



## EV-LED-MR8-AL

### LED 1.5W 12V MR8 GU4.0 Accent Lamp Bulb

- 1.5W LED MR8 12V AC/DC Lamp Bulb
- Ambient Light for Accent Lighting, Reading Light, Decorative, Architectural Detail, Cove Lighting, Appliances
- Available in 5 colors: Cool White 6000K (170LM), Warm White 3000K (170LM), Red (20LM), Blue (18LM), Green (60LM)
- No UV or IR radiation, low heat, highly efficient operation and low operating costs
- Base: MR8 GU4.0, enables fitting in any MR8 luminaries
- Input: 12V AC-DC
- Power: 1.5W
- Dimmable by TRIAC (Phase CUT)
- Size: Dia 25mm x 27.5mm L (34.5mm L inc pins)
- Light source: 12 x 2835 LED arranged in an MR8 lamp, 120 degree Viewing Angle
- An exceptionally long lamp life of up to 50,000 hours makes lamps ideal for inaccessible locations
- Packaged in single white box
- 1 year warranty

### Lighting Facts Per Bulb

LED Product

**Light Output (Lumens)** 170

**Watts** 1.5

**Lumens per Watt (Efficacy)** 113

**Color Accuracy** 90

Color Rendering Index (CRI)

**Estimated Yearly Energy Cost** \$0.18

Based on 3 hrs/day, 11¢/KWh

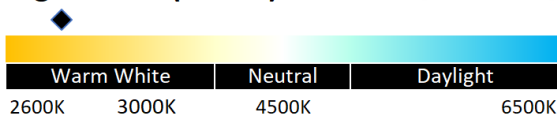
Cost depends on rates and use

### Life

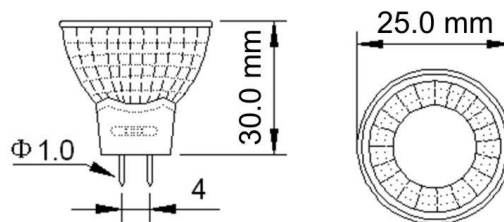
Based on 3 hrs/day

27.4 years

**Light Color (Kelvin)** 3000 (Warm White)



Unit : mm

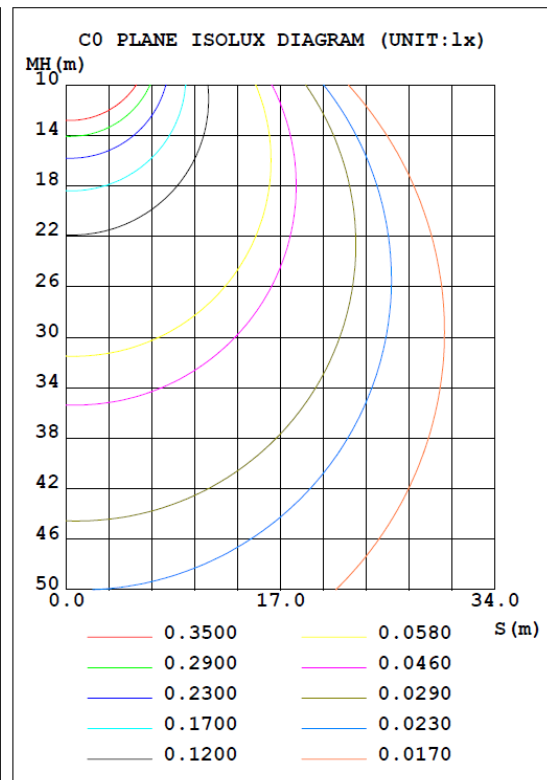
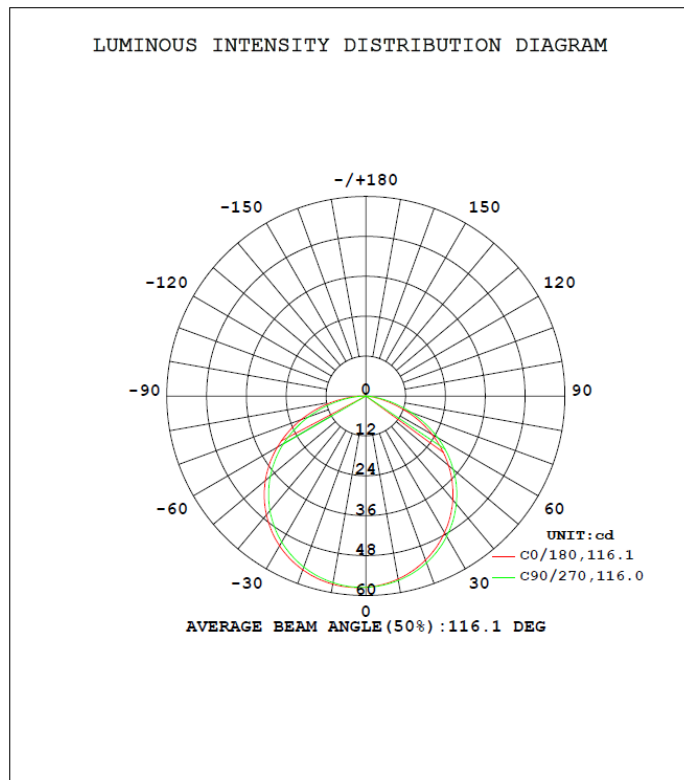




## LUMINAIRE PHOTOMETRIC

Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A

DATA OF LAMP		PHOTOMETRIC DATA Eff: 140.52 lm/W			
MODEL		I <sub>max</sub> (cd)	57.73	S/MH (C0/180)	1.23
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	1.26
RATED VOLTAGE (V)		TOTAL FLUX (lm)	170.03	η UP,DN (C0-180)	0.1,52.3
NOMINAL FLUX (lm)	170.025	CIE CLASS	DIRECT	η UP,DN (C180-360)	0.0,47.6
LAMPS INSIDE	1	η up (%)	0.1	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)		η down (%)	99.9	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: 10.0deg/s  
Temperature:25.2DEG  
Operators:Hill

γ Range: 0 - 180DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.351  
Humidity:42%  
Test Distance:2.445m [K=1.0000]



## ZONAL FLUX DIAGRAM

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	57.45	57.47	56.99	56.27	55.88	55.86	56.30	57.02	0- 10	5.450	5.450	3.21,3.21
20	55.63	55.68	54.73	53.38	52.51	52.48	53.40	54.74	10- 20	15.70	21.15	12.4,12.4
30	52.03	52.11	50.72	48.73	47.45	47.39	48.72	50.73	20- 30	24.03	45.17	26.6,26.6
40	46.66	46.77	44.99	42.42	40.78	40.65	42.39	44.96	30- 40	29.36	74.53	43.8,43.8
50	39.56	39.73	37.62	34.51	32.54	32.37	34.42	37.39	40- 50	30.89	105.4	62,62
60	30.86	31.07	28.69	25.07	22.97	22.74	24.96	28.02	50- 60	28.20	133.6	78.6,78.6
70	20.76	21.03	18.44	14.54	12.42	11.78	14.54	17.57	60- 70	21.43	155.1	91.2,91.2
80	9.913	9.857	8.024	4.724	2.934	2.689	4.661	7.552	70- 80	11.81	166.9	98.1,98.1
90	0.9123	0.8911	0.1515	0.0140	0.0083	0.0058	0.0058	0.3150	80- 90	2.980	169.8	99.9,99.9
100	0.0065	0.0071	0.0098	0.0110	0.0016	0.0022	0.0012	0	90-100	0.0378	169.9	99.9,99.9
110	0.0104	0.0116	0.0138	0.0155	0.0083	0.0091	0.0061	0.0038	100-110	0.0077	169.9	99.9,99.9
120	0.0157	0.0163	0.0187	0.0198	0.0156	0.0173	0.0148	0.0112	110-120	0.0127	169.9	99.9,99.9
130	0.0277	0.0279	0.0300	0.0316	0.0216	0.0234	0.0209	0.0183	120-130	0.0181	169.9	99.9,99.9
140	0.0479	0.0488	0.0507	0.0524	0.0256	0.0265	0.0207	0.0234	130-140	0.0239	169.9	100,100
150	0.0752	0.0759	0.0773	0.0784	0.0315	0.0323	0.0305	0.0301	140-150	0.0286	170.0	100,100
160	0.0918	0.0928	0.0928	0.0931	0.0419	0.0421	0.0405	0.0403	150-160	0.0282	170.0	100,100
170	0.0885	0.0885	0.0897	0.0900	0.0507	0.0511	0.0496	0.0493	160-170	0.0196	170.0	100,100
180	0.0711	0.0716	0.0720	0.0696	0.0719	0.0728	0.0712	0.0702	170-180	0.0067	170.0	100,100
DEG	LUMINOUS INTENSITY:cd Less than 25% Percent = 8.5 %									UNIT:lm		

Conical surface Flux(90deg): 90.043 lm

%lum = 53.0%

%lamp = 53.0%

Conical surface Flux(120deg): 133.62 lm

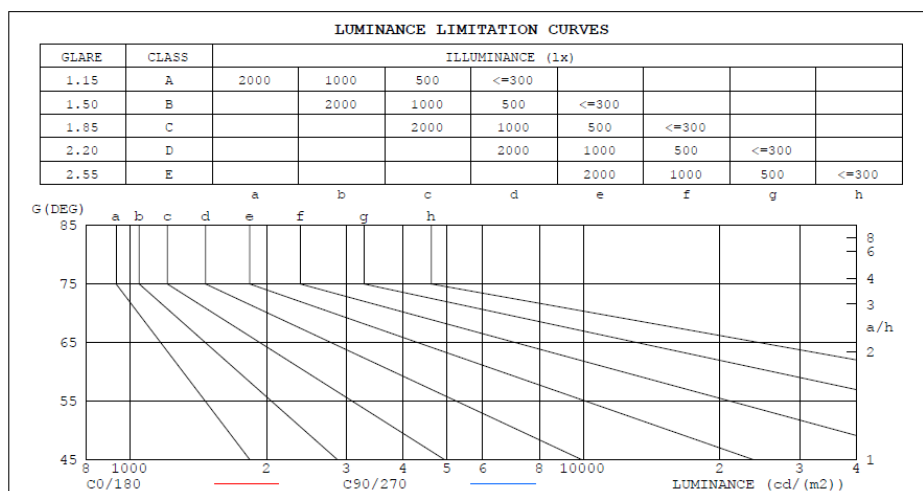
%lum = 78.6%

%lamp = 78.6%



## LUMINANCE LIMITATION CURVES

Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A



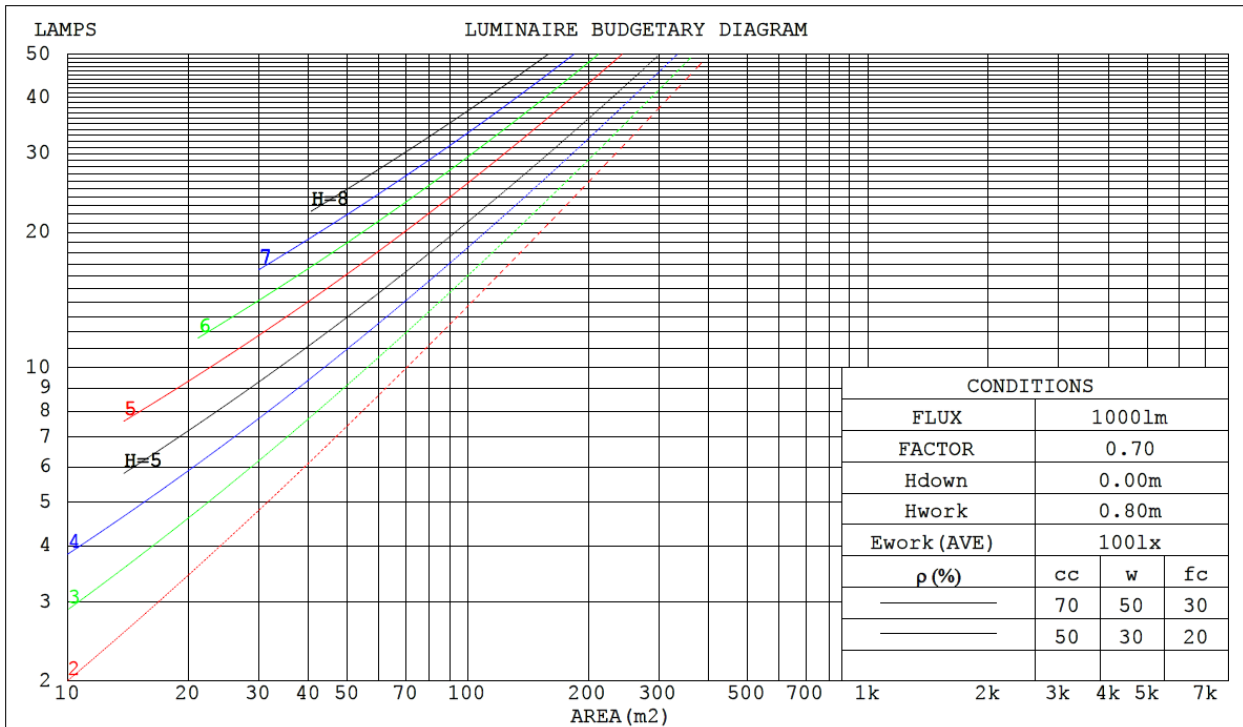
LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	554713	386320
80	570941	461800
75	594520	506986
70	607201	538898
65	614424	560187
60	617317	573387
55	617327	580777
50	615554	584903
45	612814	586469



# CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio															



Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm															
NAME:								TYPE:N/A				WEIGHT:N/A			
SPEC.:N/A								DIM.: N/A				SERIAL No.:N/A			
MFR.:								SUR.:N/A				Shielding Angle:N/A			

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.310	.176	.056	.303	.173	.055	.289	.166	.053	.277	.160	.051	.266	.154	.050	
2.0	.292	.160	.049	.286	.158	.049	.274	.153	.047	.264	.148	.046	.254	.143	.045	
3.0	.271	.144	.043	.265	.142	.043	.255	.138	.042	.245	.134	.041	.236	.131	.041	
4.0	.250	.130	.038	.245	.128	.038	.236	.125	.037	.228	.122	.037	.220	.119	.036	
5.0	.231	.118	.034	.227	.117	.034	.219	.114	.034	.211	.111	.033	.204	.109	.033	
6.0	.215	.108	.031	.211	.106	.031	.203	.104	.030	.197	.102	.030	.190	.100	.030	
7.0	.200	.099	.028	.196	.098	.028	.190	.096	.028	.184	.094	.027	.178	.092	.027	
8.0	.187	.091	.026	.183	.090	.026	.178	.089	.025	.172	.087	.025	.167	.086	.025	
9.0	.175	.085	.024	.172	.084	.024	.167	.082	.023	.162	.081	.023	.157	.080	.023	
10.0	.164	.079	.022	.162	.078	.022	.157	.077	.022	.153	.076	.022	.148	.075	.021	

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio Ceiling Cavity Exitance Coefficients(CCEC)															
0.0	.191	.191	.191	.163	.163	.163	.112	.112	.112	.064	.064	.064	.020	.020	.020	
1.0	.181	.157	.135	.155	.135	.116	.106	.093	.080	.061	.054	.047	.020	.017	.015	
2.0	.173	.133	.099	.148	.114	.085	.102	.079	.060	.059	.046	.035	.019	.015	.011	
3.0	.166	.115	.075	.142	.099	.065	.097	.069	.046	.056	.040	.027	.018	.013	.009	
4.0	.158	.102	.059	.136	.088	.051	.093	.061	.036	.054	.036	.021	.017	.012	.007	
5.0	.151	.091	.048	.129	.079	.042	.089	.055	.029	.052	.032	.017	.017	.011	.006	
6.0	.143	.083	.040	.123	.072	.035	.085	.050	.025	.049	.030	.015	.016	.010	.005	
7.0	.137	.076	.034	.118	.066	.030	.081	.046	.021	.047	.027	.012	.015	.009	.004	
8.0	.130	.070	.029	.112	.061	.026	.078	.043	.018	.045	.025	.011	.015	.008	.004	
9.0	.124	.066	.026	.107	.057	.023	.074	.040	.016	.043	.024	.010	.014	.008	.003	
10.0	.118	.061	.023	.102	.053	.020	.071	.037	.014	.041	.022	.009	.013	.007	.003	



## UGR(Unified Glare Rating) Table

Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A

ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	35.8	37.3	36.0	37.5	37.7	35.5	37.0	35.8	37.2	37.4
3H	37.5	38.9	37.8	39.2	39.4	37.1	38.6	37.4	38.8	39.0
4H	38.3	39.6	38.6	39.9	40.1	37.8	39.1	38.1	39.4	39.7
6H	38.9	40.1	39.2	40.4	40.7	38.3	39.6	38.6	39.8	40.1
8H	39.1	40.3	39.4	40.6	40.9	38.4	39.7	38.8	39.9	40.2
12H	39.2	40.4	39.6	40.7	41.0	38.5	39.7	38.9	40.0	40.3
4H 2H	36.4	37.8	36.8	38.0	38.3	36.2	37.6	36.6	37.8	38.1
3H	38.4	39.6	38.8	39.9	40.2	38.1	39.3	38.5	39.6	39.9
4H	39.3	40.4	39.7	40.7	41.1	38.9	40.0	39.3	40.3	40.6
6H	40.0	41.0	40.4	41.4	41.7	39.5	40.5	39.9	40.8	41.2
8H	40.3	41.2	40.7	41.6	42.0	39.7	40.6	40.2	41.0	41.4
12H	40.5	41.3	41.0	41.7	42.1	39.9	40.7	40.3	41.1	41.5
8H 4H	39.7	40.5	40.1	40.9	41.3	39.3	40.2	39.7	40.6	40.9
6H	40.5	41.3	41.0	41.7	42.1	40.1	40.8	40.5	41.2	41.7
8H	40.9	41.6	41.4	42.0	42.5	40.4	41.1	40.9	41.5	42.0
12H	41.3	41.8	41.7	42.3	42.7	40.7	41.2	41.1	41.7	42.1
12H 4H	39.7	40.5	40.1	40.9	41.3	39.3	40.2	39.8	40.5	40.9
6H	40.6	41.3	41.1	41.7	42.2	40.2	40.9	40.7	41.3	41.7
8H	41.1	41.6	41.6	42.1	42.6	40.6	41.1	41.1	41.6	42.1
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.4					+ 0.2 / - 0.4				

CIE Pub.117 Corrected 170.0 lm Total Lamp Luminous Flux. ( $8\log(F/F_0) = -6.2$ )



## UTILIZATION FACTORS TABLE

Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A

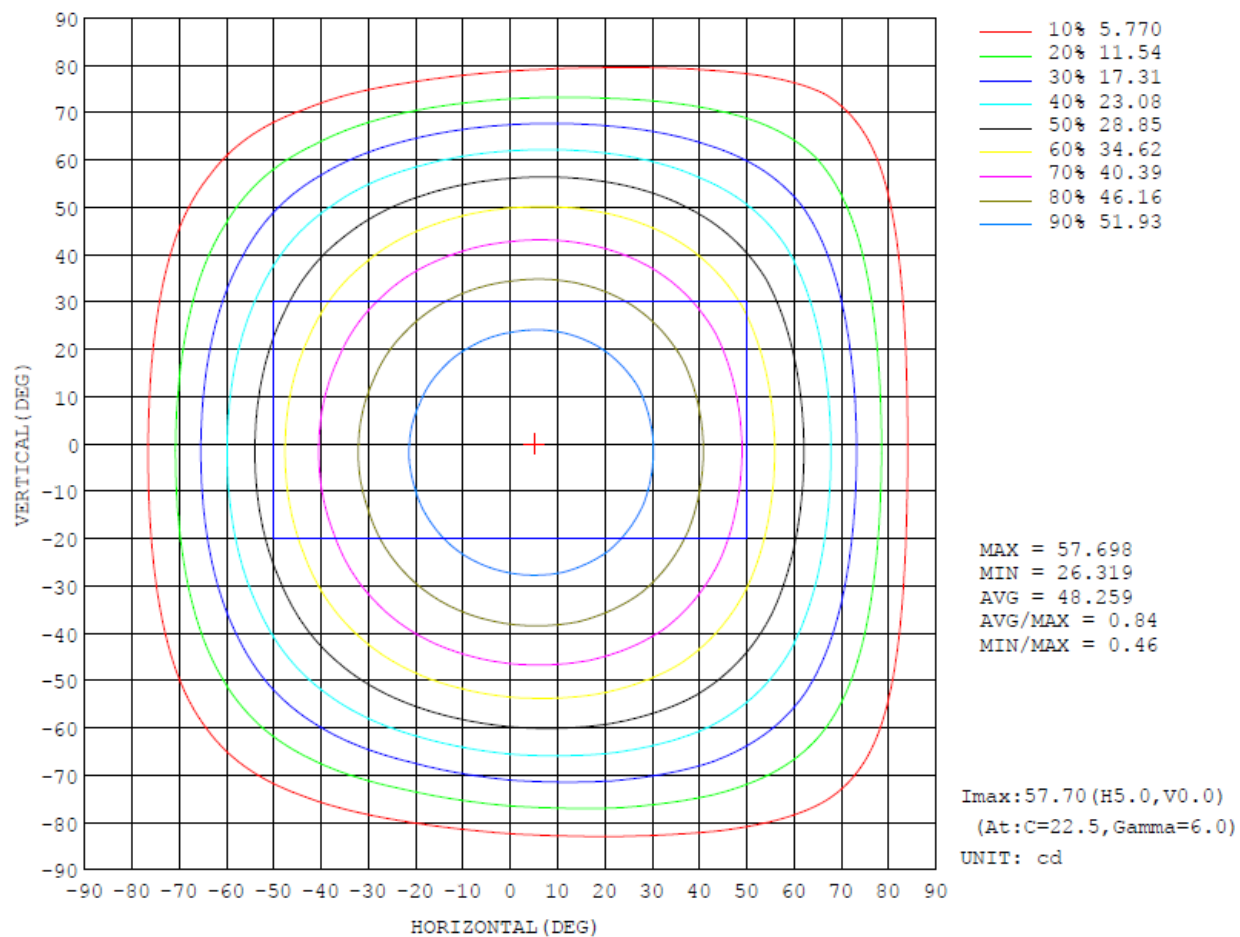
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	57	45	38	56	45	38	55	45	38	32
0.80	67	55	48	66	55	48	64	54	47	40
1.00	76	64	57	74	64	57	72	65	56	49
1.25	83	72	65	81	71	65	79	70	64	56
1.50	88	78	71	86	77	70	83	75	69	62
2.00	95	86	80	93	85	79	89	83	77	70
2.50	99	91	85	97	90	84	93	87	82	74
3.00	102	95	90	100	94	89	96	91	86	78
4.00	106	100	96	104	99	94	100	95	92	83
5.00	109	104	100	106	102	98	102	98	95	86
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		





## ISOCANDELA DIAGRAM

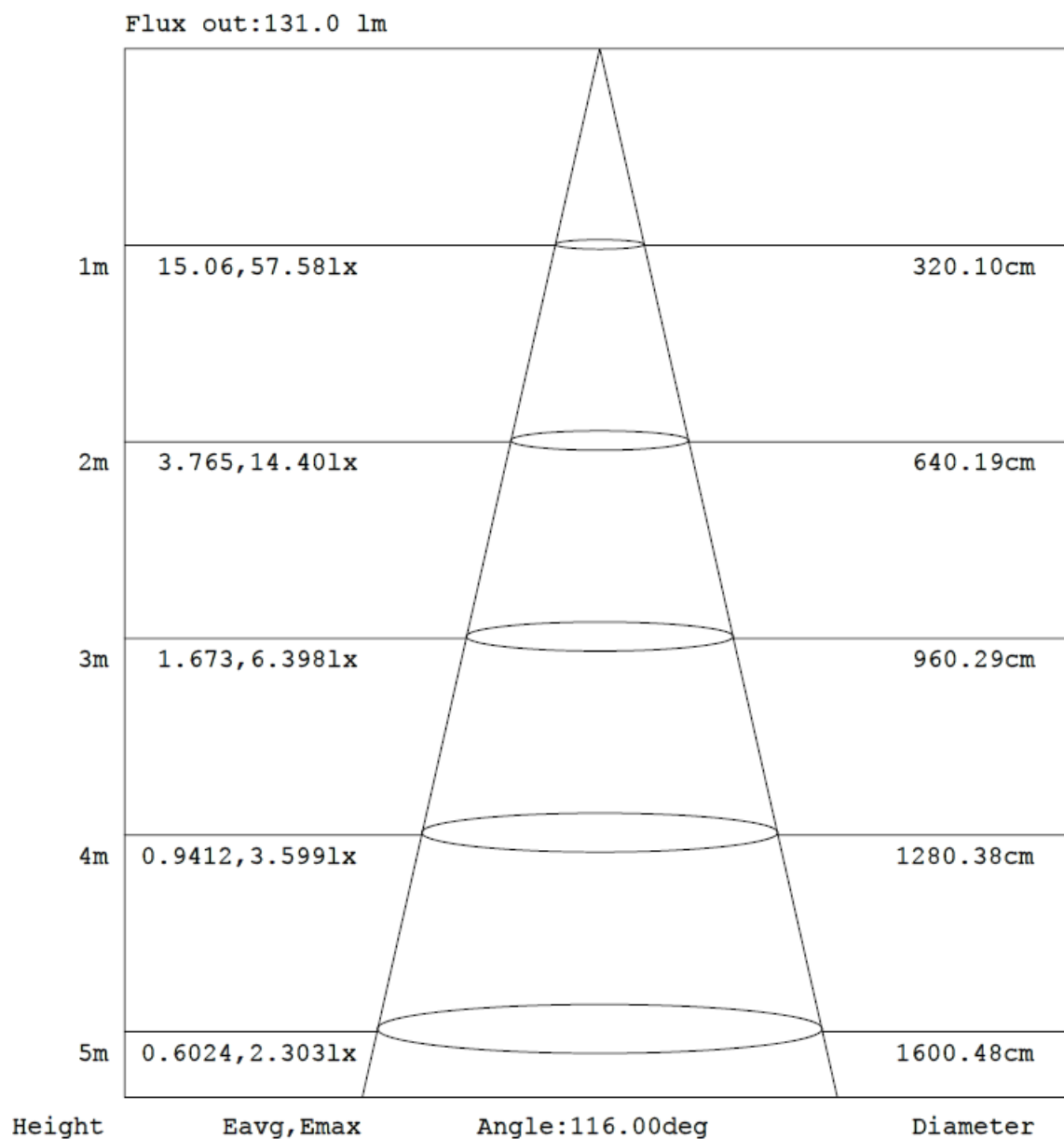
Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A





## AAI Figure

Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A

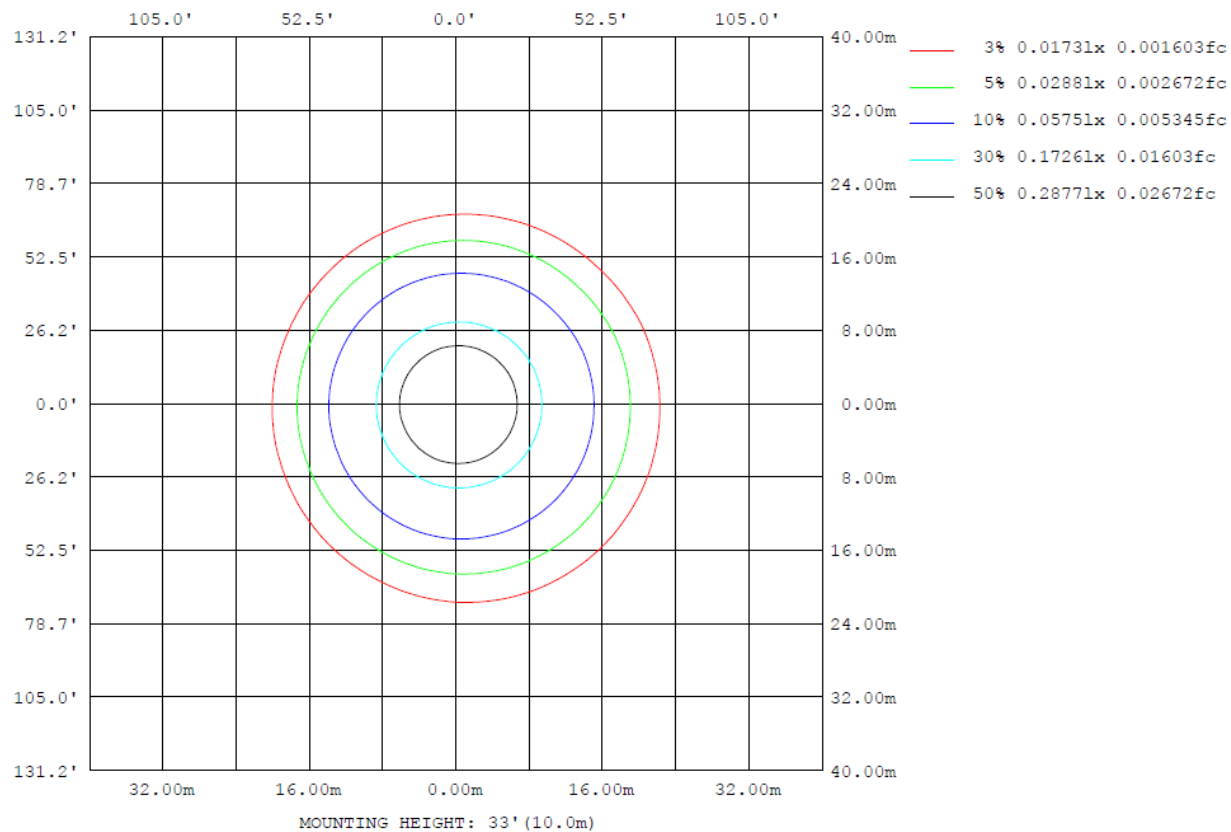


**Note:**The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.



## ISOLUX DIAGRAM

Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A





## LED Avg.L Report

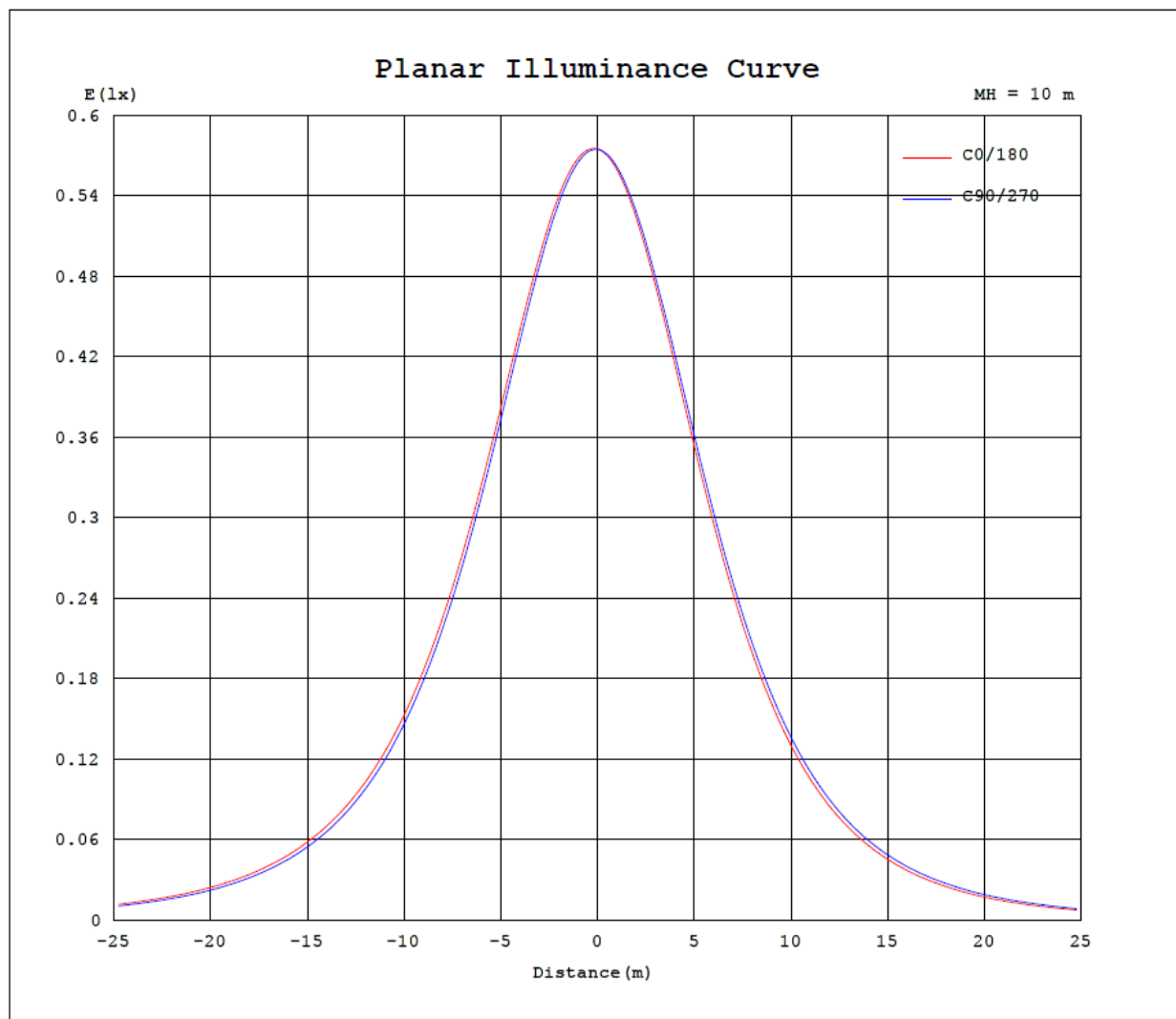
Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A

AvgL	cd/m2
L_0~180 (65) av	517802
L_0~180 (75) av	437102
L_0~180 (85) av	301658
L_90~270 (65) av	514907
L_90~270 (75) av	433232
L_90~270 (85) av	265255
L_45 (65) av	510836
L_45 (75) av	426107
L_45 (85) av	281187

Standard: GB/T 29293-2012



## Planar Illuminance Curve





# LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:12.00V I:0.1010A P:1.210W PF:0.9984 Lamp Flux:170.025x1 lm		
NAME:	TYPE:N/A	WEIGHT:N/A
SPEC.:N/A	DIM.: N/A	SERIAL No.:N/A
MFR.:	SUR.:N/A	Shielding Angle:N/A

Table--1

UNIT: cd

C (DEG) y (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5	57.5			
5	57.7	57.7	57.7	57.6	57.5	57.3	57.1	57.0	56.9	56.9	56.9	57.0	57.1	57.3	57.5	57.6			
10	57.5	57.5	57.5	57.3	57.0	56.7	56.3	56.0	55.9	55.8	55.9	56.1	56.3	56.7	57.0	57.3			
15	56.8	56.9	56.8	56.5	56.1	55.6	55.0	54.6	54.4	54.3	54.4	54.7	55.1	55.6	56.1	56.5			
20	55.6	55.8	55.7	55.3	54.7	54.1	53.4	52.8	52.5	52.4	52.5	52.8	53.4	54.1	54.7	55.3			
25	54.1	54.3	54.1	53.6	53.0	52.1	51.3	50.5	50.2	50.0	50.1	50.6	51.3	52.1	53.0	53.7			
30	52.0	52.3	52.1	51.6	50.7	49.7	48.7	47.9	47.4	47.2	47.4	47.9	48.7	49.7	50.7	51.6			
35	49.6	49.8	49.7	49.0	48.1	46.9	45.8	44.8	44.3	44.0	44.2	44.8	45.8	46.9	48.1	49.1			
40	46.7	47.0	46.8	46.1	45.0	43.7	42.4	41.3	40.8	40.4	40.6	41.3	42.4	43.7	45.0	46.1			
45	43.3	43.7	43.5	42.7	41.5	40.1	38.7	37.4	36.8	36.5	36.7	37.5	38.6	40.0	41.4	42.7			
50	39.6	40.0	39.7	38.9	37.6	36.1	34.5	33.2	32.5	32.1	32.4	33.2	34.4	35.8	37.4	38.9			
55	35.4	35.8	35.6	34.7	33.3	31.7	30.0	28.6	27.9	27.5	27.7	28.6	29.9	31.3	32.9	34.6			
60	30.9	31.3	31.1	30.1	28.7	26.8	25.1	23.7	23.0	22.5	22.7	23.7	25.0	26.4	28.0	30.0			
65	26.0	26.4	26.2	25.2	23.7	21.5	19.9	18.5	17.8	17.2	17.5	18.5	19.8	21.2	22.8	25.0			
70	20.8	21.3	21.0	20.1	18.4	16.1	14.5	13.2	12.4	11.5	11.8	13.2	14.5	15.9	17.6	19.8			
75	15.4	15.8	15.6	14.7	13.1	11.0	9.37	8.11	7.24	6.50	6.70	7.94	9.30	10.7	12.5	14.5			
80	9.91	10.0	9.86	9.35	8.02	6.27	4.72	3.57	2.93	2.37	2.69	3.35	4.66	5.95	7.55	9.25			
85	4.83	5.03	4.84	4.19	3.37	2.19	1.25	0.63	0.42	0.26	0.35	0.63	1.25	2.18	3.36	4.53			
90	0.91	1.04	0.89	0.54	0.15	0.02	0.01	0.02	0.01	0.01	0.01	0.00	0.01	0.06	0.32	0.81			
95	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
100	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
105	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00			
110	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00			
115	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
120	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01			
125	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01			
130	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02			
135	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02			
140	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02			
145	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03			
150	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03			
155	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04			
160	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04			
165	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05			
170	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05			
175	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06			
180	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07			