PHOTOMETRIC TEST REPORT

DARTMOUTH TWIN LED BLACK

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DARTMOUTH TWIN LED BLACK

LIGHT EFFICIENCY:

52 Lumen/Watt

LIGHT QUALITY:

CRI: 82.7

COLOR TEMPERATURE:

3036 K

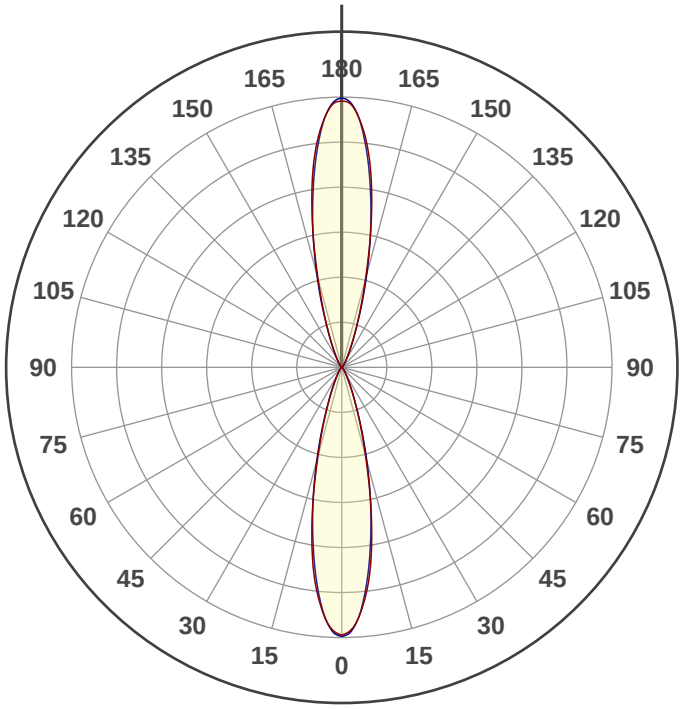
OUTPUT: 471 lm

PEAK: 1021 cd

POWER: 9.1 W

PF: 0.46

Tracking number: n/a



360°

CIE 1931
x: 0.433
y: 0.399

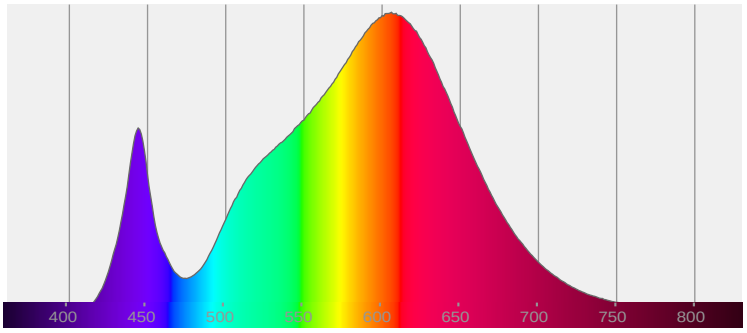
Product name:
Dartmouth Twin LED Black

Item number:
1372006

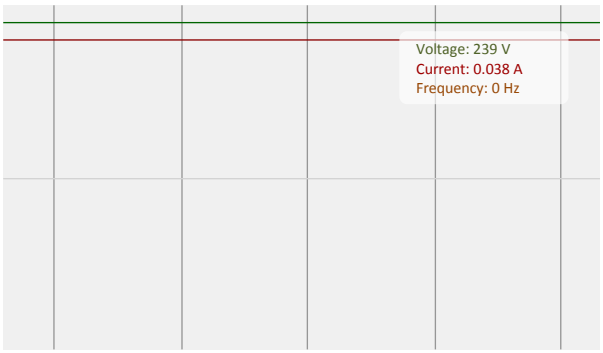
Date and time:
20/09/2019 12:50:03

Description:
IP54 Outdoor LED Wall Light

SPECTRA



POWER



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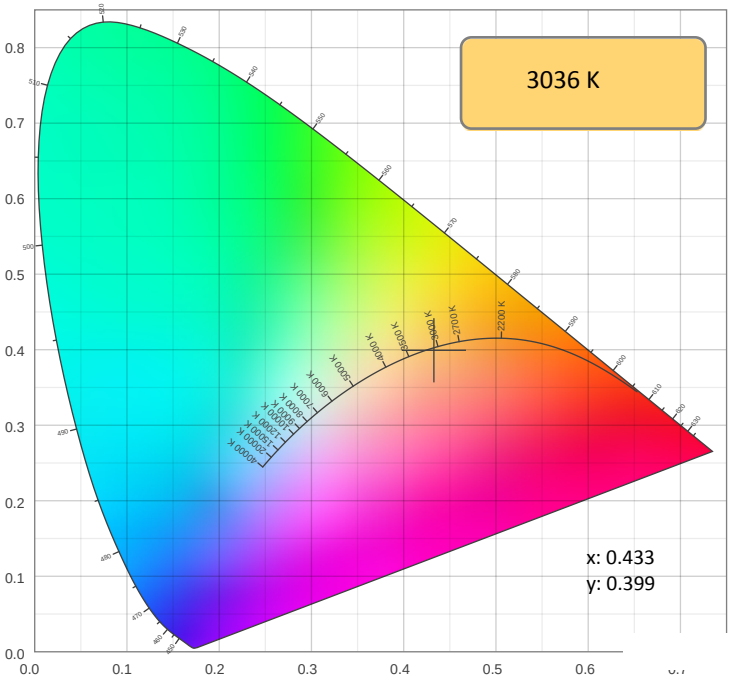
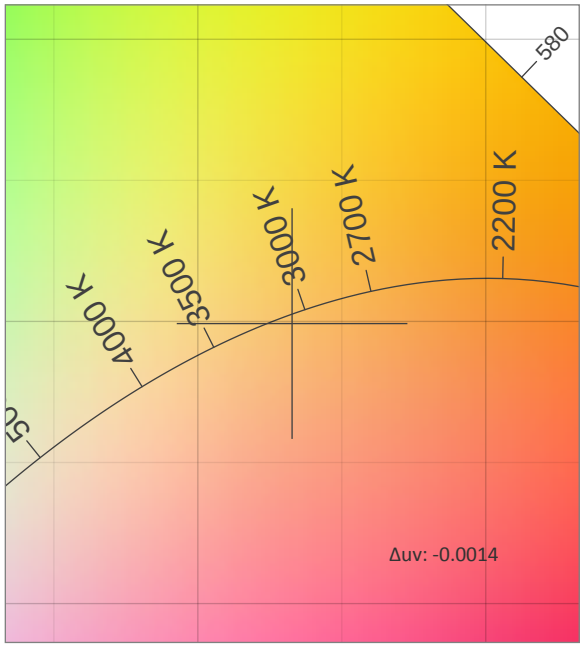
COLOR DETAILS

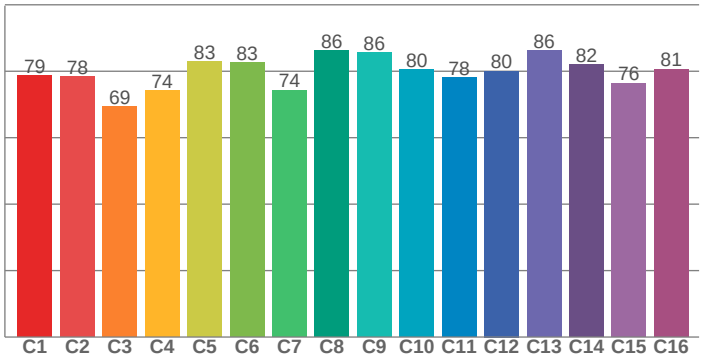


CIE 1931

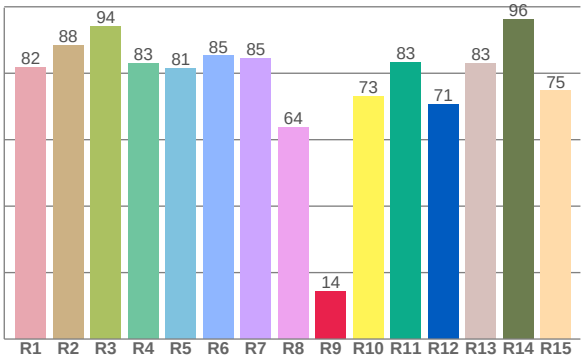


CIE 1931 ZOOM

TM30: 79.7



CRI: 82.7 (R1-R8)



CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81.7	88.2	94.0	83.0	81.3	85.2	84.5	63.7	14.3	72.9	83.2	70.7	82.9	96.2	74.7

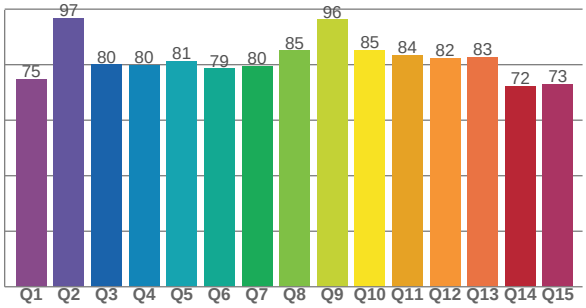
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
78.8	78.3	69.3	74.2	83.0	82.6	74.3	86.2	85.5	80.5	78.1	80.1	86.2	82.0	76.4	80.6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
74.7	96.7	80.0	79.9	81.3	78.6	79.6	85.1	96.3	85.4	83.5	82.3	82.7	72.4	73.0

CQS: 80.7



COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3036 K	82.7	14.3	79.7	100.6	80.7	0.433	0.399	0.250	0.346	-0.0014

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TM30 DETAILS

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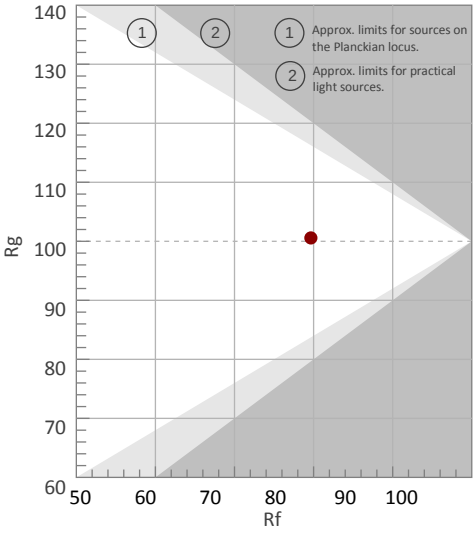
Rf 79.7

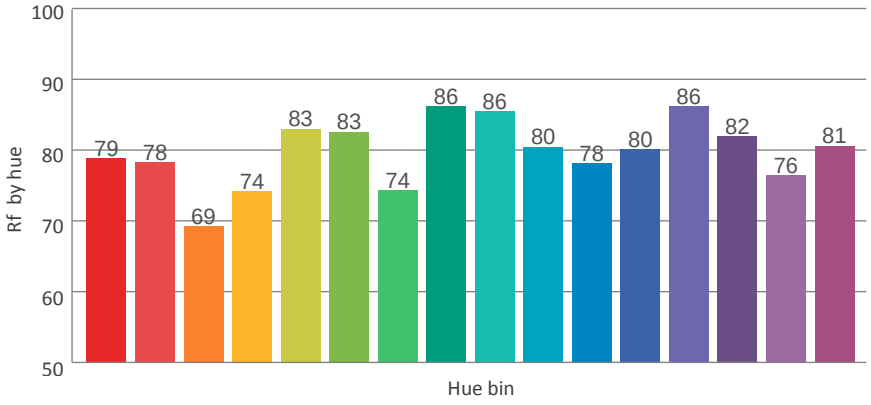
Fidelity index Rf

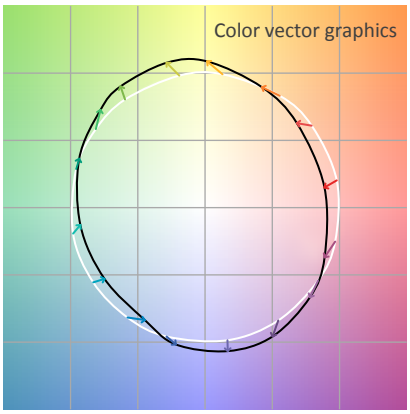
Rg 100.6

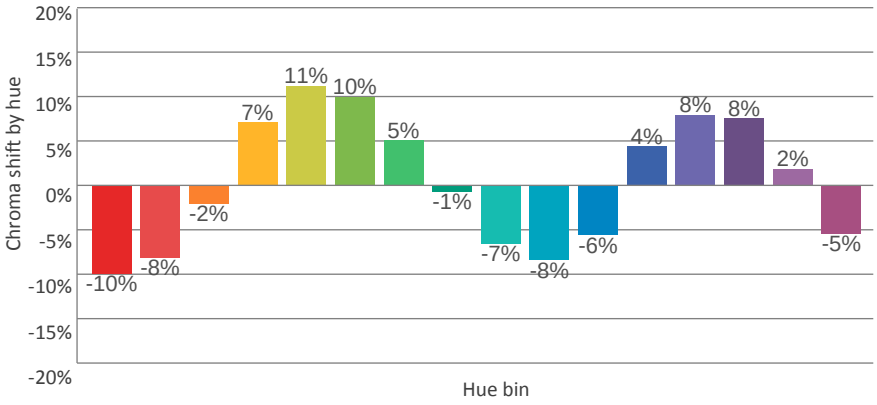
Gammut index Rg

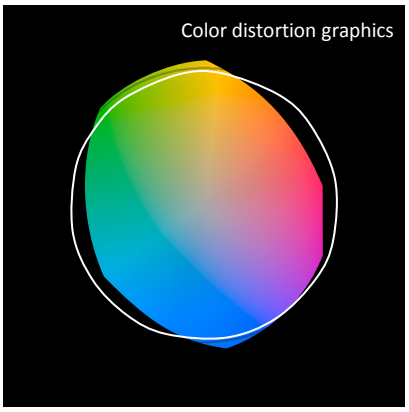
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	79	-10%	-3%
2	78	-8%	8%
3	69	-2%	15%
4	74	7%	13%
5	83	11%	7%
6	83	10%	-3%
7	74	5%	-14%
8	86	-1%	-8%
9	86	-7%	-5%
10	80	-8%	3%
11	78	-6%	12%
12	80	4%	8%
13	86	8%	-1%
14	82	8%	-10%
15	76	2%	-14%
16	81	-5%	-13%

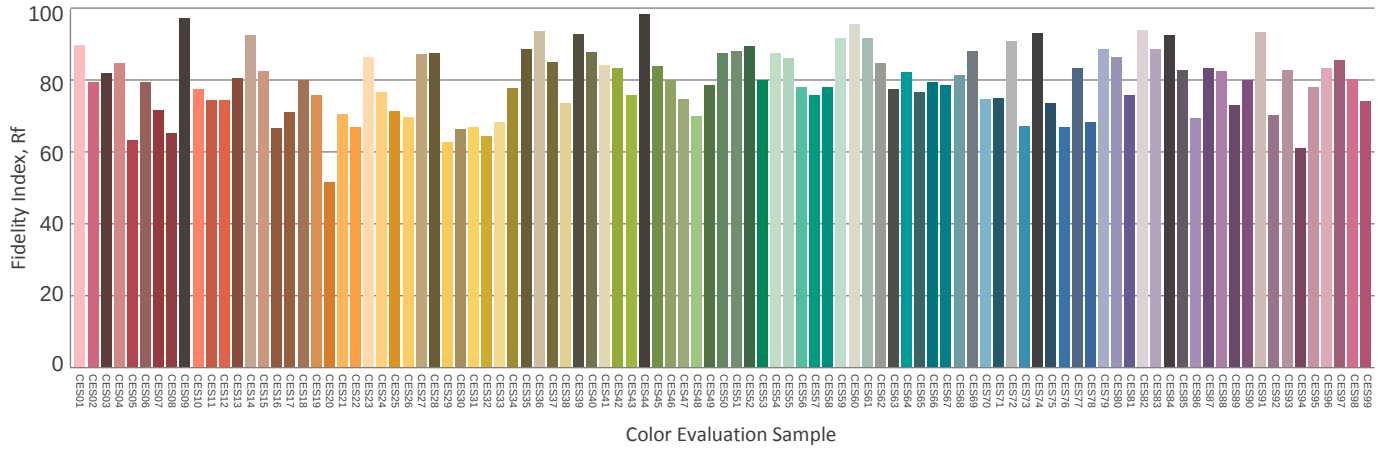












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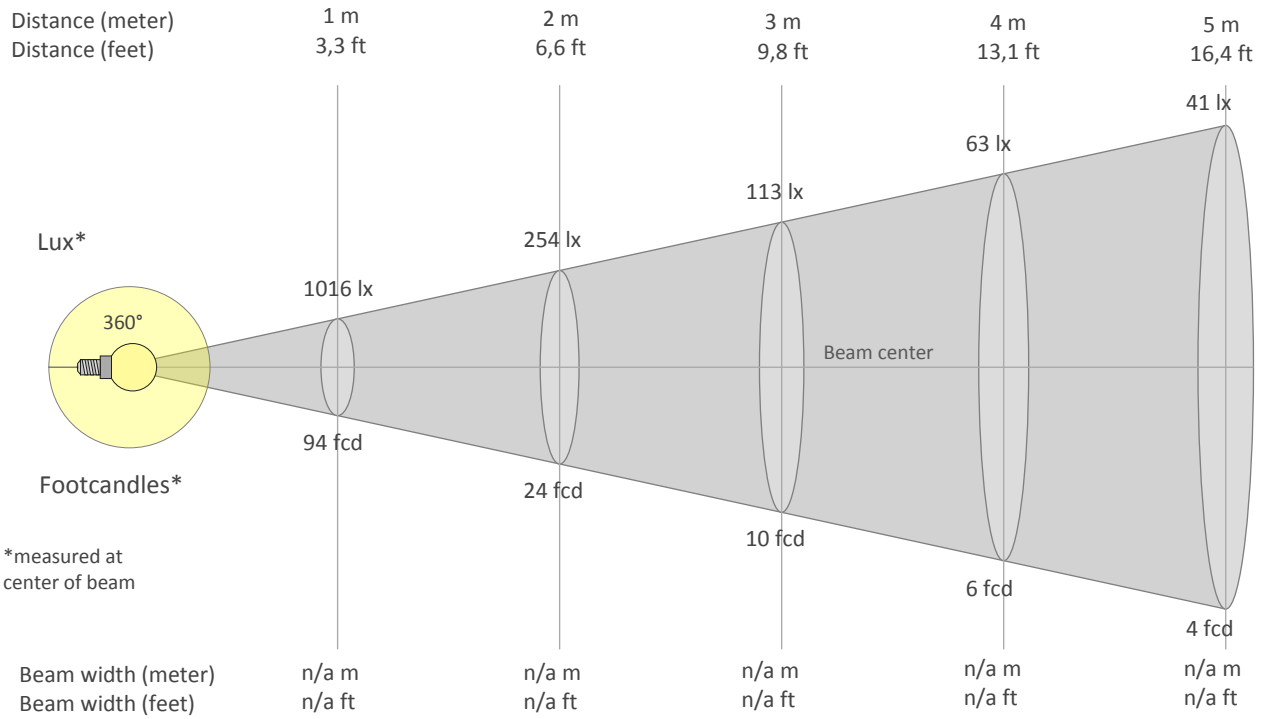
BEAM DETAILS



Beam intensities from 1-20m

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3.3ft	6.6ft	9.8ft	13.1ft	16.4ft	19.7ft	23ft	26.2ft	29.5ft	32.8ft	36.1ft	39.4ft	42.7ft	45.9ft	49.2ft	52.5ft	55.8ft	59.1ft	62.3ft	65.6ft
1016lx	254lx	113lx	63lx	41lx	28lx	21lx	16lx	13lx	10lx	8lx	7lx	6lx	5lx	5lx	4lx	4lx	3lx	3lx	3lx
94.4fcd	23.6fcd	10.5fcd	5.9fcd	3.8fcd	2.6fcd	1.9fcd	1.5fcd	1.2fcd	0.9fcd	0.8fcd	0.7fcd	0.6fcd	0.5fcd	0.4fcd	0.4fcd	0.3fcd	0.3fcd	0.3fcd	0.2fcd

Intensities in 0° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
1016	717	225	52	14	4	2	2	1	0	0	0	1	2	2	4	14	52	225	717
100%	71%	22%	5%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	5%	22%	71%

Intensities in 90° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
1016	693	234	54	16	7	4	3	1	0	0	0	1	3	4	7	16	54	233	693
100%	68%	23%	5%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	5%	23%	68%

Intensities in 180° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
1016	717	225	52	14	4	2	2	1	0	0	0	1	2	2	4	14	52	225	717
100%	71%	22%	5%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	5%	22%	71%

Intensities in 270° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°
1016	693	234	54	16	7	4	3	1	0	0	0	1	3	4	7	16	54	233	693
100%	68%	23%	5%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	5%	23%	68%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
360°	360°	360°	49.5%	48.6%

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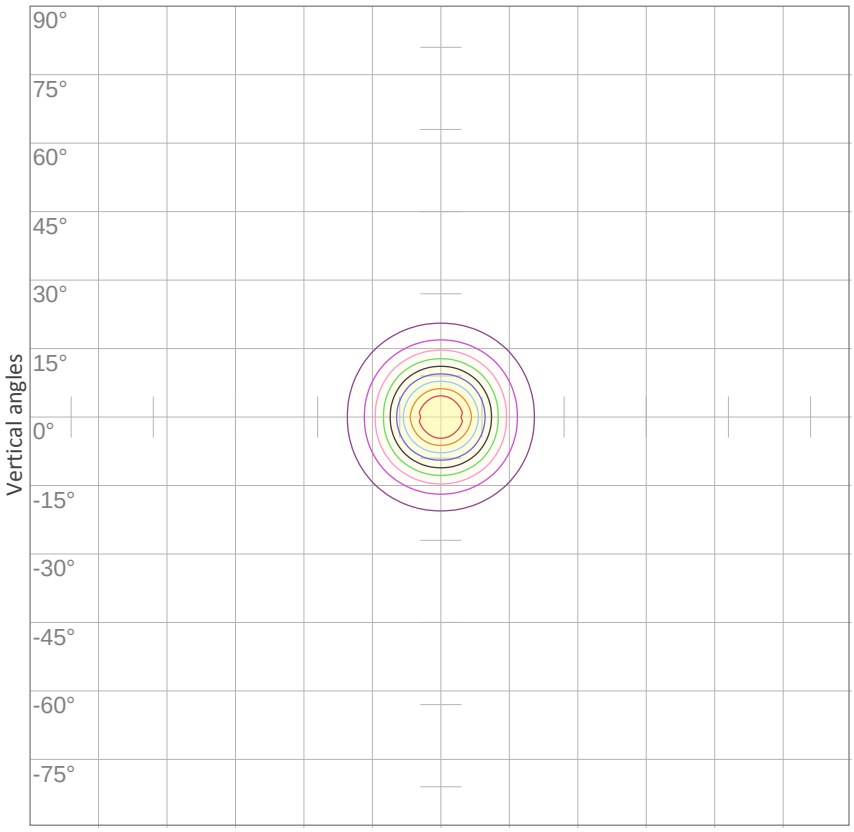
ISO DIAGRAMS

ISO CANDELA DIAGRAM



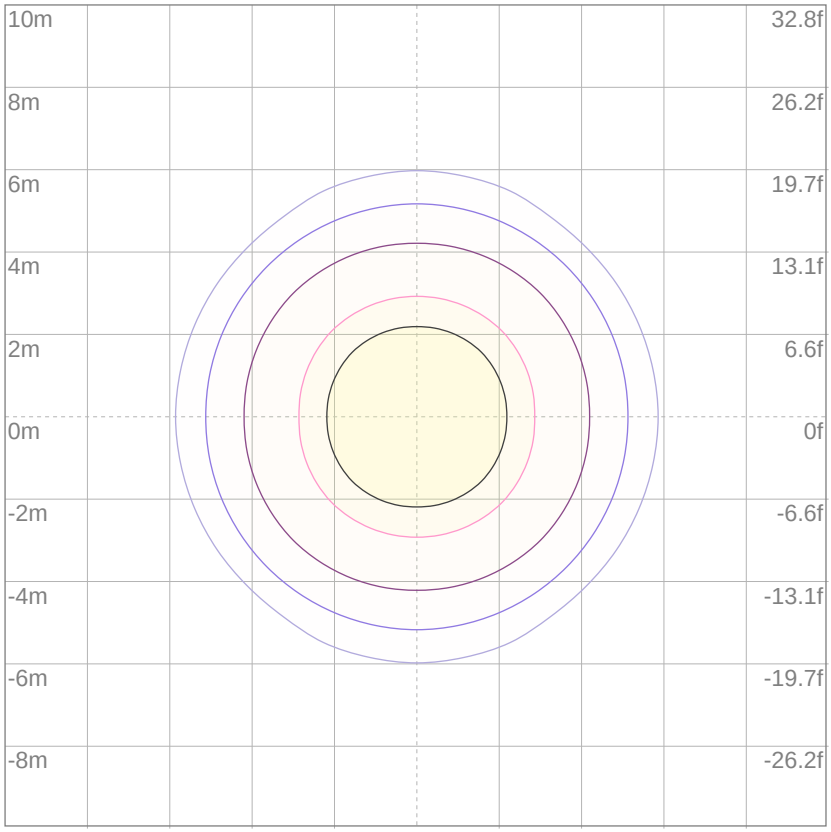
10%	102 cd
20%	203 cd
30%	305 cd
40%	406 cd
50%	508 cd
60%	609 cd
70%	711 cd
80%	813 cd
90%	914 cd

Conditions:

Number of c-planes: 8

Candela at center: 1016 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	0.305 lx
5%	0.508 lx
10%	1.02 lx
30%	3.05 lx
50%	{LUX_10M50} lx

Conditions:

Number of c-planes: 8

Lux at center: 10.2 lx

Lux distribution on a surface when lamp is mounted at 10 meters from the surface.

UGR

GLARE EVALUATION ACCORDING TO UGR

p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X	Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	4.4	5.0	5.3	5.9	6.9	5.7	6.2	6.5	7.1	8.1
	3H	4.7	5.2	5.6	6.1	7.2	6.0	6.5	6.9	7.4	8.5
	4H	4.6	5.1	5.6	6.0	7.1	6.0	6.4	6.9	7.3	8.5
	6H	4.5	5.0	5.5	5.9	7.0	5.8	6.3	6.8	7.2	8.3
	8H	4.5	4.9	5.4	5.8	7.0	5.8	6.2	6.7	7.1	8.3
	12H	4.4	4.8	5.3	5.7	6.9	5.7	6.1	6.7	7.0	8.2
4H	2H	4.4	4.9	5.4	5.8	6.9	5.5	6.0	6.5	6.9	8.0
	3H	4.7	5.1	5.7	6.1	7.2	5.9	6.3	6.9	7.3	8.4
	4H	4.7	5.1	5.7	6.0	7.2	5.9	6.2	6.9	7.2	8.4
	6H	4.6	4.9	5.6	5.9	7.1	5.8	6.1	6.8	7.0	8.3
	8H	4.5	4.8	5.5	5.8	7.0	5.7	6.0	6.7	7.0	8.2
	12H	4.4	4.7	5.5	5.7	7.0	5.7	5.9	6.7	6.9	8.2
8H	4H	4.5	4.8	5.5	5.8	7.1	5.7	6.0	6.7	7.0	8.2
	6H	4.4	4.6	5.5	5.6	6.9	5.6	5.8	6.6	6.8	8.1
	8H	4.4	4.5	5.4	5.6	6.9	5.5	5.7	6.6	6.7	8.1
	12H	4.3	4.4	5.3	5.5	6.8	5.5	5.6	6.5	6.7	8.0
12H	4H	4.5	4.7	5.5	5.7	7.0	5.6	5.9	6.6	6.9	8.1
	6H	4.4	4.5	5.4	5.5	6.9	5.5	5.7	6.6	6.7	8.0
	8H	4.3	4.4	5.3	5.5	6.8	5.5	5.6	6.5	6.6	8.0
Variation of the observer position for the luminaire distance S											
S = 1.0H		+2.6 / -2.0					+2.1 / -1.4				
S = 1.5H		+4.8 / -2.4					+4.0 / -1.8				
S = 2.0H		+6.5 / -3.7					+5.7 / -3.5				
Standard table		BK01					BK01				
Correction summand		-12.1					-10.9				
Corrected glare indices referring to 471 lm total luminous flux											

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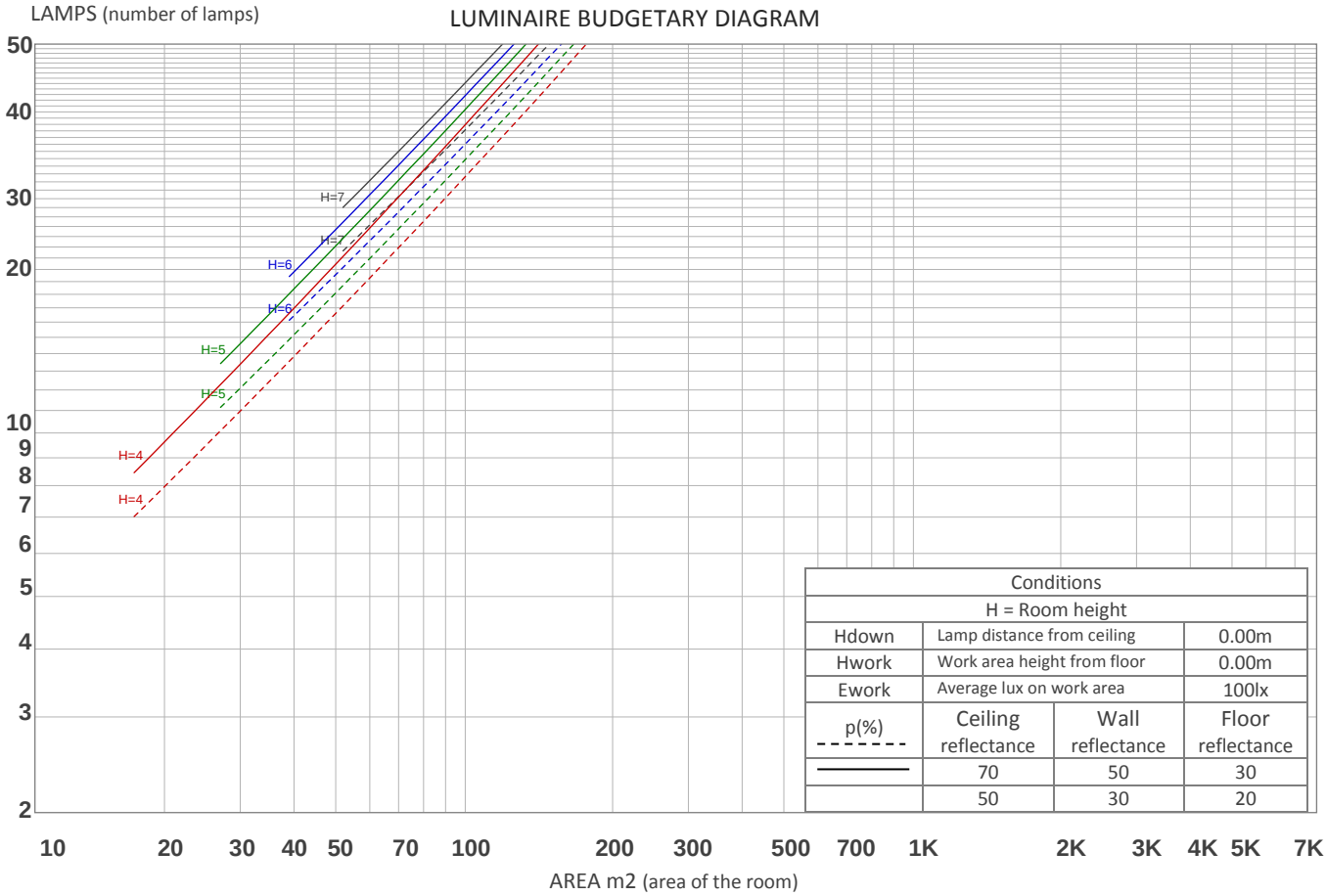
LIGHT PLANNING

COEFFICIENTS OF UTILIZATION

Ceiling reflectance	80				70				50			30			10			0
Wall reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Floor reflectance	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0
RCR	(RCR: Room Cavity Ratio)				Room Values are expressed as percentage of Lumens delivered to the task surface													
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	101	98	95	92	93	91	88	86	77	76	74	65	64	63	54	54	53	48
2	95	89	85	81	88	83	80	77	72	70	67	62	60	59	52	51	50	46
3	89	83	77	73	83	77	73	69	68	65	62	59	57	55	50	49	48	44
4	84	77	71	67	79	72	67	63	64	60	57	56	53	52	48	47	46	43
5	80	71	66	61	75	68	62	59	60	56	54	53	51	49	47	45	44	41
6	76	67	61	57	71	64	58	55	57	53	50	51	48	46	45	44	42	40
7	72	63	57	53	68	60	55	51	54	51	48	49	46	44	44	42	41	39
8	69	60	54	50	65	57	52	49	52	48	45	47	44	42	42	41	39	37
9	66	57	51	47	62	54	49	46	50	46	43	45	43	41	41	39	38	36
10	63	54	49	45	60	52	47	44	48	44	42	44	41	39	40	38	37	35

LUMINAIRE BUDGETARY DIAGRAM



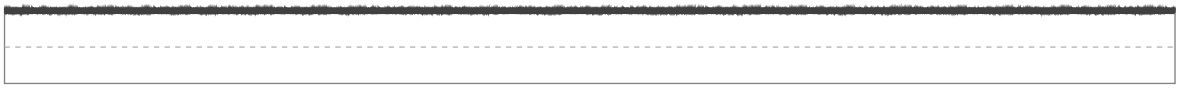
ZONAL LUMEN SUMMARY

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
78.1 lm	100 lm	36.3 lm	11.2 lm	4.66 lm	2.78 lm	1.67 lm	0.406 lm	0.078 lm

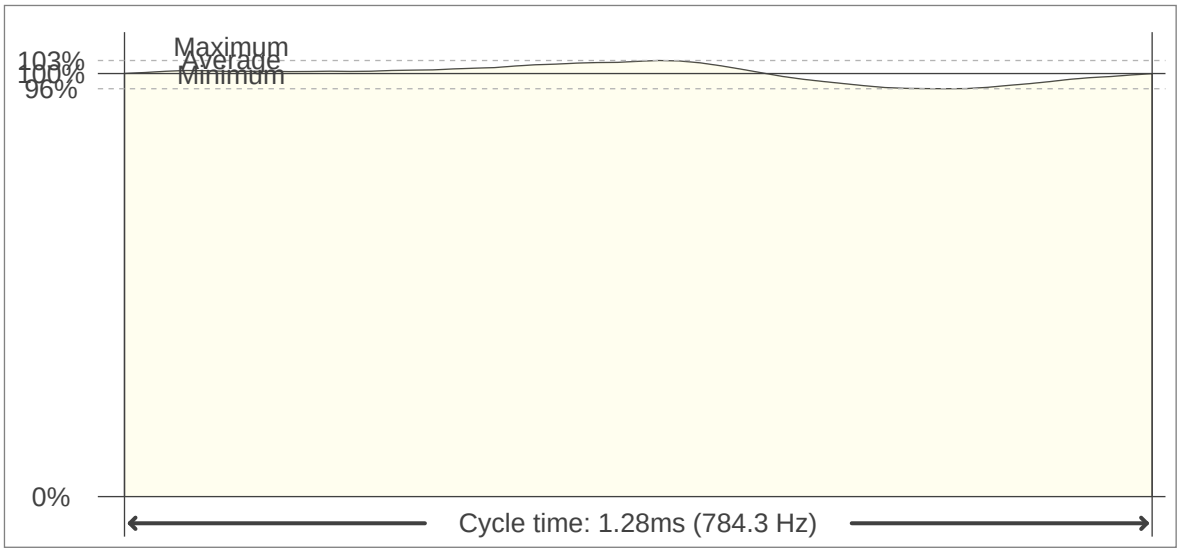
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0.082 lm	0.419 lm	1.66 lm	2.77 lm	4.67 lm	11.2 lm	36.2 lm	100 lm	78.2 lm

FLICKER

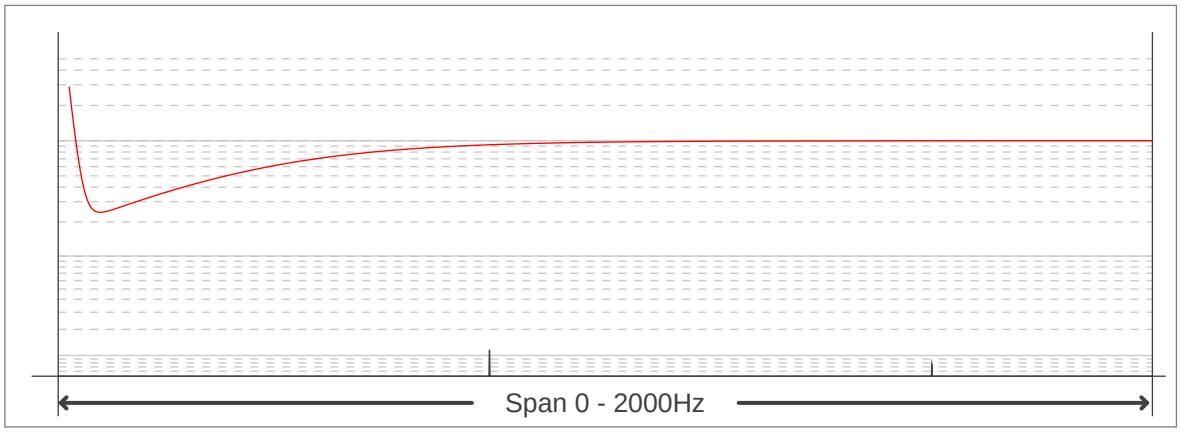
FLICKER CURVE (COMPLETE SAMPLED FLICKER



FLICKER FRAME (FRAME OF ONE FLICKER PERIOD)



FLICKER FFT (FREQUENCY SCOPE OF FLICKER CURVE)



FLICKER RESULTS:

Flicker frequency:	784.31 Hz
Flicker index:	0.01
Flicker percentage:	3.72 %
SVM: (Visual flicker)	0.03

FLICKER CONDITIONS:

Sample rate:	40000 samples/second