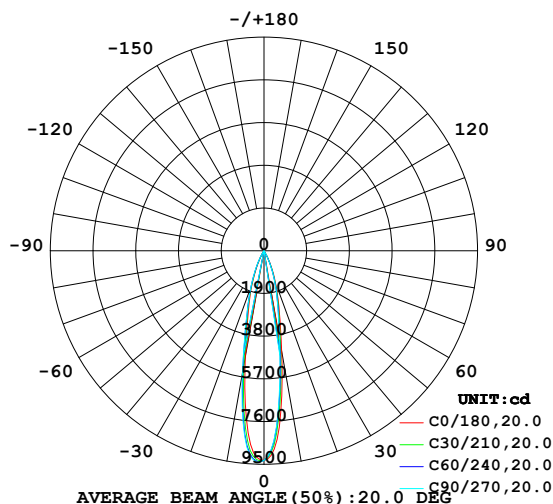


**LUMINAIRE PHOTOMETRIC TEST REPORT**

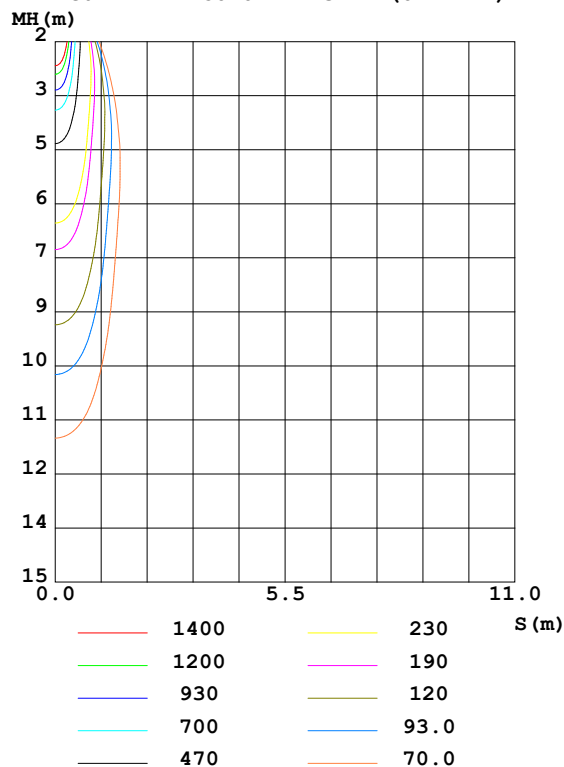
Test:U:220.7V I:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi$ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 82.73 lm/W			
MODEL	CITIZEN-4000K	I <sub>max</sub> (cd)	9393	S/MH (C0/180)	0.35
NOMINAL POWER (W)	21	LOR (%)	100.0	S/MH (C90/270)	0.39
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1747.4	$\eta$ UP, DN (C0-180)	0.0, 45.7
NOMINAL FLUX (lm)	1747.42	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 54.3
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE (V)	220	$\eta$ down (%)	100.0	CIBSE SHR MAX	1.00

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:2019-05-24

$\gamma$  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:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	4530	4184	3980	4201	4801	5249	5554	5154	0- 10	649.8	649.8	37.2, 37.2
20	1466	1368	1315	1360	1530	1603	1697	1618	10- 20	740.1	1390	79.5, 79.5
30	182.0	130.5	81.12	135.6	201.9	234.4	261.0	253.0	20- 30	333.0	1723	98.6, 98.6
40	6.985	6.237	5.414	5.528	6.074	6.260	6.553	6.970	30- 40	20.73	1744	99.8, 99.8
50	1.823	1.545	1.386	1.462	1.782	1.919	2.089	1.971	40- 50	2.728	1746	99.9, 99.9
60	0.3661	0.2858	0.2543	0.2552	0.3690	0.4442	0.4870	0.4486	50- 60	0.8056	1747	100, 100
70	0.0897	0.0678	0.0744	0.0568	0.0875	0.1137	0.1159	0.1027	60- 70	0.1645	1747	100, 100
80	0.0722	0.0568	0.0657	0.0546	0.0699	0.0831	0.0941	0.0830	70- 80	0.0851	1747	100, 100
90	0.0591	0.0612	0.0613	0.0568	0.0656	0.0525	0.0569	0.0590	80- 90	0.0736	1747	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): 1745.3 lm

%lum = 99.9%

%lamp = 99.9%

Conical surface Flux(120deg): 1747.1 lm

%lum = 100.0%

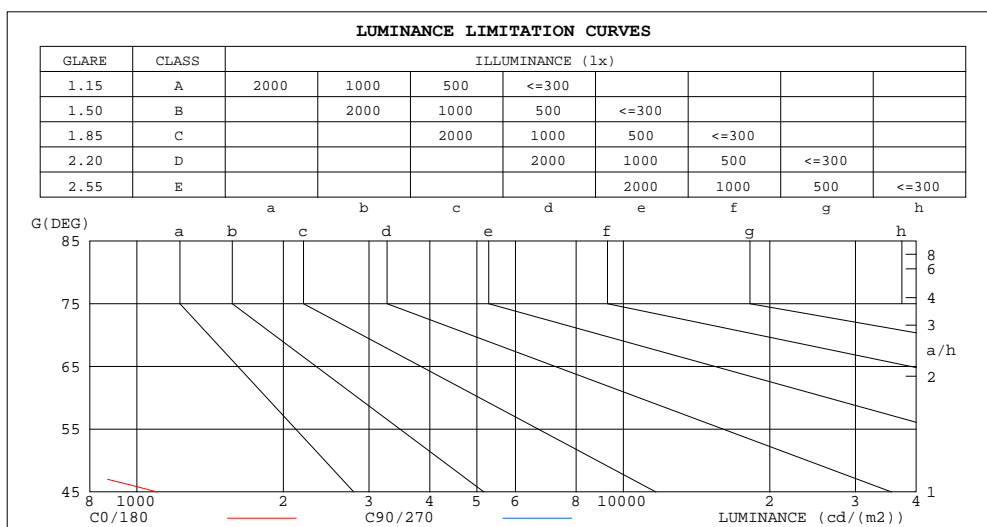
%lamp = 100.0%

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Meng Yongjian  
Test Date: 2019-05-24

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:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: $\phi 77\text{mm} \times \text{H}100\text{mm}$	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	167	156
80	89	81
75	65	58
70	56	47
65	66	47
60	157	109
55	324	236
50	609	463
45	1100	843

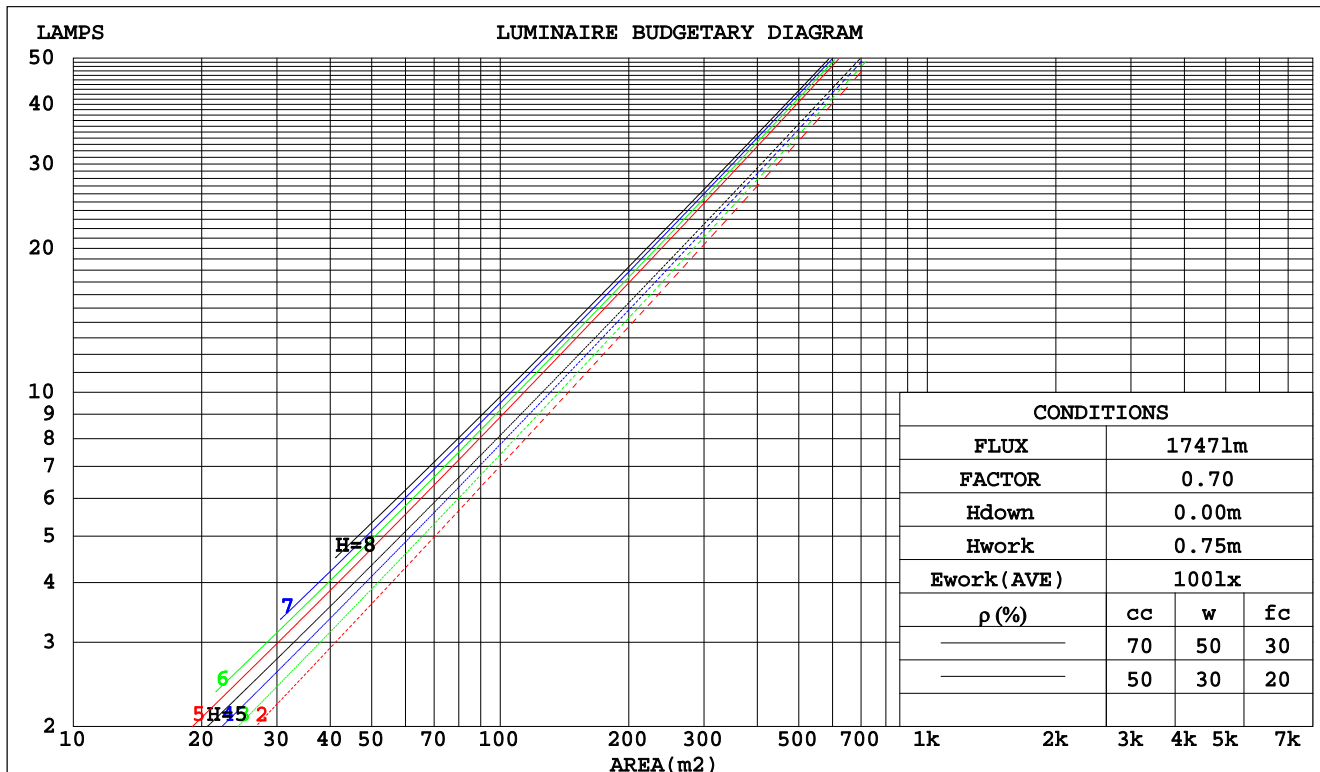
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-05-24

$\gamma$  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:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*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	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	1.13	1.11	1.10	1.11	1.09	1.08	1.07	1.06	1.05	1.03	1.02	1.01	.00	.99	.99	.97
2.0	1.08	1.05	1.03	1.06	1.04	1.02	1.03	1.01	.99	1.00	.99	.97	.98	.96	.95	.94
3.0	1.04	1.00	.97	1.02	.99	.97	.00	.97	.95	.98	.95	.94	.95	.94	.92	.91
4.0	.00	.96	.93	.99	.95	.92	.97	.94	.91	.95	.92	.90	.93	.91	.89	.88
5.0	.96	.92	.89	.95	.92	.89	.94	.91	.88	.92	.90	.87	.91	.89	.87	.86
6.0	.93	.89	.86	.92	.89	.86	.91	.88	.85	.90	.87	.85	.89	.86	.84	.83
7.0	.90	.86	.83	.90	.86	.83	.89	.85	.83	.88	.85	.82	.87	.84	.82	.81
8.0	.88	.84	.81	.87	.83	.81	.86	.83	.80	.85	.82	.80	.84	.82	.80	.79
9.0	.85	.81	.78	.85	.81	.78	.84	.80	.78	.83	.80	.78	.82	.80	.78	.77
10.0	.83	.79	.76	.82	.79	.76	.82	.78	.76	.81	.78	.76	.81	.78	.76	.75



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-05-24

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:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*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						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.133	.076	.024	.127	.072	.023	.114	.066	.021	.103	.059	.019	.093	.054	.017		
2.0	.123	.068	.021	.118	.065	.020	.108	.060	.019	.098	.055	.017	.090	.051	.016		
3.0	.115	.061	.018	.110	.059	.018	.102	.055	.017	.094	.051	.016	.087	.048	.015		
4.0	.107	.056	.016	.104	.054	.016	.097	.051	.015	.090	.048	.015	.084	.046	.014		
5.0	.101	.052	.015	.098	.050	.015	.092	.048	.014	.086	.046	.014	.081	.043	.013		
6.0	.096	.048	.014	.093	.047	.014	.088	.045	.013	.083	.043	.013	.078	.041	.012		
7.0	.091	.045	.013	.089	.044	.013	.084	.043	.012	.080	.041	.012	.076	.039	.012		
8.0	.087	.042	.012	.085	.042	.012	.081	.040	.012	.077	.039	.011	.074	.038	.011		
9.0	.083	.040	.011	.081	.040	.011	.078	.038	.011	.074	.037	.011	.071	.036	.010		
10.0	.080	.038	.011	.078	.038	.011	.075	.037	.010	.072	.036	.010	.069	.035	.010		

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020		
1.0	.168	.158	.148	.144	.135	.128	.098	.093	.088	.057	.054	.051	.018	.017	.017		
2.0	.150	.133	.118	.128	.114	.102	.088	.079	.071	.051	.046	.042	.016	.015	.014		
3.0	.135	.113	.096	.115	.098	.083	.079	.068	.059	.046	.040	.035	.015	.013	.011		
4.0	.122	.098	.079	.105	.085	.069	.072	.059	.049	.042	.035	.029	.013	.011	.009		
5.0	.111	.085	.066	.096	.074	.058	.066	.052	.041	.038	.030	.024	.012	.010	.008		
6.0	.102	.075	.056	.088	.065	.049	.061	.046	.035	.035	.027	.021	.011	.009	.007		
7.0	.095	.067	.048	.081	.058	.042	.056	.041	.030	.033	.024	.018	.011	.008	.006		
8.0	.088	.060	.041	.076	.052	.036	.053	.037	.026	.031	.022	.015	.010	.007	.005		
9.0	.083	.055	.036	.071	.047	.031	.049	.033	.022	.029	.020	.013	.009	.006	.004		
10.0	.078	.050	.032	.067	.043	.028	.046	.031	.020	.027	.018	.012	.009	.006	.004		

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-05-24

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:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm										
NAME: VF68-18W-940-18°					TYPE:Downlight			SERIAL No.:		
SPEC.:4000K					DIM.: φ77mm*H100mm					
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	-4.1	-3.5	-3.9	-3.3	-3.2	-7.8	-7.2	-7.6	-7.1	-6.9
3H	-4.3	-3.7	-4.0	-3.5	-3.3	-8.0	-7.4	-7.7	-7.2	-7.0
4H	-4.3	-3.8	-4.1	-3.6	-3.4	-8.0	-7.5	-7.8	-7.3	-7.1
6H	-4.4	-3.9	-4.1	-3.7	-3.4	-8.1	-7.6	-7.8	-7.4	-7.1
8H	-4.5	-3.9	-4.2	-3.7	-3.4	-8.1	-7.6	-7.8	-7.4	-7.1
12H	-4.5	-4.0	-4.2	-3.7	-3.5	-8.2	-7.7	-7.9	-7.4	-7.1
4H 2H	-4.3	-3.8	-4.1	-3.6	-3.4	-8.0	-7.5	-7.8	-7.3	-7.1
3H	-4.5	-4.0	-4.2	-3.8	-3.5	-8.2	-7.7	-7.9	-7.4	-7.2
4H	-4.6	-4.1	-4.3	-3.9	-3.6	-8.3	-7.8	-7.9	-7.5	-7.2
6H	-4.7	-4.3	-4.3	-4.0	-3.6	-8.3	-7.9	-8.0	-7.6	-7.3
8H	-4.7	-4.4	-4.3	-4.0	-3.6	-8.4	-8.0	-8.0	-7.6	-7.3
12H	-4.8	-4.4	-4.4	-4.1	-3.7	-8.4	-8.0	-8.0	-7.7	-7.3
8H 4H	-4.7	-4.4	-4.4	-4.0	-3.7	-8.4	-8.0	-8.0	-7.7	-7.3
6H	-4.8	-4.5	-4.4	-4.1	-3.7	-8.5	-8.2	-8.1	-7.8	-7.4
8H	-4.9	-4.6	-4.4	-4.2	-3.8	-8.5	-8.2	-8.0	-7.8	-7.4
12H	-4.9	-4.7	-4.5	-4.2	-3.8	-8.5	-8.2	-8.0	-7.8	-7.3
12H 4H	-4.8	-4.5	-4.4	-4.1	-3.7	-8.5	-8.1	-8.1	-7.8	-7.4
6H	-4.9	-4.6	-4.5	-4.2	-3.8	-8.5	-8.2	-8.1	-7.8	-7.4
8H	-4.9	-4.7	-4.5	-4.3	-3.8	-8.5	-8.3	-8.1	-7.8	-7.4
Variations with the observer position at spacings:										
S = 1.0H	+ 3.0 / - 7.7					+ 2.6 / - 7.6				
1.5H	+ 4.6 / - 6.5					+ 4.3 / - 5.9				
2.0H	+ 5.7 / - 7.1					+ 5.1 / - 5.9				

CIE Pub.117, 1747 lm Total Lamp Luminous Flux Correct ( $8\log(F/F_0) = 1.9$ )

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-05-24

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:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		

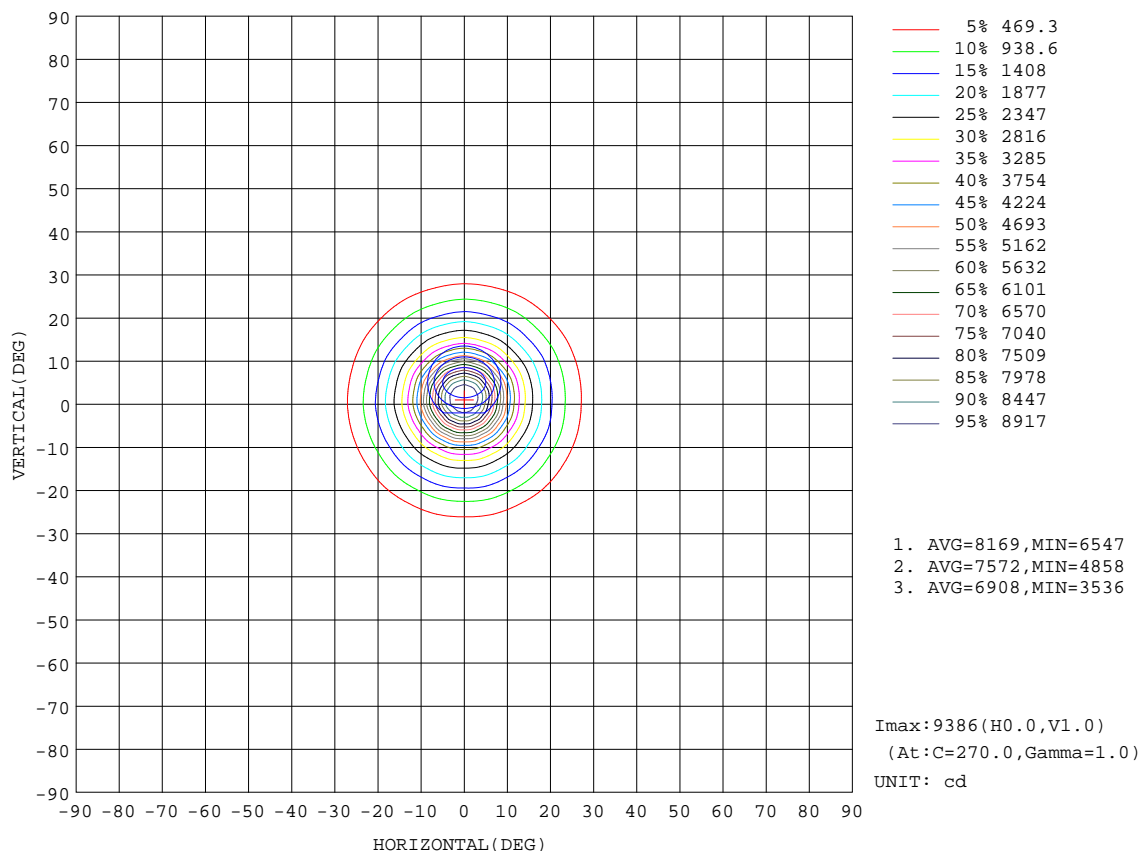
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	91	86	82	91	86	82	90	85	82	79
0.80	98	93	90	98	93	90	97	92	89	86
1.00	102	97	94	101	97	94	100	96	93	90
1.25	105	101	98	104	100	97	103	99	97	93
1.50	108	104	101	107	103	100	105	102	99	95
2.00	110	106	103	109	105	103	106	103	101	96
2.50	111	108	105	110	107	104	107	104	103	97
3.00	113	110	107	111	108	106	108	106	104	98
4.00	115	112	110	113	111	109	109	107	106	99
5.00	116	114	112	114	112	111	110	109	108	100
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:2019-05-24

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:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-05-24

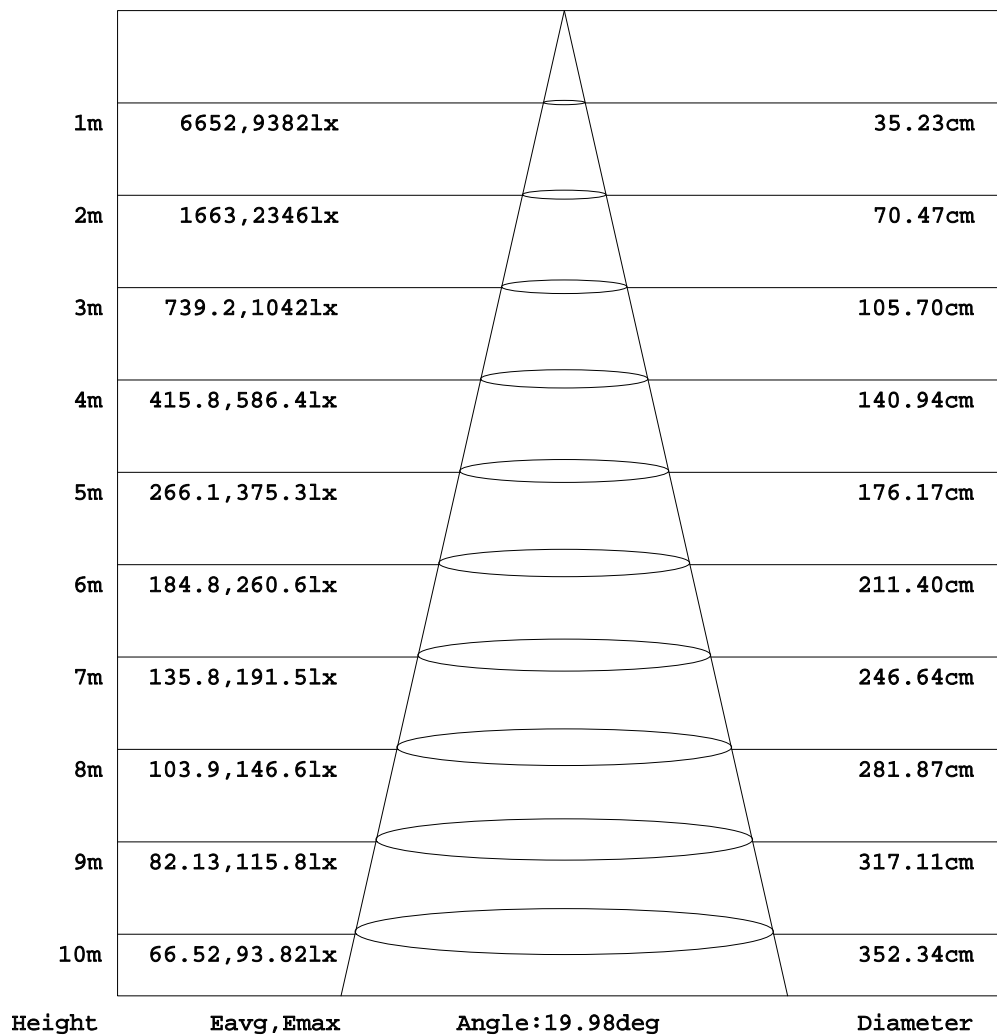
γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:



**AAI Figure**

Test:U:220.7V I:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		

Flux out:649.8 lm



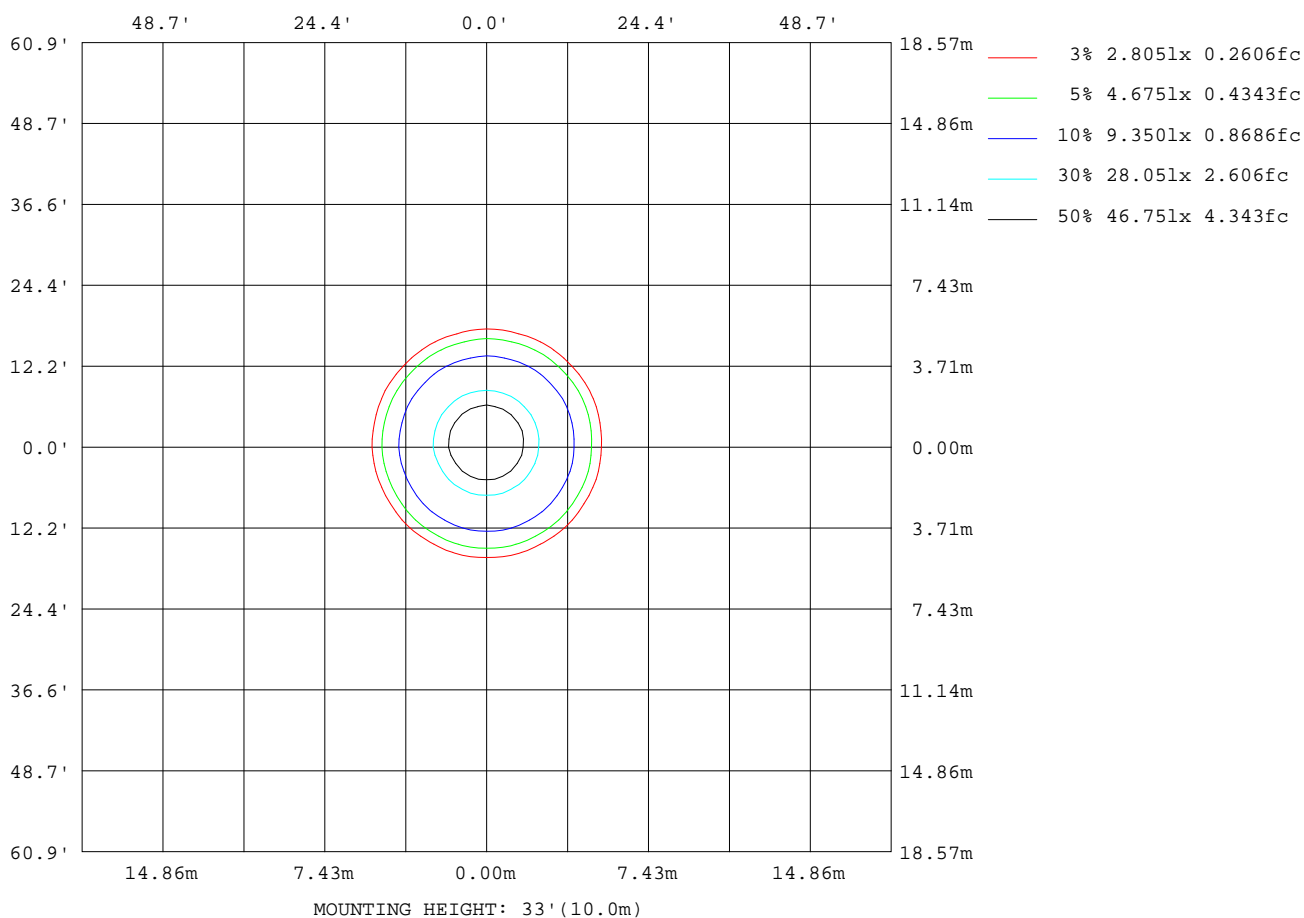
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-05-24

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:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	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:2019-05-24

$\gamma$  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:0.0957A P:21.12W PF:0.9512 Freq:50.00Hz Lamp Flux:1747.42x1 lm		
NAME: VF68-18W-940-18°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		

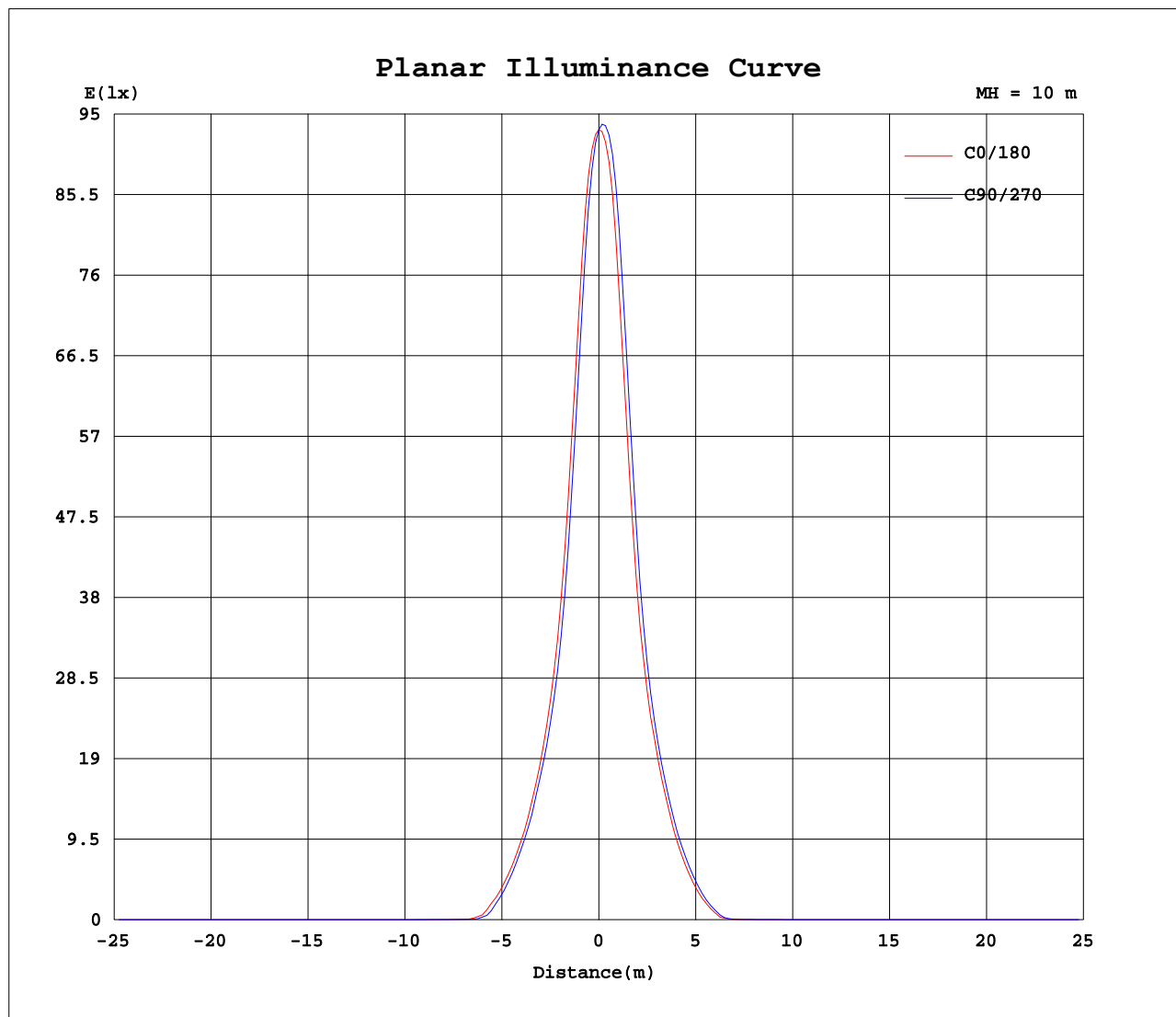
AvgL	cd/m2
L_0~180 (65) av	67
L_0~180 (75) av	64
L_0~180 (85) av	156
L_90~270 (65) av	74
L_90~270 (75) av	71
L_90~270 (85) av	173
L_45 (65) av	65
L_45 (75) av	64
L_45 (85) av	160

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2019-05-24

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: 2019-05-24

$\gamma$  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:

```