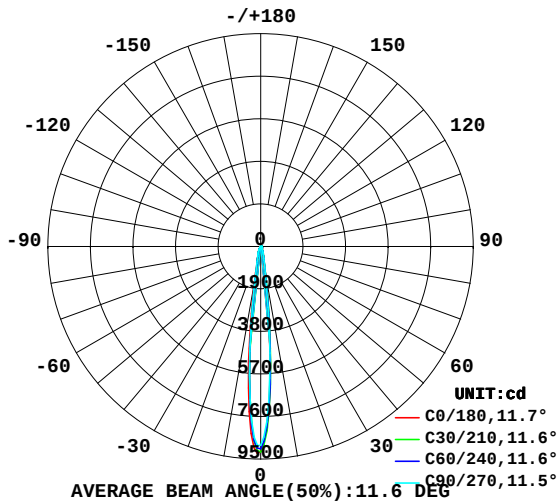


LUMINAIRE PHOTOMETRIC TEST REPORT

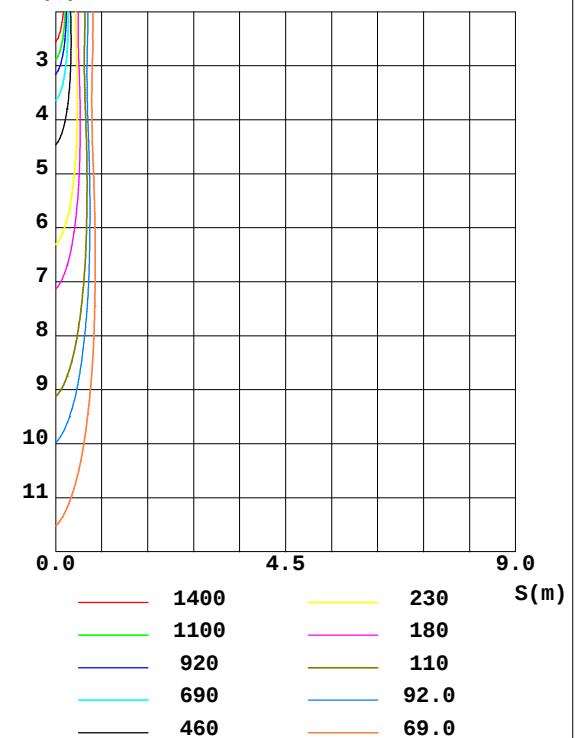
Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm		
NAME: 12W	TYPE: LED	
MFR.:		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 59.71 lm/W			
MODEL	12W	I _{max} (cd)	9233	S/MH(C0/180)	0.19
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	0.19
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	752.30	η UP, DN(C0-180)	1.5, 43.3
NOMINAL FLUX(lm)	752.296	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.8, 53.4
LAMPS INSIDE	1	η up(%)	3.3	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	220.0	η down(%)	96.7	CIBSE SHR MAX	1.00

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-12-27

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1174	1295	1187	998.6	1707	1431	1415	1791	0- 10	374.2	374.2	49.7,49.7
20	336.1	343.2	336.6	309.0	352.2	330.5	344.6	382.6	10- 20	172.0	546.3	72.6,72.6
30	124.3	128.4	127.0	114.0	139.8	131.1	137.4	153.2	20- 30	100.8	647.0	86,86
40	45.55	47.75	46.84	42.39	50.50	46.95	48.91	54.68	30- 40	50.72	697.7	92.7,92.7
50	11.82	12.89	12.29	11.13	15.56	14.45	14.68	17.03	40- 50	21.63	719.4	95.6,95.6
60	1.345	1.339	1.295	1.326	1.899	1.752	1.729	1.902	50- 60	4.682	724.0	96.2,96.2
70	0.7122	0.6912	0.6682	0.6799	1.204	1.255	1.195	1.240	60- 70	1.167	725.2	96.4,96.4
80	0.3686	0.3610	0.3453	0.3497	1.920	1.892	1.839	1.832	70- 80	1.081	726.3	96.5,96.5
90	0.2138	0.2139	0.2243	0.2294	1.880	1.861	1.833	1.828	80- 90	1.149	727.4	96.7,96.7
100	0.4131	0.4062	0.4260	0.4453	1.808	1.798	1.794	1.798	90-100	1.182	728.6	96.9,96.9
110	0.9185	0.8844	0.9181	0.9882	2.047	2.043	2.015	1.983	100-110	1.316	729.9	97,97
120	2.107	2.038	2.083	2.214	3.050	3.099	3.049	2.902	110-120	1.906	731.8	97.3,97.3
130	4.265	4.139	4.174	4.373	4.145	4.115	4.098	4.099	120-130	3.088	734.9	97.7,97.7
140	6.335	6.217	6.224	6.400	5.815	5.894	5.762	5.517	130-140	3.793	738.7	98.2,98.2
150	8.536	8.369	8.127	8.570	8.683	8.678	8.309	8.375	140-150	4.537	743.3	98.8,98.8
160	11.45	11.18	9.943	11.29	11.31	11.17	9.788	10.88	150-160	4.441	747.7	99.4,99.4
170	14.23	13.64	12.15	13.11	13.58	12.78	11.41	12.88	160-170	3.413	751.1	99.8,99.8
180	10.39	9.751	9.182	9.631	10.41	9.755	9.145	9.634	170-180	1.175	752.3	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

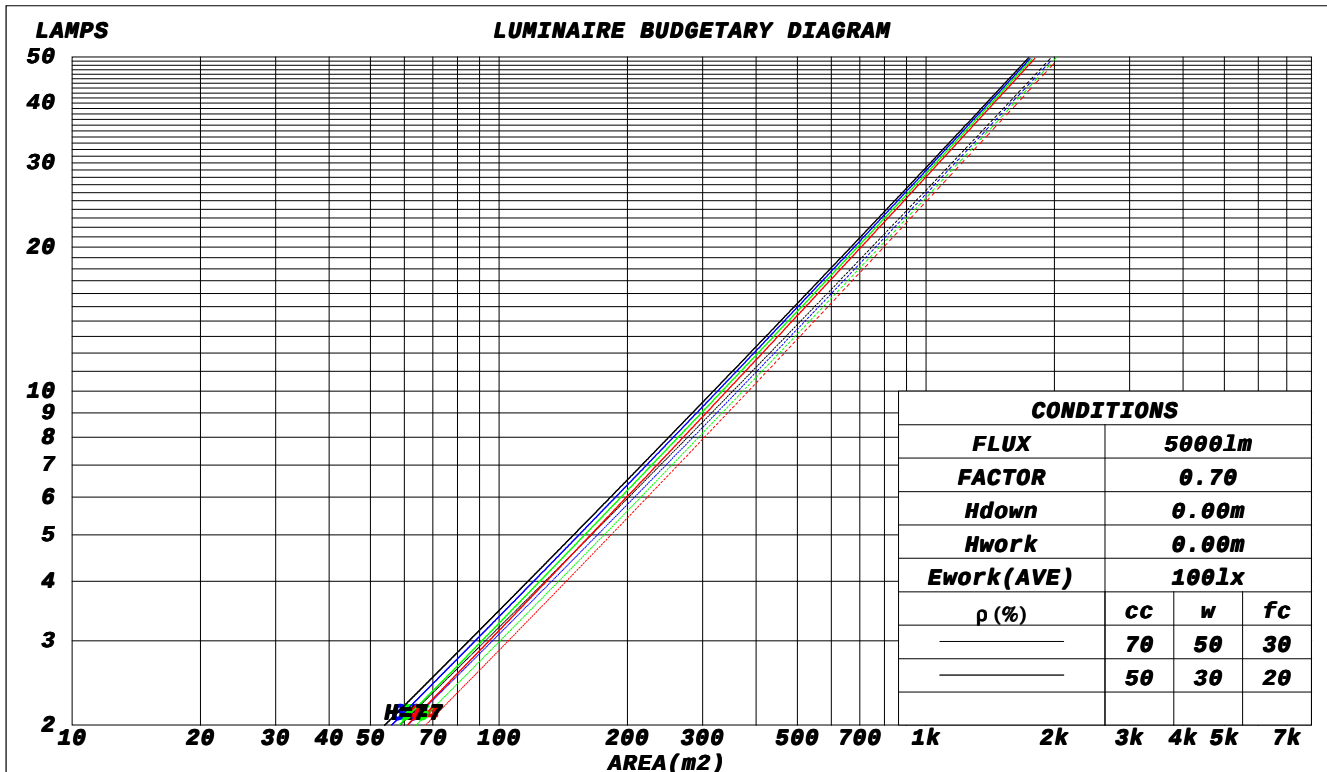
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2017-12-27

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7063]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm		
NAME: 12W	TYPE:LED	
MFR.:		

ρ_{CC}	80%			70%			50%			30%			10%			0
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.18	1.18	1.18	1.15	1.15	1.15	1.09	1.09	1.09	1.04	1.04	1.04	.99	.99	.99	.97
1.0	1.12	1.10	1.08	1.10	1.08	1.06	1.05	1.04	1.02	1.01	.99	.99	.97	.96	.95	.94
2.0	1.07	1.04	1.01	1.05	1.02	.99	1.01	.99	.97	.98	.96	.95	.95	.93	.92	.90
3.0	1.02	.98	.95	1.00	.97	.95	.98	.95	.93	.95	.93	.91	.92	.91	.89	.88
4.0	.98	.94	.91	.97	.93	.90	.94	.91	.89	.92	.90	.88	.90	.88	.86	.85
5.0	.95	.90	.87	.94	.90	.87	.92	.88	.86	.90	.87	.85	.88	.86	.84	.83
6.0	.91	.87	.84	.91	.87	.84	.89	.86	.83	.87	.85	.82	.86	.84	.82	.81
7.0	.89	.85	.82	.88	.84	.81	.87	.83	.81	.85	.82	.80	.84	.82	.80	.79
8.0	.86	.82	.79	.86	.82	.79	.84	.81	.79	.83	.80	.78	.82	.80	.78	.77
9.0	.84	.80	.77	.83	.80	.77	.82	.79	.77	.81	.79	.76	.81	.78	.76	.75
10.0	.82	.78	.76	.82	.78	.75	.81	.77	.75	.80	.77	.75	.79	.76	.74	.74



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2017-12-27

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.7063]
 Remarks:

WEC AND CCEC

Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm											
NAME: 12W						TYPE: LED					
MFR.:											

ρ_{CC}	80%			70%			50%			30%			10%			0
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.140	.079	.025	.132	.075	.024	.118	.067	.022	.105	.060	.019	.092	.054	.017	
2.0	.129	.071	.022	.122	.067	.021	.111	.061	.019	.099	.056	.017	.089	.051	.016	
3.0	.120	.064	.019	.114	.061	.018	.104	.056	.017	.095	.052	.016	.086	.048	.015	
4.0	.112	.058	.017	.107	.056	.017	.098	.052	.016	.090	.048	.015	.083	.045	.014	
5.0	.105	.053	.015	.101	.052	.015	.093	.048	.014	.086	.045	.013	.079	.042	.013	
6.0	.098	.049	.014	.095	.048	.014	.088	.045	.013	.082	.043	.013	.076	.040	.012	
7.0	.093	.046	.013	.090	.045	.013	.084	.042	.012	.079	.040	.012	.073	.038	.011	
8.0	.088	.043	.012	.085	.042	.012	.080	.040	.011	.075	.038	.011	.071	.036	.011	
9.0	.084	.040	.011	.081	.040	.011	.077	.038	.011	.072	.036	.010	.068	.035	.010	
10.0	.080	.038	.011	.077	.037	.010	.073	.036	.010	.069	.034	.010	.066	.033	.009	

ρ_{CC}	80%			70%			50%			30%			10%			0
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.216	.216	.216	.184	.184	.184	.126	.126	.126	.072	.072	.072	.023	.023	.023	
1.0	.194	.183	.173	.166	.157	.149	.113	.108	.103	.065	.063	.060	.021	.020	.019	
2.0	.176	.158	.143	.151	.136	.124	.103	.094	.086	.060	.055	.051	.019	.018	.017	
3.0	.161	.139	.121	.138	.120	.105	.095	.083	.074	.055	.049	.043	.018	.016	.014	
4.0	.149	.124	.105	.128	.107	.091	.088	.074	.064	.051	.044	.038	.016	.014	.012	
5.0	.138	.111	.092	.119	.096	.080	.082	.067	.056	.047	.040	.033	.015	.013	.011	
6.0	.129	.102	.082	.111	.088	.071	.077	.062	.050	.044	.036	.030	.014	.012	.010	
7.0	.121	.093	.074	.104	.081	.064	.072	.057	.046	.042	.033	.027	.014	.011	.009	
8.0	.115	.087	.067	.099	.075	.059	.068	.053	.042	.040	.031	.025	.013	.010	.008	
9.0	.109	.081	.062	.094	.070	.054	.065	.049	.038	.038	.029	.023	.012	.010	.008	
10.0	.104	.076	.058	.089	.066	.050	.062	.046	.036	.036	.027	.021	.012	.009	.007	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-12-27

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

Uncorrected UGR Table

Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm										
NAME: 12W					TYPE: LED					
MFR.:										
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	11.5	12.1	11.8	12.3	12.5	11.5	12.2	11.8	12.4	12.6
3H	11.4	12.0	11.7	12.2	12.4	11.4	12.0	11.7	12.2	12.5
4H	11.3	11.9	11.6	12.1	12.4	11.3	11.9	11.6	12.1	12.4
6H	11.2	11.7	11.5	12.0	12.3	11.2	11.8	11.6	12.0	12.3
8H	11.2	11.7	11.5	12.0	12.3	11.2	11.7	11.5	12.0	12.3
12H	11.1	11.6	11.5	11.9	12.3	11.1	11.6	11.5	12.0	12.3
4H 2H	11.3	11.8	11.6	12.1	12.4	11.3	11.9	11.6	12.1	12.4
3H	11.1	11.6	11.5	11.9	12.3	11.1	11.6	11.5	11.9	12.3
4H	11.0	11.5	11.4	11.8	12.2	11.1	11.5	11.4	11.9	12.2
6H	10.9	11.3	11.4	11.7	12.1	11.0	11.4	11.4	11.7	12.2
8H	10.9	11.3	11.3	11.7	12.1	10.9	11.3	11.4	11.7	12.1
12H	10.9	11.2	11.3	11.6	12.1	10.9	11.2	11.3	11.6	12.1
8H 4H	10.9	11.2	11.3	11.7	12.1	10.9	11.3	11.3	11.7	12.1
6H	10.8	11.1	11.3	11.5	12.0	10.8	11.1	11.3	11.6	12.0
8H	10.7	11.0	11.2	11.5	12.0	10.8	11.0	11.3	11.5	12.0
12H	10.7	10.9	11.2	11.4	12.0	10.7	10.9	11.2	11.4	12.0
12H 4H	10.8	11.2	11.3	11.6	12.0	10.8	11.2	11.3	11.6	12.1
6H	10.7	11.0	11.2	11.5	12.0	10.7	11.0	11.2	11.5	12.0
8H	10.7	10.9	11.2	11.4	12.0	10.7	10.9	11.2	11.4	12.0
Variations with the observer position at spacings:										
S = 1.0H	+ 2.5 / -10.0					+ 2.7 / -10.1				
1.5H	+ 4.0 / - 9.4					+ 4.1 / - 9.5				
2.0H	+ 6.0 / - 7.4					+ 6.1 / - 7.5				

CIE Pub.117 Corrected 752.3 lm Total Lamp Luminous Flux. (8log(F/F0) = -1.0)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-12-27

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm		
NAME: 12W	TYPE: LED	
MFR.:		

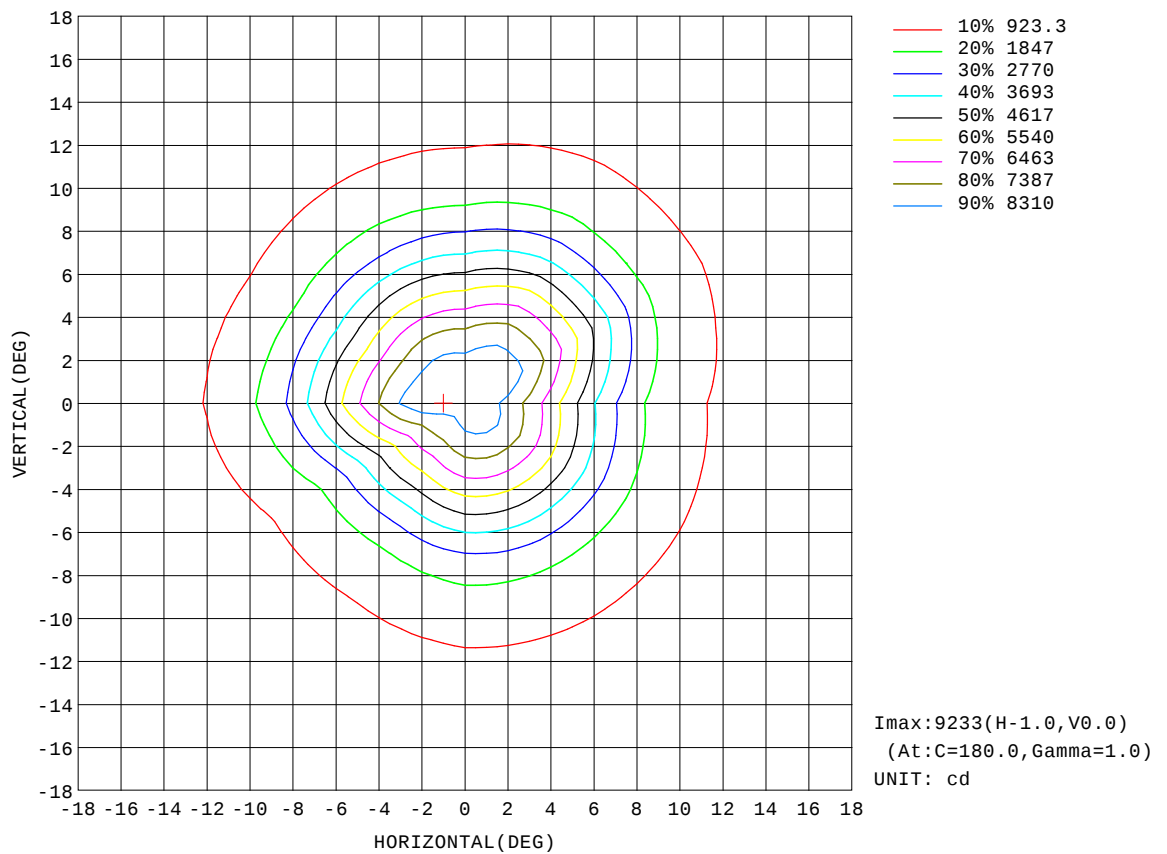
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	87	81	77	86	81	77	85	80	77	73
0.80	94	89	85	94	88	85	92	87	84	80
1.00	99	93	90	98	92	89	96	92	88	84
1.25	102	97	94	101	97	93	99	95	92	88
1.50	105	100	97	104	99	96	101	98	95	90
2.00	108	104	100	106	102	99	103	100	98	92
2.50	109	106	103	108	104	101	104	101	99	92
3.00	111	107	105	109	106	103	105	103	101	94
4.00	113	110	108	111	108	106	106	105	103	95
5.00	114	112	110	112	110	108	107	106	105	96
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: 2017-12-27

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

ISOCANDELA DIAGRAM

Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm		
NAME: 12W	TYPE: LED	
MFR.:		

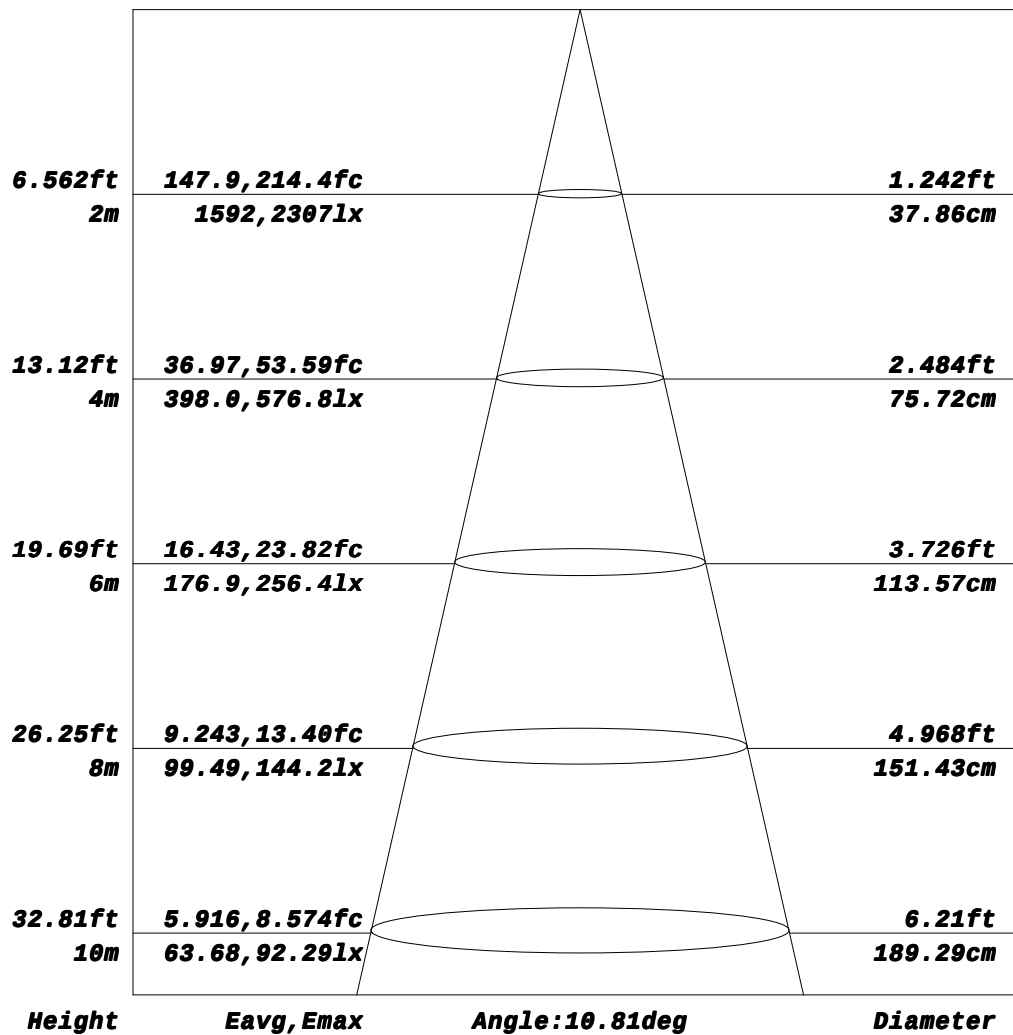


C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-12-27

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7063]
Remarks:

AAI Figure

Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm		
NAME: 12W	TYPE: LED	
MFR.:		

Flux out:221.0 lm


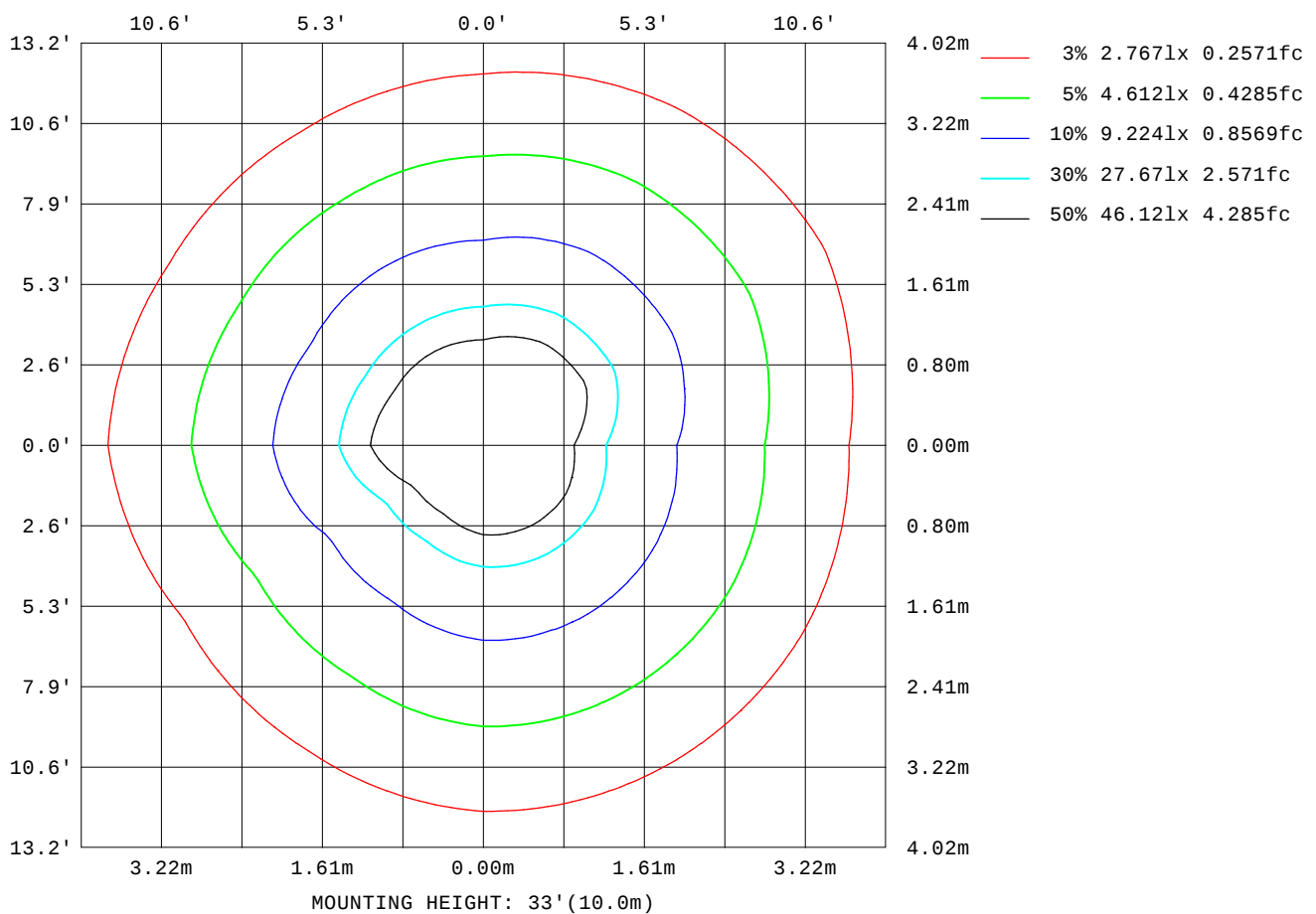
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-12-27

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

ISOLUX DIAGRAM

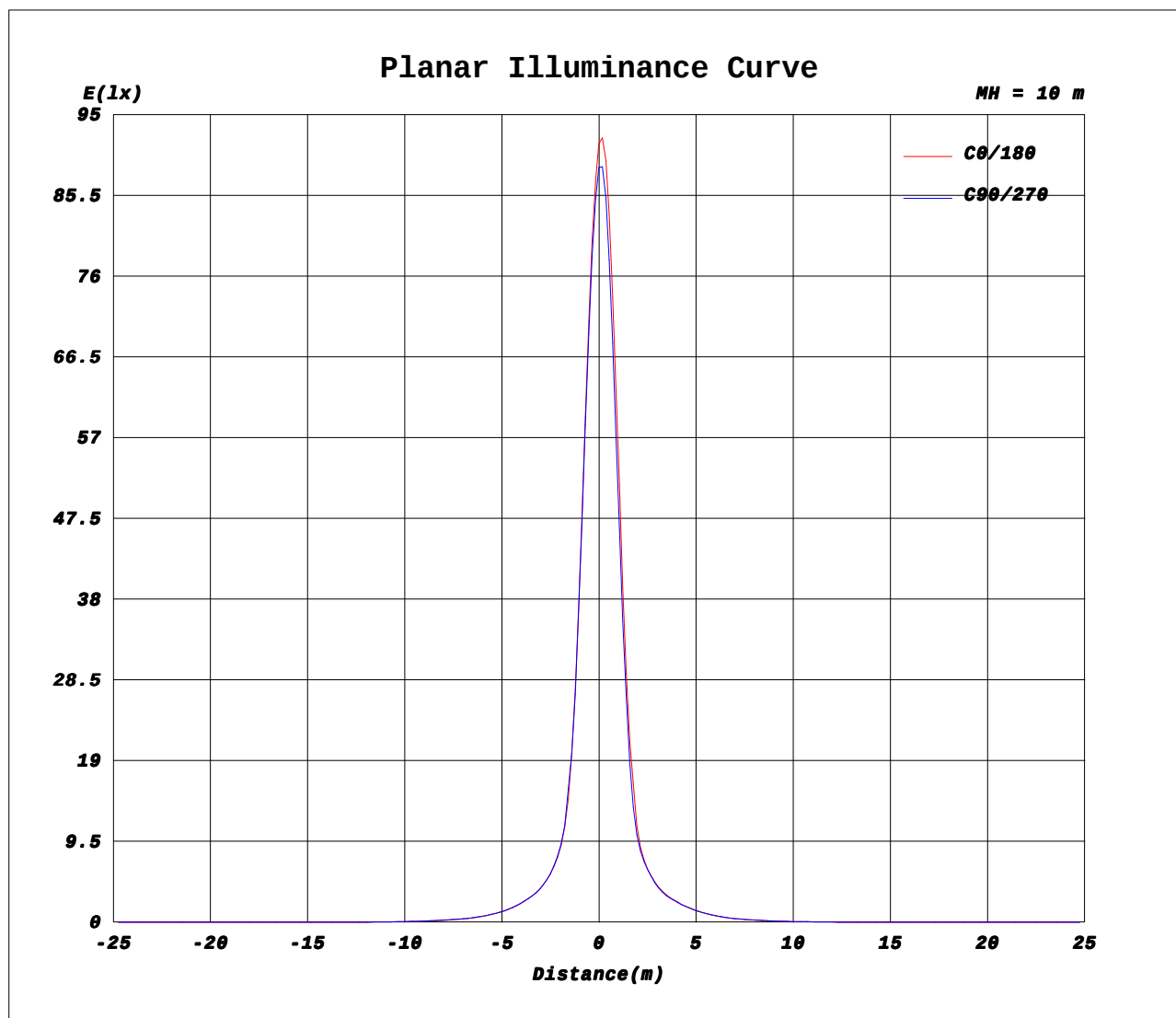
Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm		
NAME: 12W	TYPE: LED	
MFR.:		



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-12-27

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-12-27

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.0V I:0.1090A P:12.60W PF:0.5250 Lamp Flux:752.296x1 lm																	
NAME: 12W									TYPE: LED								
MFR.:																	

Table--1

UNIT: cd

γ (DEG)	C (DEG)																	
	0	30	60	90	120	150	180	210	240	270	300	330						
0	9163	9185	9038	8881	8690	8861	9163	9185	9038	8881	8690	8861						
5	4878	5227	5064	4789	4127	4230	6348	5744	5831	5797	6647	6667						
10	1174	1342	1249	1187	1006	991	1707	1345	1516	1415	1810	1773						
15	563	576	574	560	504	491	608	567	571	605	671	665						
20	336	344	342	337	313	305	352	331	331	345	378	387						
25	206	214	214	209	194	187	229	216	217	226	248	252						
30	124	129	128	127	116	112	140	131	131	137	152	154						
35	74.7	77.6	77.4	76.5	70.9	68.4	81.6	76.8	76.9	80.6	88.9	90.3						
40	45.6	48.0	47.5	46.8	42.9	41.8	50.5	46.9	47.0	48.9	54.4	54.9						
45	25.4	26.6	26.2	25.7	23.9	23.6	29.2	27.0	27.3	28.2	31.4	31.4						
50	11.8	13.1	12.7	12.3	11.0	11.3	15.6	14.3	14.6	14.7	17.2	16.8						
55	2.86	3.13	3.05	2.87	2.61	2.81	4.63	4.14	4.31	4.42	5.65	5.45						
60	1.34	1.34	1.34	1.29	1.28	1.37	1.90	1.74	1.77	1.73	1.90	1.91						
65	0.96	0.93	0.95	0.90	0.93	0.94	1.37	1.33	1.31	1.30	1.34	1.37						
70	0.71	0.68	0.70	0.67	0.68	0.68	1.29	1.25	1.26	1.20	1.22	1.26						
75	0.54	0.51	0.52	0.50	0.50	0.51	1.56	1.54	1.53	1.47	1.43	1.48						
80	0.37	0.36	0.37	0.35	0.35	0.35	1.92	1.89	1.89	1.84	1.82	1.84						
85	0.22	0.18	0.18	0.18	0.19	0.19	1.91	1.89	1.87	1.88	1.88	1.89						
90	0.21	0.22	0.21	0.22	0.22	0.24	1.88	1.86	1.86	1.83	1.83	1.82						
95	0.29	0.30	0.28	0.31	0.31	0.32	1.90	1.89	1.88	1.87	1.86	1.87						
100	0.41	0.41	0.40	0.43	0.44	0.45	1.81	1.81	1.79	1.79	1.79	1.80						
105	0.60	0.59	0.58	0.61	0.63	0.65	1.86	1.85	1.85	1.82	1.81	1.80						
110	0.92	0.89	0.88	0.92	0.98	1.00	2.05	2.04	2.05	2.02	2.00	1.97						
115	1.43	1.40	1.38	1.43	1.51	1.54	2.34	2.35	2.35	2.31	2.26	2.23						
120	2.11	2.04	2.03	2.08	2.20	2.23	3.05	3.12	3.08	3.05	2.91	2.89						
125	3.07	2.97	2.97	3.02	3.19	3.21	4.00	4.02	4.01	3.97	3.86	3.85						
130	4.27	4.14	4.14	4.17	4.37	4.38	4.14	4.13	4.10	4.10	4.11	4.09						
135	5.33	5.22	5.20	5.24	5.40	5.44	4.39	4.44	4.39	4.34	4.22	4.21						
140	6.34	6.24	6.20	6.22	6.37	6.43	5.82	5.92	5.86	5.76	5.52	5.52						
145	7.35	7.24	7.18	7.19	7.37	7.44	7.38	7.46	7.38	7.26	7.09	7.09						
150	8.54	8.42	8.32	8.13	8.51	8.63	8.68	8.72	8.63	8.31	8.37	8.38						
155	9.92	9.78	9.64	8.89	9.81	9.98	9.92	9.96	9.80	8.94	9.54	9.61						
160	11.5	11.3	11.1	9.94	11.2	11.4	11.3	11.3	11.1	9.79	10.8	10.9						
165	13.0	12.8	12.5	11.2	12.3	12.8	12.7	12.5	12.1	10.7	12.0	12.2						
170	14.2	14.0	13.3	12.2	12.6	13.6	13.6	13.2	12.3	11.4	12.6	13.1						
175	12.9	12.7	12.0	11.2	10.8	11.9	12.9	12.3	11.2	11.0	11.8	12.4						
180	10.4	10.1	9.42	9.18	9.37	9.89	10.4	10.1	9.46	9.15	9.39	9.87						

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-12-27

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7063]
Remarks: