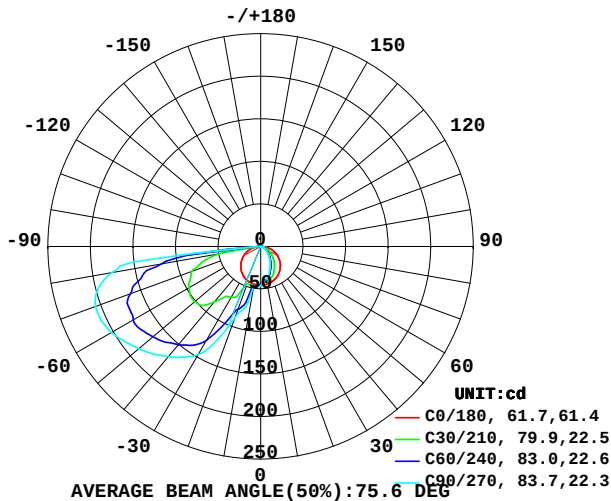


LUMINAIRE PHOTOMETRIC TEST REPORT

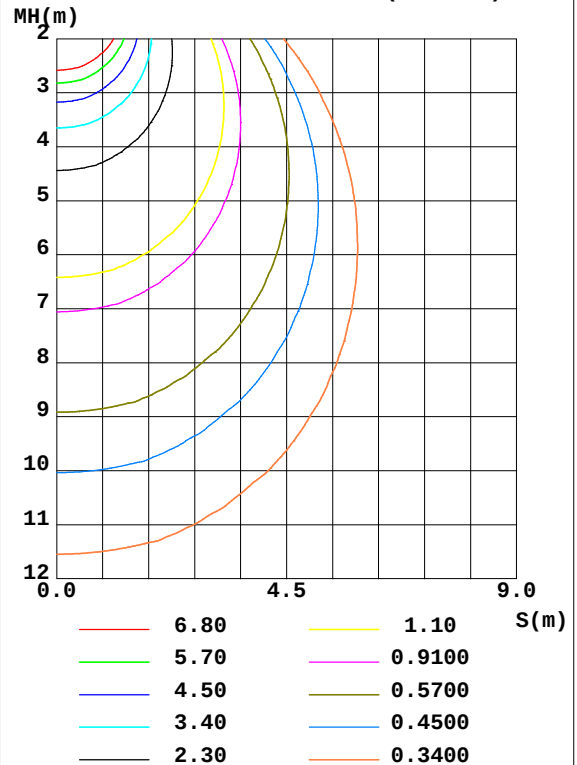
Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 82.82 lm/W
MODEL		I _{max} (cd)	207.0	S/MH(C0/180)	1.31	
NOMINAL POWER(W)	4	LOR(%)	100.0	S/MH(C90/270)	0.82	
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	348.59	η UP, DN(C0-180)	0.0, 87.7	
NOMINAL FLUX(lm)	348.585	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 12.3	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00	
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.15	

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT: lx)



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Lauhin
Test Date: 2020-11-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity: 65.0%
Test Distance: 26.000m [K=1.0000]
Remarks:

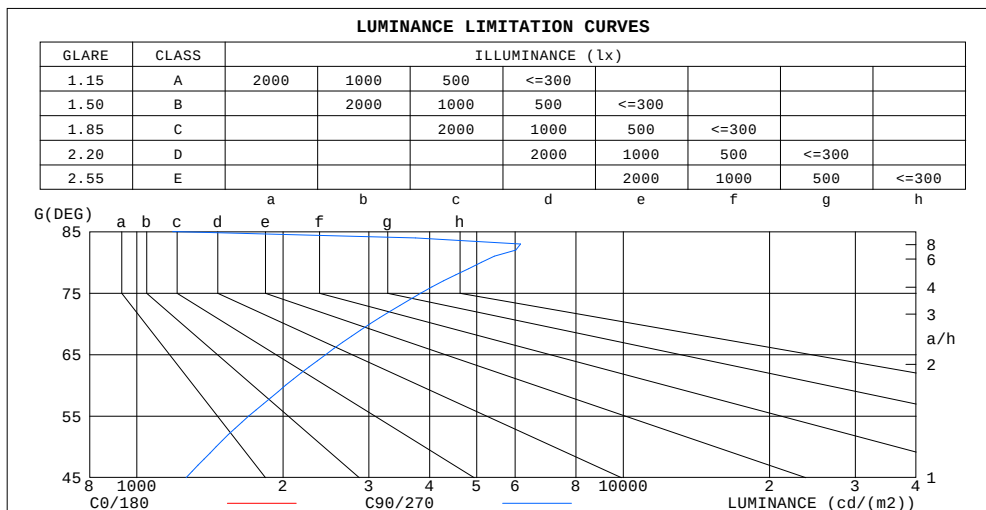
Checker:

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
10	45.39	47.30	48.80	47.76	44.75	40.30	40.24	40.54	0- 10	4.257	4.257	1.22,1.22
20	43.48	70.45	88.87	72.40	42.98	35.35	31.29	35.41	10- 20	13.65	17.91	5.14,5.14
30	40.58	94.35	146.5	99.47	39.87	27.64	22.80	27.65	20- 30	26.30	44.21	12.7,12.7
40	36.07	128.4	169.0	132.9	35.98	20.55	15.65	20.46	30- 40	41.52	85.73	24.6,24.6
50	30.41	137.8	187.3	141.9	30.11	14.11	10.06	14.03	40- 50	54.14	139.9	40.1,40.1
60	23.84	137.9	202.4	142.0	23.46	8.767	5.667	8.733	50- 60	63.47	203.3	58.3,58.3
70	16.48	125.3	206.5	128.9	16.25	4.596	2.477	4.528	60- 70	67.01	270.4	77.6,77.6
80	8.698	82.45	177.6	85.18	8.265	1.343	0.4980	1.344	70- 80	59.57	329.9	94.6,94.6
90	0	0	0	0	0	0	0	0	80- 90	18.66	348.6	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: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Lauhin
Test Date: 2020-11-25

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity: 65.0%
Test Distance: 26.000m [K=1.0000]
Remarks:

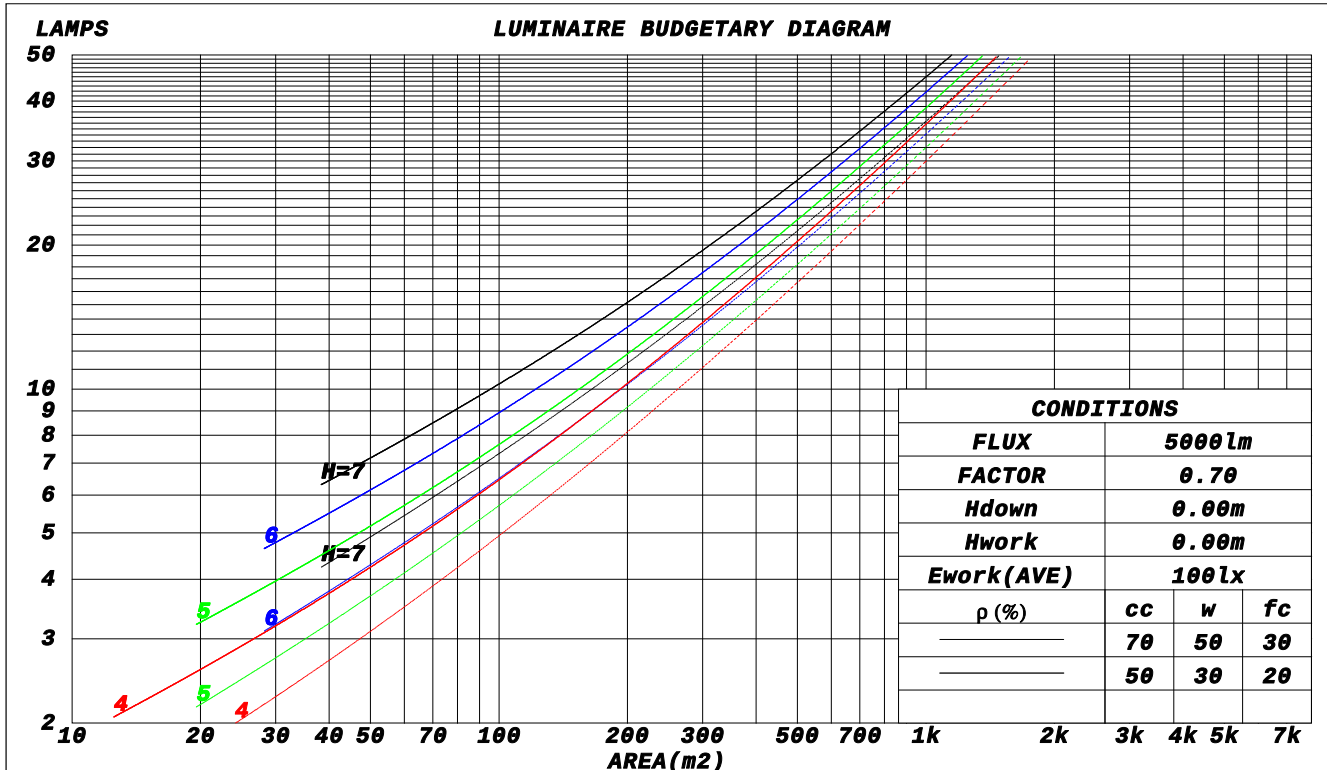
Checker:

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

ρ_{cc}	80%			70%			50%			30%			10%			θ
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	θ
ρ_{fc}	20%			20%			20%			20%			20%			θ
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	.98	.92	.87	.96	.90	.85	.91	.87	.83	.87	.83	.80	.83	.80	.77	.75
2.0	.81	.72	.65	.79	.71	.64	.76	.69	.63	.72	.66	.61	.69	.64	.60	.57
3.0	.69	.59	.50	.67	.58	.50	.64	.56	.49	.61	.54	.48	.58	.52	.47	.44
4.0	.59	.48	.40	.58	.48	.40	.55	.46	.39	.52	.45	.39	.50	.43	.38	.35
5.0	.52	.41	.33	.50	.40	.33	.48	.39	.32	.46	.38	.32	.44	.37	.31	.29
6.0	.46	.35	.28	.45	.35	.27	.43	.34	.27	.41	.33	.27	.39	.32	.26	.24
7.0	.41	.31	.23	.40	.30	.23	.38	.29	.23	.37	.29	.23	.35	.28	.23	.20
8.0	.37	.27	.20	.36	.27	.20	.34	.26	.20	.33	.25	.20	.32	.25	.20	.17
9.0	.33	.24	.18	.33	.24	.18	.31	.23	.18	.30	.23	.17	.29	.22	.17	.15
10.0	.30	.22	.16	.30	.21	.16	.29	.21	.16	.28	.21	.15	.27	.20	.15	.13



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Lauhin
 Test Date: 2020-11-25

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-R5000_V2 SYSTEM V2.0.285
 Humidity: 65.0%
 Test Distance: 26.000m [K=1.0000]
 Remarks:

Checker:

Assessor:

WEC AND CCEC

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

ρ_{cc}	80%			70%			50%			30%			10%			θ	
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	θ	
ρ_{fc}	20%			20%			20%			20%			20%			θ	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.423	.241	.076	.416	.237	.075	.402	.230	.074	.389	.224	.072	.377	.219	.071		
2.0	.379	.208	.064	.372	.205	.063	.360	.200	.062	.348	.195	.061	.337	.191	.060		
3.0	.338	.180	.054	.332	.178	.053	.321	.174	.053	.310	.170	.052	.301	.166	.052		
4.0	.303	.157	.046	.297	.156	.046	.287	.152	.046	.278	.149	.045	.270	.146	.045		
5.0	.273	.139	.040	.269	.138	.040	.260	.135	.040	.252	.133	.039	.244	.130	.039		
6.0	.249	.125	.036	.245	.124	.036	.237	.121	.035	.229	.119	.035	.222	.117	.035		
7.0	.228	.113	.032	.224	.112	.032	.217	.110	.032	.211	.108	.031	.204	.106	.031		
8.0	.210	.103	.029	.207	.102	.029	.201	.100	.029	.195	.099	.028	.189	.097	.028		
9.0	.195	.094	.026	.192	.093	.026	.186	.092	.026	.181	.091	.026	.176	.089	.026		
10.0	.181	.087	.024	.179	.086	.024	.174	.085	.024	.169	.084	.024	.165	.083	.024		

ρ_{cc}	80%			70%			50%			30%			10%			θ
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	θ
ρ_{fc}	20%			20%			20%			20%			20%			θ
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	.188	.155	.125	.161	.133	.108	.110	.092	.075	.063	.053	.043	.020	.017	.014	
2.0	.184	.131	.087	.157	.113	.076	.108	.078	.053	.062	.046	.031	.020	.015	.010	
3.0	.178	.115	.065	.152	.099	.056	.104	.069	.039	.060	.040	.023	.019	.013	.008	
4.0	.170	.102	.050	.146	.088	.044	.100	.062	.031	.058	.036	.018	.019	.012	.006	
5.0	.162	.092	.041	.139	.080	.035	.096	.056	.025	.056	.033	.015	.018	.011	.005	
6.0	.154	.084	.034	.132	.073	.030	.091	.051	.021	.053	.030	.012	.017	.010	.004	
7.0	.146	.078	.029	.126	.067	.025	.087	.047	.018	.051	.028	.011	.016	.009	.004	
8.0	.139	.072	.026	.120	.062	.022	.083	.044	.016	.048	.026	.009	.016	.008	.003	
9.0	.132	.067	.023	.114	.058	.020	.079	.041	.014	.046	.024	.008	.015	.008	.003	
10.0	.126	.062	.020	.108	.054	.018	.075	.038	.013	.044	.023	.008	.014	.007	.003	

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Lauhin
Test Date: 2020-11-25

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity: 65.0%
Test Distance: 26.000m [K=1.0000]
Remarks:

Checker:

Assessor:

UGR(Unified Glare Rating) Table

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm											
NAME: Varton					TYPE:4500K			WEIGHT:			
SPEC.:17580					DIM.: 240*195*70mm			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	11.8	13.6	12.1	13.9	14.1	18.6	20.5	18.9	20.7	20.9	
3H	13.1	14.8	13.4	15.0	15.3	22.2	23.9	22.5	24.2	24.4	
4H	13.5	15.1	13.8	15.4	15.7	24.1	25.7	24.4	26.0	26.3	
6H	13.8	15.3	14.1	15.6	15.9	26.0	27.5	26.3	27.8	28.1	
8H	13.8	15.3	14.2	15.6	15.9	27.0	28.5	27.4	28.8	29.1	
12H	13.8	15.3	14.2	15.6	15.9	27.2	28.7	27.6	29.0	29.3	
4H 2H	15.2	16.8	15.5	17.1	17.3	19.2	20.8	19.5	21.1	21.4	
3H	16.8	18.3	17.2	18.6	18.9	23.0	24.4	23.4	24.7	25.1	
4H	17.5	18.8	17.9	19.1	19.5	25.1	26.4	25.4	26.7	27.1	
6H	17.8	19.0	18.2	19.4	19.8	27.1	28.3	27.5	28.7	29.1	
8H	17.9	19.0	18.3	19.4	19.8	28.3	29.4	28.7	29.8	30.2	
12H	17.9	18.9	18.3	19.3	19.7	28.5	29.6	29.0	30.0	30.4	
8H 4H	19.7	20.9	20.1	21.2	21.6	25.3	26.4	25.7	26.8	27.2	
6H	20.4	21.4	20.8	21.8	22.2	27.6	28.6	28.0	29.0	29.4	
8H	20.5	21.4	21.0	21.8	22.3	28.9	29.8	29.4	30.2	30.7	
12H	20.6	21.3	21.0	21.8	22.2	29.2	30.0	29.7	30.4	30.9	
12H 4H	20.3	21.4	20.8	21.8	22.2	25.3	26.3	25.7	26.7	27.1	
6H	21.2	22.1	21.7	22.5	23.0	27.6	28.5	28.1	28.9	29.4	
8H	21.4	22.2	21.9	22.6	23.1	29.0	29.7	29.5	30.2	30.7	
Variations with the observer position at spacings:											
S = 1.0H	+ 0.0 / - 0.1					+ 0.1 / - 0.1					
1.5H	+ 0.2 / - 0.1					+ 0.3 / - 0.4					
2.0H	+ 0.4 / - 0.5					+ 0.2 / - 0.3					

CIE Pub.117 Corrected 348.6 lm Total Lamp Luminous Flux.(8log(F/F₀) = -3.7)

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Lauhin
 Test Date:2020-11-25

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.285
 Humidity:65.0%
 Test Distance:26.000m [K=1.0000]
 Remarks:

Checker:

Assessor:

UTILIZATION FACTORS TABLE

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	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) $k(RI) \times RCR = 5$									
$k = 0.60$	47	33	25	46	33	25	45	32	25	17
0.80	56	42	33	55	42	33	53	41	33	24
1.00	64	51	41	63	50	41	60	52	41	32
1.25	72	59	49	70	58	49	67	56	48	39
1.50	78	65	56	76	64	55	72	62	54	45
2.00	86	75	66	84	73	65	80	71	64	54
2.50	91	81	73	89	79	72	85	76	70	60
3.00	95	86	79	93	84	78	89	81	75	65
4.00	101	93	87	98	91	85	94	88	83	72
5.00	104	98	92	102	96	90	97	92	87	77
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Lauhin
Test Date:2020-11-25

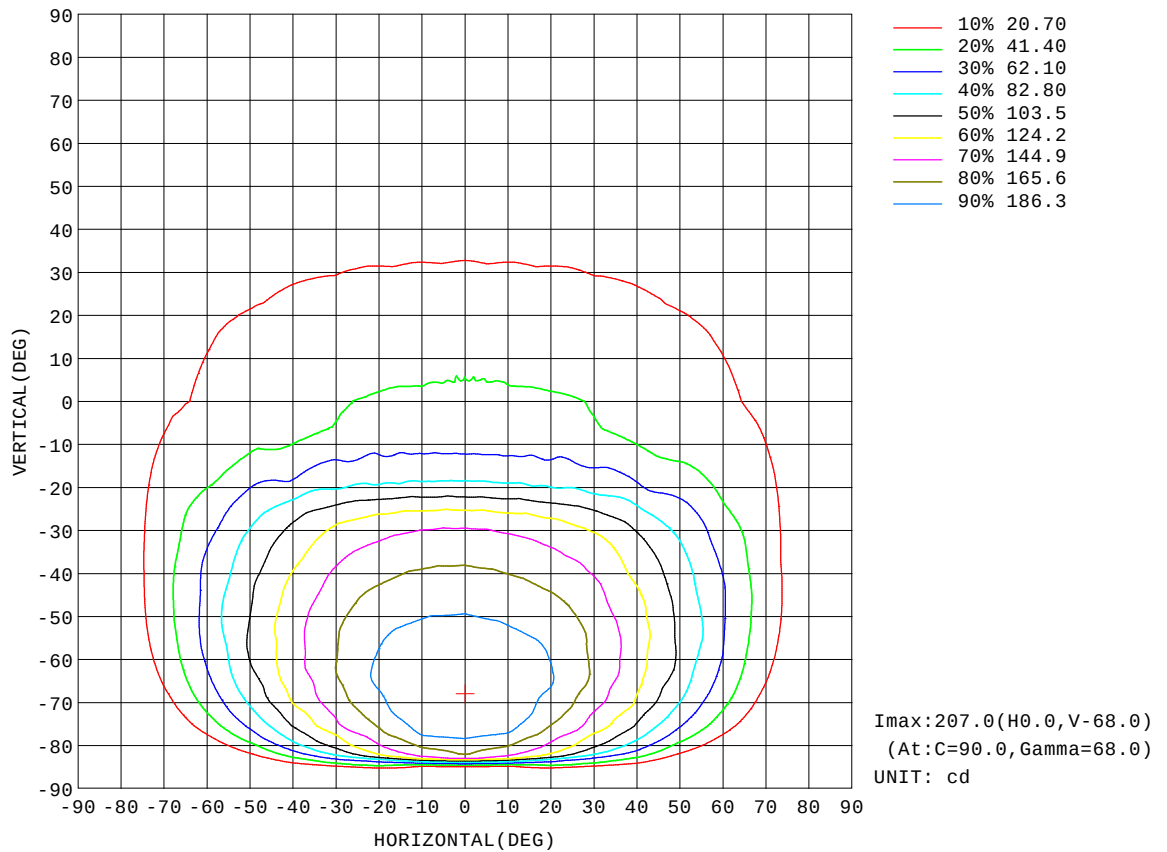
γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity:65.0%
Test Distance:26.000m [K=1.0000]
Remarks:

Checker:

Assessor:

ISOCANDELA DIAGRAM

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Lauhin
Test Date:2020-11-25

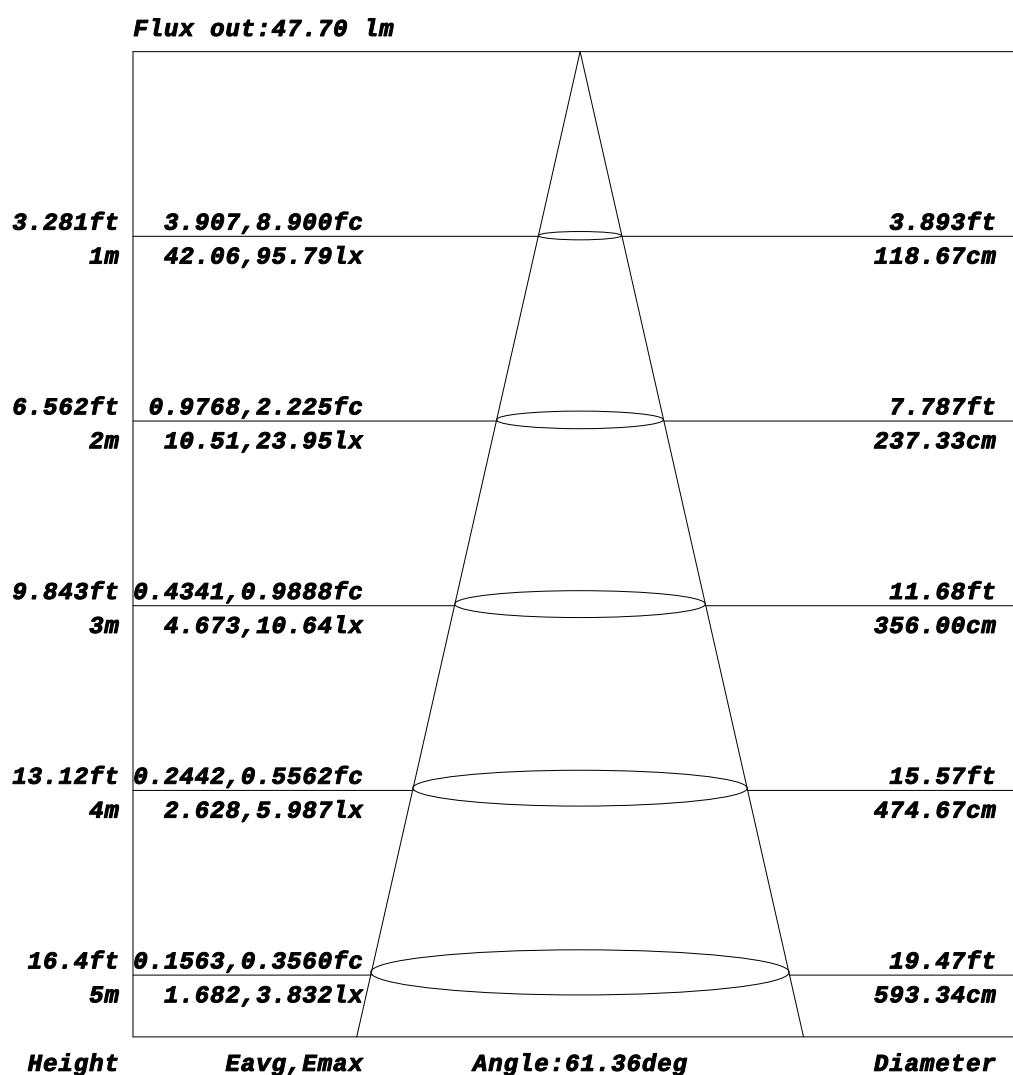
γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity:65.0%
Test Distance:26.000m [K=1.0000]
Remarks:

Checker:

Assessor:

AAI Figure

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:



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

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Lauhin
Test Date: 2020-11-25

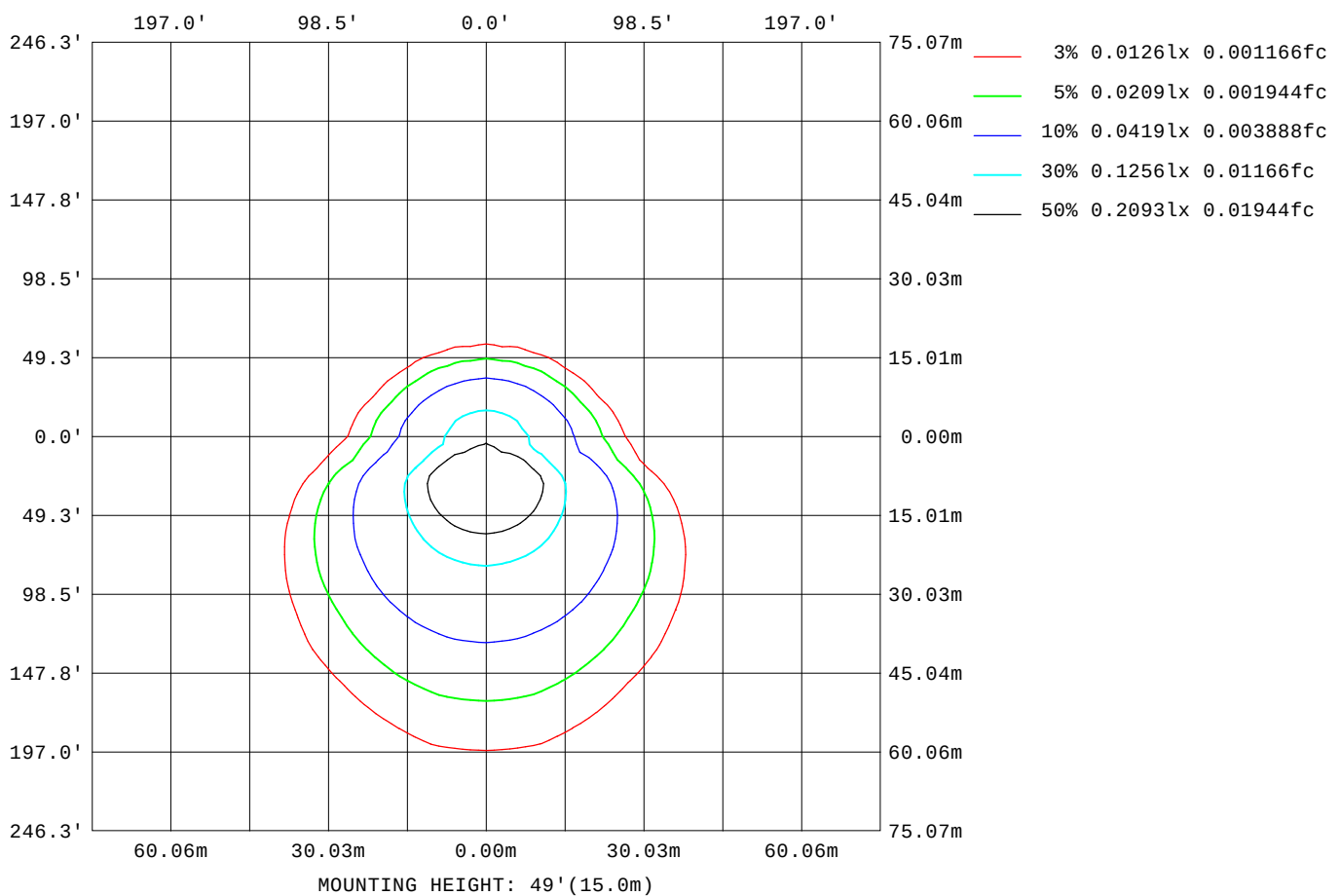
γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity: 65.0%
Test Distance: 26.000m [K=1.0000]
Remarks:

Checker:

Assessor:

ISOLUX DIAGRAM

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:



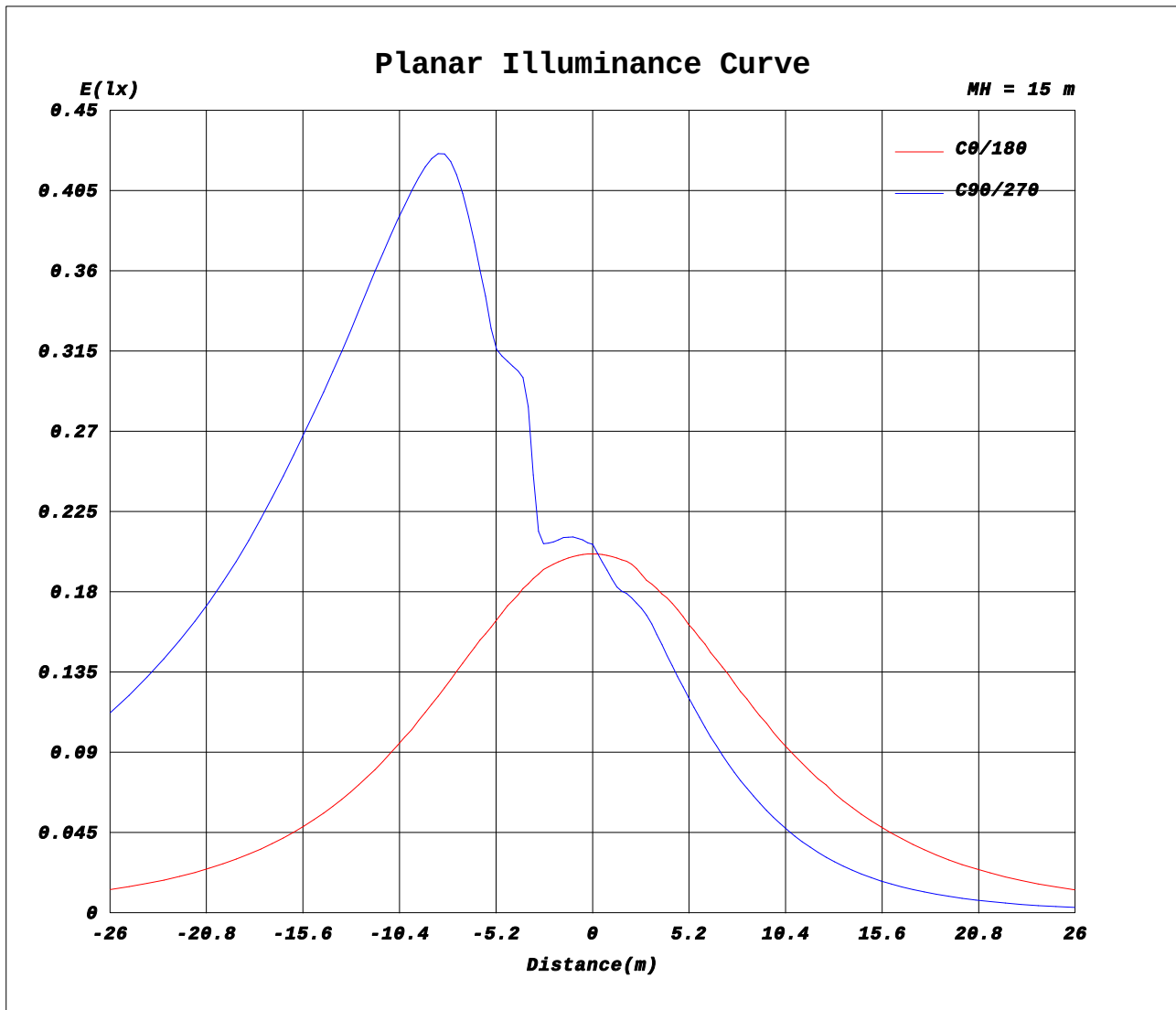
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Lauhin
Test Date:2020-11-25

Checker:

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity:65.0%
Test Distance:26.000m [K=1.0000]
Remarks:

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Lauhin
Test Date: 2020-11-25

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity: 65.0%
Test Distance: 26.000m [K=1.0000]
Remarks:

Checker:

Assessor:

C:\Users\user155\Desktop\0Añ00 EA10\2020 A1A\1fyA0U\25.11.2020\3272\17580\10101010.00S

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

Table - -1

UNIT: cd

[illegible]

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Lauhin
Test Date: 2020-11-25

```

Range: 0 - 90DEG
Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity:65.0%
Test Distance:26.000m [K=1.0000]
Remarks:

```

Checker :

Assessor:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.9V I:0.0405A P:4.209W PF:0.4499 Lamp Flux:348.585x1 lm		
NAME: Varton	TYPE:4500K	WEIGHT:
SPEC.:17580	DIM.: 240*195*70mm	SERIAL No.:
MFR.: VNILS	SUR.:	PROTECTION ANGLE:

UNIT: cd

[illegible]

```

Range: 0 - 90DEG
Interval: 1.0DEG
Test System:EVERFINE G0-R5000_V2 SYSTEM V2.0.285
Humidity:65.0%
Test Distance:26.000m [K=1.0000]
Remarks:

```

Assessor: