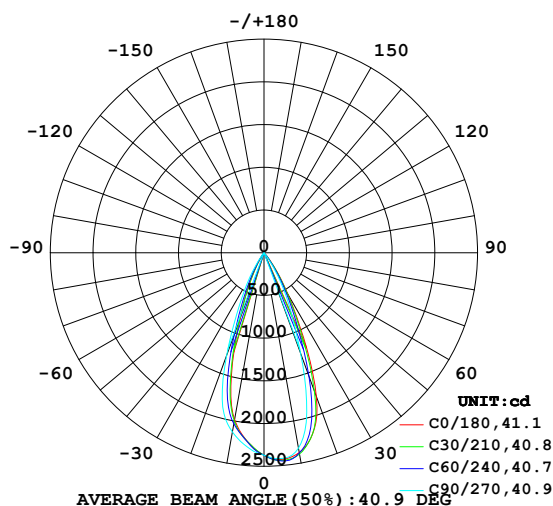


LUMINAIRE PHOTOMETRIC TEST REPORT

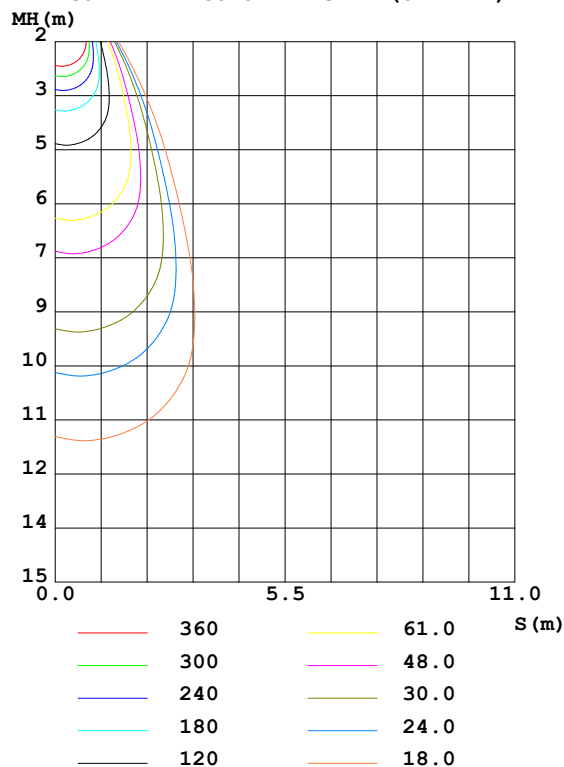
Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 78.54 lm/W			
MODEL	CITIZEN-3000K	I _{max} (cd)	2451	S/MH (C0/180)	0.54
NOMINAL POWER (W)	15	LOR (%)	100.0	S/MH (C90/270)	0.63
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1159.1	η UP, DN (C0-180)	0.0, 52.2
NOMINAL FLUX (lm)	1159.15	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 47.8
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: Jason Long
Test Date: 2019-12-30

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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	2377	2410	2322	2108	1985	1991	2132	2308	0- 10	219.1	219.1	18.9,18.9
20	1795	1675	1258	980.5	813.4	903.5	1287	1640	10- 20	504.5	723.6	62.4,62.4
30	565.1	511.6	377.8	226.8	157.6	179.3	330.4	483.7	20- 30	340.3	1064	91.8,91.8
40	58.47	40.90	14.04	7.676	5.296	8.335	17.22	37.44	30- 40	87.81	1152	99.4,99.4
50	4.101	3.116	1.849	1.303	1.141	1.423	2.195	3.660	40- 50	5.852	1158	99.9,99.9
60	0.8799	0.8006	0.5509	0.4008	0.3192	0.6075	0.6739	0.8983	50- 60	1.109	1159	100,100
70	0.1548	0.1068	0.1005	0.0659	0.0631	0.0939	0.1091	0.1494	60- 70	0.3141	1159	100,100
80	0.0719	0.0589	0.0655	0.0593	0.0370	0.0611	0.0545	0.0747	70- 80	0.0790	1159	100,100
90	0.0631	0.0611	0.0589	0.0593	0.0370	0.0371	0.0415	0.0527	80- 90	0.0612	1159	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): 1156 lm

%lum = 99.7%

%lamp = 99.7%

Conical surface Flux(120deg): 1158.7 lm

%lum = 100.0%

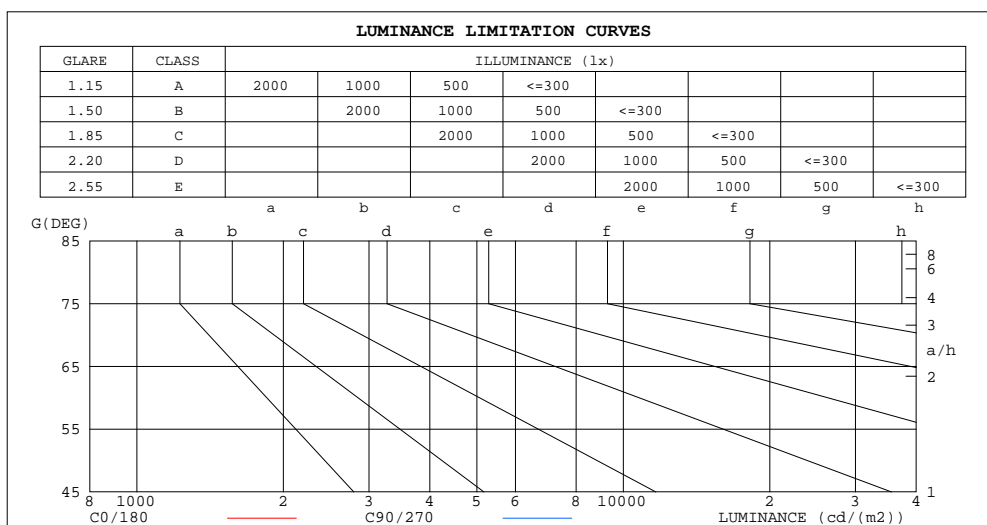
%lamp = 100.0%

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:

LUMINANCE LIMITATION CURVES

Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	37	35
80	21	19
75	17	14
70	23	15
65	64	21
60	88	55
55	145	72
50	319	143
45	657	331

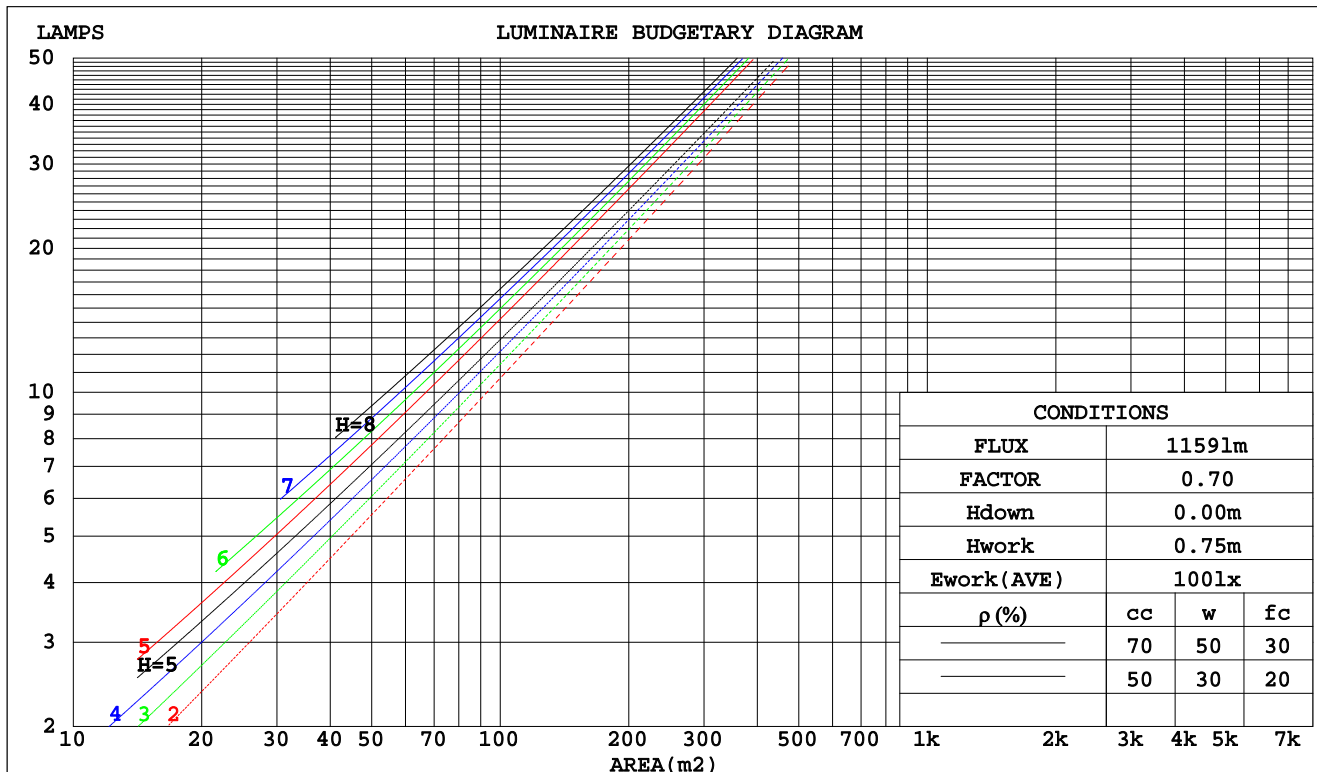
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 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	1.08	1.10	1.08	1.06	1.06	1.04	1.03	1.02	1.01	1.00	.99	.98	.97	.95
2.0	1.06	1.03	.00	1.04	1.01	.99	1.01	.99	.96	.98	.96	.94	.96	.94	.93	.91
3.0	1.00	.96	.93	.99	.95	.92	.97	.93	.91	.94	.92	.89	.92	.90	.88	.87
4.0	.96	.91	.88	.94	.90	.87	.92	.89	.86	.90	.87	.85	.89	.86	.84	.83
5.0	.91	.86	.83	.90	.86	.82	.88	.85	.82	.87	.84	.81	.85	.83	.80	.79
6.0	.87	.82	.79	.86	.82	.78	.85	.81	.78	.83	.80	.77	.82	.79	.77	.76
7.0	.83	.78	.75	.82	.78	.75	.81	.77	.74	.80	.77	.74	.79	.76	.73	.72
8.0	.80	.75	.71	.79	.74	.71	.78	.74	.71	.77	.73	.71	.76	.73	.70	.69
9.0	.76	.72	.68	.76	.71	.68	.75	.71	.68	.74	.70	.68	.74	.70	.68	.66
10.0	.73	.69	.65	.73	.68	.65	.72	.68	.65	.72	.68	.65	.71	.67	.65	.64



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:

WEC AND CCEC

Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

ρ_{cc}	80%			70%			50%			30%			10%			0	
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
ρ_{fc}	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.152	.087	.027	.146	.083	.026	.133	.076	.024	.122	.070	.023	.111	.064	.021		
2.0	.143	.078	.024	.138	.076	.023	.127	.071	.022	.118	.066	.021	.109	.062	.019		
3.0	.135	.072	.021	.130	.070	.021	.122	.066	.020	.113	.062	.019	.106	.059	.018		
4.0	.128	.066	.020	.124	.065	.019	.116	.062	.018	.109	.059	.018	.103	.056	.017		
5.0	.121	.062	.018	.118	.061	.018	.112	.058	.017	.106	.056	.017	.100	.053	.016		
6.0	.116	.058	.017	.113	.057	.016	.107	.055	.016	.102	.053	.016	.097	.051	.015		
7.0	.111	.055	.015	.108	.054	.015	.103	.052	.015	.099	.051	.015	.094	.049	.014		
8.0	.106	.052	.015	.104	.051	.014	.099	.050	.014	.095	.048	.014	.091	.047	.014		
9.0	.102	.049	.014	.100	.049	.014	.096	.047	.013	.092	.046	.013	.089	.045	.013		
10.0	.098	.047	.013	.096	.046	.013	.093	.045	.013	.089	.044	.013	.086	.043	.012		

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{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	.126	.099	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.152	.133	.116	.131	.114	.100	.089	.079	.070	.052	.046	.041	.017	.015	.013	
3.0	.138	.113	.093	.119	.098	.081	.081	.068	.057	.047	.040	.033	.015	.013	.011	
4.0	.127	.098	.076	.109	.085	.066	.075	.059	.047	.043	.035	.028	.014	.011	.009	
5.0	.117	.086	.063	.101	.075	.055	.069	.052	.039	.040	.031	.023	.013	.010	.008	
6.0	.109	.077	.053	.094	.066	.046	.065	.046	.033	.038	.027	.019	.012	.009	.006	
7.0	.102	.069	.045	.088	.060	.039	.061	.042	.028	.035	.025	.017	.011	.008	.005	
8.0	.096	.062	.039	.083	.054	.034	.057	.038	.024	.033	.022	.014	.011	.007	.005	
9.0	.091	.057	.034	.078	.049	.029	.054	.035	.021	.032	.020	.012	.010	.007	.004	
10.0	.086	.052	.030	.074	.045	.026	.052	.032	.018	.030	.019	.011	.010	.006	.004	

C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Jason Long
 Test Date:2019-12-30

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:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm										
NAME: ROXY Art-Z-15W-930-18-35#35					TYPE:Downlight			SERIAL No.:		
SPEC.:3000K					DIM.: ϕ 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	10.6	11.3	10.8	11.5	11.6	8.1	8.8	8.3	9.0	9.2
3H	10.4	11.1	10.6	11.3	11.5	7.9	8.6	8.2	8.8	9.0
4H	10.3	11.0	10.6	11.2	11.4	7.8	8.5	8.1	8.7	8.9
6H	10.2	10.9	10.5	11.1	11.3	7.8	8.4	8.0	8.6	8.9
8H	10.2	10.8	10.5	11.0	11.3	7.7	8.3	8.0	8.6	8.8
12H	10.1	10.7	10.4	11.0	11.3	7.7	8.2	8.0	8.5	8.8
4H 2H	10.3	11.0	10.6	11.2	11.4	7.8	8.5	8.1	8.7	8.9
3H	10.1	10.7	10.4	11.0	11.3	7.7	8.2	8.0	8.5	8.8
4H	10.0	10.6	10.4	10.9	11.2	7.6	8.1	7.9	8.4	8.7
6H	9.9	10.4	10.3	10.7	11.1	7.5	7.9	7.8	8.3	8.6
8H	9.9	10.3	10.3	10.7	11.0	7.4	7.9	7.8	8.2	8.6
12H	9.8	10.2	10.2	10.6	11.0	7.4	7.8	7.8	8.1	8.5
8H 4H	9.9	10.3	10.3	10.7	11.0	7.4	7.9	7.8	8.2	8.6
6H	9.8	10.1	10.2	10.5	10.9	7.3	7.7	7.7	8.1	8.5
8H	9.7	10.0	10.2	10.5	10.9	7.2	7.6	7.7	8.0	8.4
12H	9.7	9.9	10.1	10.4	10.8	7.2	7.5	7.7	7.9	8.4
12H 4H	9.8	10.2	10.2	10.6	11.0	7.4	7.8	7.8	8.1	8.5
6H	9.7	10.0	10.2	10.5	10.9	7.2	7.6	7.7	8.0	8.4
8H	9.7	9.9	10.1	10.4	10.8	7.2	7.5	7.7	7.9	8.4
Variations with the observer position at spacings:										
S = 1.0H	+ 4.9 / -20.1					+ 4.1 / -16.8				
1.5H	+ 7.6 / -18.4					+ 6.8 / -14.4				
2.0H	+ 6.7 / - 5.4					+ 5.6 / - 5.5				

CIE Pub.117, 1159 lm Total Lamp Luminous Flux Correct ($8\log(F/F_0) = 0.5$)

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:

UTILIZATION FACTORS TABLE

Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\varnothing 55\text{mm} \times H150\text{mm}$	
MFR.: NEKO LIGHTING AG		

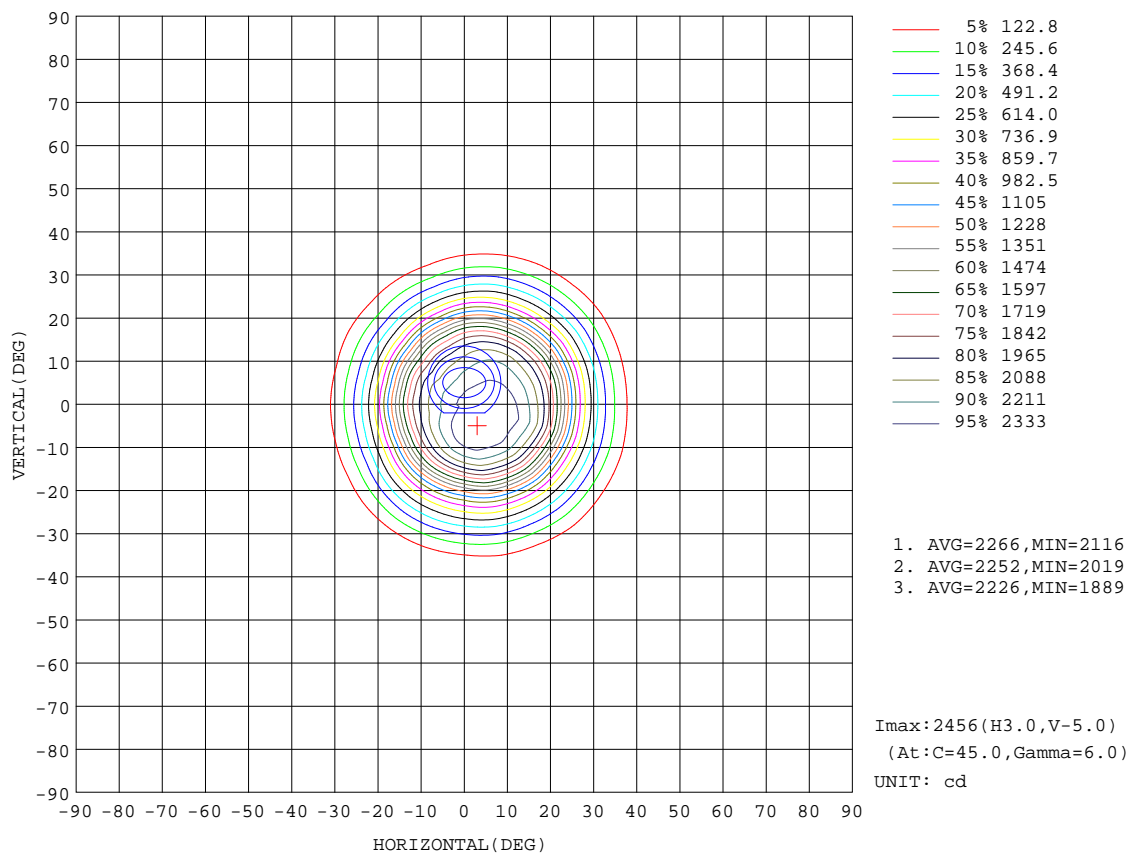
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	91	86	82	91	85	82	90	85	82	79
0.80	98	93	90	97	93	90	96	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	109	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:2019-12-30

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:

ISOCANDELA DIAGRAM

Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		



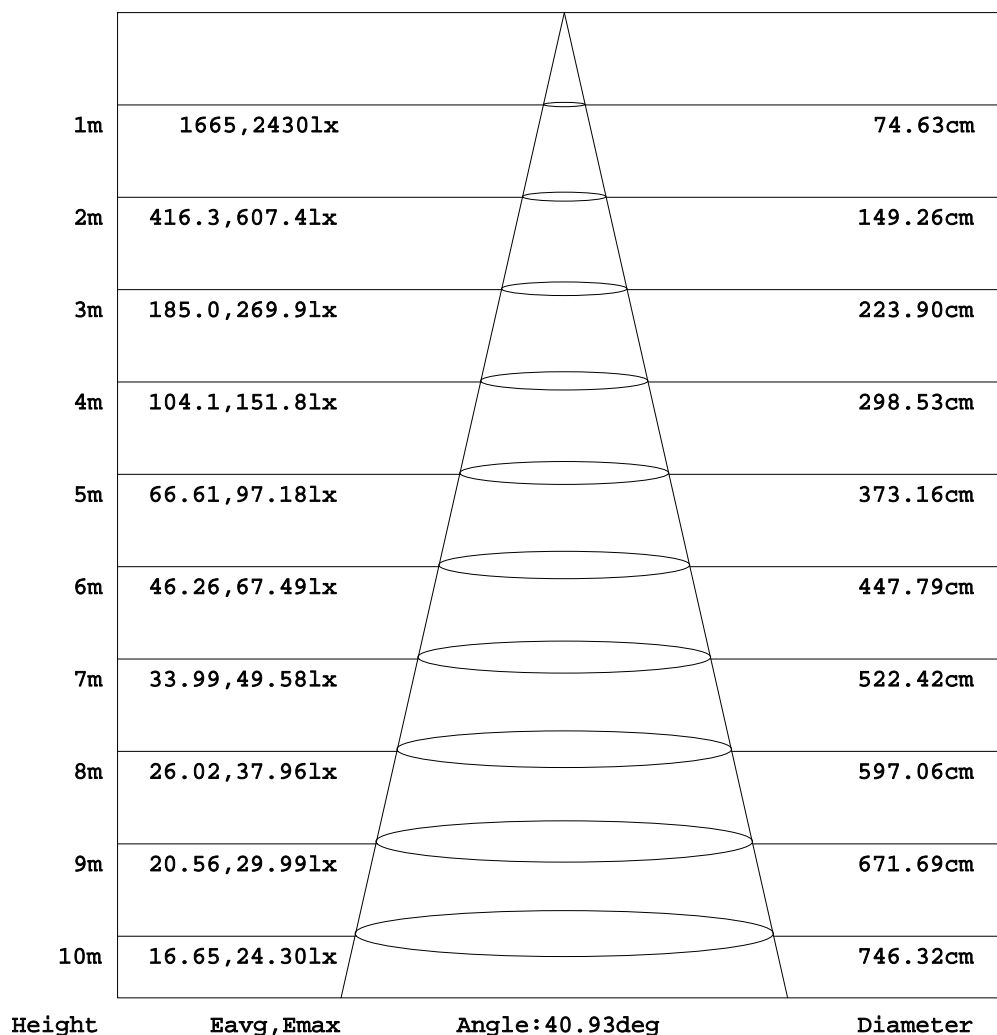
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:

AAI Figure

Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

Flux out:770.9 lm



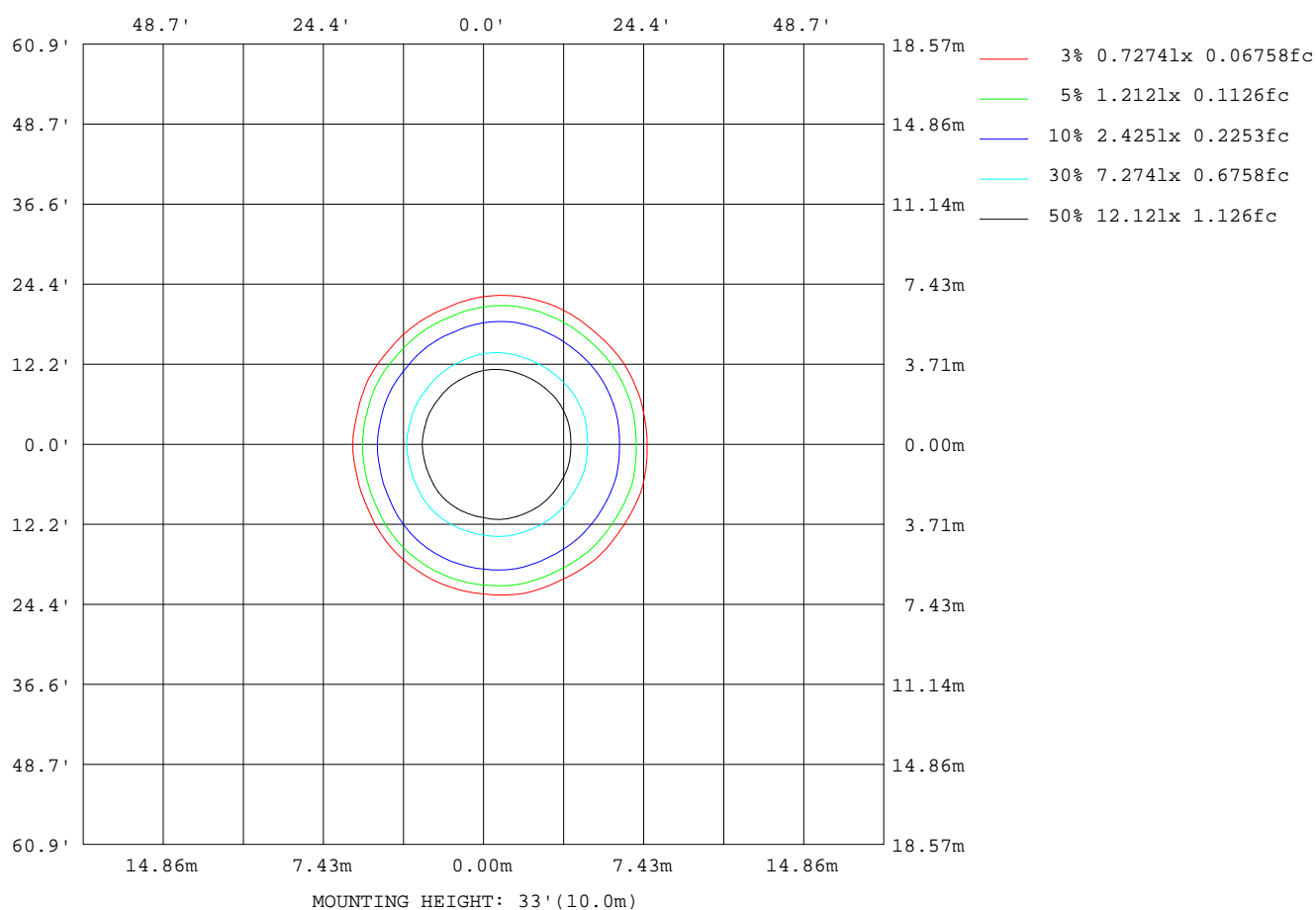
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:

ISOLUX DIAGRAM

Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 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:2019-12-30

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:

LED Avg.L Report

Test:U:220.8V I:0.0701A P:14.76W PF:0.9533 Freq:59.98Hz Lamp Flux:1159.15x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#35	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

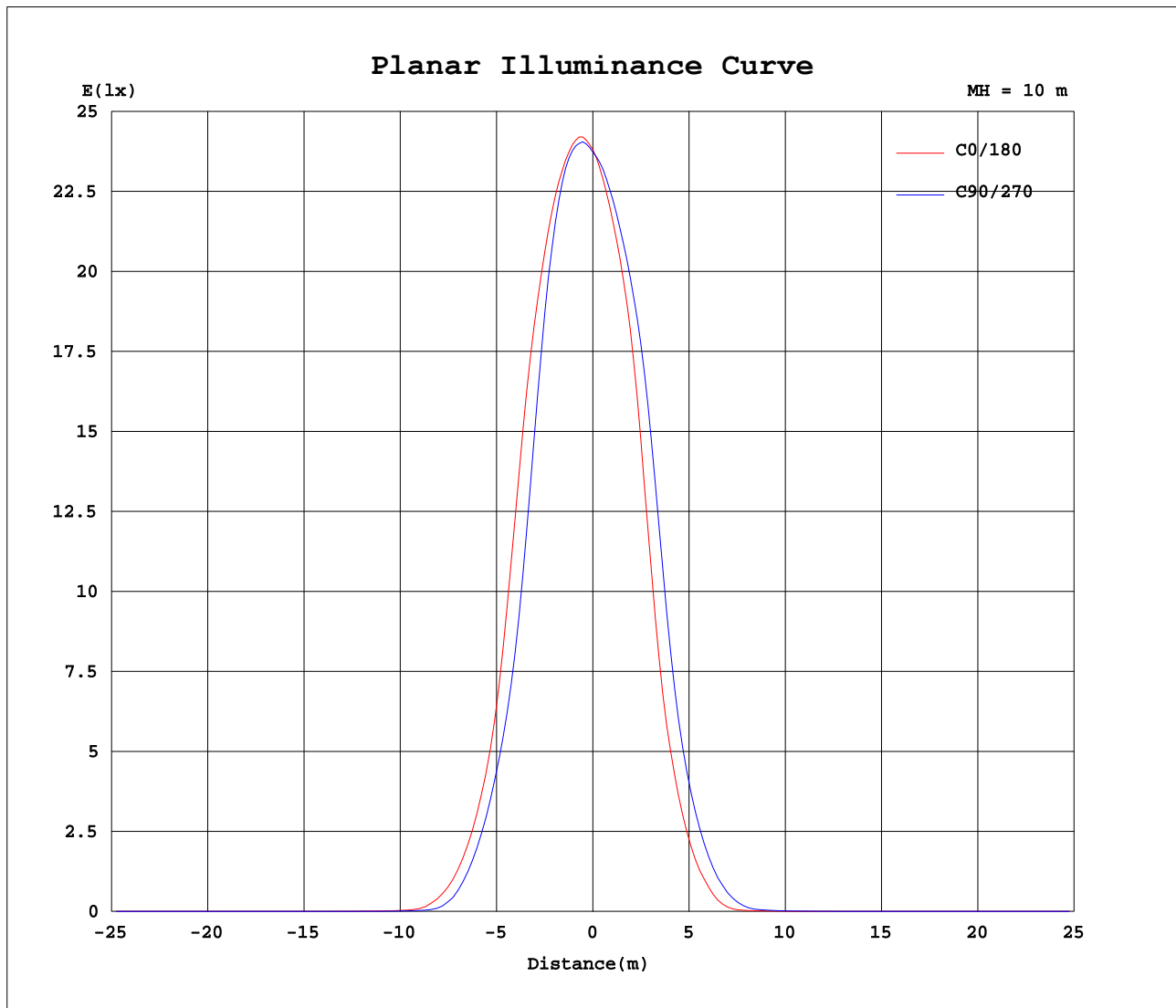
AvgL	cd/m2
L_0~180 (65) av	38
L_0~180 (75) av	13
L_0~180 (85) av	29
L_90~270 (65) av	26
L_90~270 (75) av	13
L_90~270 (85) av	29
L_45 (65) av	35
L_45 (75) av	14
L_45 (85) av	33

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Jason Long
Test Date: 2019-12-30

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:

```

```

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:

```