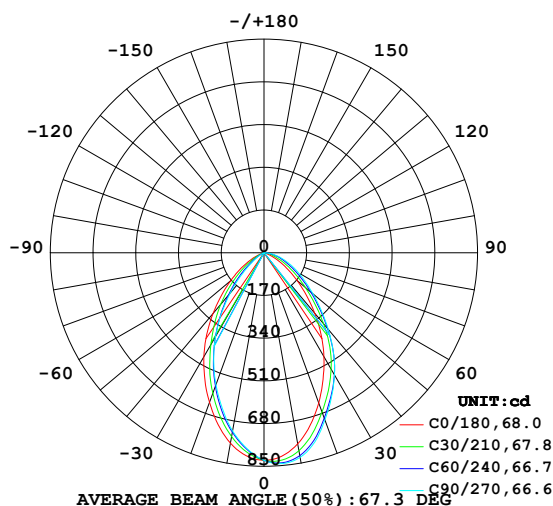


**LUMINAIRE PHOTOMETRIC TEST REPORT**

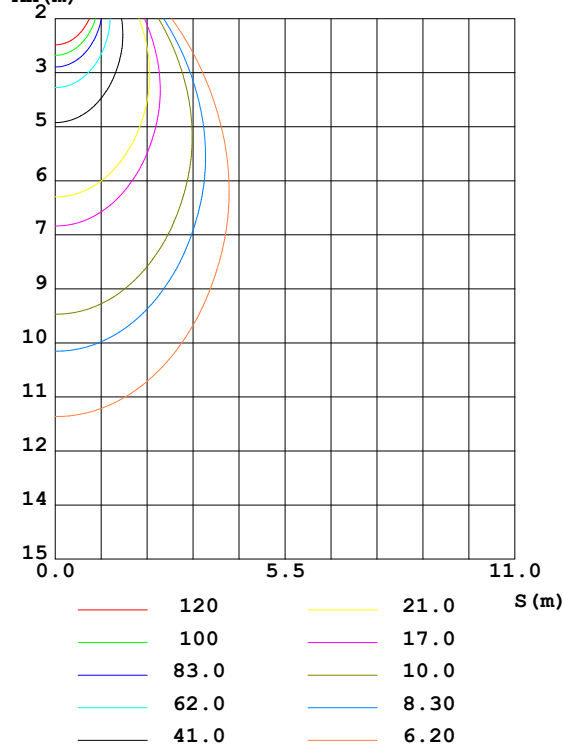
Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi 77\text{mm} \times \text{H}100\text{mm}$	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 57.62 lm/W			
MODEL	CITIZEN-4000K	I <sub>max</sub> (cd)	842.2	S/MH (C0/180)	0.94
NOMINAL POWER (W)	21	LOR (%)	100.0	S/MH (C90/270)	0.82
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1146.0	$\eta$ UP, DN (C0-180)	0.0, 60.1
NOMINAL FLUX (lm)	1146.02	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 39.9
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE (V)	220	$\eta$ down (%)	100.0	CIBSE SHR MAX	1.05

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Meng Yongjian  
Test Date: 2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity: 52%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

### ZONAL FLUX DIAGRAM

#### ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	772.5	812.6	826.8	809.6	769.7	731.9	720.6	736.5	0- 10	76.25	76.25	6.65,6.65
20	636.9	692.2	708.4	688.1	633.8	576.2	558.9	584.6	10- 20	198.7	274.9	24,24
30	477.1	552.6	561.0	548.6	478.8	398.3	386.2	405.7	20- 30	255.3	530.2	46.3,46.3
40	314.5	383.0	398.1	381.8	315.4	240.0	209.9	238.4	30- 40	245.3	775.5	67.7,67.7
50	172.1	230.5	254.6	233.2	173.5	114.3	71.69	111.9	40- 50	181.8	957.4	83.5,83.5
60	73.43	129.1	157.1	134.6	74.94	32.79	16.73	30.49	50- 60	109.0	1066	93.1,93.1
70	11.04	62.59	88.16	70.21	14.14	0.9068	1.051	1.710	60- 70	52.55	1119	97.6,97.6
80	0.3494	23.56	36.58	25.84	1.376	0.3472	0.5660	1.080	70- 80	21.96	1141	99.6,99.6
90	0.0936	0.0873	0.0831	0.0746	0.0609	0.1331	0.2034	0.1843	80- 90	5.095	1146	100,100
100									90-100			
110									100-110			
120									110-120			
130									120-130			
140									130-140			
150									140-150			
160									150-160			
170									160-170			
180									170-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 876.07 lm

%lum = 76.4%

%lamp = 76.4%

Conical surface Flux(120deg): 1066.4 lm

%lum = 93.1%

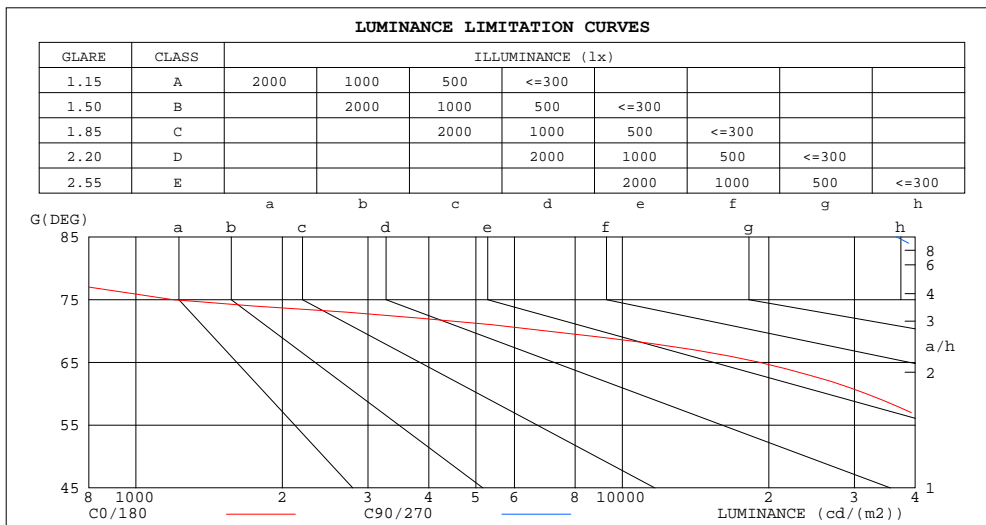
%lamp = 93.1%

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi$ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	427	36580
80	434	45253
75	1188	51004
70	6967	55371
65	19133	61107
60	31709	67512
55	44333	75151
50	57813	85091
45	72697	97414

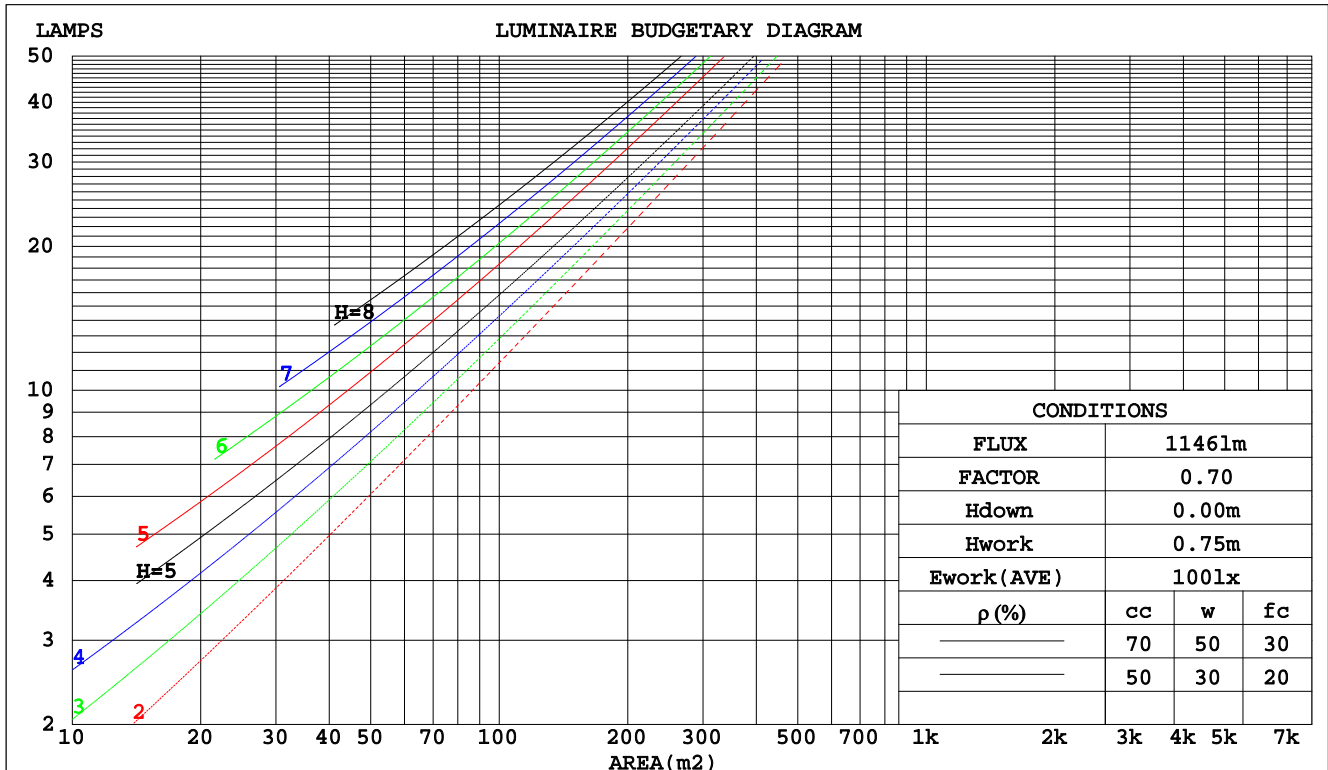
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:

**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi$ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

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						Coefficients of Utilization(CU)									
0.0	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	.00
1.0	1.08	1.05	1.02	1.06	1.03	1.00	1.02	.99	.97	.98	.96	.94	.94	.93	.91	.90
2.0	.98	.92	.88	.96	.91	.87	.92	.88	.85	.89	.86	.83	.86	.84	.81	.79
3.0	.89	.82	.77	.87	.81	.76	.84	.79	.75	.82	.77	.74	.79	.76	.73	.71
4.0	.81	.74	.68	.79	.73	.68	.77	.71	.67	.75	.70	.66	.73	.69	.65	.63
5.0	.74	.66	.61	.73	.66	.61	.71	.65	.60	.69	.64	.59	.67	.63	.59	.57
6.0	.68	.60	.55	.67	.60	.55	.65	.59	.54	.64	.58	.54	.62	.57	.54	.52
7.0	.63	.55	.50	.62	.55	.50	.60	.54	.49	.59	.53	.49	.58	.53	.49	.47
8.0	.58	.51	.46	.57	.50	.46	.56	.50	.45	.55	.49	.45	.54	.49	.45	.43
9.0	.54	.47	.42	.53	.47	.42	.52	.46	.42	.51	.46	.42	.50	.45	.41	.40
10.0	.50	.43	.39	.50	.43	.39	.49	.43	.39	.48	.42	.38	.47	.42	.38	.37



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:

## WEC AND CCEC

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi$ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

$\rho_{cc}$	80%			70%			50%			30%			10%			0	
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
$\rho_{fc}$	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.231	.131	.042	.224	.128	.041	.211	.121	.039	.199	.115	.037	.188	.109	.035		
2.0	.223	.122	.037	.217	.119	.037	.206	.114	.036	.195	.110	.034	.186	.105	.033		
3.0	.211	.112	.034	.206	.110	.033	.196	.106	.032	.187	.103	.031	.179	.099	.031		
4.0	.199	.104	.030	.195	.102	.030	.186	.099	.029	.178	.096	.029	.171	.093	.028		
5.0	.188	.096	.028	.184	.094	.027	.176	.092	.027	.169	.089	.027	.163	.087	.026		
6.0	.177	.089	.025	.174	.088	.025	.167	.086	.025	.161	.084	.025	.155	.082	.024		
7.0	.167	.083	.023	.164	.082	.023	.158	.080	.023	.153	.078	.023	.148	.077	.023		
8.0	.158	.077	.022	.156	.077	.022	.150	.075	.021	.145	.074	.021	.141	.072	.021		
9.0	.150	.073	.020	.148	.072	.020	.143	.071	.020	.138	.069	.020	.134	.068	.020		
10.0	.143	.068	.019	.140	.068	.019	.136	.067	.019	.132	.066	.019	.128	.064	.018		

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.175	.157	.141	.150	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.163	.132	.106	.140	.114	.092	.096	.079	.064	.055	.046	.038	.018	.015	.012	
3.0	.153	.114	.083	.131	.098	.072	.090	.068	.050	.052	.040	.030	.017	.013	.010	
4.0	.145	.100	.066	.124	.086	.057	.085	.060	.040	.049	.035	.024	.016	.011	.008	
5.0	.137	.089	.053	.118	.077	.047	.081	.054	.033	.047	.032	.019	.015	.010	.006	
6.0	.130	.080	.044	.112	.069	.039	.077	.049	.027	.045	.029	.016	.014	.009	.005	
7.0	.124	.073	.037	.106	.063	.033	.073	.044	.023	.043	.026	.014	.014	.009	.005	
8.0	.118	.067	.032	.101	.058	.028	.070	.041	.020	.041	.024	.012	.013	.008	.004	
9.0	.112	.062	.028	.097	.054	.024	.067	.038	.017	.039	.022	.010	.013	.007	.003	
10.0	.107	.058	.025	.092	.050	.022	.064	.035	.015	.037	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:

## UGR(Unified Glare Rating) Table

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm										
NAME: VW68-18W-940-WW					TYPE:Downlight			SERIAL No.:		
SPEC.:4000K					DIM.: $\phi 77\text{mm} \times H100\text{mm}$					
MFR.: NEKO LIGHTING AG										
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	25.6	26.9	25.9	27.0	27.2	27.4	28.7	27.7	28.9	29.0
3H	25.7	26.9	26.0	27.1	27.3	28.5	29.6	28.8	29.8	30.0
4H	25.7	26.7	26.0	27.0	27.2	28.9	30.0	29.2	30.2	30.5
6H	25.6	26.6	25.9	26.8	27.1	29.2	30.2	29.6	30.5	30.8
8H	25.5	26.5	25.9	26.8	27.1	29.3	30.3	29.7	30.6	30.9
12H	25.5	26.4	25.8	26.7	27.0	29.4	30.3	29.7	30.6	30.9
4H 2H	26.1	27.2	26.4	27.4	27.6	27.6	28.7	27.9	28.9	29.2
3H	26.4	27.3	26.7	27.6	27.9	28.9	29.8	29.2	30.1	30.4
4H	26.4	27.3	26.8	27.6	27.9	29.4	30.3	29.8	30.6	30.9
6H	26.4	27.1	26.8	27.4	27.8	29.9	30.6	30.3	31.0	31.3
8H	26.3	27.0	26.7	27.4	27.7	30.1	30.8	30.5	31.1	31.5
12H	26.3	26.9	26.7	27.3	27.7	30.2	30.8	30.6	31.2	31.6
8H 4H	26.7	27.4	27.1	27.7	28.1	29.5	30.2	29.9	30.5	30.9
6H	26.7	27.3	27.2	27.7	28.1	30.1	30.6	30.5	31.0	31.4
8H	26.7	27.2	27.2	27.6	28.1	30.3	30.8	30.7	31.2	31.6
12H	26.7	27.1	27.1	27.5	28.0	30.4	30.9	30.9	31.3	31.8
12H 4H	26.7	27.4	27.2	27.7	28.1	29.4	30.1	29.9	30.4	30.8
6H	26.8	27.3	27.3	27.7	28.2	30.0	30.5	30.5	31.0	31.4
8H	26.8	27.2	27.3	27.7	28.2	30.3	30.7	30.8	31.2	31.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.9 / - 1.1					+ 0.3 / - 0.4				
1.5H	+ 0.4 / - 0.9					+ 0.2 / - 0.2				
2.0H	+ 1.2 / - 2.1					+ 0.7 / - 0.6				

CIE Pub.117, 1146 lm Total Lamp Luminous Flux Correct ( $8\log(F/F_0) = 0.5$ )

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:

### UTILIZATION FACTORS TABLE

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\varnothing 77\text{mm} \times H100\text{mm}$	
MFR.: NEKO LIGHTING AG		

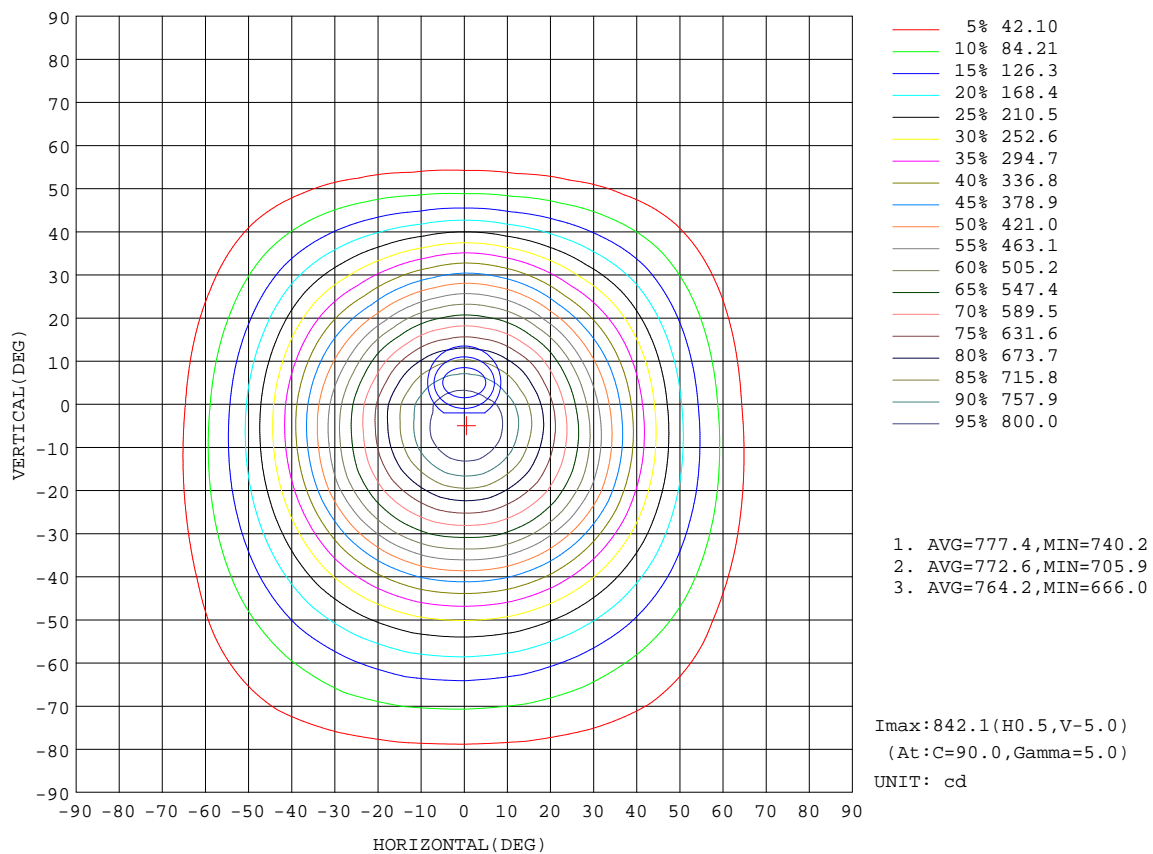
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	71	62	56	70	62	56	69	61	56	51
0.80	81	72	66	80	71	66	78	71	66	60
1.00	88	79	74	87	79	74	85	80	73	68
1.25	94	86	81	92	85	80	90	84	80	74
1.50	98	91	86	96	90	85	94	88	84	78
2.00	103	96	92	101	95	91	98	93	90	83
2.50	105	100	95	103	98	94	100	96	93	86
3.00	108	103	99	106	101	98	102	98	95	88
4.00	110	106	103	108	105	102	104	101	99	91
5.00	112	109	106	110	107	104	106	103	101	93
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Meng Yongjian  
 Test Date:2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
 Humidity:52%  
 Test Distance:5.850m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi$ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-06-10

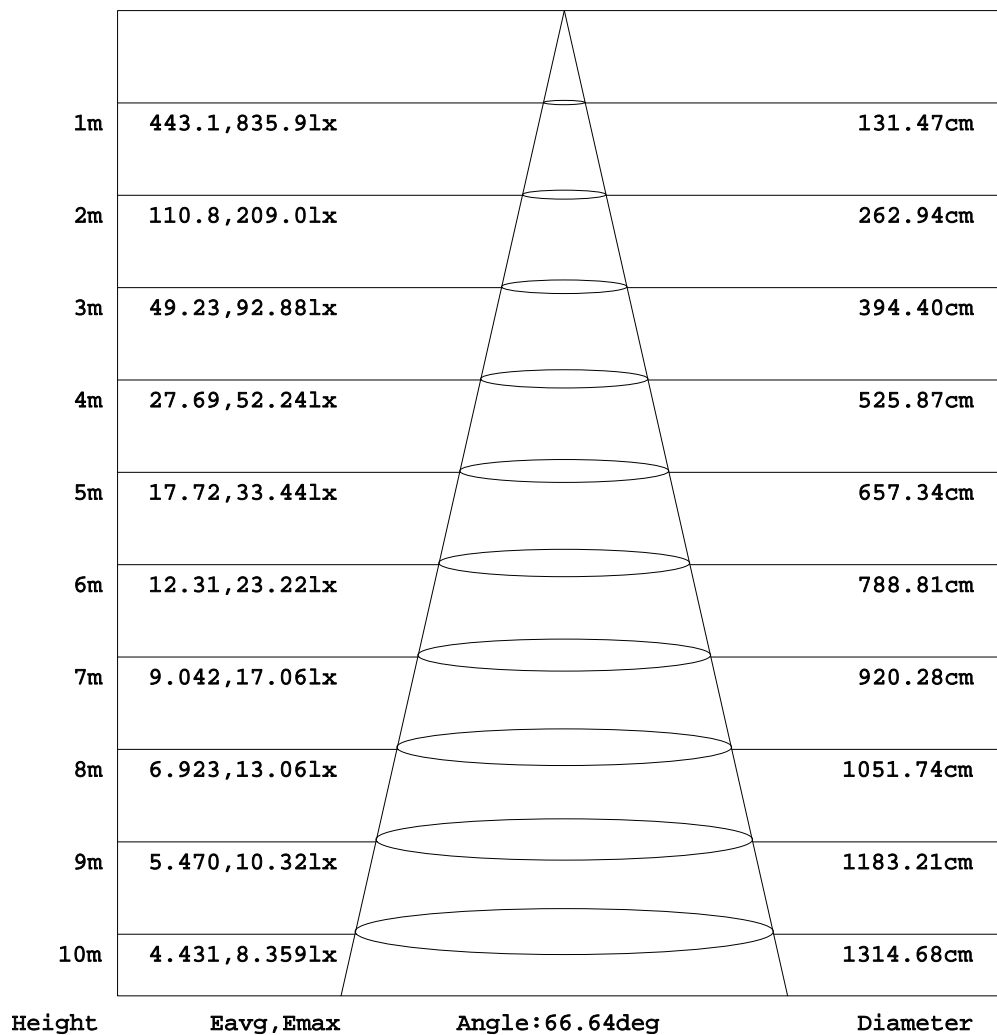
$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:



**AAI Figure**

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi 77\text{mm} \times H100\text{mm}$	
MFR.: NEKO LIGHTING AG		

Flux out:633.3 lm



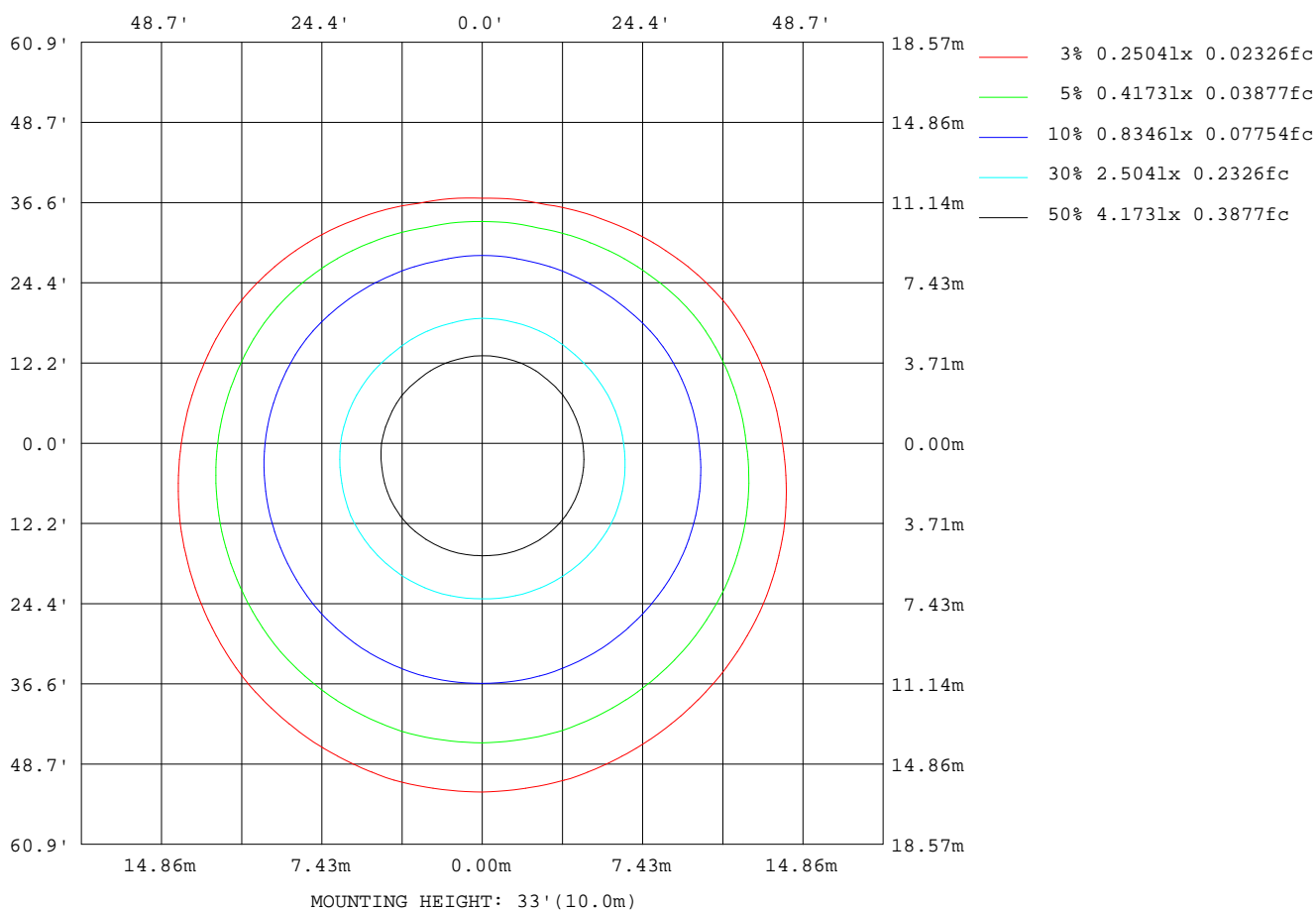
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:

**ISOLUX DIAGRAM**

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi 77\text{mm} \times \text{H}100\text{mm}$	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Meng Yongjian  
Test Date: 2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity: 52%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

### LED Avg.L Report

Test:U:220.7V I:0.0954A P:19.89W PF:0.9447 Freq:50.00Hz Lamp Flux:1146.02x1 lm		
NAME: VW68-18W-940-WW	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi$ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

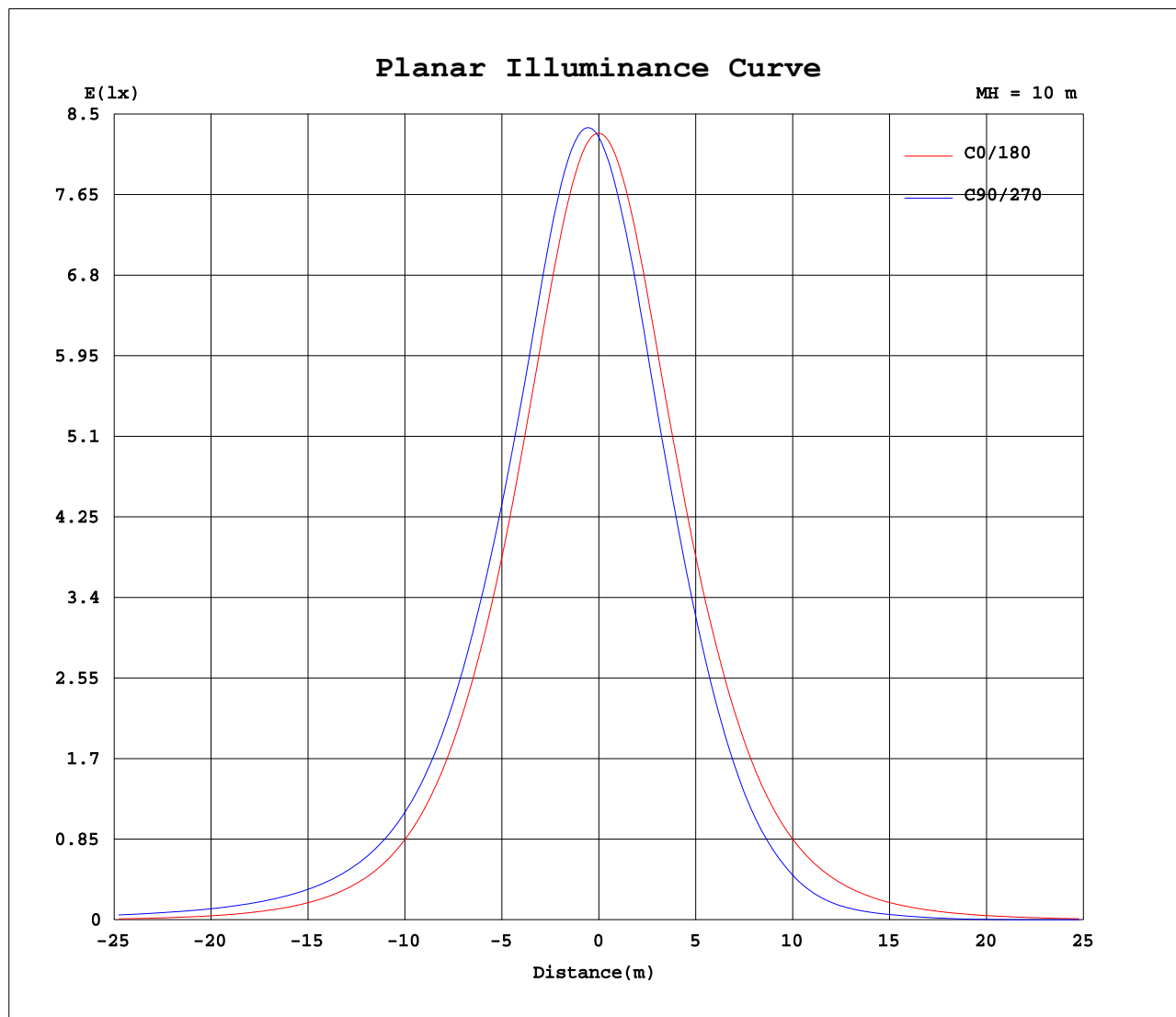
AvgL	cd/m2
L_0~180 (65) av	19587
L_0~180 (75) av	2235
L_0~180 (85) av	551
L_90~270 (65) av	30950
L_90~270 (75) av	25819
L_90~270 (85) av	18799
L_45 (65) av	26361
L_45 (75) av	19085
L_45 (85) av	11073

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:

### Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Meng Yongjian  
Test Date: 2019-06-10

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity: 52%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.288
Humidity:52%
Test Distance:5.850m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.288
Humidity:52%
Test Distance:5.850m [K=1.0000]
Remarks:

```