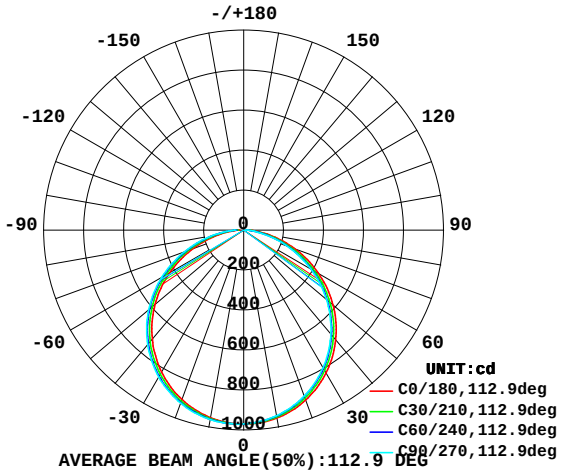
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.5V I:0.1340A P:29.60W PF:0.9570 Lamp Flux:2808.84x1 lm		
NAME: UP-AL28-16-30W-5700K-D	TYPE:30W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:1
MFR.:	SUR.:0.09892	PROTECTION ANGLE:

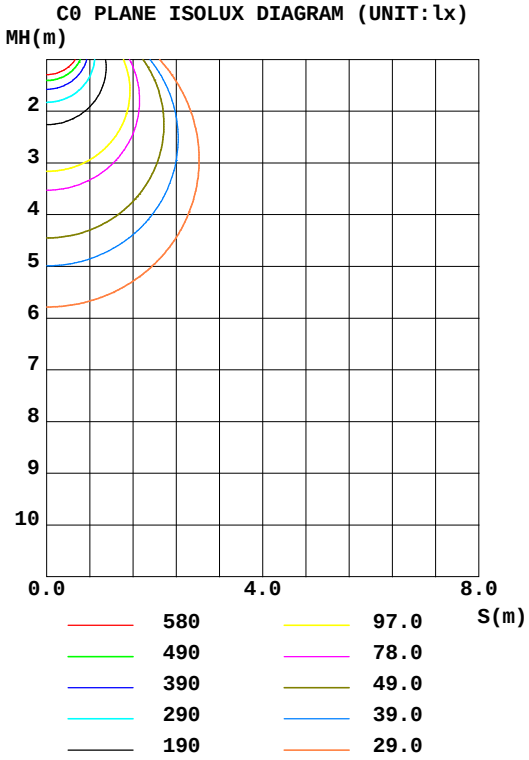
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 94.89 lm/W	
MODEL	UP-AL28-16-30W-5700K-D	Imax(cd)	970.8	S/MH(C0/180)	1.26
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH(C90/270)	1.23
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	2808.8	η UP,DN(C0-180)	0.0,47.6
NOMINAL FLUX(lm)	2808.84	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,52.4
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230.5	η down(%)	100.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):112.9 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-05-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:9.700m [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	954.9	947.2	943.6	945.2	953.3	959.3	962.5	959.9	0- 10	91.77	91.77	3.27,3.27
20	905.7	890.9	884.0	888.3	902.3	915.3	921.5	917.2	10- 20	263.1	354.8	12.6,12.6
30	825.2	804.9	795.3	801.1	821.3	839.5	849.0	842.2	20- 30	399.2	754.1	26.8,26.8
40	716.8	691.2	679.2	687.5	711.7	735.6	747.6	739.1	30- 40	482.3	1236	44,44
50	583.8	554.6	541.0	550.5	579.0	606.7	620.7	610.5	40- 50	501.1	1737	61.9,61.9
60	431.9	400.9	387.0	397.5	428.4	458.5	473.1	461.8	50- 60	453.0	2190	78,78
70	270.6	240.5	226.6	237.6	267.4	298.5	313.6	300.9	60- 70	346.0	2536	90.3,90.3
80	119.1	95.82	84.03	91.95	115.8	143.4	156.5	145.2	70- 80	202.8	2739	97.5,97.5
90	23.94	11.71	6.692	9.290	20.25	30.88	38.85	33.44	80- 90	69.63	2809	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
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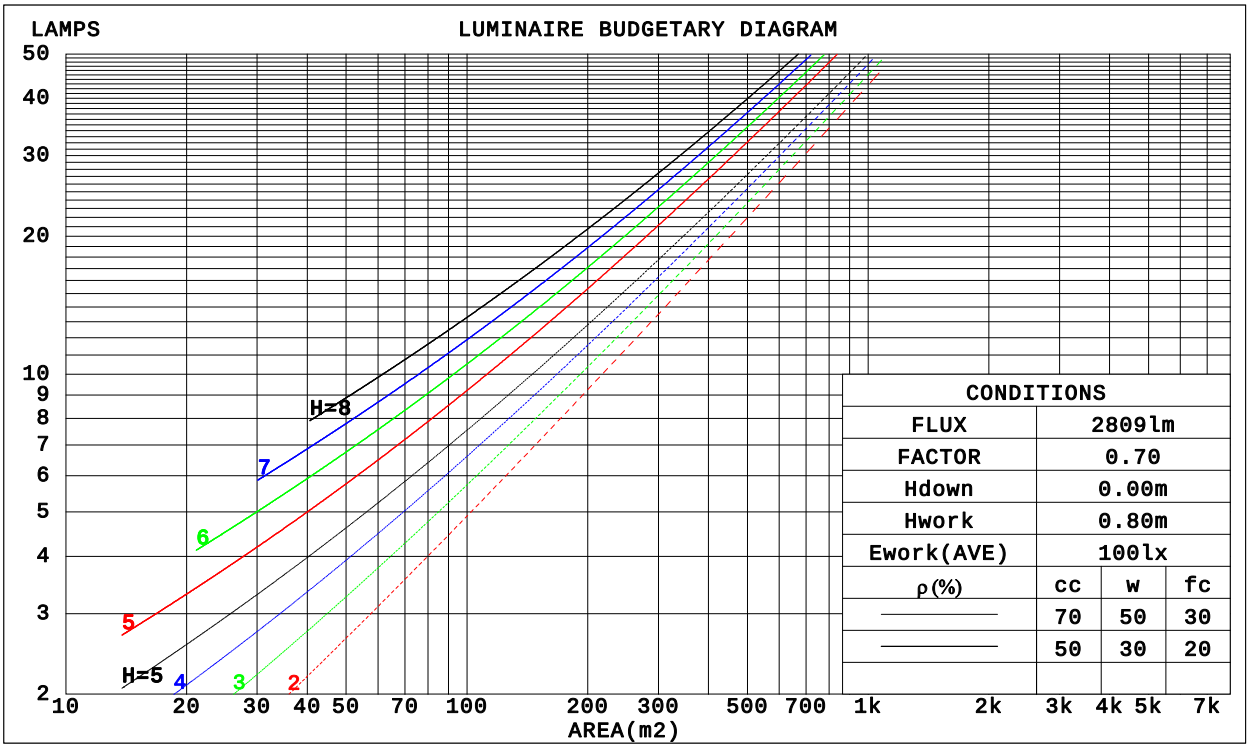
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:9.700m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.5V I:0.1340A P:29.60W PF:0.9570 Lamp Flux:2808.84x1 lm		
NAME: UP-AL28-16-30W-5700K-D	TYPE:30W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:1
MFR.:	SUR.:0.09892	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			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	1.00
1.0	1.03	.99	.95	1.01	.97	.94	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.77	.88	.82	.76	.85	.79	.74	.81	.77	.73	.78	.74	.71	.69
3.0	.79	.71	.64	.77	.70	.63	.74	.68	.62	.72	.66	.61	.69	.64	.60	.58
4.0	.70	.61	.54	.69	.60	.54	.66	.59	.53	.64	.57	.52	.61	.56	.52	.49
5.0	.62	.53	.47	.61	.53	.46	.59	.52	.46	.57	.50	.45	.55	.49	.45	.43
6.0	.56	.47	.41	.55	.47	.40	.53	.46	.40	.52	.45	.40	.50	.44	.39	.37
7.0	.51	.42	.36	.50	.42	.36	.48	.41	.35	.47	.40	.35	.46	.39	.35	.33
8.0	.46	.38	.32	.46	.37	.32	.44	.37	.32	.43	.36	.31	.42	.36	.31	.29
9.0	.43	.34	.29	.42	.34	.29	.41	.34	.28	.40	.33	.28	.39	.33	.28	.26
10.0	.39	.31	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.36	.30	.26	.24



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Test Date:2017-05-18

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γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:9.700m [K=1.0000]
Remarks:

WEC AND CCEC

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DIM.:	SPEC.:5700K	SERIAL No.:1
MFR.:	SUR.:0.09892	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 Coeffcients(WEC)									
0.0																
1.0	.317	.180	.057	.310	.177	.056	.297	.170	.054	.285	.164	.053	.273	.158	.051	
2.0	.296	.162	.050	.290	.160	.049	.278	.155	.048	.267	.150	.047	.257	.145	.046	
3.0	.273	.145	.043	.267	.143	.043	.257	.139	.042	.247	.136	.042	.238	.132	.041	
4.0	.251	.131	.038	.246	.129	.038	.237	.126	.038	.229	.123	.037	.221	.120	.037	
5.0	.232	.118	.034	.228	.117	.034	.219	.114	.034	.212	.112	.033	.205	.109	.033	
6.0	.215	.108	.031	.211	.107	.031	.204	.104	.030	.197	.102	.030	.191	.100	.030	
7.0	.200	.099	.028	.196	.098	.028	.190	.096	.028	.184	.094	.027	.178	.093	.027	
8.0	.186	.091	.026	.183	.090	.026	.178	.089	.025	.172	.087	.025	.167	.086	.025	
9.0	.175	.085	.024	.172	.084	.024	.167	.082	.023	.162	.081	.023	.157	.080	.023	
10.0	.164	.079	.022	.162	.078	.022	.157	.077	.022	.153	.076	.022	.148	.075	.021	

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	.181	.156	.134	.155	.134	.115	.106	.092	.080	.061	.053	.046	.020	.017	.015	
2.0	.173	.132	.098	.148	.114	.084	.101	.079	.059	.058	.046	.034	.019	.015	.011	
3.0	.165	.114	.074	.141	.099	.064	.097	.069	.045	.056	.040	.026	.018	.013	.009	
4.0	.157	.101	.058	.135	.087	.050	.093	.061	.035	.054	.036	.021	.017	.012	.007	
5.0	.150	.091	.047	.129	.078	.041	.089	.055	.029	.051	.032	.017	.017	.010	.006	
6.0	.143	.082	.039	.123	.071	.034	.085	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.136	.075	.033	.117	.065	.029	.081	.046	.020	.047	.027	.012	.015	.009	.004	
8.0	.129	.070	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.003	
9.0	.123	.065	.025	.106	.056	.022	.074	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.022	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-05-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:9.700m [K=1.0000]
Remarks:

Uncorrected UGR Table

Test:U:230.5V I:0.1340A P:29.60W PF:0.9570 Lamp Flux:2808.84x1 lm		
NAME: UP-AL28-16-30W-5700K-D	TYPE:30W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:1
MFR.:	SUR.:0.09892	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	20.3	21.9	20.6	22.1	22.3	19.9	21.4	20.2	21.6	21.8
	3H	21.8	23.3	22.1	23.5	23.7	21.2	22.7	21.5	22.9	23.1
	4H	22.5	23.8	22.8	24.1	24.3	21.7	23.1	22.1	23.3	23.6
	6H	22.9	24.2	23.3	24.5	24.8	22.0	23.3	22.4	23.6	23.9
	8H	23.1	24.3	23.4	24.6	24.9	22.1	23.4	22.5	23.6	23.9
	12H	23.2	24.4	23.6	24.7	25.0	22.2	23.4	22.5	23.7	24.0
4H	2H	20.8	22.2	21.2	22.4	22.7	20.5	21.9	20.8	22.1	22.4
	3H	22.5	23.7	22.9	24.0	24.3	22.0	23.2	22.4	23.5	23.8
	4H	23.3	24.4	23.7	24.7	25.0	22.6	23.7	23.0	24.0	24.4
	6H	23.9	24.8	24.3	25.2	25.5	23.0	24.0	23.5	24.4	24.7
	8H	24.1	25.0	24.5	25.4	25.7	23.2	24.1	23.6	24.4	24.8
	12H	24.3	25.1	24.7	25.5	25.9	23.3	24.1	23.7	24.5	24.9
8H	4H	23.5	24.4	23.9	24.7	25.1	22.9	23.8	23.3	24.2	24.5
	6H	24.2	24.9	24.6	25.3	25.8	23.4	24.2	23.9	24.6	25.0
	8H	24.5	25.2	25.0	25.6	26.0	23.6	24.3	24.1	24.7	25.2
	12H	24.8	25.4	25.3	25.8	26.3	23.8	24.4	24.3	24.8	25.3
12H	4H	23.5	24.3	23.9	24.7	25.1	22.9	23.7	23.3	24.1	24.5
	6H	24.2	24.9	24.7	25.3	25.8	23.5	24.2	24.0	24.6	25.0
	8H	24.6	25.2	25.1	25.6	26.1	23.7	24.3	24.2	24.8	25.2

Variations with the observer position at spacings:		
S = 1.0H	+ 0.1 / - 0.2	+ 0.2 / - 0.2
1.5H	+ 0.2 / - 0.3	+ 0.2 / - 0.3
2.0H	+ 0.2 / - 0.3	+ 0.2 / - 0.3

CIE Pub.117 Corrected 2809 lm Total Lamp Luminous Flux.(8log(F/F0) = 3.6)

C Range: 0 - 360DEG
C Interval: 30.0DEG
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Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-05-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:9.700m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:230.5V I:0.1340A P:29.60W PF:0.9570 Lamp Flux:2808.84x1 lm		
NAME: UP-AL28-16-30W-5700K-D	TYPE:30W	WEIGHT:
DIM.:	SPEC.:5700K	SERIAL No.:1
MFR.:	SUR.:0.09892	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) x RCR = 5									
k = 0.60	57	46	38	56	45	38	55	45	38	32
0.80	67	55	48	66	55	48	64	54	47	41
1.00	76	64	57	74	64	57	72	65	56	49
1.25	83	72	65	81	71	64	79	70	64	56
1.50	88	78	71	86	77	70	83	75	69	61
2.00	95	86	79	93	85	79	89	82	77	69
2.50	98	91	84	96	89	84	93	87	82	73
3.00	102	95	89	100	93	88	96	90	86	77
4.00	106	100	95	104	98	94	99	95	91	82
5.00	108	103	99	106	101	98	101	98	95	85
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

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ISOCANDELA DIAGRAM

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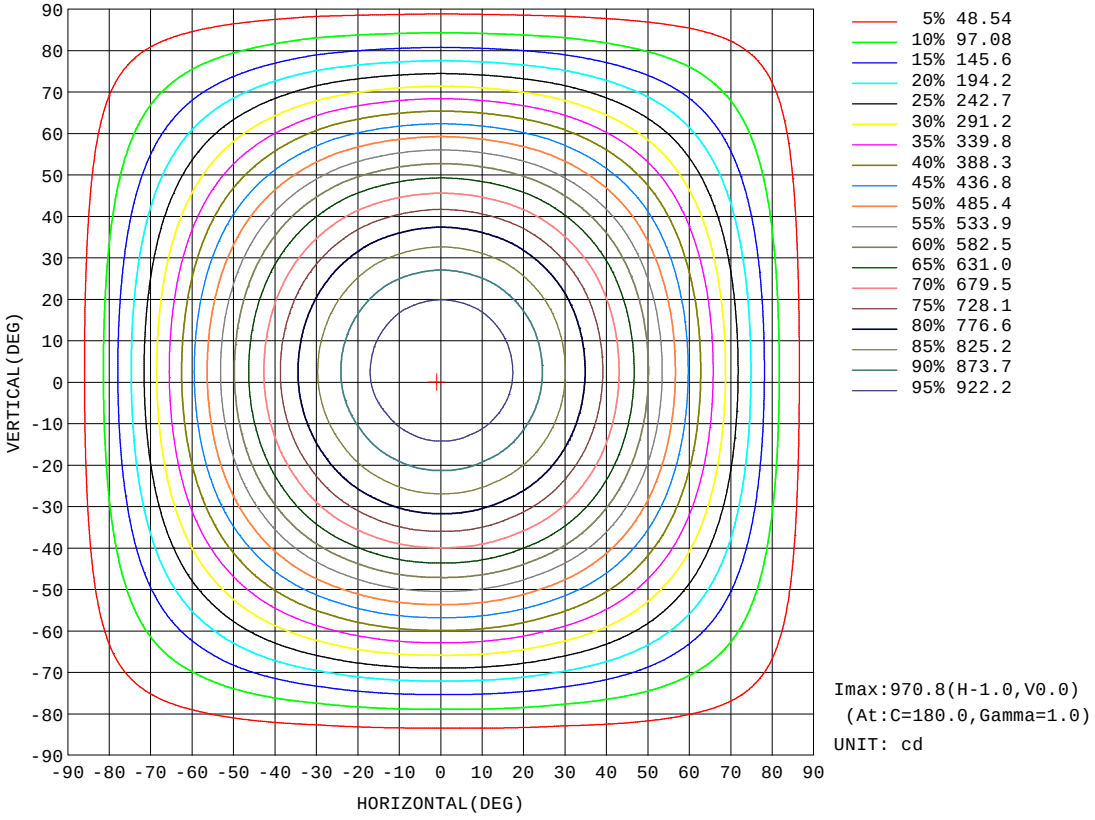
MFR.:	SUR.:0.09892	PROTECTION ANGLE:



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AAI Figure

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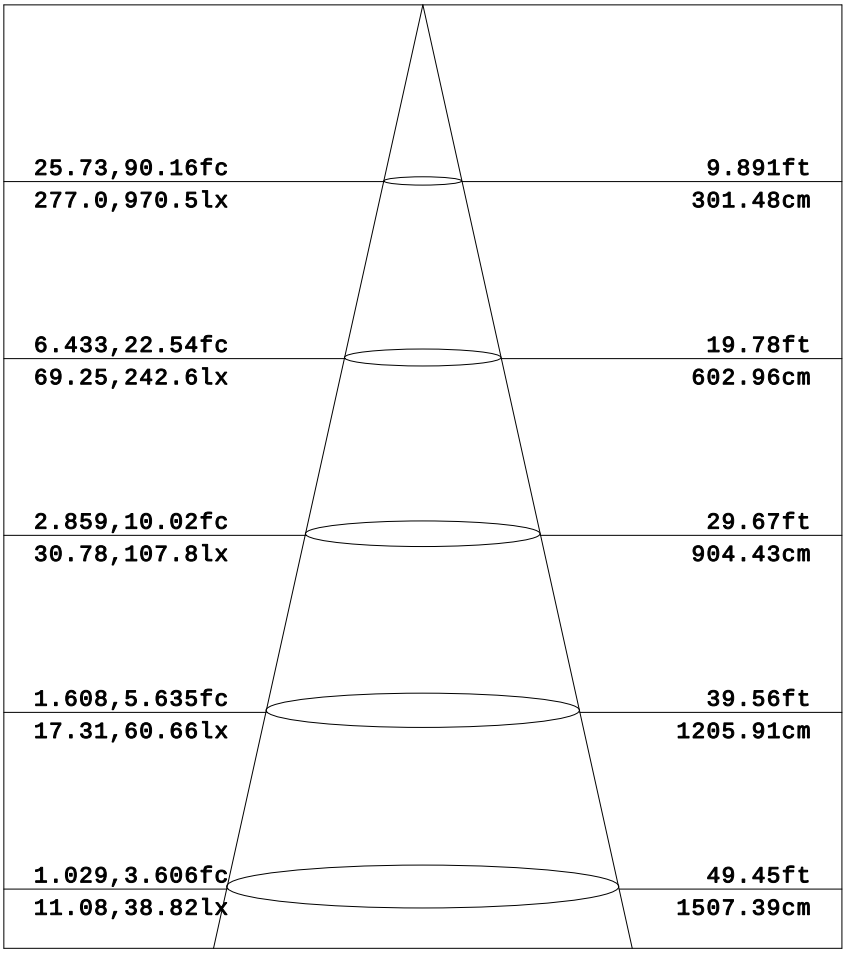
MFR.:	SUR.:0.09892	PROTECTION ANGLE:

Flux out:2063 lm



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

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ISOLUX DIAGRAM

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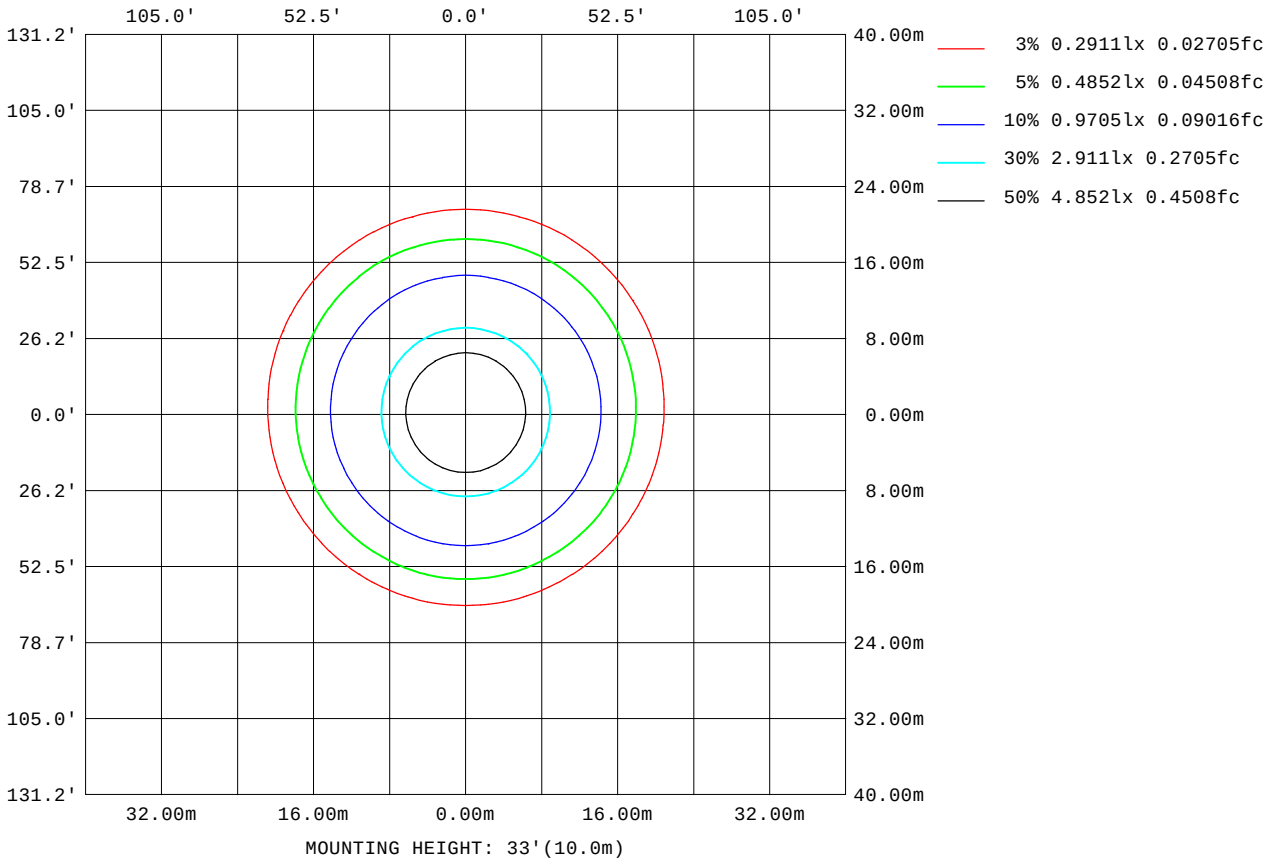
DIM.:	SPEC.:5700K	SERIAL No.:1
MFR.:	SUR.:0.09892	PROTECTION ANGLE:



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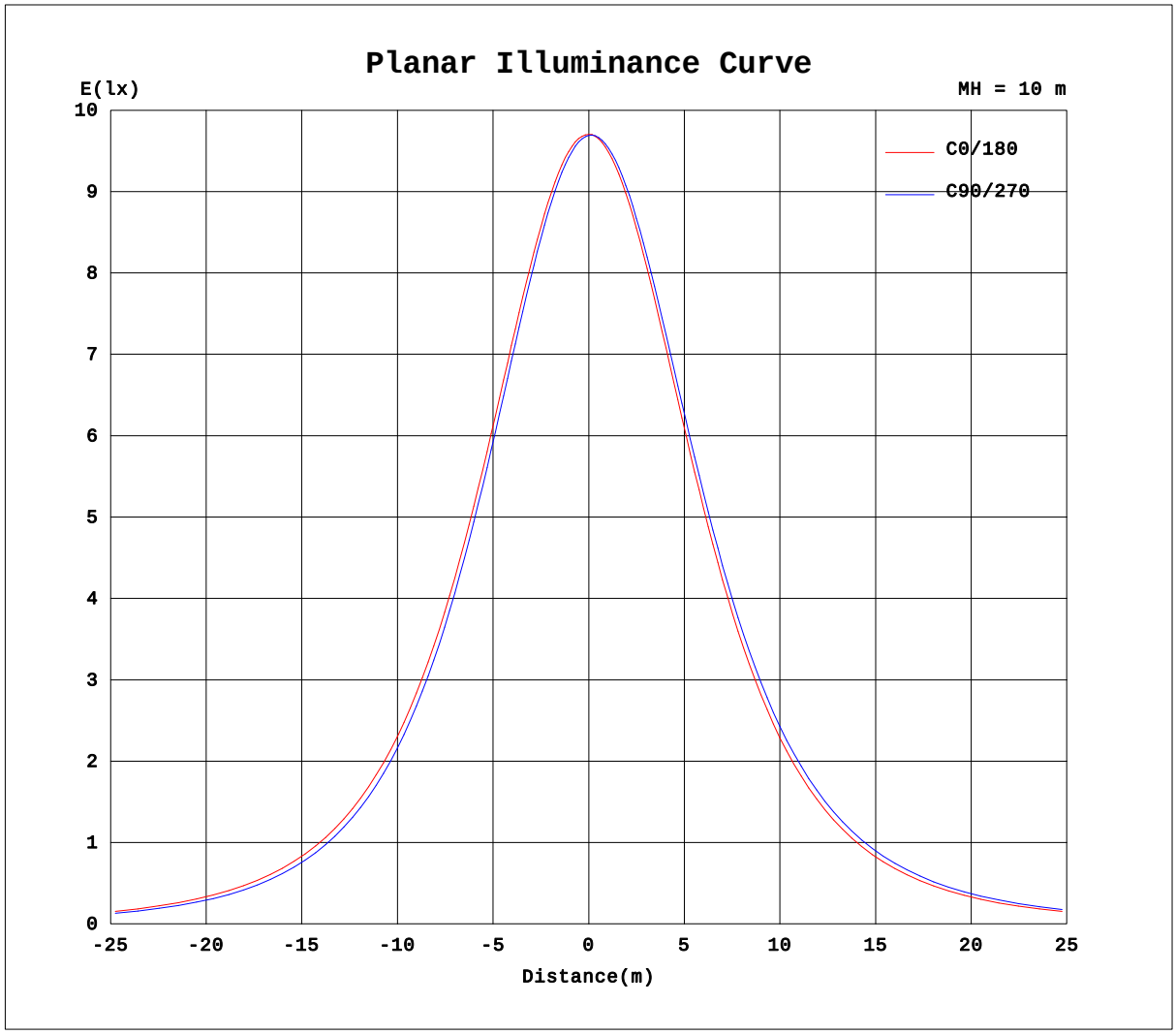
Remarks:

Planar Illuminance Curve



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LUMINOUS DISTRIBUTION INTENSITY DATA

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DIM.:	SPEC.:5700K	SERIAL No.:1
MFR.:	SUR.:0.09892	PROTECTION ANGLE:

Table--1 UNIT: cd

γ (DEG) \ C(DEG)	0	30	60	90	120	150	180	210	240	270	300	330
0	970	970	970	969	969	969	970	970	970	969	969	969
5	967	964	961	960	961	962	966	968	969	970	969	968
10	955	950	945	944	944	947	953	957	961	962	962	958
15	934	926	920	918	919	923	932	938	944	946	944	940
20	906	895	887	884	885	891	902	911	919	921	920	914
25	869	857	846	843	844	852	866	876	886	889	888	880
30	825	811	799	795	797	805	821	834	845	849	847	838
35	774	758	744	740	742	752	769	784	797	802	799	789
40	717	699	684	679	682	693	712	728	743	748	745	733
45	653	634	617	613	615	627	648	666	682	687	684	672
50	584	563	546	541	544	557	579	598	615	621	617	604
55	510	489	470	465	469	482	506	526	543	549	545	531
60	432	410	392	387	391	405	428	449	468	473	469	454
65	352	329	311	306	311	324	347	370	389	394	390	375
70	271	249	232	227	231	244	267	290	308	314	308	294
75	192	172	156	151	154	167	189	211	228	234	228	214
80	119	103	88.9	84.0	86.6	97.3	116	135	152	156	152	138
85	61.2	49.2	38.6	36.2	37.3	44.2	56.3	71.1	84.6	88.2	84.8	74.8
90	23.9	14.3	9.14	6.69	7.46	11.1	20.3	27.0	34.8	38.9	35.9	31.0

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-05-18

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:9.700m [K=1.0000]
Remarks: