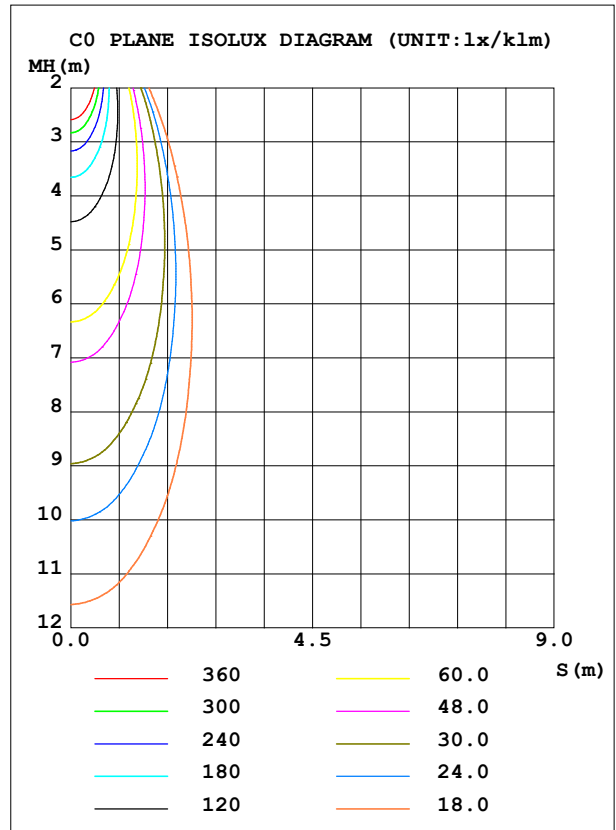
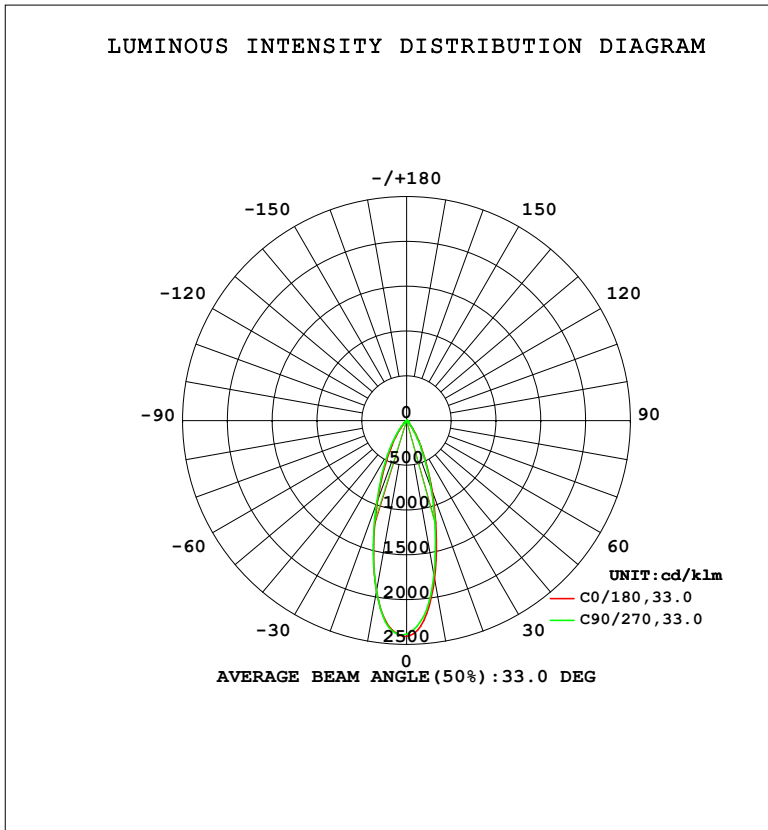


**LUMINAIRE PHOTOMETRIC TEST REPORT**

Test:U:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 88.66 lm/W
MODEL		I <sub>max</sub> (cd/klm)	2409	S/MH (C0/180)		0.57
NOMINAL POWER (W)	15	LOR (%)	100.0	S/MH (C90/270)		0.58
RATED VOLTAGE (V)	120	TOTAL FLUX (lm/klm)	1000.00	η UP, DN (C0-180)		0.0,47.9
NOMINAL FLUX (lm)	1180.6	CIE CLASS	DIRECT	η UP, DN (C180-360)		0.0,52.1
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM		0.50
TEST VOLTAGE (V)	120	η down (%)	100.0	CIBSE SHR MAX		0.55



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3 °C  
 Operators:  
 Test Date:2023-03-20

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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

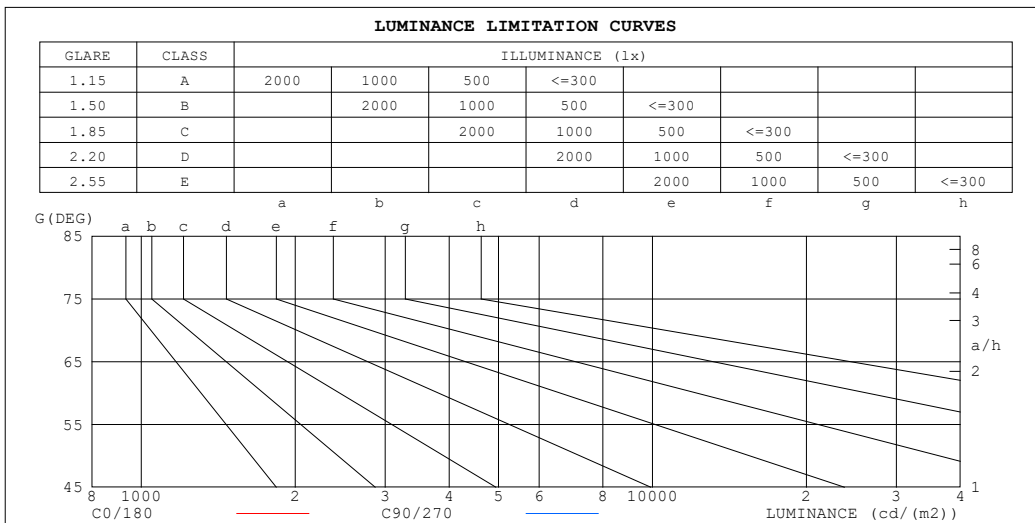
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum,lamp
10	1799	1829	1752	1846	1936	1871	1938	1829	0- 10	201.9	201.9	20.2,20.2
20	837.3	854.6	800.0	876.6	954.1	936.5	983.7	878.4	10- 20	368.7	570.6	57.1,57.1
30	298.1	299.2	274.6	306.6	355.9	372.6	401.2	333.0	20- 30	257.7	828.3	82.8,82.8
40	76.10	69.79	63.09	77.26	86.42	104.1	118.6	83.23	30- 40	115.4	943.8	94.4,94.4
50	23.11	20.59	21.54	24.01	23.63	24.94	27.03	24.84	40- 50	31.88	975.7	97.6,97.6
60	9.768	8.777	10.24	11.25	10.15	10.08	11.19	10.78	50- 60	14.77	990.4	99,99
70	3.303	3.499	3.944	4.375	3.525	3.216	3.887	3.635	60- 70	6.586	997.0	99.7,99.7
80	0.9597	1.091	1.513	1.627	1.082	0.8981	1.404	1.265	70- 80	2.516	999.5	100,100
90	0.0403	0.0473	0.0476	0.0498	0.0353	0.0350	0.0426	0.0375	80- 90	0.4674	1000.0	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/klm									UNIT:lm/klm		

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2023-03-20

$\gamma$  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**

<b>Test:U:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz</b> <b>UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm</b>		
<b>NAME: 3INCH-15W-1000LM</b>	<b>TYPE:</b>	<b>WEIGHT:</b>
<b>SPEC.: 5000K 90</b>	<b>DIM.:</b>	<b>SERIAL No.:</b>
<b>MFR.: DIRECTLED</b>	<b>SUR.:</b>	<b>Shielding Angle:</b>



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	10	56
80	59	93
75	84	110
70	103	123
65	140	174
60	208	218
55	283	294
50	382	356
45	481	459

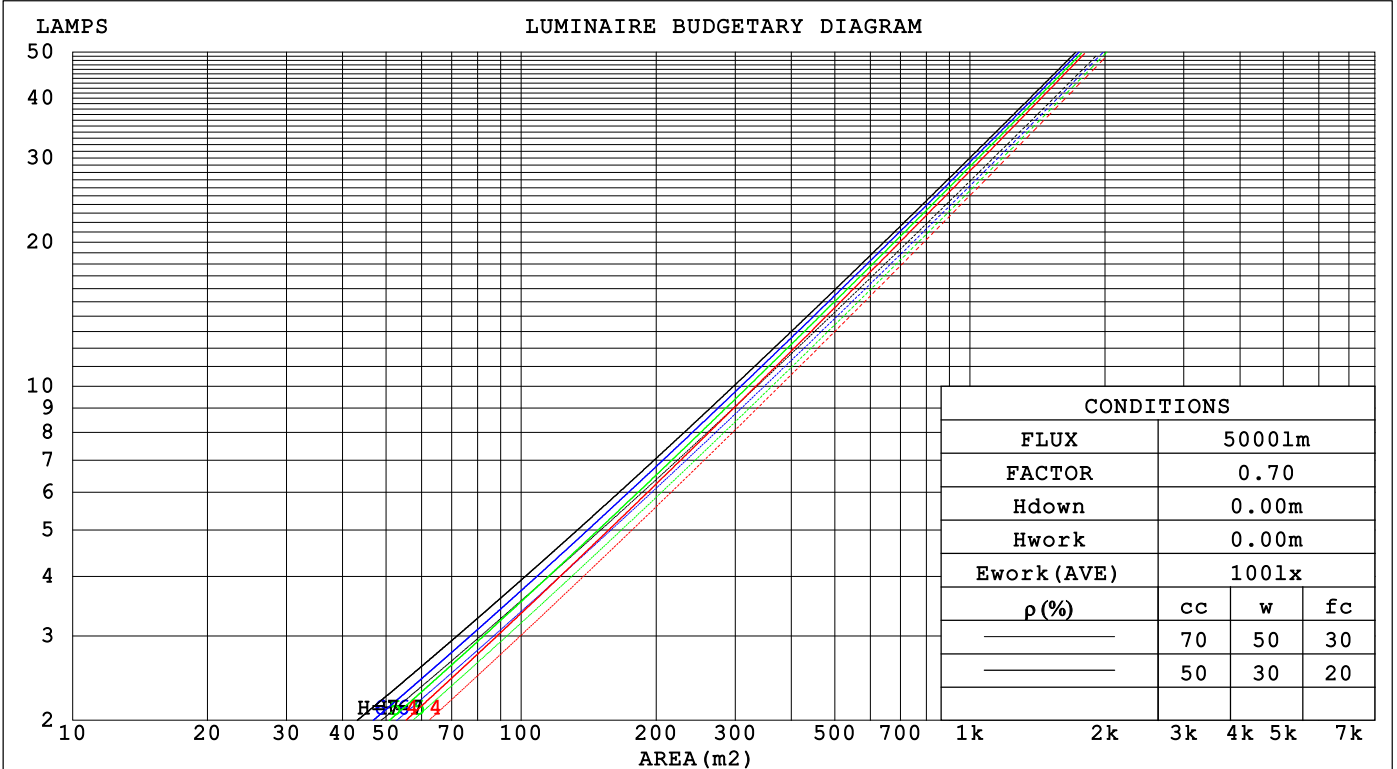
C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 2023-03-20

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:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	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	.00
1.0	1.12	1.09	1.07	1.09	1.07	1.06	1.05	1.04	1.02	1.02	1.00	.99	.98	.97	.96	.95
2.0	1.05	1.01	.98	1.03	.90	.97	.90	.97	.95	.97	.95	.93	.94	.93	.91	.89
3.0	.99	.94	.91	.97	.93	.90	.95	.92	.89	.93	.90	.87	.90	.88	.86	.85
4.0	.93	.89	.85	.92	.88	.84	.90	.86	.83	.88	.85	.82	.87	.84	.82	.80
5.0	.89	.84	.80	.88	.83	.79	.86	.82	.79	.84	.81	.78	.83	.80	.77	.76
6.0	.84	.79	.75	.84	.79	.75	.82	.78	.75	.81	.77	.74	.80	.76	.74	.72
7.0	.80	.75	.72	.80	.75	.71	.79	.74	.71	.77	.74	.71	.76	.73	.70	.69
8.0	.77	.72	.68	.76	.71	.68	.75	.71	.68	.74	.70	.67	.73	.70	.67	.66
9.0	.74	.68	.65	.73	.68	.65	.72	.68	.65	.71	.67	.64	.71	.67	.64	.63
10.0	.71	.65	.62	.70	.65	.62	.69	.65	.62	.69	.65	.62	.68	.64	.62	.60



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3 °C  
 Operators:  
 Test Date:2023-03-20

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:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	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	.162	.092	.029	.156	.089	.028	.143	.082	.026	.132	.076	.024	.121	.070	.023	
2.0	.154	.084	.026	.148	.082	.025	.138	.077	.024	.128	.072	.022	.119	.067	.021	
3.0	.145	.077	.023	.140	.075	.023	.132	.071	.022	.123	.068	.021	.116	.064	.020	
4.0	.137	.071	.021	.133	.070	.021	.126	.067	.020	.119	.064	.019	.112	.061	.019	
5.0	.130	.066	.019	.127	.065	.019	.120	.063	.018	.114	.060	.018	.108	.058	.017	
6.0	.124	.062	.018	.121	.061	.018	.115	.059	.017	.110	.057	.017	.105	.055	.016	
7.0	.118	.058	.017	.115	.057	.016	.110	.056	.016	.106	.054	.016	.101	.053	.015	
8.0	.113	.055	.015	.110	.054	.015	.106	.053	.015	.102	.052	.015	.098	.050	.015	
9.0	.108	.052	.015	.106	.052	.014	.102	.050	.014	.098	.049	.014	.095	.048	.014	
10.0	.103	.050	.014	.102	.049	.014	.098	.048	.014	.095	.047	.013	.091	.046	.013	

$\rho_{cc}$	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	.170	.157	.146	.146	.135	.126	.100	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.154	.133	.115	.132	.114	.099	.090	.079	.069	.052	.046	.041	.017	.015	.013	
3.0	.140	.113	.092	.120	.098	.080	.083	.068	.056	.048	.040	.033	.015	.013	.011	
4.0	.129	.098	.075	.111	.085	.065	.076	.059	.046	.044	.035	.027	.014	.011	.009	
5.0	.120	.087	.062	.103	.075	.054	.071	.052	.038	.041	.031	.023	.013	.010	.007	
6.0	.112	.077	.052	.096	.067	.045	.066	.047	.032	.038	.027	.019	.012	.009	.006	
7.0	.105	.069	.044	.090	.060	.039	.062	.042	.027	.036	.025	.016	.012	.008	.005	
8.0	.099	.063	.038	.085	.054	.033	.059	.038	.024	.034	.023	.014	.011	.007	.005	
9.0	.094	.057	.033	.081	.050	.029	.056	.035	.020	.033	.021	.012	.011	.007	.004	
10.0	.089	.053	.029	.077	.046	.025	.053	.032	.018	.031	.019	.011	.010	.006	.004	

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2023-03-20

$\gamma$  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:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	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	3.6	4.5	3.9	4.6	4.8	3.4	4.3	3.6	4.4	4.6
3H	3.6	4.4	3.9	4.6	4.8	3.5	4.2	3.7	4.4	4.6
4H	3.6	4.3	3.8	4.5	4.7	3.5	4.2	3.7	4.4	4.6
6H	3.5	4.2	3.8	4.4	4.7	3.4	4.1	3.7	4.4	4.6
8H	3.5	4.1	3.8	4.4	4.6	3.4	4.1	3.7	4.3	4.6
12H	3.4	4.1	3.7	4.3	4.6	3.4	4.0	3.7	4.3	4.5
4H 2H	3.5	4.2	3.8	4.4	4.7	3.3	4.0	3.6	4.2	4.5
3H	3.5	4.1	3.8	4.4	4.7	3.4	4.0	3.7	4.3	4.5
4H	3.5	4.1	3.8	4.4	4.7	3.4	4.0	3.8	4.3	4.6
6H	3.4	4.0	3.8	4.3	4.6	3.4	3.9	3.8	4.3	4.6
8H	3.4	3.9	3.8	4.2	4.6	3.4	3.9	3.8	4.2	4.6
12H	3.4	3.8	3.8	4.2	4.5	3.4	3.8	3.8	4.2	4.6
8H 4H	3.4	3.9	3.8	4.2	4.6	3.3	3.8	3.7	4.1	4.5
6H	3.4	3.7	3.8	4.1	4.6	3.3	3.7	3.8	4.1	4.5
8H	3.3	3.7	3.8	4.1	4.5	3.3	3.7	3.8	4.1	4.5
12H	3.3	3.6	3.7	4.0	4.5	3.3	3.6	3.8	4.0	4.5
12H 4H	3.3	3.8	3.8	4.1	4.5	3.3	3.7	3.7	4.1	4.5
6H	3.3	3.7	3.8	4.1	4.5	3.3	3.6	3.7	4.1	4.5
8H	3.3	3.6	3.7	4.0	4.5	3.3	3.6	3.8	4.0	4.5

Variations with the observer position at spacings(CIE Pub.117):		
S = 1.0H	+ 2.8 / - 4.0	+ 2.1 / - 3.0
1.5H	+ 4.6 / - 3.1	+ 3.7 / - 2.3
2.0H	+ 2.4 / - 2.5	+ 1.9 / - 1.9

CIE Pub.117, 1181 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.6)  
 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:2023-03-20	Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	SUR.:	Shielding Angle:

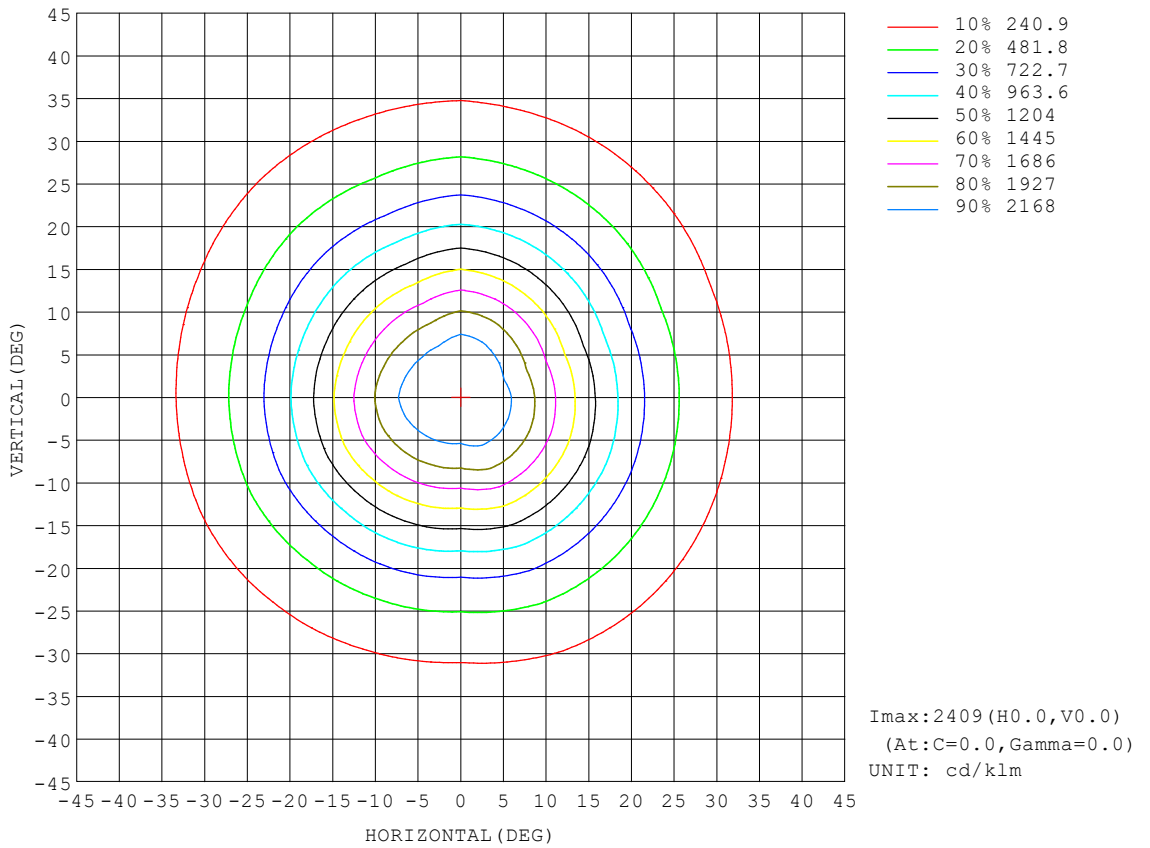
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	82	78	88	82	78	87	81	78	74
0.80	95	90	86	95	89	86	94	89	85	82
1.00	100	94	91	99	94	90	97	94	90	86
1.25	104	98	95	103	98	95	101	97	94	90
1.50	106	102	98	105	101	98	103	99	97	92
2.00	109	105	102	107	104	101	105	102	99	94
2.50	110	107	104	109	105	103	106	103	101	95
3.00	112	109	106	110	107	105	107	105	103	96
4.00	114	111	109	112	110	108	108	106	105	98
5.00	115	113	111	113	111	110	109	108	106	99
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:2023-03-20

$\gamma$  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:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	SUR.:	Shielding Angle:

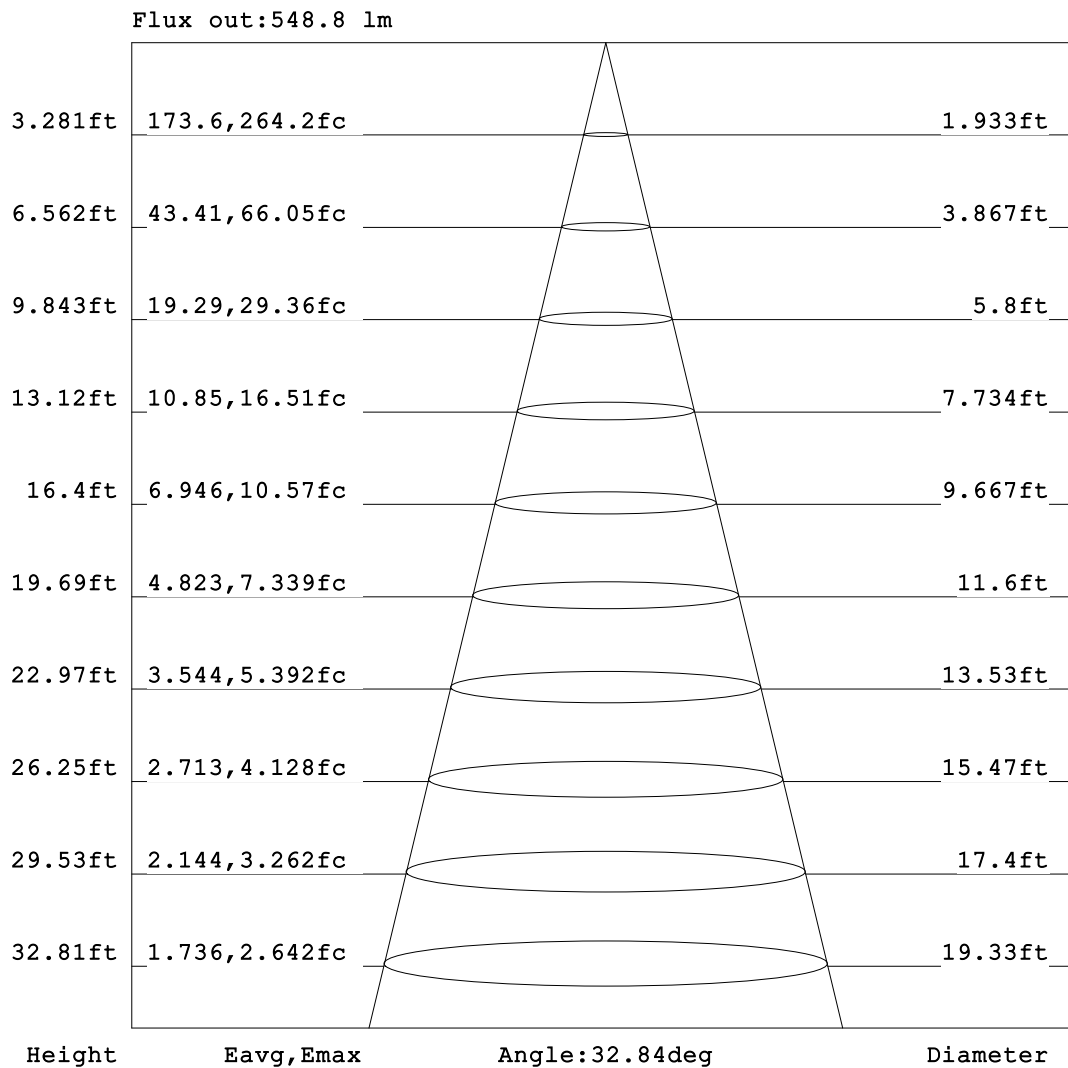


C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2023-03-20

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:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	SUR.:	Shielding Angle:



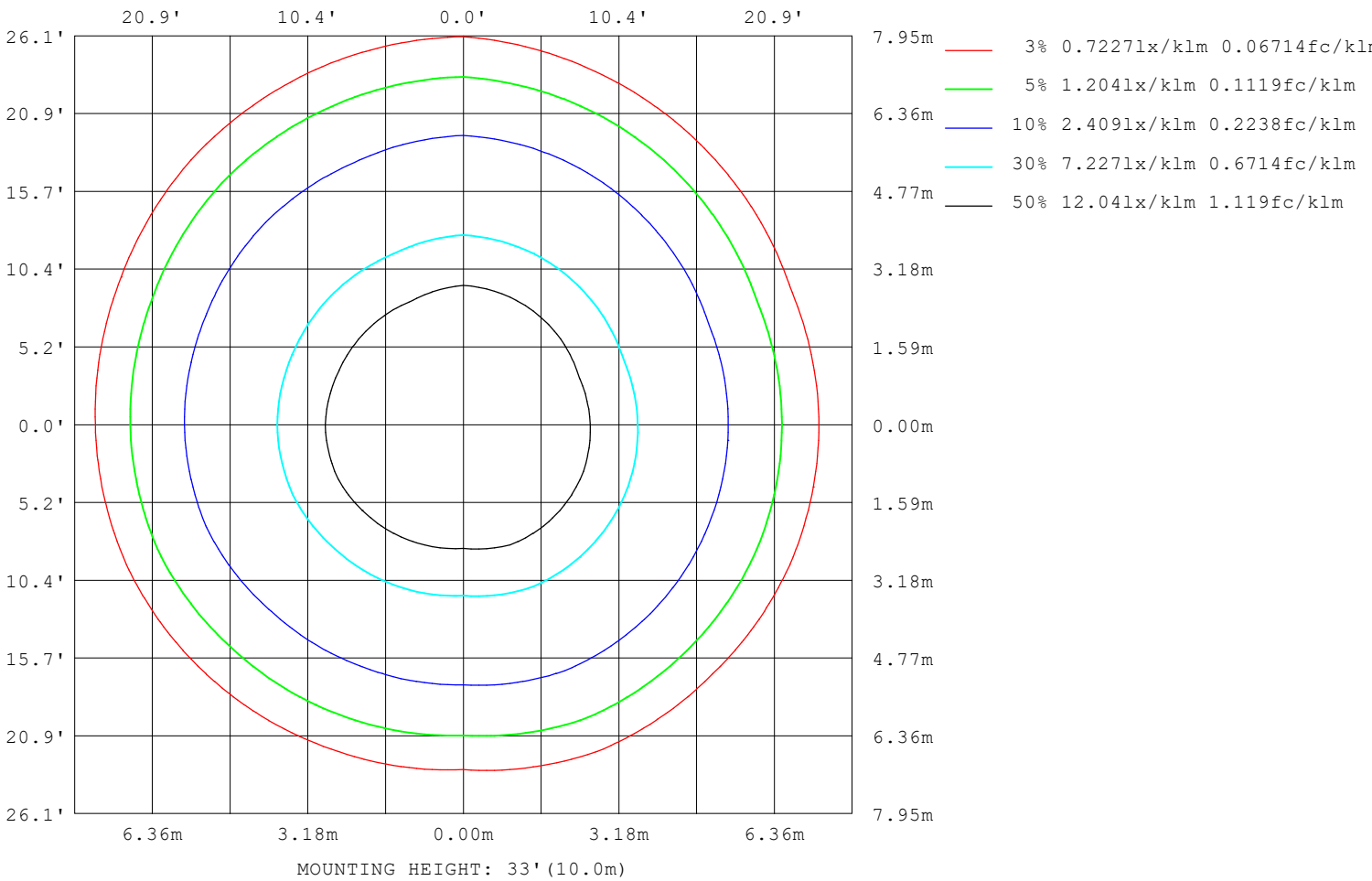
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2023-03-20

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:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3°C  
 Operators:  
 Test Date:2023-03-20

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:119.87V I:0.1128A P:13.317W PF:0.9851 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:1180.6x1 lm		
NAME: 3INCH-15W-1000LM	TYPE:	WEIGHT:
SPEC.: 5000K 90	DIM.:	SERIAL No.:
MFR.: DIRECTLED	SUR.:	Shielding Angle:

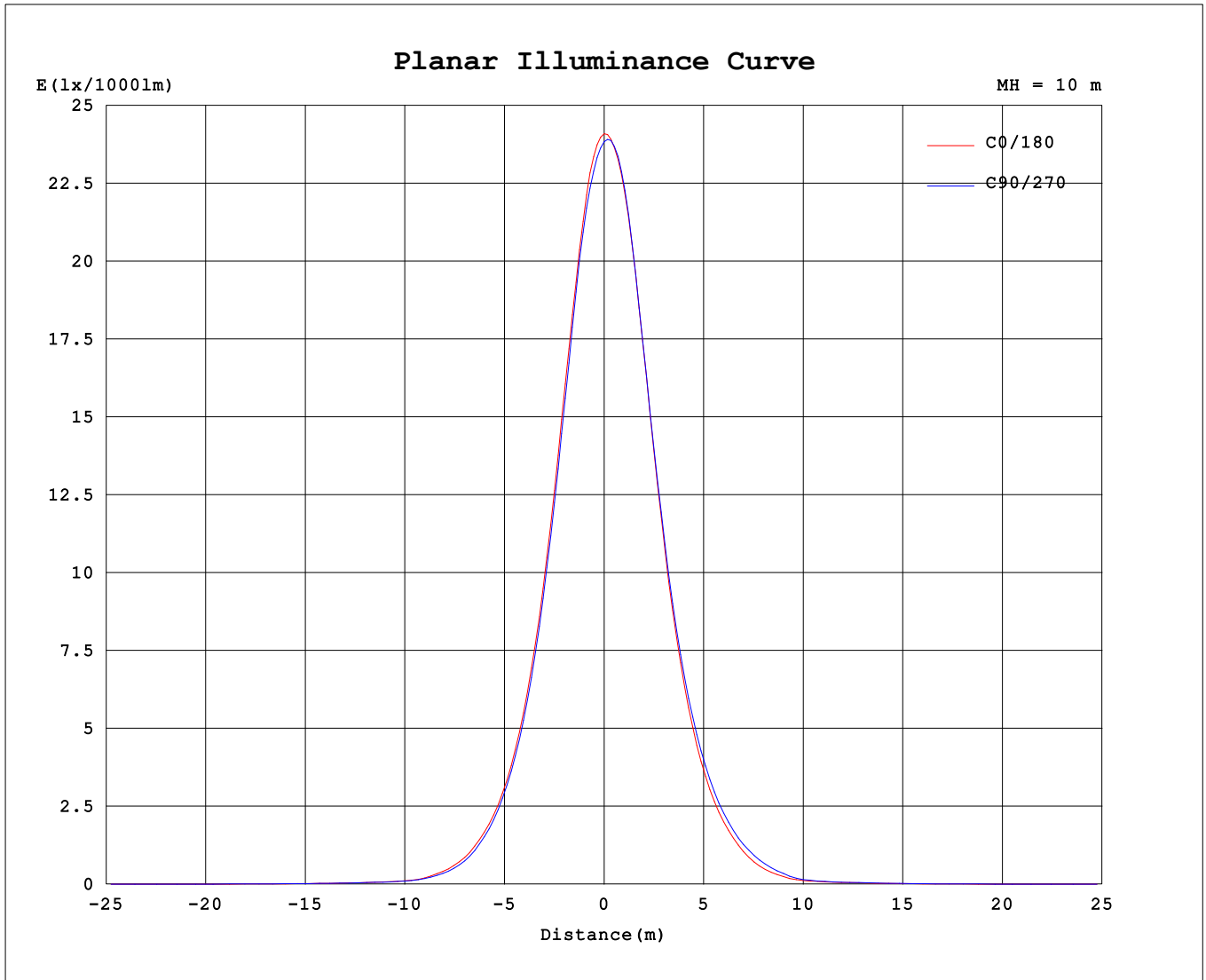
AvgL	cd/m2
L_0~180 (65) av	151
L_0~180 (75) av	87
L_0~180 (85) av	15
L_90~270 (65) av	182
L_90~270 (75) av	107
L_90~270 (85) av	56
L_45 (65) av	165
L_45 (75) av	96
L_45 (85) av	35

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:25.3℃  
 Operators:  
 Test Date:2023-03-20

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: 2023-03-20

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:

