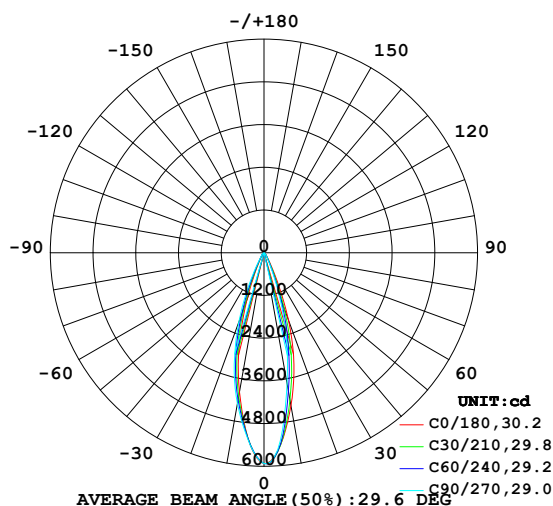


LUMINAIRE PHOTOMETRIC TEST REPORT

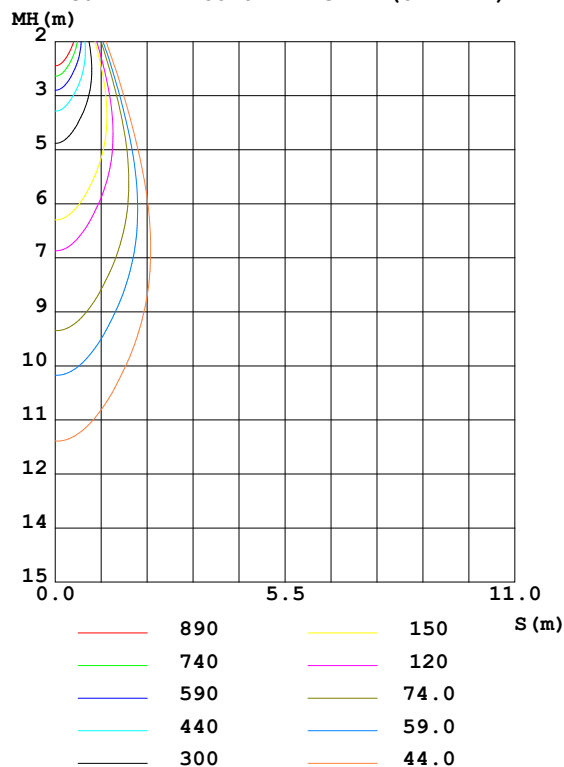
Test:U:220.7V I:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 70mm*H138mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 88.72 lm/W			
MODEL	CITIZEN-3000K	I <sub>max</sub> (cd)	5940	S/MH (C0/180)	0.47
NOMINAL POWER (W)	20	LOR (%)	100.0	S/MH (C90/270)	0.53
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1797.5	$\eta$ UP, DN (C0-180)	0.0, 45.5
NOMINAL FLUX (lm)	1797.51	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 54.5
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE (V)	220	$\eta$ down (%)	100.0	CIBSE SHR MAX	0.50

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:2017-05-19

$\gamma$  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	4361	4108	3739	3726	3978	4127	4302	4418	0- 10	465.5	465.5	25.9,25.9
20	2020	1519	1212	1146	1396	1703	2068	2243	10- 20	781.1	1247	69.4,69.4
30	347.5	268.4	223.4	219.6	239.5	282.4	392.9	434.0	20- 30	359.7	1606	89.4,89.4
40	105.1	95.69	86.75	82.47	88.35	101.6	122.5	123.2	30- 40	105.2	1712	95.2,95.2
50	51.51	47.37	40.77	39.30	43.80	47.56	54.88	56.68	40- 50	56.43	1768	98.4,98.4
60	12.89	12.62	11.44	10.90	10.87	11.72	12.70	13.15	50- 60	22.39	1790	99.6,99.6
70	2.377	2.256	1.600	1.175	1.086	1.283	1.830	2.226	60- 70	6.605	1797	100,100
80	0.1770	0.1442	0.1488	0.1181	0.1069	0.1356	0.1376	0.1751	70- 80	0.4307	1797	100,100
90	0.0895	0.0765	0.0809	0.0810	0.0611	0.0590	0.0634	0.0853	80- 90	0.1078	1798	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): 1743.3 lm

%lum = 97.0%

%lamp = 97.0%

Conical surface Flux(120deg): 1790.4 lm

%lum = 99.6%

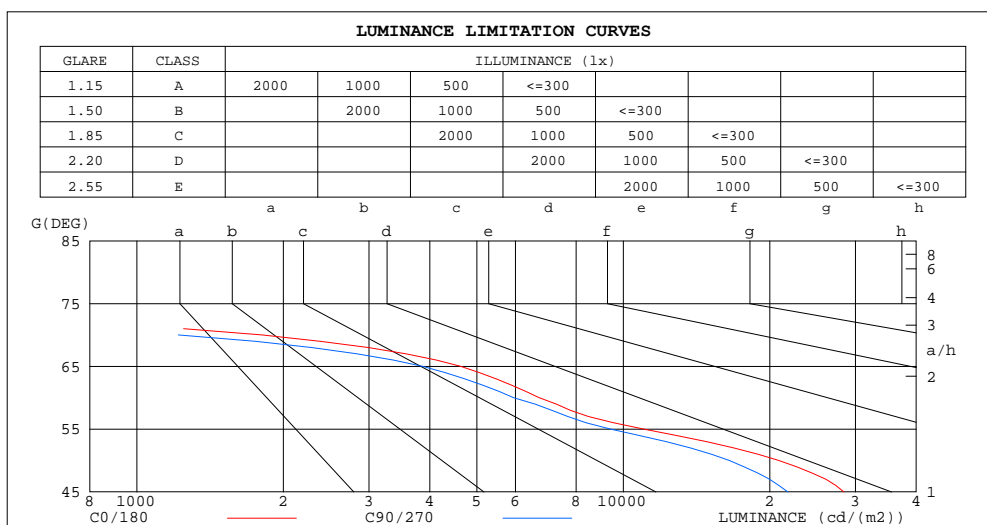
%lamp = 99.6%

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 70mm*H138mm	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G( DEG)	C0/180	C90/270
85	359	300
80	265	223
75	273	224
70	1809	1216
65	4626	3863
60	6713	5948
55	11007	9407
50	20858	16496
45	28404	21788

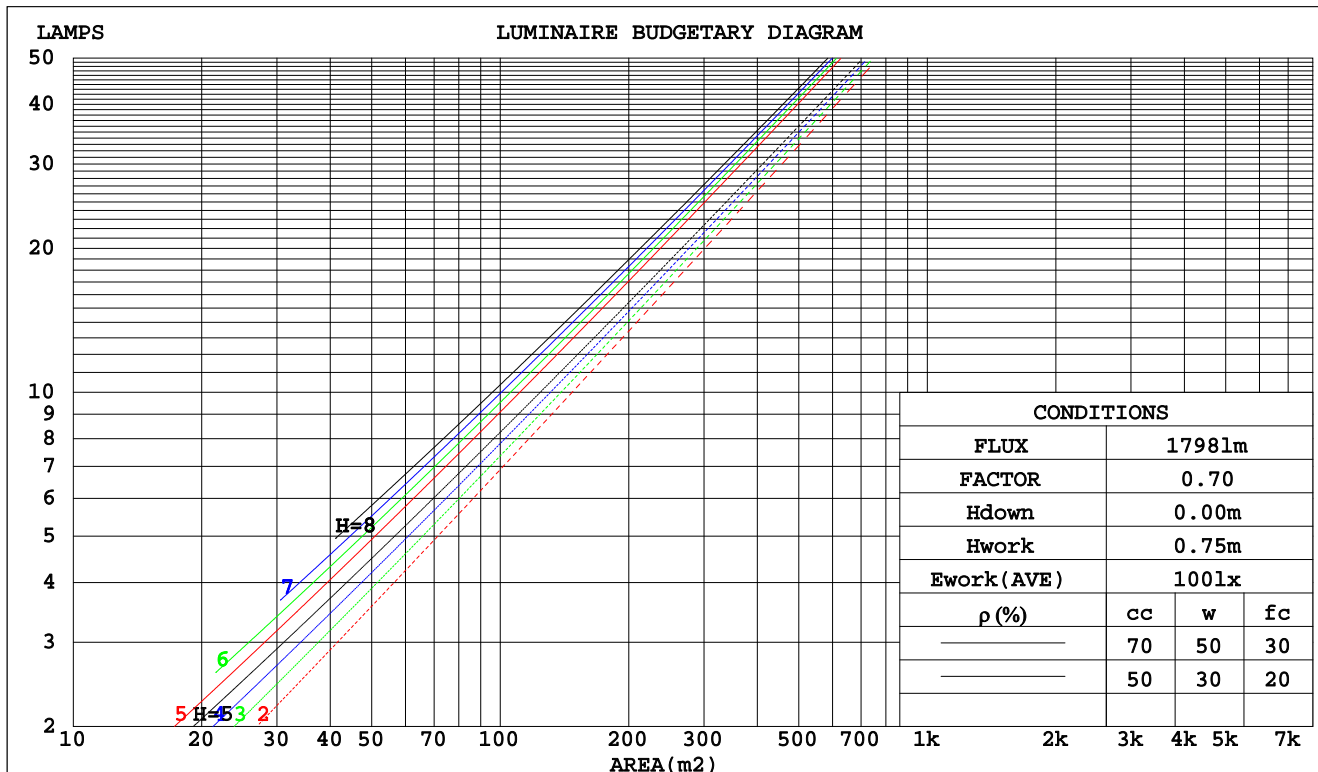
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 70mm*H138mm	
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	1.04	1.01	.99	1.01	.99	.97	.98	.96	.95	.96	.94	.93	.91
3.0	1.01	.97	.94	.99	.96	.93	.97	.94	.91	.95	.92	.90	.92	.90	.89	.87
4.0	.96	.92	.88	.95	.91	.88	.93	.89	.87	.91	.88	.86	.89	.87	.85	.83
5.0	.92	.87	.84	.91	.87	.83	.89	.86	.83	.88	.84	.82	.86	.84	.81	.80
6.0	.88	.83	.80	.87	.83	.80	.86	.82	.79	.85	.81	.79	.83	.80	.78	.77
7.0	.84	.80	.76	.84	.79	.76	.83	.79	.76	.82	.78	.75	.81	.77	.75	.74
8.0	.81	.77	.73	.81	.76	.73	.80	.76	.73	.79	.75	.73	.78	.75	.72	.71
9.0	.78	.74	.71	.78	.73	.70	.77	.73	.70	.76	.73	.70	.76	.72	.70	.69
10.0	.76	.71	.68	.75	.71	.68	.75	.71	.68	.74	.70	.68	.73	.70	.67	.66



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\varnothing$ 70mm*H138mm	
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	.150	.085	.027	.143	.082	.026	.131	.075	.024	.120	.069	.022	.109	.063	.020		
2.0	.141	.077	.024	.135	.075	.023	.125	.070	.022	.116	.065	.020	.107	.060	.019		
3.0	.133	.071	.021	.128	.069	.021	.119	.065	.020	.111	.061	.019	.104	.057	.018		
4.0	.125	.065	.019	.121	.063	.019	.114	.060	.018	.107	.057	.017	.100	.055	.017		
5.0	.118	.060	.017	.115	.059	.017	.109	.057	.017	.103	.054	.016	.097	.052	.016		
6.0	.112	.056	.016	.109	.055	.016	.104	.053	.015	.099	.051	.015	.094	.049	.015		
7.0	.107	.053	.015	.104	.052	.015	.100	.050	.014	.095	.049	.014	.091	.047	.014		
8.0	.102	.050	.014	.100	.049	.014	.096	.048	.014	.092	.046	.013	.088	.045	.013		
9.0	.098	.047	.013	.096	.047	.013	.092	.045	.013	.088	.044	.013	.085	.043	.012		
10.0	.094	.045	.012	.092	.044	.012	.088	.043	.012	.085	.042	.012	.082	.041	.012		

$\rho_{cc}$	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	.169	.158	.147	.145	.135	.127	.099	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.152	.133	.116	.130	.114	.101	.089	.079	.070	.051	.046	.041	.017	.015	.013	
3.0	.138	.113	.094	.118	.098	.081	.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	.075	.056	.069	.052	.039	.040	.031	.023	.013	.010	.008	
6.0	.108	.076	.054	.093	.066	.047	.064	.046	.033	.037	.027	.020	.012	.009	.006	
7.0	.101	.068	.046	.087	.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	.050	.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:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm										
NAME: ROXY S-21W-930-30					TYPE:Tracklight			SERIAL No.:		
SPEC.:3000K					DIM.: $\phi$ 70mm*H138mm					
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	13.6	14.3	13.8	14.5	14.6	12.6	13.4	12.8	13.5	13.7
3H	13.5	14.2	13.7	14.4	14.6	12.5	13.2	12.8	13.4	13.6
4H	13.4	14.1	13.7	14.3	14.5	12.5	13.1	12.7	13.3	13.5
6H	13.3	13.9	13.6	14.2	14.4	12.4	13.0	12.7	13.2	13.5
8H	13.3	13.9	13.6	14.1	14.4	12.3	12.9	12.6	13.2	13.4
12H	13.2	13.8	13.5	14.1	14.3	12.3	12.9	12.6	13.1	13.4
4H 2H	13.4	14.1	13.7	14.3	14.5	12.6	13.2	12.8	13.4	13.6
3H	13.4	13.9	13.7	14.2	14.5	12.5	13.0	12.8	13.3	13.6
4H	13.3	13.8	13.6	14.1	14.4	12.4	12.9	12.7	13.2	13.5
6H	13.2	13.6	13.5	14.0	14.3	12.3	12.7	12.6	13.1	13.4
8H	13.1	13.5	13.5	13.9	14.3	12.2	12.6	12.6	13.0	13.4
12H	13.1	13.5	13.5	13.8	14.2	12.2	12.6	12.6	12.9	13.3
8H 4H	13.1	13.5	13.5	13.9	14.3	12.2	12.6	12.6	13.0	13.4
6H	13.0	13.4	13.4	13.8	14.2	12.1	12.5	12.5	12.9	13.3
8H	13.0	13.3	13.4	13.7	14.1	12.0	12.4	12.5	12.8	13.2
12H	12.9	13.2	13.4	13.6	14.1	12.0	12.3	12.5	12.7	13.2
12H 4H	13.1	13.5	13.5	13.8	14.2	12.2	12.6	12.6	12.9	13.3
6H	13.0	13.3	13.4	13.7	14.1	12.0	12.4	12.5	12.8	13.2
8H	12.9	13.2	13.4	13.6	14.1	12.0	12.3	12.5	12.7	13.2
Variations with the observer position at spacings:										
S = 1.0H	+ 2.3 / - 4.6					+ 2.0 / - 4.6				
1.5H	+ 2.5 / - 3.8					+ 2.0 / - 3.1				
2.0H	+ 4.3 / - 5.2					+ 3.7 / - 4.7				

CIE Pub.117, 1798 lm Total Lamp Luminous Flux Correct ( $8\log(F/F_0) = 2.0$ )

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\varnothing 70\text{mm} \times H138\text{mm}$	
MFR.: NEKO LIGHTING AG		

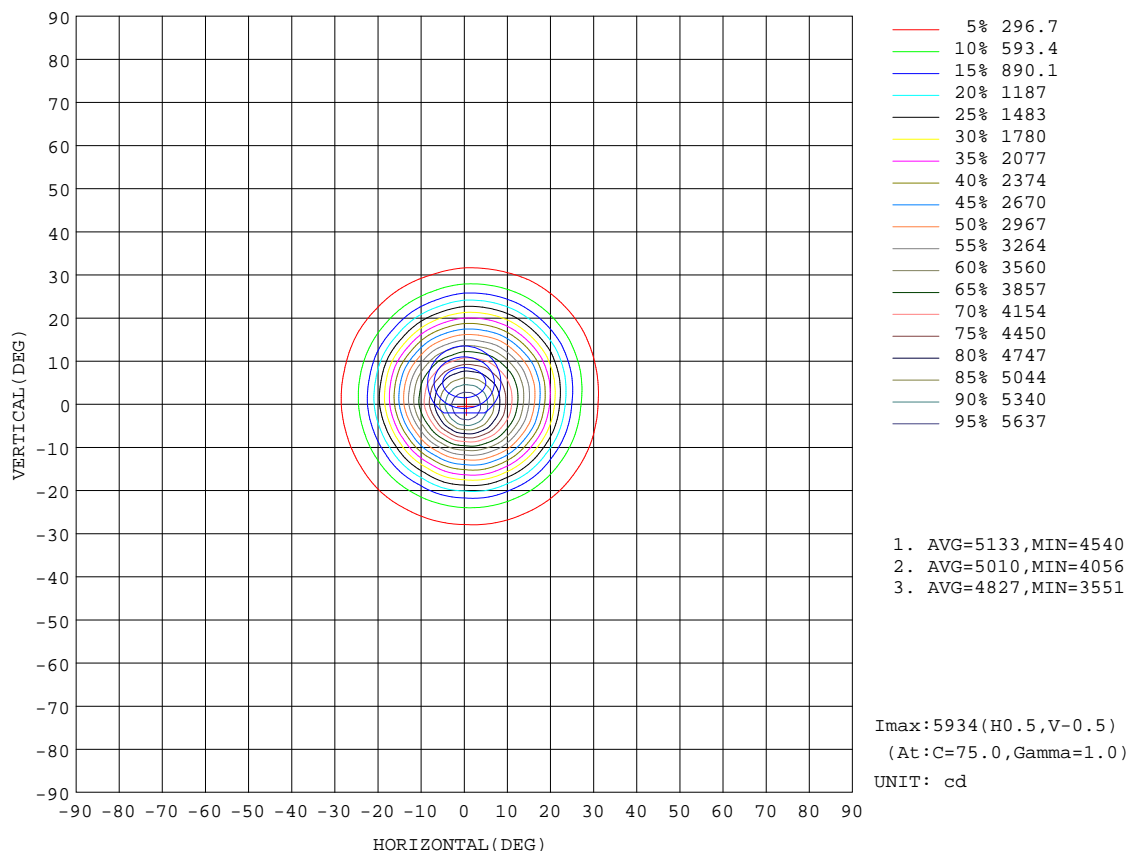
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	89	82	79	88	82	79	87	82	78	75
0.80	96	90	87	95	90	86	94	89	86	83
1.00	100	95	91	99	94	91	98	94	90	87
1.25	104	99	96	103	98	95	101	97	94	90
1.50	107	102	99	105	101	98	103	100	97	93
2.00	109	105	102	108	104	101	105	102	100	95
2.50	111	107	104	109	106	103	106	103	101	96
3.00	112	109	106	110	107	105	107	105	103	97
4.00	114	111	109	112	110	108	108	107	105	98
5.00	115	113	111	113	111	110	109	108	107	99
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:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 70mm*H138mm	
MFR.: NEKO LIGHTING AG		



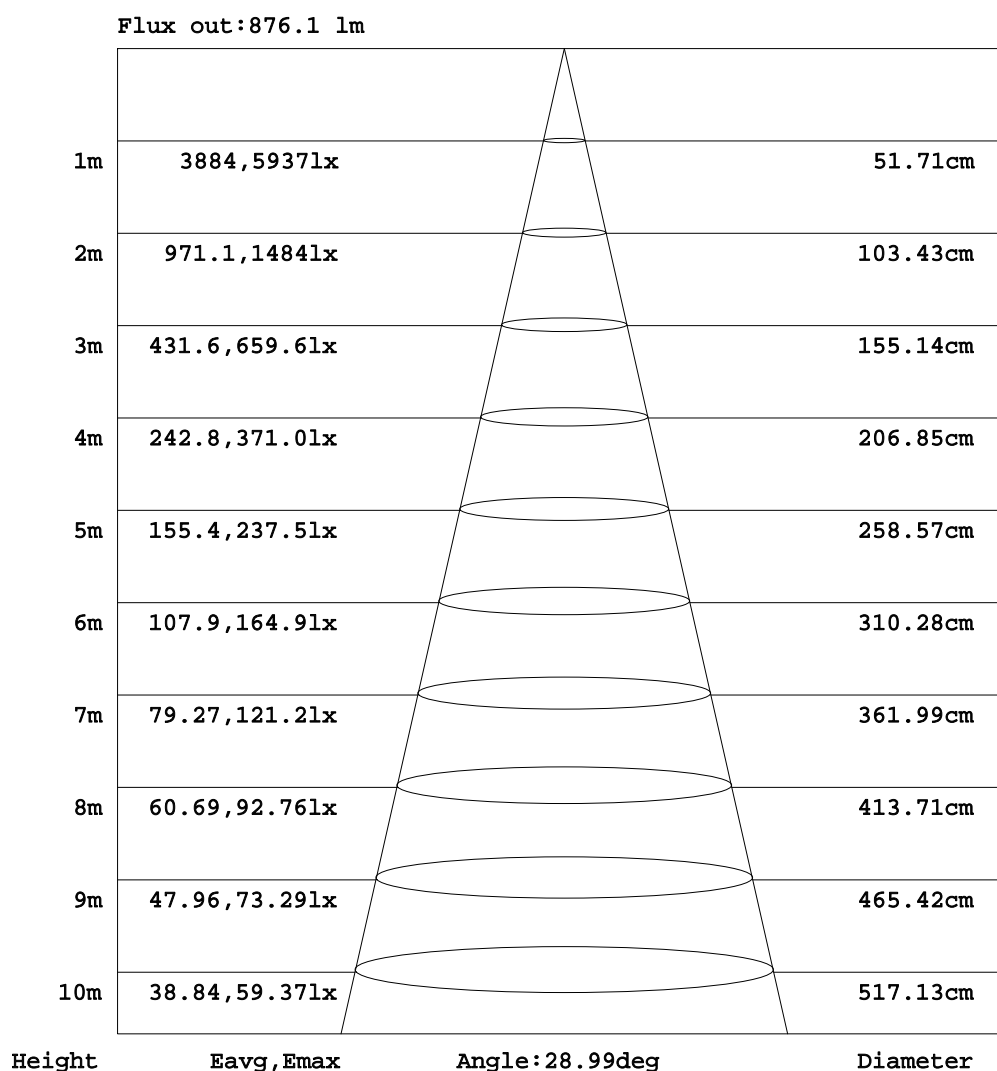
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 70mm*H138mm	
MFR.: NEKO LIGHTING AG		



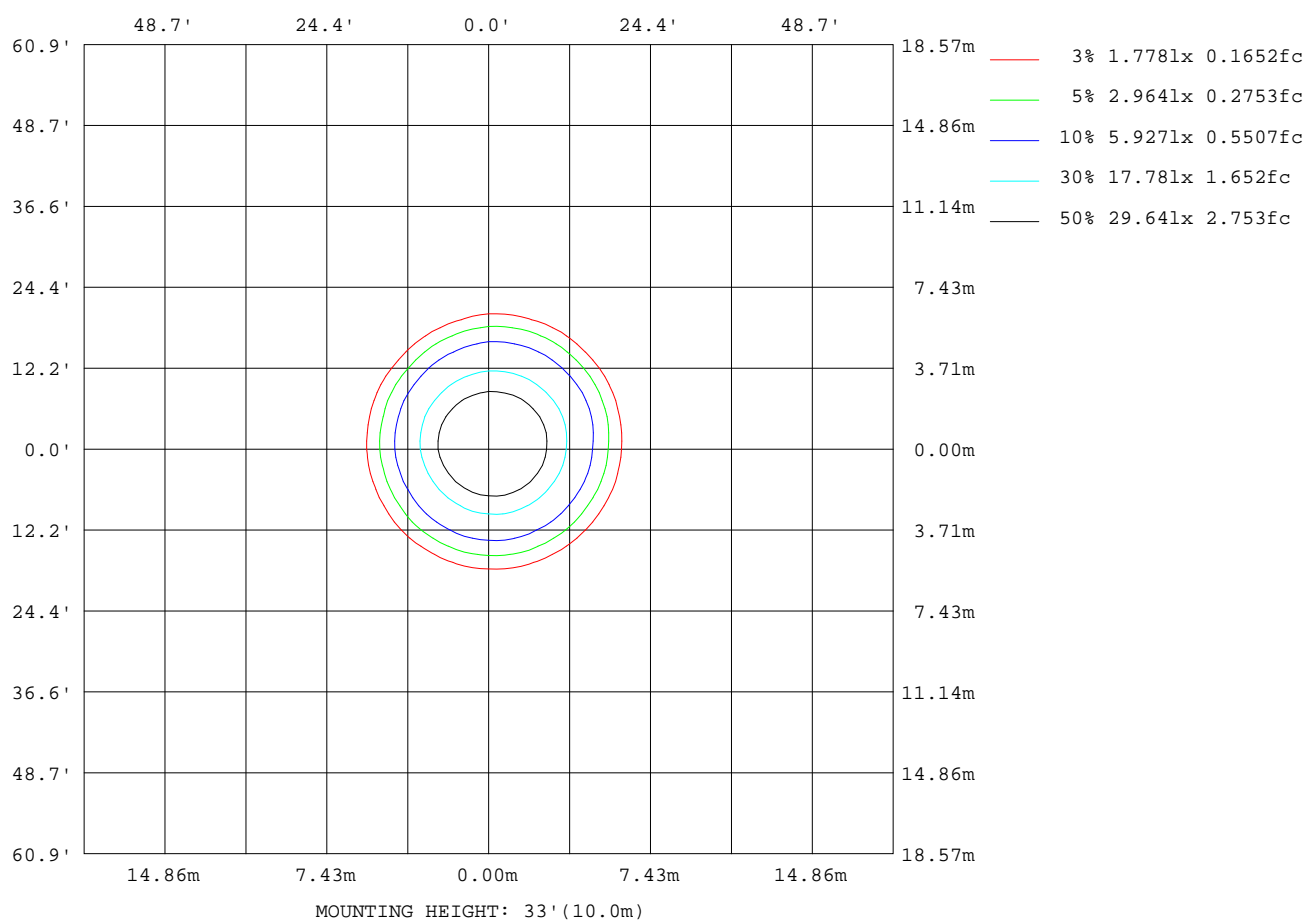
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 70mm*H138mm	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-05-19

$\gamma$  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:0.0979A P:20.26W PF:0.9377 Freq:50.00Hz Lamp Flux:1797.51x1 lm		
NAME: ROXY S-21W-930-30	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 70mm*H138mm	
MFR.: NEKO LIGHTING AG		

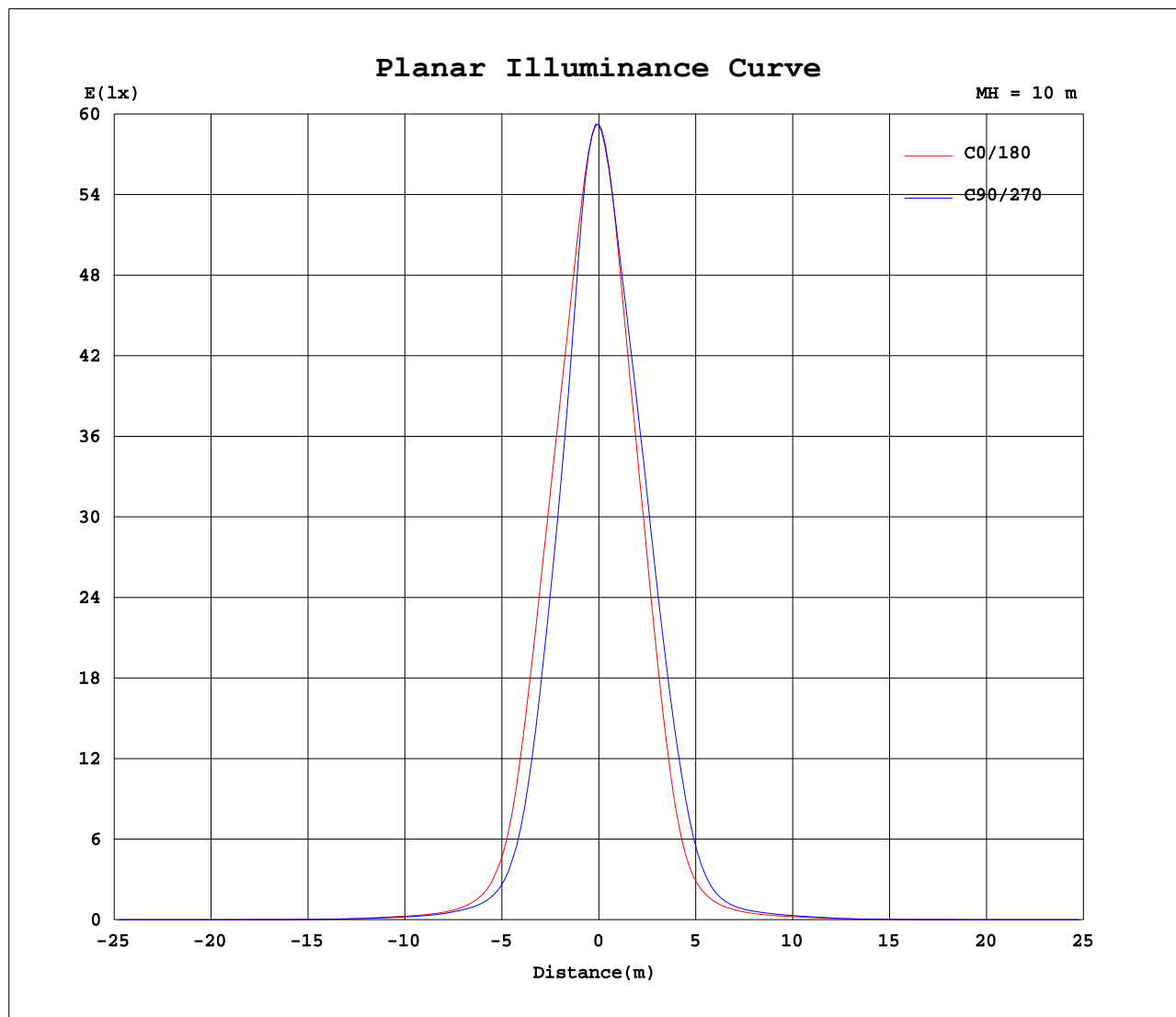
AvgL	cd/m2
L_0~180 (65) av	4040
L_0~180 (75) av	227
L_0~180 (85) av	280
L_90~270 (65) av	4148
L_90~270 (75) av	225
L_90~270 (85) av	274
L_45 (65) av	4161
L_45 (75) av	228
L_45 (85) av	282

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-05-19

$\gamma$  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: 2017-05-19

$\gamma$  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:

```