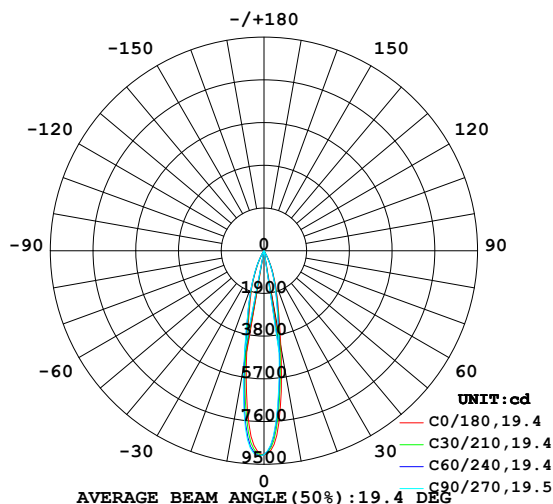


LUMINAIRE PHOTOMETRIC TEST REPORT

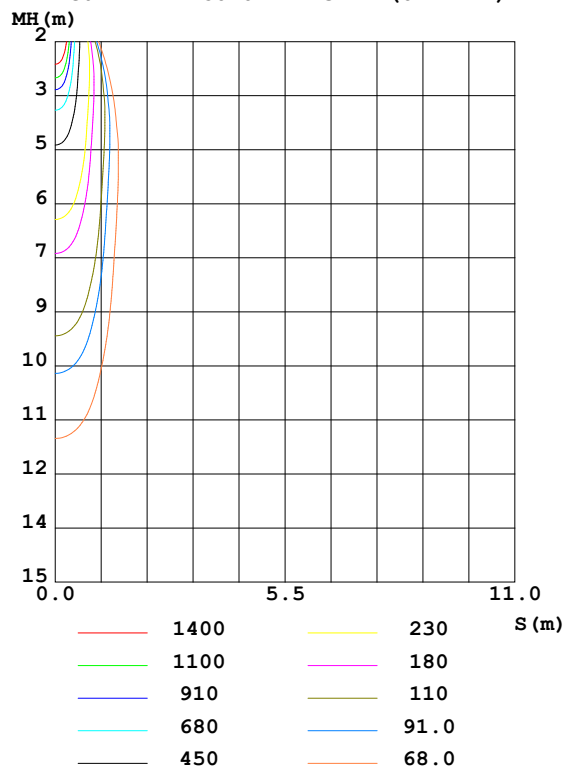
Test:U:220.7V I:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 81.01 lm/W			
MODEL	CITIZEN-3000K	I _{max} (cd)	9128	S/MH (C0/180)	0.33
NOMINAL POWER (W)	21	LOR (%)	100.0	S/MH (C90/270)	0.38
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1635.2	η UP, DN (C0-180)	0.0, 45.7
NOMINAL FLUX (lm)	1635.16	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 54.3
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE (V)	220	η 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:2019-05-23

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	4320	3969	3737	3899	4396	4821	5202	4899	0- 10	621.1	621.1	38,38
20	1341	1248	1205	1280	1417	1489	1572	1495	10- 20	685.5	1307	79.9,79.9
30	164.1	97.41	70.42	127.3	177.6	221.0	242.9	231.8	20- 30	307.4	1614	98.7,98.7
40	5.642	5.139	4.330	4.273	4.646	4.860	5.118	5.551	30- 40	18.19	1632	99.8,99.8
50	1.490	1.146	1.008	1.109	1.350	1.436	1.567	1.599	40- 50	2.113	1634	99.9,99.9
60	0.3463	0.2465	0.2324	0.2181	0.3014	0.3764	0.3976	0.4046	50- 60	0.6420	1635	100,100
70	0.1181	0.0547	0.0613	0.0502	0.0940	0.0984	0.0700	0.0918	60- 70	0.1459	1635	100,100
80	0.1020	0.0525	0.0547	0.0502	0.0786	0.0853	0.0613	0.0765	70- 80	0.0779	1635	100,100
90	0.0656	0.0568	0.0525	0.0502	0.0656	0.0481	0.0525	0.0568	80- 90	0.0662	1635	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): 1633.5 lm

%lum = 99.9%

%lamp = 99.9%

Conical surface Flux(120deg): 1634.9 lm

%lum = 100.0%

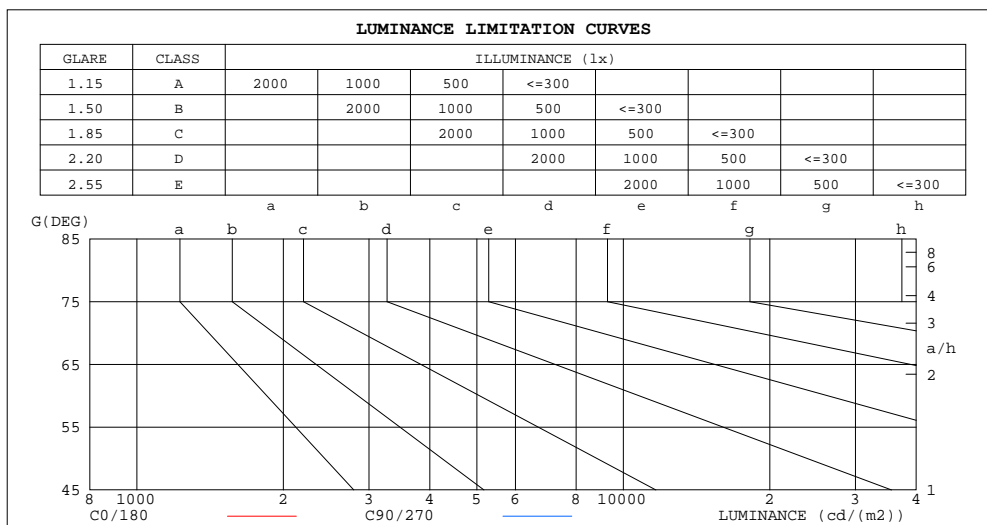
%lamp = 100.0%

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	162	129
80	126	68
75	89	47
70	74	38
65	78	39
60	149	100
55	277	187
50	498	337
45	879	626

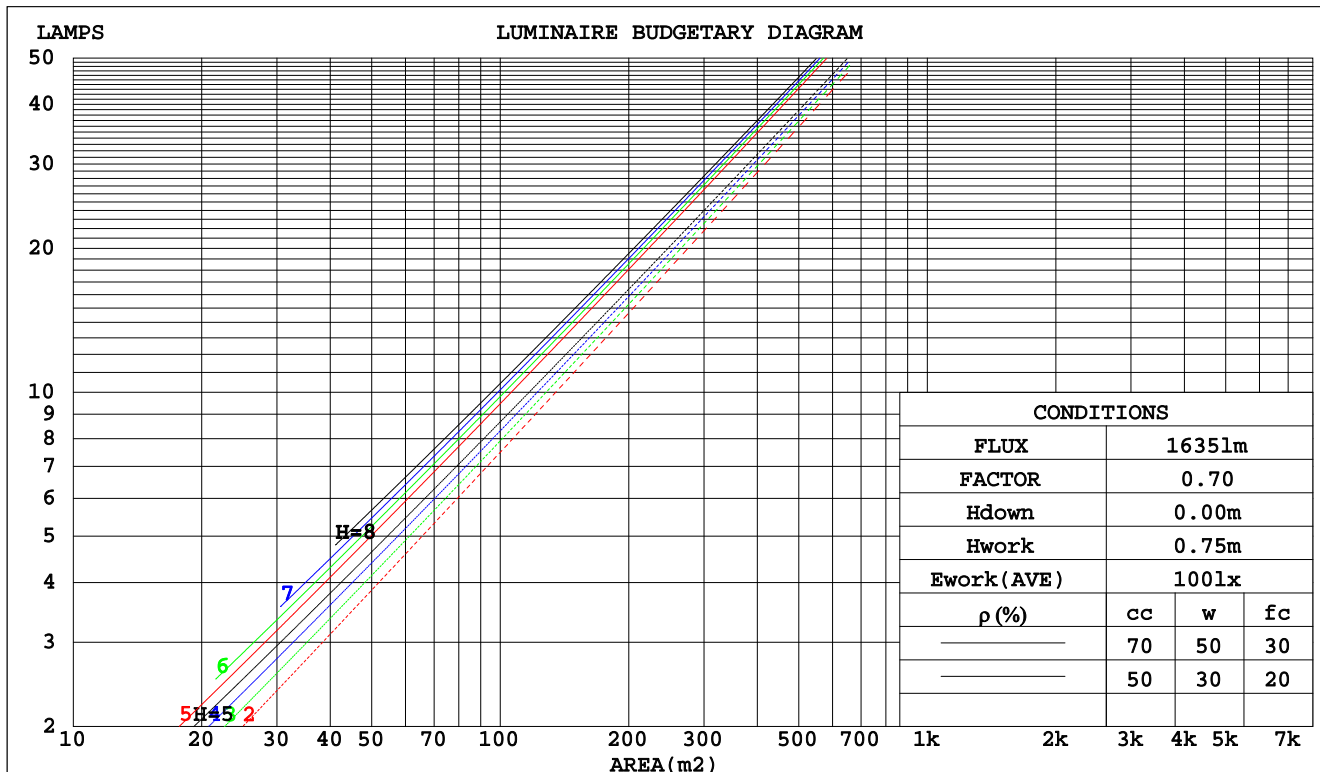
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	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	.97	.95	.94
3.0	1.04	1.00	.97	1.02	.99	.97	.00	.97	.95	.98	.96	.94	.96	.94	.92	.91
4.0	.00	.96	.93	.99	.95	.93	.97	.94	.92	.95	.93	.91	.93	.91	.90	.88
5.0	.96	.92	.90	.96	.92	.89	.94	.91	.88	.92	.90	.88	.91	.89	.87	.86
6.0	.93	.89	.86	.93	.89	.86	.91	.88	.86	.90	.87	.85	.89	.86	.85	.84
7.0	.90	.86	.84	.90	.86	.83	.89	.85	.83	.88	.85	.83	.87	.84	.82	.81
8.0	.88	.84	.81	.87	.84	.81	.86	.83	.81	.86	.83	.80	.85	.82	.80	.79
9.0	.85	.81	.79	.85	.81	.79	.84	.81	.78	.83	.80	.78	.83	.80	.78	.77
10.0	.83	.79	.77	.83	.79	.77	.82	.79	.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:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	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	.126	.072	.023	.114	.065	.021	.103	.059	.019	.092	.053	.017		
2.0	.123	.067	.021	.117	.065	.020	.107	.060	.018	.098	.055	.017	.089	.050	.016		
3.0	.114	.061	.018	.110	.059	.018	.101	.055	.017	.093	.051	.016	.086	.048	.015		
4.0	.107	.056	.016	.103	.054	.016	.096	.051	.015	.089	.048	.014	.083	.045	.014		
5.0	.101	.051	.015	.097	.050	.015	.091	.048	.014	.086	.045	.013	.080	.043	.013		
6.0	.095	.048	.014	.092	.047	.013	.087	.045	.013	.082	.043	.013	.078	.041	.012		
7.0	.090	.045	.013	.088	.044	.012	.083	.042	.012	.079	.041	.012	.075	.039	.011		
8.0	.086	.042	.012	.084	.041	.012	.080	.040	.011	.076	.039	.011	.073	.037	.011		
9.0	.082	.040	.011	.081	.039	.011	.077	.038	.011	.074	.037	.011	.071	.036	.010		
10.0	.079	.038	.011	.077	.037	.010	.074	.036	.010	.071	.035	.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	.134	.113	.096	.115	.098	.084	.079	.068	.059	.046	.040	.035	.015	.013	.011	
4.0	.122	.098	.080	.104	.085	.069	.072	.059	.049	.042	.035	.029	.013	.011	.009	
5.0	.111	.085	.066	.095	.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	.094	.067	.048	.081	.058	.042	.056	.041	.030	.033	.024	.018	.011	.008	.006	
8.0	.088	.060	.041	.076	.052	.036	.052	.037	.026	.030	.022	.015	.010	.007	.005	
9.0	.082	.055	.036	.071	.047	.031	.049	.033	.022	.029	.020	.013	.009	.006	.004	
10.0	.077	.050	.032	.067	.043	.028	.046	.030	.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:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm										
NAME: VF68-18W-930-18°					TYPE:Downlight			SERIAL No.:		
SPEC.:3000K					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	-4.4	-3.8	-4.2	-3.6	-3.5	-8.7	-8.1	-8.5	-7.9	-7.8
3H	-4.6	-4.0	-4.3	-3.8	-3.6	-8.8	-8.2	-8.6	-8.1	-7.9
4H	-4.6	-4.1	-4.4	-3.9	-3.7	-8.9	-8.3	-8.6	-8.1	-7.9
6H	-4.7	-4.2	-4.4	-3.9	-3.7	-9.0	-8.4	-8.7	-8.2	-8.0
8H	-4.7	-4.2	-4.4	-4.0	-3.7	-9.0	-8.5	-8.7	-8.2	-8.0
12H	-4.8	-4.3	-4.5	-4.0	-3.8	-9.0	-8.5	-8.7	-8.3	-8.0
4H 2H	-4.6	-4.1	-4.4	-3.9	-3.7	-8.9	-8.3	-8.6	-8.1	-7.9
3H	-4.8	-4.3	-4.5	-4.1	-3.8	-9.0	-8.5	-8.7	-8.3	-8.0
4H	-4.9	-4.4	-4.6	-4.1	-3.9	-9.1	-8.7	-8.8	-8.4	-8.1
6H	-5.0	-4.6	-4.6	-4.2	-3.9	-9.2	-8.8	-8.8	-8.5	-8.1
8H	-5.0	-4.6	-4.6	-4.3	-3.9	-9.2	-8.8	-8.8	-8.5	-8.1
12H	-5.0	-4.7	-4.6	-4.3	-3.9	-9.2	-8.9	-8.8	-8.5	-8.1
8H 4H	-5.0	-4.7	-4.7	-4.3	-4.0	-9.3	-8.9	-8.9	-8.5	-8.2
6H	-5.1	-4.8	-4.7	-4.4	-4.0	-9.3	-9.0	-8.9	-8.6	-8.2
8H	-5.2	-4.9	-4.7	-4.5	-4.0	-9.3	-9.0	-8.9	-8.6	-8.2
12H	-5.2	-4.9	-4.7	-4.5	-4.0	-9.3	-9.0	-8.8	-8.6	-8.1
12H 4H	-5.1	-4.8	-4.7	-4.4	-4.0	-9.3	-9.0	-8.9	-8.6	-8.2
6H	-5.2	-4.9	-4.7	-4.5	-4.1	-9.4	-9.1	-8.9	-8.7	-8.2
8H	-5.2	-5.0	-4.8	-4.5	-4.1	-9.4	-9.1	-8.9	-8.7	-8.2
Variations with the observer position at spacings:										
S = 1.0H	+ 2.8 / - 7.0					+ 2.7 / - 7.4				
1.5H	+ 4.5 / - 6.2					+ 4.5 / - 5.9				
2.0H	+ 5.4 / - 5.7					+ 4.9 / - 5.0				

CIE Pub.117, 1635 lm Total Lamp Luminous Flux Correct ($8\log(F/F_0) = 1.7$)

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		

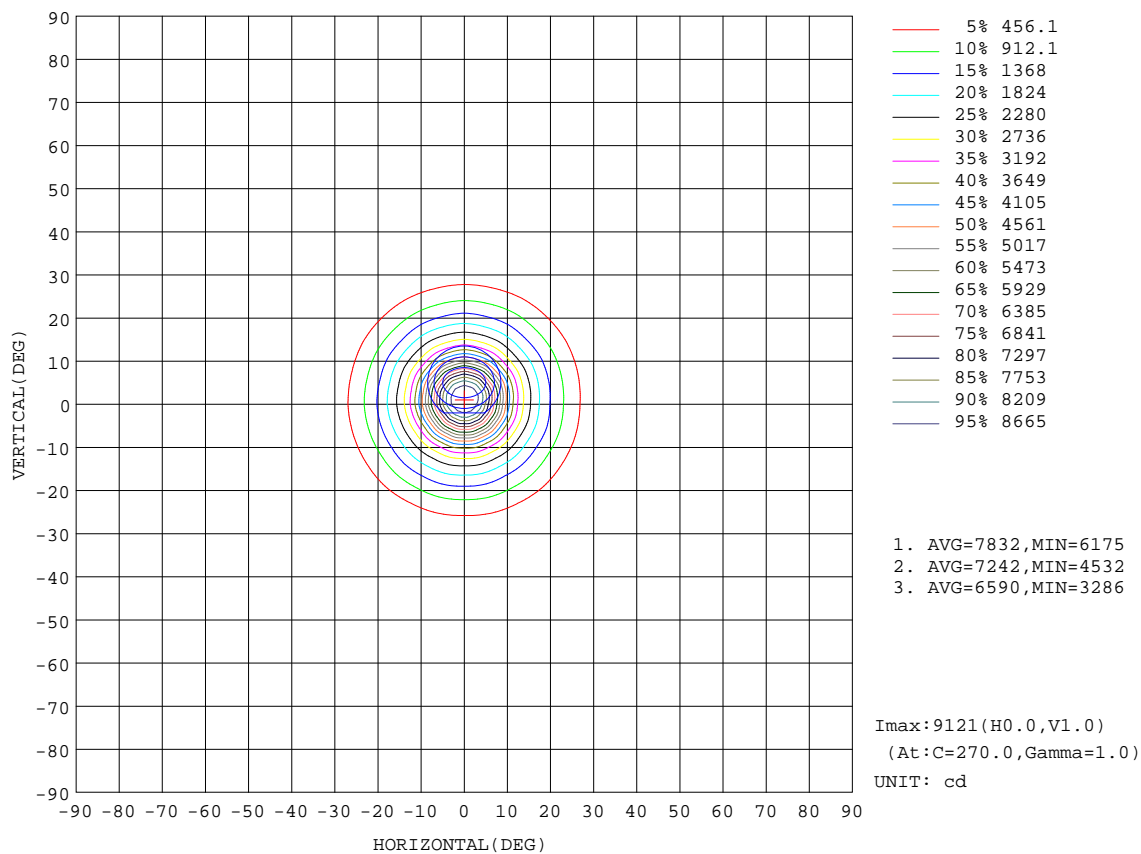
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	91	86	83	91	86	82	90	85	82	79
0.80	98	93	90	98	93	90	97	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:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		

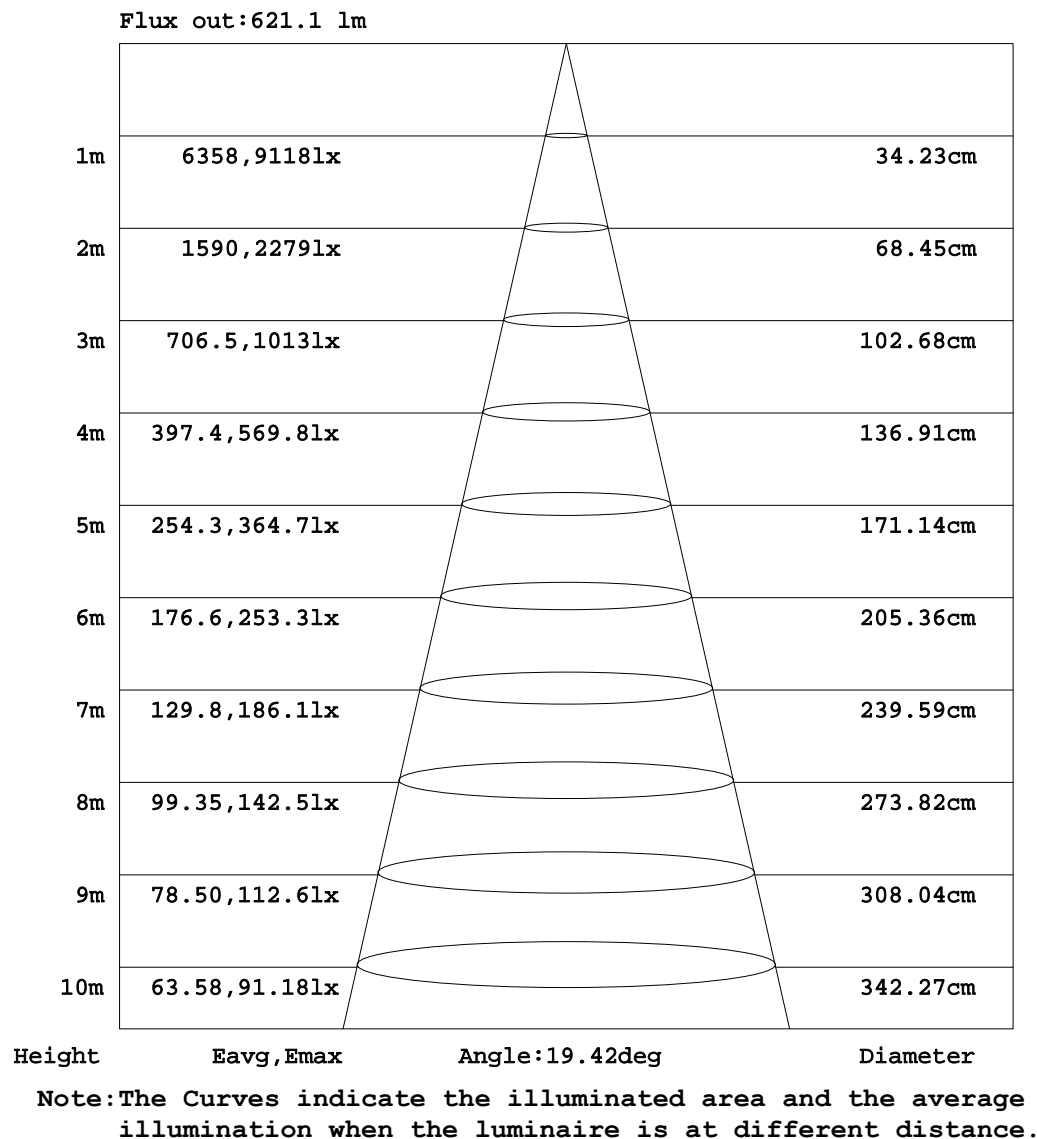


C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		

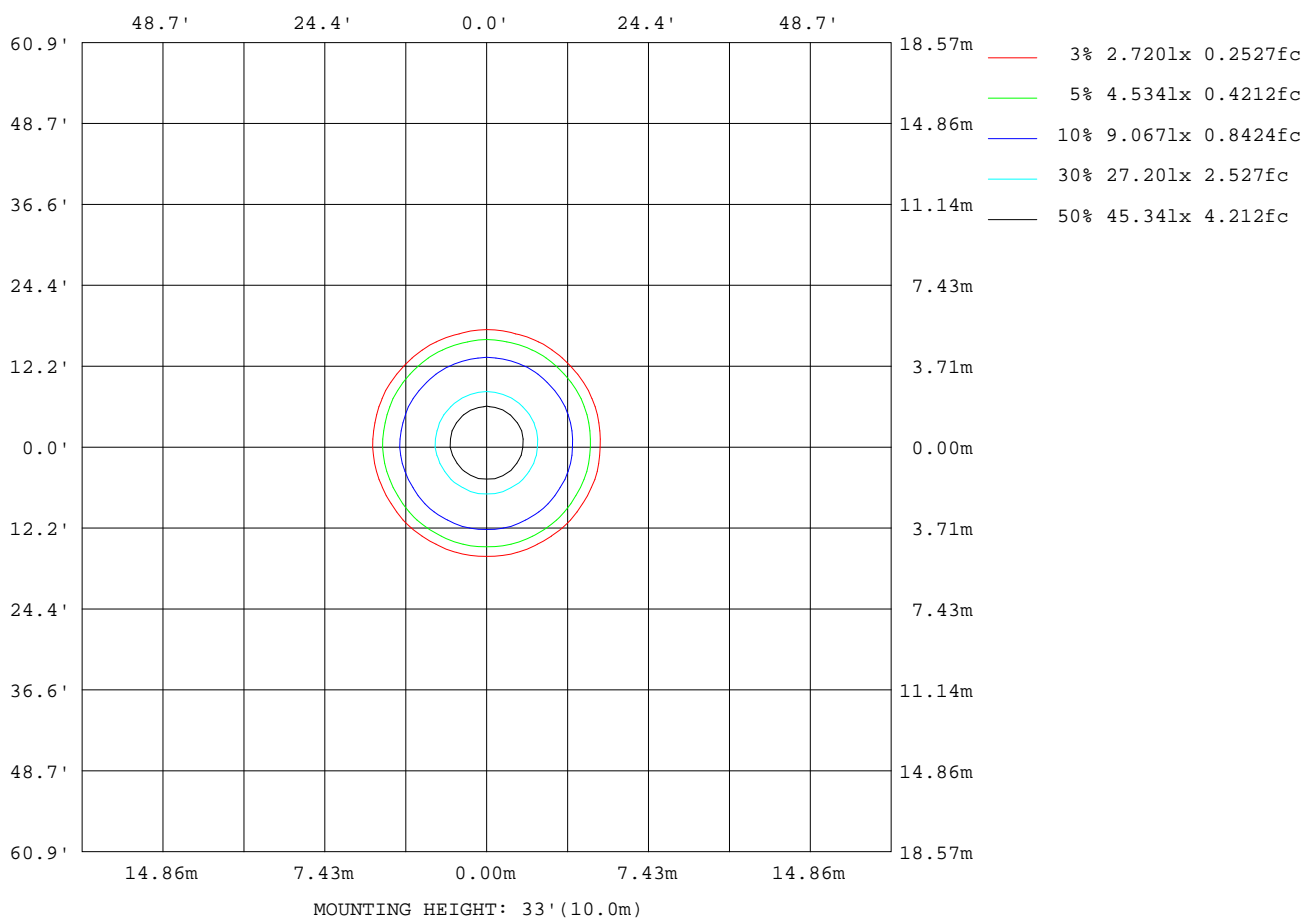


C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi 77\text{mm} \times H100\text{mm}$	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-23

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:0.0967A P:20.19W PF:0.9461 Freq:50.00Hz Lamp Flux:1635.16x1 lm		
NAME: VF68-18W-930-18°	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

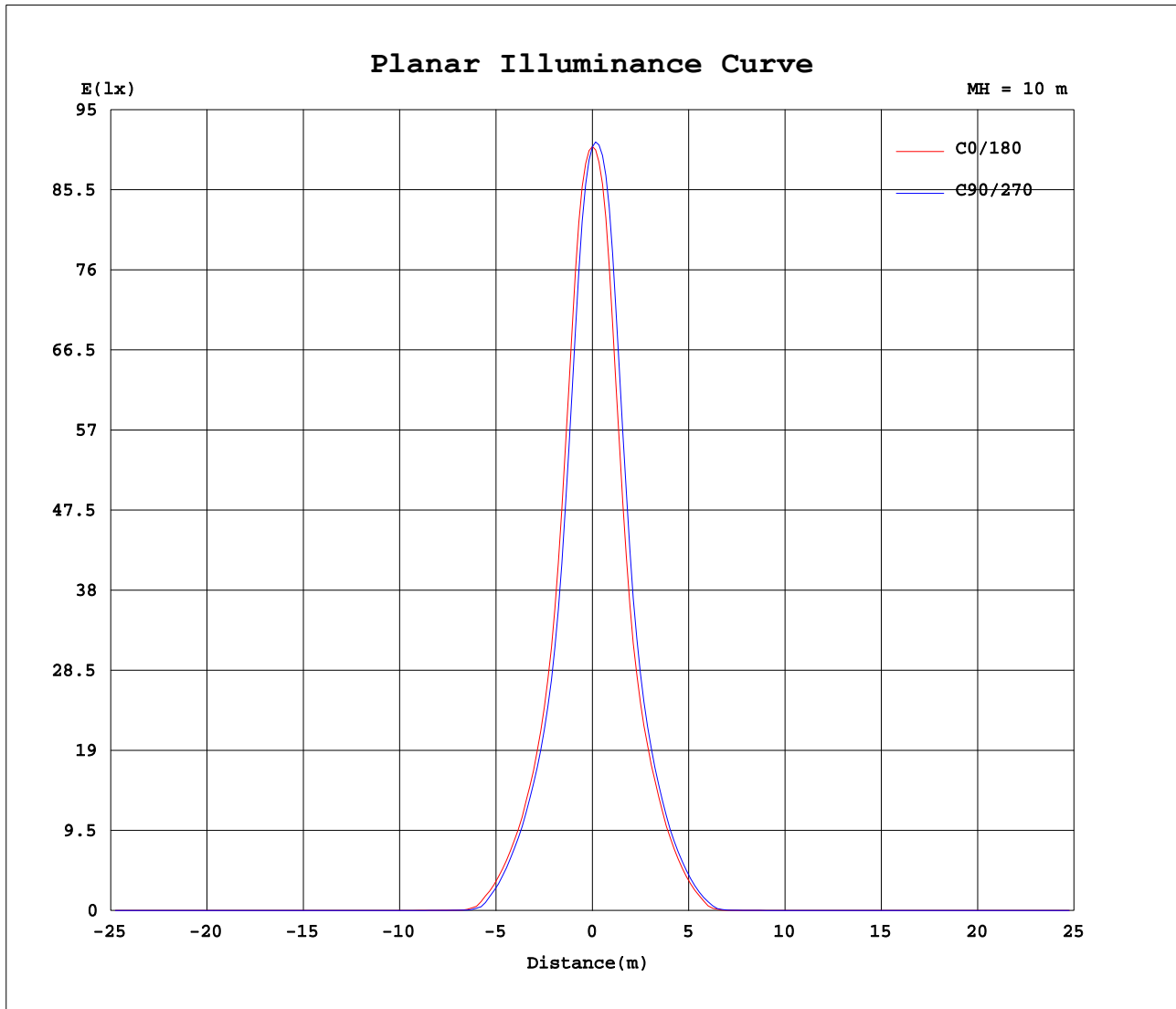
AvgL	cd/m2
L_0~180 (65) av	70
L_0~180 (75) av	78
L_0~180 (85) av	148
L_90~270 (65) av	58
L_90~270 (75) av	50
L_90~270 (85) av	129
L_45 (65) av	56
L_45 (75) av	58
L_45 (85) av	154

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-23

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: 2019-05-23

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:

```