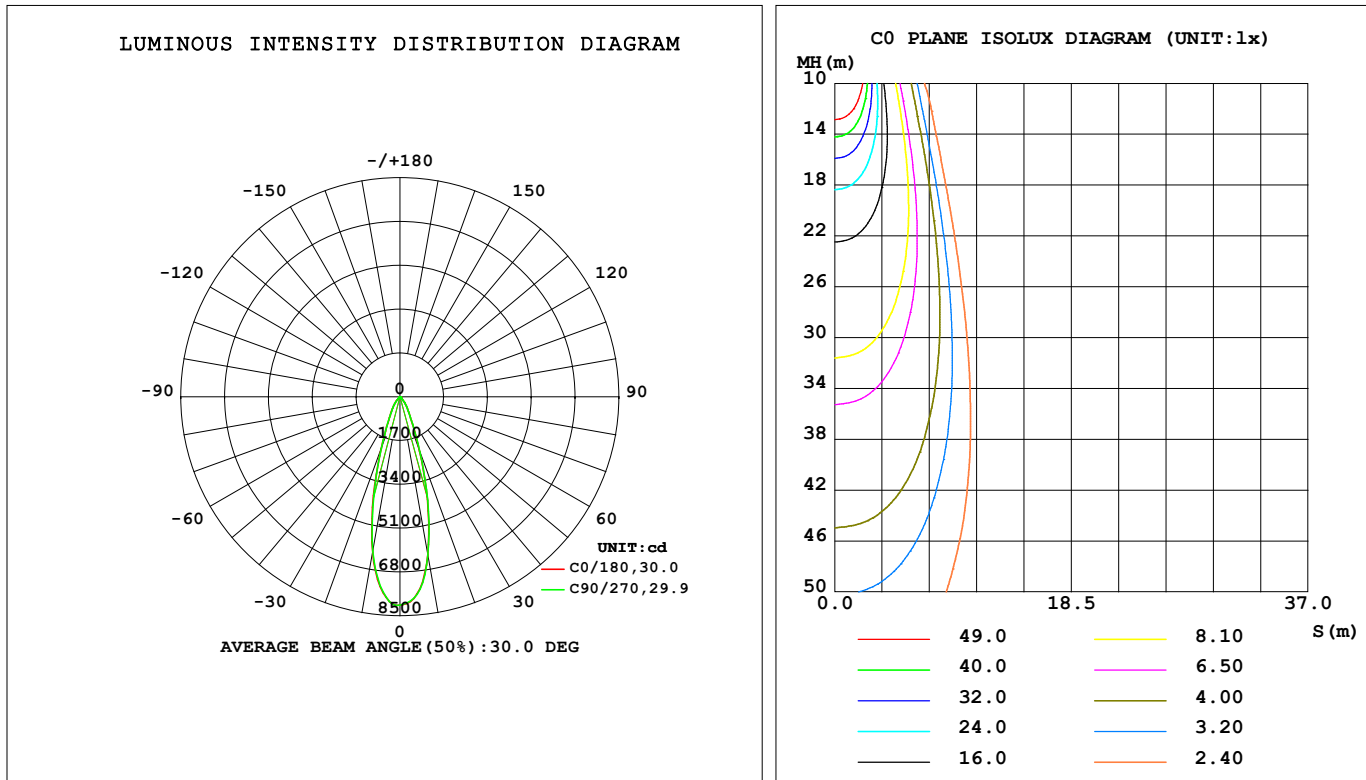


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 99.59 lm/W
MODEL	LUMINUS CXM-14	I _{max} (cd)	8104	S/MH (C0/180)	0.50	
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	0.49	
RATED VOLTAGE (V)	220.0	TOTAL FLUX (lm)	2794.3	η UP,DN (C0-180)	0.0,51.0	
NOMINAL FLUX (lm)	2794.32	CIE CLASS	DIRECT	η UP,DN (C180-360)	0.0,49.0	
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.50	
TEST VOLTAGE (V)	230	η down (%)	100.0	CIBSE SHR MAX	0.50	



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: JEFF
Test Date: 14 October 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	6236	6296	6257	6201	6130	6068	6086	6134	0- 10	683.2	683.2	24.4, 24.4
20	2246	2306	2278	2234	2172	2124	2135	2195	10- 20	1099	1783	63.8, 63.8
30	682.9	690.2	683.8	688.6	684.1	666.7	664.0	673.7	20- 30	557.8	2340	83.8, 83.8
40	264.5	291.4	264.2	298.6	252.0	284.5	245.1	288.6	30- 40	279.7	2620	93.8, 93.8
50	44.32	100.5	44.51	98.57	42.25	91.26	42.27	97.06	40- 50	113.8	2734	97.8, 97.8
60	22.17	25.32	21.88	24.84	20.88	23.72	21.11	24.73	50- 60	32.47	2766	99, 99
70	11.00	13.04	10.37	12.70	10.25	12.52	10.20	13.07	60- 70	16.84	2783	99.6, 99.6
80	5.580	6.121	5.050	5.819	5.191	6.002	5.316	6.276	70- 80	8.021	2791	99.9, 99.9
90	0.1316	0.0940	0.0909	0.1034	0.1003	0.1066	0.0909	0.1003	80- 90	3.073	2794	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): 2696.3 lm

%lum = 96.5%

%lamp = 96.5%

Conical surface Flux(120deg): 2766.4 lm

%lum = 99.0%

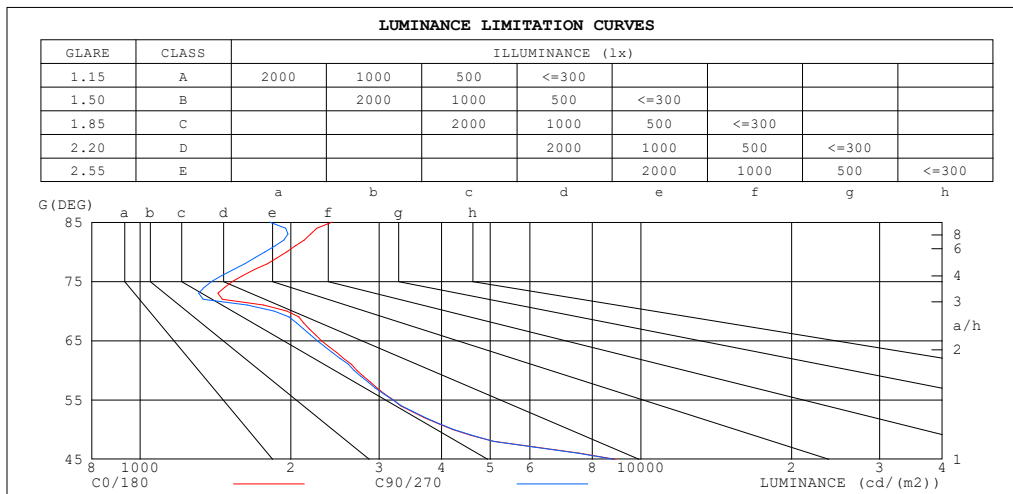
%lamp = 99.0%

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:14 October 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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2419	1815
80	1962	1775
75	1529	1389
70	1964	1851
65	2299	2256
60	2707	2672
55	3202	3195
50	4210	4227
45	8888	8824

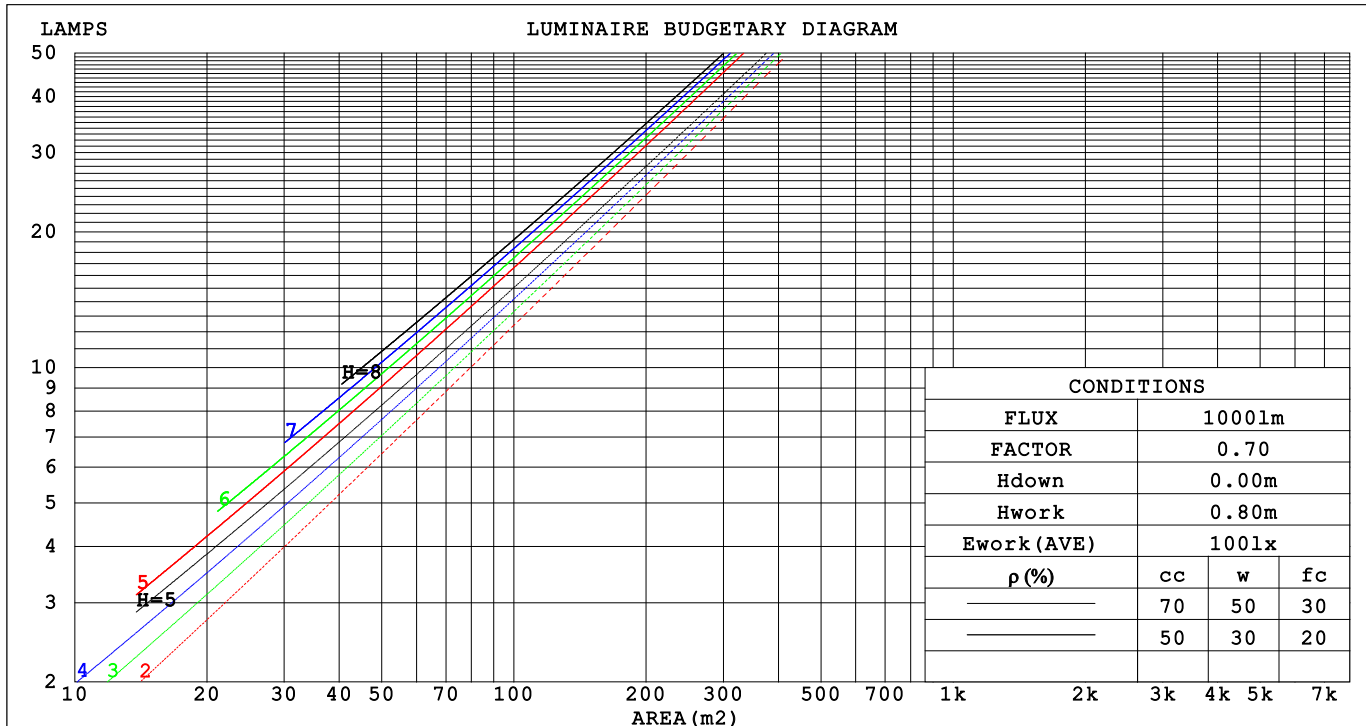
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:14 October 2020

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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 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															



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:14 October 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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 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	.158	.090	.028	.152	.086	.027	.139	.080	.025	.128	.074	.024	.117	.068	.022	
2.0	.149	.082	.025	.143	.079	.024	.133	.074	.023	.123	.069	.022	.114	.065	.020	
3.0	.140	.074	.022	.135	.072	.022	.127	.069	.021	.118	.065	.020	.111	.061	.019	
4.0	.132	.069	.020	.128	.067	.020	.121	.064	.019	.114	.061	.018	.107	.058	.018	
5.0	.125	.064	.018	.122	.062	.018	.115	.060	.018	.109	.058	.017	.103	.055	.017	
6.0	.119	.059	.017	.116	.058	.017	.110	.056	.016	.105	.054	.016	.100	.053	.016	
7.0	.113	.056	.016	.110	.055	.016	.105	.053	.015	.101	.052	.015	.096	.050	.015	
8.0	.108	.053	.015	.105	.052	.015	.101	.050	.014	.097	.049	.014	.093	.048	.014	
9.0	.103	.050	.014	.101	.049	.014	.097	.048	.014	.093	.047	.013	.090	.046	.013	
10.0	.099	.047	.013	.097	.047	.013	.093	.046	.013	.090	.045	.013	.087	.044	.013	

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	.170	.157	.146	.145	.135	.126	.099	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.153	.133	.115	.131	.114	.100	.090	.079	.070	.052	.046	.041	.017	.015	.013	
3.0	.139	.113	.093	.120	.098	.080	.082	.068	.056	.047	.040	.033	.015	.013	.011	
4.0	.128	.098	.076	.110	.085	.066	.076	.059	.046	.044	.035	.027	.014	.011	.009	
5.0	.118	.086	.063	.102	.075	.055	.070	.052	.039	.041	.031	.023	.013	.010	.008	
6.0	.110	.077	.053	.095	.066	.046	.065	.047	.033	.038	.027	.019	.012	.009	.006	
7.0	.103	.069	.045	.089	.060	.039	.061	.042	.028	.036	.025	.017	.011	.008	.005	
8.0	.097	.062	.039	.083	.054	.034	.058	.038	.024	.034	.022	.014	.011	.007	.005	
9.0	.091	.057	.034	.079	.049	.029	.055	.035	.021	.032	.020	.012	.010	.007	.004	
10.0	.087	.052	.029	.075	.045	.026	.052	.032	.018	.030	.019	.011	.010	.006	.004	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:14 October 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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm											
NAME: SWARM ONE_WHT_4000K_30 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	2H	10.9	11.7	11.2	11.9	12.0	10.8	11.6	11.0	11.8	11.9
	3H	10.9	11.7	11.2	11.9	12.1	10.8	11.5	11.1	11.7	11.9
	4H	10.9	11.6	11.2	11.8	12.0	10.8	11.5	11.0	11.7	11.9
	6H	10.9	11.6	11.2	11.8	12.0	10.7	11.4	11.0	11.6	11.9
	8H	10.9	11.5	11.2	11.8	12.0	10.7	11.4	11.0	11.6	11.9
	12H	10.9	11.5	11.2	11.8	12.0	10.7	11.3	11.0	11.6	11.9
4H	2H	10.8	11.5	11.1	11.7	11.9	10.7	11.4	11.0	11.6	11.8
	3H	10.9	11.5	11.2	11.7	12.0	10.7	11.3	11.0	11.6	11.9
	4H	10.9	11.4	11.2	11.7	12.0	10.7	11.3	11.1	11.6	11.9
	6H	10.9	11.4	11.3	11.7	12.1	10.7	11.2	11.1	11.5	11.9
	8H	10.9	11.4	11.3	11.7	12.1	10.8	11.2	11.1	11.6	11.9
	12H	11.0	11.4	11.4	11.8	12.1	10.8	11.2	11.2	11.5	11.9
8H	4H	10.8	11.2	11.2	11.6	11.9	10.6	11.1	11.0	11.4	11.8
	6H	10.9	11.3	11.3	11.6	12.1	10.7	11.1	11.1	11.5	11.9
	8H	11.0	11.3	11.4	11.7	12.2	10.8	11.1	11.2	11.5	12.0
	12H	11.0	11.3	11.5	11.8	12.2	10.8	11.1	11.3	11.5	12.0
12H	4H	10.7	11.2	11.1	11.5	11.9	10.6	11.0	11.0	11.4	11.8
	6H	10.9	11.2	11.3	11.6	12.0	10.7	11.0	11.1	11.4	11.9
	8H	11.0	11.3	11.4	11.7	12.2	10.8	11.1	11.2	11.5	12.0
Variations with the observer position at spacings:											
S = 1.0H	+ 2.0 / - 4.3					+ 2.0 / - 4.5					
1.5H	+ 3.4 / - 4.2					+ 3.6 / - 4.3					
2.0H	+ 3.5 / - 1.7					+ 3.3 / - 1.7					

CIE Pub.117, 2794 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:14 October 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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

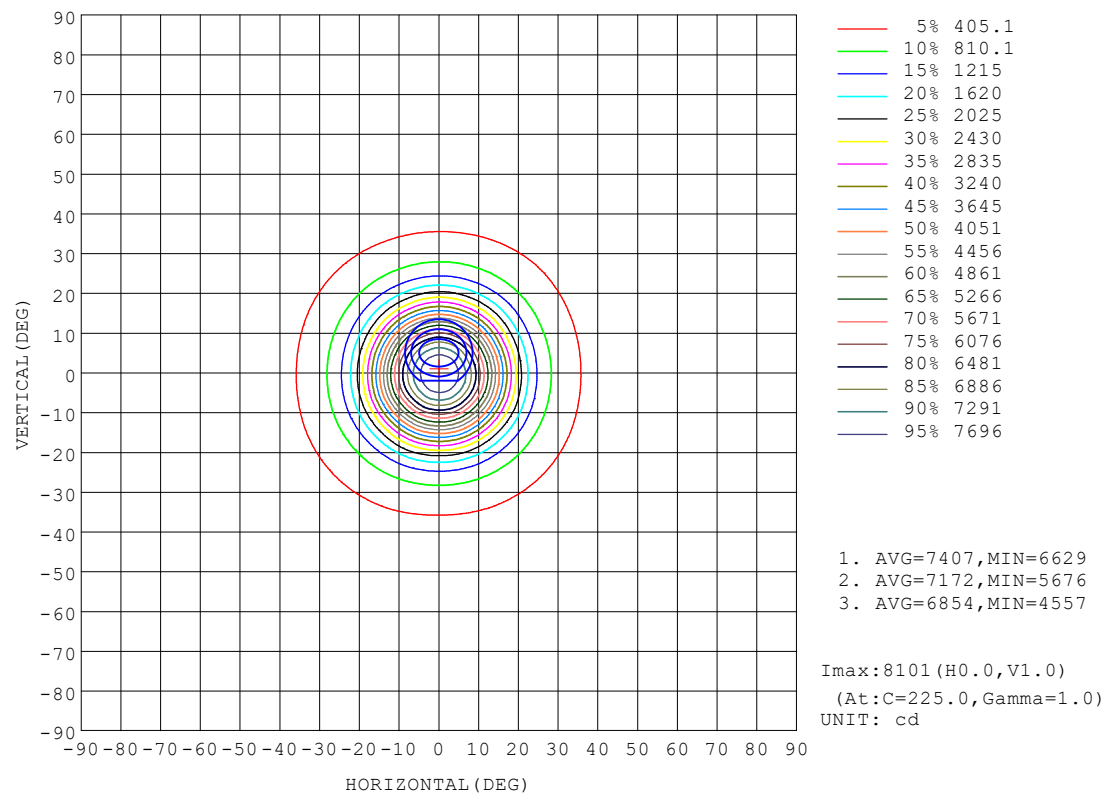
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	81	78	87	81	78	86	81	77	74
0.80	95	89	86	94	89	85	93	88	85	81
1.00	99	94	90	99	93	90	97	93	90	86
1.25	103	98	95	102	98	94	100	96	94	89
1.50	106	101	98	105	101	98	103	99	96	92
2.00	109	105	101	107	103	101	105	102	99	94
2.50	110	107	104	109	105	103	106	103	101	95
3.00	112	108	106	110	107	105	107	104	102	96
4.00	114	111	109	112	109	108	108	106	105	98
5.00	115	113	111	113	111	109	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:25.3DEG
Operators:JEFF
Test Date:14 October 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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

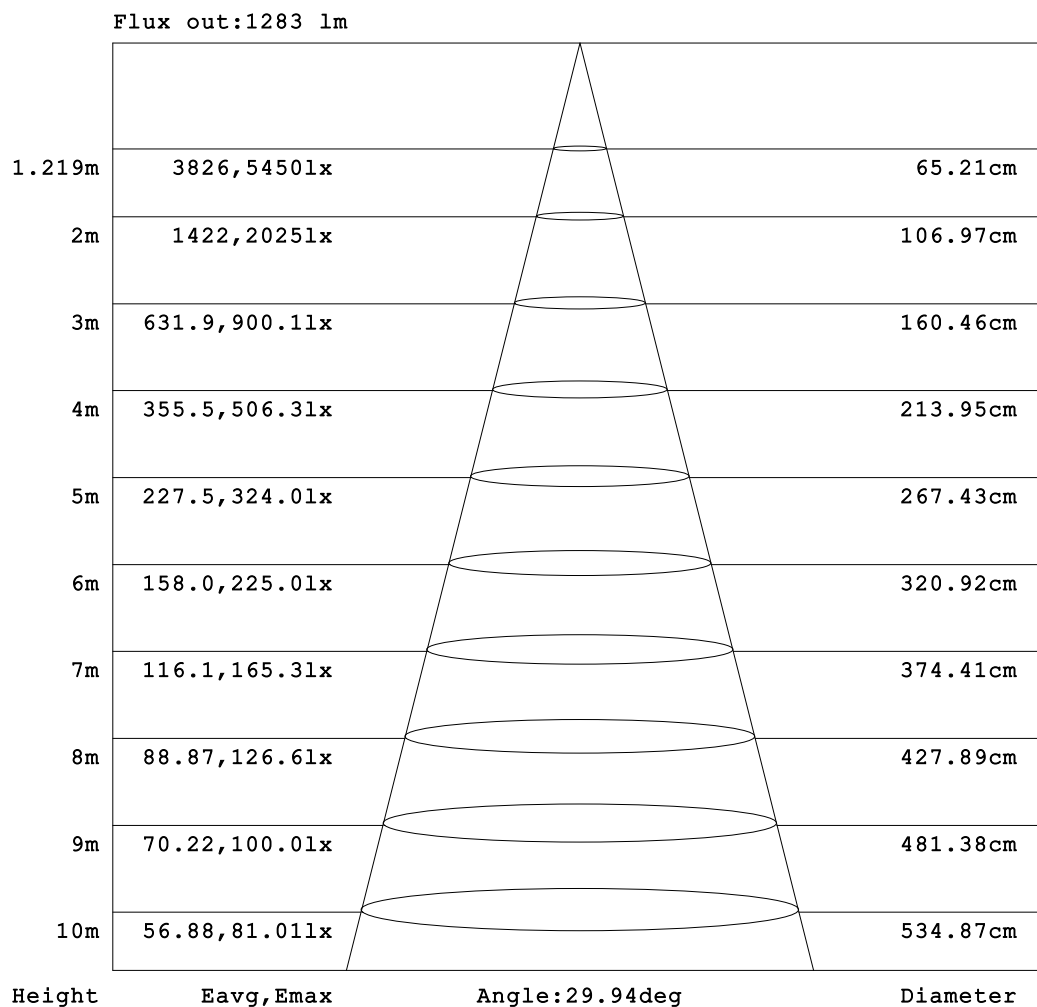


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:14 October 2020

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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:



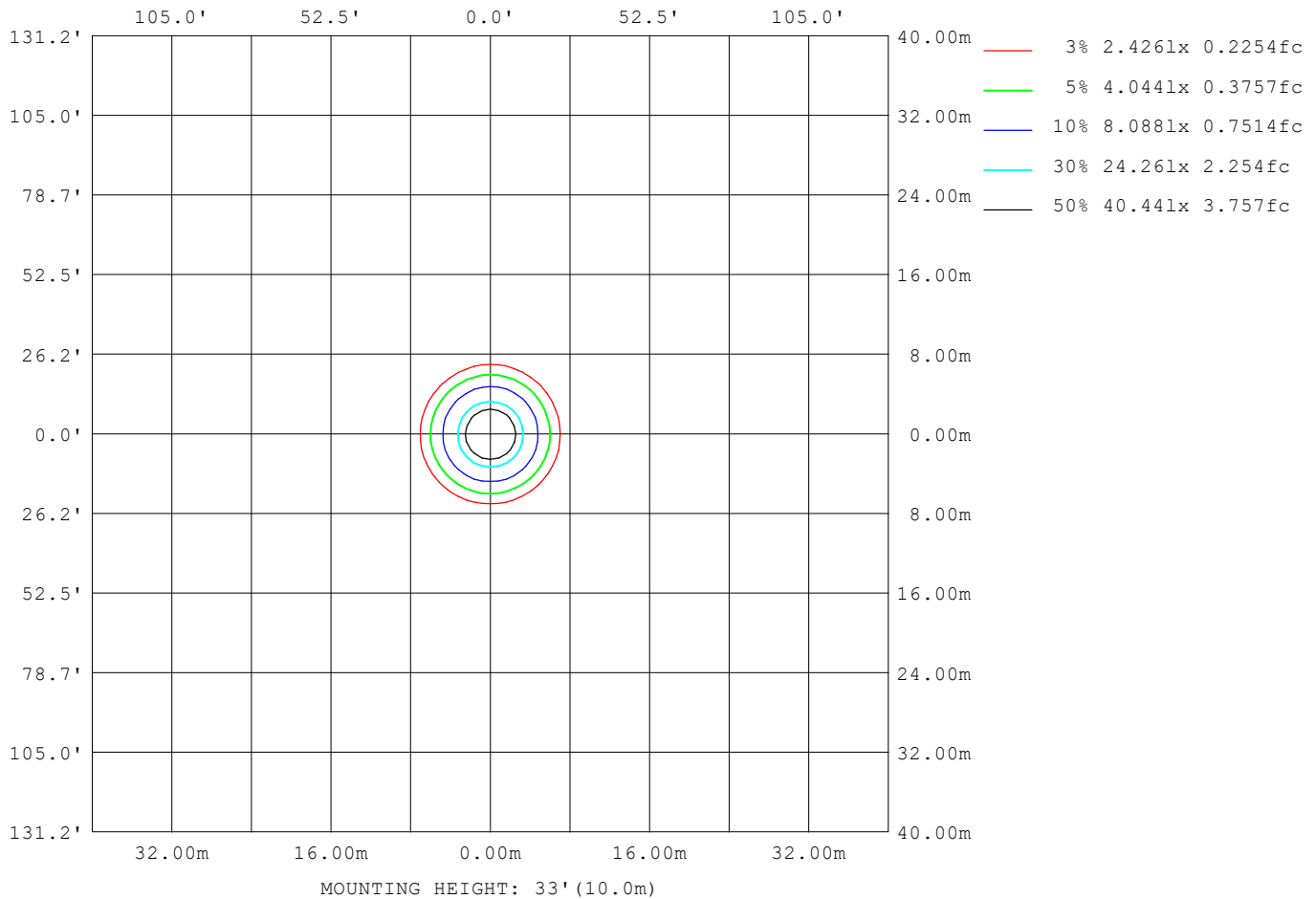
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:14 October 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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 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:14 October 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:240.03V I:0.1242A P:28.059W PF:0.9408 Freq:0Hz Lamp Flux:2794.32x1 lm		
NAME: SWARM ONE_WHT_4000K_30 DEG_700mA	TYPE:LED	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: DARKON	SUR.:	Shielding Angle:

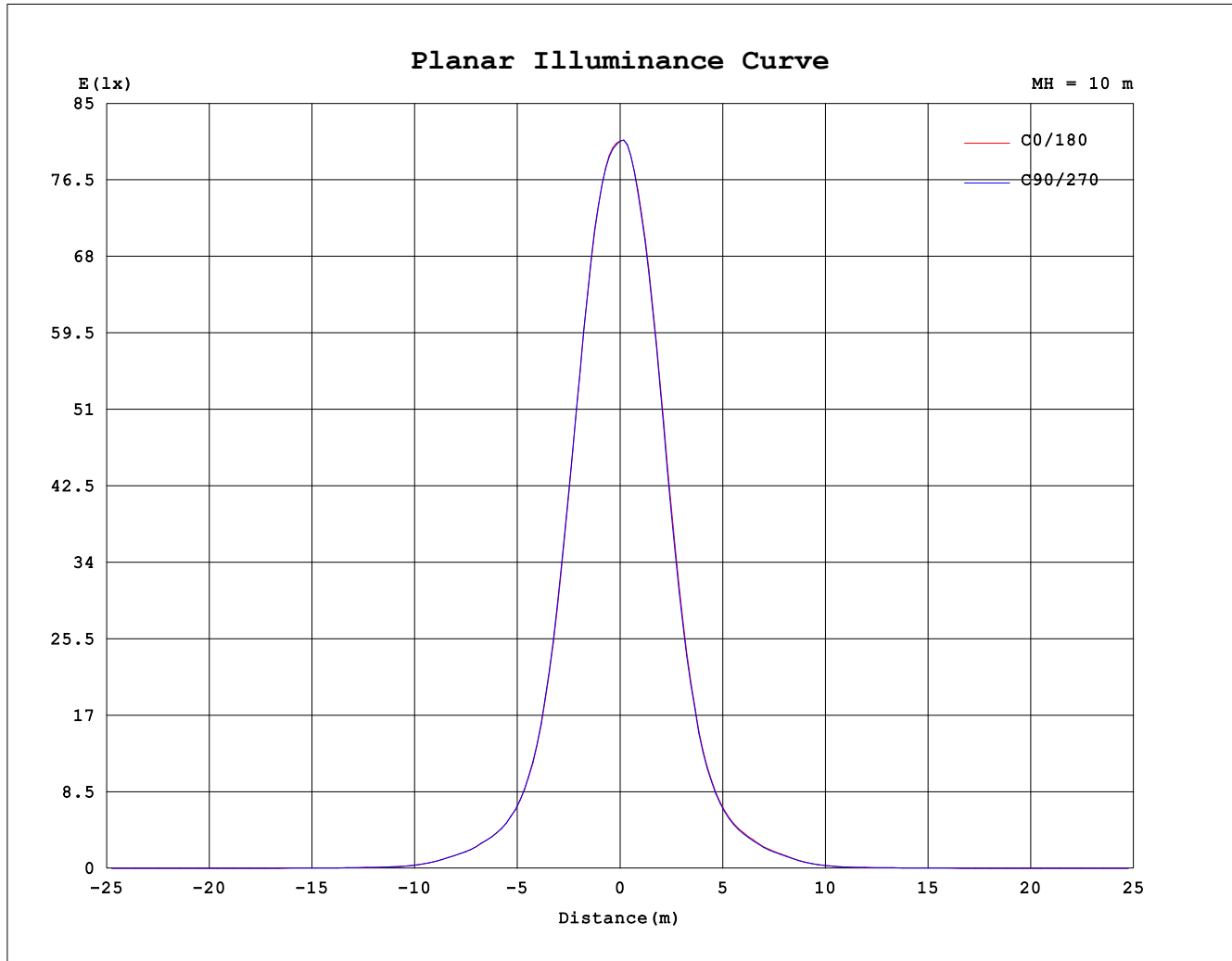
AvgL	cd/m2
L_0~180 (65) av	2231
L_0~180 (75) av	1482
L_0~180 (85) av	2262
L_90~270 (65) av	2203
L_90~270 (75) av	1433
L_90~270 (85) av	1805
L_45 (65) av	2496
L_45 (75) av	1741
L_45 (85) av	2074

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:JEFF
Test Date:14 October 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: 14 October 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:

```

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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