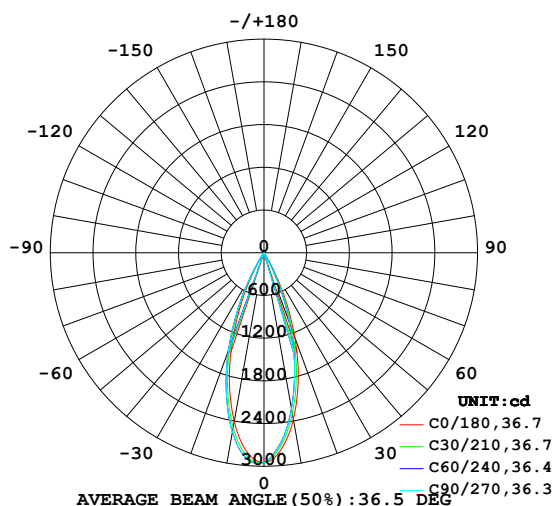


**LUMINAIRE PHOTOMETRIC TEST REPORT**

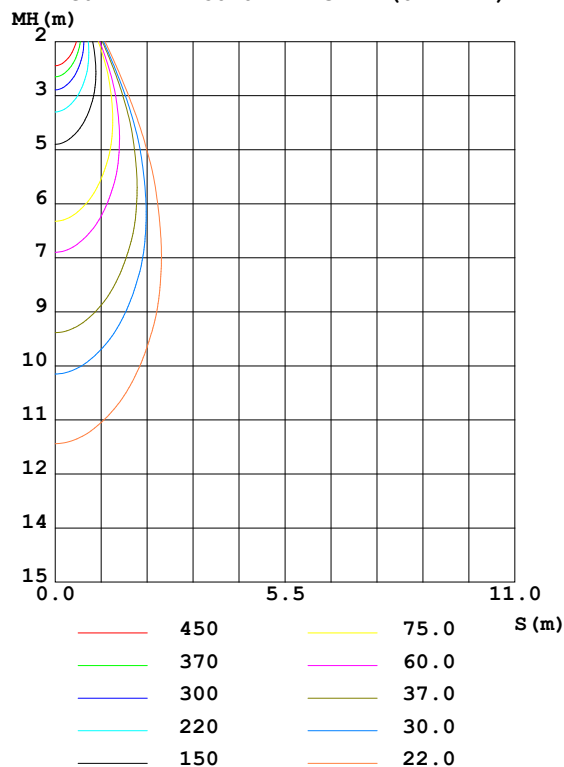
Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 71.22 lm/W			
MODEL	CITIZEN-3000K	I <sub>max</sub> (cd)	2972	S/MH (C0/180)	0.59
NOMINAL POWER (W)	15	LOR (%)	100.0	S/MH (C90/270)	0.63
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1105.1	$\eta$ UP, DN (C0-180)	0.0, 48.7
NOMINAL FLUX (lm)	1105.1	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 51.3
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE (V)	220	$\eta$ down (%)	100.0	CIBSE SHR MAX	0.60

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: 2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity: 58%  
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	2378	2268	2228	2515	2407	2506	2555	2272	0- 10	253.5	253.5	22.9,22.9
20	1271	1116	1048	1399	1276	1412	1459	1117	10- 20	507.2	760.7	68.8,68.8
30	181.0	126.1	94.75	284.9	209.5	286.4	295.7	111.1	20- 30	305.8	1067	96.5,96.5
40	9.132	7.897	7.684	11.82	9.889	10.81	10.71	8.175	30- 40	31.69	1098	99.4,99.4
50	2.805	2.421	2.553	3.639	3.197	3.578	3.542	2.482	40- 50	4.385	1103	99.8,99.8
60	1.011	0.9544	1.057	1.183	1.121	1.179	1.128	0.9970	50- 60	1.581	1104	99.9,99.9
70	0.2259	0.1926	0.2582	0.3905	0.2745	0.3276	0.2793	0.2078	60- 70	0.6472	1105	100,100
80	0.1011	0.0758	0.1147	0.1302	0.0988	0.1127	0.0903	0.0950	70- 80	0.1728	1105	100,100
90	0.0537	0.0520	0.0573	0.0552	0.0408	0.0433	0.0441	0.0353	80- 90	0.0765	1105	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): 1100.9 lm

%lum = 99.6%

%lamp = 99.6%

Conical surface Flux(120deg): 1104.2 lm

%lum = 99.9%

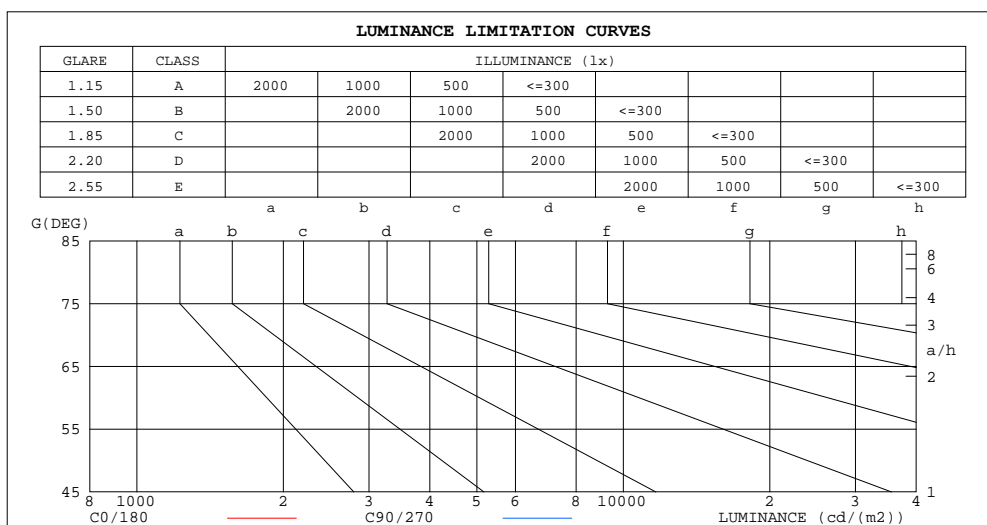
%lamp = 99.9%

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	41	45
80	29	33
75	29	33
70	33	37
65	66	77
60	102	104
55	134	133
50	221	196
45	377	323

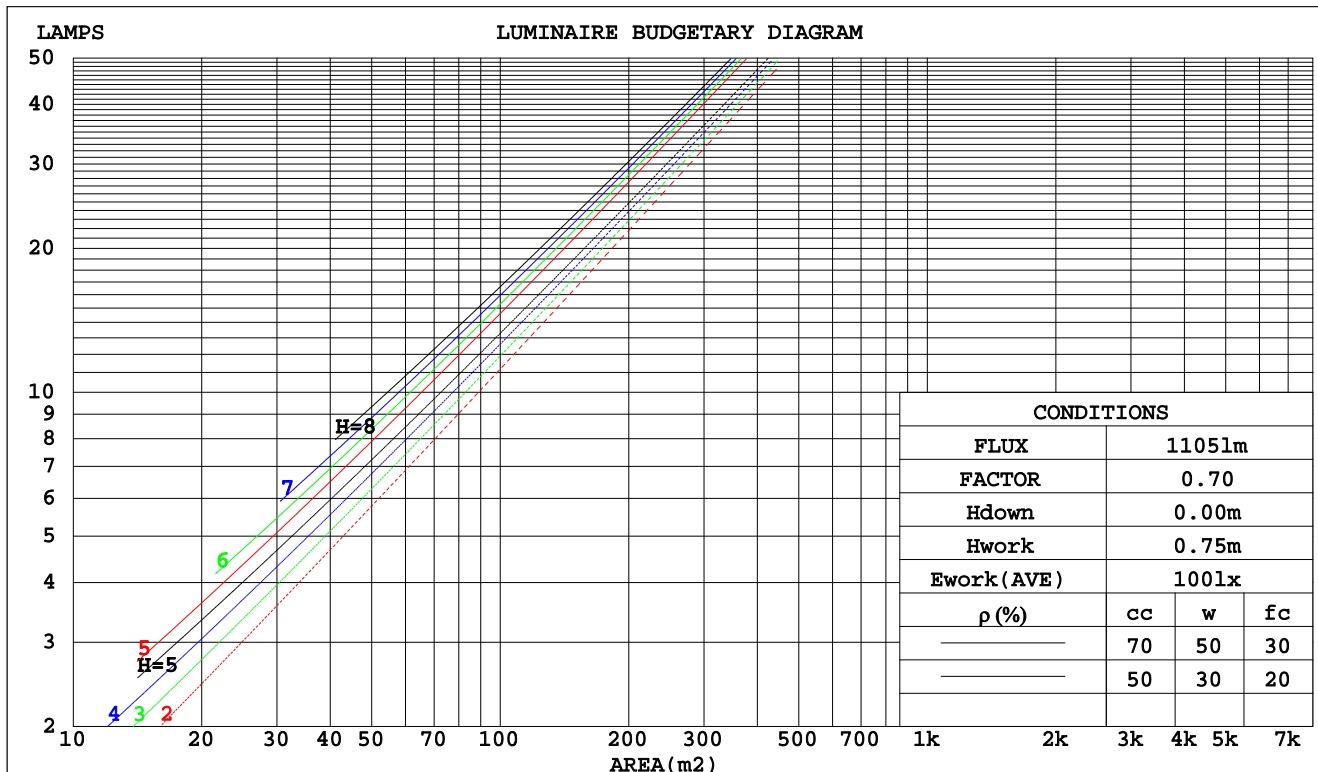
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*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	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	.00
1.0	1.12	1.10	1.09	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.00	.99	.98	.98	.96
2.0	1.07	1.03	1.01	1.05	1.02	.00	1.02	.99	.97	.99	.97	.95	.96	.95	.93	.92
3.0	1.02	.98	.94	1.00	.97	.94	.98	.95	.92	.95	.93	.91	.93	.91	.90	.88
4.0	.97	.93	.89	.96	.92	.89	.94	.90	.88	.92	.89	.87	.90	.88	.86	.85
5.0	.93	.88	.85	.92	.88	.85	.90	.87	.84	.89	.86	.83	.87	.85	.82	.81
6.0	.89	.84	.81	.88	.84	.81	.87	.83	.80	.86	.82	.80	.84	.82	.79	.78
7.0	.85	.81	.78	.85	.81	.77	.84	.80	.77	.83	.79	.77	.82	.79	.76	.75
8.0	.82	.78	.74	.82	.77	.74	.81	.77	.74	.80	.76	.74	.79	.76	.74	.72
9.0	.79	.75	.72	.79	.74	.72	.78	.74	.71	.77	.74	.71	.76	.73	.71	.70
10.0	.76	.72	.69	.76	.72	.69	.75	.71	.69	.75	.71	.69	.74	.71	.68	.67



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:

WEC AND CCEC

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*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	.146	.083	.026	.140	.080	.025	.127	.073	.023	.116	.067	.021	.105	.061	.020		
2.0	.136	.075	.023	.131	.072	.022	.121	.067	.021	.111	.062	.020	.102	.058	.018		
3.0	.128	.068	.020	.124	.066	.020	.115	.062	.019	.107	.059	.018	.099	.055	.017		
4.0	.121	.063	.018	.117	.061	.018	.110	.058	.017	.103	.055	.017	.097	.052	.016		
5.0	.115	.058	.017	.111	.057	.017	.105	.055	.016	.099	.052	.016	.094	.050	.015		
6.0	.109	.055	.016	.106	.054	.015	.101	.052	.015	.096	.050	.015	.091	.048	.014		
7.0	.104	.051	.015	.102	.051	.014	.097	.049	.014	.092	.047	.014	.088	.046	.013		
8.0	.100	.049	.014	.097	.048	.014	.093	.047	.013	.089	.045	.013	.086	.044	.013		
9.0	.096	.046	.013	.094	.046	.013	.090	.044	.013	.086	.043	.012	.083	.042	.012		
10.0	.092	.044	.012	.090	.044	.012	.087	.043	.012	.084	.042	.012	.081	.041	.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	.137	.113	.094	.118	.098	.082	.081	.068	.057	.047	.040	.034	.015	.013	.011	
4.0	.125	.098	.077	.107	.085	.067	.074	.059	.047	.043	.035	.028	.014	.011	.009	
5.0	.115	.086	.064	.099	.074	.056	.068	.052	.040	.039	.031	.023	.013	.010	.008	
6.0	.107	.076	.054	.092	.066	.047	.063	.046	.033	.037	.027	.020	.012	.009	.007	
7.0	.100	.068	.046	.086	.059	.040	.059	.041	.028	.034	.024	.017	.011	.008	.006	
8.0	.093	.062	.040	.080	.053	.035	.056	.038	.025	.032	.022	.015	.010	.007	.005	
9.0	.088	.056	.034	.076	.049	.030	.053	.034	.021	.031	.020	.013	.010	.007	.004	
10.0	.083	.051	.030	.072	.045	.026	.050	.031	.019	.029	.019	.011	.009	.006	.004	

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Jason Long  
 Test Date:2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
 Humidity:58%  
 Test Distance:5.850m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*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	-2.1	-1.3	-1.8	-1.2	-1.0	-5.9	-5.2	-5.7	-5.0	-4.9
3H	-2.2	-1.5	-1.9	-1.3	-1.1	-6.0	-5.3	-5.7	-5.1	-4.9
4H	-2.3	-1.6	-2.0	-1.4	-1.2	-6.0	-5.4	-5.8	-5.2	-5.0
6H	-2.3	-1.7	-2.1	-1.5	-1.3	-6.1	-5.5	-5.8	-5.3	-5.0
8H	-2.4	-1.8	-2.1	-1.6	-1.3	-6.1	-5.5	-5.8	-5.3	-5.0
12H	-2.4	-1.9	-2.1	-1.6	-1.3	-6.1	-5.6	-5.8	-5.3	-5.1
4H 2H	-2.3	-1.6	-2.0	-1.4	-1.2	-6.0	-5.4	-5.8	-5.2	-5.0
3H	-2.4	-1.9	-2.1	-1.6	-1.3	-6.1	-5.6	-5.8	-5.3	-5.0
4H	-2.5	-2.0	-2.2	-1.7	-1.4	-6.2	-5.7	-5.8	-5.4	-5.1
6H	-2.6	-2.1	-2.2	-1.8	-1.5	-6.2	-5.8	-5.9	-5.5	-5.1
8H	-2.6	-2.2	-2.2	-1.9	-1.5	-6.3	-5.9	-5.9	-5.5	-5.2
12H	-2.7	-2.3	-2.3	-1.9	-1.5	-6.3	-5.9	-5.9	-5.6	-5.2
8H 4H	-2.6	-2.2	-2.3	-1.9	-1.5	-6.3	-5.9	-5.9	-5.6	-5.2
6H	-2.7	-2.4	-2.3	-2.0	-1.6	-6.4	-6.0	-6.0	-5.7	-5.2
8H	-2.8	-2.5	-2.4	-2.1	-1.6	-6.4	-6.1	-6.0	-5.7	-5.3
12H	-2.8	-2.6	-2.4	-2.1	-1.7	-6.4	-6.2	-6.0	-5.7	-5.3
12H 4H	-2.7	-2.3	-2.3	-1.9	-1.6	-6.4	-6.0	-6.0	-5.6	-5.2
6H	-2.8	-2.5	-2.4	-2.1	-1.6	-6.4	-6.1	-6.0	-5.7	-5.3
8H	-2.9	-2.6	-2.4	-2.2	-1.7	-6.5	-6.2	-6.0	-5.8	-5.3
Variations with the observer position at spacings:										
S = 1.0H	+ 3.2 / - 5.3					+ 2.2 / - 4.0				
1.5H	+ 4.8 / - 4.7					+ 3.6 / - 3.4				
2.0H	+ 4.7 / - 3.9					+ 4.0 / - 2.6				

CIE Pub.117, 1105 lm Total Lamp Luminous Flux Correct ( $8\log(F/F_0) = 0.3$ )

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:

UTILIZATION FACTORS TABLE

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

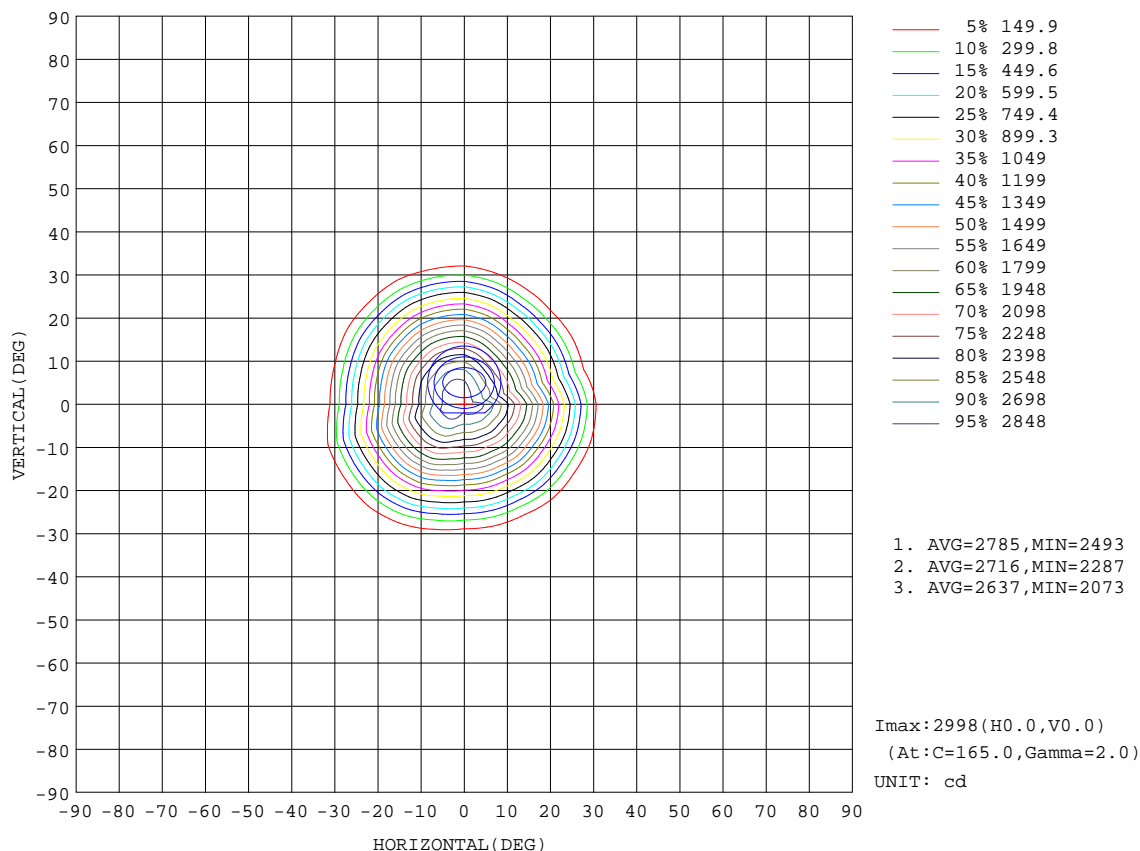
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	91	86	82	91	85	82	90	85	82	79
0.80	98	93	90	97	93	90	96	92	89	86
1.00	102	97	94	101	96	93	100	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	103	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					SHRNM = 1.25		

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Jason Long  
 Test Date:2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 $\gamma$  Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
 Humidity:58%  
 Test Distance:5.850m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2020-01-04

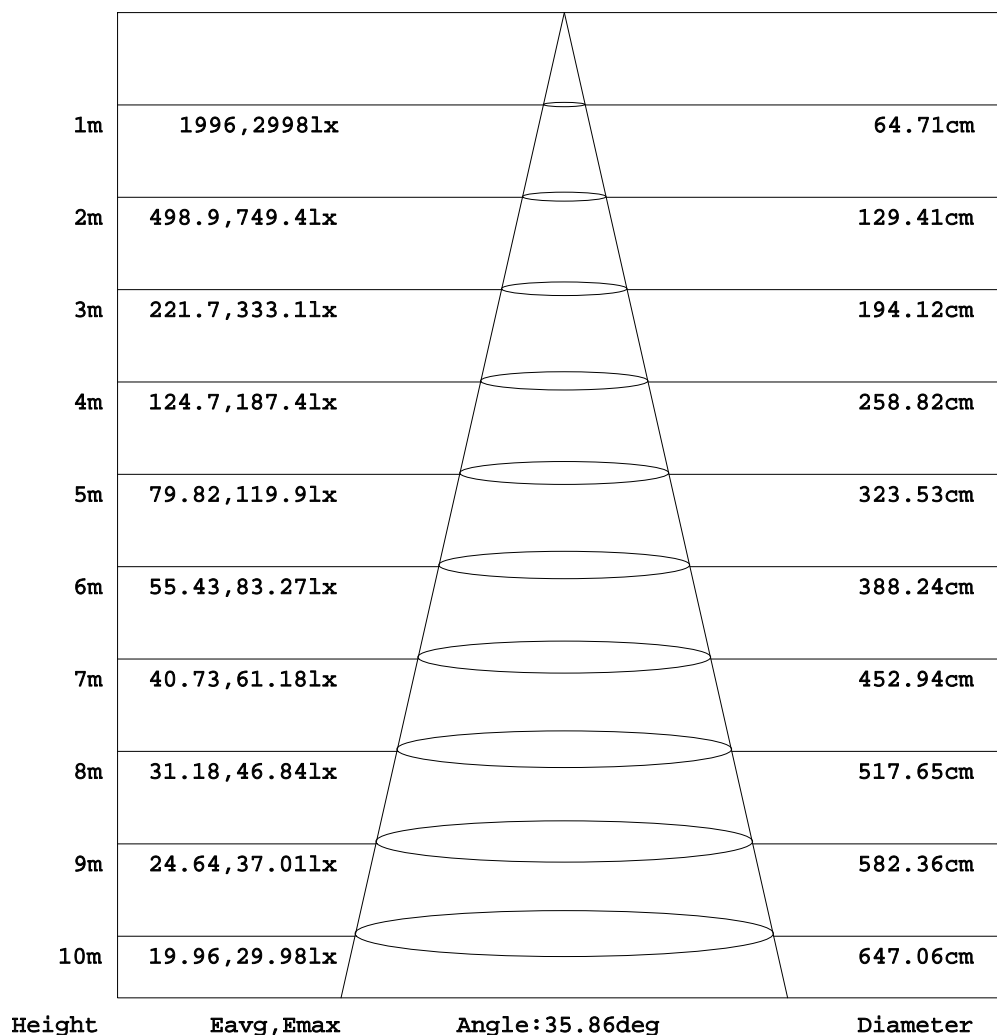
$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:



**AAI Figure**

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

Flux out:661.9 lm



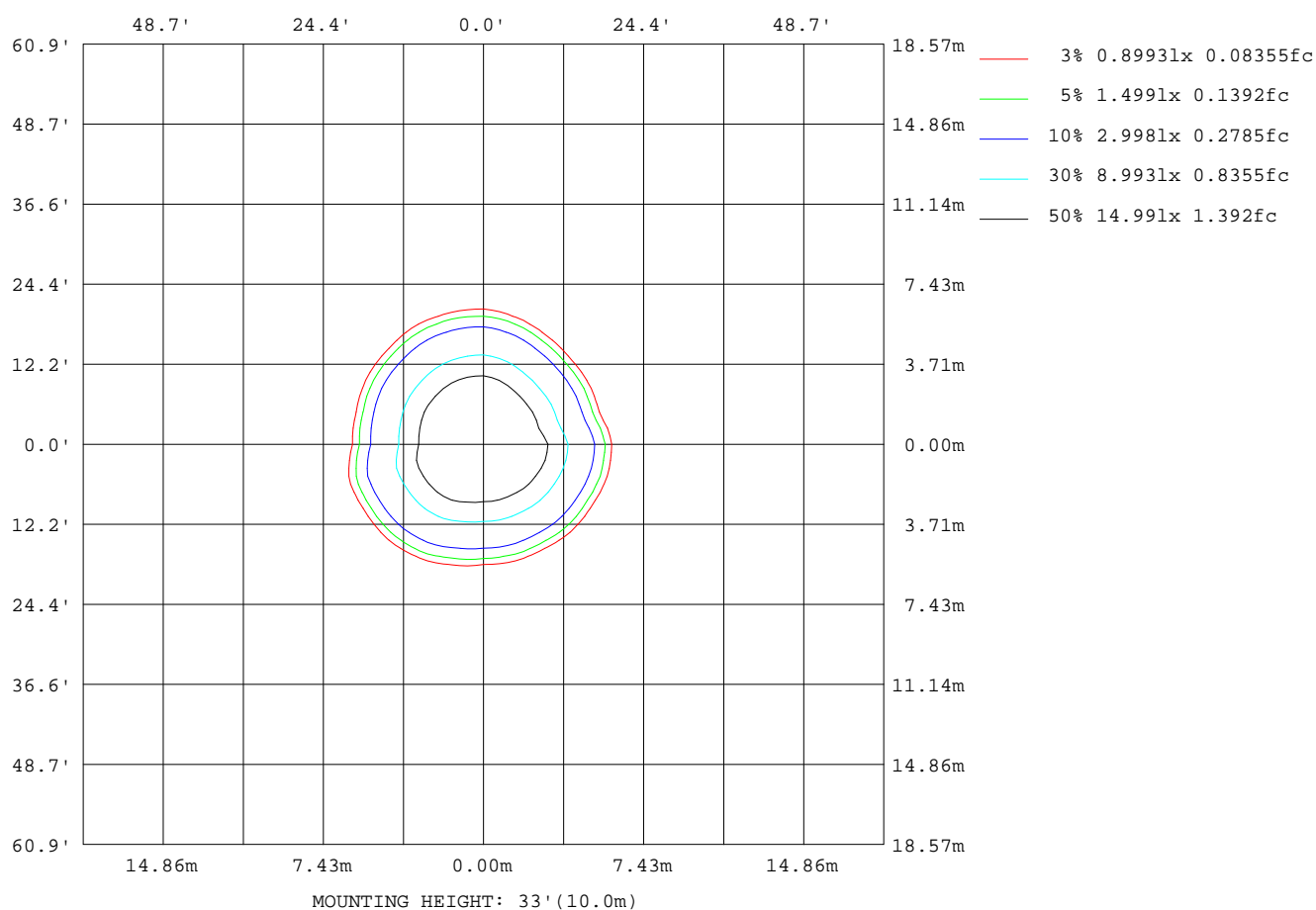
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Jason Long  
Test Date: 2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity: 58%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

**ISOLUX DIAGRAM**

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:

### LED Avg.L Report

Test:U:220.9V I:0.0742A P:15.52W PF:0.9460 Freq:49.99Hz Lamp Flux:1105.1x1 lm		
NAME: ROXY Art-Z-15W-930-35-60#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\phi$ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

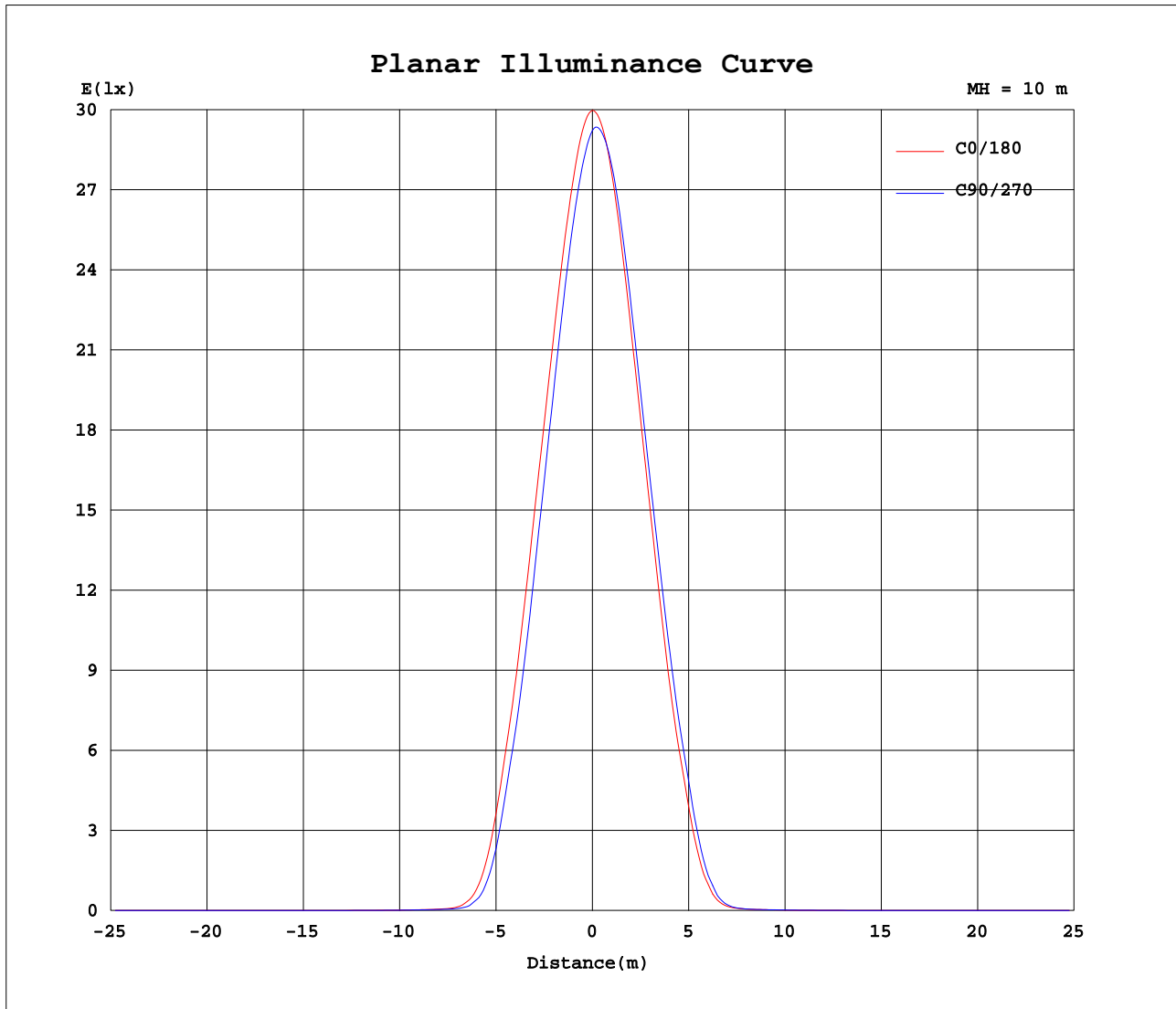
AvgL	cd/m2
L_0~180 (65) av	75
L_0~180 (75) av	29
L_0~180 (85) av	37
L_90~270 (65) av	78
L_90~270 (75) av	30
L_90~270 (85) av	41
L_45 (65) av	78
L_45 (75) av	30
L_45 (85) av	38

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Jason Long  
 Test Date:2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
 Humidity:58%  
 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: 2020-01-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity: 58%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:58%
Test Distance:5.850m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:58%
Test Distance:5.850m [K=1.0000]
Remarks:

```