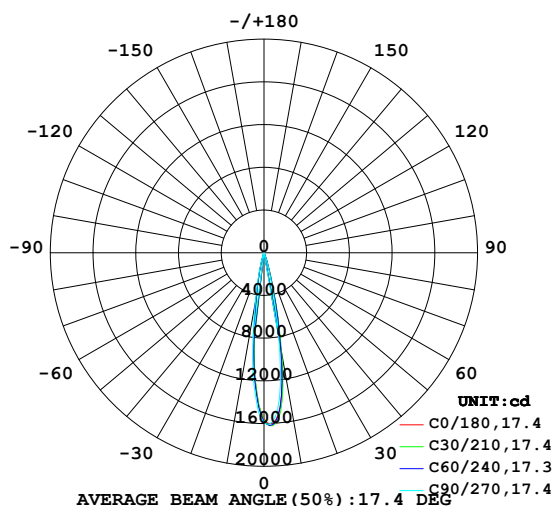


**LUMINAIRE PHOTOMETRIC TEST REPORT**

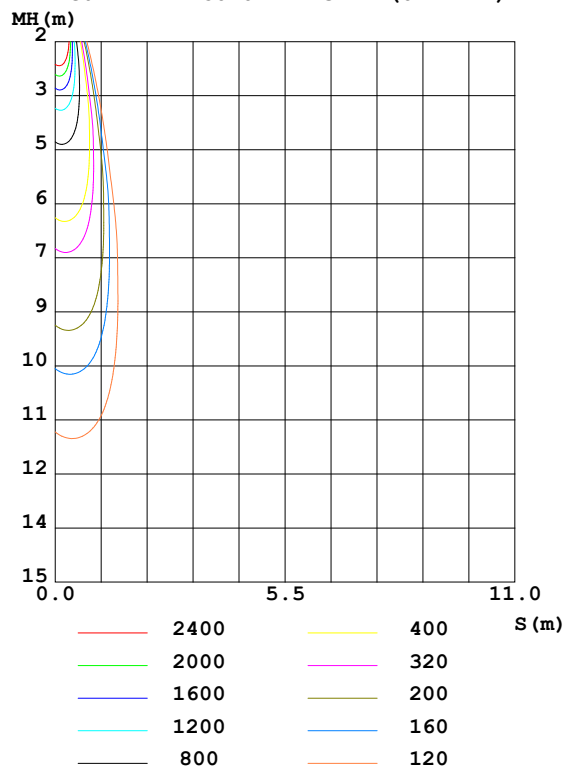
Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 72mm*H150mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 88.00 lm/W			
MODEL	CITIZEN-3000K	I <sub>max</sub> (cd)	16211	S/MH (C0/180)	0.24
NOMINAL POWER (W)	21	LOR (%)	100.0	S/MH (C90/270)	0.26
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1783.8	$\eta$ UP, DN (C0-180)	0.0, 61.4
NOMINAL FLUX (lm)	1783.84	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 38.6
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:Jason Long  
Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
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	909.1	967.5	795.6	769.9	413.5	384.4	471.2	519.9	0- 10	1029	1029	57.7, 57.7
20	71.50	73.07	64.34	66.97	28.11	26.38	30.95	31.45	10- 20	631.6	1661	93.1, 93.1
30	8.233	8.648	7.685	7.596	5.223	5.211	5.912	5.992	20- 30	79.55	1740	97.6, 97.6
40	2.775	2.855	2.582	2.666	2.045	2.003	2.145	2.152	30- 40	25.24	1766	99, 99
50	1.230	1.230	1.089	1.108	0.7716	0.7667	0.8584	0.9080	40- 50	12.52	1778	99.7, 99.7
60	0.3740	0.3937	0.2443	0.1949	0.0675	0.0659	0.0849	0.0964	50- 60	4.908	1783	100, 100
70	0.0510	0.0393	0.0289	0.0349	0.0074	0.0088	0.0124	0.0171	60- 70	0.6526	1784	100, 100
80	0.0070	0.0050	0.0068	0.0050	0.0035	0.0042	0.0037	0.0044	70- 80	0.0972	1784	100, 100
90	0.0055	0.0046	0.0055	0.0052	0.0039	0.0037	0.0037	0.0035	80- 90	0.0503	1784	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: $\times 10\text{cd}$									UNIT: lm		

Conical surface Flux(90deg): 1772.9 lm

%lum = 99.4%

%lamp = 99.4%

Conical surface Flux(120deg): 1783 lm

%lum = 100.0%

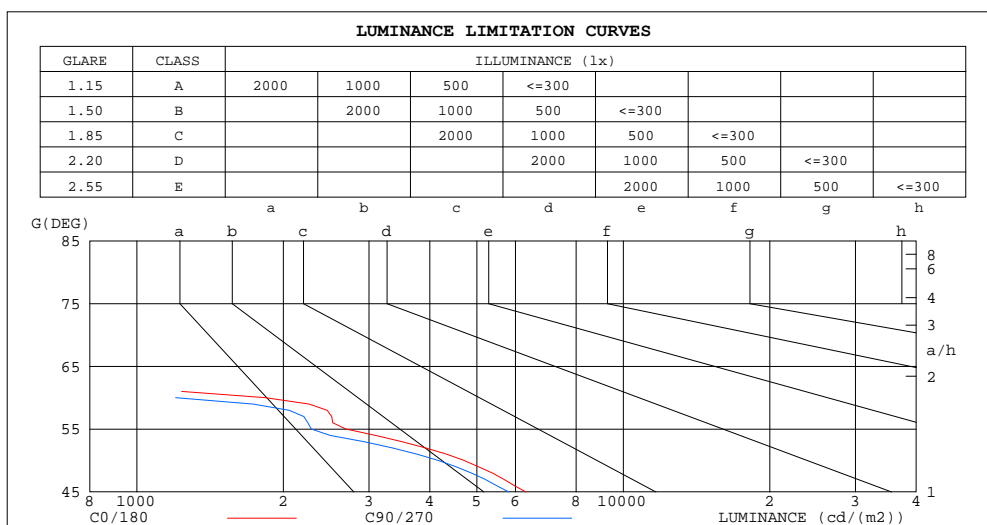
%lamp = 100.0%

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Jason Long  
Test Date: 2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity: 56%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

### LUMINANCE LIMITATION CURVES

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi 72\text{mm} \times H150\text{mm}$	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	160	167
80	99	96
75	96	81
70	367	208
65	485	346
60	1838	1201
55	2690	2284
50	4703	4163
45	6305	5814

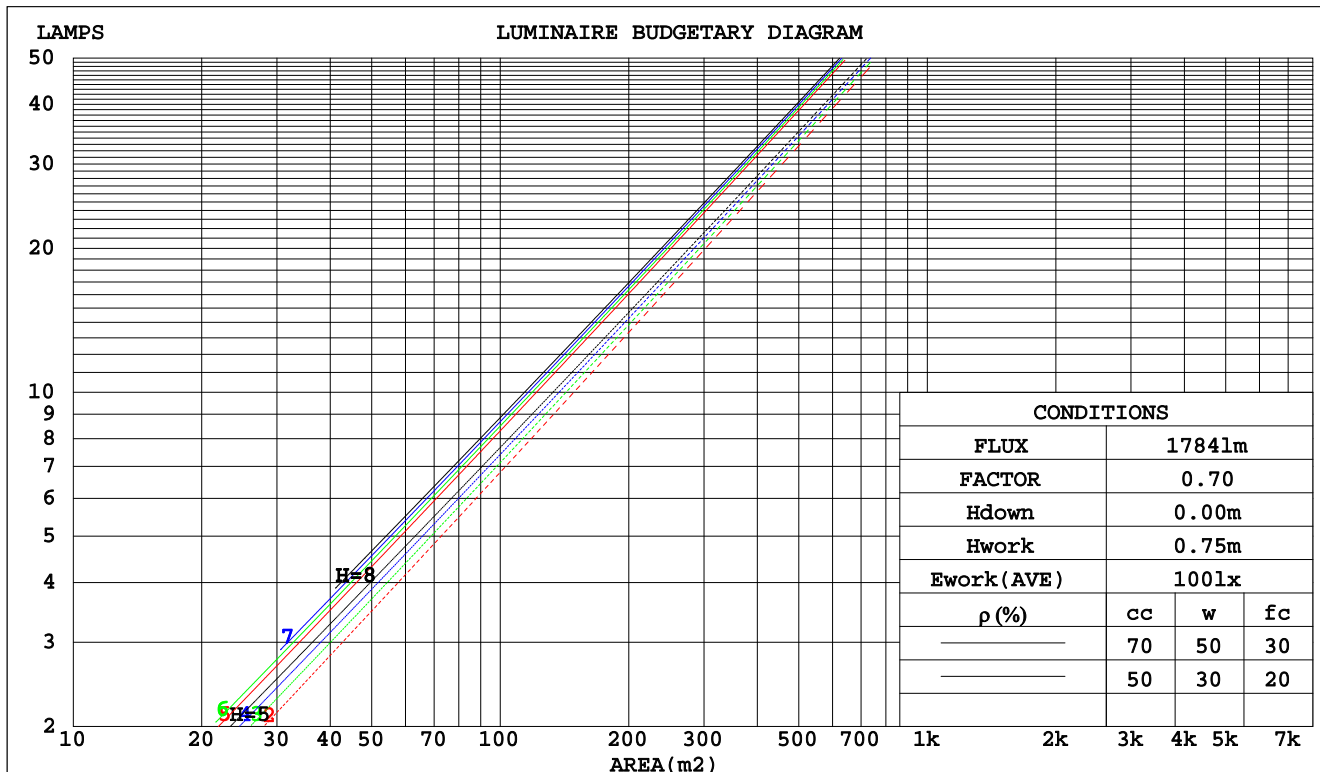
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
Test Distance:5.850m [K=1.0000]  
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi 72\text{mm} \times H150\text{mm}$	
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	1.14	1.12	1.11	1.12	1.10	1.09	1.08	1.07	1.06	1.04	1.03	1.03	1.01	1.00	.00	.98
2.0	1.10	1.07	1.05	1.08	1.06	1.04	1.05	1.03	1.02	1.02	1.01	.99	.99	.98	.97	.96
3.0	1.06	1.03	1.01	1.05	1.02	.00	1.02	1.00	.98	1.00	.98	.97	.98	.97	.95	.94
4.0	1.03	.00	.97	1.02	.99	.97	1.00	.98	.96	.98	.96	.95	.97	.95	.94	.93
5.0	1.00	.97	.95	.00	.96	.94	.98	.95	.93	.97	.94	.93	.95	.93	.92	.91
6.0	.98	.95	.92	.97	.94	.92	.96	.93	.91	.95	.93	.91	.94	.92	.90	.89
7.0	.96	.93	.90	.95	.92	.90	.94	.92	.90	.93	.91	.89	.93	.90	.89	.88
8.0	.94	.91	.88	.94	.90	.88	.93	.90	.88	.92	.89	.88	.91	.89	.87	.87
9.0	.92	.89	.87	.92	.89	.87	.91	.88	.87	.91	.88	.86	.90	.88	.86	.85
10.0	.91	.88	.86	.90	.87	.85	.90	.87	.85	.89	.87	.85	.89	.86	.85	.84



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
Test Distance:5.850m [K=1.0000]  
Remarks:

WEC AND CCEC

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: φ72mm*H150mm	
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	.118	.067	.021	.112	.064	.020	.100	.057	.018	.088	.051	.016	.078	.045	.015		
2.0	.108	.059	.018	.103	.056	.017	.093	.051	.016	.083	.047	.015	.075	.042	.013		
3.0	.099	.053	.016	.095	.051	.015	.086	.047	.014	.079	.043	.013	.072	.040	.012		
4.0	.092	.048	.014	.088	.046	.014	.081	.043	.013	.075	.040	.012	.069	.037	.011		
5.0	.085	.043	.013	.082	.042	.012	.076	.040	.012	.071	.037	.011	.066	.035	.011		
6.0	.080	.040	.011	.077	.039	.011	.072	.037	.011	.068	.035	.010	.063	.033	.010		
7.0	.075	.037	.011	.073	.036	.010	.069	.035	.010	.065	.033	.010	.061	.032	.009		
8.0	.071	.035	.010	.069	.034	.010	.065	.033	.009	.062	.031	.009	.059	.030	.009		
9.0	.067	.033	.009	.066	.032	.009	.063	.031	.009	.060	.030	.009	.057	.029	.008		
10.0	.064	.031	.009	.063	.030	.008	.060	.029	.008	.057	.028	.008	.055	.028	.008		

pcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	.167	.158	.150	.143	.135	.129	.098	.093	.089	.056	.054	.052	.018	.017	.017	
2.0	.148	.133	.120	.127	.114	.104	.087	.079	.073	.050	.046	.043	.016	.015	.014	
3.0	.132	.113	.098	.113	.098	.085	.077	.068	.060	.045	.040	.035	.014	.013	.012	
4.0	.118	.097	.082	.101	.084	.071	.070	.059	.050	.040	.034	.030	.013	.011	.010	
5.0	.107	.085	.069	.092	.073	.060	.063	.051	.042	.037	.030	.025	.012	.010	.008	
6.0	.097	.075	.058	.083	.065	.051	.057	.045	.036	.033	.027	.021	.011	.009	.007	
7.0	.089	.066	.050	.076	.057	.044	.053	.040	.031	.031	.024	.018	.010	.008	.006	
8.0	.082	.059	.043	.070	.051	.038	.049	.036	.027	.028	.021	.016	.009	.007	.005	
9.0	.076	.053	.038	.065	.046	.033	.045	.032	.023	.026	.019	.014	.009	.006	.005	
10.0	.070	.048	.033	.061	.042	.029	.042	.029	.021	.025	.017	.012	.008	.006	.004	

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-12-05

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
Test Distance:5.850m [K=1.0000]  
Remarks:

UGR(Unified Glare Rating) Table

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm										
NAME: ROXY S-Z-21W-930-18-35#18					TYPE:Tracklight			SERIAL No.:		
SPEC.:3000K					DIM.: $\phi$ 72mm*H150mm					
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	4.9	4.6	5.0	5.2	3.9	4.4	4.1	4.6	4.7
3H	4.2	4.7	4.5	4.9	5.1	3.8	4.3	4.0	4.5	4.7
4H	4.2	4.6	4.4	4.8	5.0	3.7	4.2	4.0	4.4	4.6
6H	4.1	4.5	4.4	4.8	5.0	3.6	4.1	3.9	4.3	4.6
8H	4.0	4.5	4.3	4.7	5.0	3.6	4.0	3.9	4.3	4.5
12H	4.0	4.4	4.3	4.7	4.9	3.6	4.0	3.9	4.2	4.5
4H 2H	4.2	4.7	4.5	4.9	5.1	3.8	4.3	4.1	4.5	4.7
3H	4.1	4.5	4.4	4.8	5.0	3.7	4.1	4.0	4.3	4.6
4H	4.0	4.4	4.3	4.7	5.0	3.6	4.0	3.9	4.3	4.5
6H	3.9	4.2	4.3	4.6	4.9	3.5	3.8	3.8	4.1	4.5
8H	3.8	4.2	4.2	4.5	4.9	3.4	3.7	3.8	4.1	4.4
12H	3.8	4.1	4.2	4.5	4.8	3.4	3.7	3.8	4.0	4.4
8H 4H	3.8	4.2	4.2	4.5	4.9	3.4	3.7	3.8	4.1	4.4
6H	3.7	4.0	4.1	4.4	4.8	3.3	3.6	3.7	4.0	4.4
8H	3.7	3.9	4.1	4.3	4.8	3.2	3.5	3.7	3.9	4.3
12H	3.6	3.8	4.1	4.2	4.7	3.2	3.4	3.6	3.8	4.3
12H 4H	3.8	4.1	4.2	4.4	4.8	3.4	3.7	3.8	4.0	4.4
6H	3.7	3.9	4.1	4.3	4.8	3.2	3.5	3.7	3.9	4.3
8H	3.6	3.8	4.1	4.2	4.7	3.2	3.4	3.6	3.8	4.3
Variations with the observer position at spacings:										
S = 1.0H	+ 2.0 / - 4.6					+ 2.0 / - 5.0				
1.5H	+ 2.5 / - 3.7					+ 2.5 / - 3.5				
2.0H	+ 3.8 / -10.7					+ 3.9 / -11.0				

CIE Pub.117, 1784 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:Jason Long  
Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
Test Distance:5.850m [K=1.0000]  
Remarks:

UTILIZATION FACTORS TABLE

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\varnothing 72\text{mm} \times H150\text{mm}$	
MFR.: NEKO LIGHTING AG		

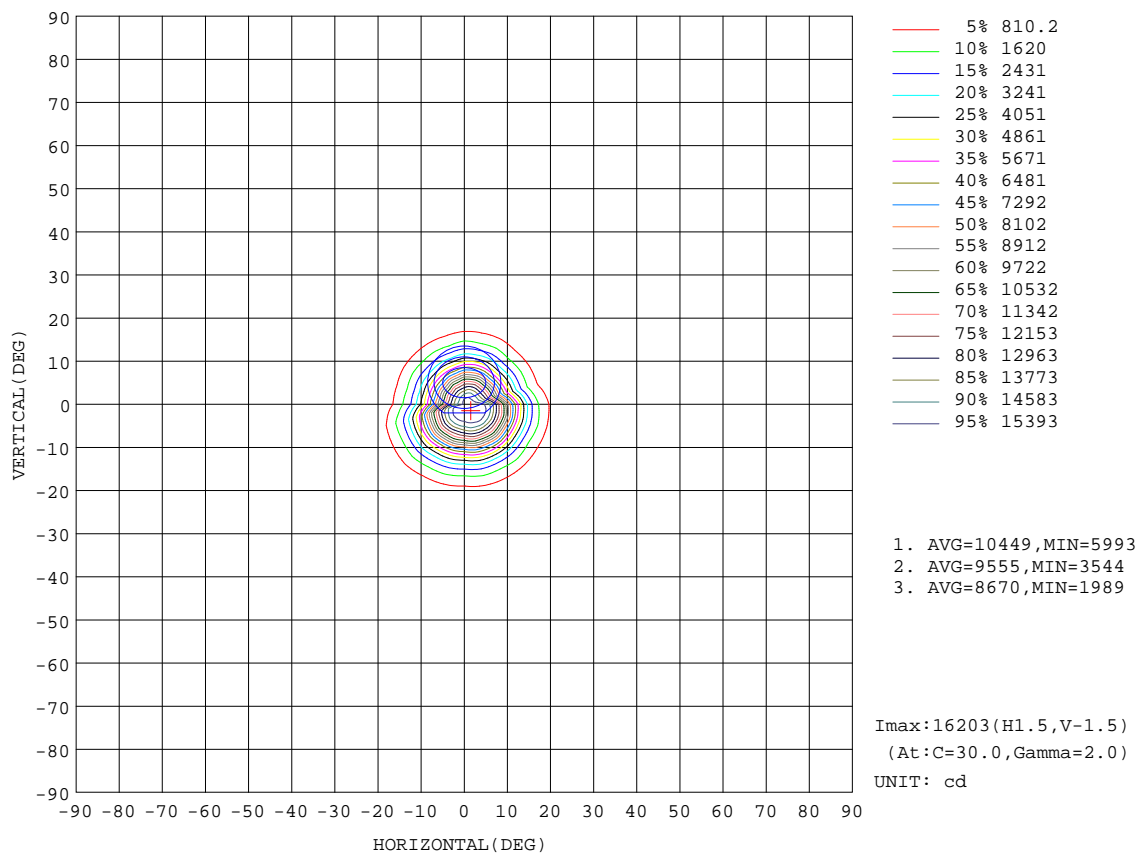
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	91	85	82	90	85	82	90	85	82	78
0.80	98	93	89	97	92	89	96	92	89	86
1.00	102	97	93	101	96	93	99	96	93	89
1.25	105	101	98	104	100	97	102	99	96	92
1.50	108	103	100	106	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	110	110	108	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:Jason Long  
 Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
 Humidity:56%  
 Test Distance:5.850m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 72mm*H150mm	
MFR.: NEKO LIGHTING AG		



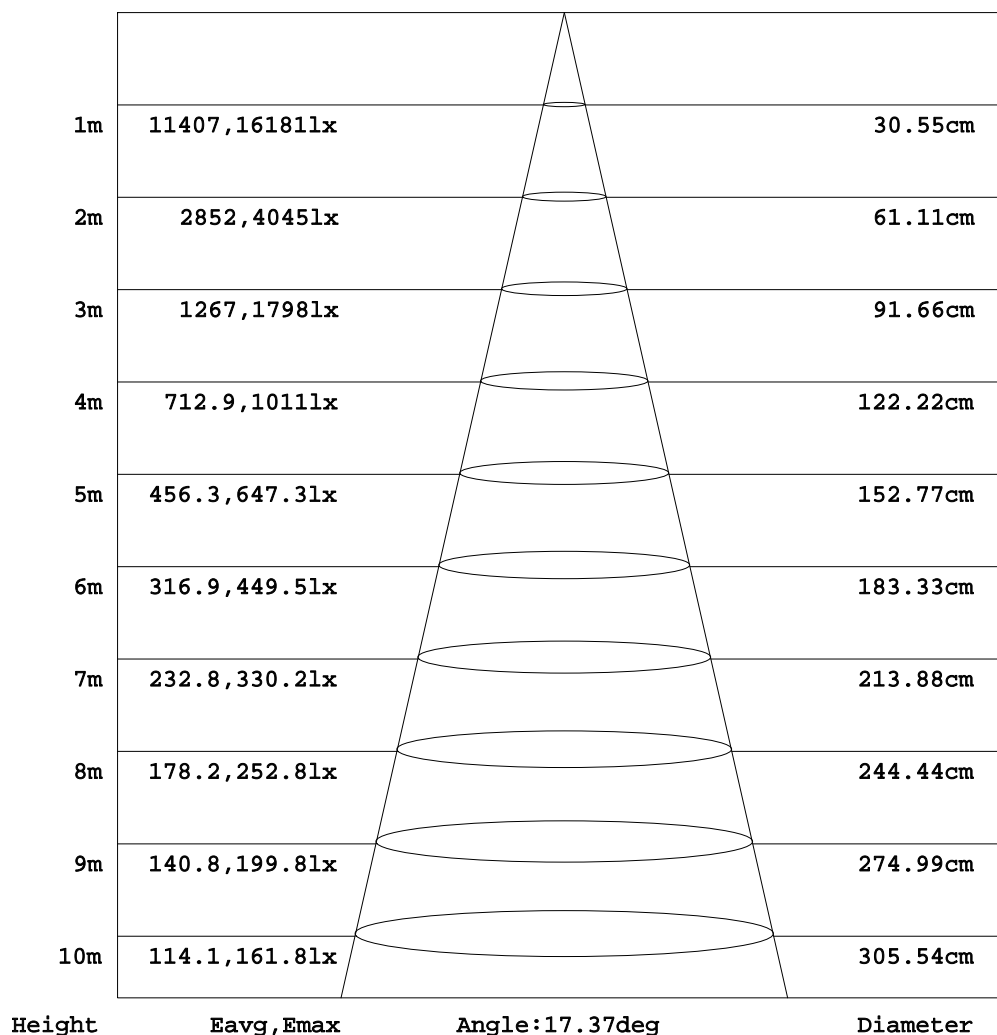
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
Test Distance:5.850m [K=1.0000]  
Remarks:

**AAI Figure**

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 72mm*H150mm	
MFR.: NEKO LIGHTING AG		

Flux out:899.0 lm



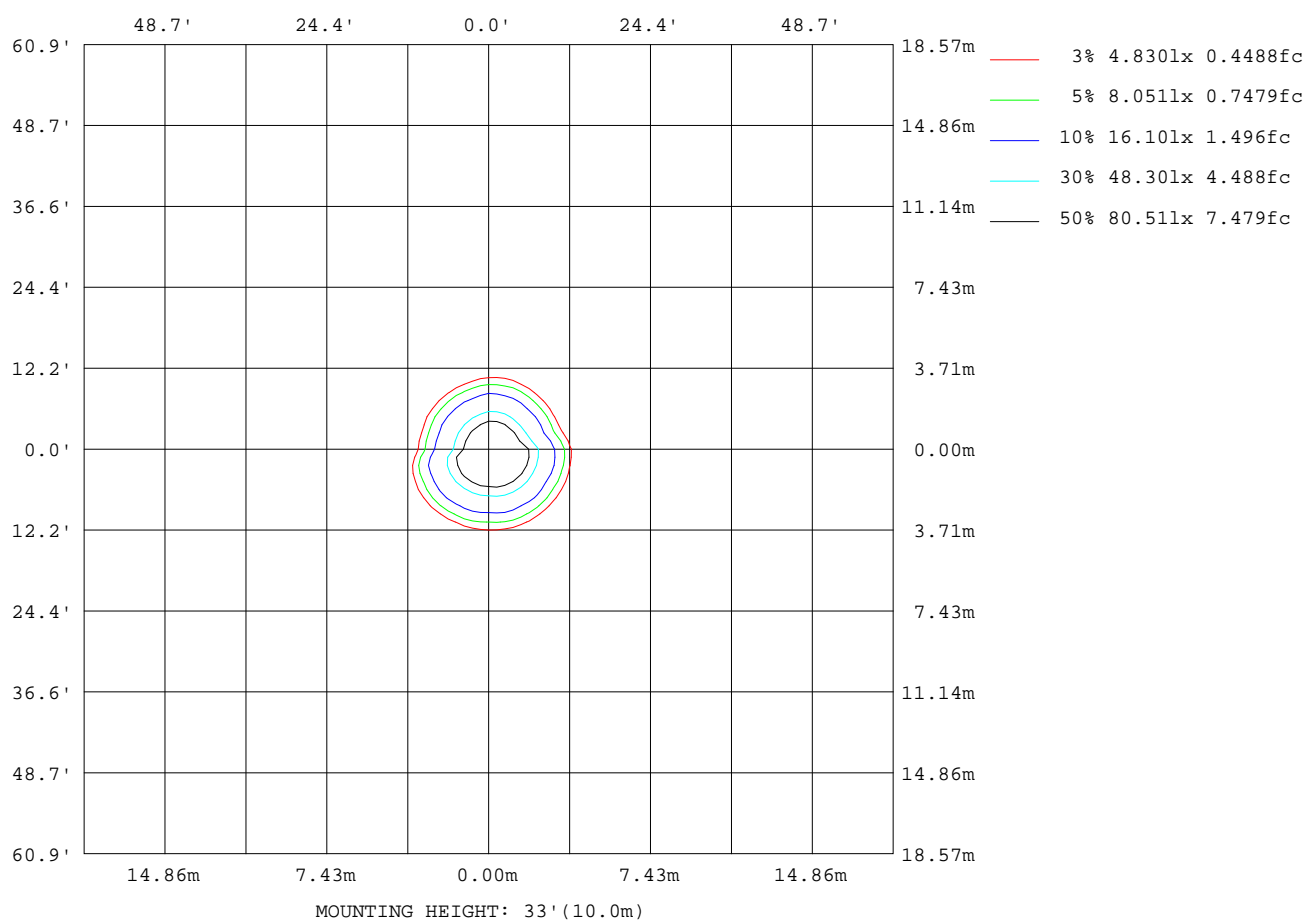
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
Test Distance:5.850m [K=1.0000]  
Remarks:

**ISOLUX DIAGRAM**

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 72mm*H150mm	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
Test Distance:5.850m [K=1.0000]  
Remarks:

### LED Avg.L Report

Test:U:220.0V I:0.0921A P:20.27W PF:0.9538 Freq:59.98Hz Lamp Flux:1783.84x1 lm		
NAME: ROXY S-Z-21W-930-18-35#18	TYPE:Tracklight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 72mm*H150mm	
MFR.: NEKO LIGHTING AG		

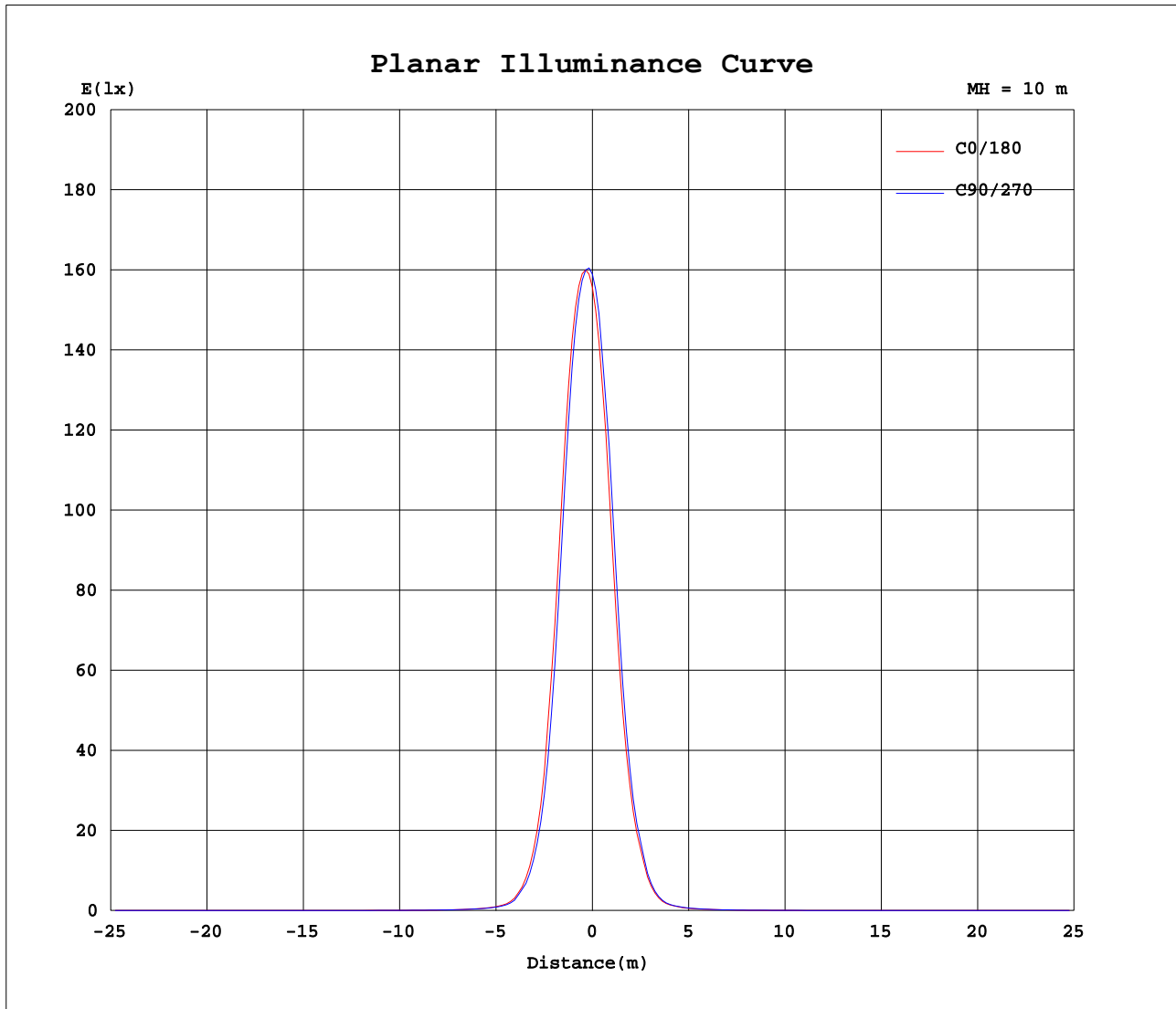
AvgL	cd/m2
L_0~180 (65) av	345
L_0~180 (75) av	64
L_0~180 (85) av	133
L_90~270 (65) av	305
L_90~270 (75) av	58
L_90~270 (85) av	136
L_45 (65) av	319
L_45 (75) av	59
L_45 (85) av	119

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:56%  
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: Jason Long  
Test Date: 2019-12-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity: 56%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:56%
Test Distance:5.850m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:56%
Test Distance:5.850m [K=1.0000]
Remarks:

```