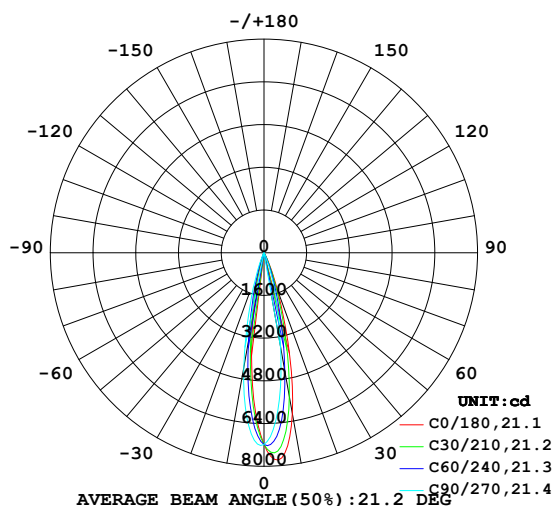


LUMINAIRE PHOTOMETRIC TEST REPORT

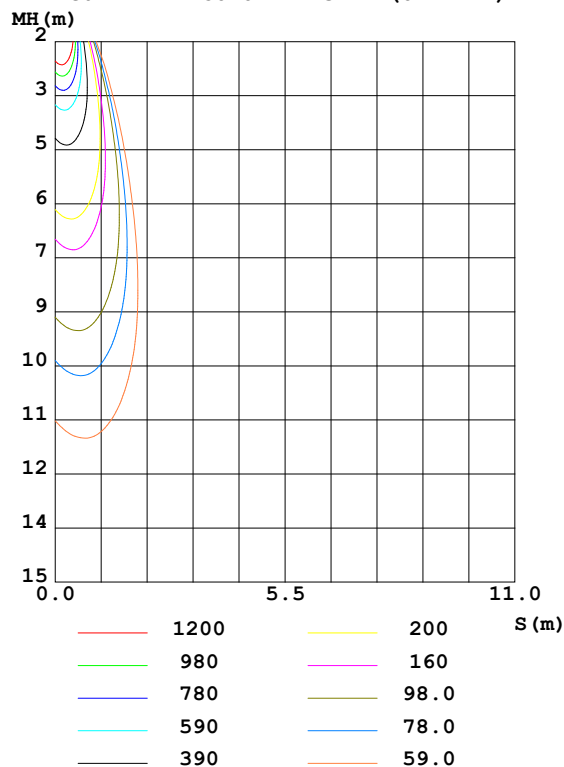
Test:U:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 82.15 lm/W			
MODEL	CITIZEN-3000K	I _{max} (cd)	7781	S/MH (C0/180)	0.26
NOMINAL POWER (W)	15	LOR (%)	100.0	S/MH (C90/270)	0.38
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1222.0	η UP, DN (C0-180)	0.0, 50.3
NOMINAL FLUX (lm)	1222	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 49.7
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE (V)	220	η 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:2019-12-30

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	6118	5112	3592	2711	2331	2855	4369	5491	0- 10	526.2	526.2	43.1,43.1
20	1423	1053	625.0	313.6	228.9	310.7	691.7	1188	10- 20	551.0	1077	88.2,88.2
30	98.46	76.54	47.06	36.51	32.55	41.26	64.41	84.90	20- 30	118.0	1195	97.8,97.8
40	21.34	17.31	10.67	8.184	7.178	8.968	14.40	20.23	30- 40	19.17	1214	99.4,99.4
50	5.150	4.388	2.848	2.042	1.713	2.309	3.366	4.524	40- 50	5.464	1220	99.8,99.8
60	1.053	0.9648	0.7222	0.5827	0.5166	0.6237	0.8567	0.8661	50- 60	1.544	1221	100,100
70	0.3386	0.3194	0.1292	0.0989	0.0731	0.1069	0.1698	0.2623	60- 70	0.4627	1222	100,100
80	0.0711	0.0458	0.0613	0.0462	0.0409	0.0523	0.0371	0.0639	70- 80	0.0925	1222	100,100
90	0.0474	0.0458	0.0481	0.0462	0.0409	0.0370	0.0328	0.0352	80- 90	0.0492	1222	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): 1217.9 lm

%lum = 99.7%

%lamp = 99.7%

Conical surface Flux(120deg): 1221.4 lm

%lum = 100.0%

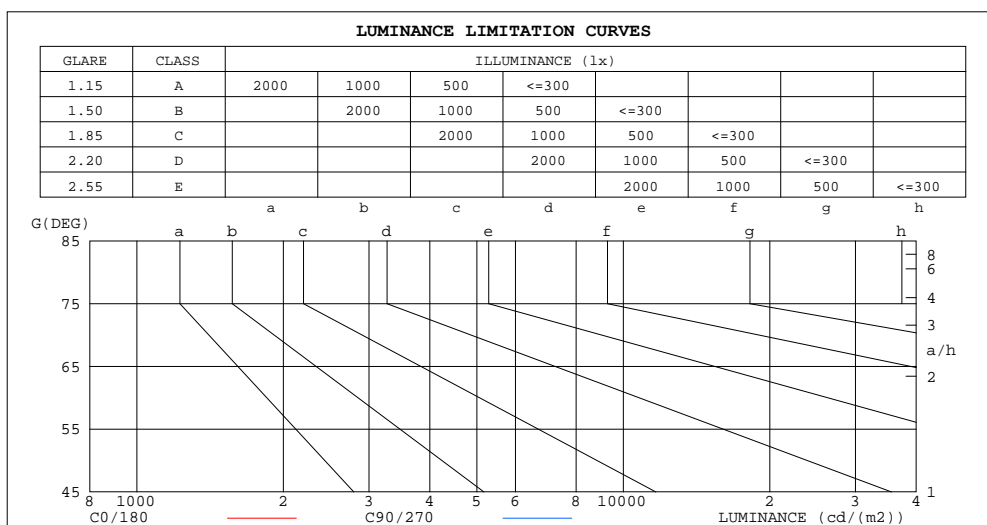
%lamp = 100.0%

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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	32	29
80	21	18
75	21	16
70	50	19
65	80	45
60	106	72
55	224	108
50	405	220
45	723	386

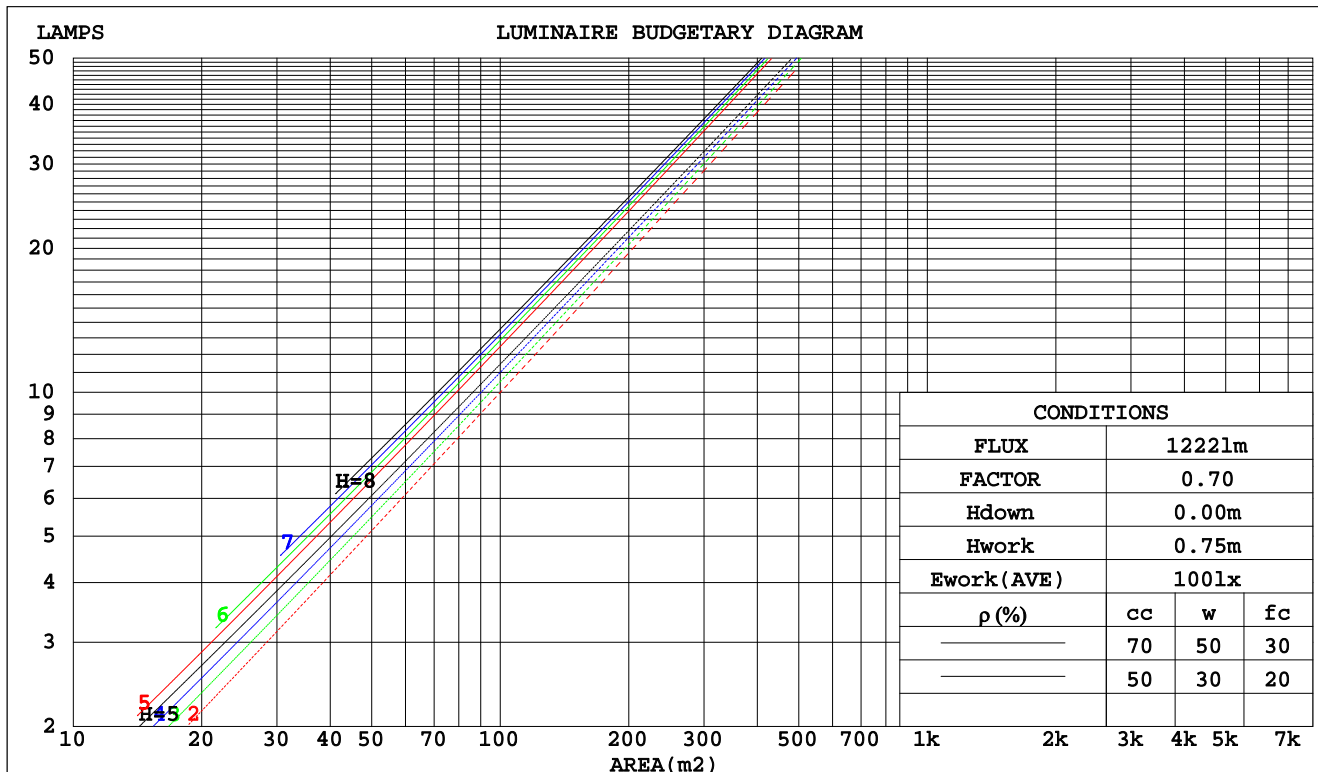
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	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	1.00
1.0	1.13	1.12	1.10	1.11	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.00	.00	.99	.97
2.0	1.09	1.06	1.04	1.07	1.04	1.02	1.04	1.02	1.00	1.01	.99	.98	.98	.97	.96	.95
3.0	1.05	1.01	.99	1.03	1.00	.98	1.01	.98	.96	.99	.97	.95	.96	.95	.93	.92
4.0	1.01	.97	.95	.00	.97	.94	.98	.95	.93	.96	.94	.92	.95	.93	.91	.90
5.0	.98	.94	.91	.97	.94	.91	.95	.92	.90	.94	.91	.89	.93	.90	.89	.88
6.0	.95	.91	.89	.94	.91	.88	.93	.90	.88	.92	.89	.87	.91	.88	.87	.86
7.0	.92	.89	.86	.92	.88	.86	.91	.88	.85	.90	.87	.85	.89	.86	.85	.84
8.0	.90	.86	.84	.90	.86	.84	.89	.86	.83	.88	.85	.83	.87	.85	.83	.82
9.0	.88	.84	.82	.87	.84	.82	.87	.84	.81	.86	.83	.81	.85	.83	.81	.80
10.0	.86	.82	.80	.85	.82	.80	.85	.82	.80	.84	.81	.79	.84	.81	.79	.78



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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	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	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.128	.073	.023	.121	.069	.022	.109	.062	.020	.097	.056	.018	.087	.050	.016		
2.0	.117	.064	.020	.112	.062	.019	.102	.057	.018	.093	.052	.016	.084	.047	.015		
3.0	.109	.058	.017	.104	.056	.017	.096	.052	.016	.088	.048	.015	.081	.045	.014		
4.0	.101	.053	.015	.098	.051	.015	.091	.048	.014	.084	.045	.014	.078	.042	.013		
5.0	.095	.048	.014	.092	.047	.014	.086	.045	.013	.080	.042	.013	.075	.040	.012		
6.0	.090	.045	.013	.087	.044	.013	.082	.042	.012	.077	.040	.012	.073	.038	.011		
7.0	.085	.042	.012	.083	.041	.012	.078	.040	.011	.074	.038	.011	.070	.036	.011		
8.0	.081	.039	.011	.079	.039	.011	.075	.037	.011	.071	.036	.010	.068	.035	.010		
9.0	.077	.037	.010	.075	.037	.010	.072	.036	.010	.069	.034	.010	.066	.033	.010		
10.0	.074	.035	.010	.072	.035	.010	.069	.034	.010	.066	.033	.009	.064	.032	.009		

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	.168	.158	.149	.144	.135	.128	.098	.093	.089	.056	.054	.051	.018	.017	.017	
2.0	.149	.133	.119	.128	.114	.103	.087	.079	.072	.050	.046	.042	.016	.015	.014	
3.0	.133	.113	.097	.114	.098	.084	.079	.068	.059	.045	.040	.035	.015	.013	.011	
4.0	.120	.098	.080	.103	.084	.070	.071	.059	.049	.041	.034	.029	.013	.011	.010	
5.0	.109	.085	.067	.094	.074	.059	.065	.052	.041	.038	.030	.025	.012	.010	.008	
6.0	.100	.075	.057	.086	.065	.050	.059	.046	.035	.034	.027	.021	.011	.009	.007	
7.0	.092	.067	.049	.079	.058	.042	.055	.041	.030	.032	.024	.018	.010	.008	.006	
8.0	.086	.060	.042	.074	.052	.037	.051	.036	.026	.030	.021	.016	.010	.007	.005	
9.0	.080	.054	.037	.069	.047	.032	.048	.033	.023	.028	.019	.014	.009	.006	.004	
10.0	.075	.049	.032	.065	.043	.028	.045	.030	.020	.026	.018	.012	.008	.006	.004	

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

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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm										
NAME: ROXY Art-Z-15W-930-18-35#18					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	-1.1	-0.5	-0.9	-0.4	-0.2	-3.9	-3.3	-3.7	-3.2	-3.0
3H	-1.2	-0.7	-1.0	-0.5	-0.3	-4.0	-3.5	-3.8	-3.3	-3.1
4H	-1.3	-0.8	-1.1	-0.6	-0.4	-4.1	-3.6	-3.8	-3.4	-3.2
6H	-1.4	-0.9	-1.1	-0.7	-0.4	-4.2	-3.7	-3.9	-3.4	-3.2
8H	-1.4	-1.0	-1.1	-0.7	-0.5	-4.2	-3.7	-3.9	-3.5	-3.2
12H	-1.5	-1.0	-1.2	-0.8	-0.5	-4.3	-3.8	-3.9	-3.5	-3.3
4H 2H	-1.3	-0.8	-1.1	-0.6	-0.4	-4.0	-3.5	-3.8	-3.3	-3.1
3H	-1.4	-1.0	-1.1	-0.7	-0.5	-4.2	-3.7	-3.9	-3.5	-3.2
4H	-1.5	-1.1	-1.2	-0.8	-0.5	-4.3	-3.9	-3.9	-3.6	-3.3
6H	-1.6	-1.3	-1.3	-0.9	-0.6	-4.4	-4.0	-4.0	-3.7	-3.3
8H	-1.7	-1.3	-1.3	-1.0	-0.6	-4.4	-4.1	-4.0	-3.7	-3.4
12H	-1.7	-1.4	-1.3	-1.1	-0.7	-4.5	-4.2	-4.1	-3.8	-3.4
8H 4H	-1.7	-1.3	-1.3	-1.0	-0.6	-4.4	-4.1	-4.0	-3.7	-3.4
6H	-1.8	-1.5	-1.4	-1.1	-0.7	-4.5	-4.2	-4.1	-3.9	-3.4
8H	-1.9	-1.6	-1.4	-1.2	-0.8	-4.6	-4.3	-4.2	-3.9	-3.5
12H	-1.9	-1.7	-1.5	-1.3	-0.8	-4.7	-4.4	-4.2	-4.0	-3.5
12H 4H	-1.8	-1.4	-1.4	-1.1	-0.7	-4.5	-4.2	-4.1	-3.8	-3.4
6H	-1.9	-1.6	-1.4	-1.2	-0.8	-4.6	-4.3	-4.2	-3.9	-3.5
8H	-1.9	-1.7	-1.5	-1.3	-0.8	-4.7	-4.4	-4.2	-4.0	-3.5
Variations with the observer position at spacings:										
S = 1.0H	+ 3.5 / - 8.4					+ 2.6 / - 9.1				
1.5H	+ 5.3 / - 6.4					+ 4.0 / - 5.6				
2.0H	+ 5.6 / - 6.1					+ 4.8 / - 5.3				

CIE Pub.117, 1222 lm Total Lamp Luminous Flux Correct ($8\log(F/F_0) = 0.7$)

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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: $\varnothing 55\text{mm} \times \text{H}150\text{mm}$	
MFR.: NEKO LIGHTING AG		

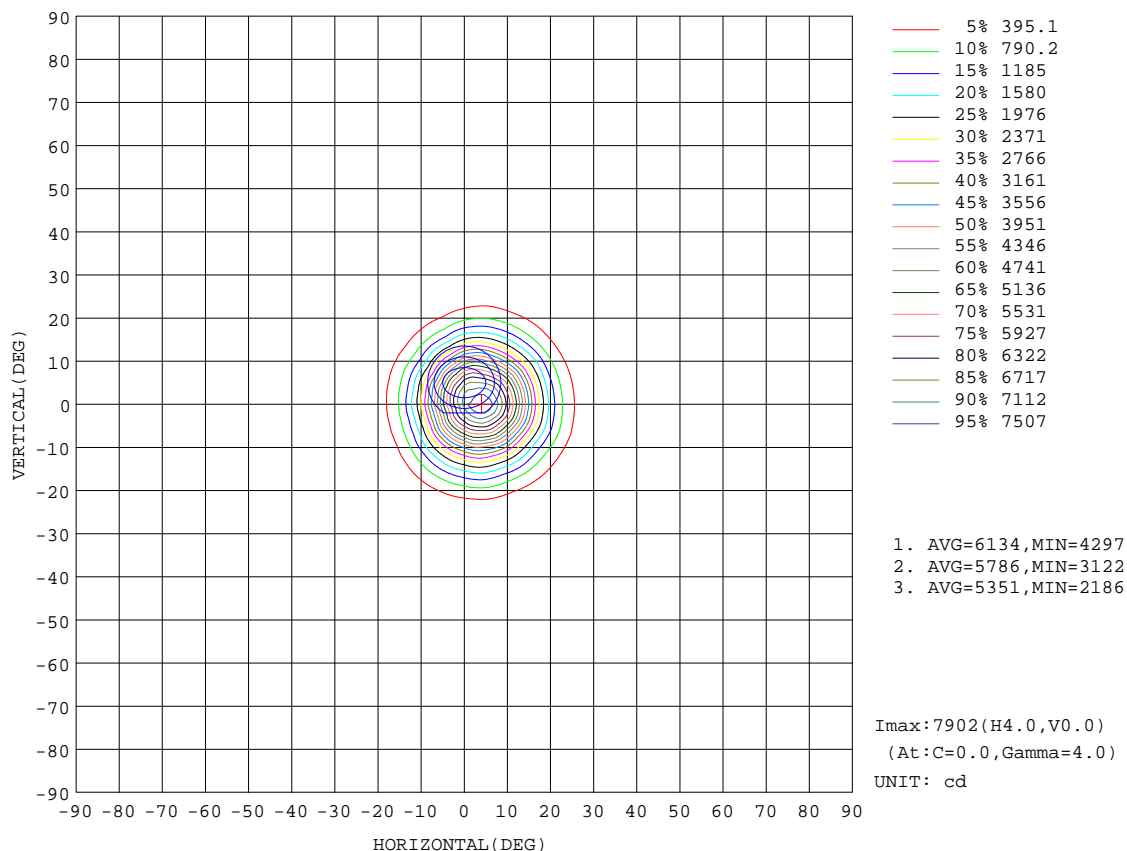
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	91	86	82	91	85	82	90	85	82	79
0.80	98	93	90	97	93	90	96	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					SHRNOM = 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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		



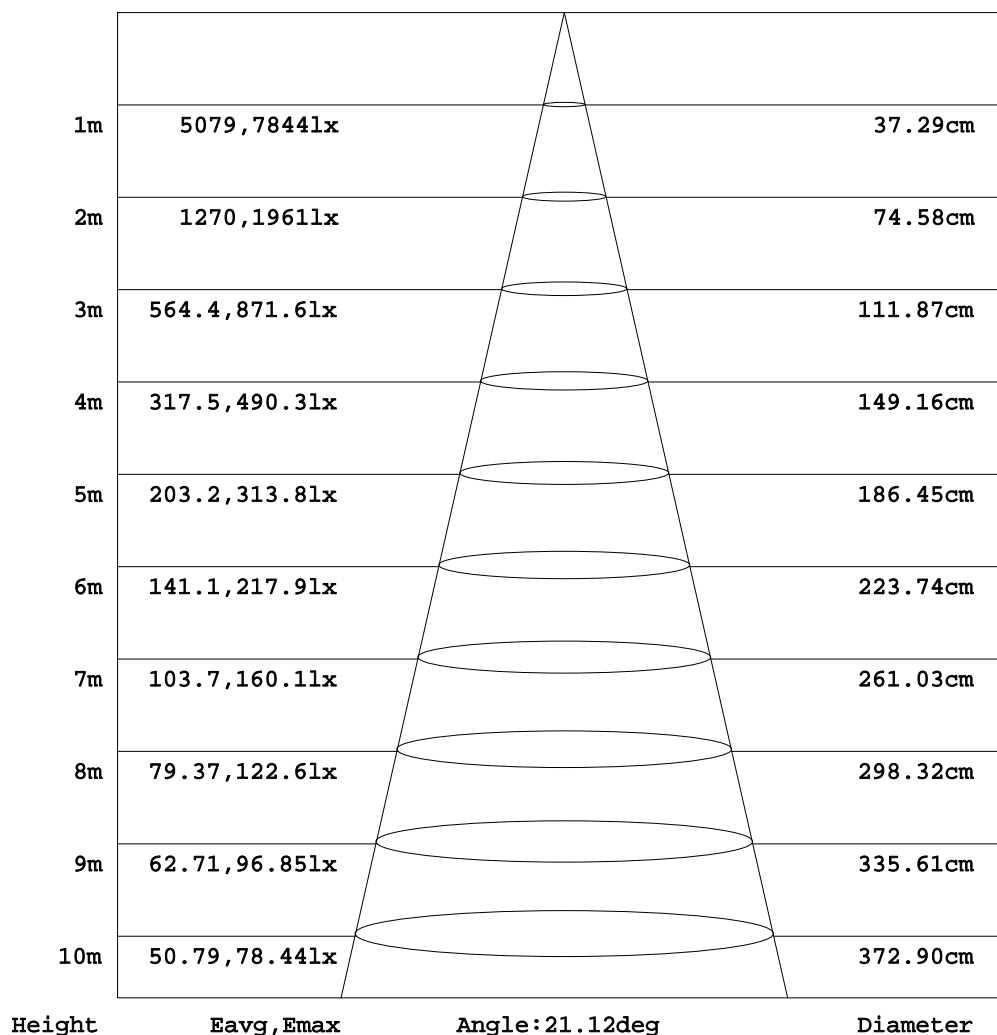
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Jason Long
Test Date:2019-12-30

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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

Flux out:602.9 lm



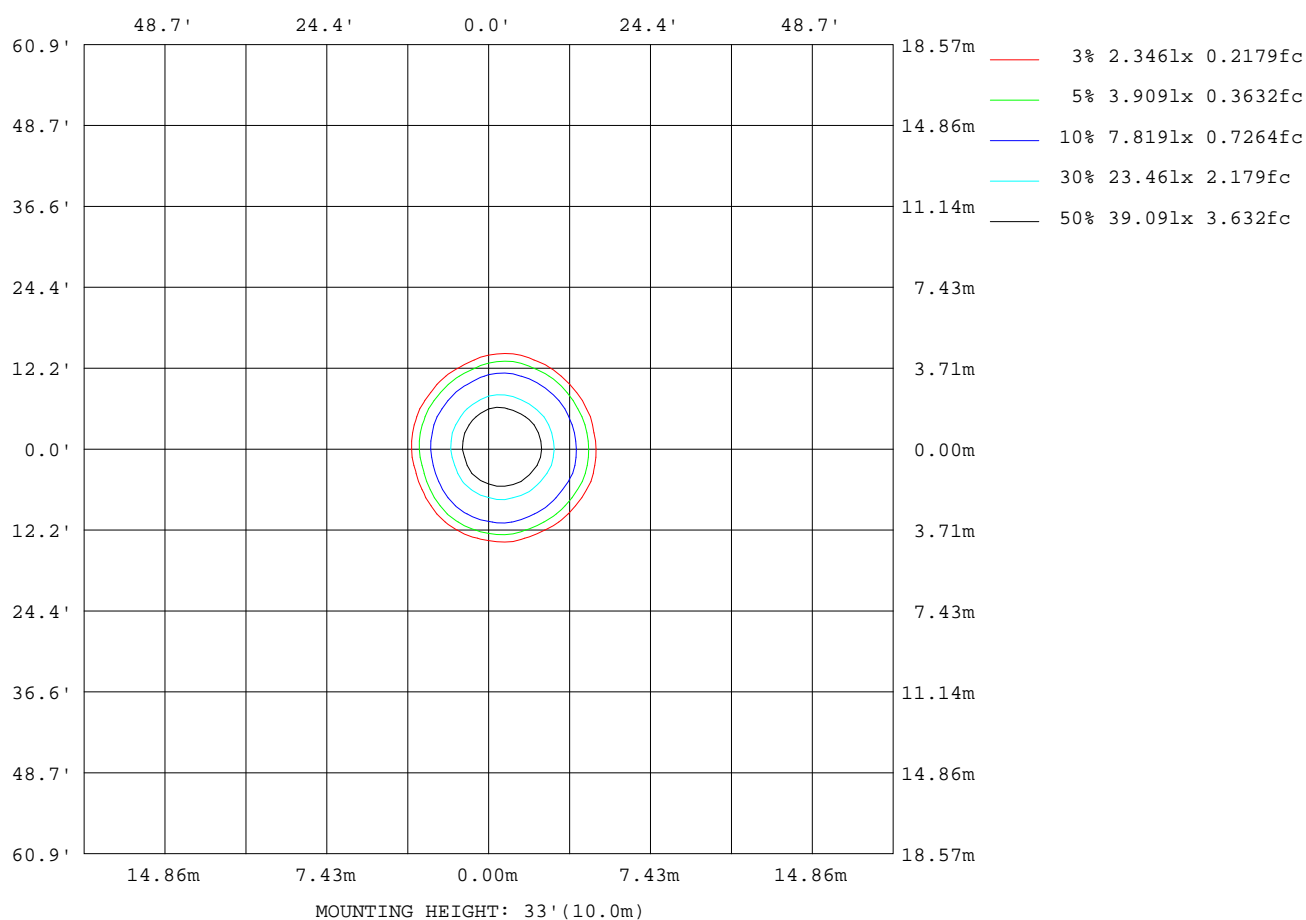
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	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:220.9V I:0.0706A P:14.88W PF:0.9538 Freq:59.98Hz Lamp Flux:1222x1 lm		
NAME: ROXY Art-Z-15W-930-18-35#18	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: ϕ 55mm*H150mm	
MFR.: NEKO LIGHTING AG		

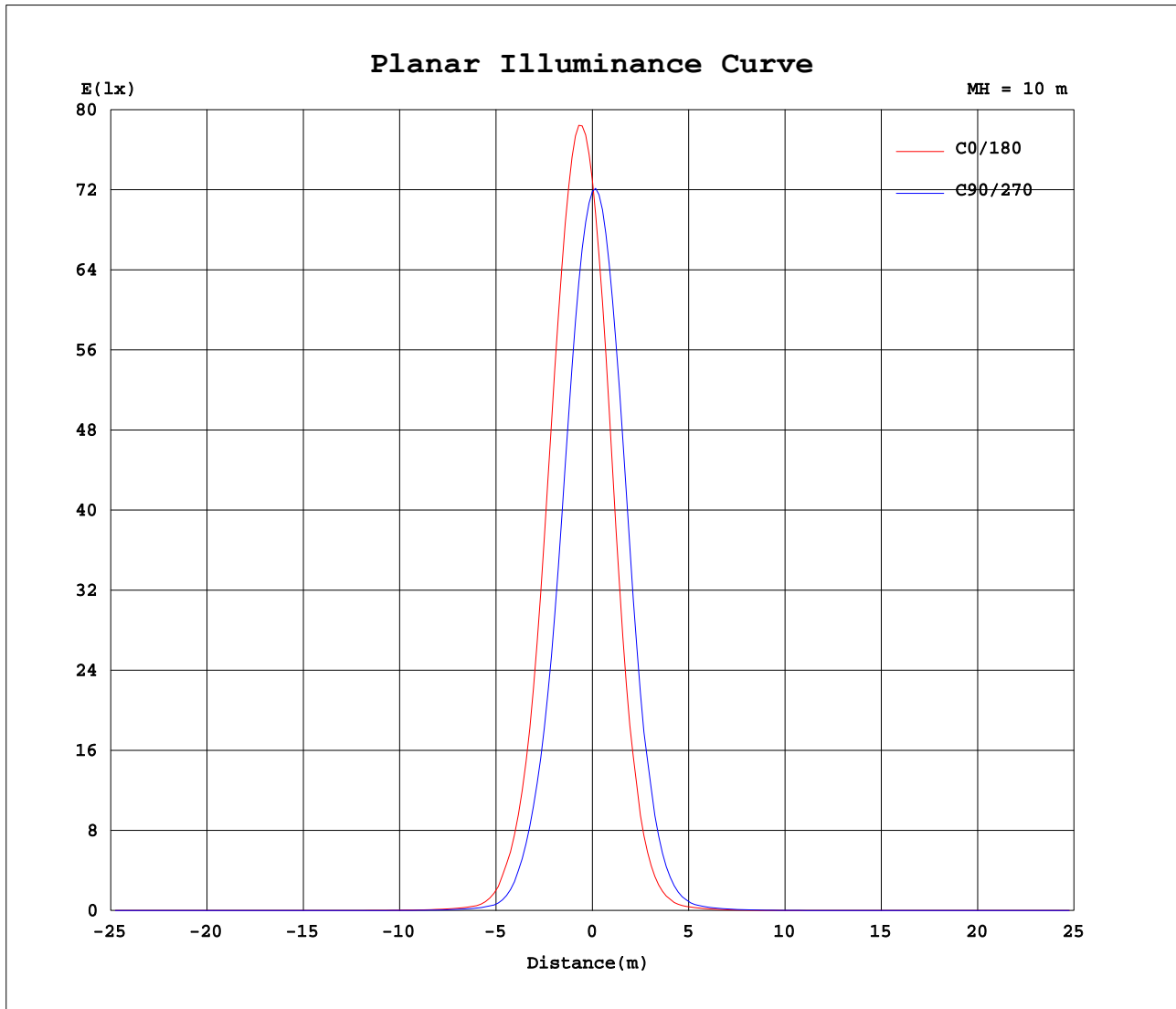
AvgL	cd/m2
L_0~180 (65) av	52
L_0~180 (75) av	15
L_0~180 (85) av	28
L_90~270 (65) av	57
L_90~270 (75) av	14
L_90~270 (85) av	24
L_45 (65) av	55
L_45 (75) av	14
L_45 (85) av	26

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:

```