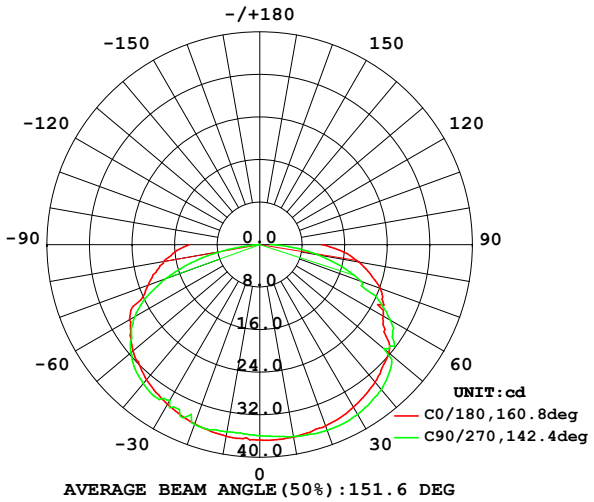
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

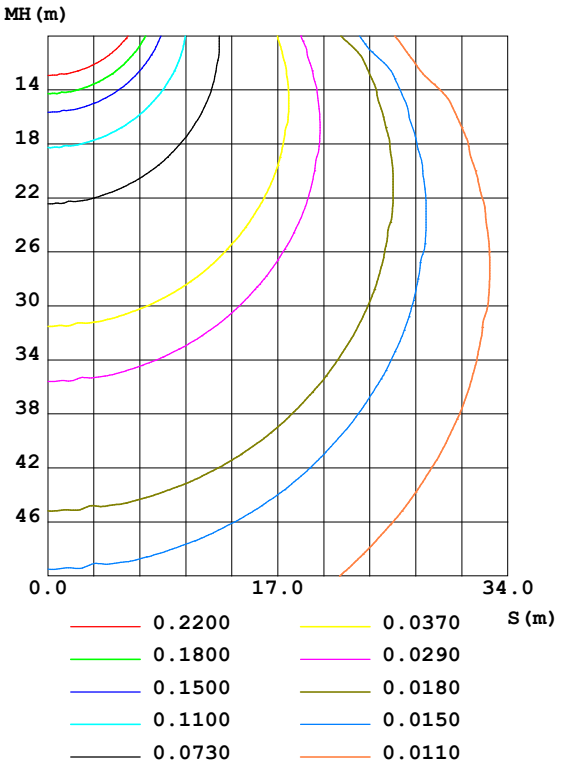
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 16.49 lm/W	
MODEL		Imax(cd)	37.17	S/MH(C0/180)	1.43
NOMINAL POWER(W)	9.6	LOR(%)	100.0	S/MH(C90/270)	1.49
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	158.31	η UP,DN(C0-180)	0.0,48.9
NOMINAL FLUX(lm)	158.306	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,51.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	0.0	η down(%)	100.0	CIBSE SHR MAX	1.55

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):151.6 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum,lamp
10	36.56	35.76	36.71	36.62					0- 10	3.471	3.471	2.19,2.19
20	35.84	35.93	36.26	37.14					10- 20	10.32	13.79	8.71,8.71
30	34.69	33.82	35.26	36.83					20- 30	16.56	30.35	19.2,19.2
40	33.16	34.09	33.75	35.57					30- 40	21.84	52.19	33,33
50	31.10	31.65	31.67	30.40					40- 50	25.52	77.71	49.1,49.1
60	28.31	27.15	26.82	28.38					50- 60	26.56	104.3	65.9,65.9
70	22.33	18.89	24.10	20.33					60- 70	24.35	128.6	81.2,81.2
80	18.41	7.308	18.96	11.06					70- 80	18.76	147.4	93.1,93.1
90	13.25	0.2957	11.67	2.029					80- 90	10.93	158.3	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		

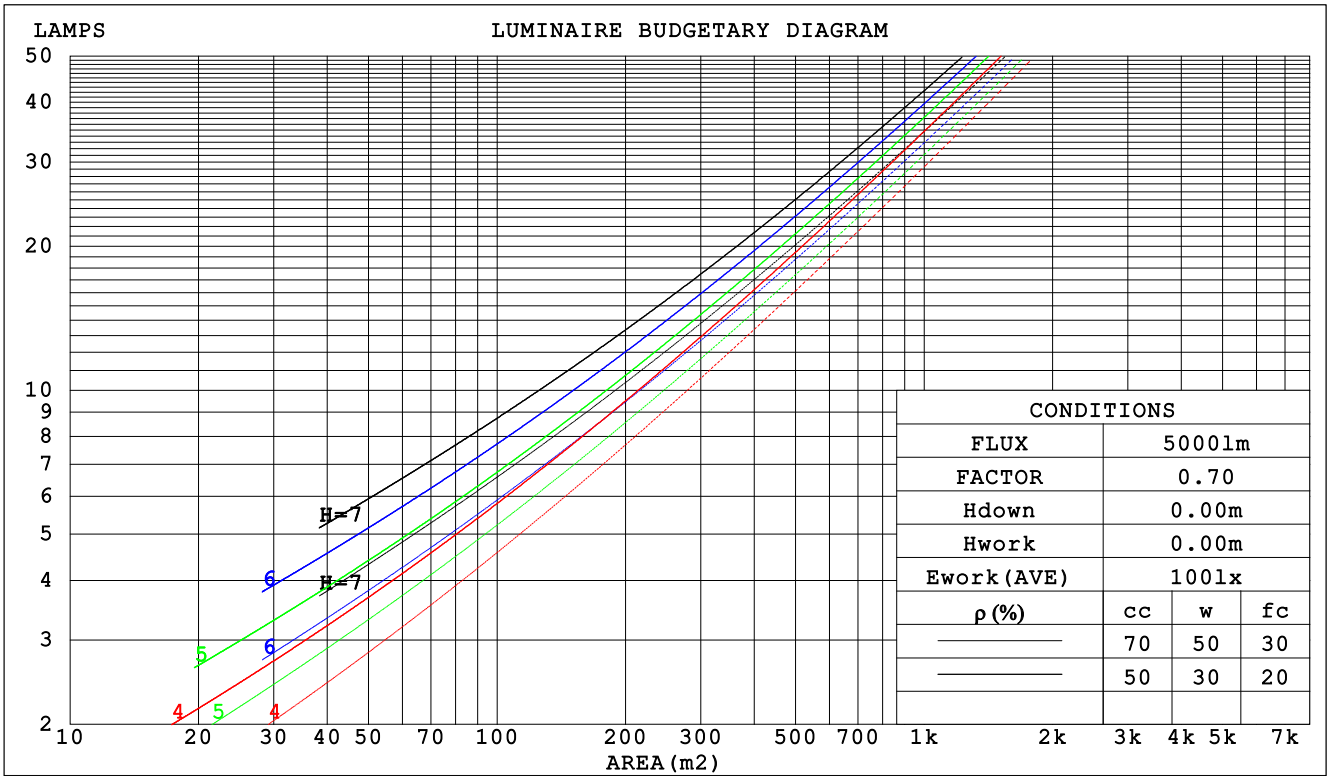
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	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	.00
1.0	.99	.94	.89	.97	.92	.87	.92	.88	.84	.88	.85	.82	.85	.82	.79	.77
2.0	.84	.76	.69	.82	.75	.68	.79	.72	.67	.75	.70	.65	.72	.67	.63	.61
3.0	.73	.63	.55	.71	.62	.55	.68	.60	.54	.65	.58	.53	.62	.57	.52	.49
4.0	.63	.53	.46	.62	.53	.45	.59	.51	.45	.57	.50	.44	.55	.48	.43	.41
5.0	.56	.46	.39	.55	.45	.38	.53	.44	.38	.51	.43	.37	.49	.42	.37	.35
6.0	.50	.40	.33	.49	.40	.33	.47	.39	.33	.45	.38	.32	.44	.37	.32	.30
7.0	.45	.35	.29	.44	.35	.29	.43	.34	.28	.41	.34	.28	.40	.33	.28	.26
8.0	.41	.32	.25	.40	.31	.25	.39	.31	.25	.37	.30	.25	.36	.30	.25	.23
9.0	.37	.28	.23	.37	.28	.22	.35	.28	.22	.34	.27	.22	.33	.27	.22	.20
10.0	.34	.26	.20	.34	.26	.20	.33	.25	.20	.32	.25	.20	.31	.24	.20	.18



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	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	.398	.227	.072	.391	.223	.071	.377	.216	.069	.365	.210	.068	.353	.205	.066	
2.0	.351	.192	.059	.344	.190	.058	.332	.185	.057	.321	.180	.056	.310	.176	.055	
3.0	.313	.167	.050	.307	.165	.050	.297	.161	.049	.287	.157	.048	.277	.153	.047	
4.0	.282	.147	.043	.277	.145	.043	.267	.142	.042	.258	.139	.042	.250	.136	.041	
5.0	.256	.131	.038	.252	.129	.038	.243	.127	.037	.235	.124	.037	.228	.122	.037	
6.0	.234	.118	.034	.230	.116	.034	.223	.114	.033	.216	.112	.033	.209	.110	.033	
7.0	.216	.107	.030	.212	.106	.030	.206	.104	.030	.199	.102	.030	.193	.100	.030	
8.0	.200	.098	.027	.197	.097	.027	.191	.095	.027	.185	.094	.027	.180	.092	.027	
9.0	.186	.090	.025	.183	.089	.025	.178	.088	.025	.173	.087	.025	.168	.085	.025	
10.0	.174	.083	.023	.171	.083	.023	.166	.082	.023	.162	.080	.023	.157	.079	.023	

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	.186	.155	.127	.160	.133	.110	.109	.092	.076	.063	.053	.044	.020	.017	.014	
2.0	.180	.132	.091	.154	.113	.079	.106	.078	.055	.061	.046	.032	.020	.015	.010	
3.0	.173	.115	.068	.148	.099	.059	.102	.069	.041	.059	.040	.024	.019	.013	.008	
4.0	.165	.102	.053	.142	.088	.046	.097	.061	.033	.056	.036	.019	.018	.012	.006	
5.0	.157	.092	.043	.135	.079	.038	.093	.055	.027	.054	.033	.016	.017	.011	.005	
6.0	.149	.083	.036	.128	.072	.031	.089	.051	.022	.051	.030	.013	.017	.010	.004	
7.0	.142	.077	.031	.122	.066	.027	.084	.047	.019	.049	.027	.011	.016	.009	.004	
8.0	.135	.071	.027	.116	.061	.023	.080	.043	.017	.047	.025	.010	.015	.008	.003	
9.0	.128	.066	.024	.110	.057	.021	.077	.040	.015	.045	.024	.009	.014	.008	.003	
10.0	.122	.062	.021	.105	.053	.019	.073	.038	.013	.043	.022	.008	.014	.007	.003	

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

Uncorrected UGR Table

Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	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	19.7	21.4	20.0	21.6	21.8	19.6	21.3	19.8	21.5	21.7
3H	22.0	23.6	22.3	23.8	24.1	21.6	23.2	21.9	23.4	23.7
4H	23.3	24.8	23.6	25.0	25.3	22.4	23.9	22.7	24.2	24.4
6H	24.7	26.1	25.0	26.4	26.7	22.9	24.4	23.3	24.6	24.9
8H	25.4	26.8	25.8	27.1	27.4	23.0	24.4	23.4	24.7	25.0
12H	26.3	27.7	26.7	28.0	28.3	23.0	24.4	23.4	24.7	25.0
4H 2H	20.5	22.0	20.8	22.3	22.5	20.4	21.9	20.7	22.2	22.4
3H	23.0	24.3	23.3	24.6	24.9	22.6	23.9	23.0	24.2	24.6
4H	24.4	25.6	24.8	25.9	26.3	23.6	24.8	23.9	25.1	25.5
6H	26.0	27.1	26.4	27.4	27.8	24.3	25.4	24.7	25.7	26.1
8H	26.8	27.9	27.2	28.3	28.6	24.4	25.5	24.9	25.9	26.3
12H	27.8	28.8	28.3	29.2	29.6	24.5	25.5	24.9	25.9	26.3
8H 4H	24.8	25.8	25.2	26.2	26.6	24.1	25.1	24.5	25.5	25.9
6H	26.6	27.5	27.1	27.9	28.3	25.0	25.9	25.5	26.3	26.8
8H	27.6	28.4	28.1	28.9	29.3	25.4	26.2	25.8	26.6	27.0
12H	28.9	29.6	29.4	30.0	30.5	25.5	26.2	26.0	26.7	27.1
12H 4H	24.8	25.8	25.3	26.2	26.6	24.2	25.2	24.7	25.6	26.0
6H	26.7	27.5	27.2	28.0	28.4	25.3	26.1	25.7	26.5	27.0
8H	27.8	28.5	28.3	29.0	29.5	25.7	26.4	26.2	26.8	27.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.3 / - 0.4					+ 0.2 / - 0.5				

CIE Pub.117 Corrected 158.3 lm Total Lamp Luminous Flux.(8log(F/F0) = -6.4)

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

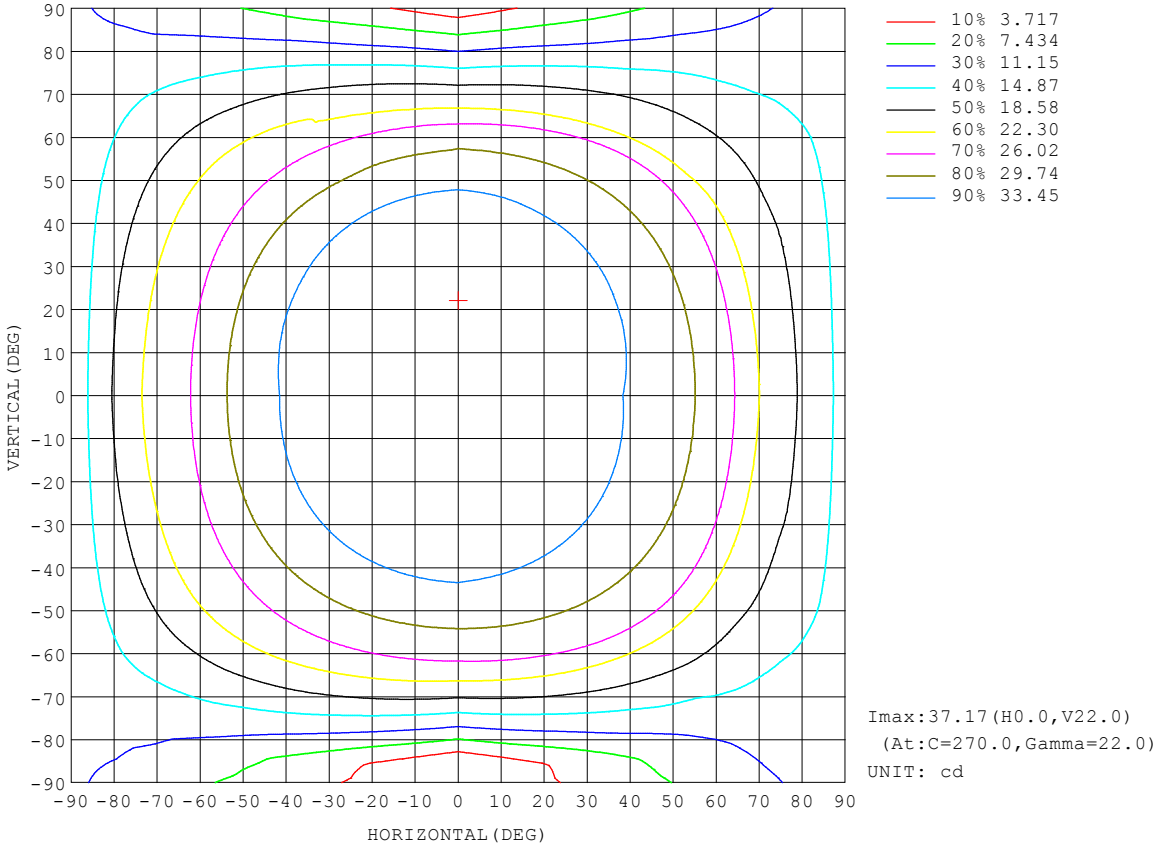
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	51	38	31	50	38	31	49	38	31	23
0.80	61	48	39	60	47	39	58	46	39	31
1.00	69	56	48	68	56	48	65	58	47	39
1.25	76	64	56	75	63	55	72	62	54	46
1.50	82	70	61	80	69	61	76	67	60	51
2.00	89	79	71	87	77	70	83	75	68	59
2.50	94	84	77	91	83	76	87	80	74	64
3.00	97	89	82	95	87	81	91	84	79	69
4.00	102	95	89	100	93	88	95	90	85	75
5.00	105	99	94	103	97	92	98	93	89	79
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

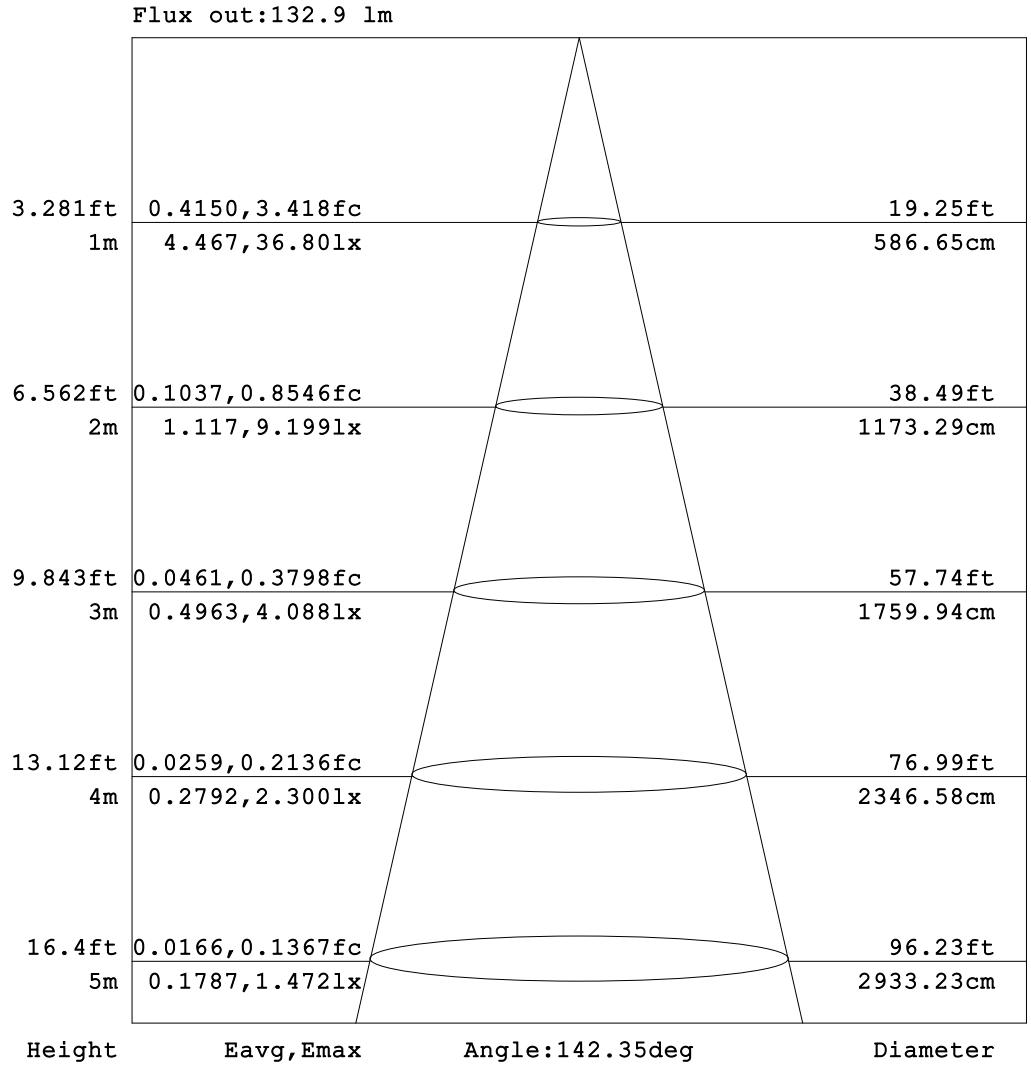


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

AAI Figure

Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



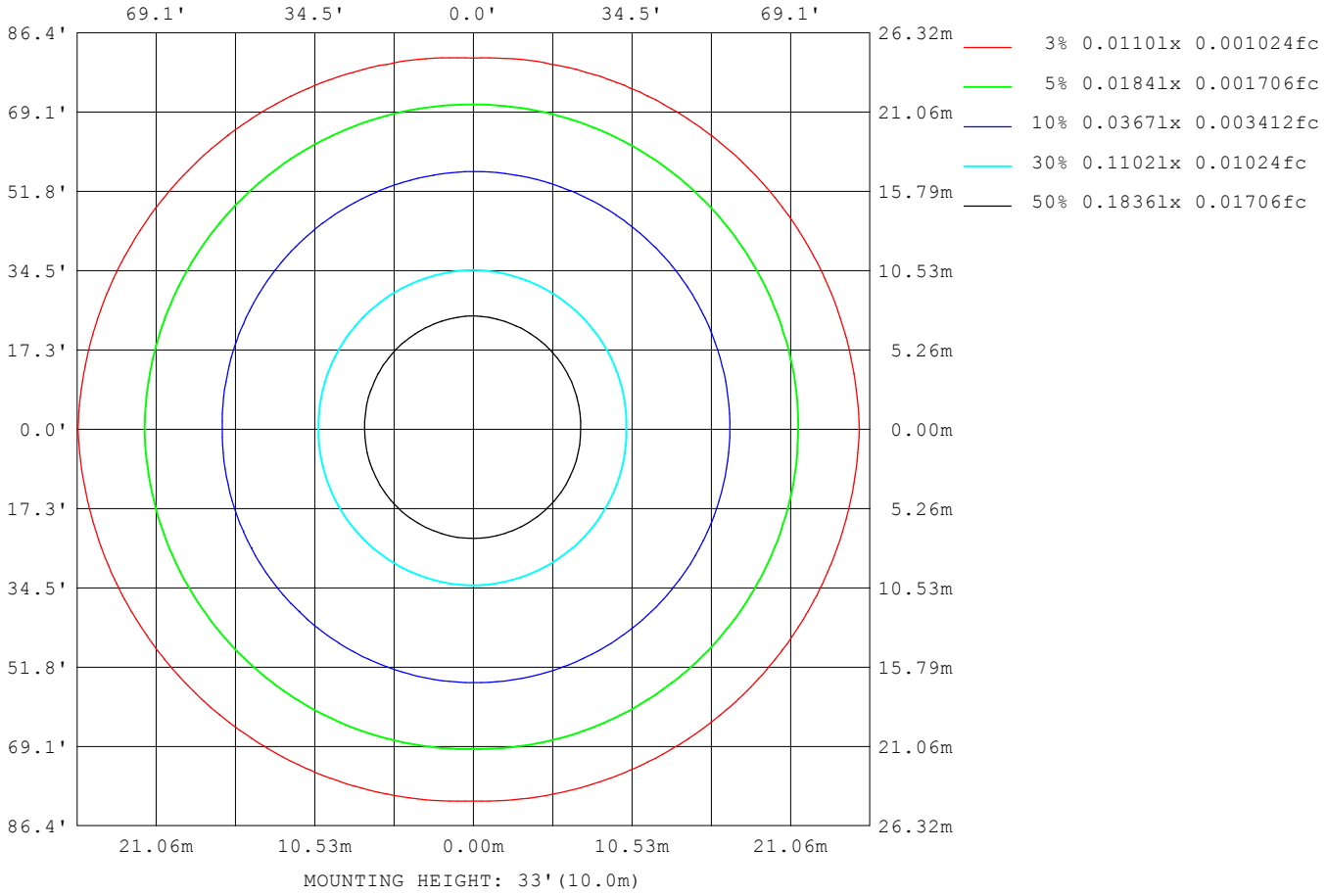
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

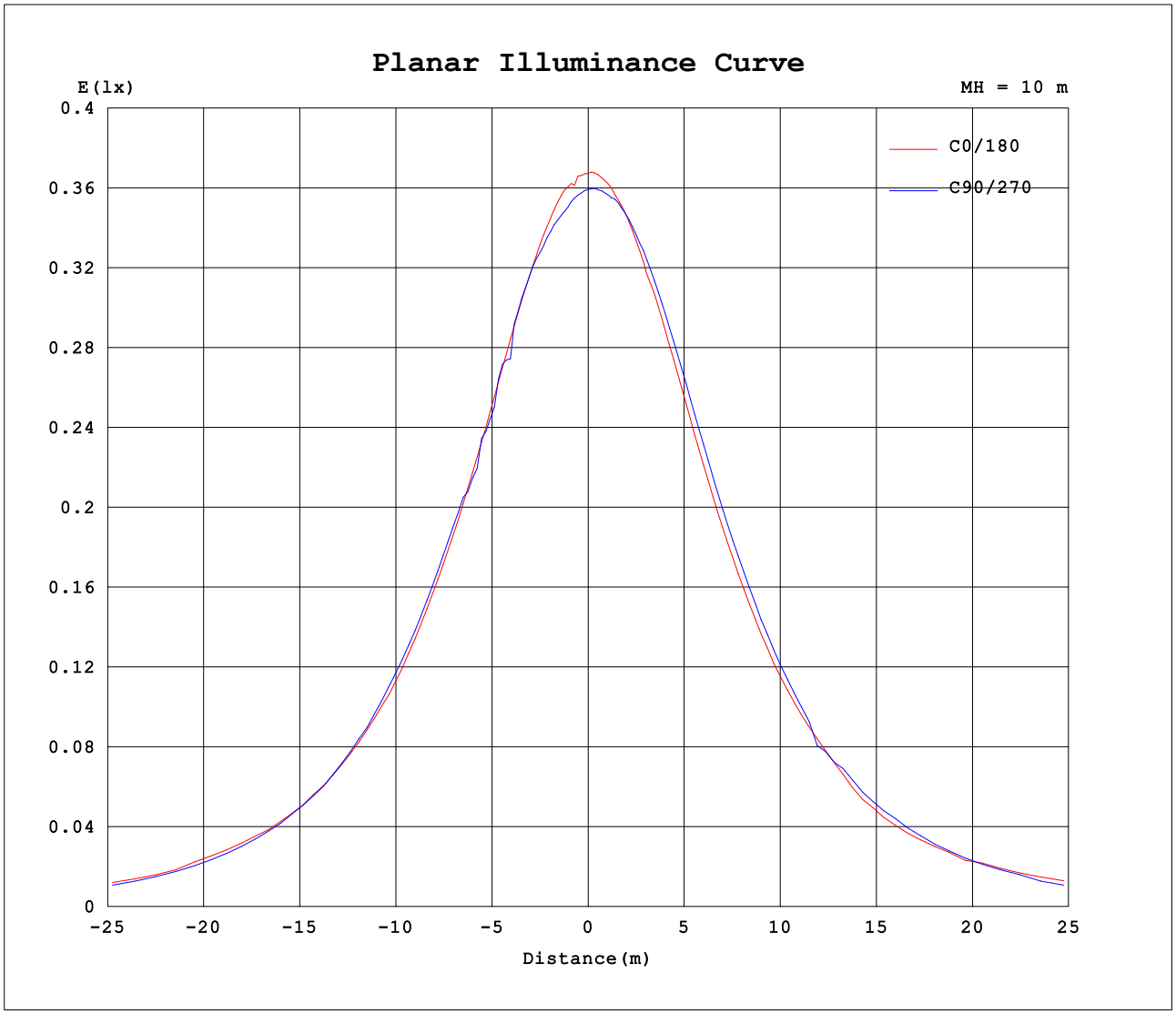
Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:24.00V I:0.4000A P:9.600W PF:1.000 Lamp Flux:158.306x1 lm		
NAME: HCP-3925967	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

Table--1 UNIT: cd

γ (DEG) \ C(DEG)	0	90	180	270
0	36.7	35.9	36.7	35.9
5	36.6	35.7	36.8	36.2
10	36.6	35.8	36.7	36.6
15	36.2	36.1	36.5	36.9
20	35.8	35.9	36.3	37.1
25	35.3	35.5	35.9	37.1
30	34.7	33.8	35.3	36.8
35	34.0	34.8	34.6	36.3
40	33.2	34.1	33.8	35.6
45	32.0	33.2	32.7	34.3
50	31.1	31.7	31.7	30.4
55	29.8	29.5	28.5	30.4
60	28.3	27.1	26.8	28.4
65	24.7	23.6	25.6	24.7
70	22.3	18.9	24.1	20.3
75	20.2	13.4	21.6	16.0
80	18.4	7.31	19.0	11.1
85	16.1	1.22	15.8	6.25
90	13.2	0.30	11.7	2.03

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-28

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks: