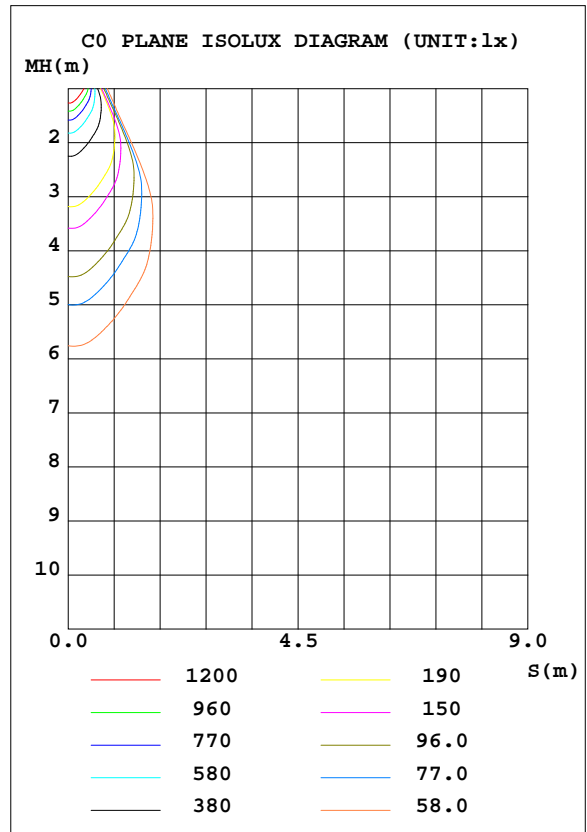
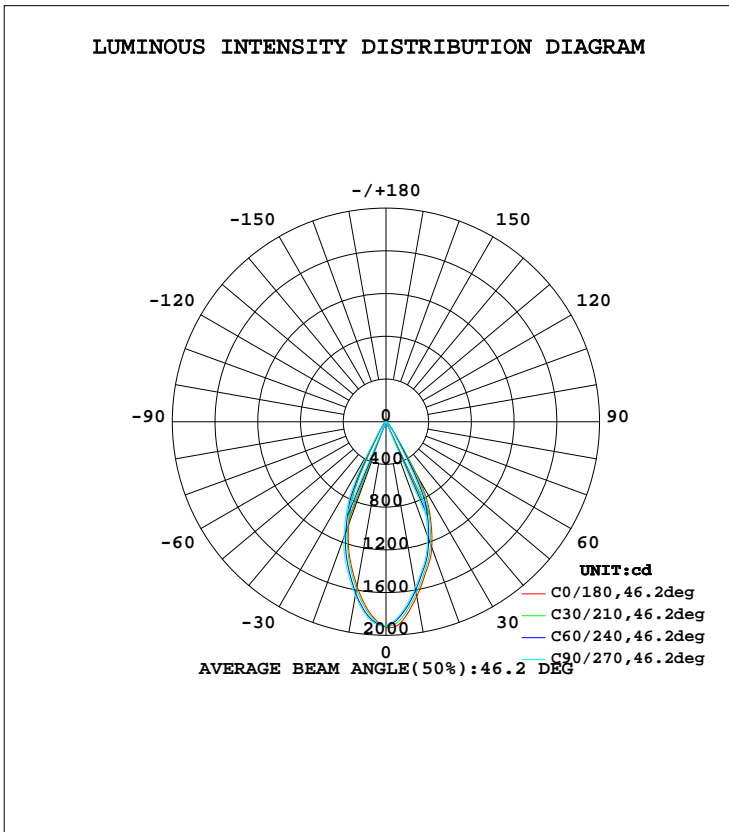


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:240.5V I:0.0550A P:13.00W PF:0.9680 Lamp Flux:1064.12x1 lm		
NAME: DL13WCOB-AG-CW	TYPE:13W	WEIGHT:
DIM.:	SPEC.:5000K	SERIAL No.:
MFR.:	SUR.:0.035	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 81.86 lm/W			
MODEL	DL13WCOB-AG-CW	I _{max} (cd)	1929	S/MH(C0/180)	0.78
NOMINAL POWER(W)	13	LOR(%)	100.0	S/MH(C90/270)	0.72
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	1064.1	η UP, DN(C0-180)	0.0, 51.1
NOMINAL FLUX(lm)	1064.12	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 48.9
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	240.5	η down(%)	100.0	CIBSE SHR MAX	0.75



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	Φ lum,lamp
10	1661	1617	1577	1554	1564	1611	1653	1647	0- 10	166.6	166.6	15.7,15.7
20	1256	1195	1130	1055	1020	1072	1150	1201	10- 20	384.5	551.1	51.8,51.8
30	596.3	474.7	320.1	239.6	194.5	228.6	329.3	476.8	20- 30	357.4	908.5	85.4,85.4
40	78.70	74.78	63.20	55.89	50.16	55.36	64.19	71.94	30- 40	91.59	1000	94,94
50	33.58	32.15	29.17	26.23	24.76	26.63	29.88	31.62	40- 50	33.09	1033	97.1,97.1
60	16.49	15.54	13.16	11.43	10.83	11.85	13.45	14.82	50- 60	18.52	1052	98.8,98.8
70	7.243	6.867	5.297	4.178	3.652	3.991	4.913	6.017	60- 70	8.957	1061	99.7,99.7
80	1.779	1.597	1.097	0.8688	0.7595	0.8590	1.091	1.407	70- 80	3.038	1064	100,100
90	0.0989	0.0557	0.0495	0.0587	0.0618	0.0557	0.0618	0.0557	80- 90	0.4708	1064	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		

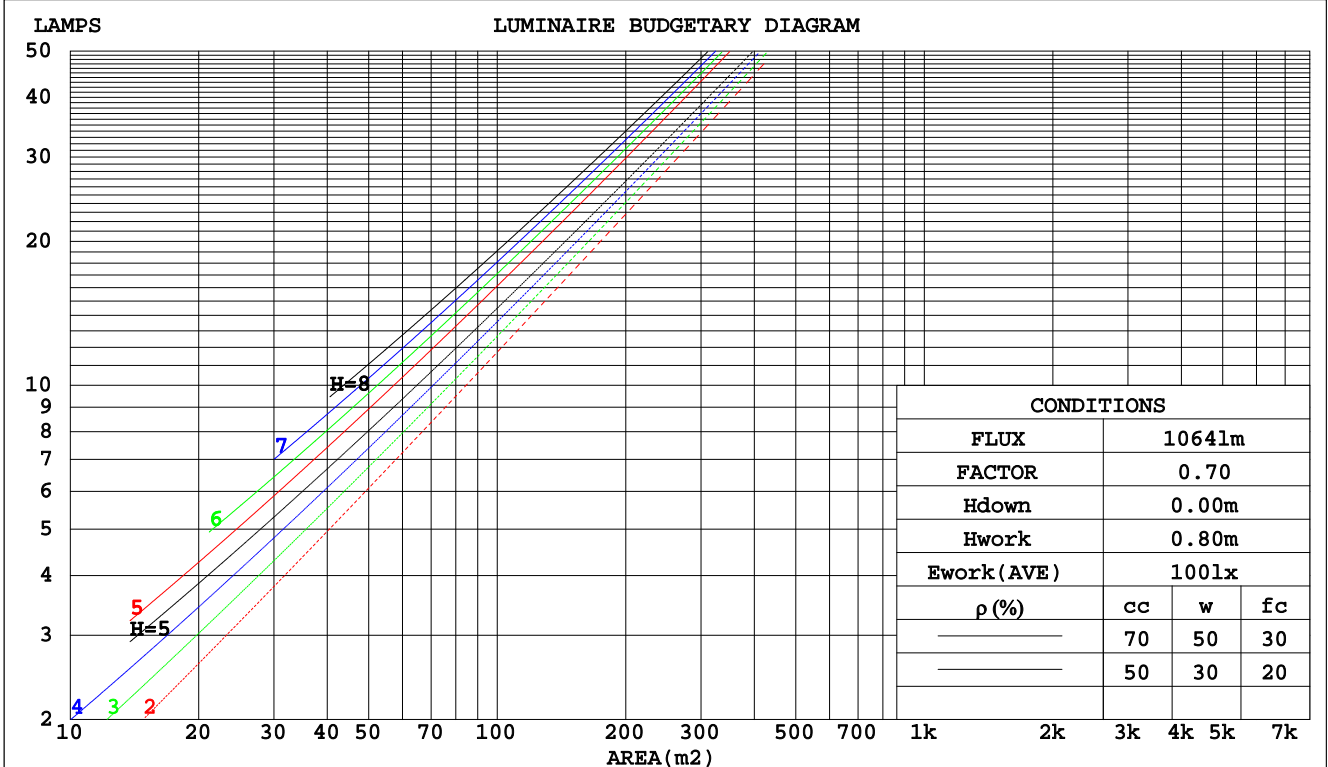
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:240.5V I:0.0550A P:13.00W PF:0.9680 Lamp Flux:1064.12x1 lm		
NAME: DL13WCOB-AG-CW	TYPE:13W	WEIGHT:
DIM.:	SPEC.:5000K	SERIAL No.:
MFR.:	SUR.:0.035	PROTECTION ANGLE:

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	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	1.11	1.09	1.07	1.09	1.07	1.05	1.05	1.04	1.02	1.01	1.00	.99	.98	.97	.96	.94
2.0	1.04	1.01	.98	1.03	.99	.96	.99	.97	.94	.97	.94	.92	.94	.92	.90	.89
3.0	.98	.94	.90	.97	.93	.89	.94	.91	.88	.92	.89	.87	.90	.87	.85	.84
4.0	.93	.88	.84	.92	.87	.83	.89	.85	.82	.87	.84	.81	.86	.83	.80	.79
5.0	.88	.82	.78	.87	.82	.78	.85	.81	.77	.83	.80	.77	.82	.79	.76	.75
6.0	.83	.78	.74	.82	.77	.74	.81	.76	.73	.80	.76	.73	.78	.75	.72	.71
7.0	.79	.74	.70	.78	.73	.70	.77	.73	.69	.76	.72	.69	.75	.71	.69	.67
8.0	.75	.70	.66	.75	.70	.66	.74	.69	.66	.73	.69	.65	.72	.68	.65	.64
9.0	.72	.66	.63	.71	.66	.63	.70	.66	.63	.70	.65	.62	.69	.65	.62	.61
10.0	.69	.63	.60	.68	.63	.60	.67	.63	.60	.67	.62	.60	.66	.62	.59	.58



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:240.5V I:0.0550A P:13.00W PF:0.9680 Lamp Flux:1064.12x1 lm		
NAME: DL13WCOB-AG-CW	TYPE:13W	WEIGHT:
DIM.:	SPEC.:5000K	SERIAL No.:
MFR.:	SUR.:0.035	PROTECTION 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						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.167	.095	.030	.160	.091	.029	.147	.085	.027	.136	.078	.025	.125	.073	.023	
2.0	.158	.087	.027	.152	.084	.026	.142	.079	.025	.132	.074	.023	.123	.070	.022	
3.0	.149	.080	.024	.145	.077	.023	.136	.074	.022	.128	.070	.021	.120	.066	.021	
4.0	.142	.074	.022	.137	.072	.021	.130	.069	.021	.123	.066	.020	.116	.063	.019	
5.0	.134	.068	.020	.131	.067	.020	.124	.065	.019	.118	.062	.019	.112	.060	.018	
6.0	.128	.064	.018	.125	.063	.018	.119	.061	.018	.114	.059	.017	.109	.057	.017	
7.0	.122	.060	.017	.119	.059	.017	.114	.058	.017	.109	.056	.016	.105	.055	.016	
8.0	.117	.057	.016	.114	.056	.016	.110	.055	.016	.105	.053	.015	.101	.052	.015	
9.0	.112	.054	.015	.110	.053	.015	.106	.052	.015	.102	.051	.015	.098	.050	.014	
10.0	.107	.051	.014	.105	.051	.014	.102	.050	.014	.098	.049	.014	.095	.048	.014	

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	.170	.157	.146	.146	.135	.125	.100	.093	.087	.057	.054	.050	.018	.017	.016	
2.0	.154	.133	.114	.132	.114	.099	.091	.079	.069	.052	.046	.040	.017	.015	.013	
3.0	.141	.113	.091	.121	.098	.079	.083	.068	.056	.048	.040	.033	.015	.013	.011	
4.0	.130	.099	.074	.112	.085	.065	.077	.059	.045	.044	.035	.027	.014	.011	.009	
5.0	.121	.087	.061	.104	.075	.053	.072	.052	.038	.041	.031	.022	.013	.010	.007	
6.0	.113	.077	.051	.097	.067	.045	.067	.047	.032	.039	.028	.019	.013	.009	.006	
7.0	.106	.070	.044	.092	.060	.038	.063	.042	.027	.037	.025	.016	.012	.008	.005	
8.0	.100	.063	.038	.086	.055	.033	.060	.038	.023	.035	.023	.014	.011	.007	.005	
9.0	.095	.058	.033	.082	.050	.028	.057	.035	.020	.033	.021	.012	.011	.007	.004	
10.0	.091	.053	.029	.078	.046	.025	.054	.033	.018	.032	.019	.011	.010	.006	.004	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

Uncorrected UGR Table

Test:U:240.5V I:0.0550A P:13.00W PF:0.9680 Lamp Flux:1064.12x1 lm										
NAME: DL13WCOB-AG-CW					TYPE:13W			WEIGHT:		
DIM.:					SPEC.:5000K			SERIAL No.:		
MFR.:					SUR.:0.035			PROTECTION 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	17.1	17.9	17.3	18.1	18.2	15.8	16.6	16.0	16.8	16.9
3H	17.2	18.0	17.5	18.2	18.4	15.9	16.7	16.2	16.9	17.1
4H	17.3	18.0	17.5	18.2	18.5	15.9	16.7	16.2	16.9	17.1
6H	17.2	17.9	17.5	18.2	18.4	15.9	16.6	16.2	16.8	17.1
8H	17.2	17.9	17.5	18.1	18.4	15.9	16.5	16.2	16.8	17.0
12H	17.2	17.8	17.5	18.1	18.4	15.8	16.5	16.1	16.7	17.0
4H 2H	17.0	17.8	17.3	18.0	18.2	15.8	16.6	16.1	16.8	17.0
3H	17.3	18.0	17.6	18.2	18.5	16.1	16.8	16.4	17.0	17.3
4H	17.4	18.0	17.7	18.2	18.6	16.1	16.7	16.5	17.0	17.3
6H	17.4	17.9	17.7	18.2	18.5	16.1	16.6	16.5	17.0	17.3
8H	17.3	17.8	17.7	18.2	18.5	16.1	16.5	16.5	16.9	17.3
12H	17.3	17.7	17.7	18.1	18.5	16.0	16.5	16.4	16.8	17.2
8H 4H	17.3	17.8	17.7	18.1	18.5	16.1	16.6	16.5	16.9	17.3
6H	17.3	17.7	17.7	18.1	18.5	16.1	16.5	16.5	16.9	17.3
8H	17.3	17.6	17.7	18.0	18.5	16.0	16.4	16.5	16.8	17.2
12H	17.2	17.5	17.7	18.0	18.4	16.0	16.3	16.5	16.7	17.2
12H 4H	17.2	17.7	17.6	18.0	18.4	16.0	16.5	16.5	16.9	17.2
6H	17.2	17.6	17.7	18.0	18.5	16.0	16.4	16.5	16.8	17.2
8H	17.2	17.5	17.7	18.0	18.4	16.0	16.3	16.5	16.7	17.2
Variations with the observer position at spacings:										
S = 1.0H	+ 1.8 / - 1.8					+ 1.2 / - 1.9				
1.5H	+ 2.9 / - 1.2					+ 1.9 / - 1.3				
2.0H	+ 1.8 / - 1.5					+ 1.8 / - 1.8				

CIE Pub.117 Corrected 1064 lm Total Lamp Luminous Flux.(8log(F/F0) = 0.2)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:240.5V I:0.0550A P:13.00W PF:0.9680 Lamp Flux:1064.12x1 lm		
NAME: DL13WCOB-AG-CW	TYPE:13W	WEIGHT:
DIM.:	SPEC.:5000K	SERIAL No.:
MFR.:	SUR.:0.035	PROTECTION ANGLE:

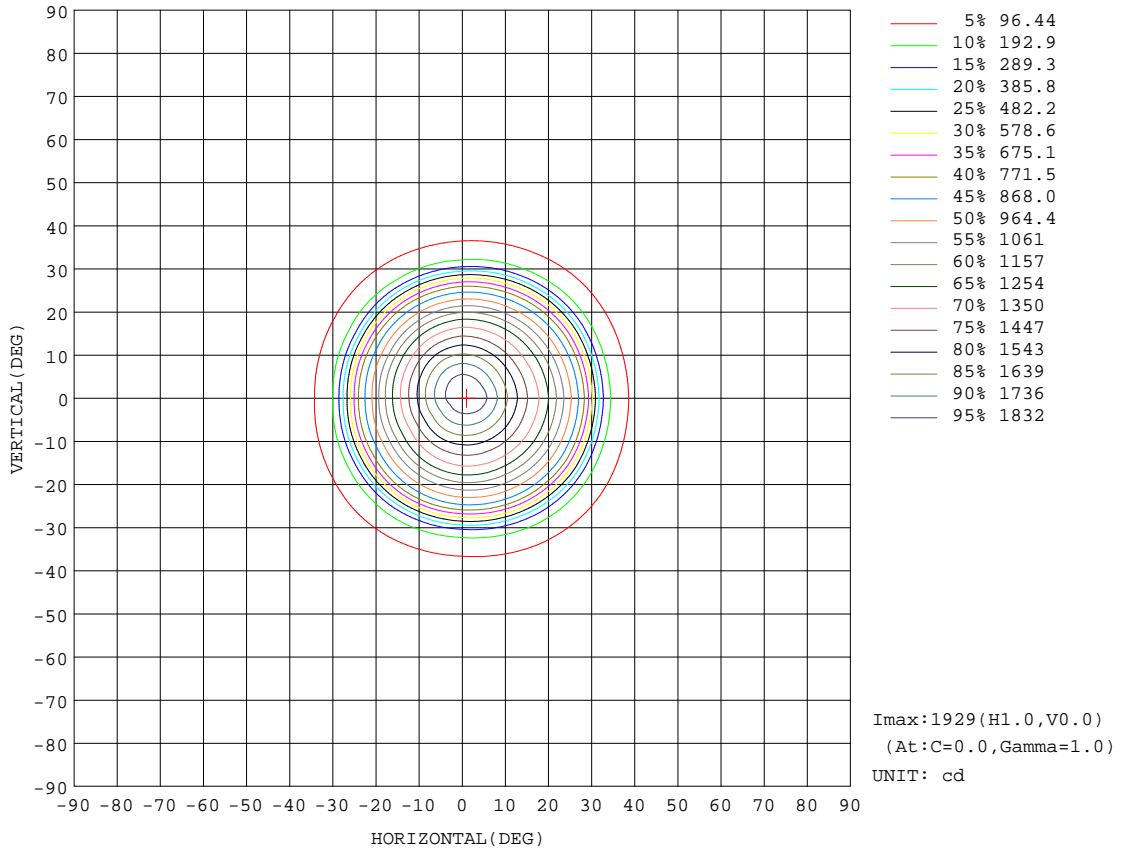
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	88	81	78	87	81	78	86	81	78	74
0.80	95	89	86	94	89	86	93	88	85	82
1.00	99	94	90	99	93	90	97	93	90	86
1.25	103	98	95	102	98	94	100	97	94	90
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	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: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:240.5V I:0.0550A P:13.00W PF:0.9680 Lamp Flux:1064.12x1 lm		
NAME: DL13WCOB-AG-CW	TYPE:13W	WEIGHT:
DIM.:	SPEC.:5000K	SERIAL No.:
MFR.:	SUR.:0.035	PROTECTION ANGLE:

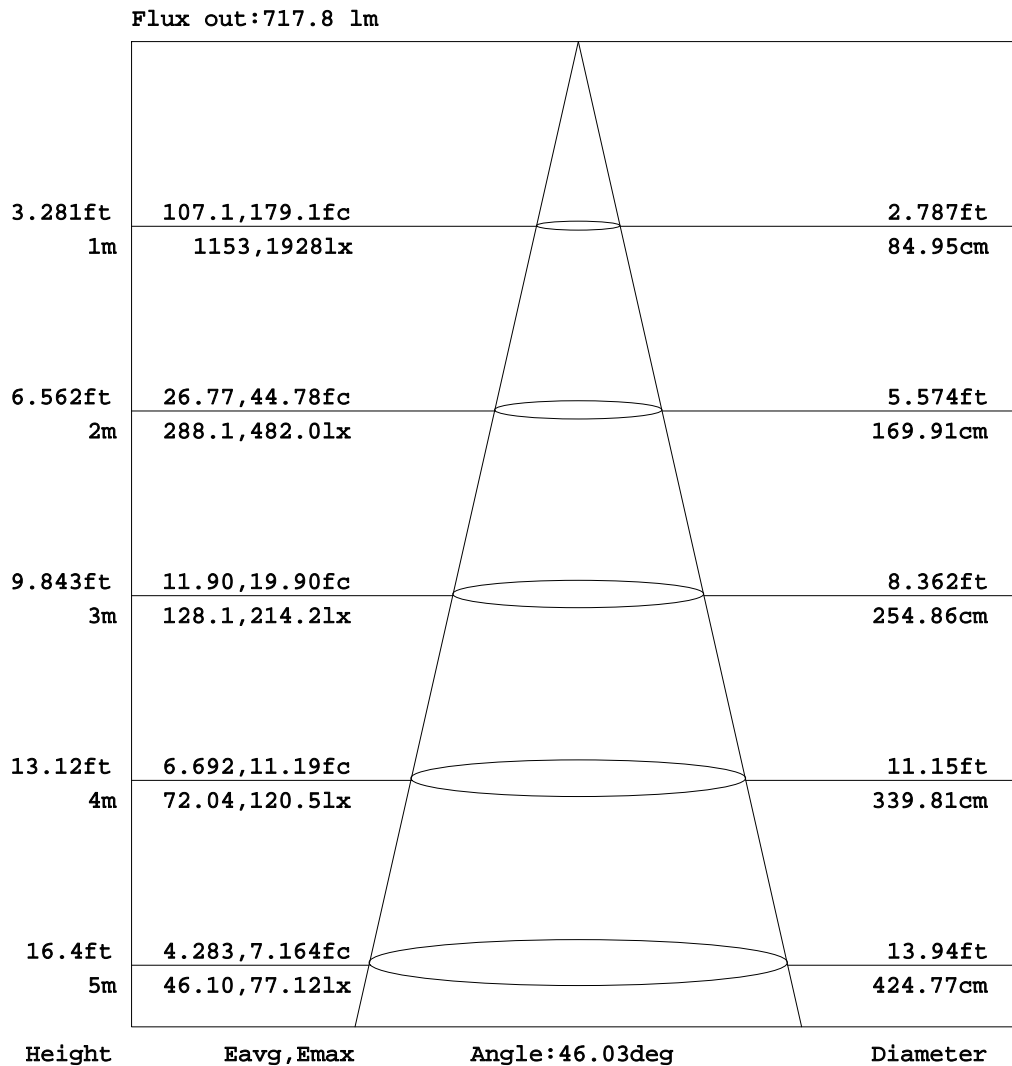


C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

AAI Figure

Test:U:240.5V I:0.0550A P:13.00W PF:0.9680 Lamp Flux:1064.12x1 lm		
NAME: DL13WCOB-AG-CW	TYPE:13W	WEIGHT:
DIM.:	SPEC.:5000K	SERIAL No.:
MFR.:	SUR.:0.035	PROTECTION ANGLE:



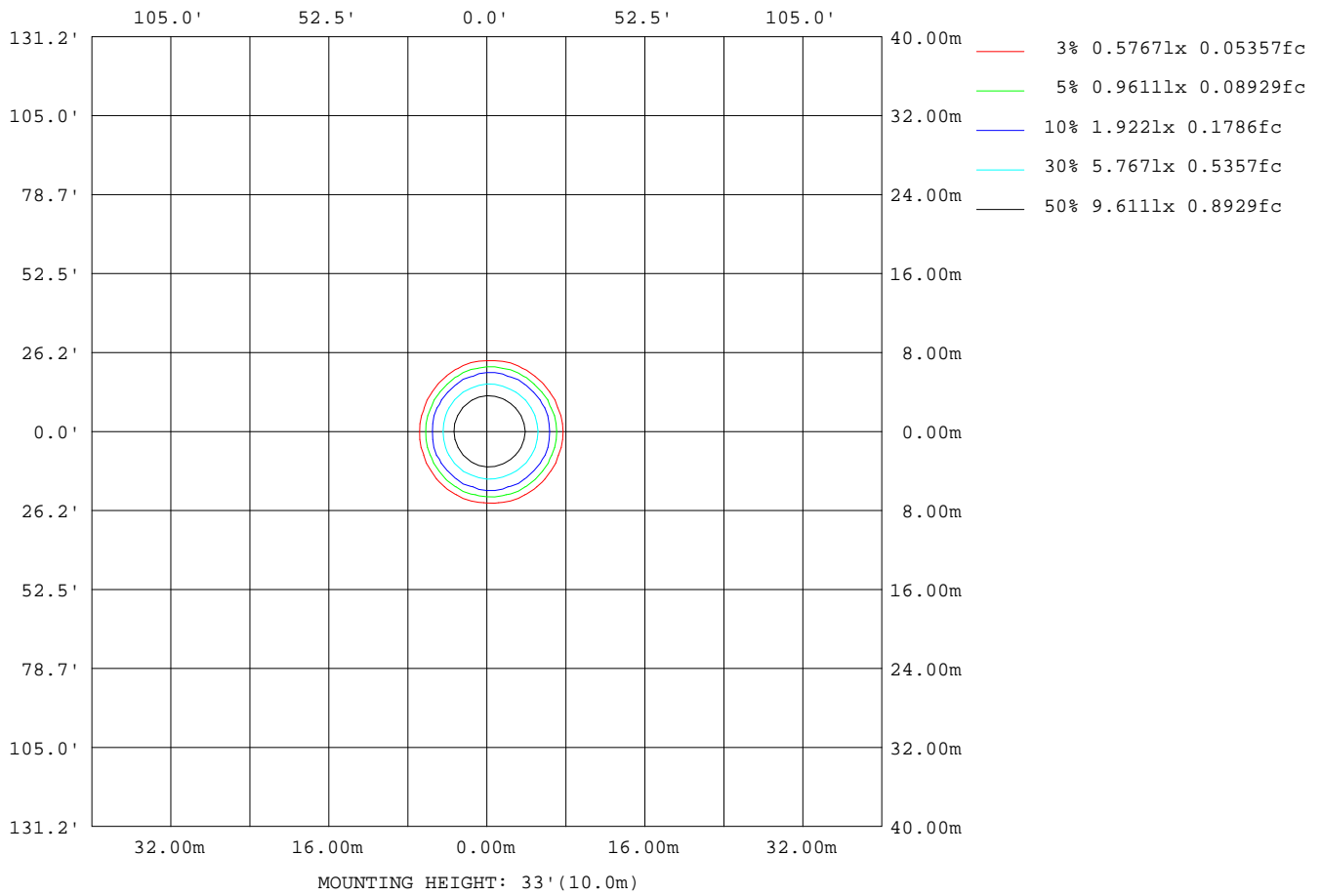
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

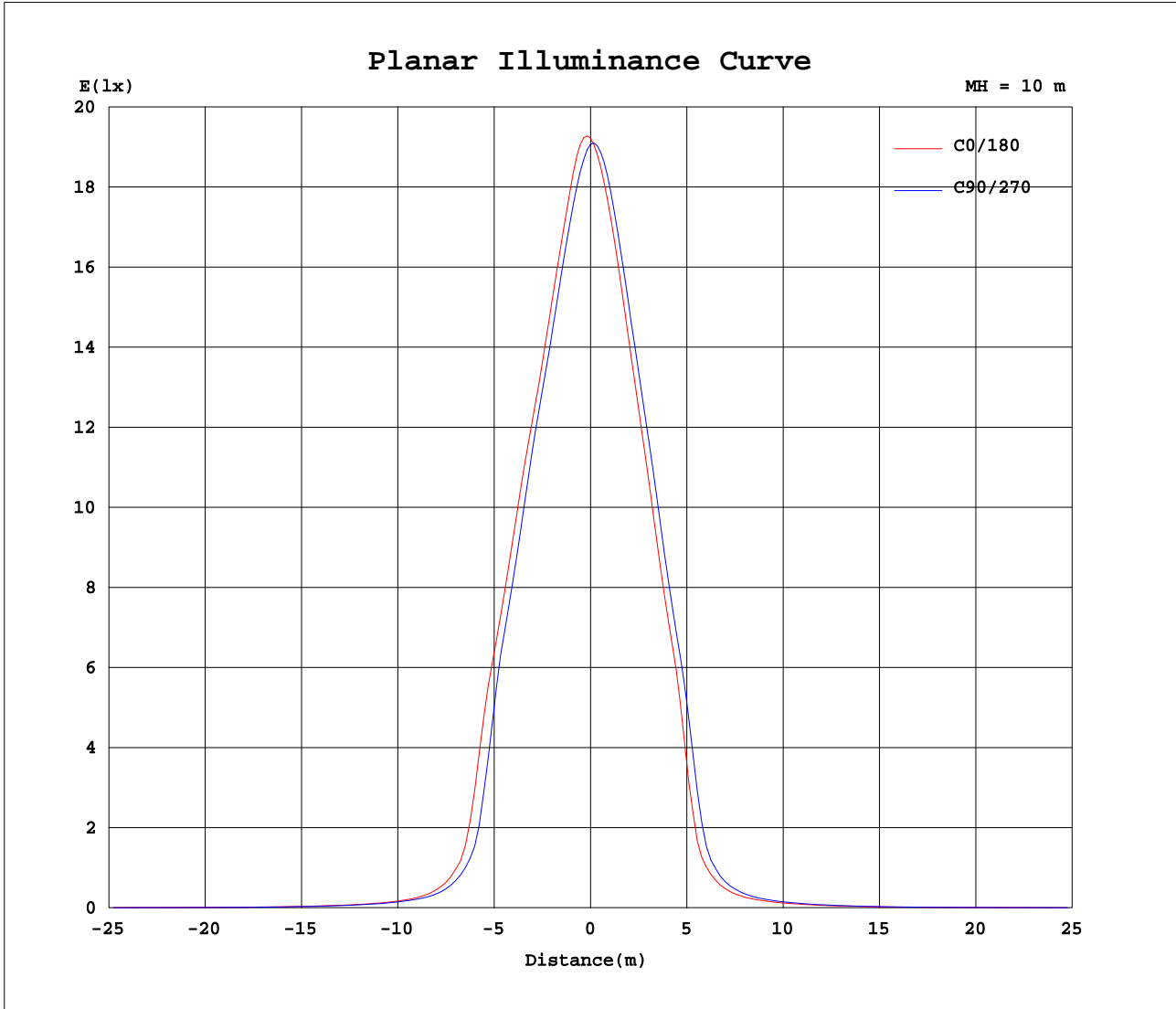
Test:U:240.5V I:0.0550A P:13.00W PF:0.9680 Lamp Flux:1064.12x1 lm		
NAME: DL13WCOB-AG-CW	TYPE:13W	WEIGHT:
DIM.:	SPEC.:5000K	SERIAL No.:
MFR.:	SUR.:0.035	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
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 Test Date:2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2018-02-02

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity: 65.0%
 Test Distance: 9.600m [K=1.0000]
 Remarks:

