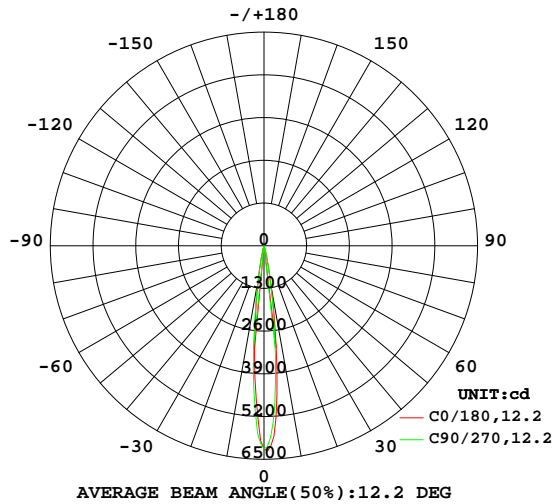


LUMINAIRE PHOTOMETRIC TEST REPORT

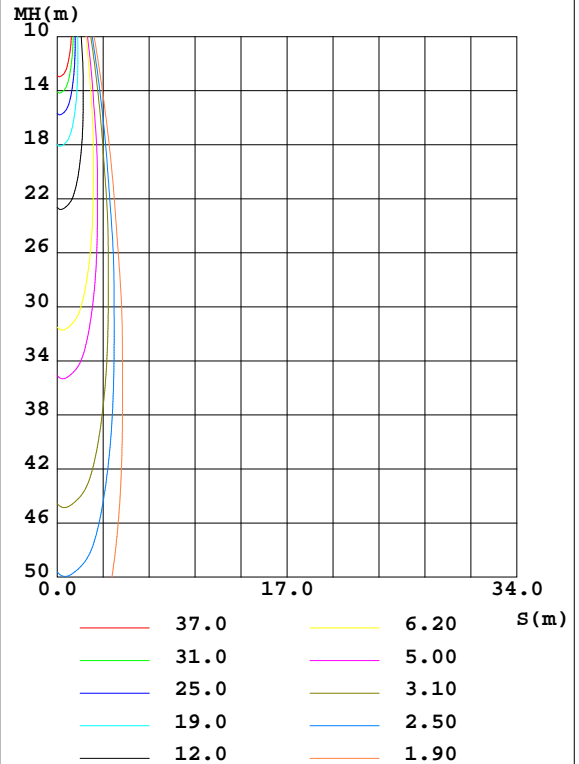
Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:388.483x1 lm		
NAME: PB15 PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	PB15 2700K	Imax(cd)	6264	S/MH(C0/180)	0.19
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	0.21
RATED VOLTAGE(V)		TOTAL FLUX(lm)	388.48	η UP,DN(C0-180)	0.1,52.5
NOMINAL FLUX(lm)	388.483	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.1,47.4
LAMPS INSIDE	1	η up(%)	0.2	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)		η down(%)	99.8	CIBSE SHR MAX	1.00

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:William
Test Date:2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:56.4%
Test Distance:26.000m [K=1.4238]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1278	1310	1140	983.7	972.5	942.5	970.4	1106	0- 10	276.7	276.7	71.2,71.2
20	68.05	69.76	65.50	64.99	64.89	61.58	55.16	62.20	10- 20	78.87	355.5	91.5,91.5
30	18.33	18.93	17.50	17.24	16.81	16.09	14.93	16.86	20- 30	15.48	371.0	95.5,95.5
40	8.618	8.726	8.242	9.569	8.375	8.020	6.694	7.269	30- 40	7.171	378.2	97.3,97.3
50	5.772	5.412	4.543	6.126	5.993	5.248	3.538	4.284	40- 50	5.088	383.3	98.7,98.7
60	3.004	2.860	2.235	2.764	2.384	2.080	1.149	1.907	50- 60	3.232	386.5	99.5,99.5
70	0.8515	0.7763	0.6182	0.8450	0.0769	0	0	0.0758	60- 70	1.201	387.7	99.8,99.8
80	0	0	0	0	0	0	0	0	70- 80	0.1420	387.8	99.8,99.8
90	0	0	0	0	0	0	0	0	80- 90	0.0000	387.8	99.8,99.8
100	0	0	0	0	0	0	0	0	90-100	0	387.8	99.8,99.8
110	0	0	0	0	0	0	0	0	100-110	0	387.8	99.8,99.8
120	0	0	0	0	0	0	0	0	110-120	0	387.8	99.8,99.8
130	0	0	0	0	0	0	0	0	120-130	0	387.8	99.8,99.8
140	0	0	0	0	0	0	0	0	130-140	0	387.8	99.8,99.8
150	0	0	0	0	0	0	0	0	140-150	0	387.8	99.8,99.8
160	0.3036	0.2999	0.0749	0.4518	1.462	1.321	1.160	1.226	150-160	0.0689	387.9	99.9,99.9
170	1.462	1.700	1.538	1.684	2.072	1.775	1.693	1.833	160-170	0.4149	388.3	100,100
180	1.462	1.699	1.616	1.684	1.769	1.544	1.539	1.531	170-180	0.1540	388.5	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 380.91 lm

%lum = 98.1%

%lamp = 98.1%

Conical surface Flux(120deg): 386.5 lm

%lum = 99.5%

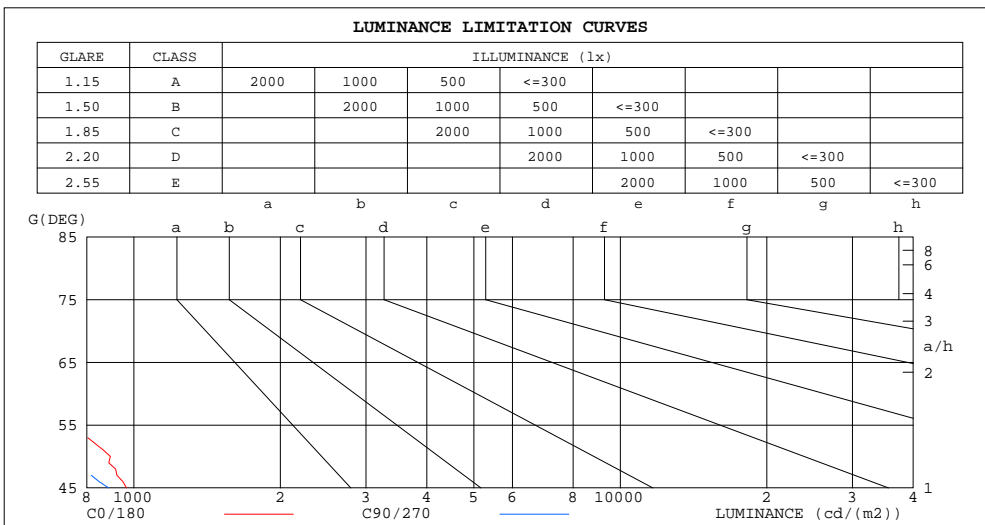
%lamp = 99.5%

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:William
Test Date:2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:56.4%
Test Distance:26.000m [K=1.4238]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:388.483x1 lm		
NAME: PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	0	0
80	0	0
75	90	30
70	248	182
65	383	276
60	599	450
55	762	567
50	895	711
45	966	888

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:William
 Test Date:2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:56.4%
 Test Distance:26.000m [K=1.4238]
 Remarks:

WEC AND CCEC

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:388.483x1 lm									
NAME: PixelBrick				TYPE:LED			WEIGHT:N/A		
SPEC.:N/A				DIM.:			SERIAL No.:N/A		
MFR.: Astera LED Technology GmbH				SUR.:			Shielding Angle:N/A		

pcc	80%			70%			50%			30%			10%			0	
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
pfc	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.114	.065	.021	.108	.061	.019	.095	.055	.017	.084	.048	.016	.073	.043	.014		
2.0	.104	.057	.017	.098	.054	.017	.088	.049	.015	.079	.044	.014	.070	.040	.013		
3.0	.095	.050	.015	.090	.048	.015	.082	.045	.014	.074	.041	.013	.067	.037	.012		
4.0	.087	.045	.013	.084	.044	.013	.077	.041	.012	.070	.038	.011	.064	.035	.011		
5.0	.081	.041	.012	.078	.040	.012	.072	.037	.011	.066	.035	.010	.061	.033	.010		
6.0	.075	.038	.011	.072	.037	.011	.067	.035	.010	.063	.033	.010	.059	.031	.009		
7.0	.070	.035	.010	.068	.034	.010	.064	.032	.009	.060	.031	.009	.056	.029	.009		
8.0	.066	.032	.009	.064	.031	.009	.060	.030	.009	.057	.029	.008	.054	.028	.008		
9.0	.062	.030	.008	.060	.029	.008	.057	.028	.008	.054	.027	.008	.051	.026	.008		
10.0	.059	.028	.008	.057	.028	.008	.054	.027	.008	.052	.026	.007	.049	.025	.007		

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.192	.192	.192	.164	.164	.164	.112	.112	.112	.064	.064	.064	.021	.021	.021	
1.0	.168	.159	.151	.144	.137	.130	.098	.094	.090	.057	.054	.052	.018	.018	.017	
2.0	.148	.134	.122	.127	.115	.105	.087	.080	.074	.050	.046	.043	.016	.015	.014	
3.0	.132	.114	.100	.113	.099	.087	.078	.069	.061	.045	.040	.036	.014	.013	.012	
4.0	.118	.099	.084	.101	.085	.073	.070	.059	.051	.040	.035	.030	.013	.011	.010	
5.0	.107	.086	.071	.091	.074	.062	.063	.052	.043	.037	.030	.026	.012	.010	.008	
6.0	.097	.076	.060	.083	.065	.053	.057	.046	.037	.033	.027	.022	.011	.009	.007	
7.0	.088	.067	.052	.076	.058	.045	.052	.041	.032	.030	.024	.019	.010	.008	.006	
8.0	.081	.060	.045	.070	.052	.039	.048	.036	.028	.028	.021	.017	.009	.007	.006	
9.0	.075	.054	.040	.064	.047	.035	.044	.033	.025	.026	.019	.015	.008	.006	.005	
10.0	.069	.049	.035	.060	.042	.031	.041	.030	.022	.024	.018	.013	.008	.006	.004	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:William
 Test Date:2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:56.4%
 Test Distance:26.000m [K=1.4238]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:388.483x1 lm										
NAME: PixelBrick					TYPE:LED			WEIGHT:N/A		
SPEC.:N/A					DIM.:			SERIAL No.:N/A		
MFR.: Astera LED Technology GmbH					SUR.:			Shielding Angle:N/A		

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	2.5	3.0	2.7	3.2	3.3	1.5	2.0	1.7	2.1	2.3
3H	2.8	3.3	3.0	3.5	3.6	1.7	2.1	1.9	2.3	2.5
4H	2.8	3.2	3.0	3.4	3.6	1.6	2.0	1.8	2.2	2.4
6H	2.7	3.1	3.0	3.4	3.6	1.5	1.9	1.8	2.2	2.4
8H	2.7	3.1	2.9	3.3	3.6	1.5	1.9	1.8	2.1	2.4
12H	2.6	3.0	2.9	3.3	3.5	1.4	1.8	1.7	2.1	2.3
4H 2H	2.7	3.2	3.0	3.4	3.6	1.8	2.3	2.1	2.5	2.7
3H	3.0	3.4	3.3	3.7	3.9	2.0	2.4	2.3	2.6	2.9
4H	3.0	3.3	3.3	3.6	3.9	1.9	2.3	2.2	2.6	2.9
6H	2.9	3.2	3.2	3.5	3.9	1.8	2.1	2.2	2.5	2.8
8H	2.8	3.1	3.2	3.5	3.8	1.8	2.1	2.1	2.4	2.8
12H	2.7	3.0	3.1	3.4	3.8	1.7	2.0	2.1	2.3	2.7
8H 4H	2.8	3.1	3.2	3.5	3.8	1.8	2.1	2.2	2.4	2.8
6H	2.7	3.0	3.1	3.4	3.8	1.7	1.9	2.1	2.3	2.7
8H	2.6	2.9	3.1	3.3	3.7	1.6	1.8	2.0	2.2	2.7
12H	2.6	2.8	3.0	3.2	3.7	1.5	1.7	2.0	2.2	2.6
12H 4H	2.8	3.1	3.2	3.4	3.8	1.7	2.0	2.1	2.4	2.8
6H	2.6	2.9	3.1	3.3	3.7	1.6	1.8	2.0	2.2	2.7
8H	2.6	2.8	3.0	3.2	3.7	1.5	1.7	2.0	2.2	2.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.6 / - 1.1					+ 1.1 / - 1.6				
1.5H	+ 0.3 / - 0.7					+ 0.6 / - 0.8				
2.0H	+ 1.4 / - 1.7					+ 1.6 / - 2.2				

CIE Pub.117, 388.5 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = -3.3$)

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:William
Test Date:2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:56.4%
Test Distance:26.000m [K=1.4238]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:388.483x1 lm		
NAME: PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A

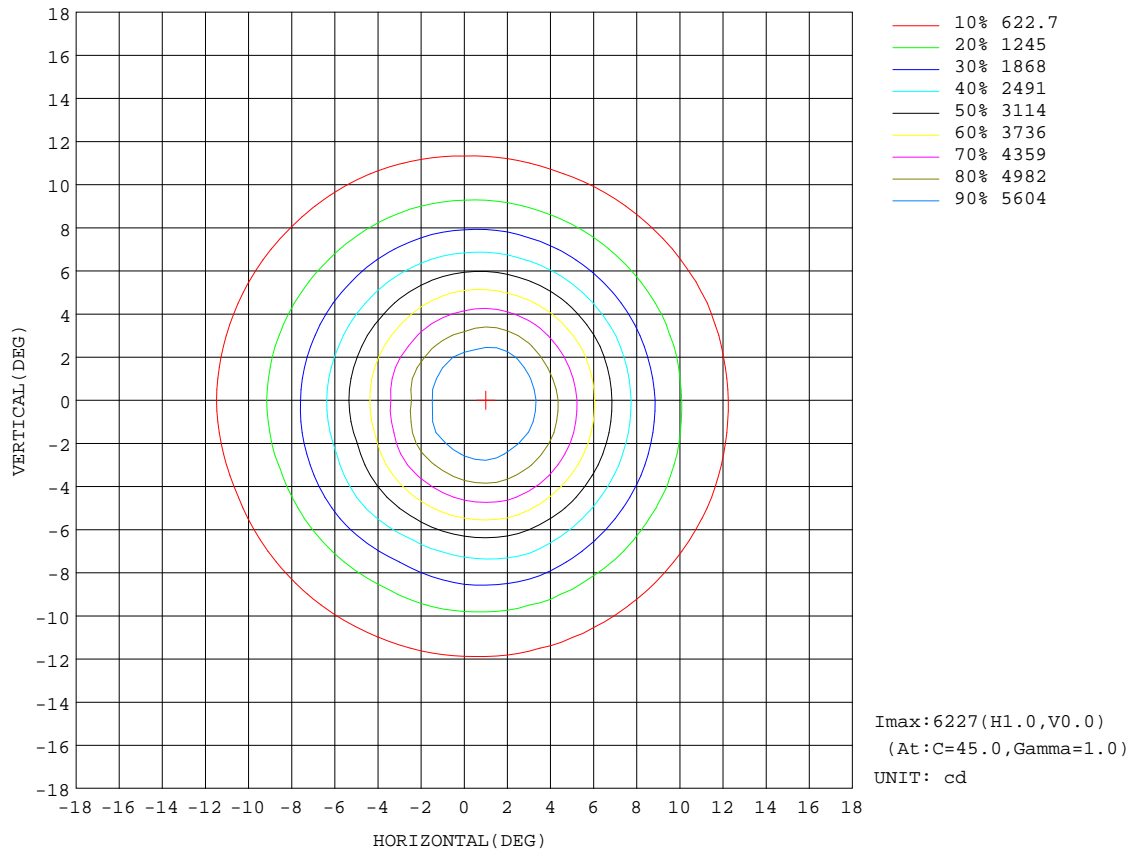
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	90	84	80	89	84	80	89	83	80	77
0.80	97	92	88	96	91	88	95	91	88	84
1.00	101	96	92	100	95	92	99	95	92	88
1.25	105	100	97	104	99	96	102	98	95	91
1.50	107	103	100	106	102	99	104	101	98	94
2.00	109	106	103	108	105	102	105	103	100	95
2.50	111	107	105	109	106	104	106	104	102	96
3.00	112	109	107	111	108	106	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					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:William
 Test Date:2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:56.4%
 Test Distance:26.000m [K=1.4238]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:388.483x1 lm		
NAME: PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A

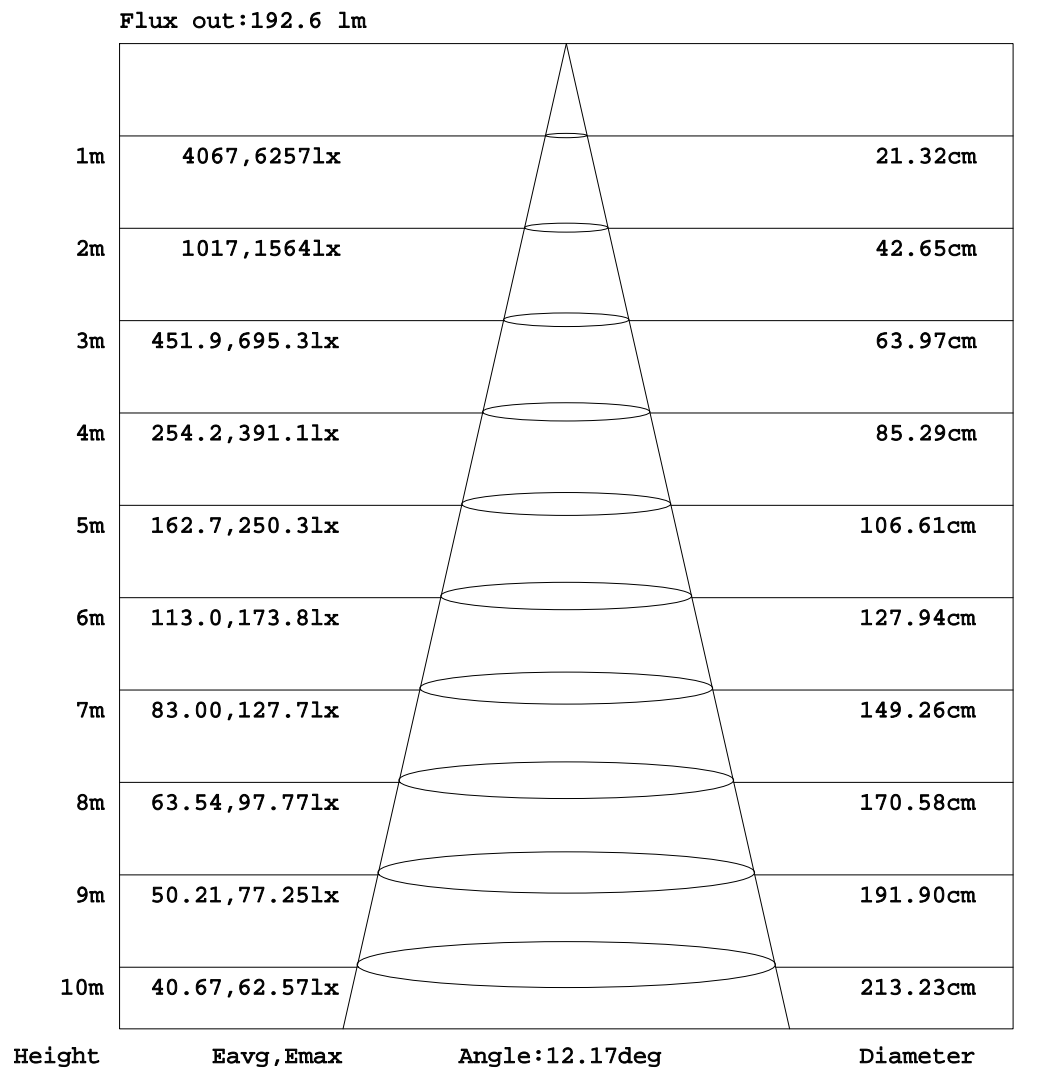


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:William
Test Date:2021-04-15

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:56.4%
Test Distance:26.000m [K=1.4238]
Remarks:

AAI Figure

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:388.483x1 lm		
NAME: PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A

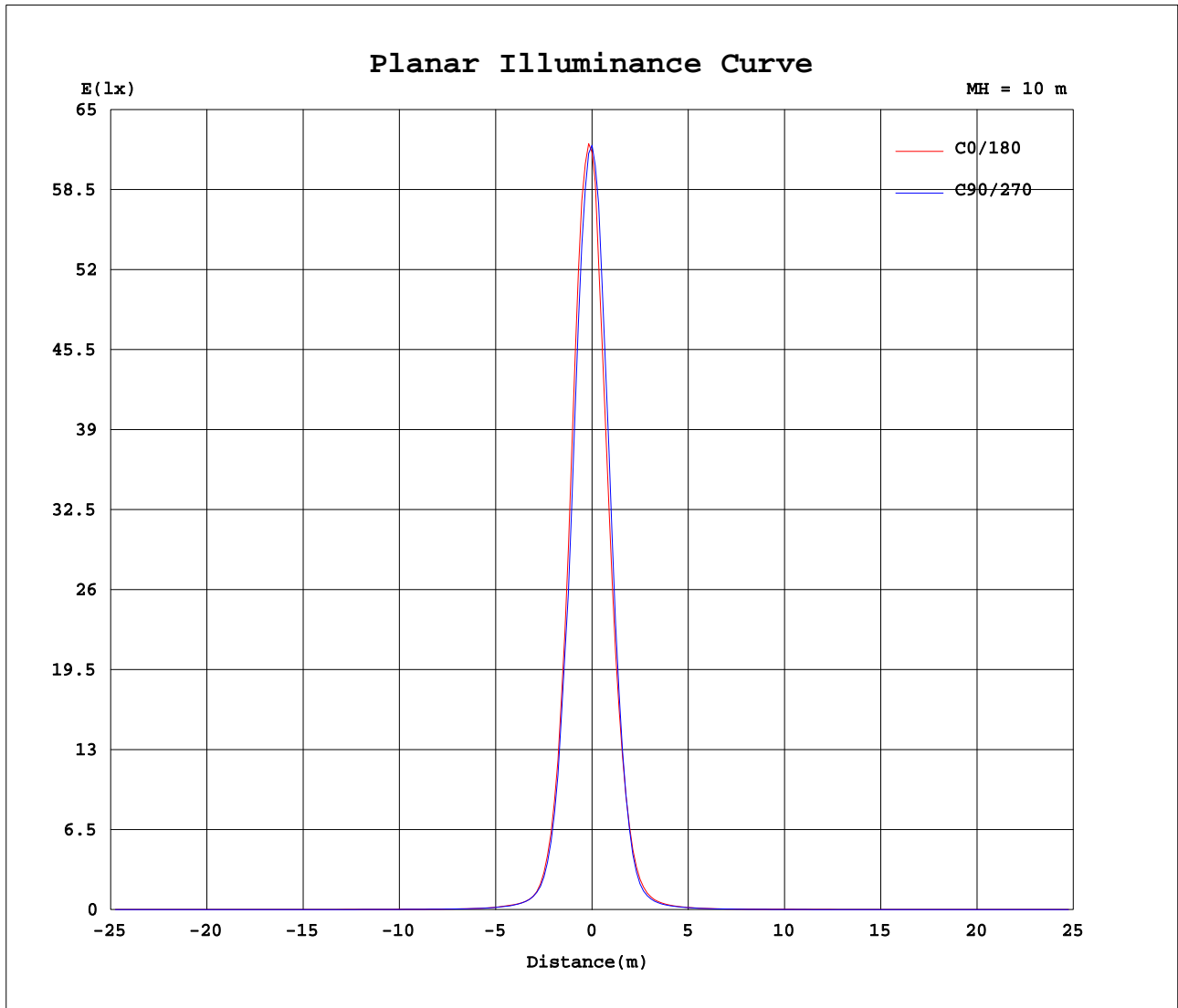


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:William
 Test Date:2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:56.4%
 Test Distance:26.000m [K=1.4238]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 24.5DEG
Operators: William
Test Date: 2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity: 56.4%
Test Distance: 26.000m [K=1.4238]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:388.483x1 lm																		
NAME: PixelBrick									TYPE:LED					WEIGHT:N/A				
SPEC.:N/A									DIM.:					SERIAL No.:N/A				
MFR.: Astera LED Technology GmbH									SUR.:					Shielding Angle:N/A				

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	6175	6175	6175	6175	6175	6175	6175	6175	6175	6175	6175	6175	6175	6175	6175	6175			
5	4545	4615	4601	4384	4072	3843	3520	3356	3340	3346	3443	3589	3781	4026	4186	4421			
10	1278	1316	1310	1243	1140	1056	984	962	973	949	942	962	970	1036	1106	1237			
15	233	238	227	213	209	211	202	197	205	202	197	182	169	172	186	221			
20	68.0	71.3	69.8	66.1	65.5	65.9	65.0	64.1	64.9	63.6	61.6	57.8	55.2	57.8	62.2	66.5			
25	36.2	39.0	37.4	33.7	32.0	31.4	30.6	30.0	30.7	30.5	29.3	28.5	28.2	30.6	34.6	36.8			
30	18.3	19.0	18.9	18.0	17.5	17.5	17.2	17.1	16.8	16.8	16.1	15.5	14.9	16.1	16.9	17.8			
35	11.7	11.9	12.0	11.6	11.5	11.6	11.6	11.5	10.8	11.0	10.4	9.83	9.68	10.1	10.4	11.0			
40	8.62	8.52	8.73	8.31	8.24	9.48	9.57	9.62	8.38	8.50	8.02	7.06	6.69	6.99	7.27	7.60			
45	6.85	6.90	6.65	6.24	6.24	7.63	8.27	8.38	7.38	7.43	6.72	5.46	5.00	5.04	5.28	5.74			
50	5.77	5.75	5.41	4.78	4.54	5.59	6.13	6.52	5.99	5.59	5.25	4.15	3.54	3.80	4.28	4.73			
55	4.39	4.60	4.17	3.47	3.24	3.81	4.22	4.50	3.77	3.75	3.46	2.61	2.30	2.47	3.21	3.79			
60	3.00	3.07	2.86	2.24	2.24	2.42	2.76	3.03	2.38	2.30	2.08	1.38	1.15	1.24	1.91	2.25			
65	1.63	1.76	1.78	1.31	1.16	1.40	1.77	2.02	1.15	1.15	1.07	0.23	0.15	0.23	1.14	1.08			
70	0.85	0.77	0.78	0.62	0.62	0.78	0.85	1.01	0.08	0.00	0.00	0.00	0.00	0.00	0.08	0.00			
75	0.23	0.08	0.08	0.15	0.08	0.24	0.31	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
80	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			
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			
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			
95	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			
100	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			
105	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			
110	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			
115	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			
120	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			
125	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			
130	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			
135	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			
140	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			
145	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			
150	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			
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.16	0.08	0.08	0.08	0.08			
160	0.30	0.15	0.30	0.08	0.07	0.08	0.45	0.23	1.46	1.38	1.32	1.31	1.16	1.17	1.23	1.24			
165	1.31	1.22	1.47	1.23	1.15	1.01	1.45	1.24	2.31	1.92	1.85	2.31	1.62	1.71	1.99	2.40			
170	1.46	1.53	1.70	1.46	1.54	1.55	1.68	1.55	2.07	1.91	1.78	1.84	1.69	1.63	1.83	2.01			
175	1.46	1.53	1.70	1.54	1.62	1.48	1.68	1.55	1.77	1.46	1.54	1.69	1.54	1.63	1.53	1.71			
180	1.46	1.53	1.70	1.54	1.62	1.63	1.68	1.55	1.77	1.46	1.54	1.69	1.54	1.63	1.53	1.71			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:William
 Test Date:2021-04-15

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:56.4%
 Test Distance:26.000m [K=1.4238]
 Remarks: