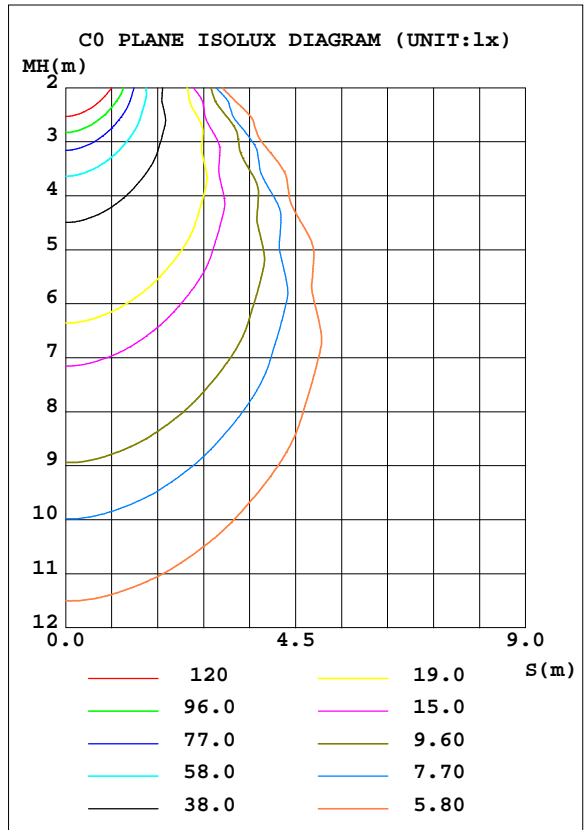
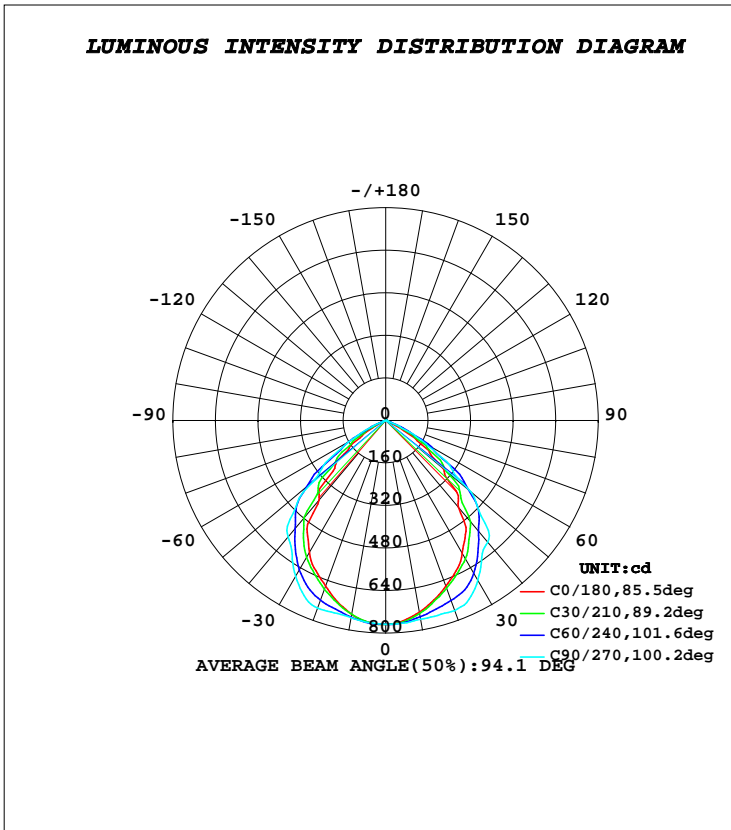


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 71.36 lm/W			
MODEL		I <sub>max</sub> (cd)	768.6	S/MH(C0/180)	1.13
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH(C90/270)	1.29
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1548.5	η UP, DN(C0-180)	0.0, 50.7
NOMINAL FLUX(lm)	1548.47	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 49.3
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Lauhin  
 Test Date:2019-06-04

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity:65.0%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum,lamp
10	732.7	743.0	759.1	749.7	740.3	745.0	752.9	739.6	0- 10	72.15	72.15	4.66,4.66
20	662.7	691.0	760.5	702.7	662.6	689.5	751.5	690.2	10- 20	204.5	276.7	17.9,17.9
30	576.1	635.0	693.9	635.6	574.4	617.1	677.3	629.6	20- 30	309.1	585.7	37.8,37.8
40	425.3	525.5	597.3	528.8	390.5	506.5	570.8	521.0	30- 40	357.5	943.2	60.9,60.9
50	285.0	365.8	420.1	344.8	241.3	322.8	357.8	367.3	40- 50	331.0	1274	82.3,82.3
60	81.23	175.9	176.2	133.4	57.71	111.6	162.5	155.8	50- 60	210.3	1485	95.9,95.9
70	11.87	7.328	10.17	13.08	12.84	6.292	10.17	15.93	60- 70	59.71	1544	99.7,99.7
80	1.369	0	0.2055	0	0.9420	0.4779	0.1352	0.4783	70- 80	4.198	1548	100,100
90	0	0	0	0	0	0	0	0	80- 90	0.0617	1548	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		

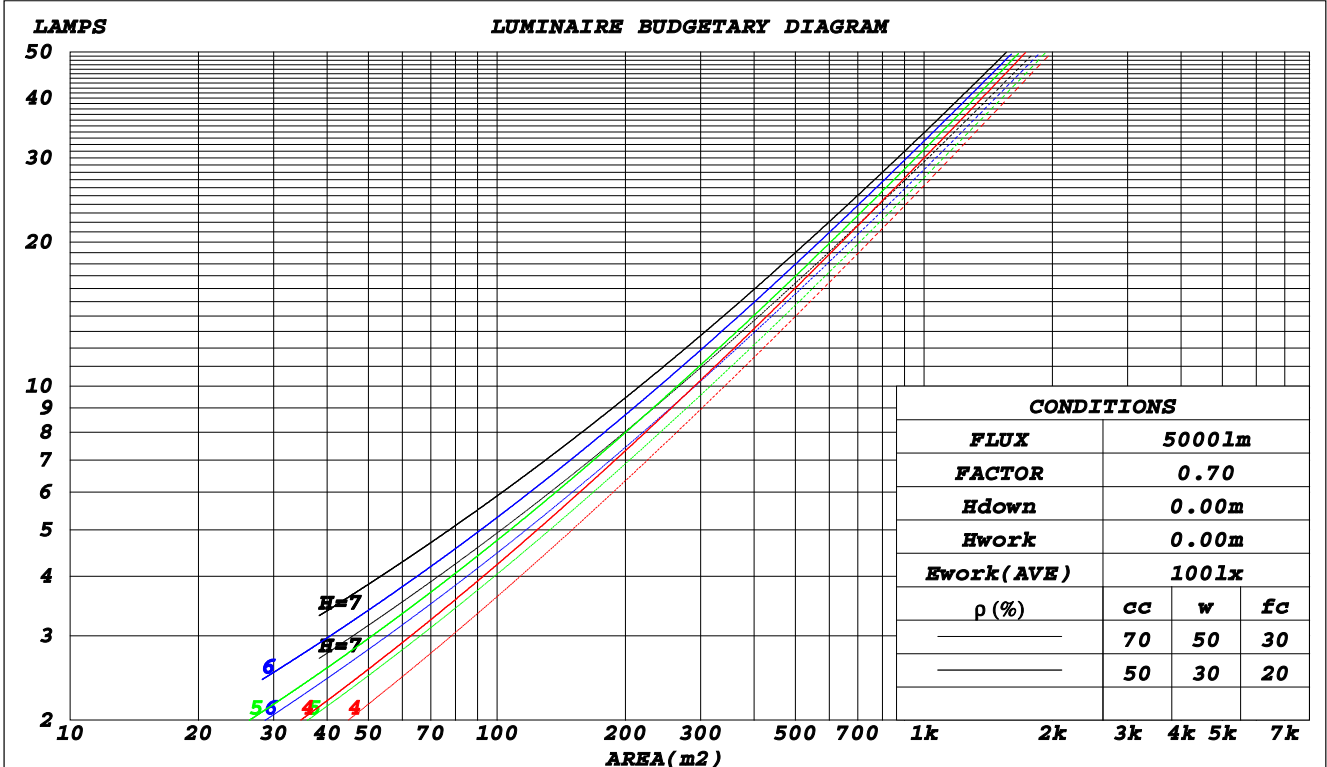
C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Lauhin  
 Test Date:2019-06-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity:65.0%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
<b>RCR</b>	<b>RCR:Room Cavity Ratio</b>															
	<b>Coefficients of Utilization(CU)</b>															
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	1.08	1.05	1.02	1.06	1.03	1.00	1.02	.99	.97	.98	.96	.94	.94	.93	.92	.90
2.0	.97	.92	.87	.95	.91	.86	.92	.88	.85	.89	.86	.83	.86	.83	.81	.79
3.0	.88	.81	.76	.86	.80	.75	.83	.78	.74	.81	.76	.73	.78	.75	.71	.69
4.0	.79	.72	.66	.78	.71	.66	.75	.69	.65	.73	.68	.64	.71	.67	.63	.61
5.0	.72	.64	.58	.70	.63	.58	.68	.62	.57	.67	.61	.57	.65	.60	.56	.54
6.0	.65	.57	.52	.64	.57	.51	.62	.56	.51	.61	.55	.51	.59	.54	.50	.48
7.0	.59	.52	.46	.59	.51	.46	.57	.51	.46	.56	.50	.45	.55	.49	.45	.43
8.0	.55	.47	.42	.54	.47	.41	.53	.46	.41	.51	.45	.41	.50	.45	.41	.39
9.0	.50	.43	.38	.50	.43	.38	.49	.42	.37	.48	.42	.37	.47	.41	.37	.35
10.0	.47	.39	.34	.46	.39	.34	.45	.39	.34	.44	.38	.34	.43	.38	.34	.32



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Lauhin  
 Test Date: 2019-06-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity: 65.0%  
 Test Distance: 26.000m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
<b>RCR</b>	<b>RCR:Room Cavity Ratio</b>						<b>Wall Exitance Coefficients(WEC)</b>									
0.0																
1.0	.229	.130	.041	.222	.127	.040	.209	.120	.038	.197	.114	.037	.187	.108	.035	
2.0	.226	.124	.038	.220	.121	.037	.209	.116	.036	.199	.112	.035	.189	.107	.034	
3.0	.218	.116	.035	.212	.114	.034	.203	.110	.033	.194	.106	.033	.185	.103	.032	
4.0	.207	.108	.032	.203	.106	.031	.194	.103	.031	.186	.100	.030	.179	.097	.030	
5.0	.196	.100	.029	.192	.099	.029	.185	.096	.028	.178	.094	.028	.171	.091	.027	
6.0	.186	.093	.027	.182	.092	.027	.176	.090	.026	.169	.088	.026	.163	.086	.026	
7.0	.176	.087	.025	.173	.086	.025	.167	.084	.024	.161	.083	.024	.156	.081	.024	
8.0	.167	.081	.023	.164	.081	.023	.158	.079	.023	.153	.078	.022	.148	.076	.022	
9.0	.158	.076	.021	.155	.076	.021	.151	.074	.021	.146	.073	.021	.142	.072	.021	
10.0	.150	.072	.020	.148	.071	.020	.143	.070	.020	.139	.069	.020	.135	.068	.020	

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
<b>RCR</b>	<b>RCR:Room Cavity Ratio</b>						<b>Ceiling Cavity Exitance Coefficients(CCEC)</b>									
0.0																
1.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
2.0	.163	.132	.106	.140	.114	.092	.096	.079	.064	.055	.046	.037	.018	.015	.012	
3.0	.154	.114	.082	.132	.098	.071	.091	.068	.050	.052	.040	.029	.017	.013	.010	
4.0	.147	.100	.065	.126	.086	.056	.086	.060	.039	.050	.035	.023	.016	.011	.008	
5.0	.139	.089	.052	.120	.077	.045	.082	.054	.032	.048	.032	.019	.015	.010	.006	
6.0	.133	.081	.043	.114	.070	.038	.079	.049	.027	.046	.029	.016	.015	.009	.005	
7.0	.127	.074	.036	.109	.064	.032	.075	.045	.022	.044	.026	.013	.014	.009	.004	
8.0	.121	.068	.031	.104	.059	.027	.072	.041	.019	.042	.024	.011	.014	.008	.004	
9.0	.116	.063	.027	.100	.055	.024	.069	.038	.017	.040	.023	.010	.013	.007	.003	
10.0	.111	.059	.024	.095	.051	.021	.066	.036	.015	.039	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Lauhin  
 Test Date:2019-06-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity:65.0%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:



UTILIZATION FACTORS TABLE

Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

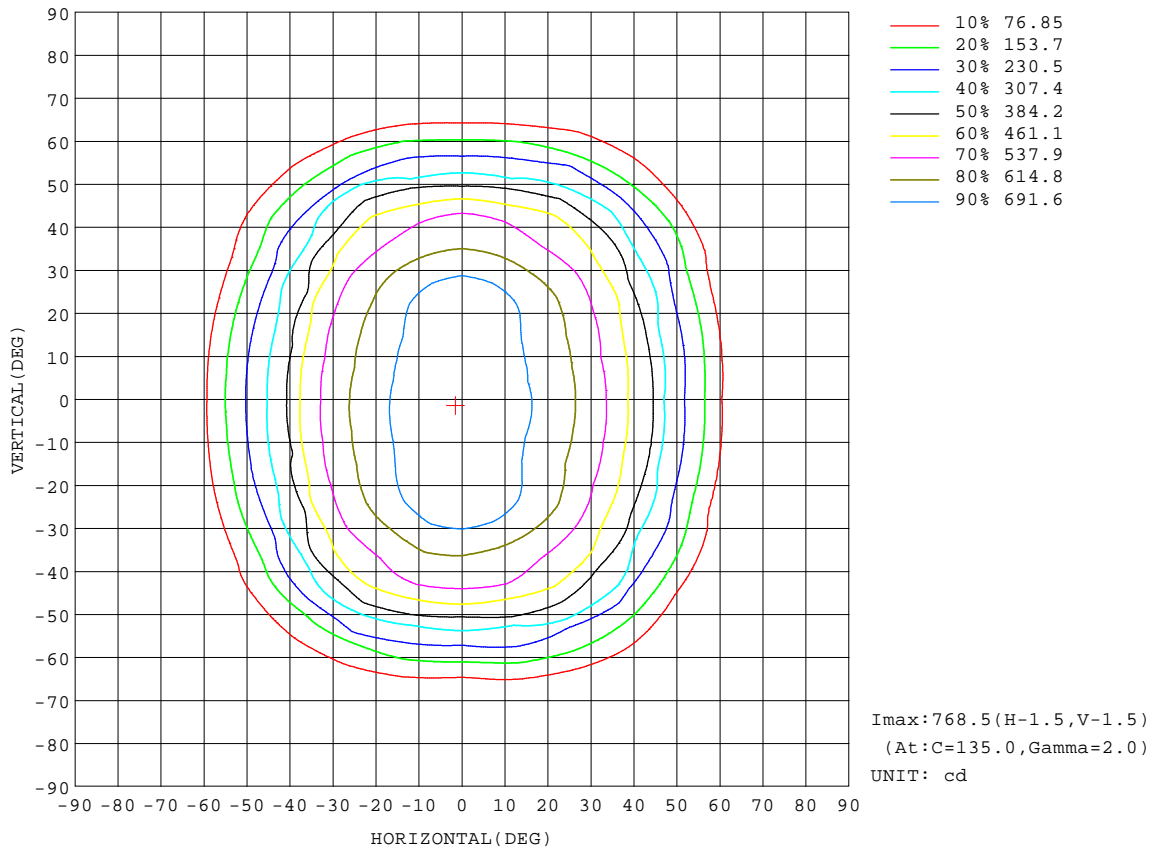
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	66	56	50	65	56	50	64	55	50	44
0.80	77	67	61	76	67	61	74	66	60	55
1.00	85	77	71	84	76	70	82	77	70	64
1.25	92	84	78	91	83	78	88	82	77	71
1.50	96	89	84	95	88	83	92	87	82	76
2.00	102	96	91	100	95	90	97	93	89	82
2.50	105	99	95	103	98	94	99	95	92	85
3.00	107	102	98	105	101	97	102	98	95	88
4.00	110	106	102	108	104	101	104	101	98	90
5.00	112	108	105	109	106	104	105	103	100	92
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Lauhin  
 Test Date:2019-06-04

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity:65.0%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:



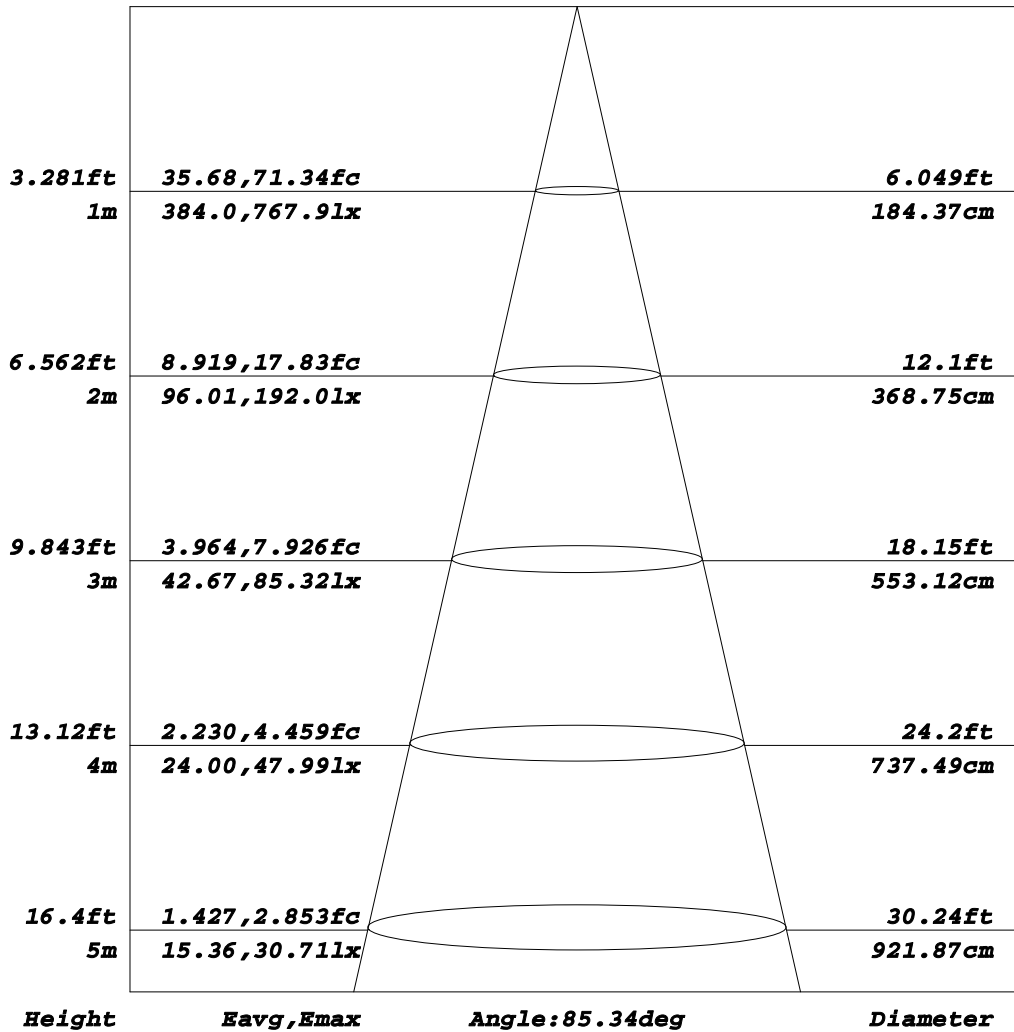
**C Range: 0 - 360DEG**  
**C Interval: 15.0DEG**  
**Test Speed: HIGH**  
**Temperature:25.3DEG**  
**Operators:Lauhin**  
**Test Date:2019-06-04**

**γ Range: 0 - 90DEG**  
**γ Interval: 1.0DEG**  
**Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.285**  
**Humidity:65.0%**  
**Test Distance:26.000m [K=1.0000]**  
**Remarks:**

AAI Figure

Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

Flux out:1049 lm



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

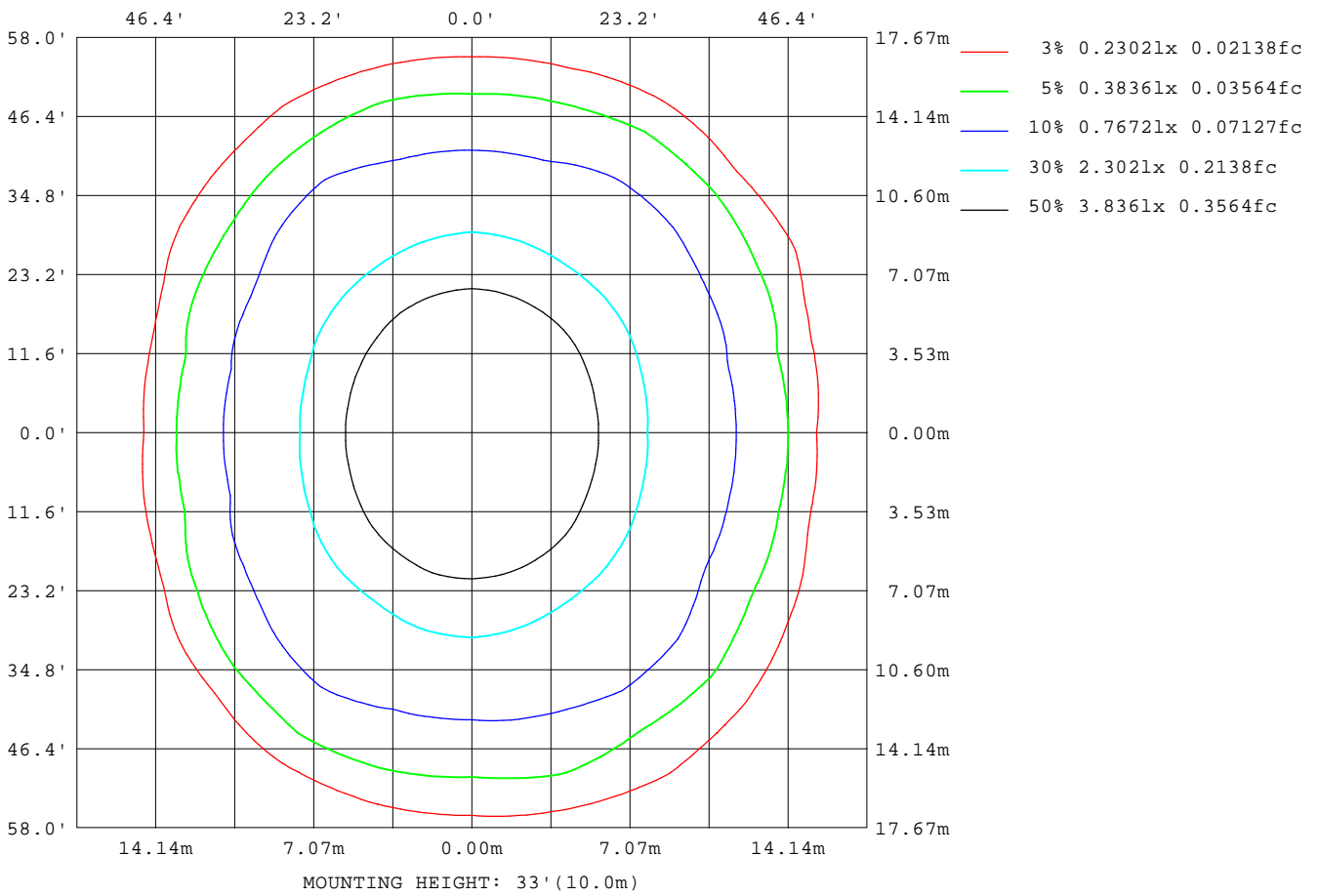
C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Lauhin  
 Test Date: 2019-06-04

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity: 65.0%  
 Test Distance: 26.000m [K=1.0000]  
 Remarks:



ISOLUX DIAGRAM

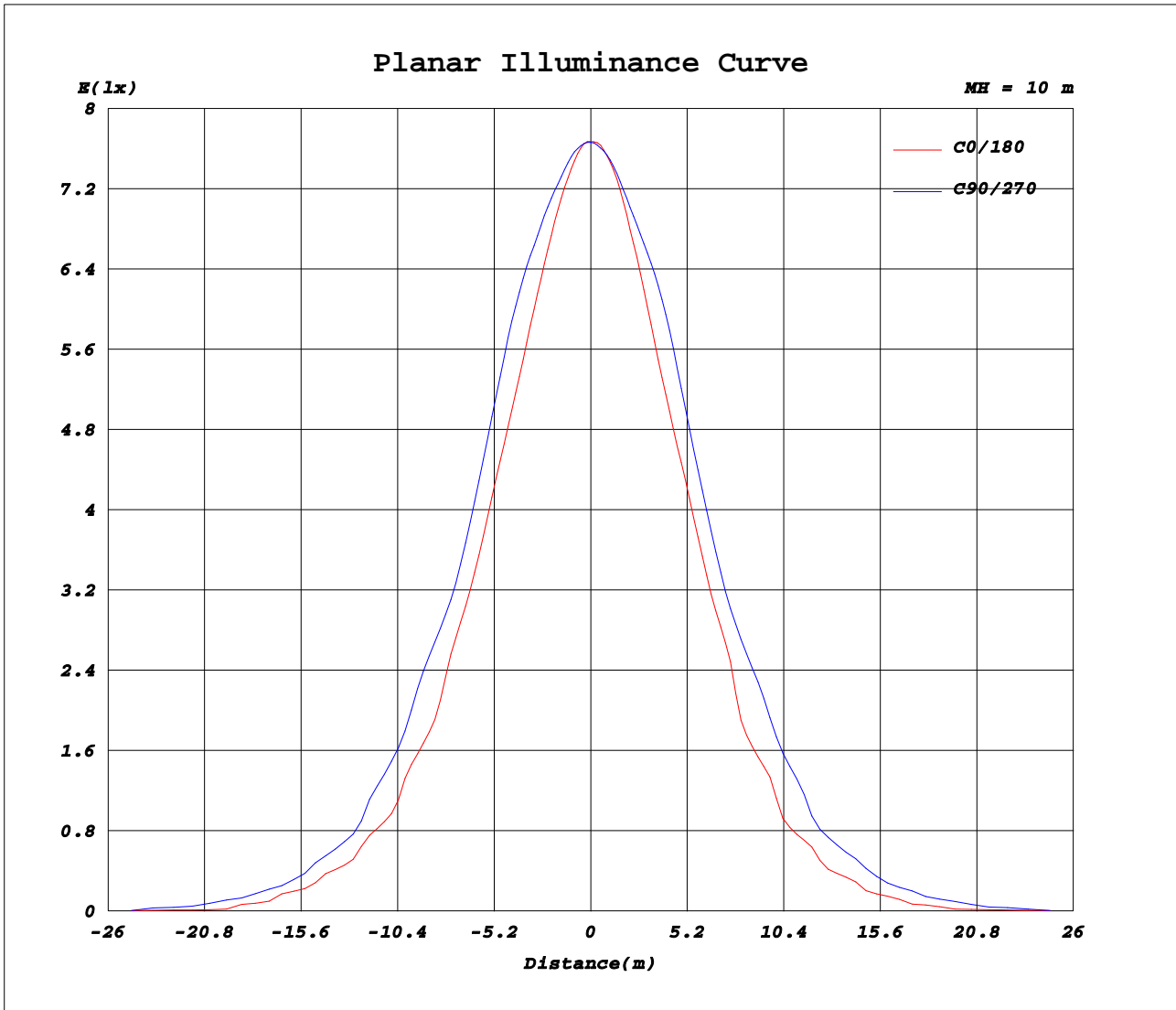
Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Lauhin  
 Test Date: 2019-06-04

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity: 65.0%  
 Test Distance: 26.000m [K=1.0000]  
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Lauhin  
 Test Date: 2019-06-04

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity: 65.0%  
 Test Distance: 26.000m [K=1.0000]  
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	767	767	767	767	766	766	766	766	766	766	766	766	767	767	767	767	766	766	766
5	757	759	760	762	764	768	766	766	765	766	760	760	762	761	761	762	764	765	763
10	733	735	737	743	749	761	759	761	754	750	744	740	740	738	740	745	751	753	753
15	700	702	705	718	735	749	758	756	740	729	716	710	706	703	709	719	734	747	749
20	663	663	671	691	720	749	760	755	728	703	680	667	663	664	675	690	719	744	751
25	626	629	636	664	703	732	742	737	708	674	643	628	623	623	635	656	692	719	727
30	576	583	601	635	664	683	694	690	663	636	603	582	574	578	595	617	650	667	677
35	524	530	547	592	606	621	630	632	604	590	550	521	515	515	540	572	593	606	614
40	425	441	497	525	544	570	597	583	547	529	487	402	390	393	477	507	530	555	571
45	374	388	399	464	496	517	508	516	502	457	362	349	318	341	360	438	478	490	491
50	285	287	299	366	407	418	420	424	410	345	274	242	241	242	249	323	389	389	358
55	199	199	216	273	313	287	292	289	268	265	197	159	155	162	169	209	256	275	277
60	81.2	116	125	176	199	187	176	176	160	133	103	82.1	57.7	63.9	93.0	112	162	165	162
65	19.1	18.4	54.0	78.1	92.6	96.9	66.2	84.4	78.5	56.8	36.5	18.3	21.1	19.1	28.4	48.4	63.8	65.8	56.8
70	11.9	11.6	9.97	7.33	23.5	9.87	10.2	9.93	7.93	13.1	8.56	11.0	12.8	11.9	10.2	6.29	13.5	9.08	10.2
75	5.80	6.11	5.04	2.31	1.78	1.63	1.77	1.82	1.90	1.35	3.61	5.34	5.97	5.86	4.83	2.45	1.77	2.39	2.44
80	1.37	1.02	1.16	0.00	0.21	0.00	0.21	0.00	0.07	0.00	0.48	0.61	0.94	1.37	0.54	0.48	0.00	0.68	0.14
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Lauhin  
 Test Date:2019-06-04

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity:65.0%  
 Test Distance:26.000m [K=1.0000]  
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.3V I:0.0982A P:21.70W PF:0.9596 Lamp Flux:1548.47x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10013	DIM.: 140*110*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

Table--2

UNIT: cd

C(DEG) γ (DEG)	285	300	315	330	345														
0	766	766	766	766	766														
5	761	759	759	757	750														
10	750	744	740	734	731														
15	745	727	714	706	697														
20	740	715	690	673	661														
25	720	696	664	637	626														
30	668	652	630	603	580														
35	606	592	585	550	524														
40	555	533	521	498	445														
45	486	487	456	397	383														
50	376	396	367	336	283														
55	275	264	286	248	196														
60	166	167	156	153	123														
65	64.1	84.1	70.0	52.1	18.8														
70	10.2	8.72	15.9	9.42	11.7														
75	2.65	2.02	2.32	4.27	6.31														
80	0.75	0.00	0.48	0.34	1.70														
85	0.00	0.00	0.00	0.00	0.00														
90	0.00	0.00	0.00	0.00	0.00														

C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Lauhin  
 Test Date:2019-06-04

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.285  
 Humidity:65.0%  
 Test Distance:26.000m [K=1.0000]  
 Remarks: