1.52
300.0	0.17	0.00	0.00	0.34	0.51	0.68	1.01	1.01	1.52
330.0	-0.34	0.00	0.00	0.17	0.51	0.85	0.85	1.35	1.35
360.0	1.18	0.17	0.34	0.85	1.18	1.01	1.01	1.35	1.35
C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	1.69	1.86	2.03	2.03	2.20	2.37	2.70	2.70	2.70
30.0	1.35	1.35	2.20	1.86	2.20	2.20	2.54	2.37	2.54
60.0	1.18	1.18	1.35	2.03	2.20	2.37	2.37	2.54	2.54
90.0	1.18	1.18	1.52	2.03	1.86	2.20	2.20	2.37	2.54
120.0	1.35	1.35	1.69	1.86	2.03	2.54	2.70	2.37	2.54
150.0	1.18	1.69	1.69	2.20	2.03	2.37	2.37	2.70	2.54
180.0	1.35	1.86	1.69	2.03	2.20	2.20	2.37	2.70	2.87
210.0	1.86	1.69	1.86	2.20	2.37	2.37	2.87	2.87	2.70
240.0	1.69	1.86	2.03	2.03	2.37	2.37	2.54	2.87	2.87
270.0	1.69	1.69	2.20	2.03	2.37	2.54	2.70	2.70	2.54
300.0	1.69	1.52	1.86	2.37	2.37	2.37	2.54	2.54	3.04
330.0	1.69	1.52	1.86	2.20	2.03	2.54	2.70	2.54	2.87
360.0	1.69	1.86	2.03	2.03	2.20	2.37	2.70	2.70	2.70

Equipment: GMS1800B
 Temperature(°C): 25.0

Date:
 Humidity(%): 60.0%

Operator:
 Distance(m): 13.00

KB-13-18X1W

Intensity data(cd)

C/ γ ($^{\circ}$)	180.0
0.0	2.70
30.0	2.87
60.0	2.70
90.0	2.70
120.0	2.70
150.0	2.70
180.0	2.70
210.0	2.87
240.0	2.70
270.0	2.70
300.0	2.70
330.0	2.70
360.0	2.70