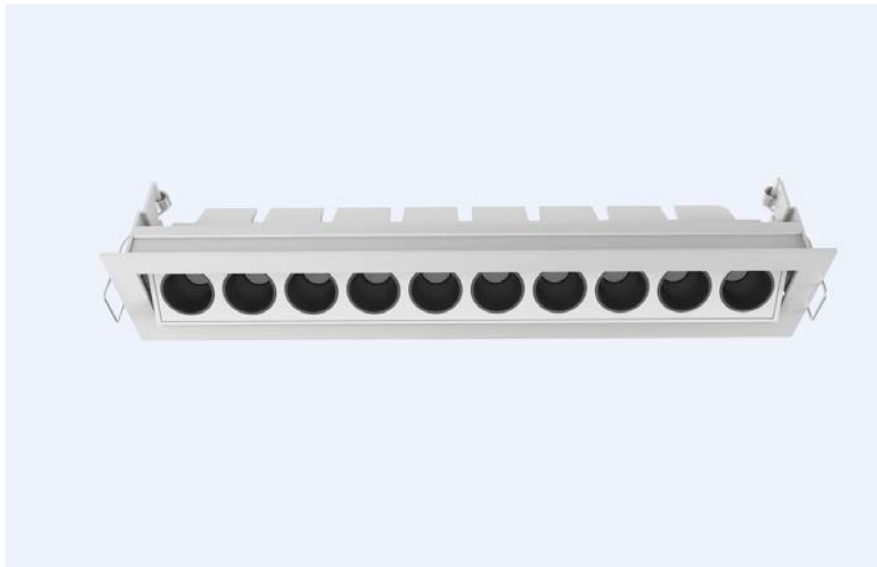


LED Downlight FUSION Series FA10-22W-940-24D



Light Output Ratio:	100.0%	
Luminaire Power:	24.47 W	
SHR Nominal:	0.00	Calculated using the TM5
SHR Maximum:	1.00	fine grid method.

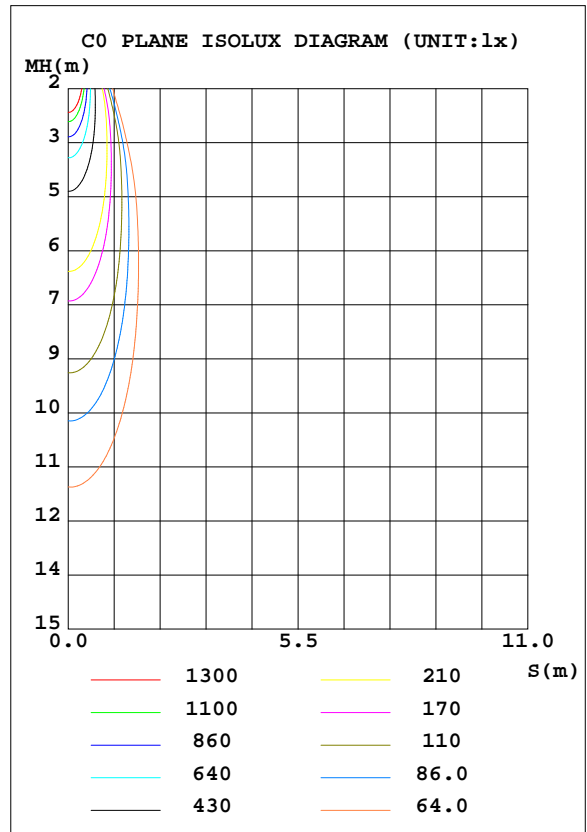
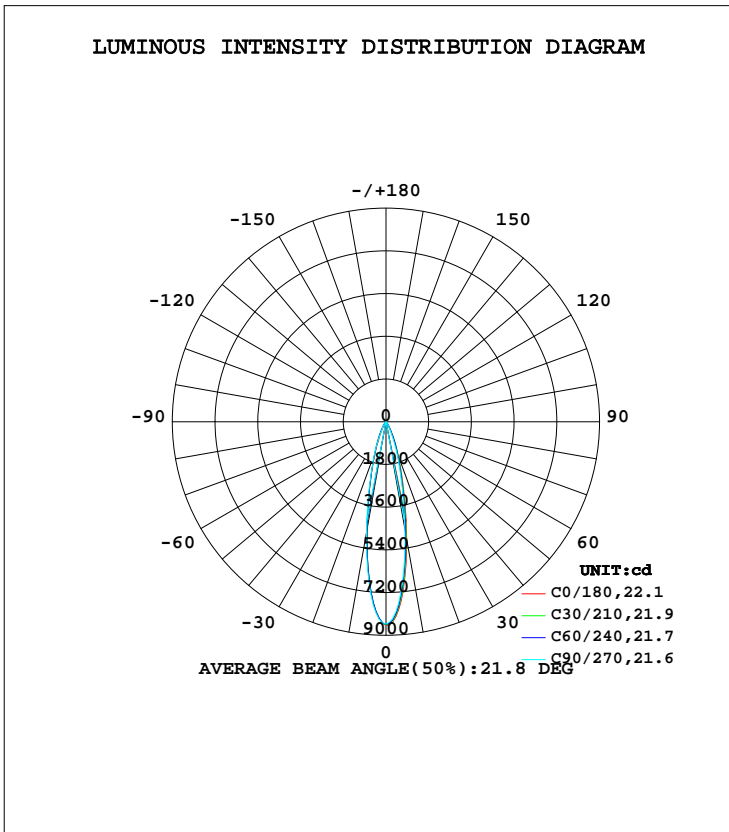
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Myles  
Test Date: 2018-09-06

$\gamma$  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:

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 73.19 lm/W			
MODEL	OSRAM-4000K	I <sub>max</sub> (cd)	8643	S/MH(C0/180)	0.36
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	0.37
RATED VOLTAGE(V)	31	TOTAL FLUX(lm)	1791.0	η UP, DN(C0-180)	0.0,49.4
NOMINAL FLUX(lm)	1790.99	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,50.6
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	28.8	η down(%)	100.0	CIBSE SHR MAX	1.00



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Myles  
Test Date:2018-09-06

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:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	5024	4887	4601	4569	4650	4574	4757	4950	0- 10	612.8	612.8	34.2,34.2
20	1484	1495	1293	1312	1271	1336	1386	1516	10- 20	732.2	1345	75.1,75.1
30	281.5	446.3	264.4	400.6	280.5	405.3	301.4	480.5	20- 30	331.9	1677	93.6,93.6
40	25.08	76.68	22.08	79.05	22.18	86.22	30.33	88.44	30- 40	101.5	1778	99.3,99.3
50	0.9239	3.831	0.6917	2.761	0.8276	5.559	0.9960	7.147	40- 50	11.69	1790	100,100
60	0.3546	0.1988	0.2910	0.1814	0.2861	0.2538	0.4150	0.2713	50- 60	0.4881	1791	100,100
70	0.1685	0.1005	0.1466	0.0984	0.1202	0.1335	0.1770	0.1422	60- 70	0.1945	1791	100,100
80	0.0940	0.0678	0.0875	0.0700	0.0590	0.0809	0.0808	0.0809	70- 80	0.1066	1791	100,100
90	0.0678	0.0678	0.0700	0.0700	0.0481	0.0481	0.0503	0.0503	80- 90	0.0721	1791	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): 1788.1 lm

%lum = 99.8%

%lamp = 99.8%

Conical surface Flux(120deg): 1790.6 lm

%lum = 100.0%

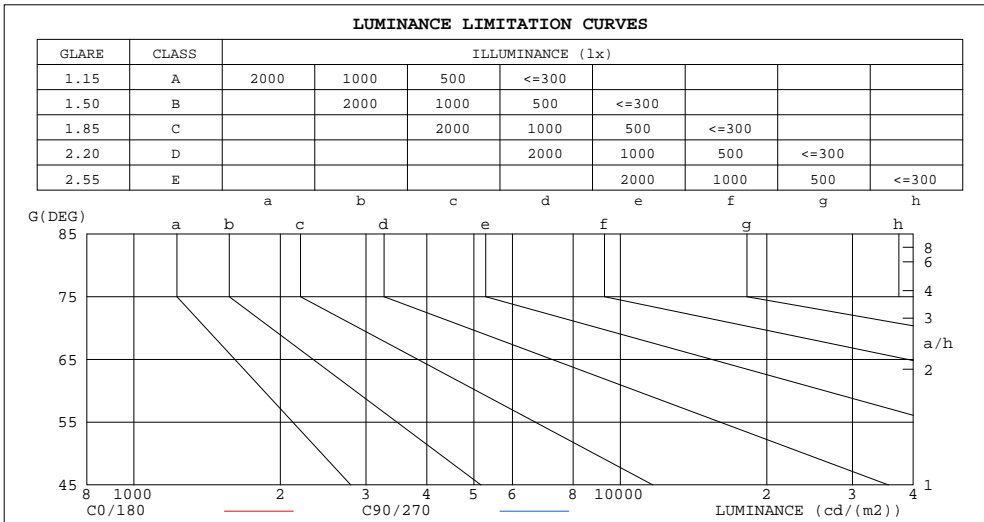
%lamp = 100.0%

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Myles  
Test Date:2018-09-06

$\gamma$  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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	65	65
80	41	39
75	36	33
70	38	33
65	43	37
60	54	45
55	76	59
50	110	82
45	297	128

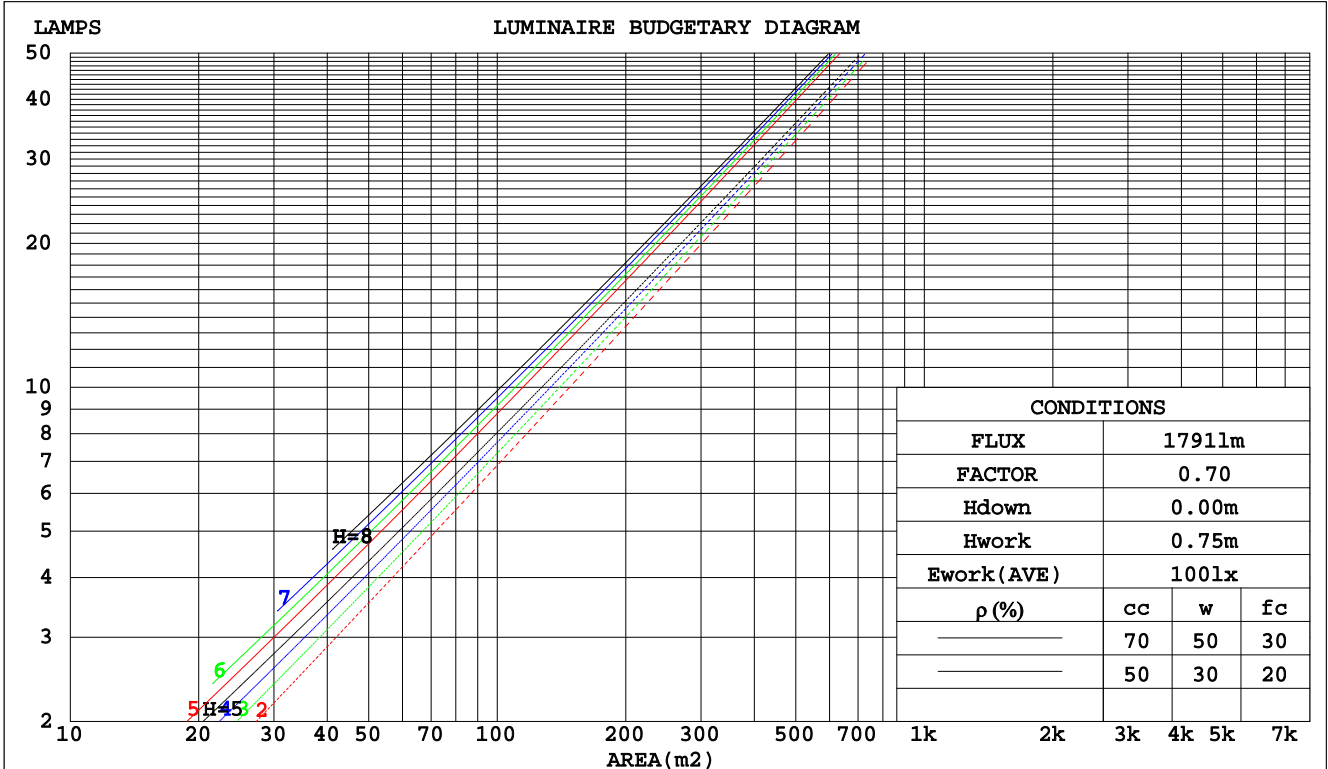
C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Myles  
 Test Date: 2018-09-06

$\gamma$  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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																0
pfc																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	1.13	1.11	1.09	1.11	1.09	1.07	1.07	1.05	1.04	1.03	1.02	1.01	.00	.99	.98	.96
2.0	1.07	1.04	1.02	1.06	1.03	1.01	1.03	1.00	.99	.00	.98	.96	.97	.96	.94	.93
3.0	1.03	.99	.96	1.01	.98	.95	.99	.96	.94	.97	.94	.92	.94	.93	.91	.90
4.0	.98	.94	.91	.97	.94	.91	.95	.92	.90	.94	.91	.89	.92	.90	.88	.87
5.0	.95	.91	.87	.94	.90	.87	.92	.89	.86	.91	.88	.86	.89	.87	.85	.84
6.0	.91	.87	.84	.91	.87	.84	.89	.86	.83	.88	.85	.83	.87	.84	.82	.81
7.0	.88	.84	.81	.88	.84	.81	.87	.83	.80	.85	.82	.80	.85	.82	.80	.79
8.0	.85	.81	.78	.85	.81	.78	.84	.80	.78	.83	.80	.77	.82	.79	.77	.76
9.0	.83	.79	.76	.82	.78	.76	.82	.78	.75	.81	.77	.75	.80	.77	.75	.74
10.0	.80	.76	.73	.80	.76	.73	.79	.76	.73	.79	.75	.73	.78	.75	.73	.72



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Myles  
 Test Date: 2018-09-06

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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

ρcc	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						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.139	.079	.025	.132	.075	.024	.120	.069	.022	.108	.062	.020	.098	.057	.018	
2.0	.129	.071	.022	.123	.068	.021	.113	.063	.020	.104	.058	.018	.095	.054	.017	
3.0	.121	.064	.019	.116	.062	.019	.107	.058	.018	.100	.055	.017	.092	.051	.016	
4.0	.113	.059	.017	.109	.057	.017	.102	.054	.016	.096	.051	.015	.089	.049	.015	
5.0	.107	.054	.016	.104	.053	.016	.098	.051	.015	.092	.048	.014	.086	.046	.014	
6.0	.101	.051	.015	.099	.050	.014	.093	.048	.014	.088	.046	.013	.084	.044	.013	
7.0	.096	.048	.014	.094	.047	.013	.089	.045	.013	.085	.044	.013	.081	.042	.012	
8.0	.092	.045	.013	.090	.044	.013	.086	.043	.012	.082	.042	.012	.078	.040	.012	
9.0	.088	.043	.012	.086	.042	.012	.083	.041	.012	.079	.040	.011	.076	.039	.011	
10.0	.084	.041	.011	.083	.040	.011	.080	.039	.011	.077	.038	.011	.074	.037	.011	

ρcc	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	.148	.144	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.017	
2.0	.151	.133	.118	.129	.114	.102	.088	.079	.071	.051	.046	.042	.016	.015	.014	
3.0	.136	.113	.095	.116	.098	.083	.080	.068	.058	.046	.040	.034	.015	.013	.011	
4.0	.123	.098	.079	.106	.085	.068	.073	.059	.048	.042	.035	.028	.014	.011	.009	
5.0	.113	.086	.066	.097	.074	.057	.067	.052	.040	.039	.030	.024	.012	.010	.008	
6.0	.104	.076	.055	.090	.066	.048	.062	.046	.034	.036	.027	.020	.012	.009	.007	
7.0	.097	.068	.047	.083	.059	.041	.058	.041	.029	.033	.024	.017	.011	.008	.006	
8.0	.090	.061	.041	.078	.053	.035	.054	.037	.025	.031	.022	.015	.010	.007	.005	
9.0	.085	.055	.035	.073	.048	.031	.051	.034	.022	.029	.020	.013	.010	.007	.004	
10.0	.080	.051	.031	.069	.044	.027	.048	.031	.019	.028	.018	.011	.009	.006	.004	

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Myles  
 Test Date:2018-09-06

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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
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	5.5	6.2	5.7	6.4	6.5	5.3	6.0	5.5	6.1	6.3
3H	5.4	6.0	5.6	6.2	6.4	5.2	5.8	5.4	6.0	6.2
4H	5.3	5.9	5.6	6.1	6.3	5.1	5.7	5.3	5.9	6.1
6H	5.2	5.8	5.5	6.0	6.3	5.0	5.6	5.3	5.8	6.0
8H	5.2	5.7	5.5	6.0	6.2	5.0	5.5	5.2	5.7	6.0
12H	5.1	5.7	5.4	5.9	6.2	4.9	5.4	5.2	5.7	6.0
4H 2H	5.3	5.9	5.6	6.1	6.3	5.1	5.7	5.3	5.9	6.1
3H	5.1	5.7	5.4	5.9	6.2	4.9	5.4	5.2	5.7	6.0
4H	5.0	5.5	5.4	5.8	6.1	4.8	5.3	5.1	5.6	5.9
6H	4.9	5.4	5.3	5.7	6.0	4.7	5.1	5.1	5.5	5.8
8H	4.9	5.3	5.3	5.6	6.0	4.7	5.0	5.0	5.4	5.8
12H	4.8	5.2	5.2	5.6	5.9	4.6	5.0	5.0	5.3	5.7
8H 4H	4.9	5.3	5.3	5.6	6.0	4.7	5.0	5.0	5.4	5.8
6H	4.8	5.1	5.2	5.5	5.9	4.5	4.9	5.0	5.3	5.7
8H	4.7	5.0	5.2	5.4	5.9	4.5	4.8	4.9	5.2	5.6
12H	4.7	4.9	5.1	5.3	5.8	4.4	4.7	4.9	5.1	5.6
12H 4H	4.8	5.2	5.2	5.6	5.9	4.6	5.0	5.0	5.3	5.7
6H	4.7	5.0	5.2	5.4	5.9	4.5	4.8	4.9	5.2	5.6
8H	4.6	4.9	5.1	5.3	5.8	4.4	4.7	4.9	5.1	5.6
Variations with the observer position at spacings:										
S = 1.0H	+ 3.4 / -20.4					+ 3.2 / -20.1				
1.5H	+ 6.2 / -19.9					+ 6.0 / -19.4				
2.0H	+ 5.8 / - 3.4					+ 2.8 / - 1.5				

CIE Pub.117, 1791 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 2.0)

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Myles  
 Test Date:2018-09-06

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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
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	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			

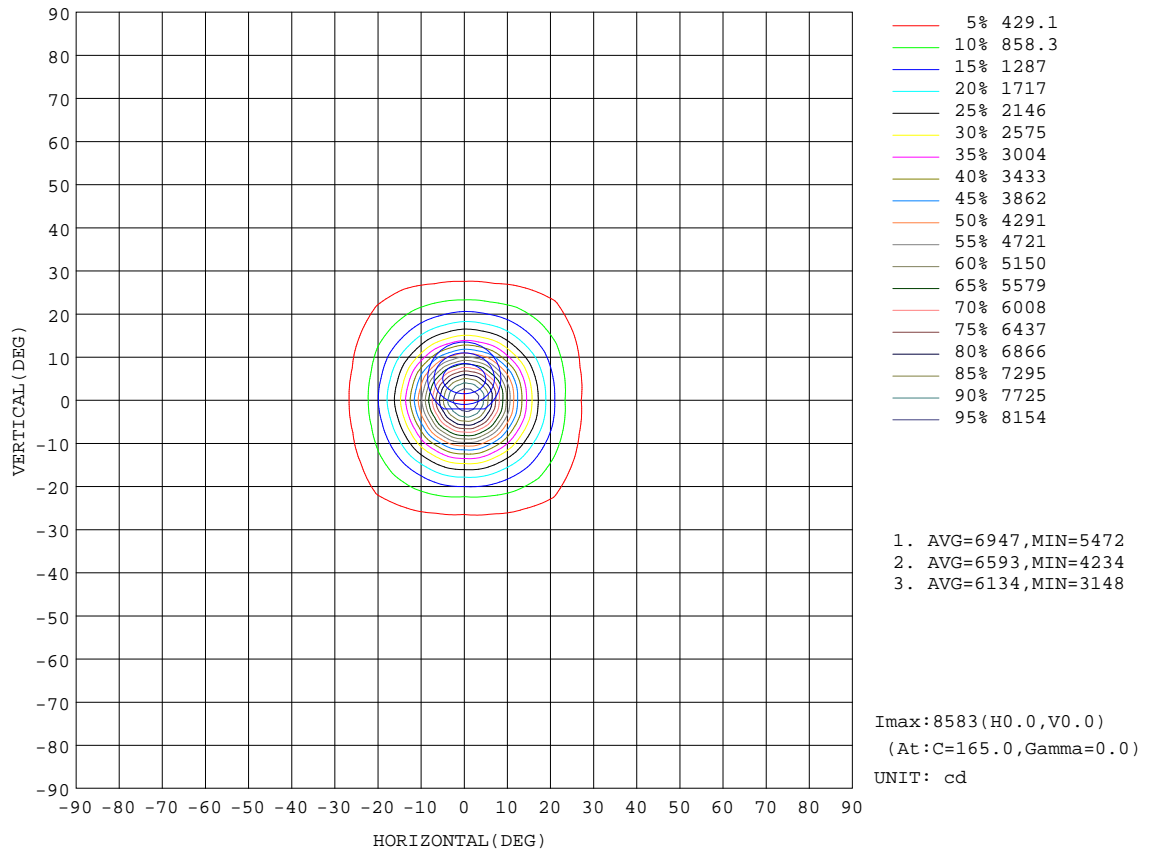
C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Myles  
 Test Date:2018-09-06

$\gamma$  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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		



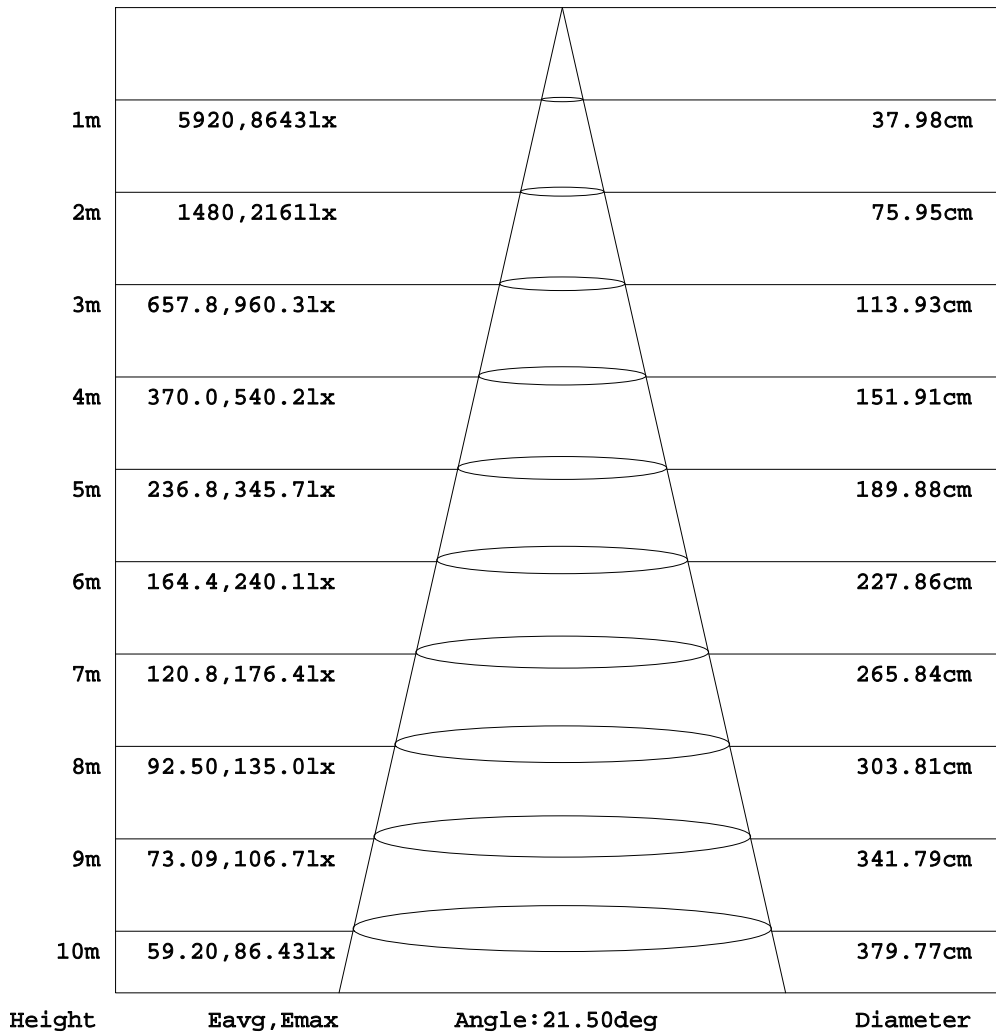
C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Myles  
Test Date:2018-09-06

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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

Flux out:702.7 lm



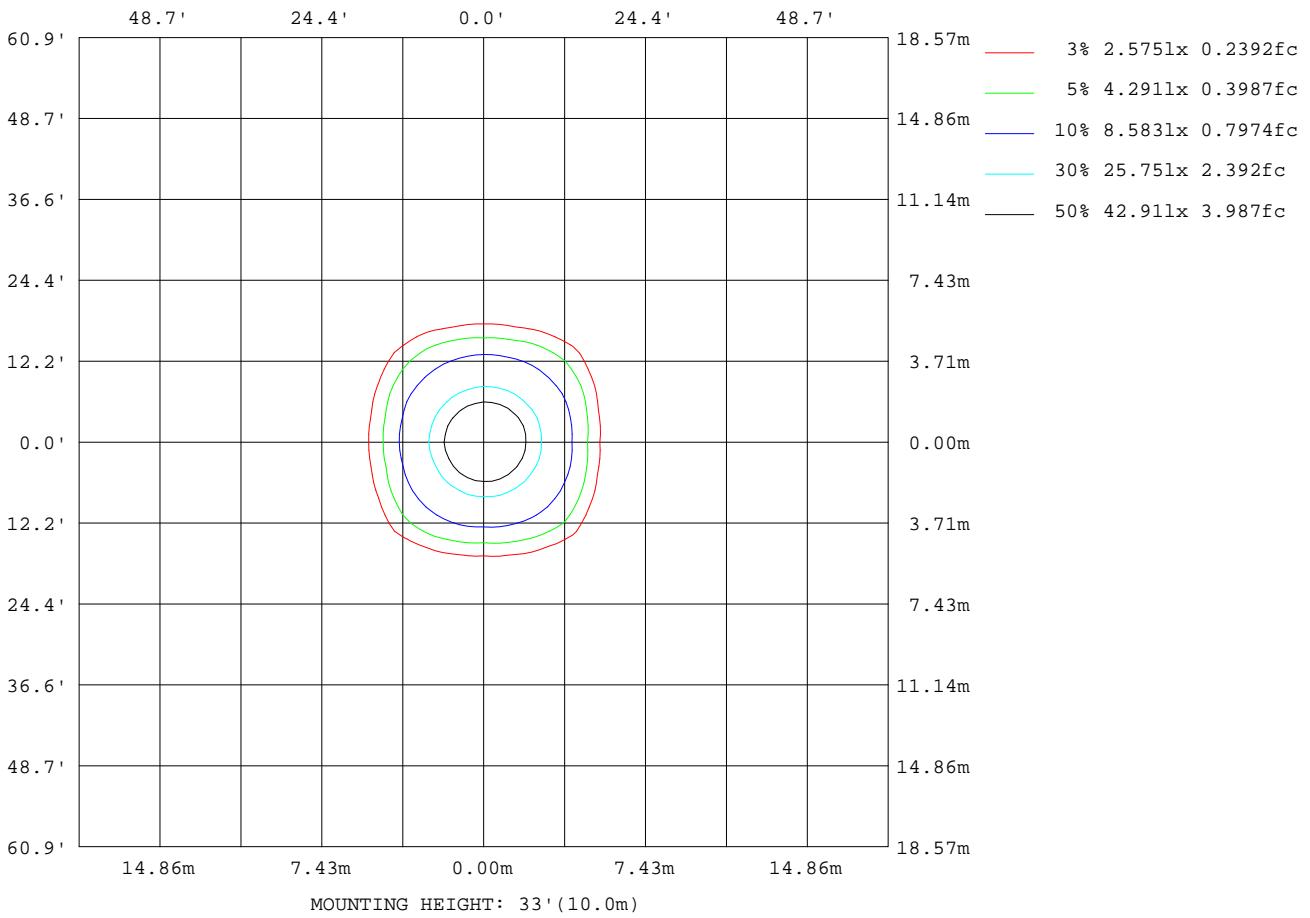
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Myles  
Test Date:2018-09-06

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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Myles  
 Test Date:2018-09-06

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:220.4V I:0.1152A P:24.47W PF:0.9622 Freq:49.90Hz Lamp Flux:1790.99x1 lm		
NAME: FA10-22W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

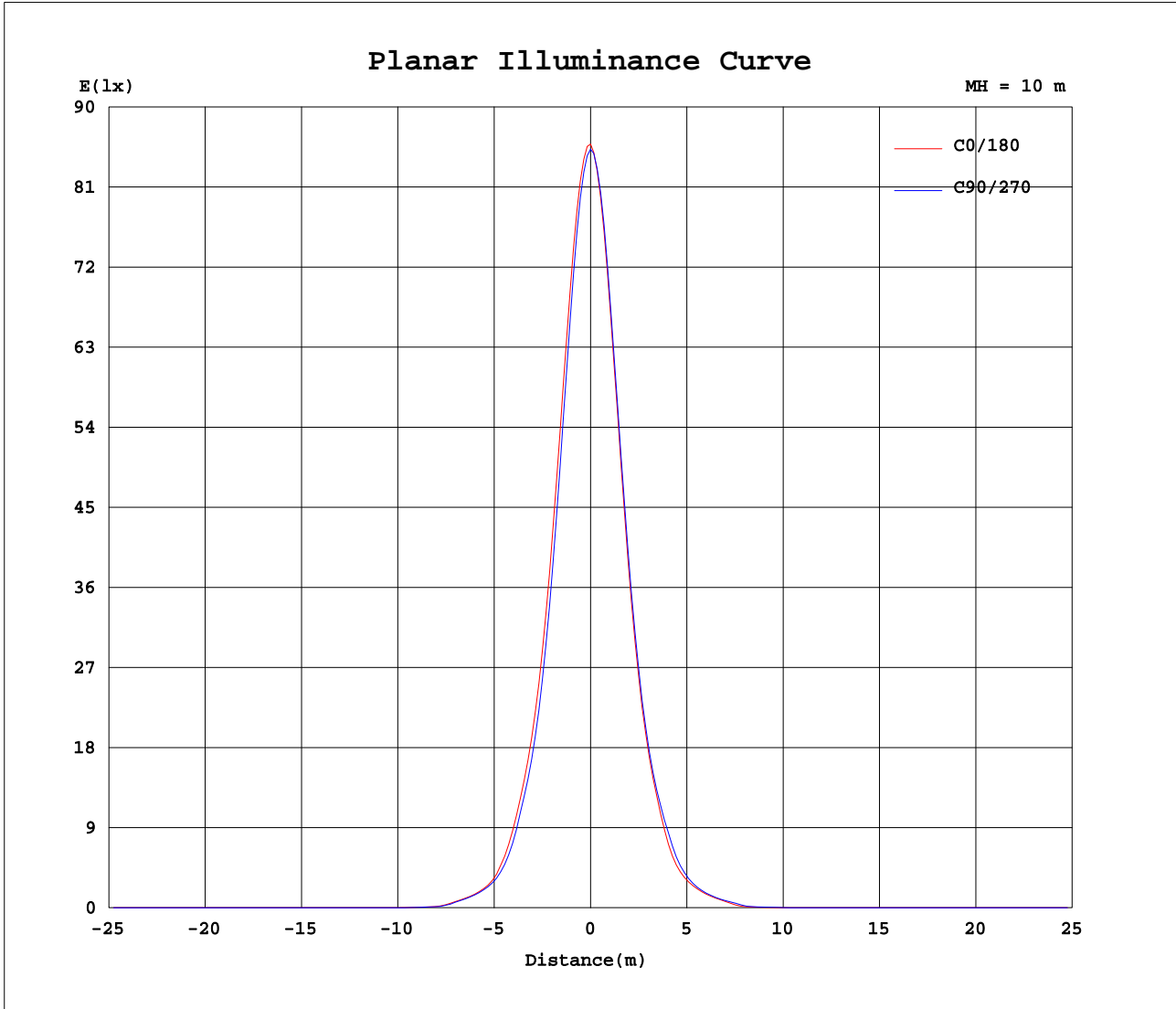
AvgL	cd/m2
L_0~180(65)av	38
L_0~180(75)av	30
L_0~180(85)av	54
L_90~270(65)av	43
L_90~270(75)av	35
L_90~270(85)av	59
L_45(65)av	29
L_45(75)av	27
L_45(85)av	59

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Myles  
Test Date:2018-09-06

$\gamma$  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: Myles  
 Test Date: 2018-09-06

$\gamma$  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:



