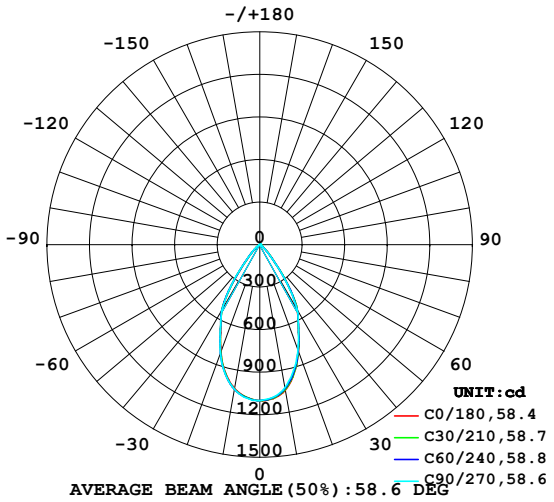
IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding Angle:

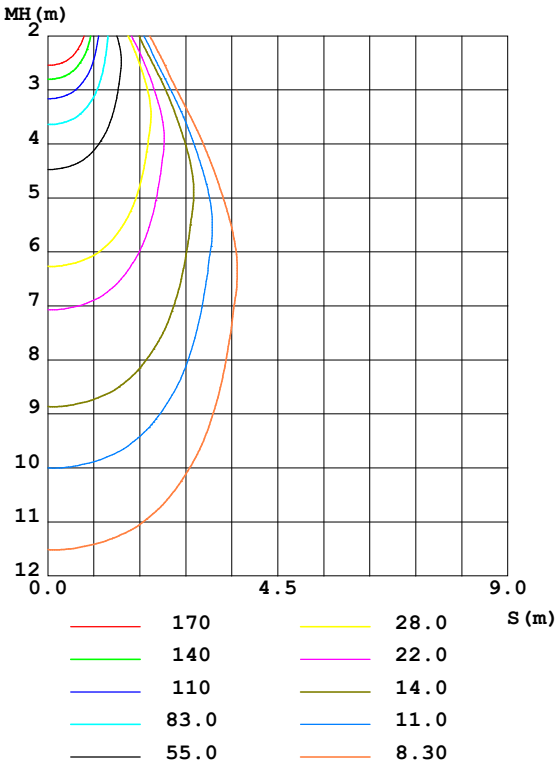
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 75.46 lm/W	
MODEL	HCP-81322112	Imax(cd)	1101	S/MH(C0/180)	0.86
NOMINAL POWER(W)	12	LOR(%)	100.0	S/MH(C90/270)	0.87
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	981.88	η UP,DN(C0-180)	0.6,49.3
NOMINAL FLUX(lm)	981.877	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.5,49.6
LAMPS INSIDE	1	η up(%)	1.1	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	220	η down(%)	98.9	CIBSE SHR MAX	0.95

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):58.6 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [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	1042	1037	1024	1027	1030	1032	1036	1035	0- 10	101.9	101.9	10.4,10.4
20	798.7	801.4	789.9	800.3	803.1	801.5	814.2	799.3	10- 20	260.1	362.0	36.9,36.9
30	526.2	536.3	524.7	534.9	534.2	533.9	533.9	527.3	20- 30	301.0	663.0	67.5,67.5
40	168.4	169.5	164.7	168.2	158.8	160.8	171.8	171.5	30- 40	214.6	877.5	89.4,89.4
50	46.18	42.86	34.67	35.08	36.81	37.72	40.54	45.28	40- 50	68.96	946.5	96.4,96.4
60	10.14	9.640	7.698	8.631	8.750	8.695	8.394	9.310	50- 60	17.40	963.9	98.2,98.2
70	3.626	3.392	2.529	3.231	3.703	3.243	2.622	3.048	60- 70	5.387	969.3	98.7,98.7
80	0.6532	0.3341	0.3047	0.3122	0.5373	0.3743	0.3076	0.3568	70- 80	1.503	970.8	98.9,98.9
90	0.0522	0.0435	0.0434	0.0435	0.0566	0.0521	0.0522	0.0564	80- 90	0.1616	971.0	98.9,98.9
100	0.0478	0.0957	0.0478	0.1043	0.1000	0.0521	0.0870	0.0478	90-100	0.0633	971.0	98.9,98.9
110	0.2776	0.3087	0.3034	0.3347	0.2913	0.2476	0.2609	0.2519	100-110	0.1656	971.2	98.9,98.9
120	0.8937	0.9301	0.9199	0.9518	0.8434	0.7942	0.8172	0.7984	110-120	0.5296	971.7	99,99
130	1.970	1.982	1.988	2.008	1.817	1.767	1.765	1.745	120-130	1.197	972.9	99.1,99.1
140	3.295	3.319	3.356	3.363	3.129	3.069	3.055	3.009	130-140	1.945	974.9	99.3,99.3
150	4.564	4.587	4.693	4.653	4.427	4.325	4.327	4.221	140-150	2.399	977.3	99.5,99.5
160	5.549	5.586	5.684	5.682	5.443	5.367	5.387	5.254	150-160	2.300	979.6	99.8,99.8
170	6.423	6.468	6.501	6.528	6.381	6.392	6.385	6.275	160-170	1.677	981.2	99.9,99.9
180	7.123	7.201	7.123	7.157	7.127	7.201	7.123	7.140	170-180	0.6412	981.9	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

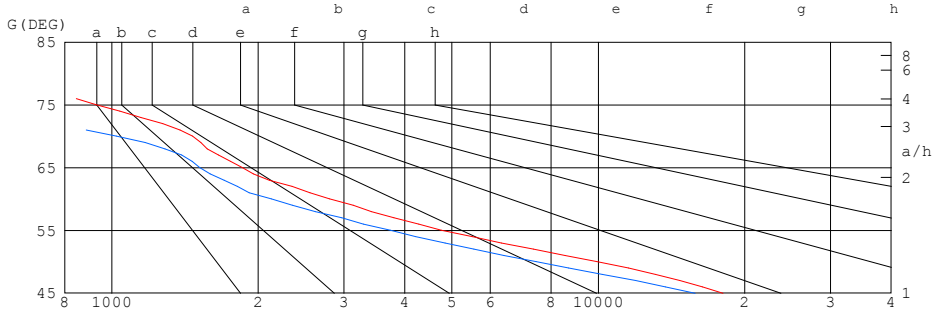
IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

LUMINANCE LIMITATION CURVES

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	**TYPE:**	**WEIGHT:**
SPEC.:	**DIM.:**	**SERIAL No.:**
MFR.: HAVIT COMMERCIAL	**SUR.:**	**Shielding Angle:**

LUMINANCE LIMITATION CURVES

GLARE	CLASS	ILLUMINANCE (lx)							
1.15	A	2000	1000	500	<=300				
1.50	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.20	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	325	104
80	520	242
75	929	470
70	1465	1021
65	1852	1515
60	2803	2127
55	4754	3736
50	9927	7453
45	18037	15819

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

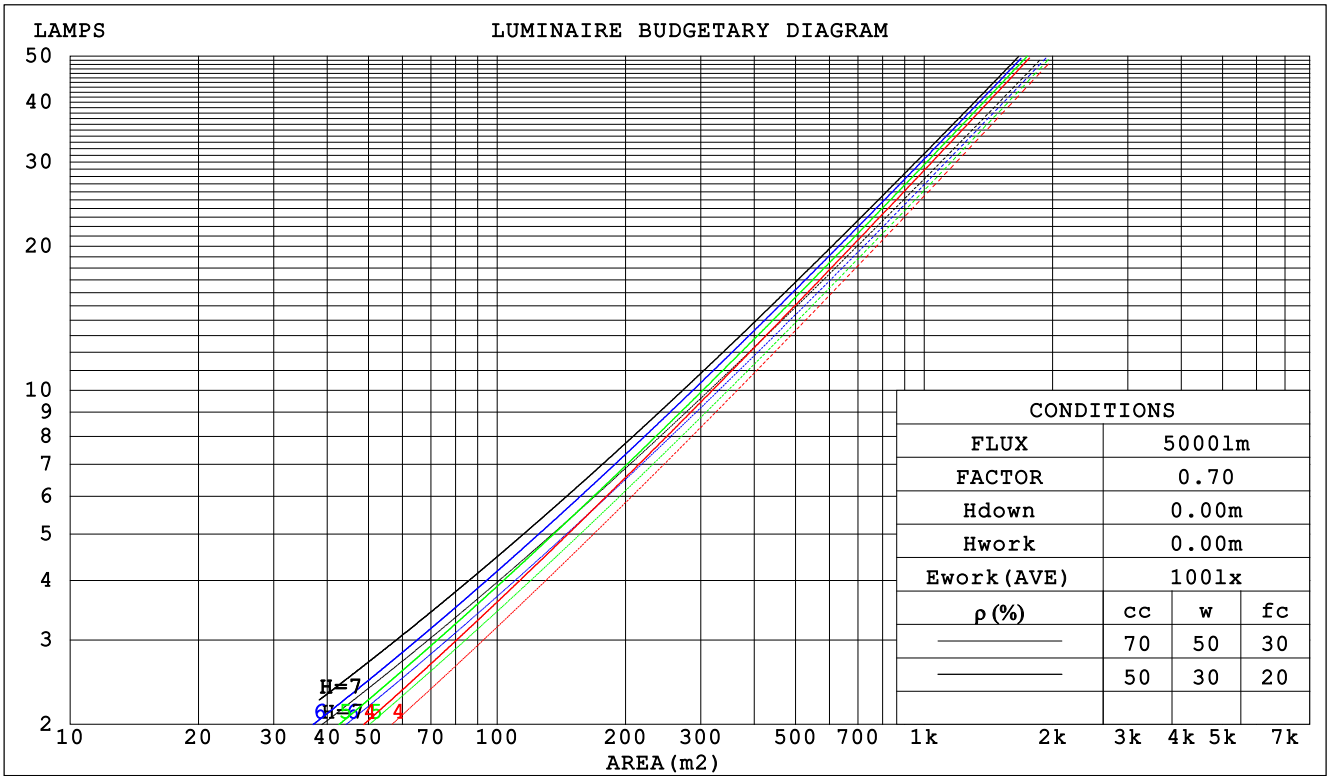
γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding 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	1.10	1.10	1.10	1.06	1.06	1.06	1.01	1.01	1.01	.99
1.0	1.10	1.08	1.05	1.08	1.06	1.04	1.04	1.02	1.00	.00	.98	.97	.96	.95	.94	.92
2.0	1.02	.98	.95	1.01	.97	.94	.97	.94	.91	.94	.91	.89	.91	.89	.87	.86
3.0	.95	.90	.86	.94	.89	.85	.91	.87	.84	.88	.85	.82	.86	.83	.81	.79
4.0	.89	.83	.79	.87	.82	.78	.85	.81	.77	.83	.79	.76	.81	.78	.75	.74
5.0	.83	.77	.73	.82	.76	.72	.80	.75	.71	.78	.74	.71	.76	.73	.70	.68
6.0	.78	.71	.67	.77	.71	.67	.75	.70	.66	.74	.69	.66	.72	.68	.65	.64
7.0	.73	.67	.62	.72	.66	.62	.71	.66	.62	.69	.65	.61	.68	.64	.61	.59
8.0	.68	.62	.58	.68	.62	.58	.67	.61	.58	.66	.61	.57	.64	.60	.57	.56
9.0	.65	.59	.54	.64	.58	.54	.63	.58	.54	.62	.57	.54	.61	.57	.54	.52
10.0	.61	.55	.51	.61	.55	.51	.60	.54	.51	.59	.54	.51	.58	.54	.50	.49



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding 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	.182	.104	.033	.175	.100	.032	.162	.093	.030	.150	.086	.028	.138	.080	.026	
2.0	.175	.096	.029	.169	.093	.029	.158	.088	.027	.147	.083	.026	.138	.078	.025	
3.0	.167	.089	.027	.162	.087	.026	.152	.082	.025	.143	.078	.024	.135	.075	.023	
4.0	.159	.083	.024	.155	.081	.024	.146	.078	.023	.139	.074	.022	.131	.071	.022	
5.0	.152	.077	.022	.148	.076	.022	.140	.073	.022	.134	.070	.021	.127	.068	.020	
6.0	.145	.073	.021	.141	.071	.021	.135	.069	.020	.129	.067	.020	.123	.065	.019	
7.0	.138	.068	.019	.135	.067	.019	.129	.065	.019	.124	.064	.018	.119	.062	.018	
8.0	.132	.065	.018	.130	.064	.018	.124	.062	.018	.119	.061	.017	.115	.059	.017	
9.0	.127	.061	.017	.124	.061	.017	.119	.059	.017	.115	.058	.017	.111	.056	.016	
10.0	.121	.058	.016	.119	.058	.016	.115	.056	.016	.111	.055	.016	.107	.054	.015	

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	.199	.199	.199	.170	.170	.170	.116	.116	.116	.067	.067	.067	.021	.021	.021	
1.0	.180	.166	.153	.154	.142	.132	.105	.098	.091	.061	.057	.053	.019	.018	.017	
2.0	.165	.141	.121	.142	.121	.104	.097	.084	.073	.056	.049	.043	.018	.016	.014	
3.0	.153	.122	.098	.131	.105	.085	.090	.073	.059	.052	.043	.035	.017	.014	.011	
4.0	.143	.108	.080	.123	.093	.070	.085	.065	.049	.049	.038	.029	.016	.012	.010	
5.0	.135	.096	.068	.116	.083	.059	.080	.058	.042	.046	.034	.025	.015	.011	.008	
6.0	.128	.087	.058	.110	.075	.050	.076	.053	.036	.044	.031	.021	.014	.010	.007	
7.0	.121	.080	.050	.104	.069	.044	.072	.048	.031	.042	.028	.018	.014	.009	.006	
8.0	.116	.073	.044	.100	.064	.039	.069	.045	.027	.040	.026	.016	.013	.009	.005	
9.0	.111	.068	.040	.095	.059	.035	.066	.042	.025	.038	.025	.015	.012	.008	.005	
10.0	.106	.064	.036	.091	.055	.031	.063	.039	.022	.037	.023	.013	.012	.008	.004	

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding 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	18.5	19.5	18.8	19.7	19.9	18.2	19.2	18.5	19.4	19.6
	3H	18.4	19.3	18.7	19.5	19.7	18.1	19.0	18.4	19.2	19.4
	4H	18.3	19.1	18.6	19.4	19.6	18.0	18.8	18.3	19.1	19.3
	6H	18.2	19.0	18.5	19.3	19.5	17.9	18.7	18.2	19.0	19.2
	8H	18.2	18.9	18.5	19.2	19.5	17.9	18.6	18.2	18.9	19.2
	12H	18.1	18.8	18.5	19.1	19.4	17.8	18.5	18.2	18.8	19.1
4H	2H	18.3	19.1	18.6	19.4	19.6	18.0	18.8	18.3	19.1	19.3
	3H	18.2	18.9	18.5	19.2	19.5	17.9	18.6	18.2	18.9	19.2
	4H	18.1	18.7	18.4	19.0	19.4	17.8	18.4	18.1	18.7	19.1
	6H	18.0	18.6	18.4	18.9	19.3	17.7	18.2	18.1	18.6	19.0
	8H	17.9	18.5	18.3	18.8	19.2	17.6	18.1	18.0	18.5	18.9
	12H	17.9	18.4	18.3	18.8	19.2	17.6	18.0	18.0	18.4	18.8
8H	4H	17.9	18.5	18.3	18.8	19.2	17.6	18.1	18.0	18.5	18.9
	6H	17.8	18.3	18.3	18.7	19.1	17.5	17.9	18.0	18.4	18.8
	8H	17.8	18.2	18.2	18.6	19.1	17.5	17.8	17.9	18.3	18.7
	12H	17.7	18.0	18.2	18.5	19.0	17.4	17.7	17.9	18.2	18.7
12H	4H	17.9	18.4	18.3	18.7	19.2	17.6	18.0	18.0	18.4	18.9
	6H	17.8	18.2	18.2	18.6	19.1	17.5	17.8	17.9	18.3	18.7
	8H	17.7	18.0	18.2	18.5	19.0	17.4	17.7	17.9	18.2	18.7

Variations with the observer position at spacings:		
S = 1.0H	+ 3.1 / - 8.5	+ 3.1 / - 9.8
1.5H	+ 4.8 / - 7.0	+ 5.0 / - 7.7
2.0H	+ 5.6 / - 6.7	+ 5.7 / - 6.6

CIE Pub.117, 981.9 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.1)

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

UTILIZATION FACTORS TABLE

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding 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	85	78	74	84	78	74	83	77	74	70
0.80	93	86	82	92	86	82	91	85	82	78
1.00	98	92	88	97	91	88	95	91	87	83
1.25	102	96	93	101	96	92	99	94	91	87
1.50	105	100	96	103	99	96	101	97	94	90
2.00	108	103	100	106	102	99	103	100	98	92
2.50	109	105	102	108	104	101	104	102	99	93
3.00	111	108	105	109	106	103	106	103	101	94
4.00	113	110	108	111	109	106	107	105	104	96
5.00	114	112	110	112	110	108	108	106	105	97
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

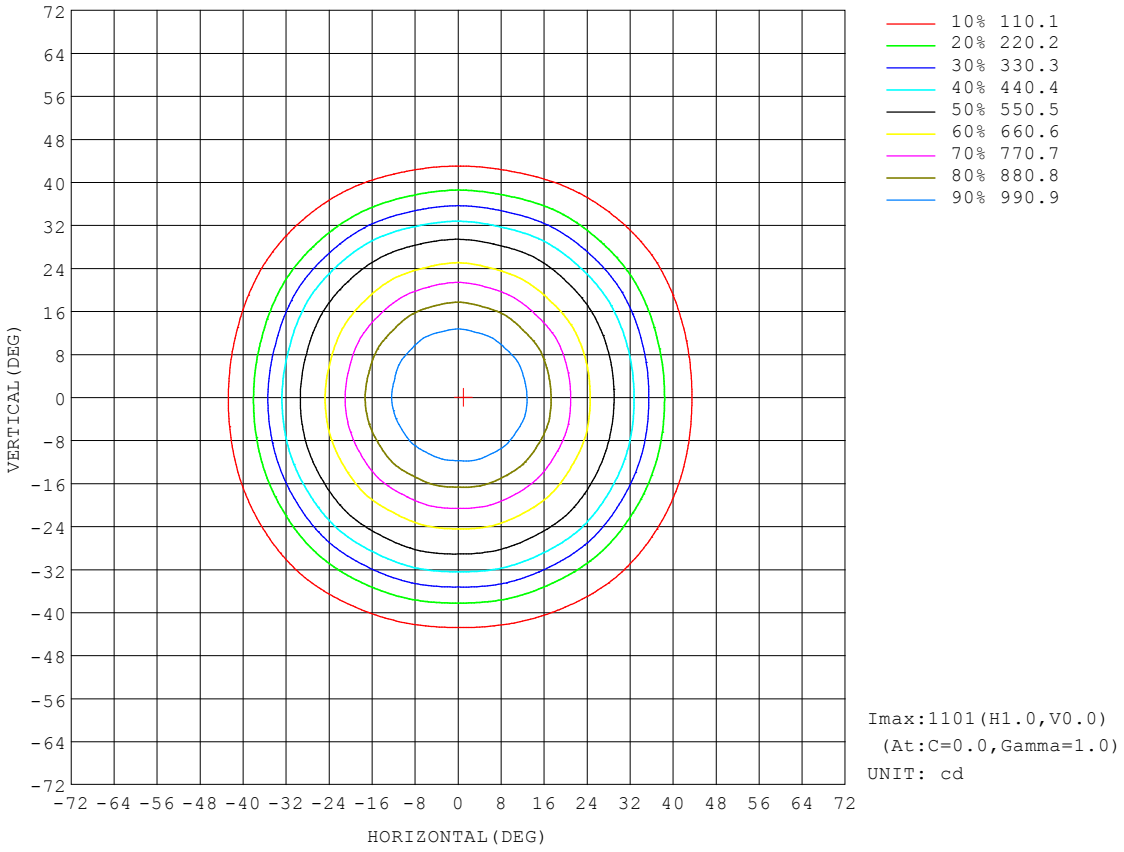
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

ISOCANDELA DIAGRAM

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding Angle:



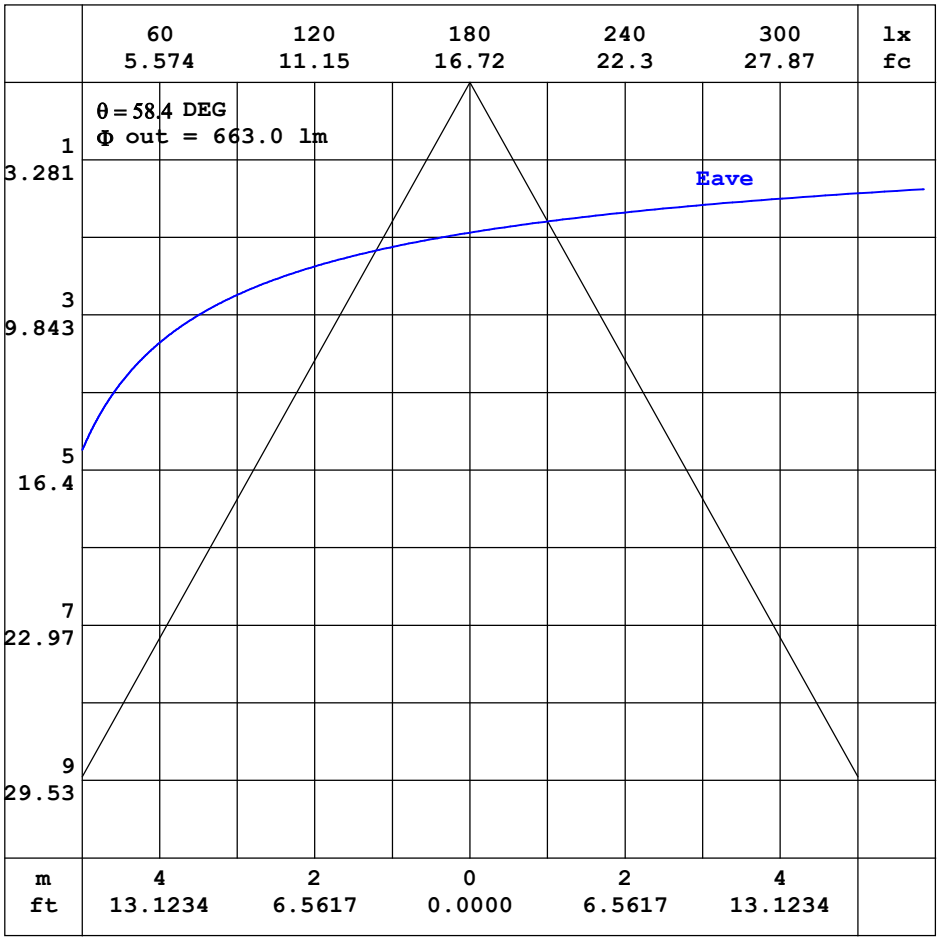
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

AAI CURVES

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding Angle:



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

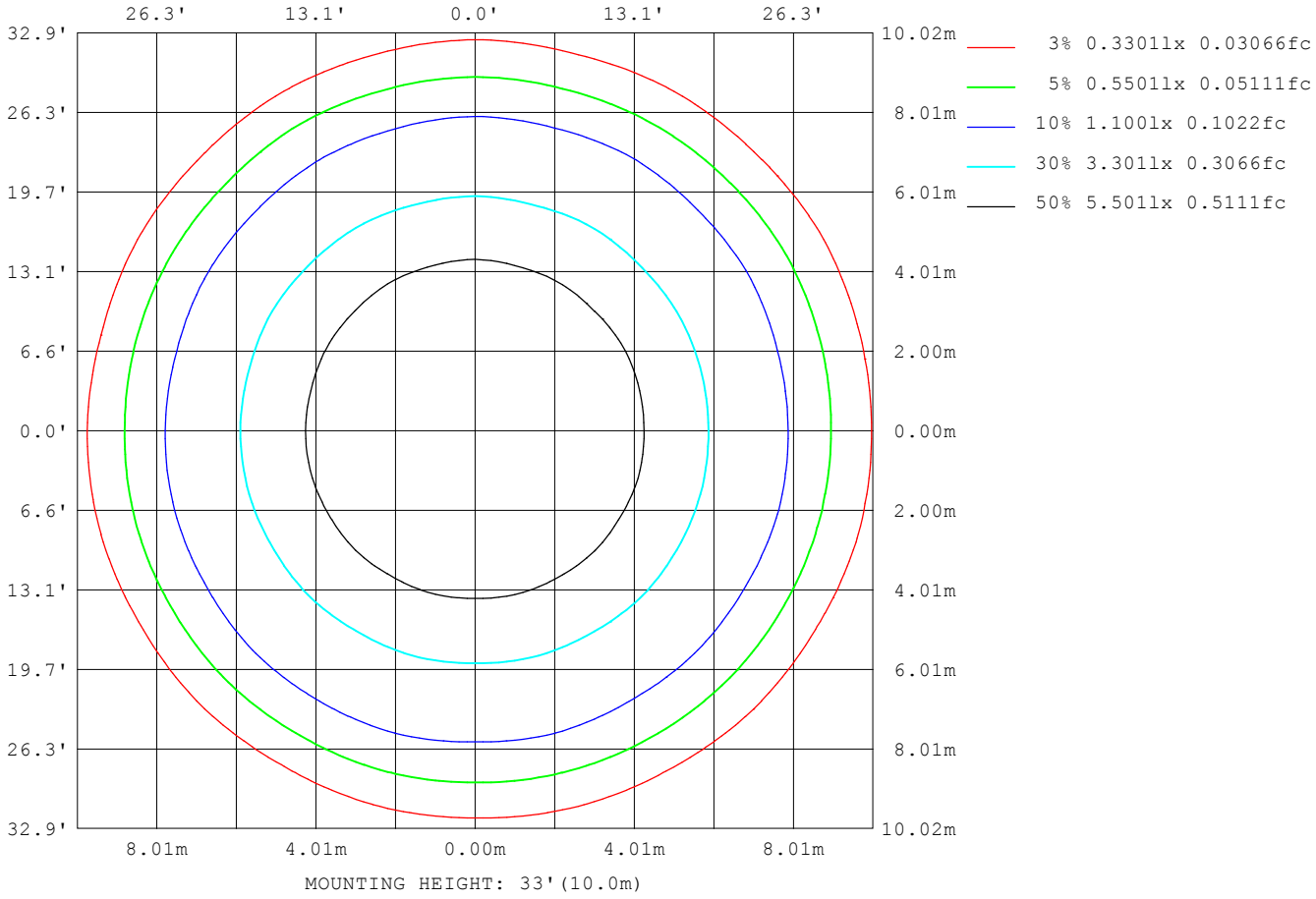
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

ISOLUX DIAGRAM

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding Angle:

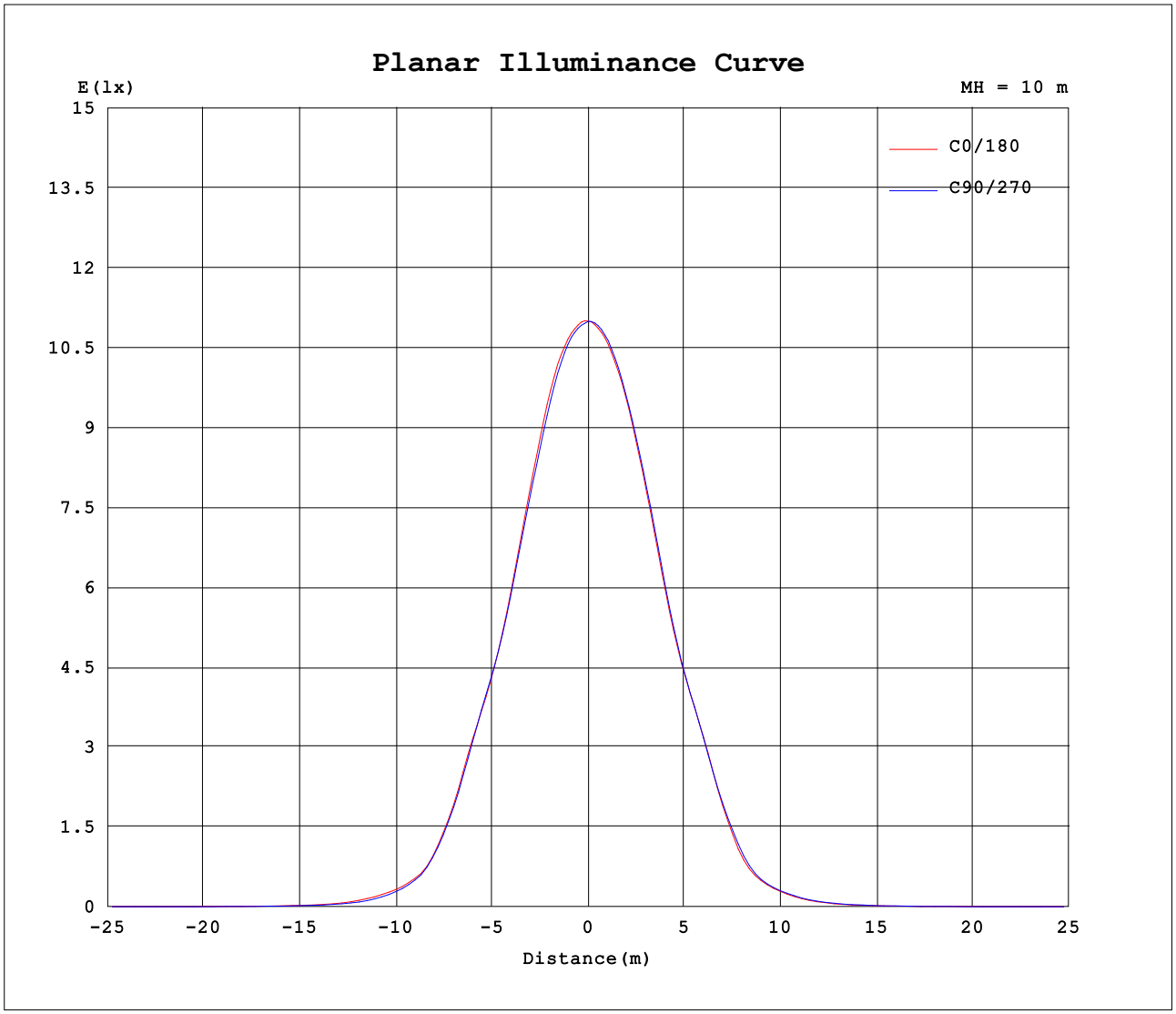
AvgL	cd/m2
L_0~180(65)av	1823
L_0~180(75)av	901
L_0~180(85)av	293
L_90~270(65)av	1543
L_90~270(75)av	485
L_90~270(85)av	97
L_45(65)av	1725
L_45(75)av	634
L_45(85)av	126

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding 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	1100	1100	1101	1099	1099	1099	1099	1099	1099	1099	1099	1099	1100	1100	1101	1099	1099	1099	1099
5	1090	1089	1087	1086	1084	1083	1082	1081	1079	1079	1077	1079	1081	1080	1082	1082	1084	1085	1086
10	1042	1044	1038	1037	1030	1031	1024	1024	1023	1027	1024	1028	1030	1029	1035	1032	1037	1034	1036
15	940	944	936	937	930	930	921	925	925	931	928	934	937	934	941	938	943	942	946
20	799	804	797	801	795	797	790	795	792	800	796	802	803	798	806	802	811	807	814
25	648	653	648	654	650	652	646	650	646	655	651	655	654	650	657	654	660	655	662
30	526	529	530	536	529	531	525	532	526	535	531	536	534	531	537	534	537	530	534
35	349	352	348	355	348	350	340	348	343	350	343	348	347	337	348	345	356	349	355
40	168	170	165	169	166	168	165	169	166	168	163	162	159	156	160	161	169	167	172
45	92.3	93.0	89.6	89.1	85.4	83.7	81.0	81.5	79.9	82.3	81.6	83.0	82.5	80.0	82.4	82.5	84.5	84.2	86.0
50	46.2	46.4	43.9	42.9	38.7	37.4	34.7	34.7	33.9	35.1	34.8	35.9	36.8	36.2	37.9	37.7	39.2	39.2	40.5
55	19.7	19.9	18.9	18.4	16.8	16.2	15.5	15.5	15.2	15.8	15.4	15.6	15.9	16.0	16.8	16.8	17.1	16.7	17.6
60	10.1	10.4	9.91	9.64	8.66	8.23	7.70	7.91	8.17	8.63	8.53	8.64	8.75	8.63	8.87	8.69	8.76	8.23	8.39
65	5.67	5.76	5.59	5.43	4.97	4.77	4.63	4.75	4.92	5.28	5.34	5.42	5.49	5.39	5.42	5.19	5.10	4.92	4.80
70	3.63	3.71	3.57	3.39	2.83	2.66	2.53	2.58	2.67	3.23	3.47	3.62	3.70	3.63	3.64	3.24	2.94	2.62	2.62
75	1.74	1.83	1.63	1.27	1.01	0.90	0.88	0.90	0.93	1.12	1.28	1.49	1.63	1.55	1.50	1.18	1.01	0.91	0.94
80	0.65	0.65	0.52	0.33	0.34	0.30	0.30	0.29	0.32	0.31	0.38	0.44	0.54	0.55	0.45	0.37	0.31	0.34	0.31
85	0.20	0.16	0.14	0.06	0.07	0.04	0.07	0.05	0.07	0.04	0.12	0.11	0.16	0.17	0.10	0.11	0.05	0.09	0.06
90	0.05	0.05	0.04	0.04	0.05	0.04	0.04	0.05	0.04	0.04	0.04	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05
95	0.05	0.07	0.04	0.06	0.04	0.07	0.04	0.07	0.04	0.07	0.04	0.07	0.07	0.05	0.07	0.05	0.07	0.05	0.07
100	0.05	0.10	0.04	0.10	0.05	0.10	0.05	0.10	0.05	0.10	0.06	0.11	0.10	0.05	0.10	0.05	0.09	0.05	0.09
105	0.13	0.17	0.13	0.17	0.14	0.17	0.15	0.17	0.16	0.19	0.16	0.19	0.17	0.12	0.16	0.11	0.15	0.10	0.14
110	0.28	0.30	0.28	0.31	0.29	0.32	0.30	0.32	0.30	0.33	0.31	0.34	0.29	0.24	0.28	0.25	0.27	0.25	0.26
115	0.52	0.55	0.53	0.56	0.54	0.57	0.56	0.58	0.57	0.59	0.57	0.59	0.53	0.52	0.50	0.48	0.49	0.45	0.47
120	0.89	0.92	0.90	0.93	0.92	0.94	0.92	0.95	0.92	0.95	0.93	0.96	0.84	0.81	0.83	0.79	0.82	0.80	0.82
125	1.38	1.40	1.39	1.41	1.41	1.43	1.41	1.43	1.42	1.44	1.42	1.44	1.29	1.27	1.27	1.25	1.25	1.22	1.24
130	1.97	1.97	1.97	1.98	1.97	2.00	1.99	2.01	1.99	2.01	1.99	2.01	1.82	1.81	1.80	1.77	1.78	1.75	1.76
135	2.62	2.63	2.63	2.64	2.65	2.66	2.67	2.67	2.67	2.67	2.67	2.68	2.45	2.44	2.42	2.39	2.40	2.38	2.39
140	3.29	3.32	3.30	3.32	3.32	3.34	3.36	3.36	3.36	3.36	3.36	3.38	3.13	3.10	3.09	3.07	3.06	3.06	3.05
145	3.95	3.97	3.96	3.97	3.96	3.99	4.01	4.02	4.01	4.03	4.04	4.04	3.79	3.76	3.75	3.72	3.72	3.70	3.71
150	4.56	4.57	4.56	4.59	4.59	4.62	4.69	4.66	4.66	4.65	4.69	4.67	4.43	4.42	4.37	4.32	4.33	4.32	4.33
155	5.10	5.10	5.08	5.11	5.12	5.19	5.25	5.23	5.18	5.21	5.24	5.23	4.98	4.98	4.92	4.87	4.87	4.87	4.91
160	5.55	5.55	5.52	5.59	5.59	5.68	5.68	5.71	5.65	5.68	5.65	5.70	5.44	5.42	5.42	5.37	5.36	5.36	5.39
165	6.01	6.01	5.94	6.02	6.09	6.15	6.16	6.17	6.10	6.10	6.09	6.13	5.93	5.93	5.92	5.87	5.90	5.89	5.94
170	6.42	6.44	6.42	6.47	6.49	6.55	6.50	6.53	6.48	6.53	6.54	6.57	6.38	6.41	6.43	6.39	6.38	6.35	6.39
175	6.84	6.88	6.84	6.94	6.91	6.91	6.86	6.92	6.90	6.98	6.97	6.95	6.85	6.84	6.92	6.92	6.87	6.82	6.81
180	7.12	7.13	7.13	7.20	7.12	7.12	7.12	7.09	7.12	7.16	7.13	7.11	7.13	7.13	7.14	7.20	7.16	7.11	7.12

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks:

IES TEST REPORT
Photometric Filename: HCP-81X22112 4000K.IES

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:219.55V I:0.0597A P:13.011W PF:0.9933 Freq:66.14Hz Lamp Flux:981.877x1 lm		
Name: HCP-81X22112 4000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: HAVIT COMMERCIAL	SUR.:	Shielding Angle:

Table--2 UNIT: cd

γ (DEG) \ C(DEG)	285	300	315	330	345														
0	1099	1099	1099	1099	1099														
5	1086	1087	1087	1088	1089														
10	1033	1035	1035	1041	1040														
15	940	944	940	945	941														
20	805	808	799	809	801														
25	653	656	650	656	652														
30	527	535	527	531	529														
35	348	358	352	358	353														
40	168	174	171	176	171														
45	84.4	88.8	90.0	93.6	92.5														
50	40.9	43.8	45.3	47.3	46.4														
55	17.3	18.5	18.7	19.5	19.5														
60	8.24	8.93	9.31	10.1	10.1														
65	4.59	4.85	5.20	5.57	5.59														
70	2.48	2.70	3.05	3.45	3.44														
75	0.93	1.04	1.18	1.41	1.56														
80	0.34	0.31	0.36	0.39	0.54														
85	0.10	0.05	0.11	0.10	0.19														
90	0.05	0.05	0.06	0.05	0.05														
95	0.05	0.06	0.05	0.07	0.05														
100	0.05	0.08	0.05	0.09	0.05														
105	0.10	0.14	0.10	0.13	0.10														
110	0.25	0.26	0.25	0.26	0.25														
115	0.45	0.47	0.44	0.47	0.45														
120	0.79	0.82	0.80	0.81	0.79														
125	1.21	1.23	1.21	1.23	1.22														
130	1.75	1.76	1.74	1.76	1.75														
135	2.38	2.38	2.38	2.38	2.37														
140	3.02	3.03	3.01	3.02	3.01														
145	3.66	3.67	3.65	3.66	3.66														
150	4.27	4.27	4.22	4.26	4.26														
155	4.83	4.81	4.75	4.78	4.78														
160	5.32	5.30	5.25	5.26	5.27														
165	5.88	5.86	5.80	5.76	5.80														
170	6.34	6.36	6.27	6.27	6.26														
175	6.77	6.85	6.83	6.79	6.74														
180	7.08	7.12	7.14	7.14	7.11														

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2023-03-06

γ Range: 0 - 180DEG
γInterval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.003m [K=1.0000]
Remarks: