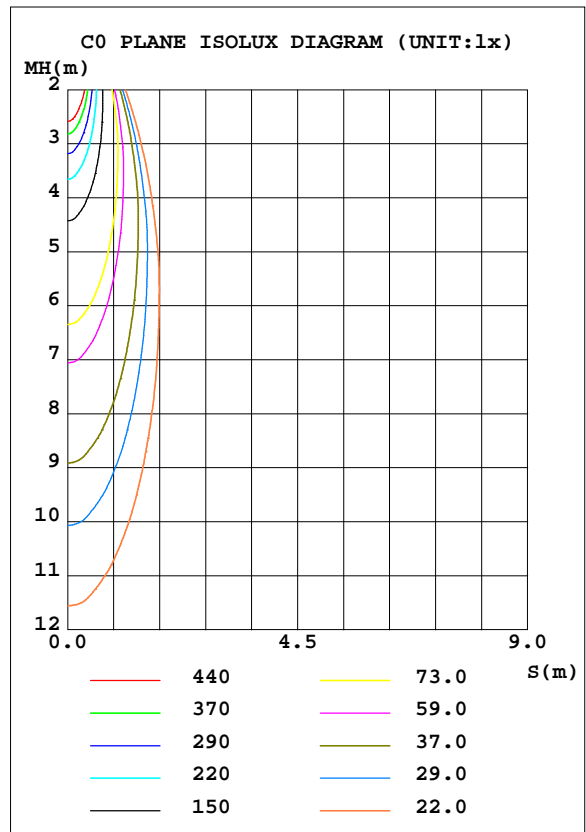
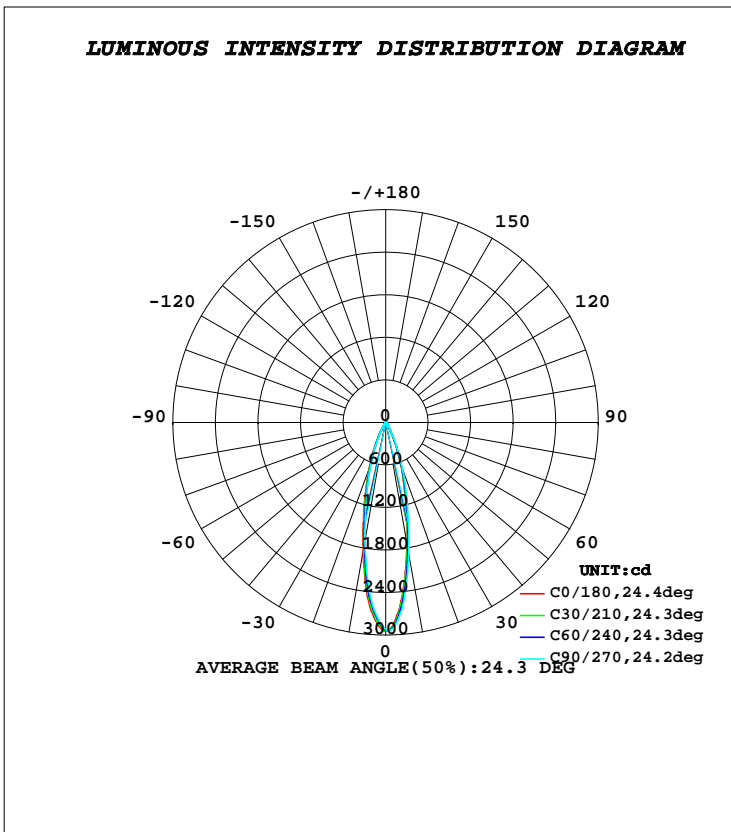


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.2V I:0.0372A P:7.783W PF:0.9093 Lamp Flux:737.948x1 lm		
NAME: Varton	TYPE:3000K	WEIGHT:
SPEC.:11105	DIM.: 50*55mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL		Imax(cd)	2940	S/MH(C0/180)	0.42
NOMINAL POWER(W)	8	LOR(%)	100.0	S/MH(C90/270)	0.39
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	737.95	η UP, DN(C0-180)	0.0, 52.8
NOMINAL FLUX(lm)	737.948	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 47.2
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.00



C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Lauhin
 Test Date: 2019-08-09

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.285
 Humidity: 65.0%
 Test Distance: 2.451m [K=1.0000]
 Remarks:

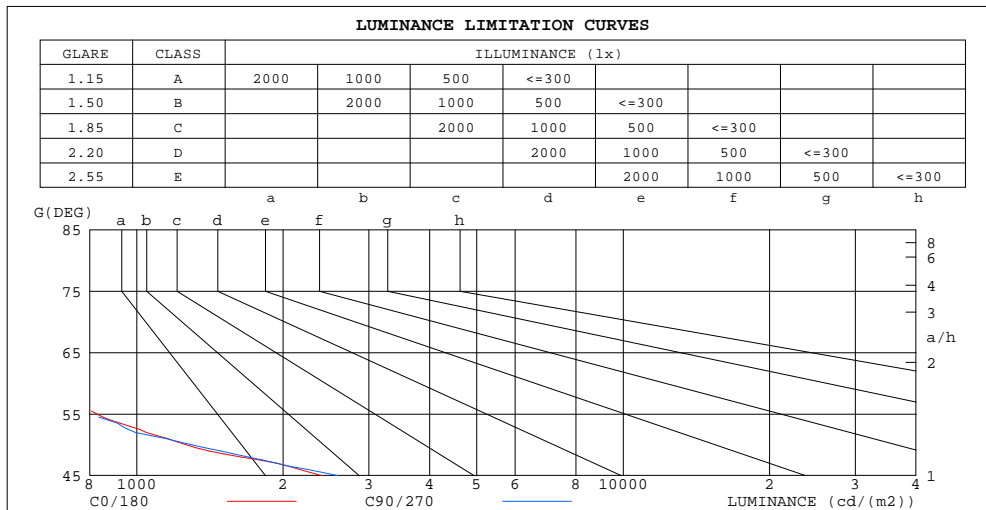
Checker:

Assessor:

ZONAL FLUX DIAGRAM
AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
5	2522	2575	2642	2698	2596	2526	2473	2392	0- 5	65.19	65.19	8.83,8.83
10	1740	1810	1877	1967	1839	1759	1692	1601	5- 10	152.9	218.1	29.5,29.5
15	1066	1118	1172	1245	1155	1098	1041	979.3	10- 15	166.9	385.0	52.2,52.2
20	611.0	639.3	697.9	739.2	679.0	628.6	593.1	541.9	15- 20	140.2	525.1	71.2,71.2
25	299.0	321.4	350.2	378.4	345.8	304.0	291.1	257.4	20- 25	96.53	621.6	84.2,84.2
30	121.8	137.4	148.4	162.2	141.9	128.0	118.2	101.5	25- 30	53.85	675.5	91.5,91.5
35	55.69	61.13	66.36	68.08	60.92	58.18	53.37	47.86	30- 35	26.22	701.7	95.1,95.1
40	29.48	31.50	33.99	34.98	33.19	31.15	29.58	27.11	35- 40	14.32	716.0	97.97
45	17.00	18.19	18.34	20.45	18.09	16.62	15.81	14.55	40- 45	8.859	724.9	98.2,98.2
50	8.112	8.625	8.309	9.168	8.202	7.410	6.841	7.061	45- 50	4.906	729.8	98.9,98.9
55	4.750	4.860	4.559	5.278	5.164	4.366	4.108	4.215	50- 55	2.634	732.4	99.3,99.3
60	3.418	3.472	2.952	3.432	3.736	2.902	2.776	2.859	55- 60	1.757	734.2	99.5,99.5
65	2.573	2.625	2.109	2.420	3.267	2.244	2.051	2.057	60- 65	1.351	735.5	99.7,99.7
70	2.002	2.102	1.213	1.660	2.060	1.860	1.476	1.538	65- 70	1.067	736.6	99.8,99.8
75	1.471	1.541	0.5553	1.111	1.062	1.444	0.5645	1.052	70- 75	0.7459	737.4	99.9,99.9
80	0.9015	0.6709	0.2161	0.4488	0.5949	0.8194	0.1297	0.4270	75- 80	0.4252	737.8	100,100
85	0.2151	0.0838	0.0163	0.0983	0.2478	0.0434	0.0158	0.0359	80- 85	0.1481	737.9	100,100
90	0.0106	0.0116	0.0114	0.0111	0.0109	0.0111	0.0109	0.0114	85- 90	0.0201	737.9	100,100
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	247	19
80	519	124
75	568	215
70	585	355
65	609	499
60	684	590
55	828	795
50	1262	1293
45	2404	2594

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Lauhin
Test Date: 2019-08-09

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.285
Humidity: 65.0%
Test Distance: 2.451m [K=1.0000]
Remarks:

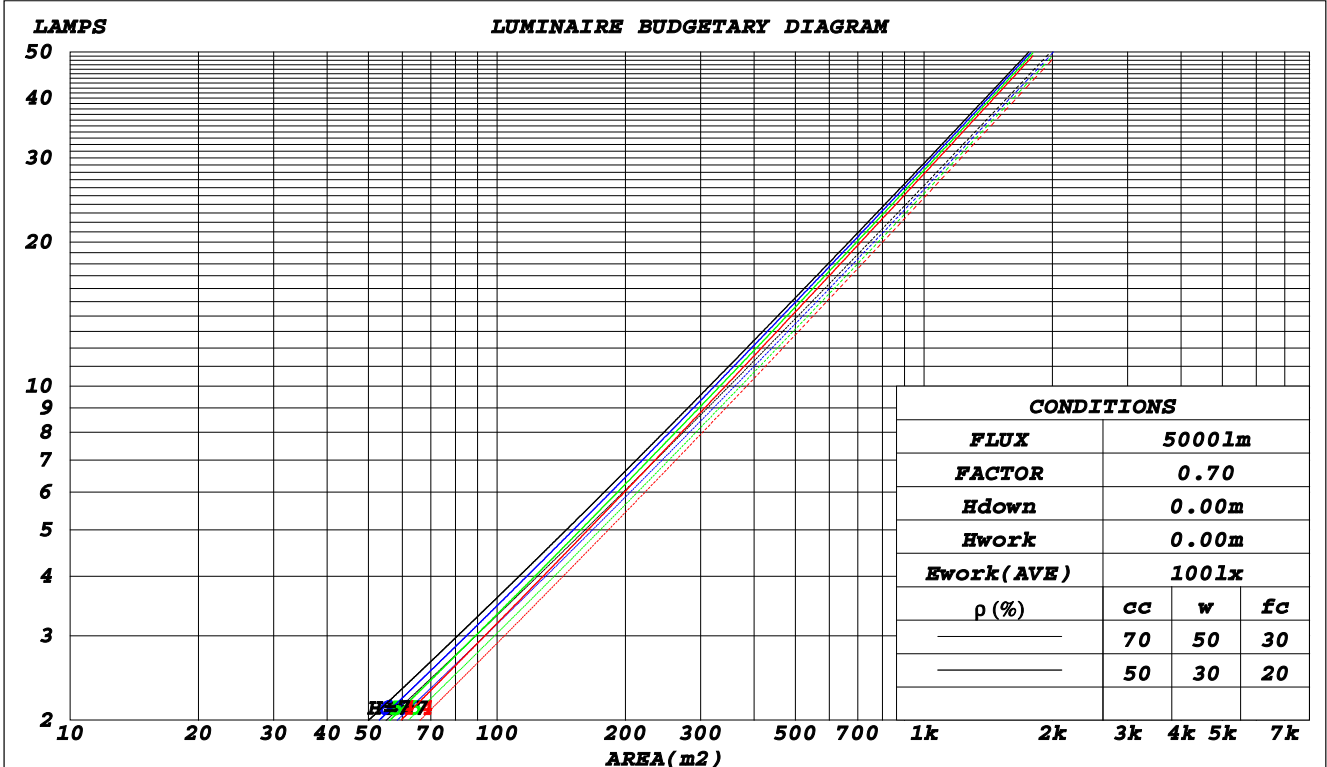
Checker:

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.2V I:0.0372A P:7.783W PF:0.9093 Lamp Flux:737.948x1 lm		
NAME: Varton	TYPE:3000K	WEIGHT:
SPEC.:11105	DIM.: 50*55mm	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	.00
1.0	1.12	1.10	1.09	1.10	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.00	.99	.98	.98	.96
2.0	1.07	1.03	1.01	1.05	1.02	.99	1.02	.99	.97	.99	.97	.95	.96	.95	.93	.92
3.0	1.02	.98	.95	1.00	.97	.94	.98	.95	.92	.95	.93	.91	.93	.91	.90	.88
4.0	.97	.93	.89	.96	.92	.89	.94	.91	.88	.92	.89	.87	.90	.88	.86	.85
5.0	.93	.89	.85	.92	.88	.85	.90	.87	.84	.89	.86	.83	.88	.85	.83	.82
6.0	.89	.85	.82	.89	.84	.81	.87	.84	.81	.86	.83	.80	.85	.82	.80	.79
7.0	.86	.81	.78	.85	.81	.78	.84	.80	.78	.83	.80	.77	.82	.79	.77	.76
8.0	.83	.78	.75	.82	.78	.75	.81	.78	.75	.81	.77	.75	.80	.77	.74	.73
9.0	.80	.76	.73	.80	.75	.73	.79	.75	.72	.78	.75	.72	.77	.74	.72	.71
10.0	.78	.73	.70	.77	.73	.70	.76	.73	.70	.76	.72	.70	.75	.72	.70	.69



C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Lauhin
 Test Date:2019-08-09

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.285
 Humidity:65.0%
 Test Distance:2.451m [K=1.0000]
 Remarks:

Checker:

Assessor:

WEC AND CCEC

Test:U:230.2V I:0.0372A P:7.783W PF:0.9093 Lamp Flux:737.948x1 lm		
NAME: Varton	TYPE:3000K	WEIGHT:
SPEC.:11105	DIM.: 50*55mm	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	.146	.083	.026	.140	.080	.025	.127	.073	.023	.116	.067	.021	.105	.061	.020	
2.0	.137	.075	.023	.131	.072	.022	.121	.067	.021	.111	.062	.020	.103	.058	.018	
3.0	.128	.068	.020	.123	.066	.020	.115	.062	.019	.107	.058	.018	.099	.055	.017	
4.0	.120	.063	.018	.116	.061	.018	.109	.058	.017	.102	.055	.017	.096	.052	.016	
5.0	.114	.058	.017	.110	.057	.017	.104	.054	.016	.098	.052	.015	.093	.050	.015	
6.0	.108	.054	.015	.105	.053	.015	.100	.051	.015	.094	.049	.014	.090	.047	.014	
7.0	.103	.051	.014	.100	.050	.014	.095	.048	.014	.091	.047	.014	.087	.045	.013	
8.0	.098	.048	.013	.096	.047	.013	.092	.046	.013	.088	.044	.013	.084	.043	.013	
9.0	.094	.045	.013	.092	.045	.013	.088	.044	.012	.085	.042	.012	.081	.041	.012	
10.0	.090	.043	.012	.088	.043	.012	.085	.042	.012	.082	.041	.012	.079	.040	.011	

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.169	.158	.147	.145	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.016	
2.0	.152	.133	.117	.130	.114	.101	.089	.079	.070	.051	.046	.041	.016	.015	.013	
3.0	.137	.113	.094	.118	.098	.082	.081	.068	.057	.047	.040	.034	.015	.013	.011	
4.0	.125	.098	.078	.107	.085	.067	.074	.059	.047	.043	.035	.028	.014	.011	.009	
5.0	.115	.086	.065	.099	.074	.056	.068	.052	.040	.039	.031	.024	.013	.010	.008	
6.0	.106	.076	.054	.091	.066	.047	.063	.046	.034	.037	.027	.020	.012	.009	.007	
7.0	.099	.068	.046	.085	.059	.040	.059	.041	.029	.034	.024	.017	.011	.008	.006	
8.0	.093	.061	.040	.080	.053	.035	.055	.037	.025	.032	.022	.015	.010	.007	.005	
9.0	.087	.056	.035	.075	.048	.030	.052	.034	.021	.030	.020	.013	.010	.007	.004	
10.0	.082	.051	.030	.071	.044	.027	.049	.031	.019	.029	.018	.011	.009	.006	.004	

C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Lauhin
 Test Date:2019-08-09

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.285
 Humidity:65.0%
 Test Distance:2.451m [K=1.0000]
 Remarks:

Checker:

Assessor:

UGR(Unified Glare Rating) Table

Test:U:230.2V I:0.0372A P:7.783W PF:0.9093 Lamp Flux:737.948x1 lm		
NAME: Varton	TYPE:3000K	WEIGHT:
SPEC.:11105	DIM.: 50*55mm	SERIAL No.:
MFR.: VNILS	SUR.:	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	6.8	7.5	7.0	7.7	7.8	7.2	8.0	7.4	8.1	8.3
3H	6.9	7.6	7.2	7.8	8.0	7.2	7.9	7.5	8.1	8.2
4H	7.0	7.6	7.3	7.8	8.0	7.2	7.8	7.4	8.0	8.2
6H	7.0	7.6	7.3	7.9	8.1	7.1	7.7	7.4	7.9	8.1
8H	7.0	7.6	7.3	7.9	8.1	7.0	7.6	7.3	7.9	8.1
12H	7.0	7.6	7.3	7.8	8.1	7.0	7.5	7.3	7.8	8.1
4H 2H	6.7	7.3	7.0	7.6	7.8	7.1	7.8	7.4	8.0	8.2
3H	6.9	7.5	7.2	7.7	8.0	7.1	7.7	7.5	8.0	8.2
4H	7.1	7.6	7.4	7.8	8.1	7.1	7.6	7.4	7.9	8.2
6H	7.2	7.6	7.5	8.0	8.3	7.0	7.5	7.4	7.8	8.1
8H	7.2	7.6	7.6	8.0	8.3	7.0	7.4	7.4	7.7	8.1
12H	7.2	7.6	7.6	7.9	8.3	6.9	7.3	7.3	7.7	8.1
8H 4H	7.0	7.4	7.4	7.8	8.1	7.1	7.5	7.4	7.8	8.2
6H	7.2	7.5	7.6	7.9	8.3	7.0	7.3	7.4	7.7	8.1
8H	7.3	7.6	7.7	8.0	8.4	6.9	7.2	7.4	7.6	8.1
12H	7.3	7.5	7.7	8.0	8.4	6.9	7.1	7.3	7.6	8.0
12H 4H	7.0	7.3	7.4	7.7	8.1	7.0	7.4	7.4	7.8	8.2
6H	7.2	7.5	7.6	7.9	8.3	6.9	7.2	7.4	7.7	8.1
8H	7.2	7.5	7.7	7.9	8.4	6.9	7.2	7.4	7.6	8.1
Variations with the observer position at spacings:										
S = 1.0H	+ 1.6 / - 2.7					+ 2.6 / - 4.6				
1.5H	+ 3.0 / - 2.6					+ 4.1 / - 4.2				
2.0H	+ 3.3 / - 1.6					+ 4.4 / - 2.7				

CIE Pub.117 Corrected 737.9 lm Total Lamp Luminous Flux.(8log(F/F0) = -1.1)

C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Lauhin
 Test Date:2019-08-09

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.285
 Humidity:65.0%
 Test Distance:2.451m [K=1.0000]
 Remarks:

Checker:

Assessor:

UTILIZATION FACTORS TABLE

Test:U:230.2V I:0.0372A P:7.783W PF:0.9093 Lamp Flux:737.948x1 lm		
NAME: Varton	TYPE:3000K	WEIGHT:
SPEC.:11105	DIM.: 50*55mm	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) $k(RI) \times RCR = 5$									
$k = 0.60$	90	84	80	89	84	80	88	83	80	77
0.80	97	91	88	96	91	88	95	90	87	84
1.00	101	96	92	100	95	92	98	95	91	88
1.25	104	100	96	103	99	96	102	98	95	91
1.50	107	103	100	106	102	99	104	100	98	94
2.00	109	105	102	108	104	102	105	102	100	95
2.50	111	107	105	109	106	104	106	104	102	96
3.00	112	109	107	111	108	105	107	105	103	97
4.00	114	112	110	112	110	108	109	107	106	99
5.00	115	113	112	113	112	110	109	108	107	100
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNM = 1.25			

C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Lauhin
 Test Date:2019-08-09

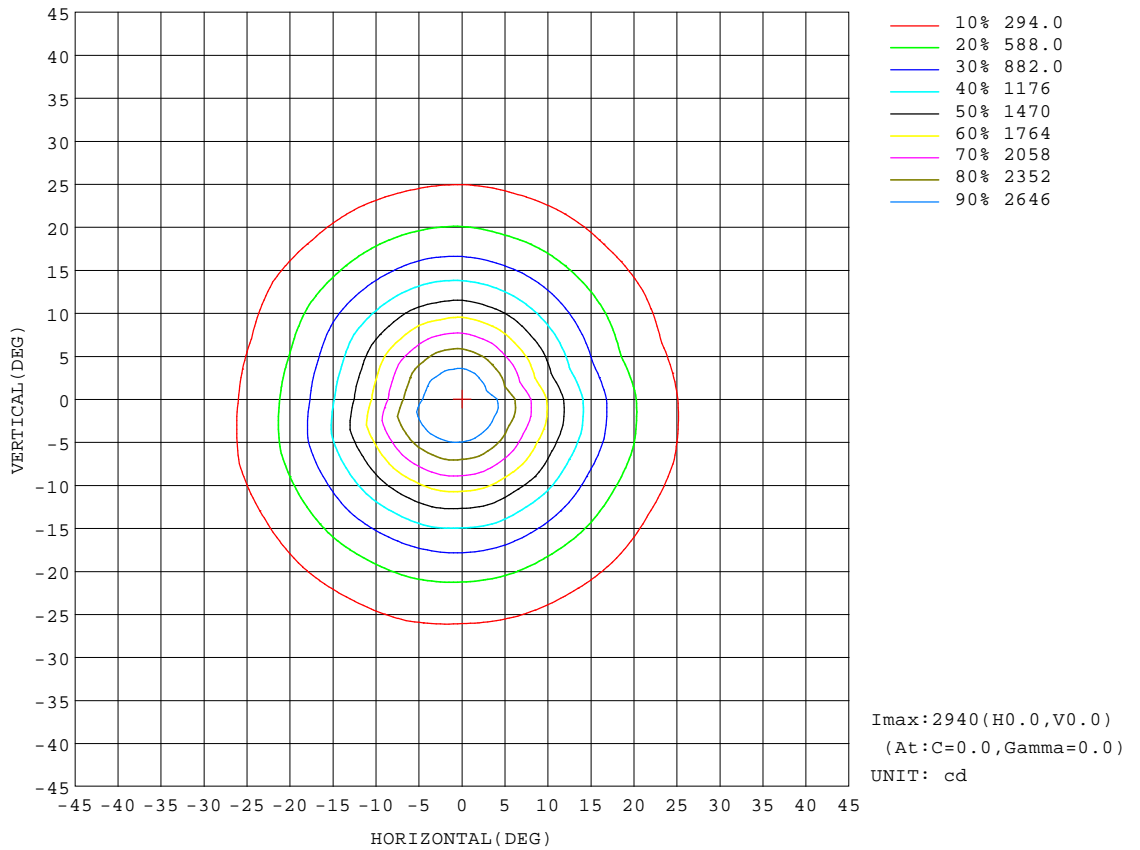
γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.285
 Humidity:65.0%
 Test Distance:2.451m [K=1.0000]
 Remarks:

Checker:

Assessor:

ISOCANDELA DIAGRAM

Test:U:230.2V I:0.0372A P:7.783W PF:0.9093 Lamp Flux:737.948x1 lm		
NAME: Varton	TYPE:3000K	WEIGHT:
SPEC.:11105	DIM.: 50*55mm	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: 2019-08-09

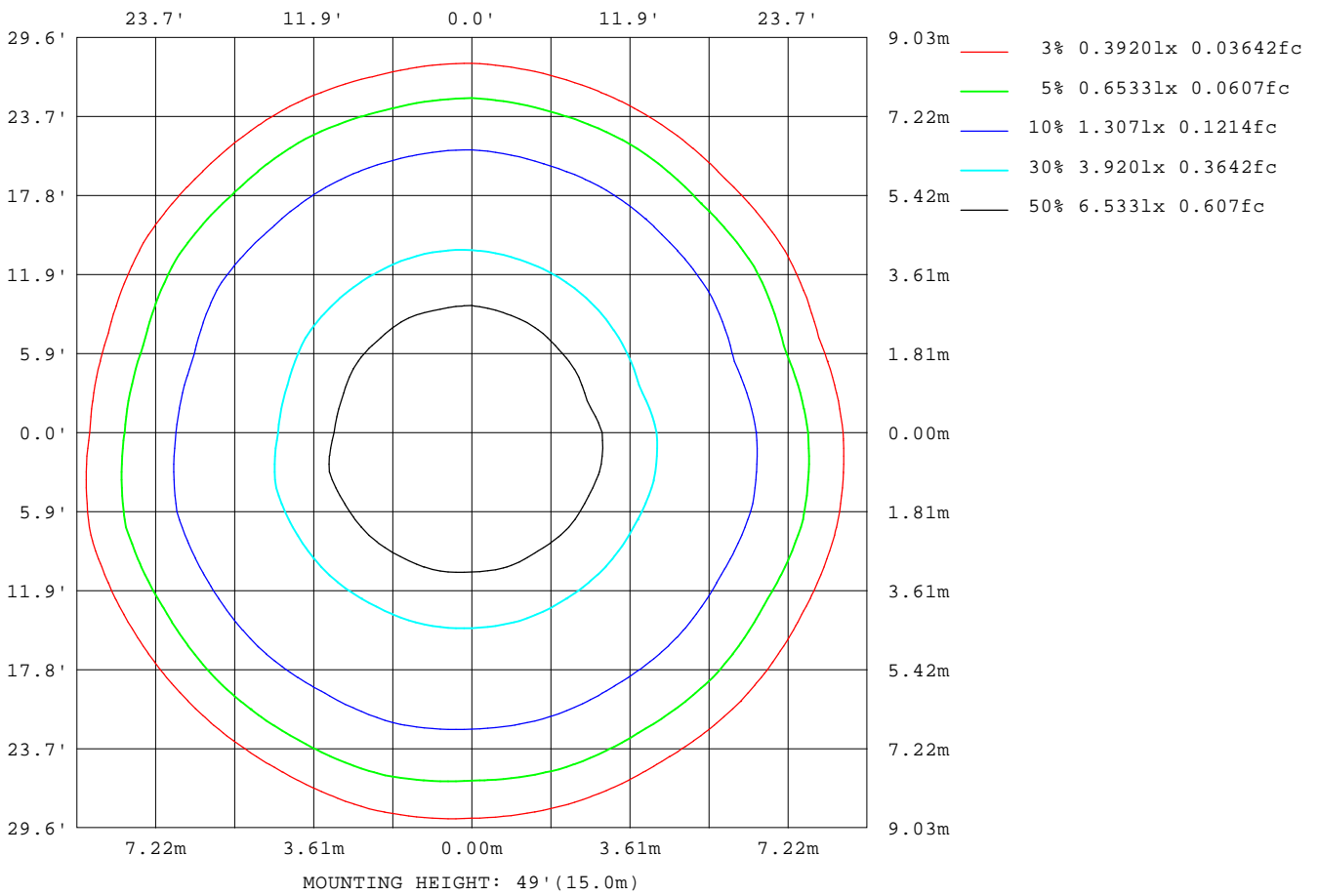
γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.285
 Humidity: 65.0%
 Test Distance: 2.451m [K=1.0000]
 Remarks:

Checker:

Assessor:

ISOLUX DIAGRAM

Test:U:230.2V I:0.0372A P:7.783W PF:0.9093 Lamp Flux:737.948x1 lm		
NAME: Varton	TYPE:3000K	WEIGHT:
SPEC.:11105	DIM.: 50*55mm	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: 2019-08-09

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.285
 Humidity: 65.0%
 Test Distance: 2.451m [K=1.0000]
 Remarks:

Checker:

Assessor:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.2V I:0.0372A P:7.783W PF:0.9093 Lamp Flux:737.948x1 lm		
NAME: Varton	TYPE:3000K	WEIGHT:
SPEC.:11105	DIM.: 50*55mm	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	2940	2936	2934	2928	2925	2918	2916	2910	2910	2905	2909	2908	2940	2936	2934	2928	2925	2918	2916
5	2522	2564	2547	2575	2589	2626	2642	2669	2676	2698	2696	2699	2596	2563	2560	2526	2516	2489	2473
10	1740	1785	1777	1810	1821	1858	1877	1915	1932	1967	1976	2000	1839	1796	1806	1759	1750	1697	1692
15	1066	1104	1093	1118	1127	1164	1172	1207	1213	1245	1250	1264	1155	1117	1132	1098	1078	1063	1041
20	611	639	628	639	650	674	698	704	718	739	736	741	679	648	652	629	613	605	593
25	299	324	309	321	325	343	350	370	363	378	379	392	346	315	330	304	301	292	291
30	122	131	132	137	137	145	148	160	156	162	162	173	142	132	136	128	125	118	118
35	55.7	58.9	59.1	61.1	62.9	63.8	66.4	66.0	67.7	68.1	71.1	73.0	60.9	60.8	61.1	58.2	57.1	54.0	53.4
40	29.5	30.8	30.9	31.5	31.5	33.3	34.0	34.6	34.2	35.0	35.2	36.7	33.2	31.9	32.6	31.1	30.9	30.3	29.6
45	17.0	18.1	17.6	18.2	18.3	18.8	18.3	19.5	19.4	20.4	20.5	21.2	18.1	17.1	17.9	16.6	16.8	16.2	15.8
50	8.11	8.52	8.45	8.62	8.43	8.51	8.31	8.65	8.66	9.17	9.49	9.75	8.20	7.91	7.68	7.41	7.21	7.07	6.84
55	4.75	4.88	4.82	4.86	4.85	4.80	4.56	4.72	4.92	5.28	5.31	5.51	5.16	5.05	4.76	4.37	4.33	4.15	4.11
60	3.42	3.52	3.47	3.47	3.35	3.18	2.95	2.96	3.02	3.43	3.62	3.78	3.74	3.49	3.23	2.90	2.90	2.80	2.78
65	2.57	2.66	2.66	2.63	2.50	2.30	2.11	2.12	2.14	2.42	3.05	3.35	3.27	3.00	2.61	2.24	2.20	2.11	2.05
70	2.00	2.13	2.11	2.10	1.92	1.31	1.21	1.27	1.56	1.66	2.01	2.26	2.06	2.16	2.11	1.86	1.76	1.59	1.48
75	1.47	1.55	1.54	1.54	0.92	0.65	0.56	0.63	0.83	1.11	1.08	1.13	1.06	1.47	1.48	1.44	1.32	0.85	0.56
80	0.90	0.98	0.97	0.67	0.33	0.27	0.22	0.29	0.34	0.45	0.55	0.72	0.59	0.55	0.71	0.82	0.38	0.23	0.13
85	0.22	0.28	0.18	0.08	0.05	0.02	0.02	0.03	0.07	0.10	0.12	0.31	0.25	0.18	0.11	0.04	0.02	0.02	0.02
90	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Lauhin
 Test Date:2019-08-09

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.285
 Humidity:65.0%
 Test Distance:2.451m [K=1.0000]
 Remarks:

Checker:

Assessor:

