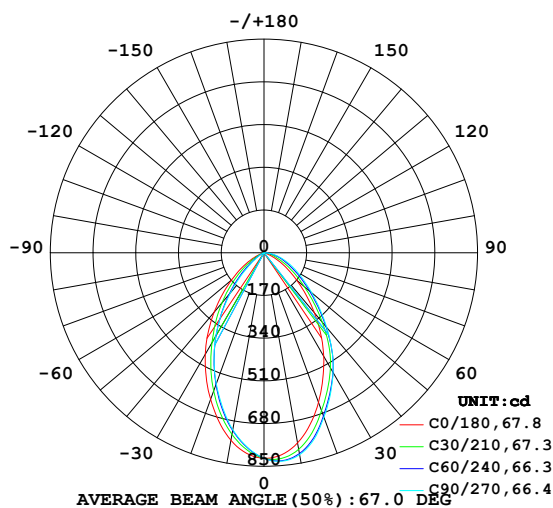


LUMINAIRE PHOTOMETRIC TEST REPORT

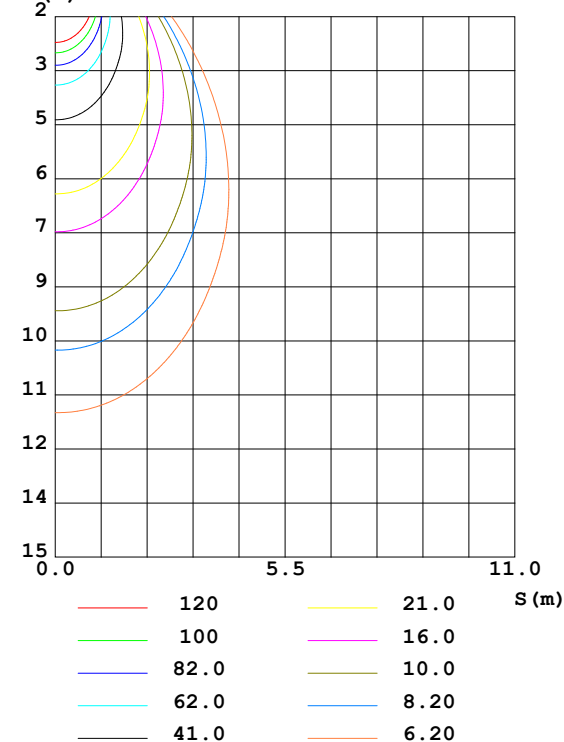
Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 56.19 lm/W			
MODEL	CITIZEN-3000K	I _{max} (cd)	833.2	S/MH (C0/180)	0.93
NOMINAL POWER (W)	21	LOR (%)	100.0	S/MH (C90/270)	0.82
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1128.6	η UP,DN (C0-180)	0.0,59.9
NOMINAL FLUX (lm)	1128.57	CIE CLASS	DIRECT	η UP,DN (C180-360)	0.0,40.1
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE (V)	220	η 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

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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	768.6	805.7	816.2	796.6	758.1	723.8	715.5	733.3	0- 10	75.50	75.50	6.69,6.69
20	634.5	684.6	697.1	673.9	620.9	567.6	555.4	584.0	10- 20	196.5	272.0	24.1,24.1
30	475.6	542.9	549.6	536.8	467.5	391.2	383.6	405.5	20- 30	251.9	523.8	46.4,46.4
40	312.5	374.7	388.3	372.0	308.1	233.4	207.6	240.4	30- 40	241.4	765.3	67.8,67.8
50	171.1	225.5	247.9	226.0	168.9	109.8	70.40	114.5	40- 50	178.5	943.7	83.6,83.6
60	73.69	127.0	153.2	130.1	72.09	30.22	16.58	32.42	50- 60	106.8	1051	93.1,93.1
70	12.60	63.13	86.66	67.31	12.02	0.8553	1.037	1.667	60- 70	51.51	1102	97.6,97.6
80	0.9256	24.10	35.93	24.26	0.7948	0.3380	0.5742	1.025	70- 80	21.56	1124	99.6,99.6
90	0.0956	0.0981	0.0896	0.0725	0.0608	0.1373	0.2010	0.1846	80- 90	4.989	1129	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): 863.99 lm

%lum = 76.6%

%lamp = 76.6%

Conical surface Flux(120deg): 1050.5 lm

%lum = 93.1%

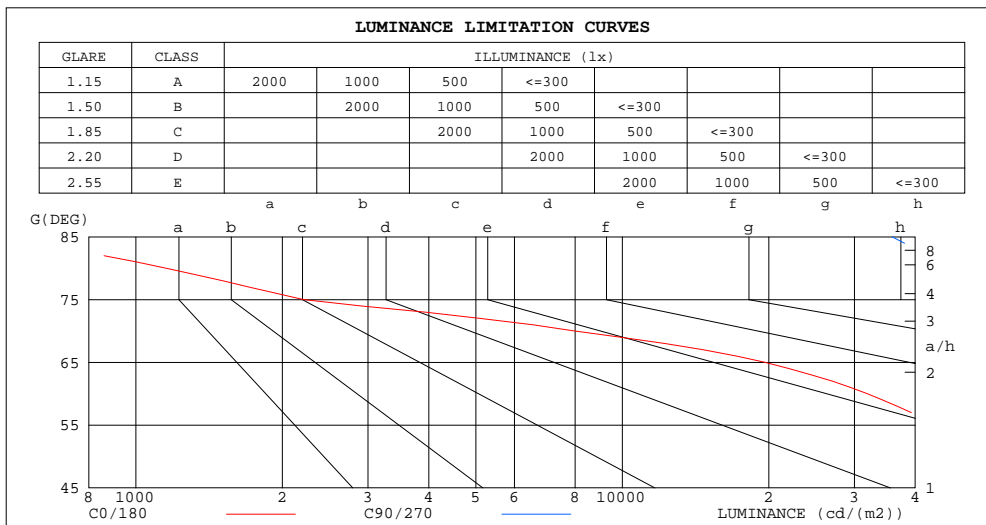
%lamp = 93.1%

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

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:

LUMINANCE LIMITATION CURVES

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi 77\text{mm} \times H100\text{mm}$	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	606	35845
80	1153	44497
75	2210	50201
70	7970	54488
65	19649	59859
60	31882	65906
55	44261	73278
50	57574	82934
45	72328	95026

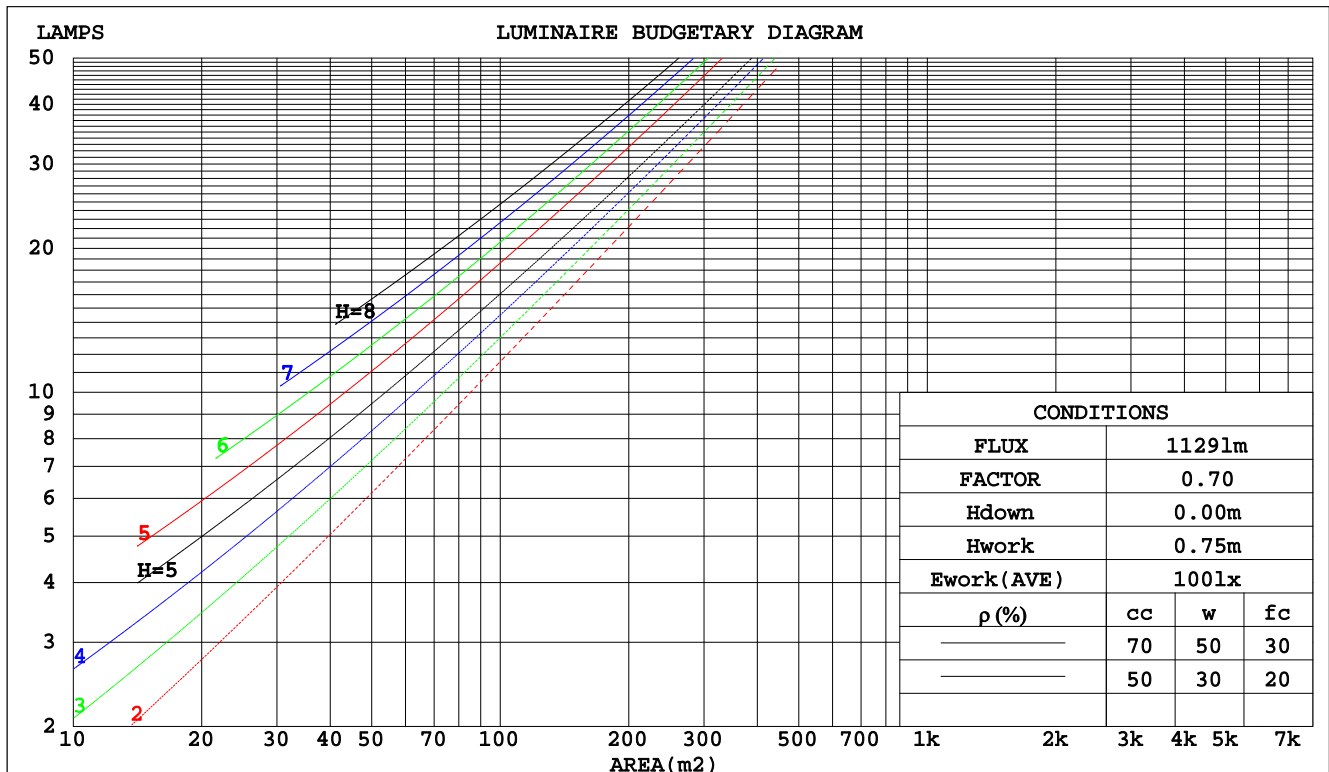
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-06-10

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:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi 77\text{mm} \times H100\text{mm}$	
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	1.00
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	.93	.89	.85	.89	.86	.83	.87	.84	.81	.80
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	.60	.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	.50	.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	.44	.39	.50	.43	.39	.49	.43	.39	.48	.43	.39	.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

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:

WEC AND CCEC

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

ρ_{cc}	80%			70%			50%			30%			10%			0	
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
ρ_{fc}	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.230	.131	.041	.223	.127	.040	.211	.121	.039	.199	.115	.037	.188	.109	.035		
2.0	.222	.122	.037	.216	.119	.037	.205	.114	.035	.195	.109	.034	.186	.105	.033		
3.0	.211	.112	.034	.206	.110	.033	.196	.106	.032	.187	.103	.031	.179	.099	.031		
4.0	.199	.103	.030	.194	.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	.173	.088	.025	.167	.085	.025	.161	.083	.025	.155	.082	.024		
7.0	.167	.083	.023	.164	.082	.023	.158	.080	.023	.153	.078	.023	.147	.077	.023		
8.0	.158	.077	.022	.155	.077	.022	.150	.075	.021	.145	.074	.021	.140	.072	.021		
9.0	.150	.073	.020	.147	.072	.020	.143	.071	.020	.138	.069	.020	.134	.068	.020		
10.0	.142	.068	.019	.140	.068	.019	.136	.067	.019	.132	.065	.019	.128	.064	.018		

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{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	.144	.100	.066	.124	.086	.057	.085	.060	.040	.049	.035	.024	.016	.011	.008	
5.0	.137	.089	.054	.117	.077	.047	.081	.054	.033	.047	.032	.020	.015	.010	.006	
6.0	.130	.080	.044	.112	.069	.039	.077	.049	.027	.045	.029	.016	.014	.009	.005	
7.0	.123	.073	.038	.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

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:

UGR(Unified Glare Rating) Table

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm										
NAME: VW68-18W-930-WW					TYPE:Downlight			SERIAL No.:		
SPEC.:3000K					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	27.1	27.2	27.4	28.6	27.6	28.8	29.0
3H	25.8	26.9	26.1	27.1	27.4	28.4	29.6	28.7	29.8	30.0
4H	25.7	26.8	26.0	27.0	27.3	28.9	30.0	29.2	30.2	30.4
6H	25.7	26.7	26.0	26.9	27.2	29.2	30.2	29.5	30.5	30.7
8H	25.6	26.6	25.9	26.8	27.1	29.3	30.3	29.7	30.6	30.8
12H	25.6	26.5	25.9	26.8	27.1	29.4	30.3	29.7	30.6	30.9
4H 2H	26.1	27.2	26.4	27.4	27.7	27.6	28.7	27.9	28.9	29.1
3H	26.5	27.4	26.8	27.7	28.0	28.9	29.8	29.2	30.1	30.3
4H	26.5	27.3	26.9	27.6	28.0	29.4	30.3	29.8	30.6	30.9
6H	26.5	27.2	26.8	27.5	27.9	29.9	30.6	30.3	31.0	31.3
8H	26.4	27.1	26.8	27.5	27.8	30.1	30.8	30.5	31.1	31.5
12H	26.4	27.0	26.8	27.4	27.8	30.2	30.8	30.6	31.2	31.6
8H 4H	26.8	27.5	27.2	27.8	28.2	29.5	30.2	29.9	30.5	30.9
6H	26.8	27.4	27.3	27.8	28.2	30.1	30.6	30.5	31.0	31.5
8H	26.8	27.3	27.3	27.7	28.2	30.3	30.8	30.8	31.2	31.7
12H	26.8	27.2	27.3	27.7	28.1	30.5	30.9	30.9	31.3	31.8
12H 4H	26.8	27.5	27.2	27.8	28.2	29.5	30.1	29.9	30.5	30.9
6H	26.9	27.4	27.4	27.8	28.3	30.1	30.6	30.5	31.0	31.4
8H	26.9	27.4	27.4	27.8	28.3	30.3	30.7	30.8	31.2	31.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.8 / - 1.1					+ 0.3 / - 0.4				
1.5H	+ 0.4 / - 0.9					+ 0.2 / - 0.2				
2.0H	+ 1.2 / - 2.0					+ 0.7 / - 0.5				

CIE Pub.117, 1129 lm Total Lamp Luminous Flux Correct ($8\log(F/F_0) = 0.4$)

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

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:

UTILIZATION FACTORS TABLE

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\varnothing 77\text{mm} \times H100\text{mm}$	
MFR.: NEKO LIGHTING AG		

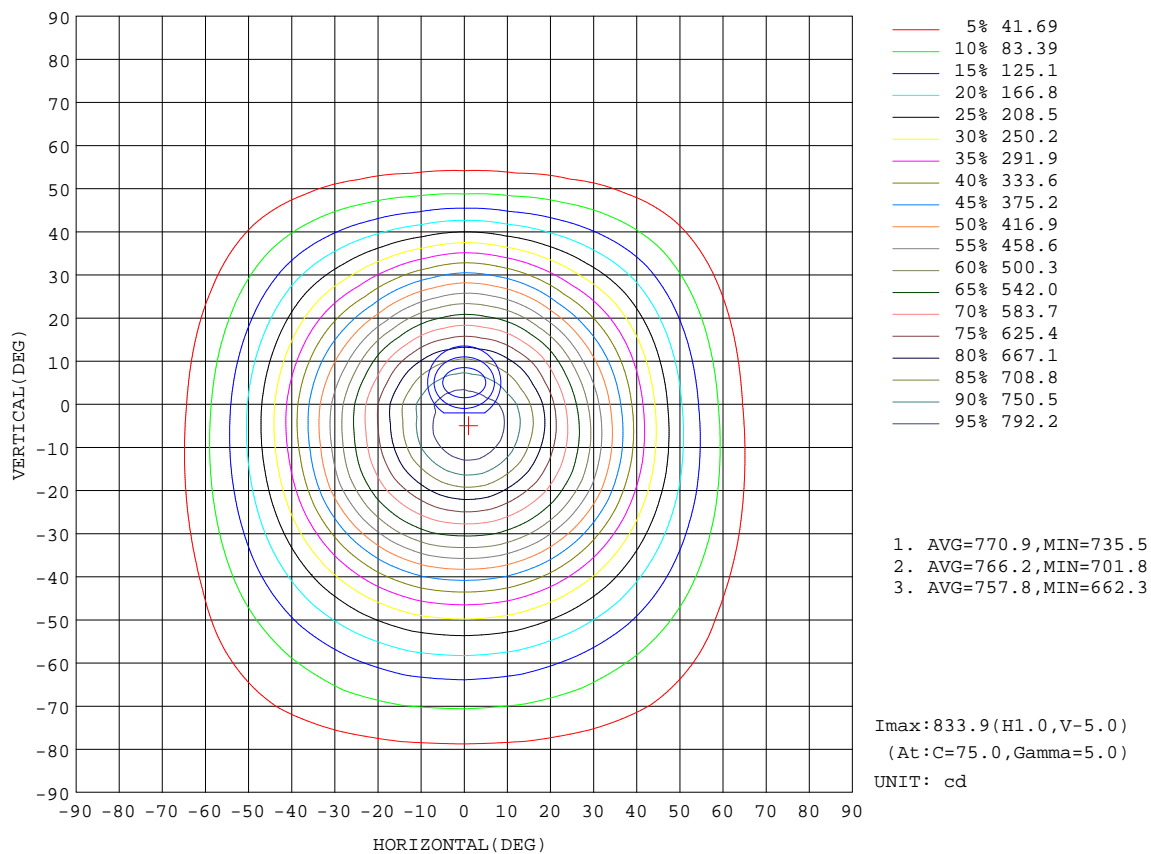
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	71	62	56	71	62	56	70	61	56	51
0.80	81	72	66	80	71	66	78	71	66	60
1.00	88	80	74	87	79	74	85	80	73	68
1.25	94	86	81	93	85	80	90	84	80	74
1.50	98	91	86	96	90	85	94	88	84	78
2.00	103	97	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	96	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

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:

ISOCANDELA DIAGRAM

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		



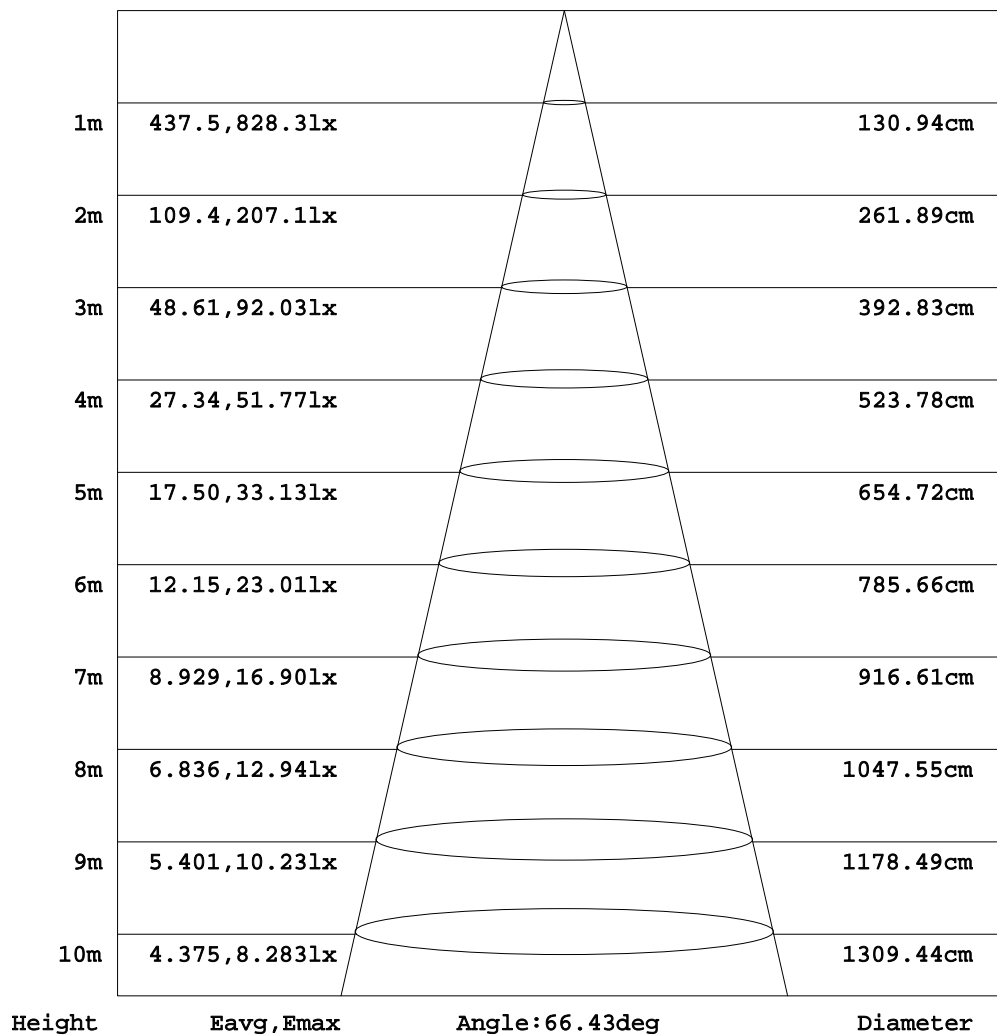
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Meng Yongjian
 Test Date:2019-06-10

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:

AAI Figure

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi 77\text{mm} \times H100\text{mm}$	
MFR.: NEKO LIGHTING AG		

Flux out:625.3 lm



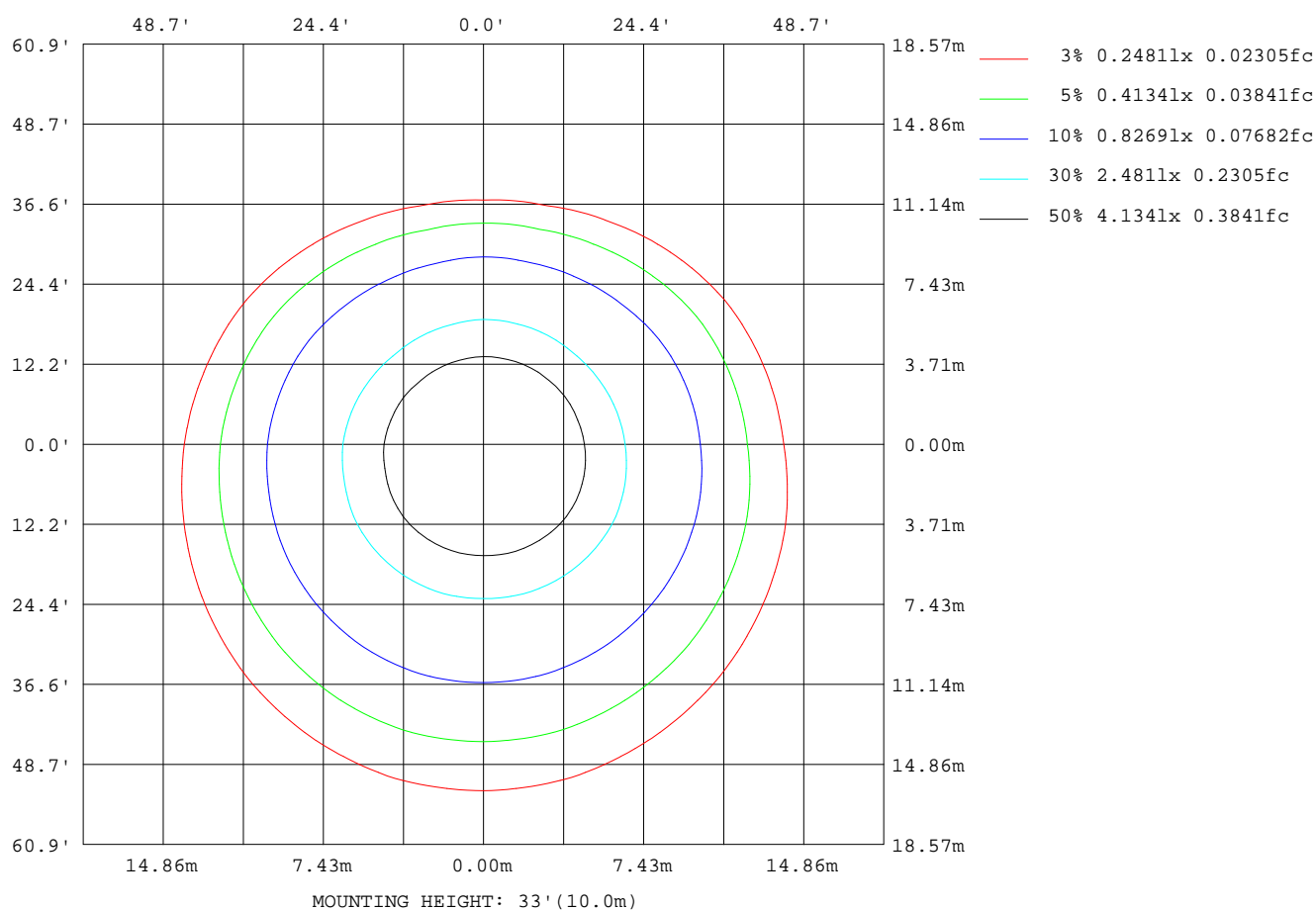
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

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:

ISOLUX DIAGRAM

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	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

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:

LED Avg.L Report

Test:U:220.7V I:0.0963A P:20.09W PF:0.9457 Freq:50.00Hz Lamp Flux:1128.57x1 lm		
NAME: VW68-18W-930-WW	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

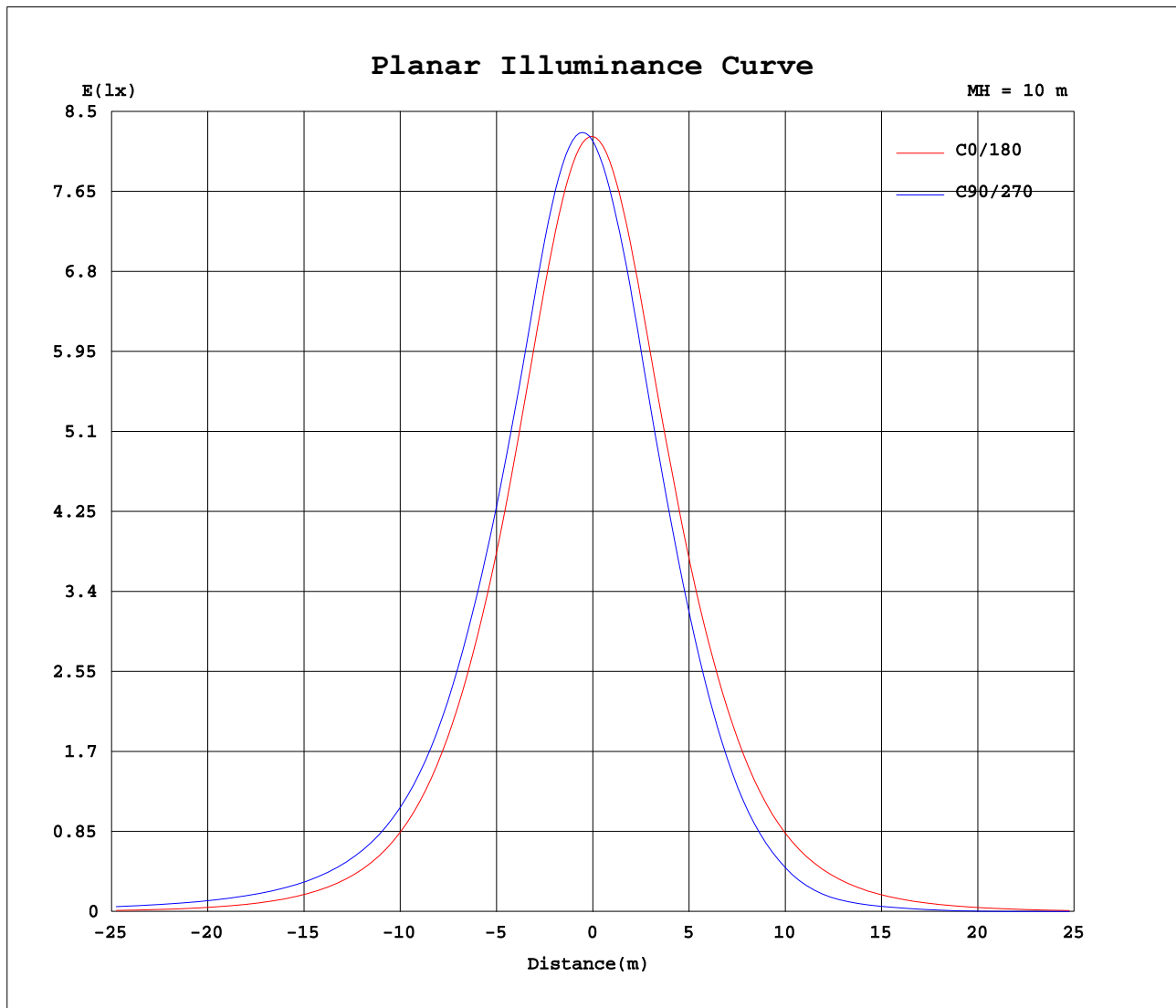
AvgL	cd/m2
L_0~180 (65) av	19255
L_0~180 (75) av	2190
L_0~180 (85) av	485
L_90~270 (65) av	30289
L_90~270 (75) av	25392
L_90~270 (85) av	18415
L_45 (65) av	25841
L_45 (75) av	18734
L_45 (85) av	10769

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

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:

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

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:

```

```

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:

```