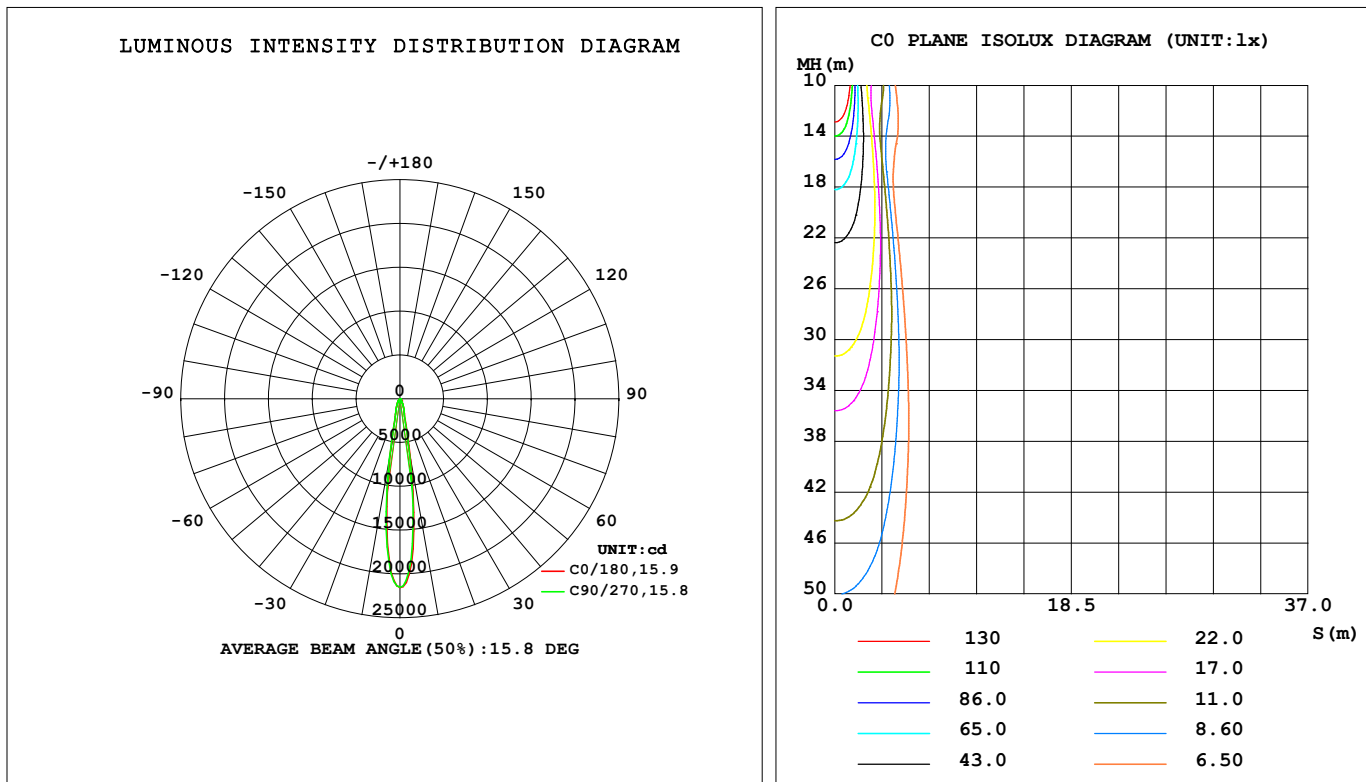


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 100.05 lm/W
MODEL	LUMINUS CXM-14	I _{max} (cd)	21540	S/MH (C0/180)	0.27	
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	0.27	
RATED VOLTAGE (V)	220.0	TOTAL FLUX (lm)	2787.7	η UP,DN (C0-180)	0.0,49.8	
NOMINAL FLUX (lm)	2787.65	CIE CLASS	DIRECT	η UP,DN (C180-360)	0.0,50.2	
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.00	
TEST VOLTAGE (V)	230	η down (%)	100.0	CIBSE SHR MAX	1.00	



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [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	709.7	684.3	646.3	641.7	663.3	687.5	720.4	713.8	0- 10	1259	1259	45.1,45.1
20	144.5	141.9	138.8	140.7	141.4	142.3	143.1	145.0	10- 20	714.0	1973	70.8,70.8
30	59.27	58.77	57.42	58.80	58.74	58.45	58.44	59.62	20- 30	422.6	2395	85.9,85.9
40	24.27	27.03	23.37	27.26	23.25	27.08	23.22	27.84	30- 40	248.1	2643	94.8,94.8
50	2.974	8.106	2.963	7.794	3.071	6.815	3.046	8.274	40- 50	102.9	2746	98.5,98.5
60	1.352	1.472	1.355	1.466	1.325	1.449	1.307	1.452	50- 60	21.17	2767	99.3,99.3
70	0.7987	0.9448	0.7817	0.9294	0.7738	0.9232	0.7707	0.9364	60- 70	11.40	2779	99.7,99.7
80	0.4313	0.4945	0.4301	0.5007	0.4383	0.4989	0.4335	0.5176	70- 80	6.347	2785	99.9,99.9
90	0.0072	0.0050	0.0053	0.0053	0.0069	0.0069	0.0060	0.0066	80- 90	2.525	2788	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: μ A10cd									UNIT:lm		

Conical surface Flux(90deg): 2714.3 lm

%lum = 97.4%

%lamp = 97.4%

Conical surface Flux(120deg): 2767.4 lm

%lum = 99.3%

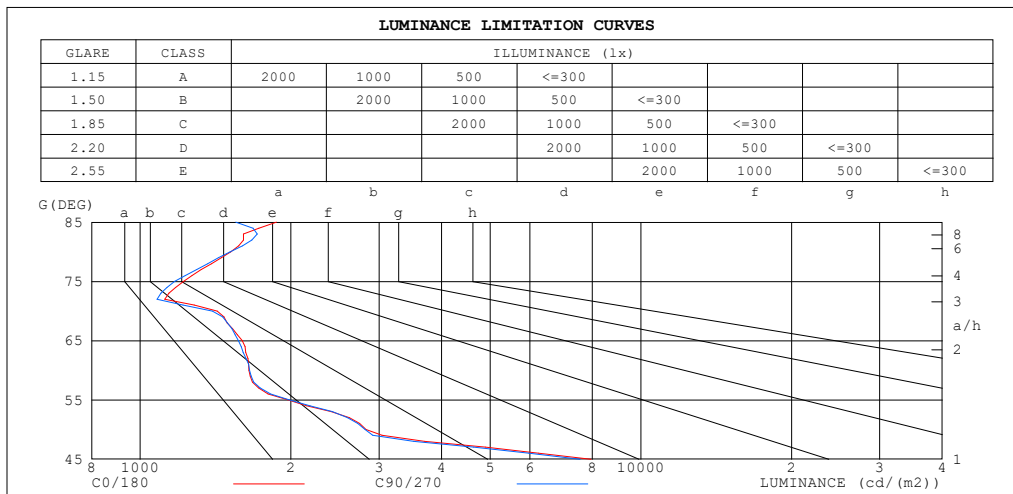
%lamp = 99.3%

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	1872	1553
80	1516	1512
75	1221	1173
70	1426	1395
65	1599	1572
60	1650	1654
55	1972	1984
50	2825	2814
45	7958	7560

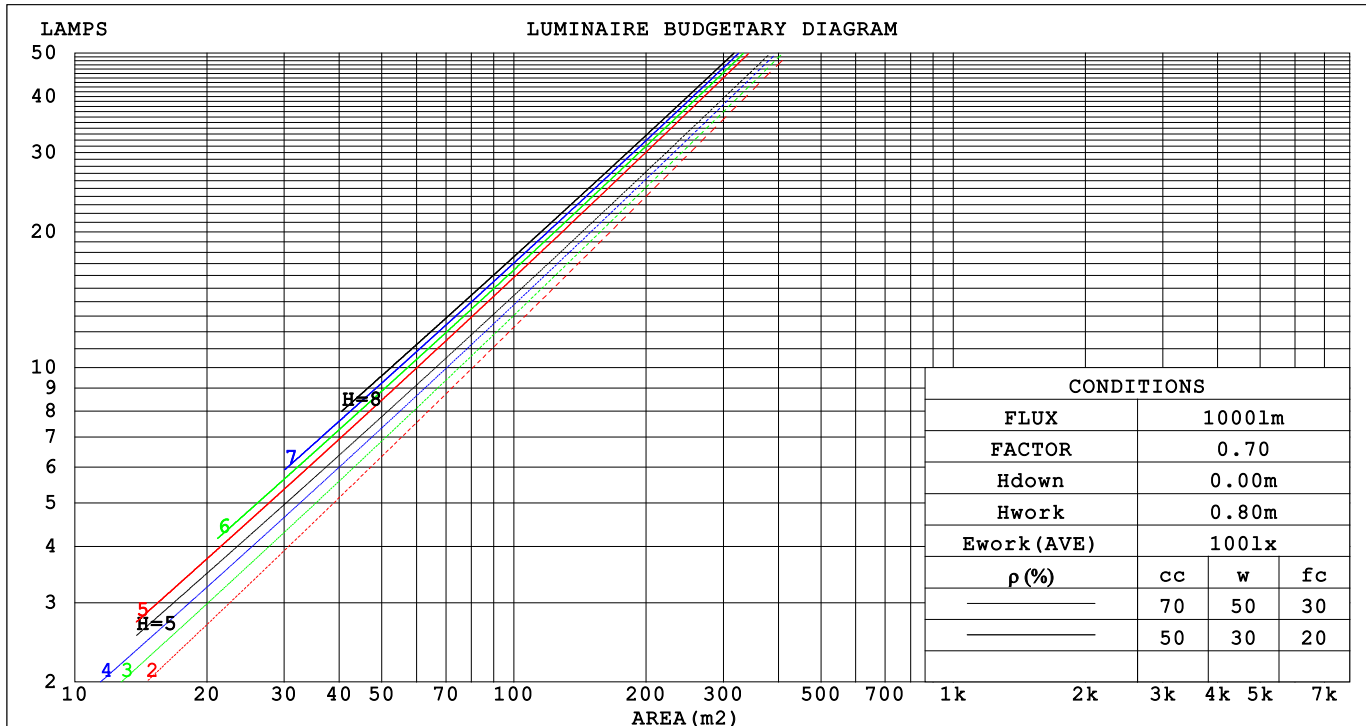
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

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						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	1.13	1.11	1.09	1.10	1.09	1.07	1.06	1.05	1.04	1.03	1.02	1.01	.99	.99	.98	.96
2.0	1.07	1.04	1.01	1.05	1.03	1.00	1.02	.00	.98	.99	.98	.96	.97	.95	.94	.93
3.0	1.02	.98	.95	1.01	.97	.95	.98	.96	.93	.96	.94	.92	.94	.92	.90	.89
4.0	.98	.94	.91	.97	.93	.90	.95	.92	.89	.93	.90	.88	.91	.89	.87	.86
5.0	.94	.90	.87	.93	.89	.86	.92	.88	.86	.90	.87	.85	.89	.86	.84	.83
6.0	.91	.87	.83	.90	.86	.83	.89	.85	.83	.88	.85	.82	.86	.84	.82	.81
7.0	.88	.84	.81	.87	.83	.80	.86	.83	.80	.85	.82	.80	.84	.81	.79	.78
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	.78	.75	.80	.77	.75	.74
10.0	.81	.77	.74	.80	.76	.74	.80	.76	.74	.79	.76	.73	.78	.75	.73	.72



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

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	.142	.081	.026	.136	.077	.025	.123	.071	.023	.112	.064	.021	.101	.059	.019	
2.0	.133	.073	.022	.127	.070	.022	.117	.065	.020	.107	.060	.019	.099	.056	.018	
3.0	.124	.066	.020	.119	.064	.019	.111	.060	.018	.103	.056	.017	.095	.053	.016	
4.0	.116	.060	.018	.112	.059	.017	.105	.056	.017	.098	.053	.016	.092	.050	.015	
5.0	.109	.056	.016	.106	.054	.016	.099	.052	.015	.094	.049	.015	.088	.047	.014	
6.0	.103	.052	.015	.100	.050	.015	.095	.048	.014	.090	.047	.014	.085	.045	.013	
7.0	.097	.048	.014	.095	.047	.013	.090	.046	.013	.086	.044	.013	.082	.042	.012	
8.0	.092	.045	.013	.090	.044	.013	.086	.043	.012	.082	.042	.012	.079	.040	.012	
9.0	.088	.043	.012	.086	.042	.012	.082	.041	.012	.079	.040	.011	.076	.039	.011	
10.0	.084	.040	.011	.082	.040	.011	.079	.039	.011	.076	.038	.011	.073	.037	.011	

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						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	.148	.144	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.017	
2.0	.151	.133	.117	.129	.114	.101	.089	.079	.071	.051	.046	.041	.016	.015	.014	
3.0	.136	.113	.095	.117	.098	.082	.080	.068	.058	.046	.040	.034	.015	.013	.011	
4.0	.124	.098	.078	.106	.085	.068	.073	.059	.048	.042	.035	.028	.014	.011	.009	
5.0	.114	.086	.065	.098	.074	.057	.067	.052	.040	.039	.030	.024	.013	.010	.008	
6.0	.105	.076	.055	.090	.066	.048	.062	.046	.034	.036	.027	.020	.012	.009	.007	
7.0	.097	.068	.047	.084	.059	.041	.058	.041	.029	.034	.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	.050	.031	.069	.044	.027	.048	.031	.019	.028	.018	.011	.009	.006	.004	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm											
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA					TYPE:LED			WEIGHT:			
SPEC.:					DIM.:			SERIAL No.:			
MFR.: DARKON					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	10.1	10.8	10.3	10.9	11.1	9.7	10.3	9.9	10.5	10.6	
	3H	10.1	10.7	10.3	10.9	11.1	9.6	10.3	9.9	10.4	10.6
	4H	10.0	10.6	10.3	10.8	11.0	9.6	10.2	9.8	10.4	10.6
	6H	10.0	10.6	10.3	10.8	11.0	9.6	10.1	9.8	10.4	10.6
	8H	10.0	10.5	10.3	10.8	11.0	9.6	10.1	9.9	10.4	10.6
	12H	10.0	10.5	10.3	10.8	11.0	9.6	10.1	9.9	10.3	10.6
4H	2H	9.9	10.5	10.2	10.7	11.0	9.5	10.1	9.8	10.3	10.5
	3H	9.9	10.5	10.2	10.7	11.0	9.5	10.0	9.8	10.3	10.5
	4H	9.9	10.4	10.2	10.7	11.0	9.5	10.0	9.8	10.2	10.5
	6H	9.9	10.3	10.3	10.7	11.0	9.5	9.9	9.9	10.2	10.6
	8H	9.9	10.3	10.3	10.7	11.0	9.5	9.9	9.9	10.3	10.6
	12H	9.9	10.3	10.3	10.7	11.1	9.5	9.9	9.9	10.3	10.6
8H	4H	9.8	10.2	10.2	10.6	10.9	9.4	9.8	9.8	10.1	10.5
	6H	9.9	10.2	10.3	10.6	11.0	9.4	9.8	9.9	10.2	10.6
	8H	9.9	10.2	10.4	10.6	11.1	9.5	9.8	10.0	10.2	10.7
	12H	10.0	10.2	10.4	10.7	11.1	9.6	9.8	10.0	10.3	10.7
12H	4H	9.8	10.1	10.2	10.5	10.9	9.3	9.7	9.7	10.1	10.5
	6H	9.8	10.1	10.3	10.6	11.0	9.4	9.7	9.9	10.1	10.6
	8H	9.9	10.2	10.4	10.6	11.1	9.5	9.8	10.0	10.2	10.7
Variations with the observer position at spacings:											
S = 1.0H	+ 2.1 / - 5.7					+ 2.2 / - 5.5					
1.5H	+ 3.6 / - 5.6					+ 3.8 / - 5.3					
2.0H	+ 4.7 / - 2.4					+ 3.8 / - 1.7					

CIE Pub.117, 2788 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 3.6)

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

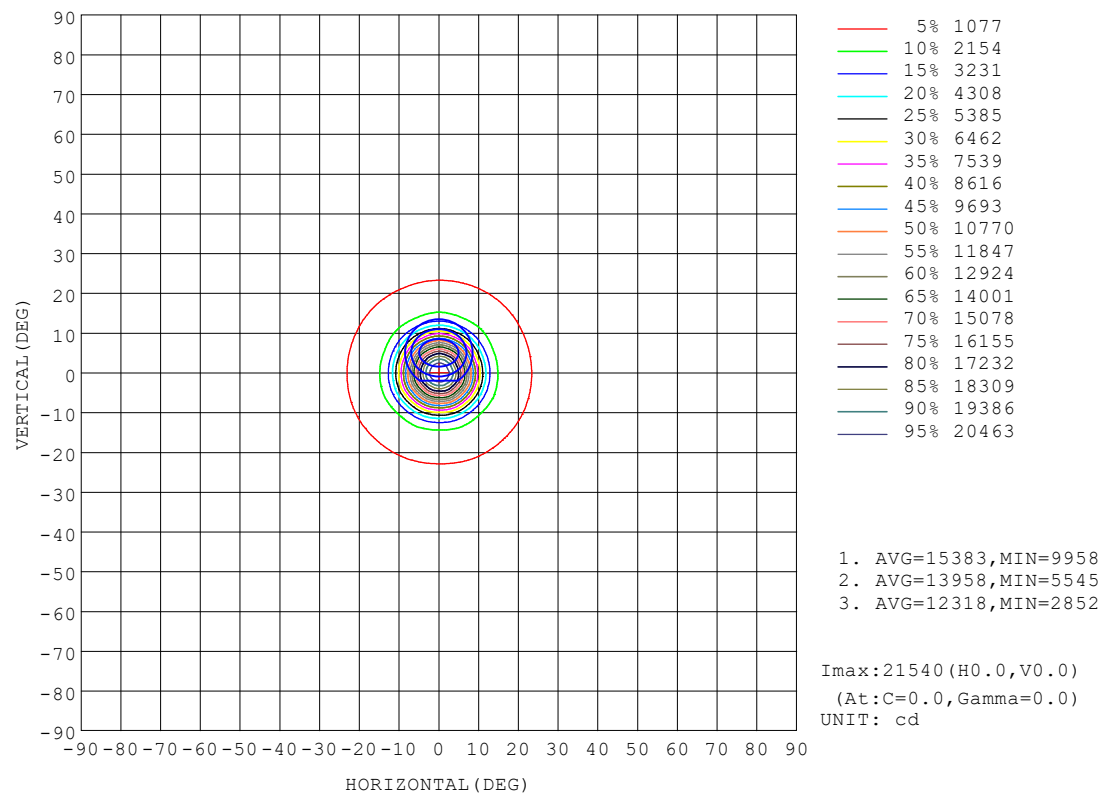
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	82	78	88	82	78	87	82	78	75
0.80	96	90	86	95	90	86	94	89	86	82
1.00	100	95	91	99	94	91	98	94	90	86
1.25	104	99	95	103	98	95	101	97	94	90
1.50	106	102	99	105	101	98	103	100	97	93
2.00	109	105	102	108	104	101	105	102	99	94
2.50	111	107	104	109	106	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	107	105	98
5.00	115	113	111	113	111	110	109	108	107	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:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

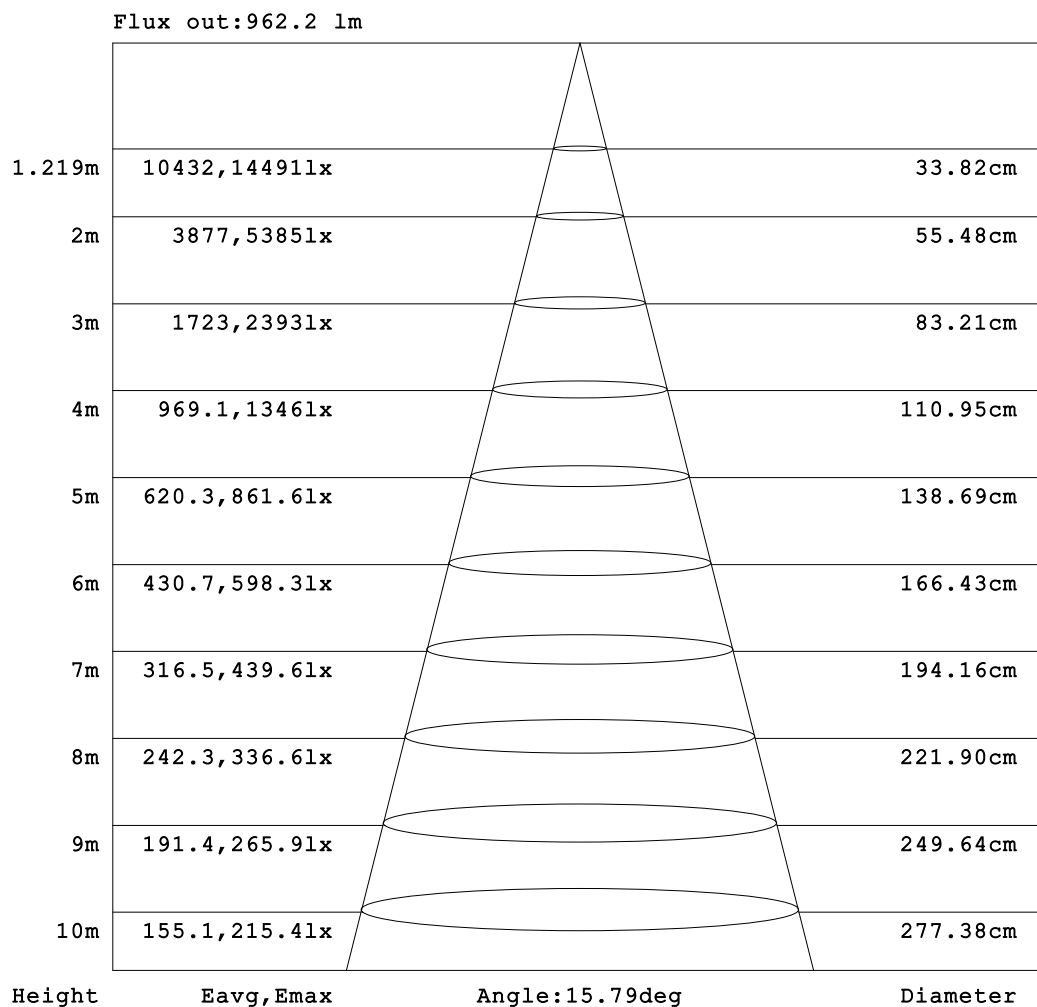


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

AAI Figure

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:



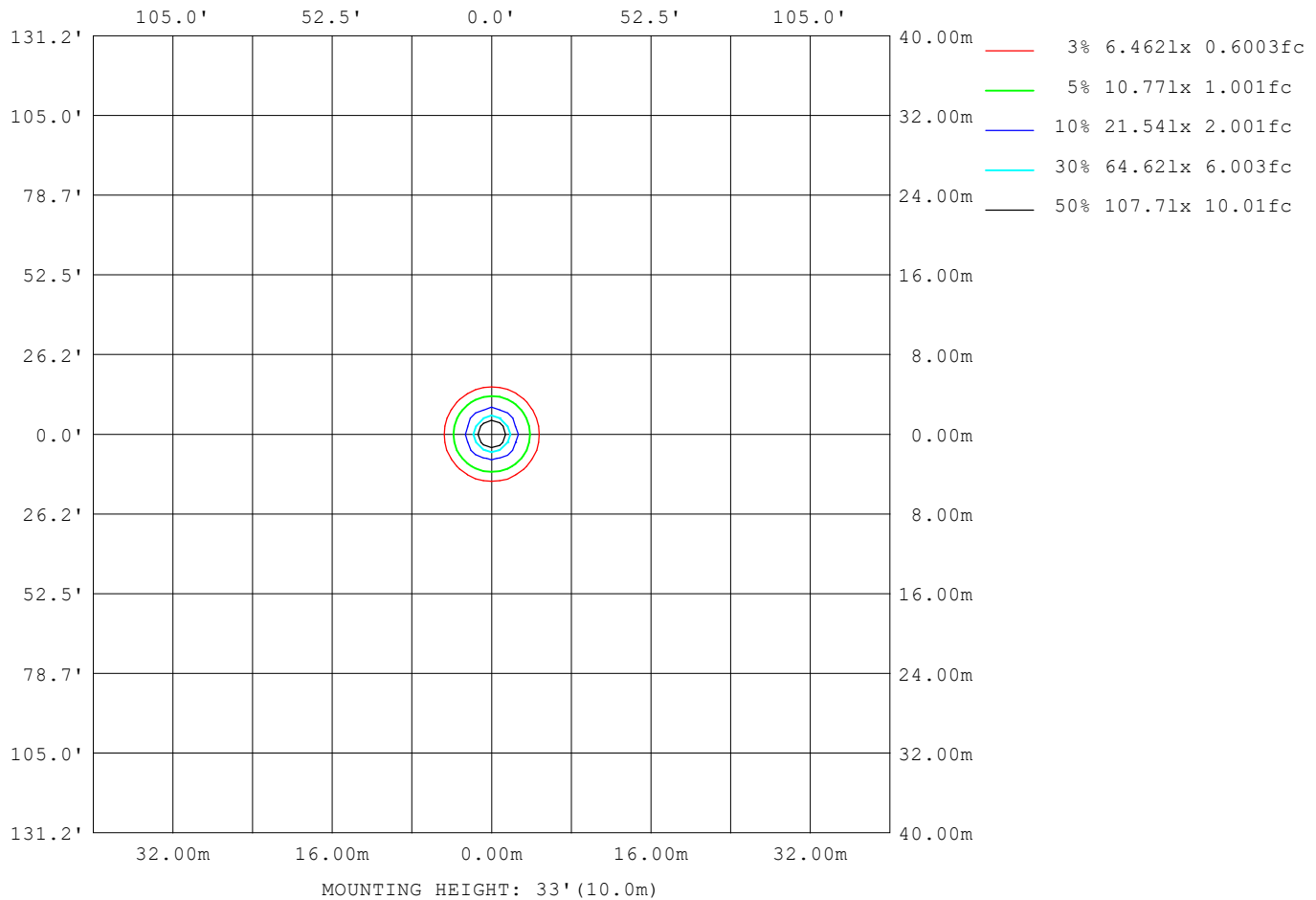
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:240.06V I:0.1232A P:27.862W PF:0.9420 Freq:50.08Hz Lamp Flux:2787.65x1 lm		
NAME: SWARM ONE_WHT_4000K_15 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

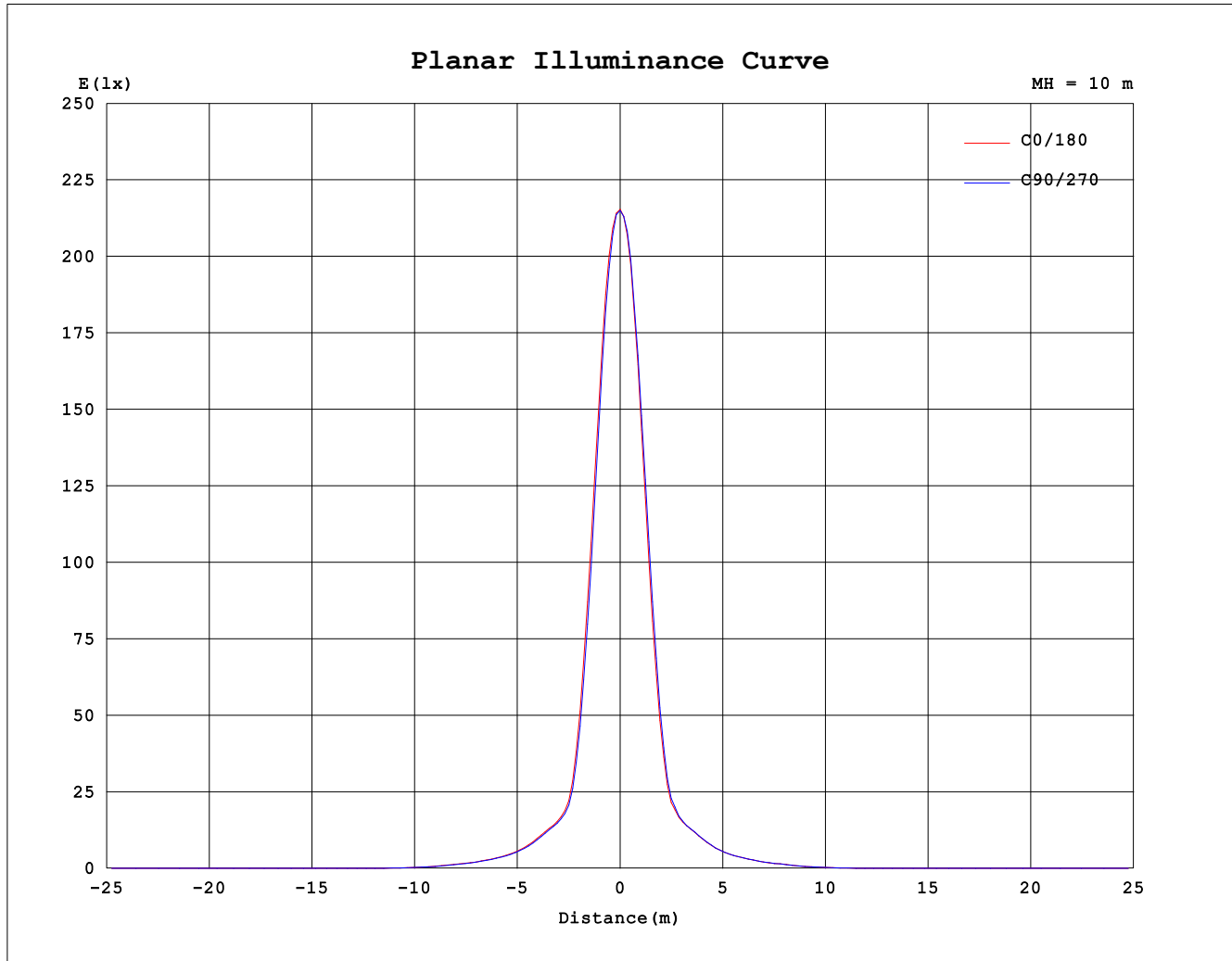
AvgL	cd/m2
L_0~180 (65) av	1582
L_0~180 (75) av	1210
L_0~180 (85) av	1801
L_90~270 (65) av	1543
L_90~270 (75) av	1183
L_90~270 (85) av	1542
L_45 (65) av	1715
L_45 (75) av	1423
L_45 (85) av	1769

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:17 December 2020

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:7.250m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JEFF
Test Date: 17 December 2020

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.366
Humidity: 65.0%
Test Distance: 7.250m [K=1.0000]
Remarks:

```

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