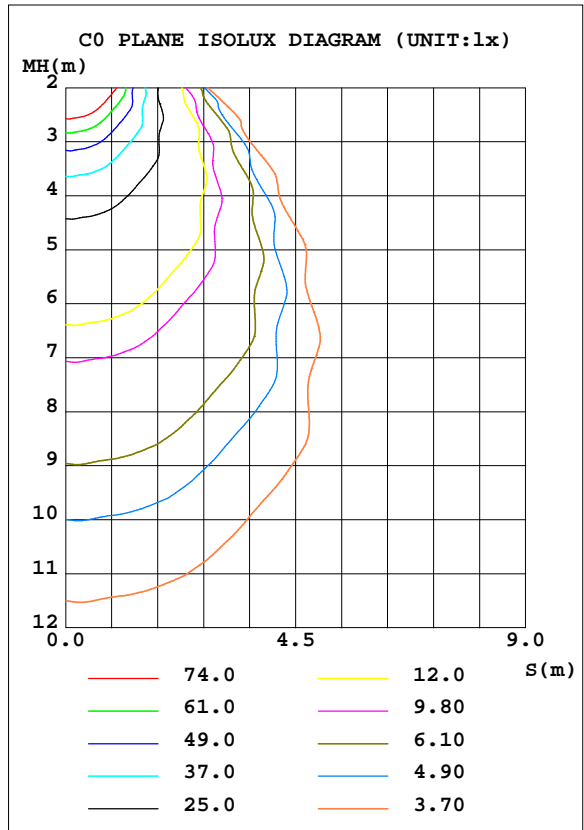
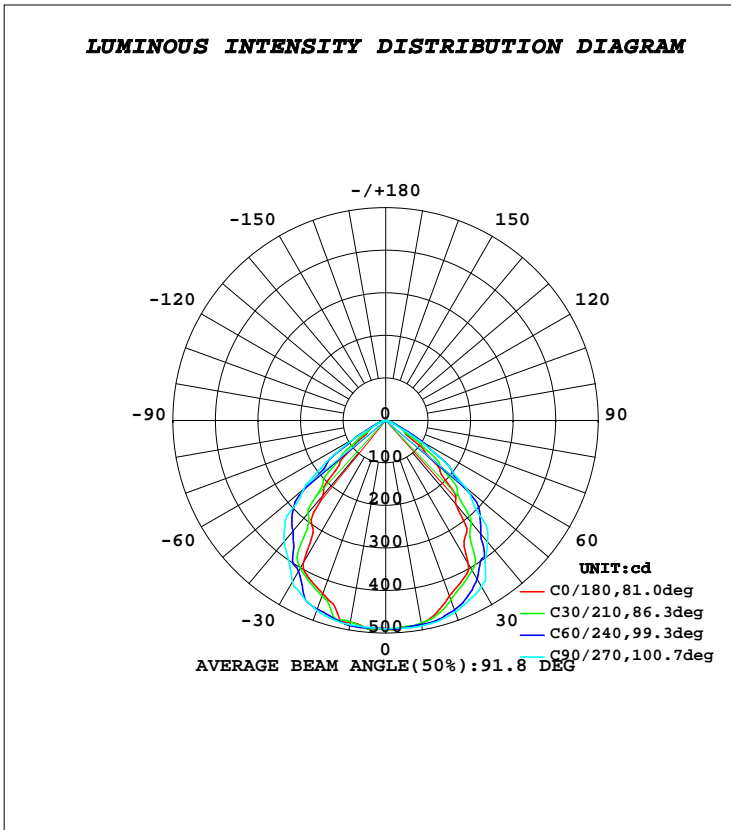


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.3V I:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 63.60 lm/W			
MODEL		I _{max} (cd)	492.6	S/MH(C0/180)	1.13
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	1.30
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	974.98	η UP, DN(C0-180)	0.0, 50.2
NOMINAL FLUX(lm)	974.982	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 49.8
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.30



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:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	484.1	485.6	489.9	484.2	481.5	482.4	487.2	485.1	0- 10	46.55	46.55	4.77,4.77
20	439.3	462.7	478.9	463.4	433.6	450.9	474.6	459.1	10- 20	134.1	180.7	18.5,18.5
30	388.4	413.6	449.9	410.5	388.3	405.9	438.8	408.6	20- 30	202.0	382.7	39.3,39.3
40	256.9	337.5	372.5	347.1	229.5	318.7	371.8	337.8	30- 40	230.2	612.9	62.9,62.9
50	133.9	206.4	245.6	187.8	106.4	180.1	251.3	207.3	40- 50	200.9	813.7	83.5,83.5
60	48.74	77.50	76.98	64.81	44.87	63.48	87.73	81.48	50- 60	113.1	926.8	95.1,95.1
70	21.55	23.14	15.93	19.67	19.40	20.56	16.58	22.57	60- 70	36.97	963.8	98.8,98.8
80	4.059	3.155	1.900	1.878	2.897	2.704	1.617	3.164	70- 80	10.73	974.5	99.9,99.9
90	0	0	0	0	0	0	0	0	80- 90	0.4899	975.0	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		

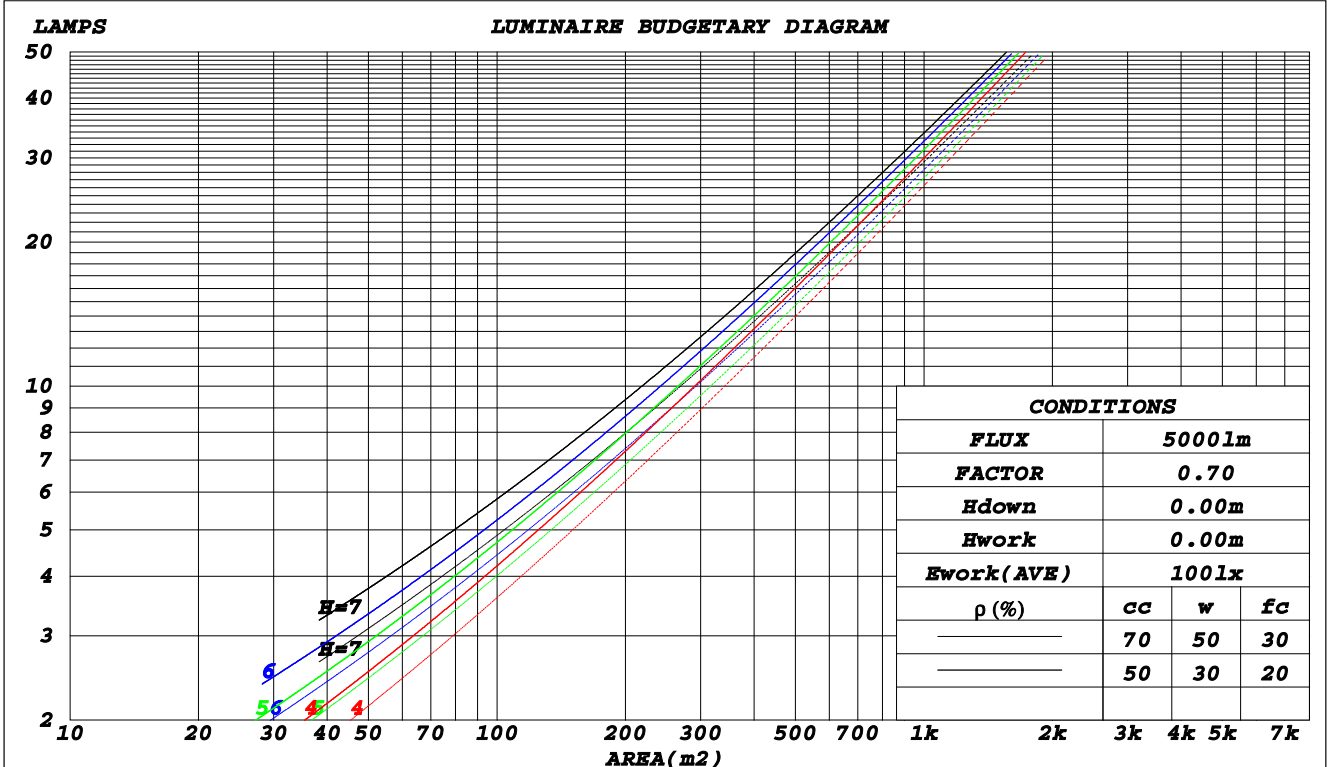
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Lauhin
 Test Date:2019-06-04

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:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.3V I:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

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	1.19	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	1.08	1.05	1.02	1.06	1.03	1.00	1.02	.99	.97	.98	.96	.94	.94	.93	.91	.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	.72	.70
4.0	.79	.72	.66	.78	.71	.66	.76	.70	.65	.74	.68	.64	.71	.67	.64	.62
5.0	.72	.64	.59	.71	.64	.58	.69	.63	.58	.67	.62	.57	.65	.61	.57	.55
6.0	.66	.58	.52	.65	.57	.52	.63	.57	.52	.61	.56	.51	.60	.55	.51	.49
7.0	.60	.52	.47	.59	.52	.47	.58	.51	.46	.56	.51	.46	.55	.50	.46	.44
8.0	.55	.48	.42	.55	.47	.42	.53	.47	.42	.52	.46	.42	.51	.46	.42	.40
9.0	.51	.44	.39	.50	.43	.38	.49	.43	.38	.48	.42	.38	.47	.42	.38	.36
10.0	.47	.40	.35	.47	.40	.35	.46	.39	.35	.45	.39	.35	.44	.39	.35	.33



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:

WEC AND CCEC

Test:U:230.3V I:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

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	.230	.131	.041	.223	.127	.040	.211	.121	.039	.199	.115	.037	.188	.109	.035	
2.0	.226	.124	.038	.220	.121	.037	.209	.116	.036	.199	.112	.035	.189	.107	.034	
3.0	.217	.115	.035	.211	.113	.034	.202	.109	.033	.193	.106	.032	.184	.102	.032	
4.0	.206	.107	.031	.201	.105	.031	.193	.102	.031	.185	.099	.030	.177	.096	.029	
5.0	.195	.099	.029	.191	.098	.029	.183	.095	.028	.176	.093	.028	.170	.091	.027	
6.0	.184	.092	.026	.181	.091	.026	.174	.089	.026	.168	.087	.026	.162	.085	.025	
7.0	.174	.086	.024	.171	.085	.024	.165	.083	.024	.159	.082	.024	.154	.080	.024	
8.0	.165	.081	.023	.162	.080	.023	.157	.078	.022	.152	.077	.022	.147	.075	.022	
9.0	.157	.076	.021	.154	.075	.021	.149	.074	.021	.145	.072	.021	.140	.071	.021	
10.0	.149	.071	.020	.146	.071	.020	.142	.070	.020	.138	.068	.019	.134	.067	.019	

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																
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	.146	.100	.065	.125	.086	.056	.086	.060	.040	.050	.035	.023	.016	.011	.008	
5.0	.139	.089	.052	.119	.077	.046	.082	.054	.032	.048	.032	.019	.015	.010	.006	
6.0	.132	.081	.043	.114	.070	.038	.078	.049	.027	.046	.029	.016	.015	.009	.005	
7.0	.126	.073	.037	.109	.064	.032	.075	.045	.023	.044	.026	.013	.014	.009	.004	
8.0	.120	.068	.031	.104	.059	.027	.072	.041	.019	.042	.024	.012	.014	.008	.004	
9.0	.115	.063	.027	.099	.054	.024	.069	.038	.017	.040	.023	.010	.013	.007	.003	
10.0	.110	.058	.024	.095	.051	.021	.066	.036	.015	.038	.021	.009	.012	.007	.003	

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:

UTILIZATION FACTORS TABLE

Test:U:230.3V I:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

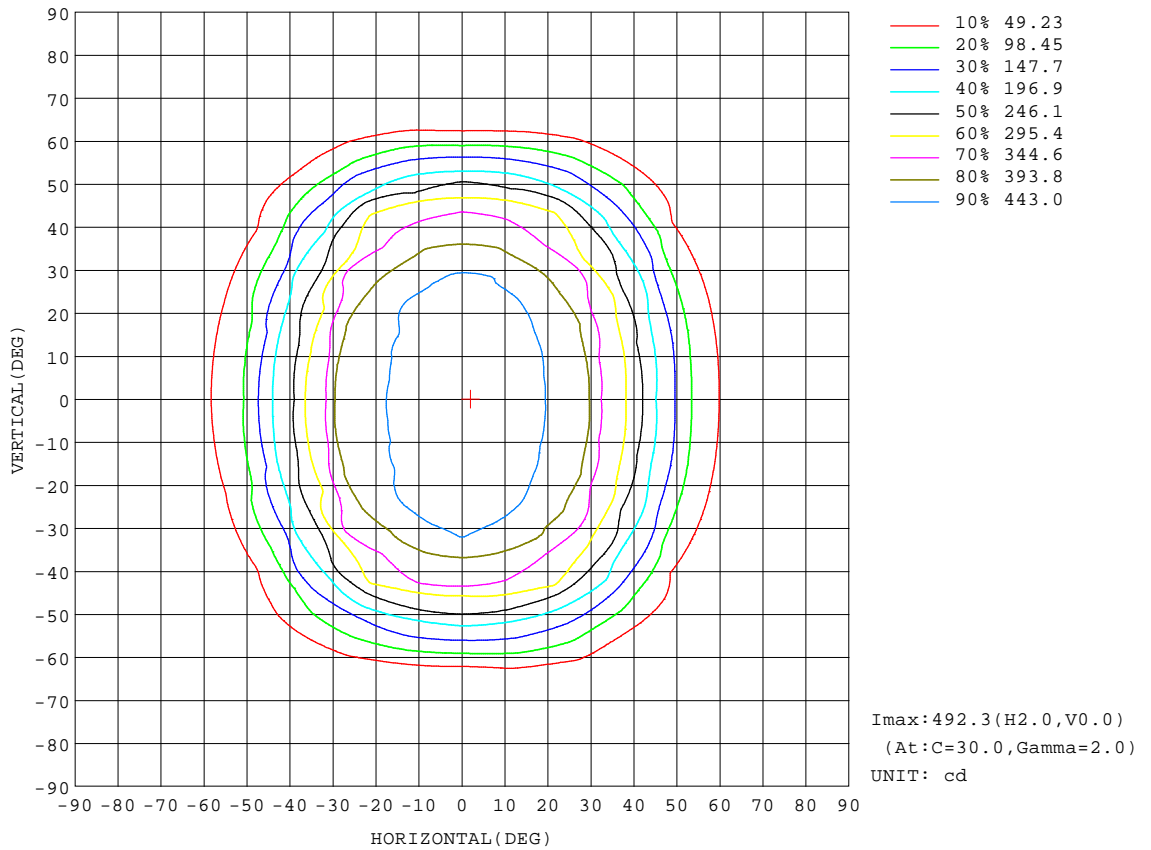
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	68	58	52	67	58	52	66	57	52	46
0.80	78	69	63	77	68	62	75	67	62	56
1.00	86	77	72	85	77	71	83	78	71	65
1.25	93	85	79	91	84	79	89	83	78	72
1.50	97	89	84	95	89	84	93	87	83	77
2.00	102	96	91	101	95	90	97	93	89	83
2.50	105	99	95	103	98	94	100	95	92	85
3.00	107	102	98	105	101	97	102	98	95	88
4.00	110	106	103	108	104	101	104	101	99	91
5.00	112	108	105	110	106	104	105	103	101	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

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:

ISOCANDELA DIAGRAM

Test:U:230.3V I:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:



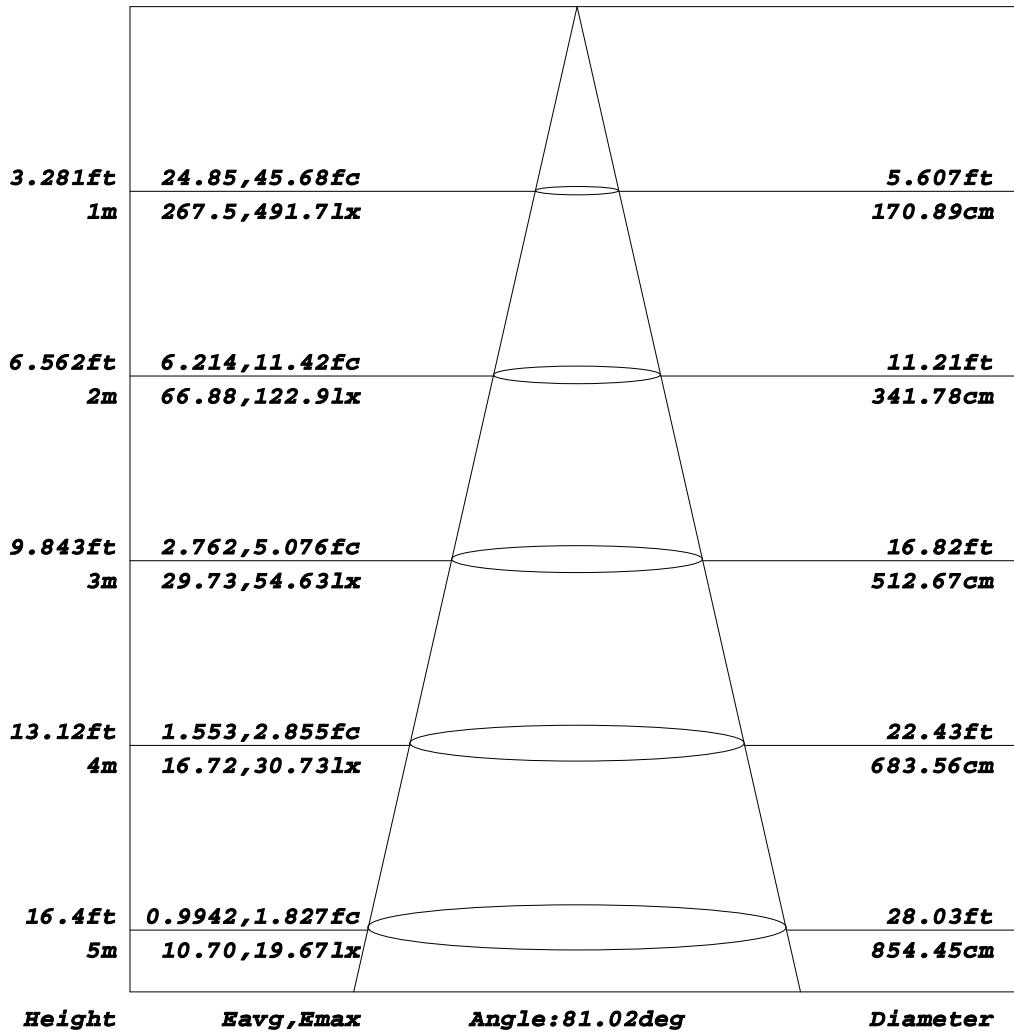
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Lauhin
 Test Date: 2019-06-04

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:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

Flux out:635.1 lm



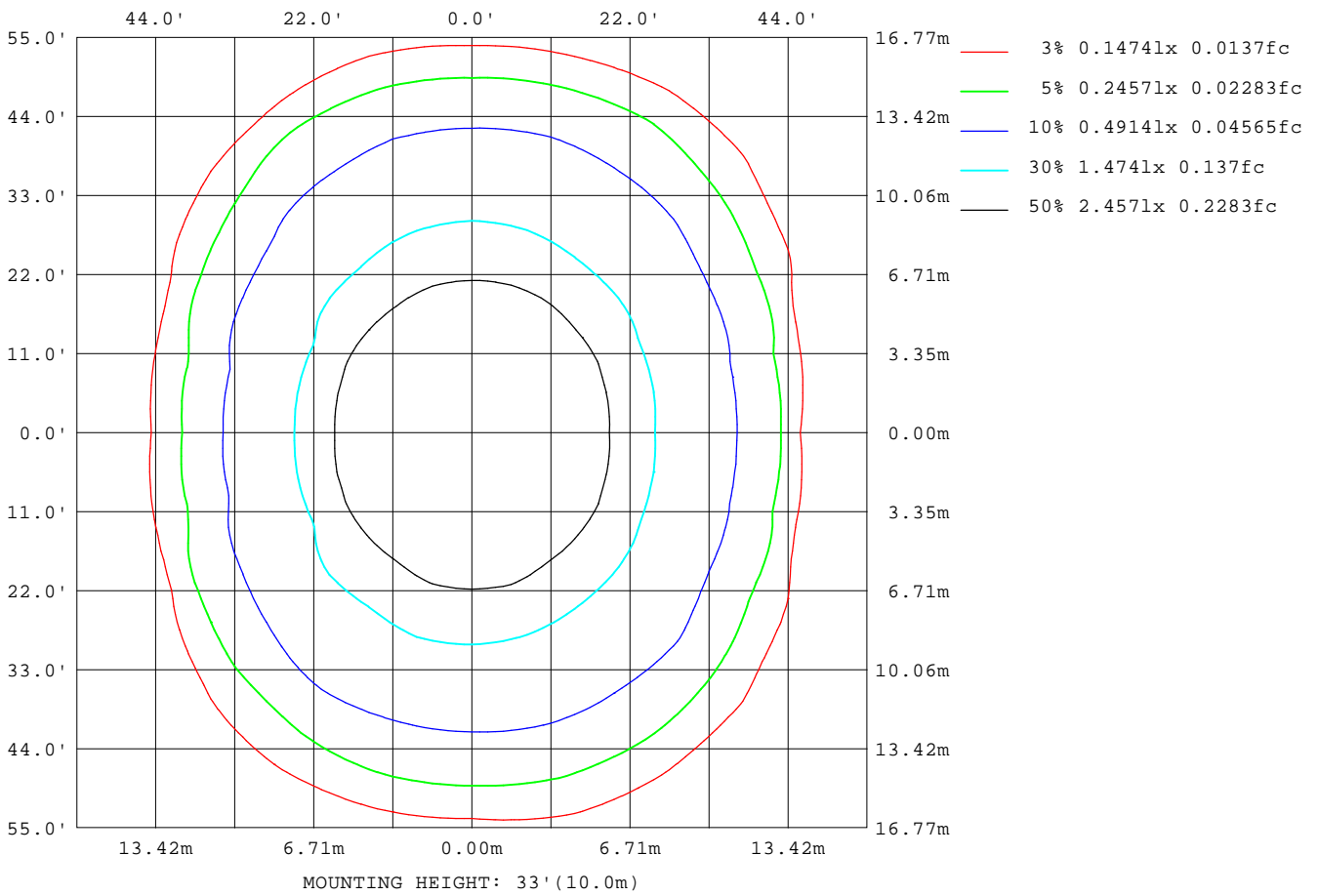
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

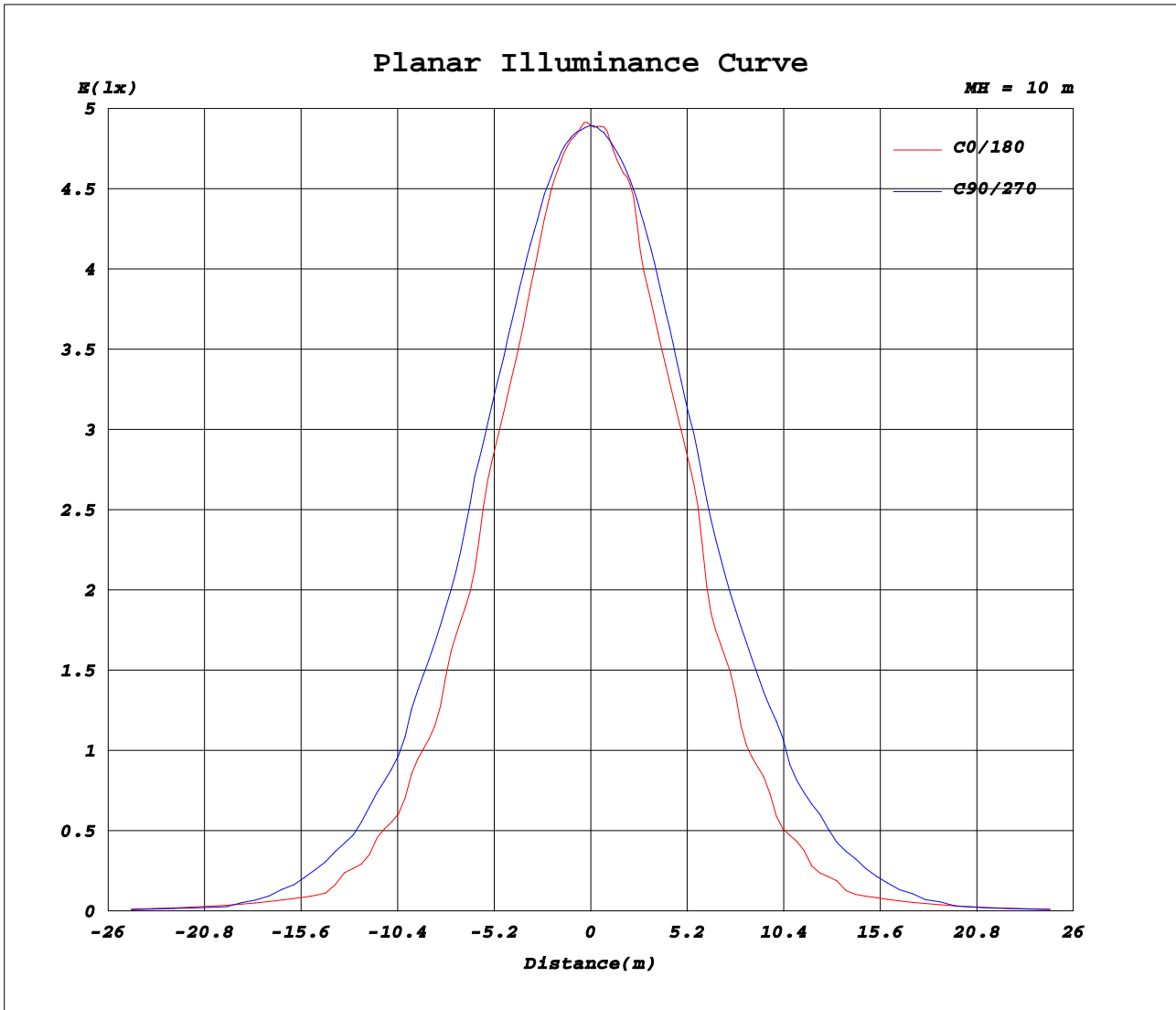
Test:U:230.3V I:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:



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:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*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	490	489	490	489	489	489	490	489	489	490	489	489	490	489	490	489	489	489	490
5	488	488	487	487	489	491	490	489	489	491	492	490	492	491	492	491	490	488	488
10	484	483	483	486	487	491	490	490	490	484	480	480	481	480	481	482	490	488	487
15	467	467	472	479	484	486	487	488	480	480	478	461	456	459	477	481	480	487	484
20	439	442	449	463	474	477	479	480	472	463	440	435	434	433	439	451	472	475	475
25	419	421	427	437	456	465	465	467	465	433	424	419	416	416	421	425	455	455	459
30	388	399	407	414	431	441	450	441	424	410	404	398	388	394	402	406	410	437	439
35	329	331	349	391	396	413	408	410	392	387	349	304	302	302	338	378	379	399	400
40	257	269	313	337	348	368	372	370	343	347	286	244	229	237	284	319	339	370	372
45	199	225	238	279	314	327	307	325	310	253	210	196	167	186	209	251	311	317	335
50	134	159	168	206	226	244	246	242	235	188	141	132	106	123	140	180	242	236	251
55	59.9	76.5	104	140	170	171	164	164	143	122	83.8	60.7	55.4	58.0	84.4	119	163	165	172
60	48.7	49.3	48.7	77.5	98.3	96.5	77.0	90.4	83.0	64.8	44.6	44.3	44.9	45.1	46.2	63.5	86.5	92.1	87.7
65	34.2	35.2	37.0	36.4	41.0	28.3	26.8	27.0	30.5	32.4	32.6	30.9	31.0	31.4	33.6	33.6	36.5	29.0	28.5
70	21.6	22.0	23.0	23.1	19.6	17.4	15.9	16.3	17.2	19.7	20.1	19.3	19.4	19.5	21.0	20.6	18.6	17.1	16.6
75	11.4	11.8	12.3	11.3	9.37	8.22	7.17	7.53	7.81	8.99	9.61	9.73	9.97	9.97	10.5	9.72	8.80	7.78	7.74
80	4.06	4.08	4.11	3.16	2.70	1.88	1.90	1.41	2.02	1.88	2.76	2.67	2.90	3.17	2.81	2.70	1.95	2.16	1.62
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:0.0694A P:15.33W PF:0.9588 Lamp Flux:974.982x1 lm		
NAME:	TYPE:3000K	WEIGHT:
SPEC.:10012	DIM.: 120*90*40mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

Table--2

UNIT: cd

C(DEG) γ (DEG)	285	300	315	330	345														
0	489	489	490	489	489														
5	491	490	489	486	486														
10	487	484	485	483	480														
15	481	481	479	471	465														
20	472	471	459	450	442														
25	457	451	437	424	418														
30	441	423	409	403	396														
35	399	388	382	358	329														
40	366	345	338	311	272														
45	325	313	274	237	228														
50	245	262	207	171	161														
55	170	177	151	107	84.0														
60	93.2	97.4	81.5	49.8	50.0														
65	29.8	41.4	36.3	38.3	35.7														
70	17.5	19.7	22.6	23.6	22.3														
75	8.11	9.33	10.7	12.1	11.9														
80	2.30	2.29	3.16	3.82	4.37														
85	0.00	0.00	0.00	0.00	0.07														
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: