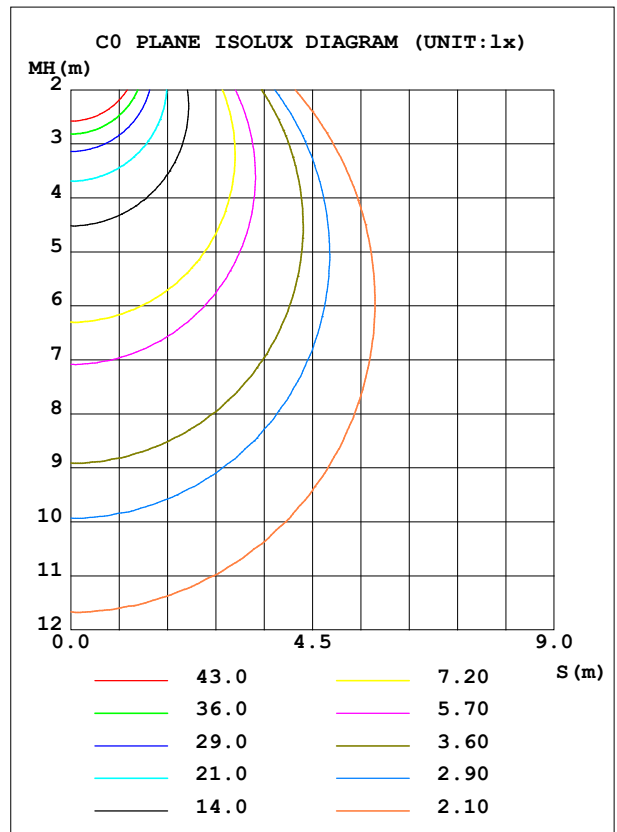
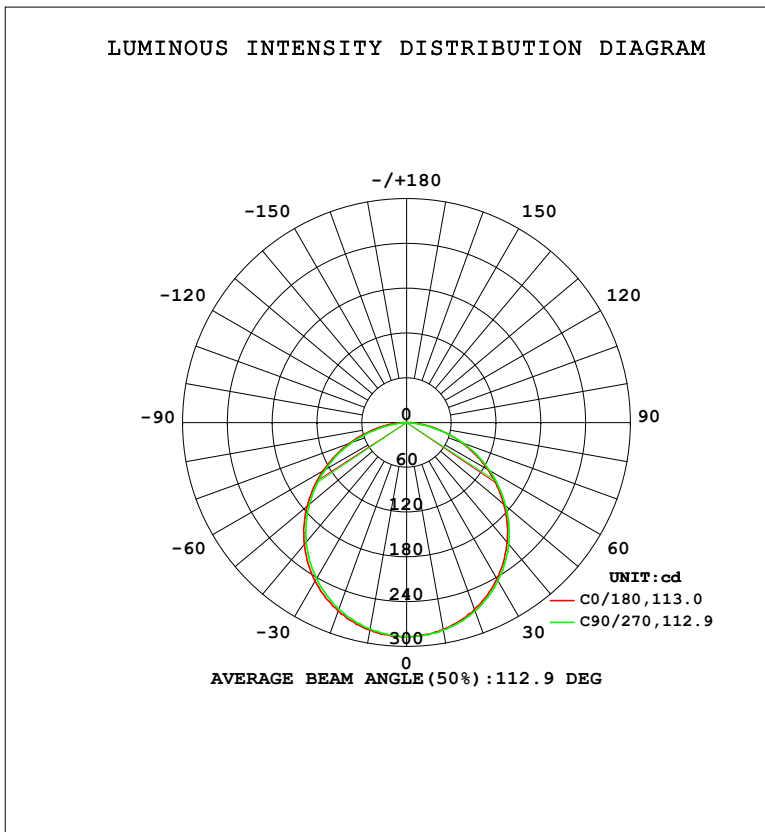


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL		Imax (cd)	287.6	S/MH (C0/180)	1.27
NOMINAL POWER (W)	12	LOR (%)	100.0	S/MH (C90/270)	1.25
RATED VOLTAGE (V)	120	TOTAL FLUX (lm)	820.47	$\eta$ UP, DN (C0-180)	0.0, 50.4
NOMINAL FLUX (lm)	820.471	CIE CLASS	DIRECT	$\eta$ UP, DN (C180-360)	0.0, 49.6
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	120	$\eta$ down (%)	100.0	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 2022-10-31

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity: 65.0%  
 Test Distance: 3.090m [K=1.0000]  
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

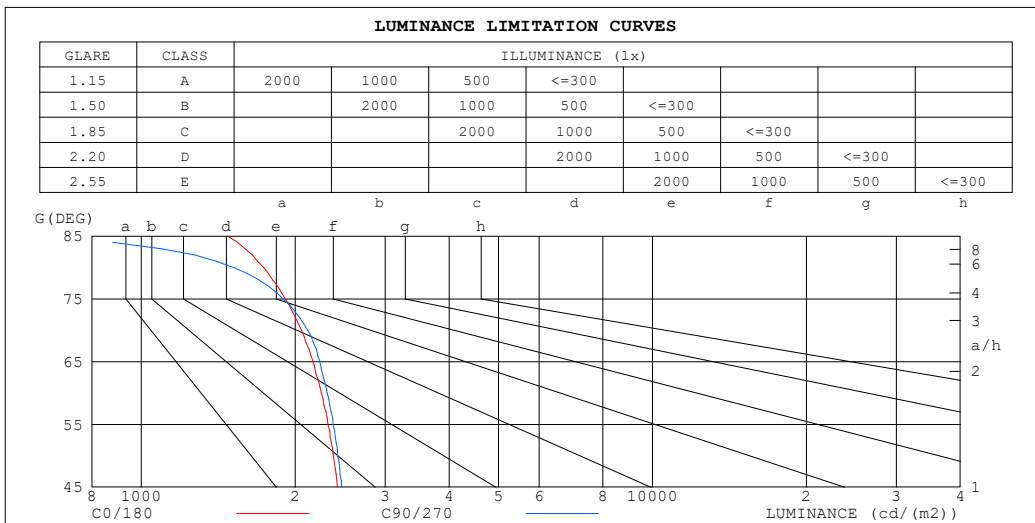
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	281.3	282.3	282.3	282.5	282.2	281.5	280.8	280.5	0- 10	27.12	27.12	3.31,3.31
20	266.3	268.1	268.7	268.9	268.5	267.0	265.9	265.1	10- 20	77.78	104.9	12.8,12.8
30	242.4	244.7	245.1	245.3	245.7	242.7	241.3	241.1	20- 30	118.1	223.0	27.2,27.2
40	209.5	212.4	212.9	213.6	213.1	210.8	209.5	208.7	30- 40	142.7	365.7	44.6,44.6
50	169.9	172.8	173.0	174.2	173.9	171.0	170.1	169.6	40- 50	148.2	513.9	62.6,62.6
60	125.3	127.9	128.4	129.5	129.4	126.1	125.5	124.9	50- 60	133.9	647.9	79,79
70	78.36	80.24	80.46	82.20	81.60	78.68	77.25	77.91	60- 70	102.4	750.3	91.4,91.4
80	33.56	31.85	29.29	33.19	35.81	29.07	26.24	29.55	70- 80	58.10	808.4	98.5,98.5
90	0.3174	0.2932	0.2721	0.2964	0.2159	0.2003	0.1846	0.2063	80- 90	12.10	820.5	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		

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3 °C  
 Operators:  
 Test Date:2022-10-31

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity:65.0%  
 Test Distance:3.090m [K=1.0000]  
 Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	1478	581
80	1736	1517
75	1914	1894
70	2058	2116
65	2167	2235
60	2251	2310
55	2318	2370
50	2374	2421
45	2420	2465

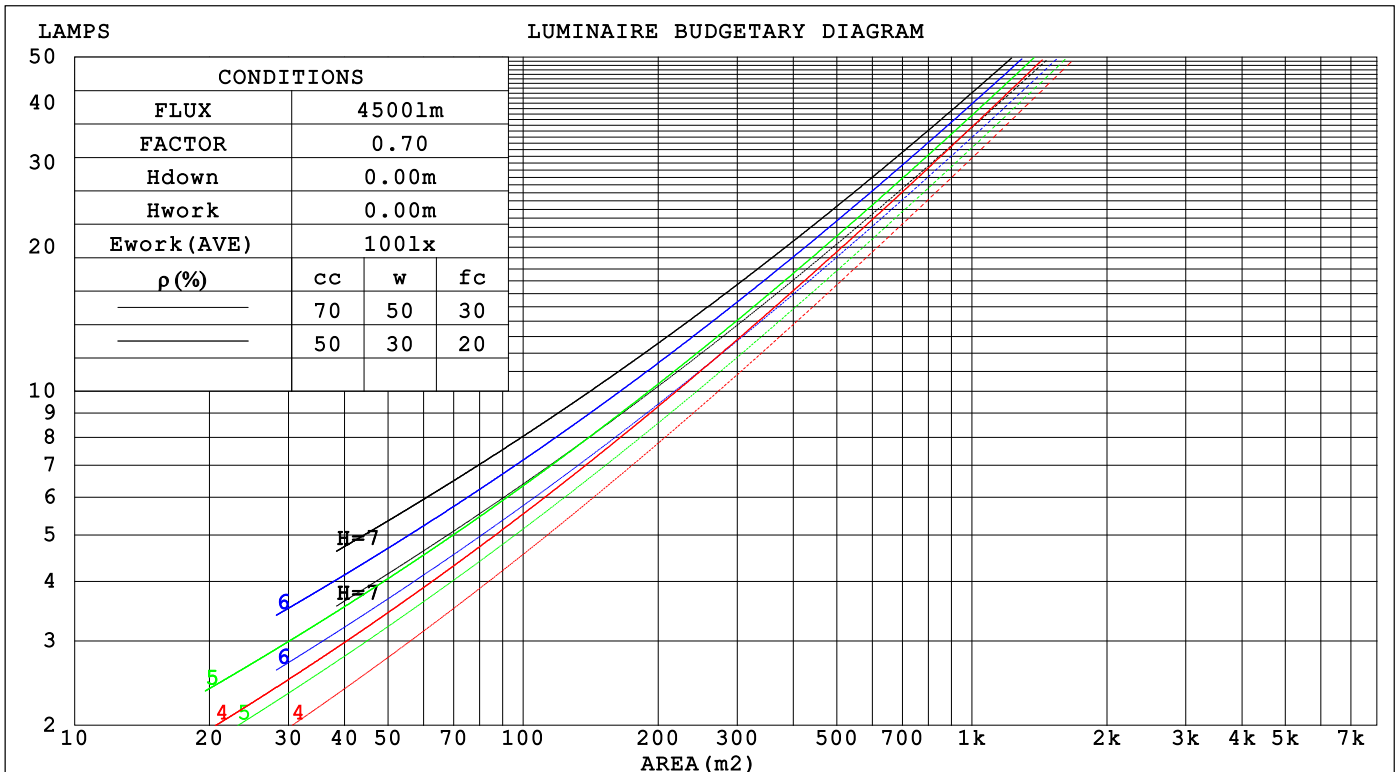
C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2022-10-31

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity:65.0%  
 Test Distance:3.090m [K=1.0000]  
 Remarks:

**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz		
UTHdi:0.00% ITHdi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:

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															
	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	1.04	.90	.96	1.02	.98	.94	.98	.94	.91	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.84	.78	.89	.82	.77	.85	.80	.75	.82	.77	.74	.79	.75	.72	.70
3.0	.79	.71	.65	.78	.70	.64	.75	.68	.63	.72	.67	.62	.70	.65	.61	.59
4.0	.70	.61	.55	.69	.61	.54	.66	.59	.54	.64	.58	.53	.62	.57	.52	.50
5.0	.63	.54	.47	.62	.53	.47	.59	.52	.46	.58	.51	.46	.56	.50	.45	.43
6.0	.56	.47	.41	.56	.47	.41	.54	.46	.40	.52	.45	.40	.50	.44	.40	.38
7.0	.51	.42	.36	.50	.42	.36	.49	.41	.36	.47	.41	.35	.46	.40	.35	.33
8.0	.47	.38	.32	.46	.38	.32	.45	.37	.32	.43	.37	.32	.42	.36	.32	.30
9.0	.43	.35	.29	.42	.34	.29	.41	.34	.29	.40	.33	.29	.39	.33	.28	.27
10.0	.39	.32	.26	.39	.31	.26	.38	.31	.26	.37	.31	.26	.36	.30	.26	.24



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2022-10-31

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity:65.0%  
 Test Distance:3.090m [K=1.0000]  
 Remarks:

**WEC AND CCEC**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.471x1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:

$\rho_{CC}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.307	.174	.055	.299	.171	.054	.286	.164	.052	.274	.158	.051	.263	.152	.049	
2.0	.290	.159	.049	.284	.157	.048	.273	.152	.047	.262	.147	.046	.252	.142	.045	
3.0	.269	.143	.043	.264	.141	.043	.254	.137	.042	.244	.134	.041	.235	.130	.040	
4.0	.249	.129	.038	.244	.128	.038	.235	.125	.037	.226	.122	.037	.218	.119	.036	
5.0	.230	.117	.034	.226	.116	.034	.218	.113	.033	.210	.111	.033	.203	.109	.033	
6.0	.214	.107	.031	.210	.106	.031	.203	.104	.030	.196	.102	.030	.189	.100	.030	
7.0	.199	.098	.028	.195	.097	.028	.189	.096	.028	.183	.094	.027	.177	.092	.027	
8.0	.186	.091	.026	.183	.090	.025	.177	.088	.025	.171	.087	.025	.166	.085	.025	
9.0	.174	.084	.024	.171	.084	.023	.166	.082	.023	.161	.081	.023	.157	.080	.023	
10.0	.164	.078	.022	.161	.078	.022	.157	.077	.022	.152	.076	.021	.148	.074	.021	

$\rho_{CC}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	.180	.156	.135	.154	.134	.116	.105	.092	.080	.061	.053	.047	.019	.017	.015	
2.0	.172	.132	.098	.147	.114	.085	.101	.079	.059	.058	.046	.035	.019	.015	.011	
3.0	.164	.114	.074	.141	.099	.064	.097	.068	.045	.056	.040	.027	.018	.013	.009	
4.0	.157	.101	.058	.135	.087	.051	.093	.061	.036	.054	.036	.021	.017	.012	.007	
5.0	.149	.091	.047	.128	.078	.041	.088	.055	.029	.051	.032	.017	.016	.010	.006	
6.0	.142	.082	.039	.122	.071	.034	.084	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.135	.075	.033	.116	.065	.029	.080	.046	.020	.047	.027	.012	.015	.009	.004	
8.0	.129	.070	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.004	
9.0	.123	.065	.025	.106	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.022	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2022-10-31

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity:65.0%  
 Test Distance:3.090m [K=1.0000]  
 Remarks:

**UGR(Unified Glare Rating) Table**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:

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	16.5	18.1	16.8	18.3	18.5	16.6	18.2	16.9	18.4	18.6
3H	18.0	19.5	18.3	19.7	19.9	18.2	19.6	18.5	19.8	20.0
4H	18.7	20.0	19.0	20.2	20.5	18.8	20.1	19.1	20.3	20.6
6H	19.1	20.4	19.4	20.6	20.9	19.1	20.4	19.4	20.6	20.9
8H	19.2	20.4	19.6	20.7	21.0	19.2	20.4	19.5	20.7	21.0
12H	19.3	20.5	19.7	20.8	21.1	19.2	20.3	19.5	20.6	20.9
4H 2H	17.2	18.5	17.5	18.7	19.0	17.2	18.6	17.6	18.8	19.1
3H	18.9	20.0	19.2	20.3	20.6	19.0	20.1	19.3	20.4	20.7
4H	19.6	20.7	20.0	21.0	21.3	19.7	20.7	20.0	21.1	21.4
6H	20.2	21.1	20.6	21.5	21.8	20.1	21.1	20.5	21.4	21.8
8H	20.4	21.2	20.8	21.6	22.0	20.2	21.1	20.7	21.5	21.9
12H	20.5	21.3	20.9	21.7	22.1	20.3	21.1	20.7	21.5	21.9
8H 4H	19.9	20.8	20.3	21.1	21.5	19.9	20.8	20.3	21.2	21.6
6H	20.6	21.3	21.0	21.7	22.1	20.5	21.3	21.0	21.7	22.1
8H	20.8	21.5	21.3	21.9	22.4	20.7	21.3	21.1	21.8	22.2
12H	21.0	21.6	21.5	22.0	22.5	20.7	21.3	21.2	21.7	22.2
12H 4H	19.9	20.7	20.3	21.1	21.5	19.9	20.7	20.4	21.1	21.5
6H	20.6	21.3	21.1	21.7	22.1	20.6	21.2	21.0	21.6	22.1
8H	20.9	21.5	21.4	21.9	22.4	20.8	21.3	21.2	21.8	22.2

Variations with the observer position at spacings(CIE Pub.117):		
S = 1.0H	+ 0.2 / - 0.2	+ 0.1 / - 0.2
1.5H	+ 0.2 / - 0.3	+ 0.2 / - 0.3
2.0H	+ 0.2 / - 0.3	+ 0.2 / - 0.3

CIE Pub.117, 820.5 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.7)  
 Area: 0.111111 m2

C Range: 0 - 360DEG	γ Range: 0 - 90DEG
C Interval: 22.5DEG	γ Interval: 1.0DEG
Test Speed: HIGH	Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.460
Temperature:25.3°C	Humidity:65.0%
Operators:	Test Distance:3.090m [K=1.0000]
Test Date:2022-10-31	Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:

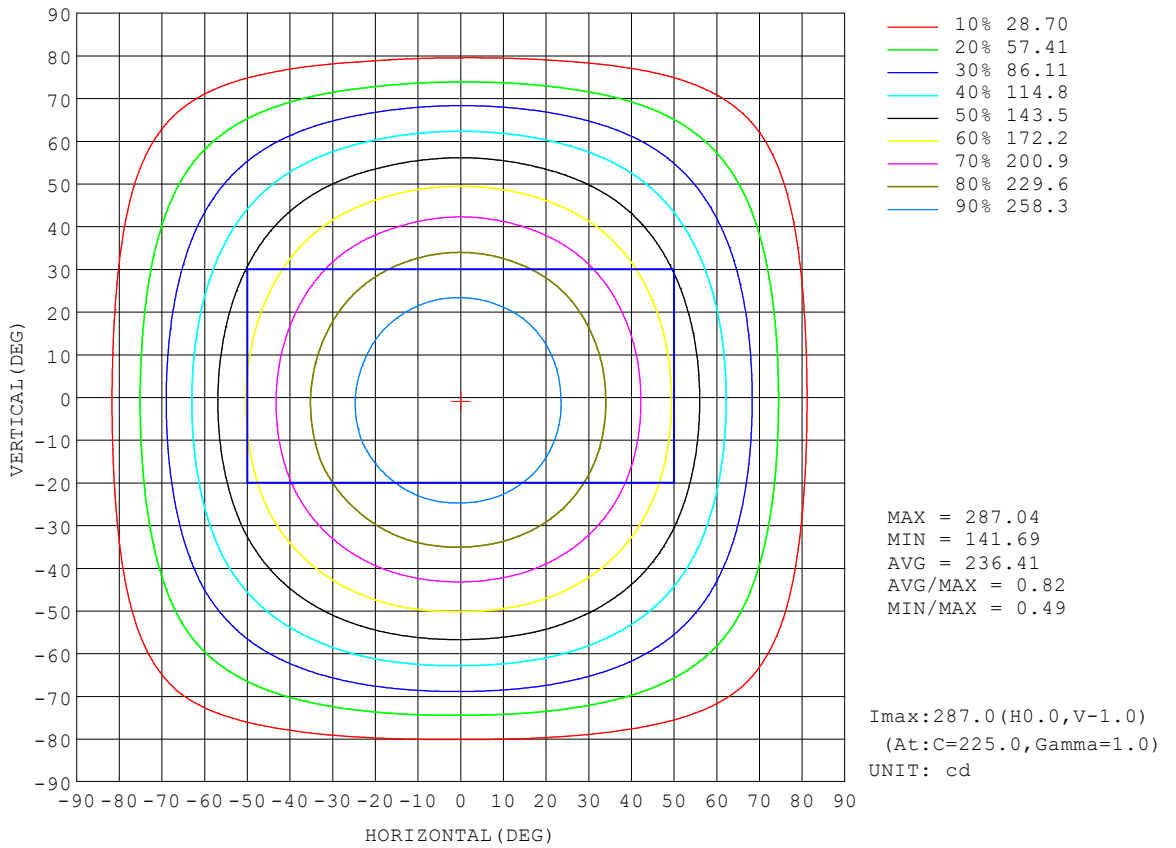
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	57	46	39	57	46	39	56	45	39	32
0.80	68	56	49	67	55	48	65	55	48	41
1.00	76	65	58	75	64	57	73	66	57	50
1.25	83	73	65	82	72	65	79	70	64	57
1.50	88	78	71	86	77	71	83	76	70	62
2.00	95	87	80	93	85	79	90	83	78	70
2.50	99	91	85	97	90	84	93	87	82	74
3.00	102	96	90	100	94	89	96	91	87	78
4.00	106	101	96	104	99	95	100	96	92	83
5.00	109	104	100	106	102	98	102	98	95	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2022-10-31

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity:65.0%  
 Test Distance:3.090m [K=1.0000]  
 Remarks:

**ISOCANDELA DIAGRAM**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:



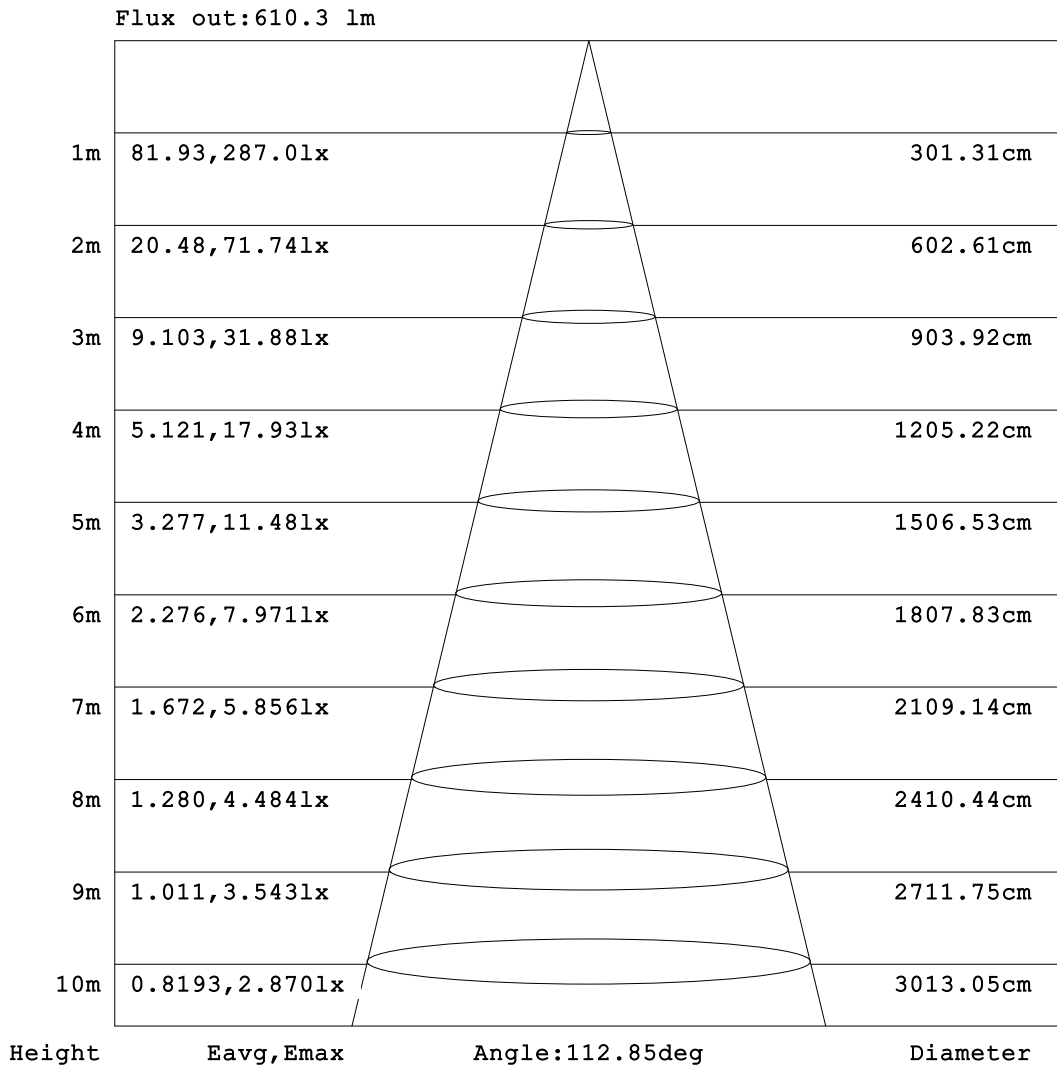
C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2022-10-31

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity:65.0%  
 Test Distance:3.090m [K=1.0000]  
 Remarks:



**AAI Figure**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:



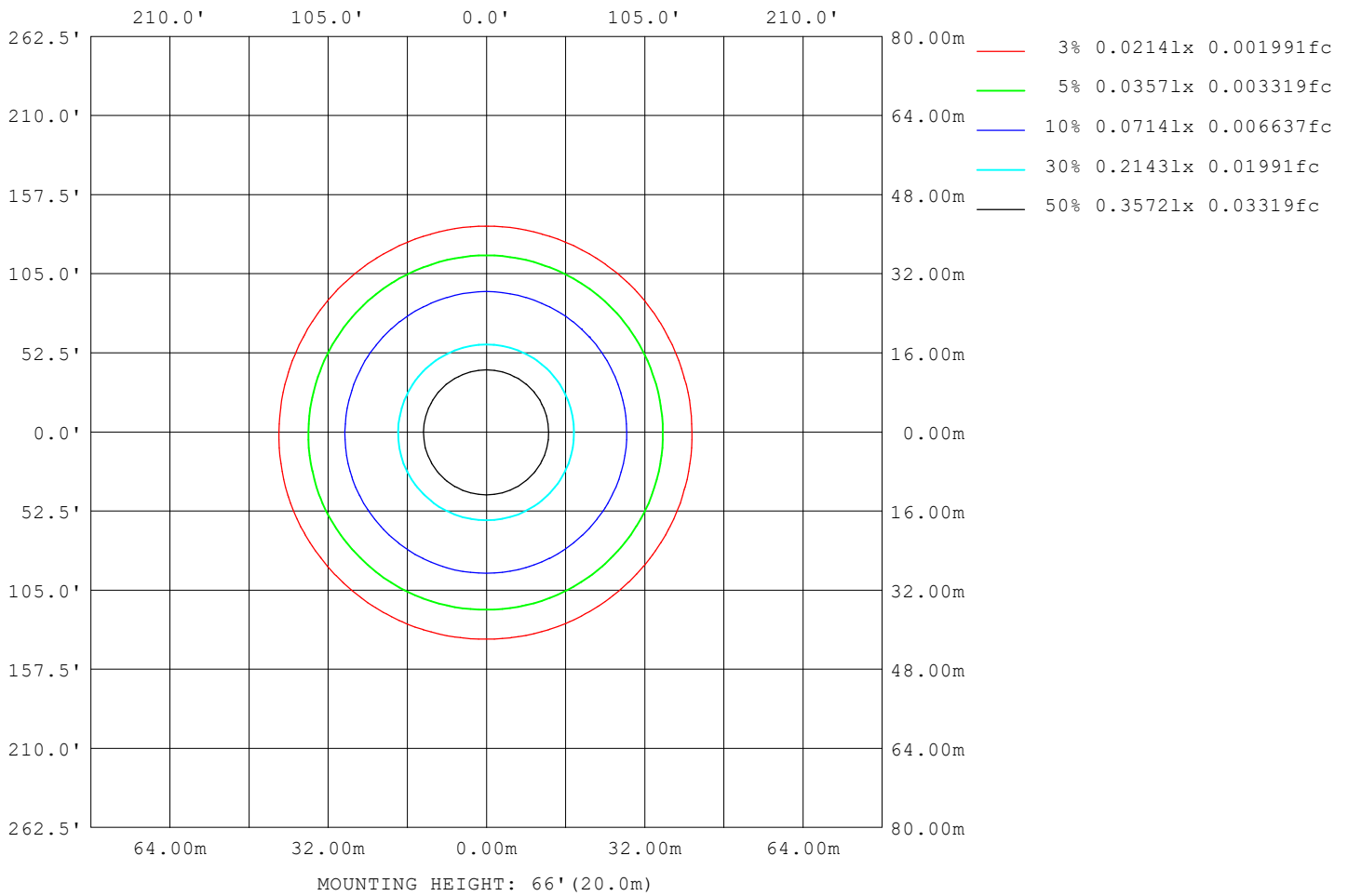
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:25.3°C  
Operators:  
Test Date:2022-10-31

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.090m [K=1.0000]  
Remarks:

**ISOLUX DIAGRAM**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2022-10-31

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity:65.0%  
 Test Distance:3.090m [K=1.0000]  
 Remarks:

**LED Avg.L Report**

Test:U:119.84V I:0.1083A P:11.143W PF:0.8589 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:820.47lx1 lm		
NAME: FR-LED-4-S12W-5CCTWH-PL	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: PPL	SUR.:	Shielding Angle:

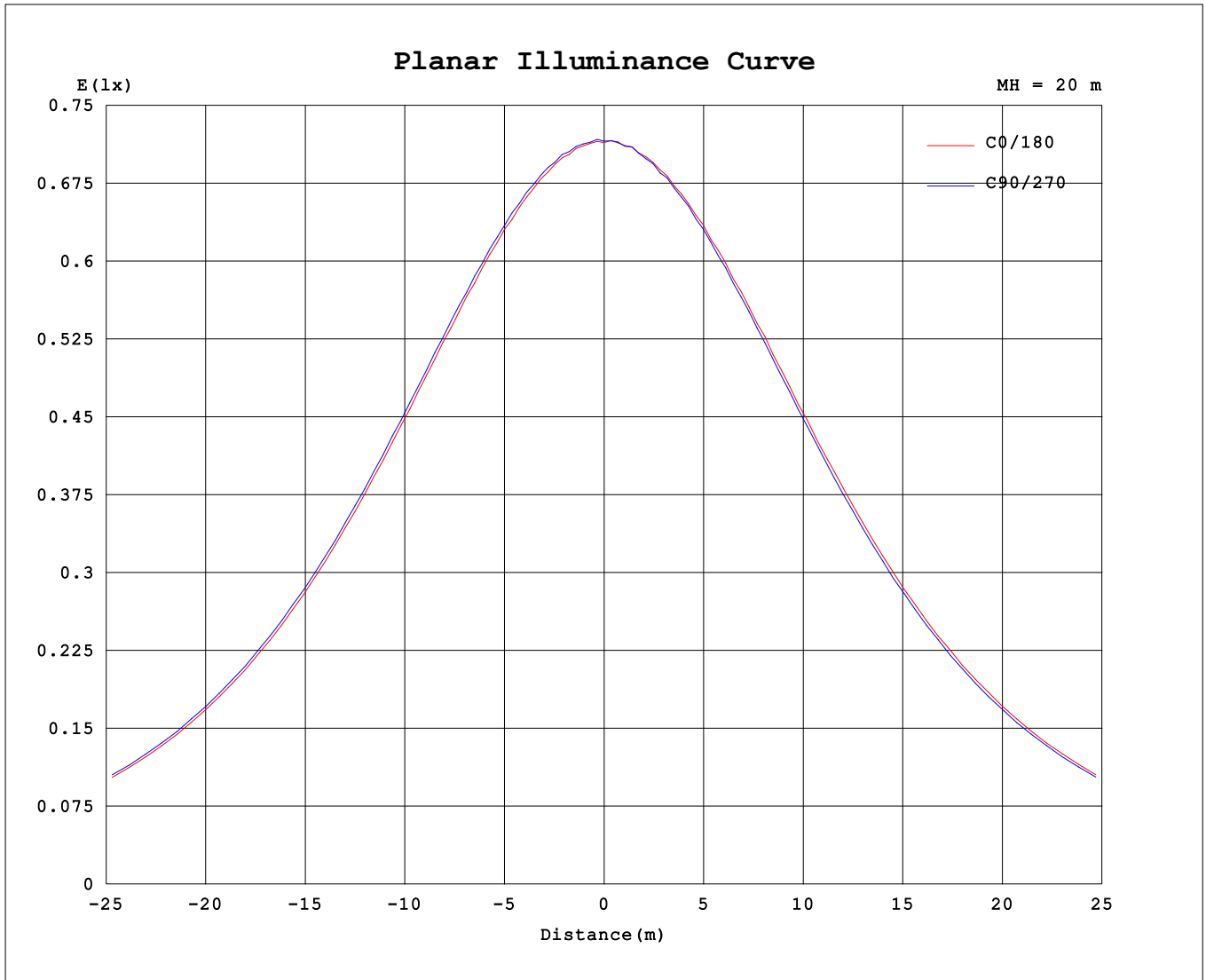
AvgL	cd/m2
L_0~180 (65) av	2210
L_0~180 (75) av	1967
L_0~180 (85) av	1550
L_90~270 (65) av	2207
L_90~270 (75) av	1839
L_90~270 (85) av	492
L_45 (65) av	2205
L_45 (75) av	1919
L_45 (85) av	824

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3℃  
 Operators:  
 Test Date:2022-10-31

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity:65.0%  
 Test Distance:3.090m [K=1.0000]  
 Remarks:

**Planar Illuminance Curve**



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature: 25.3 °C  
 Operators:  
 Test Date: 2022-10-31

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity: 65.0%  
 Test Distance: 3.090m [K=1.0000]  
 Remarks:

