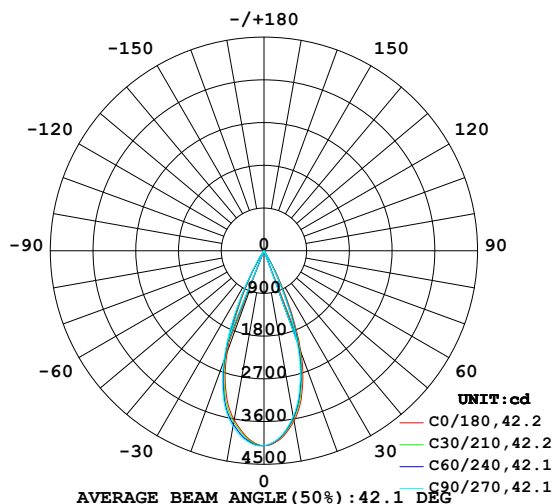


LUMINAIRE PHOTOMETRIC TEST REPORT

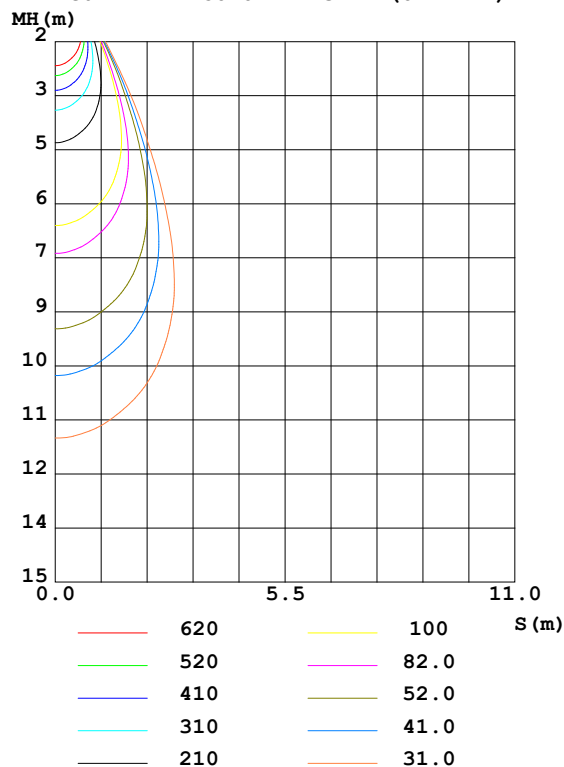
Test:U:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: ϕ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 87.62 lm/W			
MODEL	CITIZEN-4000K	I _{max} (cd)	4112	S/MH (C0/180)	0.64
NOMINAL POWER (W)	21	LOR (%)	100.0	S/MH (C90/270)	0.67
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1819.4	η UP, DN (C0-180)	0.0, 47.3
NOMINAL FLUX (lm)	1819.43	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 52.7
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE (V)	220	η down (%)	100.0	CIBSE SHR MAX	0.65

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

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	3644	3594	3549	3578	3621	3684	3759	3732	0- 10	368.9	368.9	20.3,20.3
20	2285	2169	2058	2116	2276	2376	2477	2428	10- 20	845.3	1214	66.7,66.7
30	317.9	243.5	190.0	218.8	320.2	394.9	450.0	421.6	20- 30	538.6	1753	96.3,96.3
40	22.00	20.63	18.05	19.47	22.69	24.40	23.55	21.93	30- 40	53.58	1806	99.3,99.3
50	6.467	5.892	5.380	5.843	7.046	7.444	7.109	6.698	40- 50	9.285	1816	99.8,99.8
60	1.373	1.205	1.007	1.082	1.499	1.664	1.758	1.608	50- 60	3.171	1819	100,100
70	0.1002	0.0742	0.0919	0.0635	0.0980	0.1202	0.1116	0.1096	60- 70	0.4569	1819	100,100
80	0.0806	0.0655	0.0723	0.0591	0.0675	0.0808	0.0896	0.0876	70- 80	0.0899	1819	100,100
90	0.0697	0.0677	0.0678	0.0679	0.0501	0.0502	0.0525	0.0504	80- 90	0.0735	1819	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): 1812.1 lm

%lum = 99.6%

%lamp = 99.6%

Conical surface Flux(120deg): 1818.8 lm

%lum = 100.0%

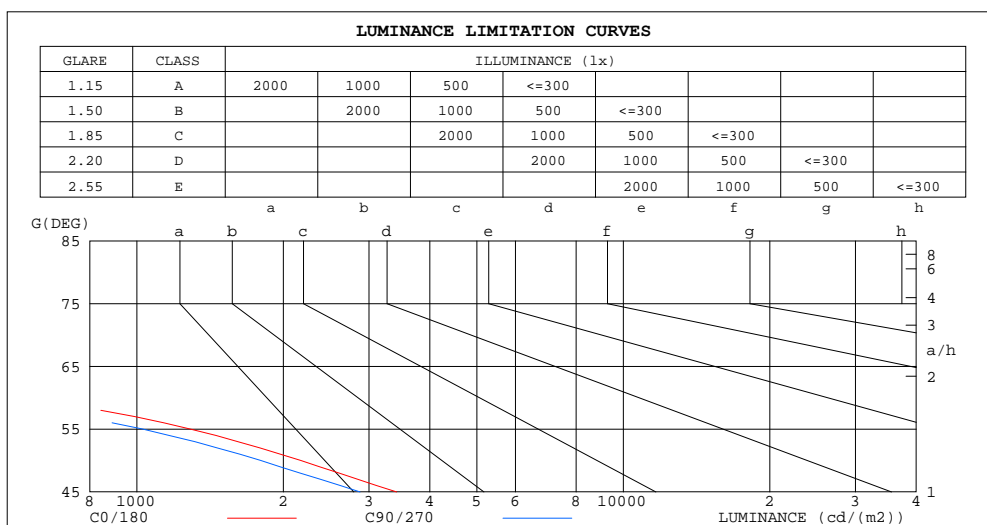
%lamp = 100.0%

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:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	189	167
80	100	89
75	76	65
70	63	58
65	151	82
60	593	432
55	1287	1027
50	2170	1797
45	3419	2875

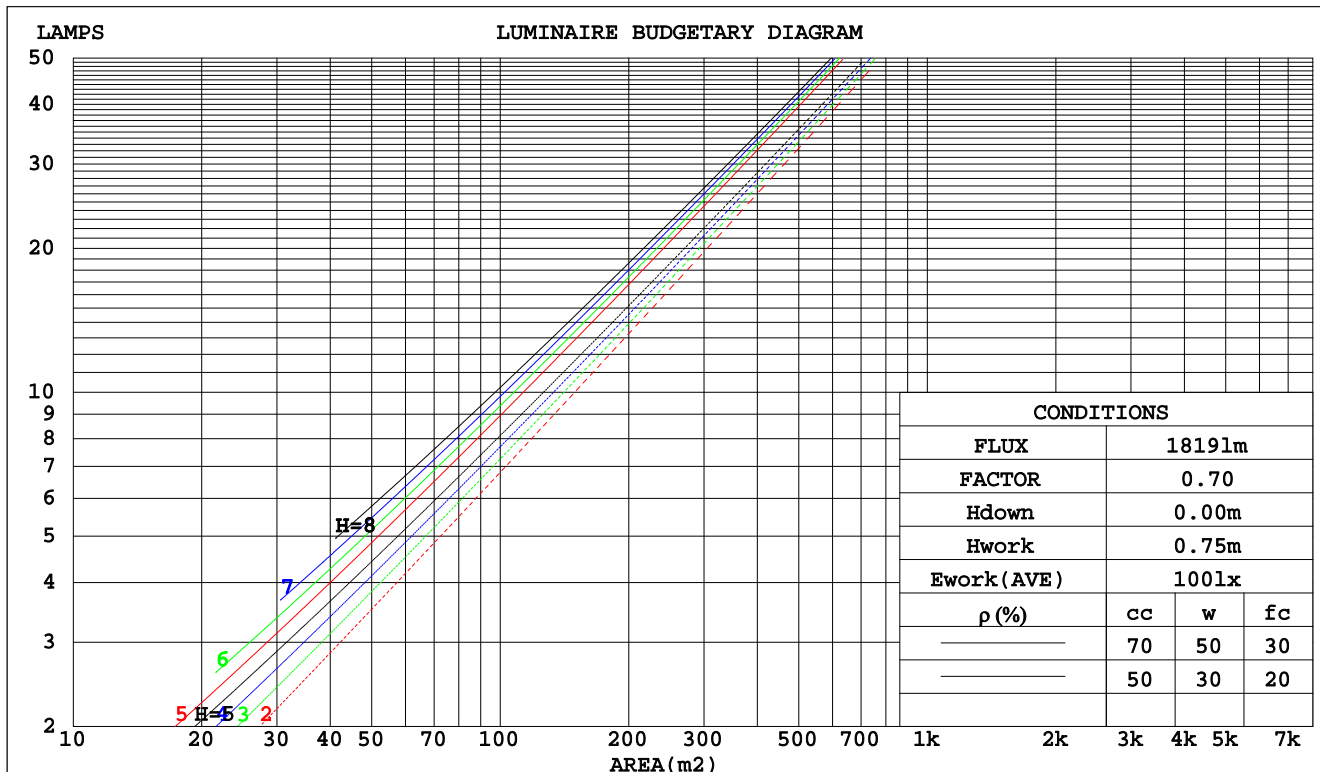
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-24

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:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	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	1.12	1.10	1.08	1.10	1.08	1.07	1.06	1.05	1.03	1.02	1.01	1.00	.99	.98	.97	.96
2.0	1.06	1.03	1.00	1.05	1.02	.99	1.02	.99	.97	.99	.97	.95	.96	.94	.93	.92
3.0	1.01	.97	.94	.90	.96	.93	.97	.94	.92	.95	.92	.90	.93	.91	.89	.88
4.0	.96	.92	.89	.95	.91	.88	.93	.90	.87	.91	.89	.86	.90	.87	.85	.84
5.0	.92	.88	.84	.91	.87	.84	.90	.86	.83	.88	.85	.82	.87	.84	.82	.80
6.0	.88	.84	.80	.87	.83	.80	.86	.82	.79	.85	.81	.79	.84	.81	.78	.77
7.0	.85	.80	.77	.84	.80	.76	.83	.79	.76	.82	.78	.76	.81	.78	.75	.74
8.0	.81	.77	.73	.81	.76	.73	.80	.76	.73	.79	.75	.73	.78	.75	.72	.71
9.0	.78	.74	.70	.78	.73	.70	.77	.73	.70	.76	.72	.70	.75	.72	.70	.69
10.0	.75	.71	.68	.75	.71	.68	.74	.70	.67	.73	.70	.67	.73	.69	.67	.66



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:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	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	.148	.084	.027	.142	.081	.026	.129	.074	.024	.118	.068	.022	.107	.062	.020	
2.0	.139	.076	.023	.133	.073	.023	.123	.068	.021	.113	.064	.020	.105	.059	.019	
3.0	.130	.069	.021	.126	.067	.020	.117	.064	.019	.109	.060	.018	.102	.056	.017	
4.0	.123	.064	.019	.119	.062	.018	.112	.059	.018	.105	.056	.017	.099	.054	.016	
5.0	.117	.060	.017	.114	.058	.017	.107	.056	.016	.101	.053	.016	.096	.051	.015	
6.0	.111	.056	.016	.108	.055	.016	.103	.053	.015	.098	.051	.015	.093	.049	.015	
7.0	.106	.053	.015	.104	.052	.015	.099	.050	.014	.095	.048	.014	.090	.047	.014	
8.0	.102	.050	.014	.100	.049	.014	.095	.048	.014	.091	.046	.013	.088	.045	.013	
9.0	.098	.047	.013	.096	.047	.013	.092	.046	.013	.089	.044	.013	.085	.043	.013	
10.0	.094	.045	.013	.092	.045	.012	.089	.044	.012	.086	.043	.012	.083	.042	.012	

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	.169	.158	.147	.145	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.016	
2.0	.152	.133	.117	.130	.114	.101	.089	.079	.070	.051	.046	.041	.016	.015	.013	
3.0	.138	.113	.094	.118	.098	.082	.081	.068	.057	.047	.040	.034	.015	.013	.011	
4.0	.126	.098	.077	.108	.085	.067	.074	.059	.047	.043	.035	.028	.014	.011	.009	
5.0	.116	.086	.064	.100	.074	.056	.069	.052	.039	.040	.031	.023	.013	.010	.008	
6.0	.108	.076	.054	.092	.066	.047	.064	.046	.033	.037	.027	.020	.012	.009	.007	
7.0	.101	.068	.046	.086	.059	.040	.060	.042	.028	.035	.024	.017	.011	.008	.006	
8.0	.094	.062	.039	.081	.054	.034	.056	.038	.024	.033	.022	.015	.011	.007	.005	
9.0	.089	.056	.034	.077	.049	.030	.053	.034	.021	.031	.020	.013	.010	.007	.004	
10.0	.084	.052	.030	.073	.045	.026	.051	.032	.019	.029	.019	.011	.010	.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:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm										
NAME: VF68-18W-940-40°					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	4.9	4.3	5.0	5.2	2.9	3.6	3.1	3.8	3.9
3H	4.0	4.7	4.2	4.8	5.0	2.7	3.4	3.0	3.6	3.8
4H	3.9	4.5	4.2	4.8	5.0	2.6	3.3	2.9	3.5	3.7
6H	3.8	4.4	4.1	4.7	4.9	2.5	3.2	2.8	3.4	3.6
8H	3.8	4.4	4.1	4.6	4.9	2.5	3.1	2.8	3.3	3.6
12H	3.7	4.3	4.0	4.5	4.8	2.5	3.0	2.8	3.3	3.6
4H 2H	3.9	4.6	4.2	4.8	5.0	2.6	3.3	2.9	3.5	3.7
3H	3.7	4.3	4.0	4.6	4.8	2.5	3.0	2.8	3.3	3.6
4H	3.6	4.2	4.0	4.4	4.7	2.4	2.9	2.7	3.2	3.5
6H	3.5	4.0	3.9	4.3	4.7	2.3	2.7	2.7	3.1	3.4
8H	3.5	3.9	3.9	4.3	4.6	2.2	2.7	2.6	3.0	3.4
12H	3.4	3.8	3.8	4.2	4.6	2.2	2.6	2.6	2.9	3.3
8H 4H	3.5	3.9	3.9	4.3	4.6	2.2	2.6	2.6	3.0	3.4
6H	3.4	3.7	3.8	4.1	4.5	2.1	2.5	2.5	2.9	3.3
8H	3.3	3.6	3.8	4.0	4.5	2.1	2.4	2.5	2.8	3.2
12H	3.3	3.5	3.7	4.0	4.4	2.0	2.3	2.5	2.7	3.2
12H 4H	3.4	3.8	3.8	4.2	4.6	2.2	2.6	2.6	2.9	3.3
6H	3.3	3.6	3.8	4.0	4.5	2.1	2.4	2.5	2.8	3.2
8H	3.3	3.5	3.7	4.0	4.4	2.0	2.3	2.5	2.7	3.2
Variations with the observer position at spacings:										
S = 1.0H	+ 3.6 / - 8.3					+ 3.1 / - 8.7				
1.5H	+ 5.4 / - 5.9					+ 4.7 / - 5.4				
2.0H	+ 5.0 / -11.3					+ 4.8 / -11.0				

CIE Pub.117, 1819 lm Total Lamp Luminous Flux Correct ($8\log(F/F_0) = 2.1$)

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:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		

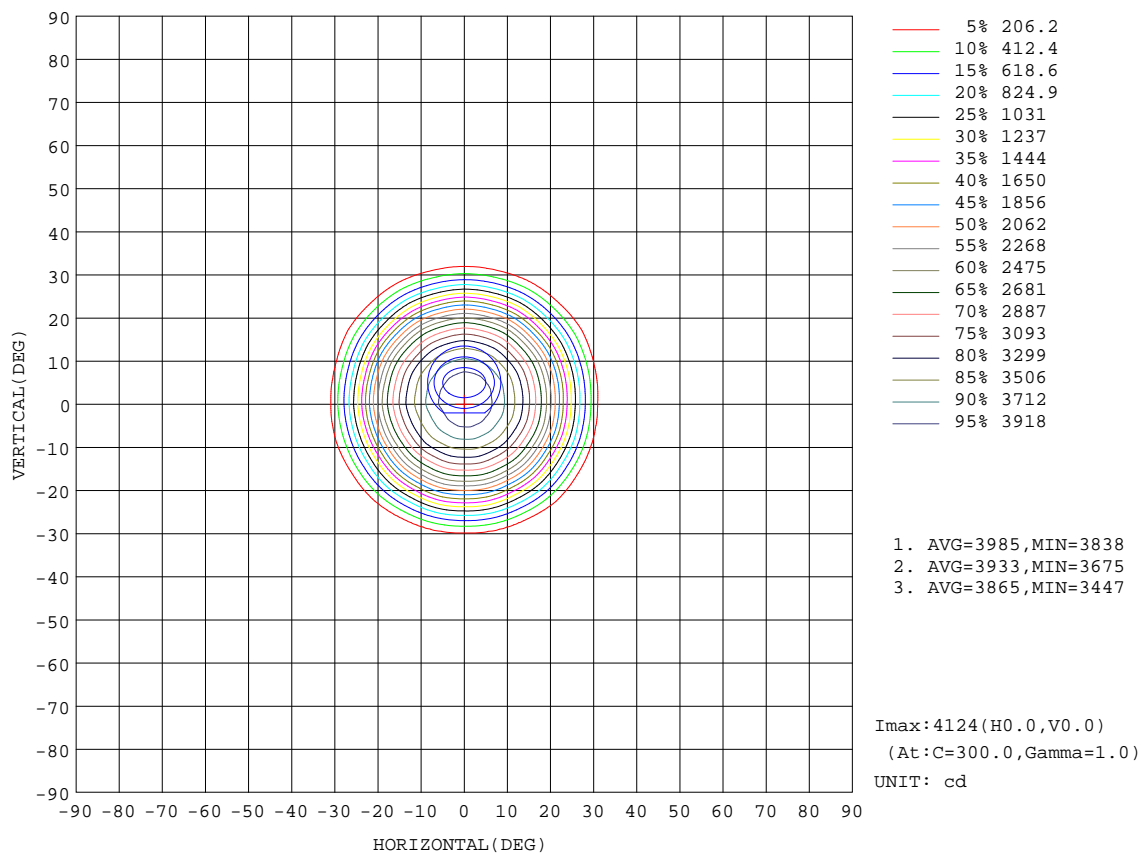
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	91	85	82	91	85	82	90	85	82	79
0.80	98	93	90	97	93	89	96	92	89	86
1.00	102	97	94	101	96	93	99	96	93	89
1.25	105	101	98	104	100	97	102	99	96	93
1.50	108	104	101	107	103	100	104	101	99	95
2.00	110	106	103	108	105	102	106	103	101	96
2.50	111	108	105	110	107	104	107	104	102	97
3.00	113	110	107	111	108	106	108	106	104	98
4.00	115	112	110	113	110	109	109	107	106	99
5.00	116	114	112	114	112	111	110	109	107	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:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: ϕ 77mm*H100mm	
MFR.: NEKO LIGHTING AG		

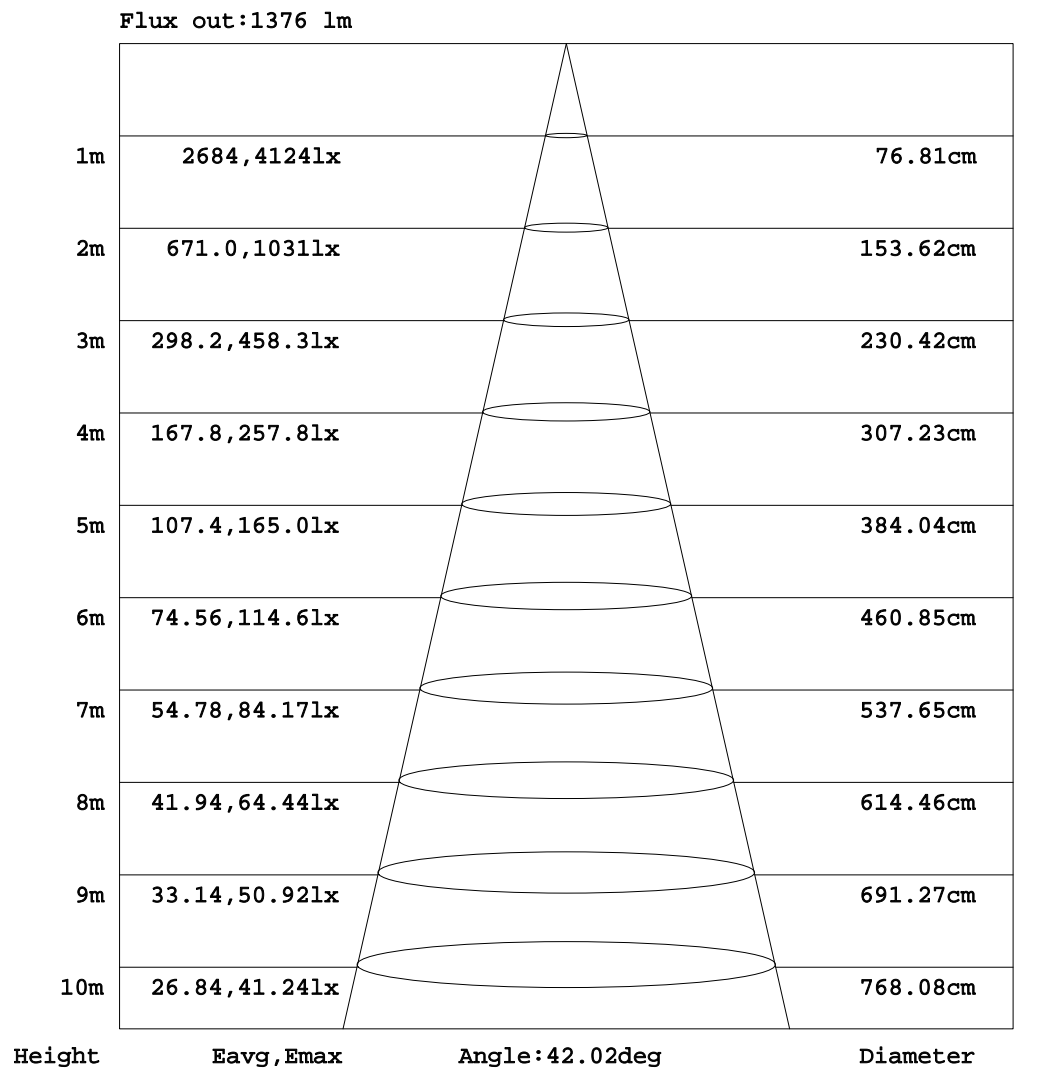


C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2019-05-24

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:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		



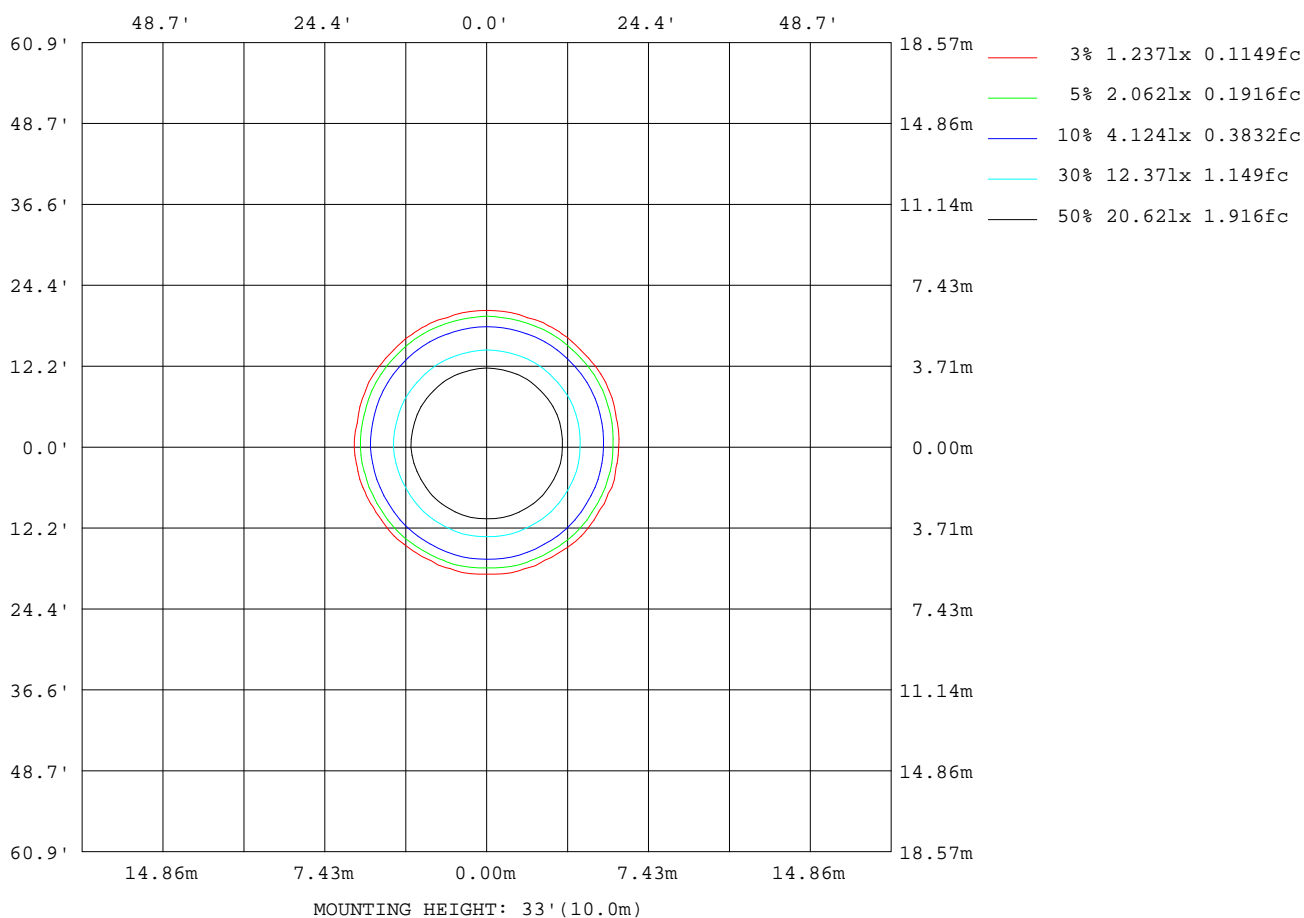
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	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: 2019-05-24

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:

LED Avg.L Report

Test:U:220.6V I:0.0941A P:20.76W PF:0.9425 Freq:50.00Hz Lamp Flux:1819.43x1 lm		
NAME: VF68-18W-940-40°	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: φ77mm*H100mm	
MFR.: NEKO LIGHTING AG		

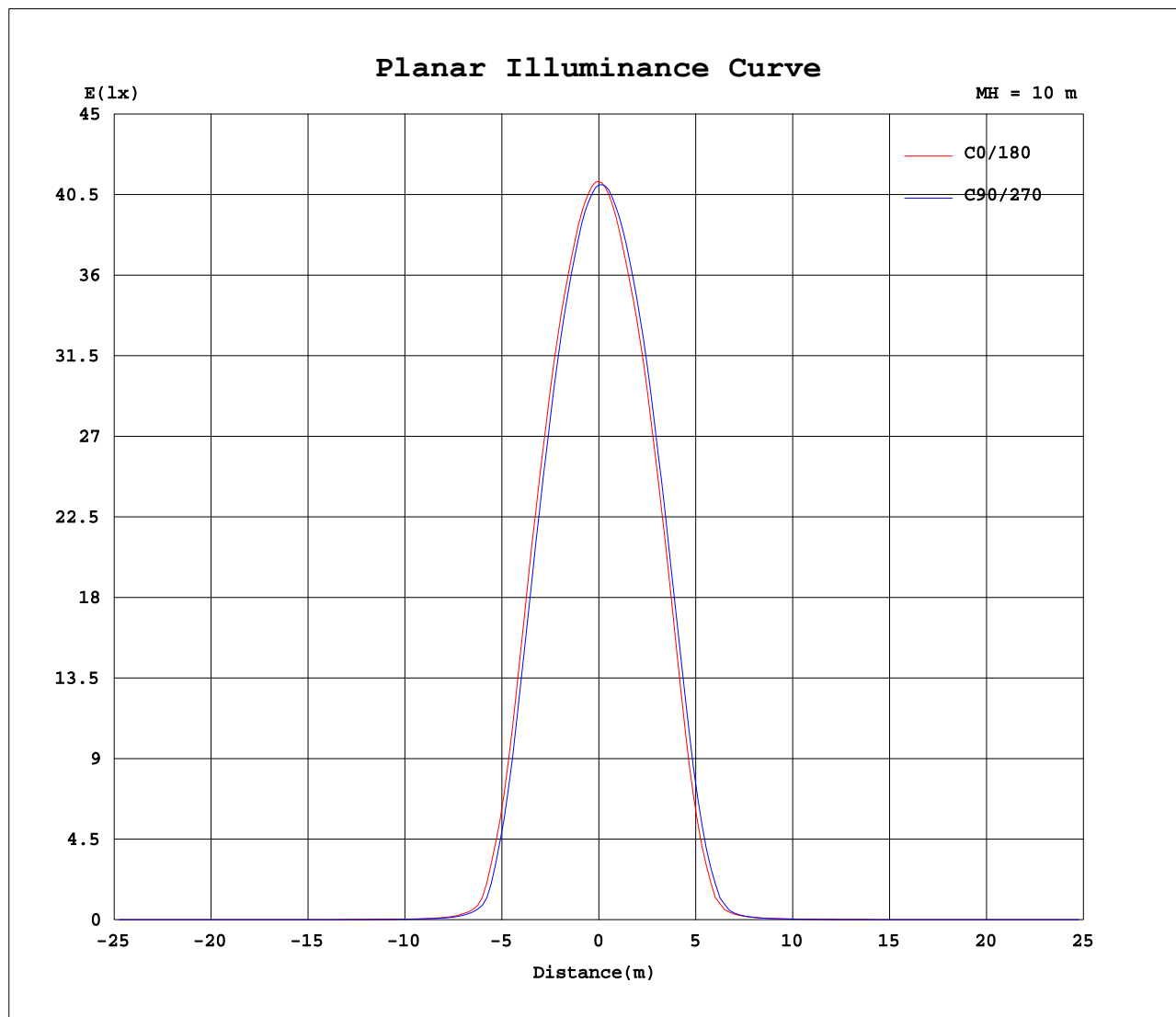
AvgL	cd/m2
L_0~180 (65) av	159
L_0~180 (75) av	71
L_0~180 (85) av	166
L_90~270 (65) av	168
L_90~270 (75) av	74
L_90~270 (85) av	165
L_45 (65) av	153
L_45 (75) av	68
L_45 (85) av	163

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
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γ Range: 0 - 90DEG
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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

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:

```