Photometric Test Report

STUDIOCOBPLUSTW

165 W IP65 rated Tunable White COB LED PAR

CONTENTS

TESTING PROCESS

Prolights has its own optical testing laboratory in order to provide accurate photometric reports for its lighting products. The testing laboratory contains certain variety of precise lighting measurement systems that ensure an optimal reading of all the characteristic parameters of the lighting devices. All measurements are made at a controlled room temperature of 20°C without any external light sources. This photometric report is obtained through the data measured by a high precision measurement system and analyzed by a dedicate software.

Prolights measurement instrument

Prolights measurement instrument is a complete measurement system for any light source. It's equipped with two-axis goniometer, that enables to measure the full 3D distribution field of the light source. This instrument measures the light intensity, the beam angle and the most significative colors parameters, like color temperature, spectral distribution, CRI, CQS, TM-30 with a very high accuracy rate.

Please Note: All measurements are made with light source at operating temperature. Before starting the measurement, the instrument analyzes the process of the light source during the heating phase. The measuring process of all the parameters begins only when the light emission is stable, that is with a variation of less than 0.5% in a 15 minutes time frame.

Prolights measurement software

The software provides user friendly interface for the operator who does the measurements, and it also analyzes and processes all the collected data by the instrument. With this software it is possible to see the measured data in real-time and it is possible to examine all the measured data and graphics afterwards as well. All information is collected in a specific Prolights template, and the software creates also IES and LDT files, which are widely used to transfer the photometric data, and to develop lighting system.

Additionally, the fixtures are rechecked using various hand-held instruments like Sekonic C-700 and Gossen Mavospec Base, this is done to ensure, that the data in the photometric report are as accurate as possible.

Total lumen output:

2085 lm

Peak candela output:

2794 cd

Light quality:

CRI: 94,9

Color temperature:

7757 K

PRODUCT NAME:

STUDIOCOBPLUSTW

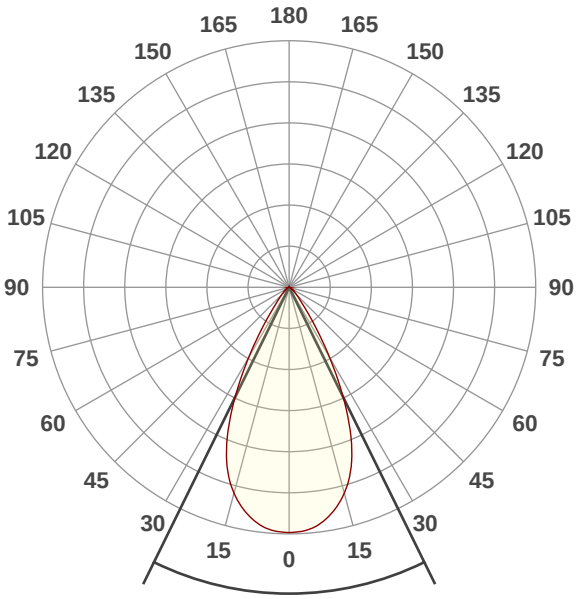
MEASURAMENT CONDITIONS:

Beam angle:
Wide

Target:
Cold White

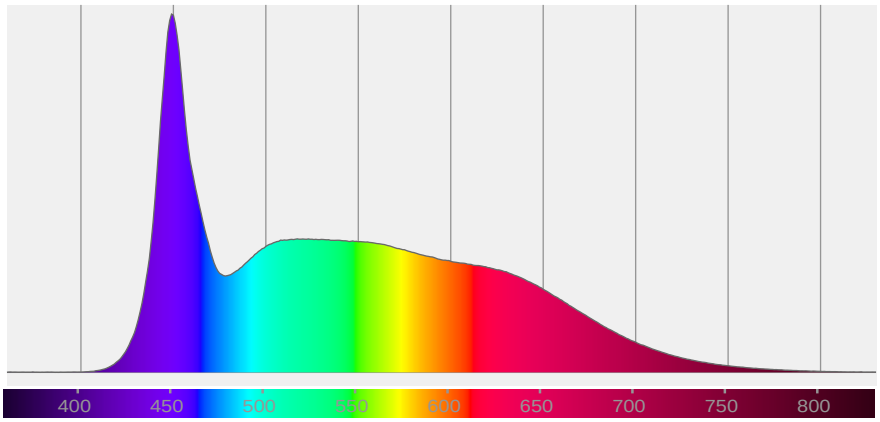
Operator:
Paolo Carvone

Date and time:
19/11/2020 14:44:58

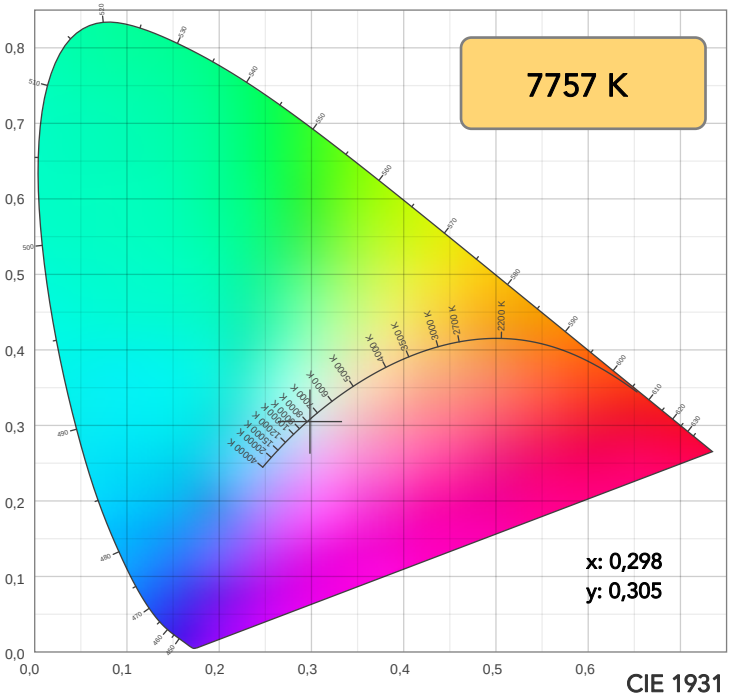


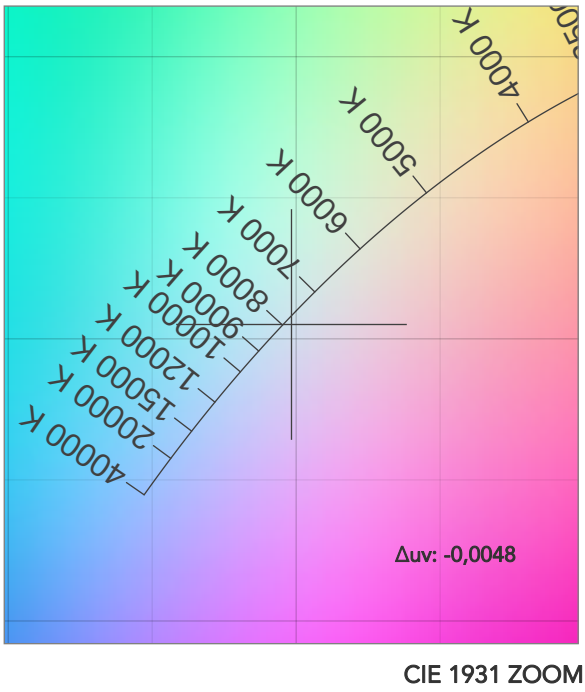
Beam angle 50%: 52,4°
Field angle 10%: 75,7°
Cut off angle 2.5%: 100,5°

Spectra

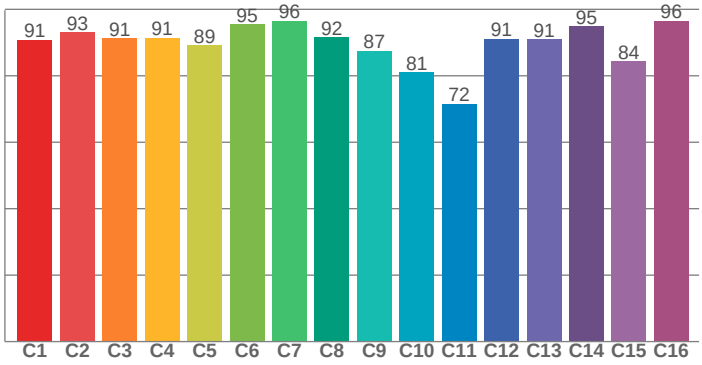


COLOR DETAILS

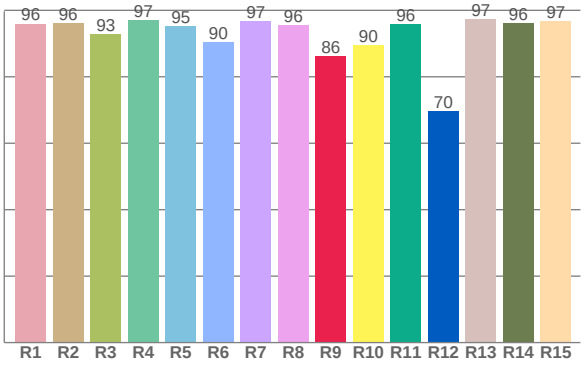




TM30: 89,4



CRI: 94,9 (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
95,9	96,1	92,8	97,0	95,1	90,3	96,6	95,5	86,3	89,6	95,8	69,6	97,3	96,1	96,8

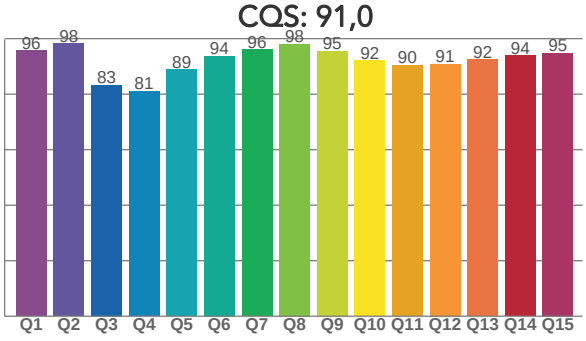
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90,7	93,1	91,3	91,5	89,2	95,4	96,5	91,5	87,5	81,0	71,6	91,0	91,0	94,9	84,3	96,5

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
95,7	98,2	83,3	81,0	88,9	93,8	96,0	98,0	95,5	92,1	90,4	90,9	92,5	93,9	94,9

CQS: 91,0



COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
7757 K	94,9	86,3	89,4	100,3	91,0	96	0,298	0,305	-0,0048

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TM30 DETAILS

PROLiGHTS

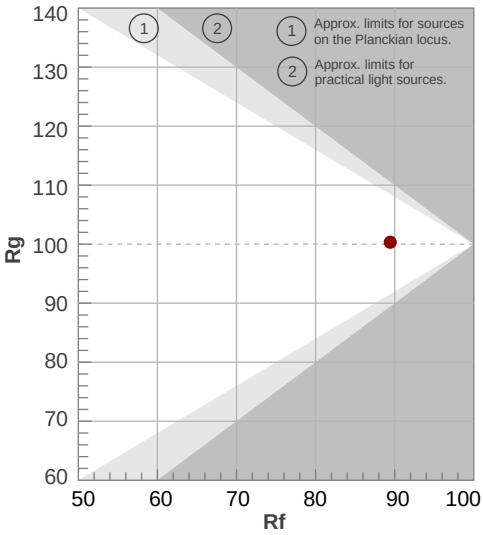
Rf 89,4

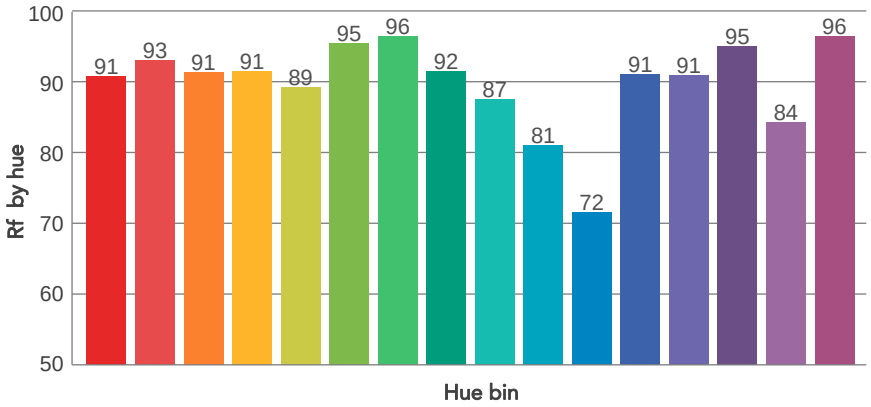
Fidelity index Rf

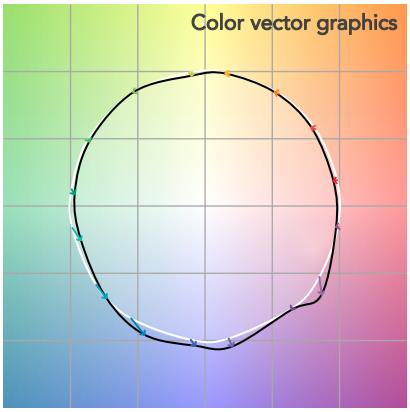
Rg 100,3

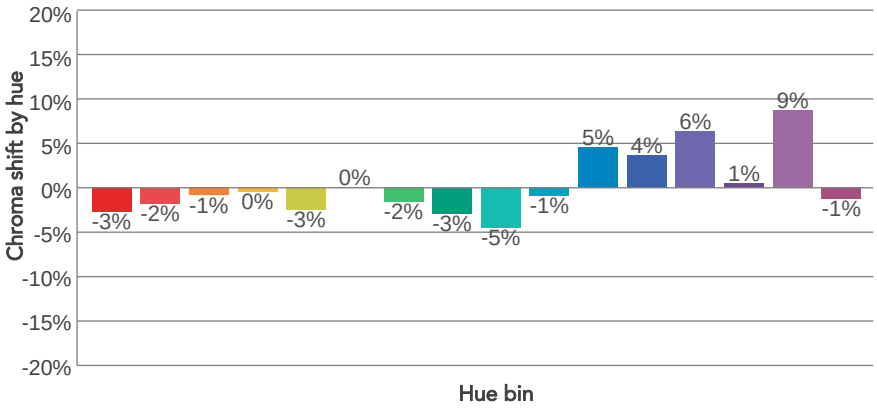
Gammut index

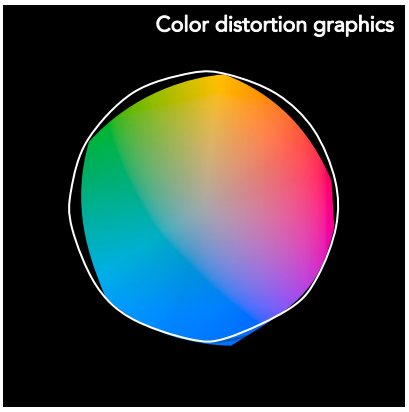
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	91	-3%	0%
2	93	-2%	3%
3	91	-1%	3%
4	91	0%	3%
5	89	-3%	1%
6	95	0%	0%
7	96	-2%	1%
8	92	-3%	3%
9	87	-5%	10%
10	81	-1%	12%
11	72	5%	15%
12	91	4%	4%
13	91	6%	1%
14	95	1%	-1%
15	84	9%	-10%
16	96	-1%	-1%

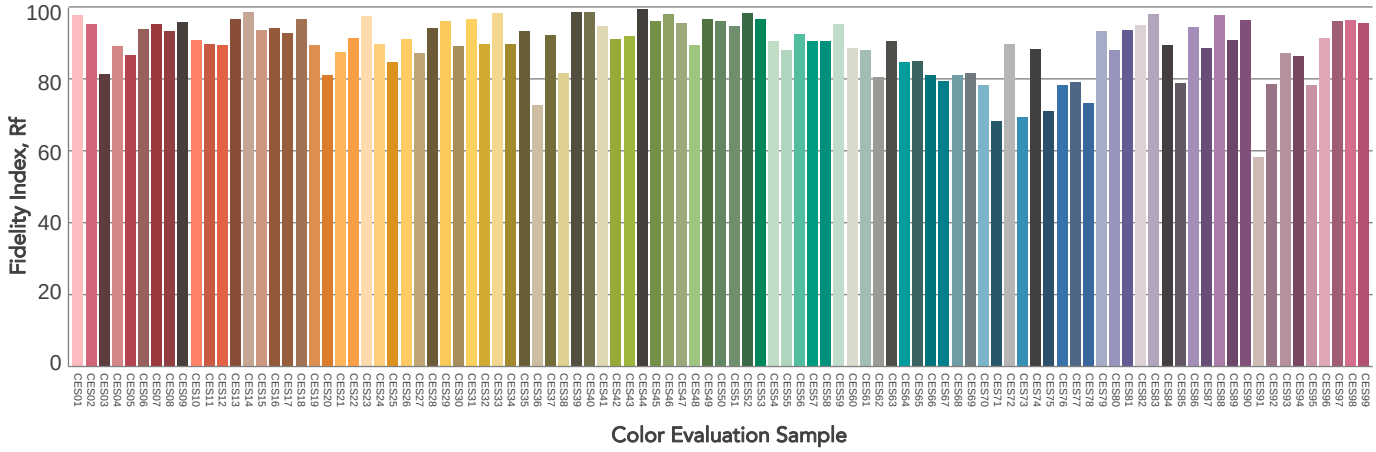












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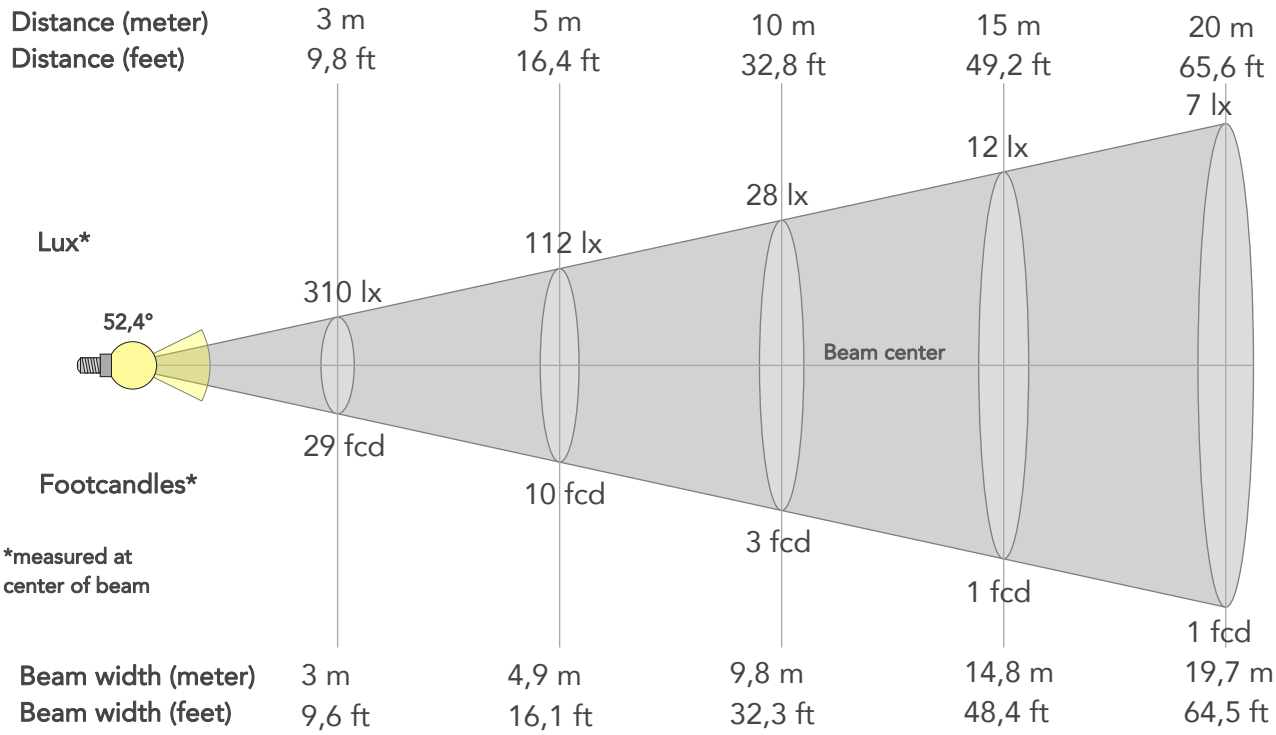
BEAM DETAILS

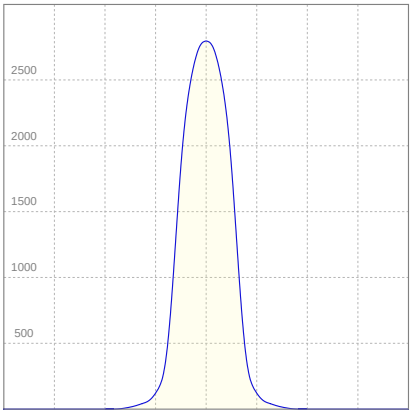
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
52,4°	75,7°	100,5°	98,8%	94,8%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	2794lx	698lx	310lx	175lx	112lx	50lx	28lx	12lx	7lx	4lx	3lx	2lx	1lx
Footcand.	260fcd	65fcd	29fcd	16fcd	10fcd	5fcd	3fcd	1fcd	1fcd	0fcd	0fcd	0fcd	0fcd
Beam wid.	1m	2m	3m	3,9m	4,9m	7,4m	9,8m	14,8m	19,7m	24,6m	29,5m	39,3m	49,2m
Beam wid.	3,2ft	6,5ft	9,6ft	12,9ft	16,1ft	24,2ft	32,3ft	48,4ft	64,5ft	80,6ft	96,8ft	129ft	161,3ft

LINEAR DISTRIBUTION DIAGRAM



ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
227V	0,392A	83,6W	25lm/W

Powerr FC
0,97

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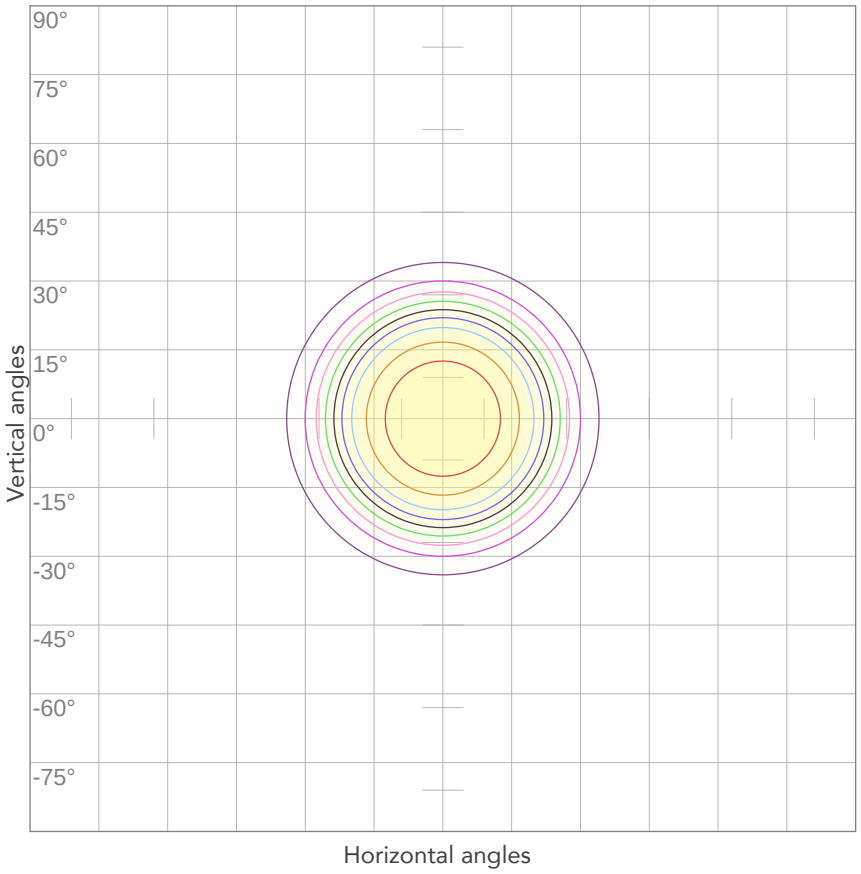
ISO DIAGRAMS

ISO CANDELA DIAGRAM



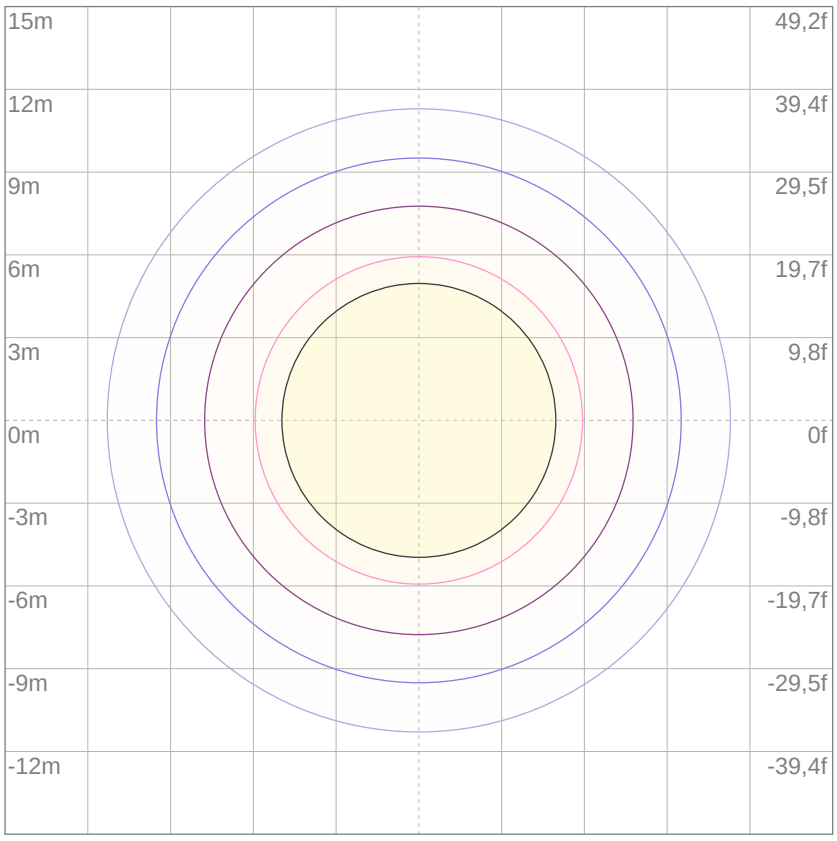
10%	279 cd
20%	559 cd
30%	838 cd
40%	1118 cd
50%	1397 cd
60%	1676 cd
70%	1956 cd
80%	2235 cd

Conditions:

Number of c-planes: 2

Candela at center: 2794 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	0,838 lx
5%	1,40 lx
10%	2,79 lx
30%	8,38 lx
50%	14,0 lx

Conditions:

Number of c-planes: 2

Lux at center: 27,9 lx

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

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Total lumen output:

2094 lm

Peak candela output:

3905 cd

Light quality:

CRI: 94,9

Color temperature:

7709 K

PRODUCT NAME:

STUDIOCOBPLUSTW

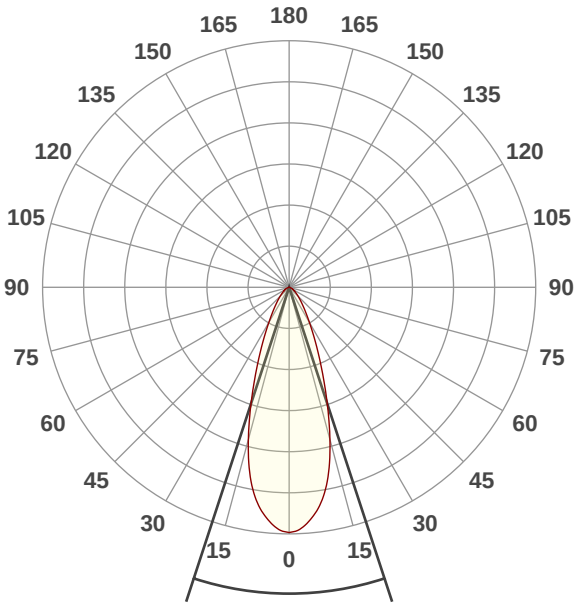
MEASURAMENT CONDITIONS:

Beam angle:
Medium

Target:
Cold White

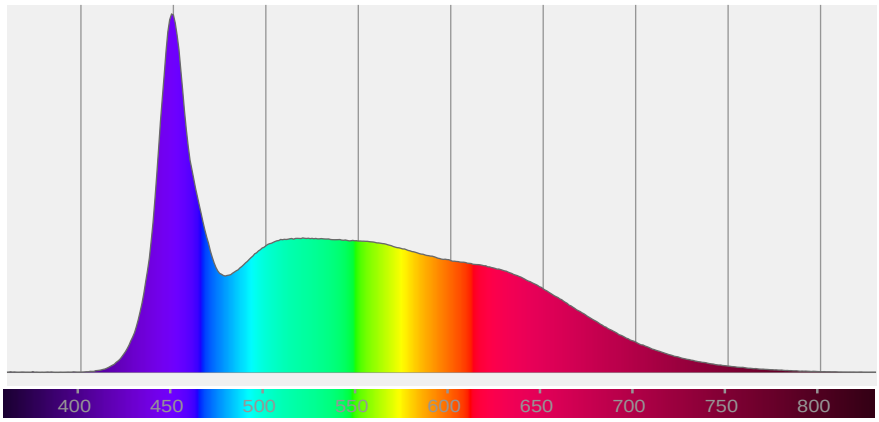
Operator:
Paolo Carvone

Date and time:
19/11/2020 14:12:19

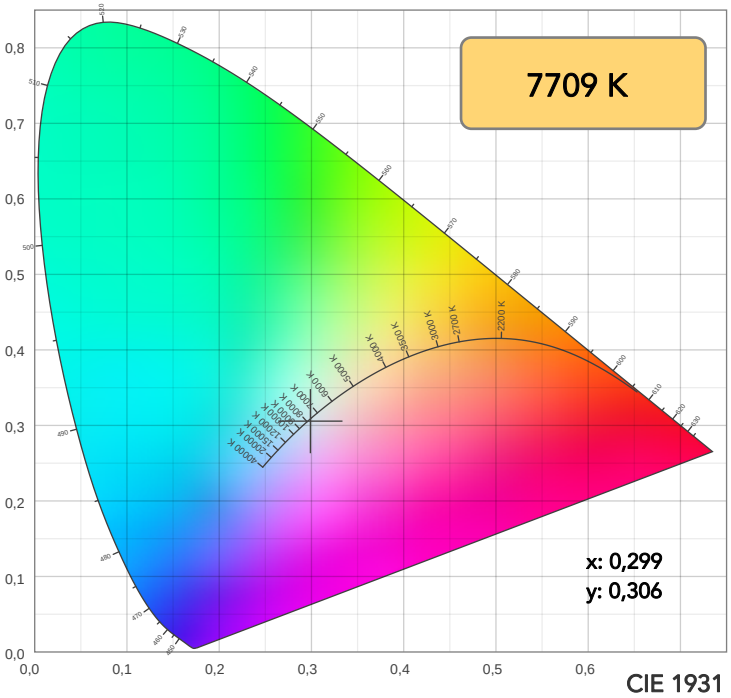


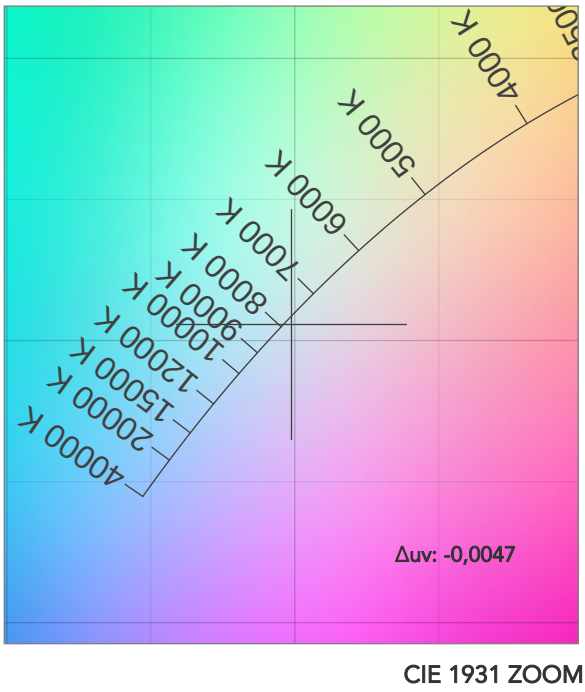
Beam angle 50%: 36,3°
Field angle 10%: 72,2°
Cut off angle 2.5%: 112,8°

Spectra

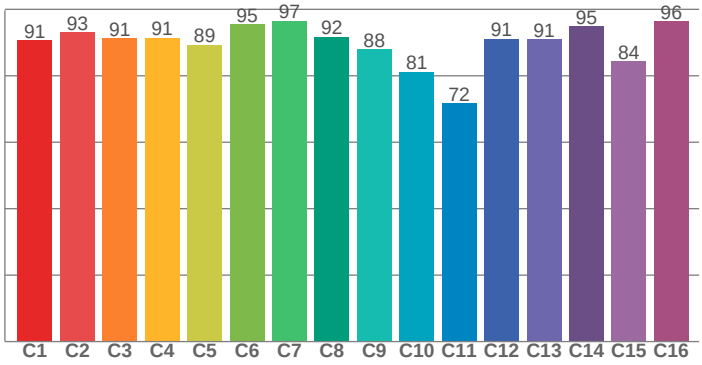


COLOR DETAILS

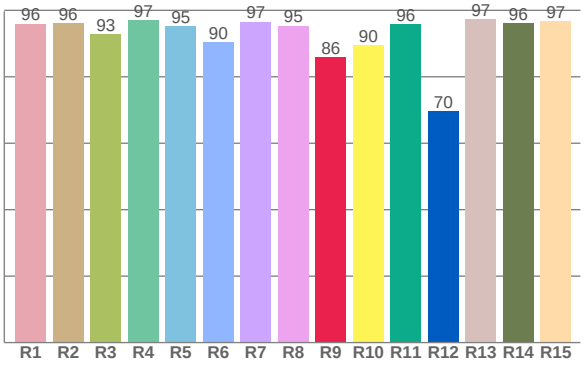




TM30: 89,5



CRI: 94,9 (R1-R8)



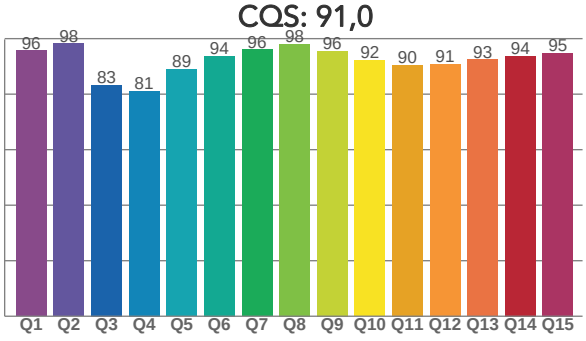
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
95,9	96,1	92,9	96,9	95,1	90,3	96,6	95,4	85,8	89,6	95,8	69,7	97,3	96,2	96,7

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
90,7	93,1	91,3	91,5	89,3	95,5	96,5	91,8	88,0	81,1	71,7	91,1	91,0	94,9	84,3	96,4

CQS: 91,0



CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
95,6	98,2	83,4	81,1	88,9	93,8	96,0	98,0	95,5	92,2	90,4	90,9	92,5	93,8	94,8

COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
7709 K	94,9	85,8	89,5	100,4	91,0	96	0,299	0,306	-0,0047

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TM30 DETAILS

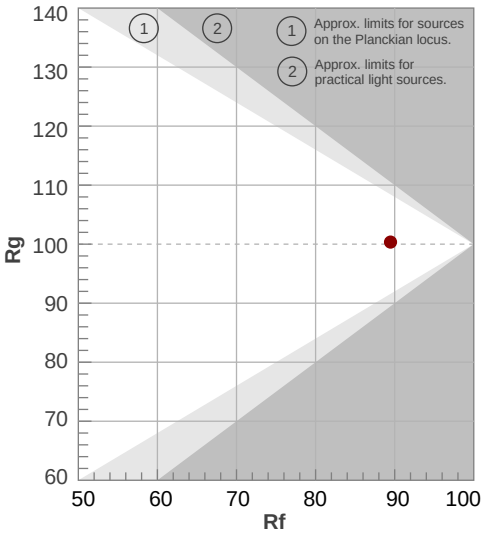
Rf 89,5

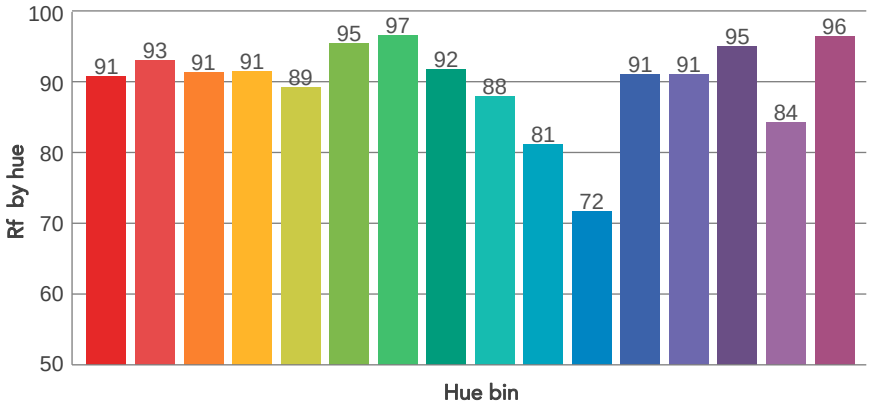
Fidelity index Rf

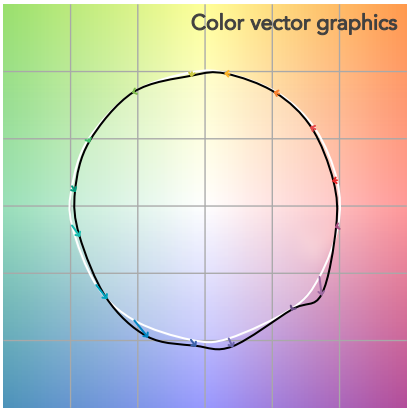
Rg 100,4

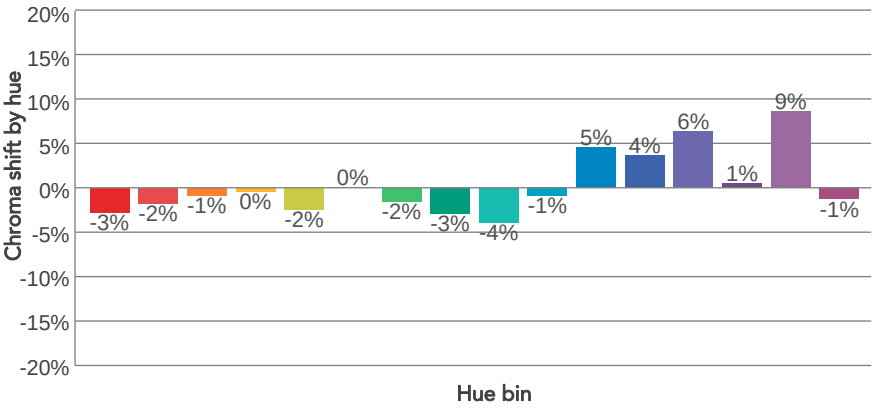
Gammut index

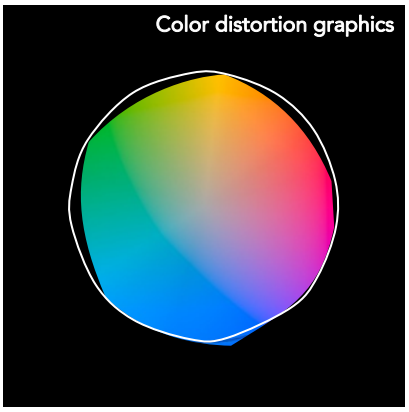
Hue Bin	R_f	Graphic shifts (%) Chroma	Hue
1	91	-3%	0%
2	93	-2%	3%
3	91	-1%	3%
4	91	0%	3%
5	89	-2%	1%
6	95	0%	0%
7	97	-2%	1%
8	92	-3%	3%
9	88	-4%	8%
10	81	-1%	12%
11	72	5%	15%
12	91	4%	4%
13	91	6%	1%
14	95	1%	-1%
15	84	9%	-10%
16	96	-1%	-1%

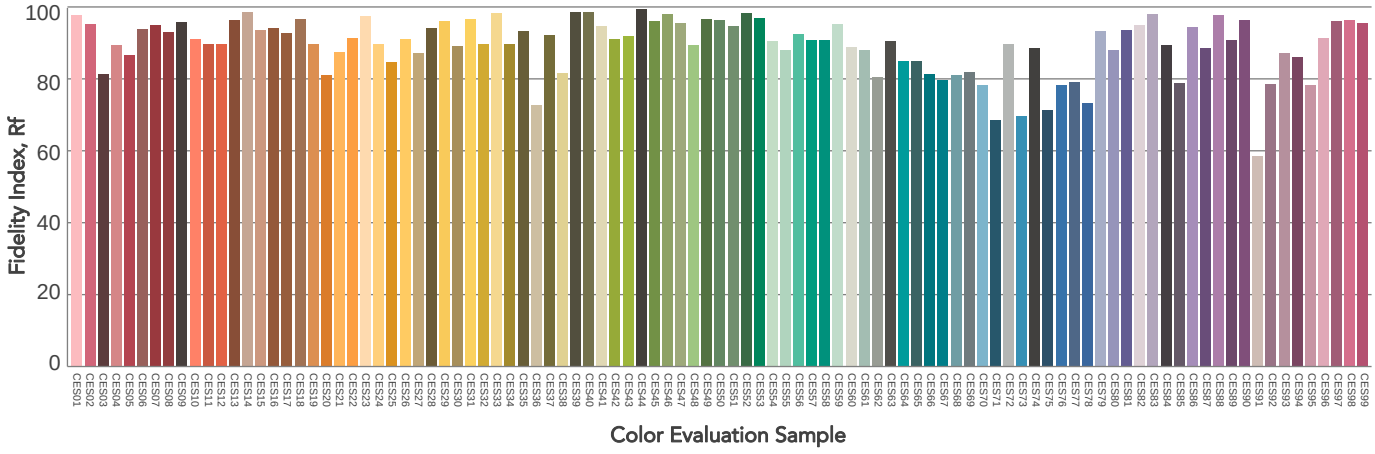












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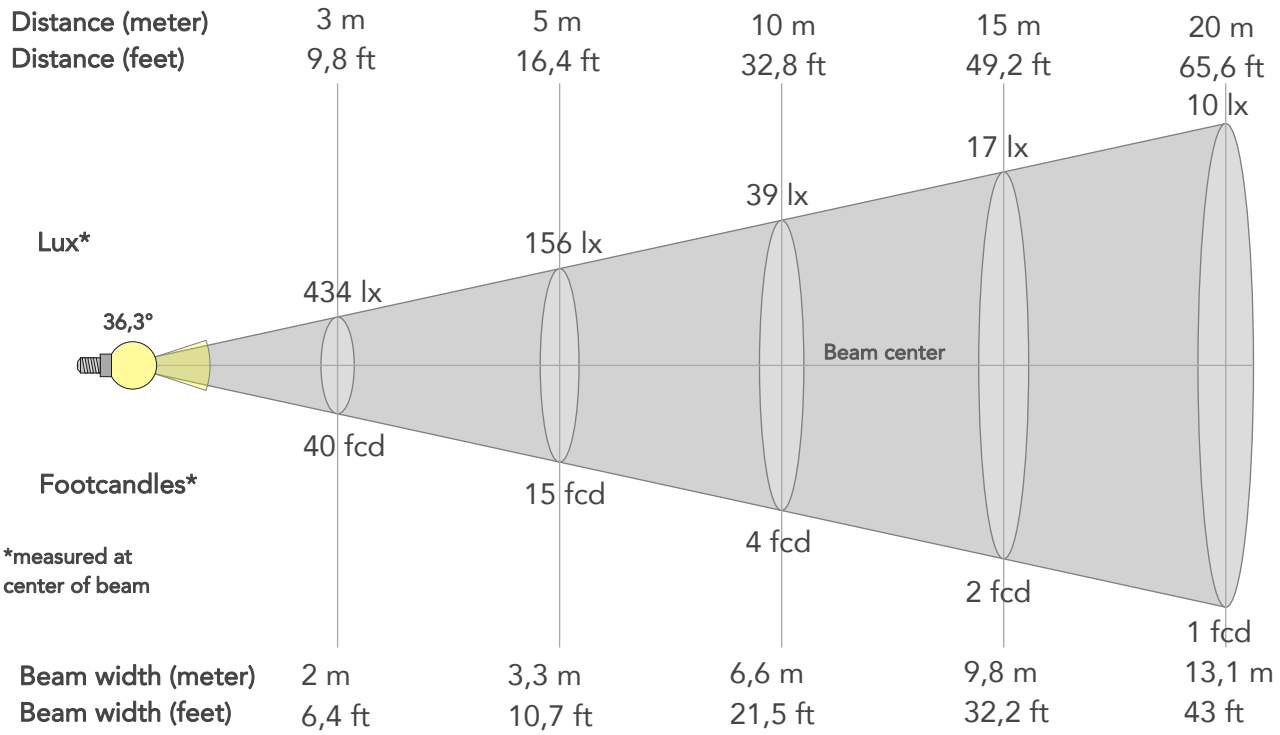
BEAM DETAILS

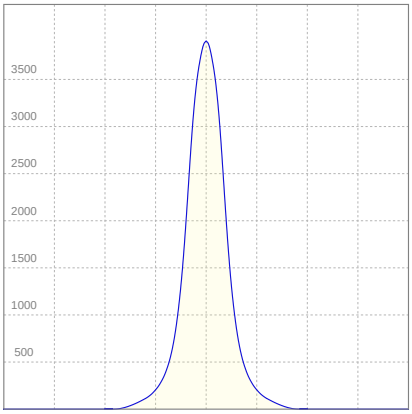
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
36,3°	72,2°	112,8°	97,1%	89,2%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	3905lx	976lx	434lx	244lx	156lx	69lx	39lx	17lx	10lx	6lx	4lx	2lx	2lx
Footcand.	363fcd	91fcd	40fcd	23fcd	15fcd	6fcd	4fcd	2fcd	1fcd	1fcd	0fcd	0fcd	0fcd
Beam wid.	0,7m	1,3m	2m	2,6m	3,3m	4,9m	6,6m	9,8m	13,1m	16,4m	19,7m	26,2m	32,8m
Beam wid.	2,2ft	4,3ft	6,4ft	8,6ft	10,7ft	16,1ft	21,5ft	32,2ft	43ft	53,7ft	64,5ft	86ft	107,4ft

LINEAR DISTRIBUTION DIAGRAM



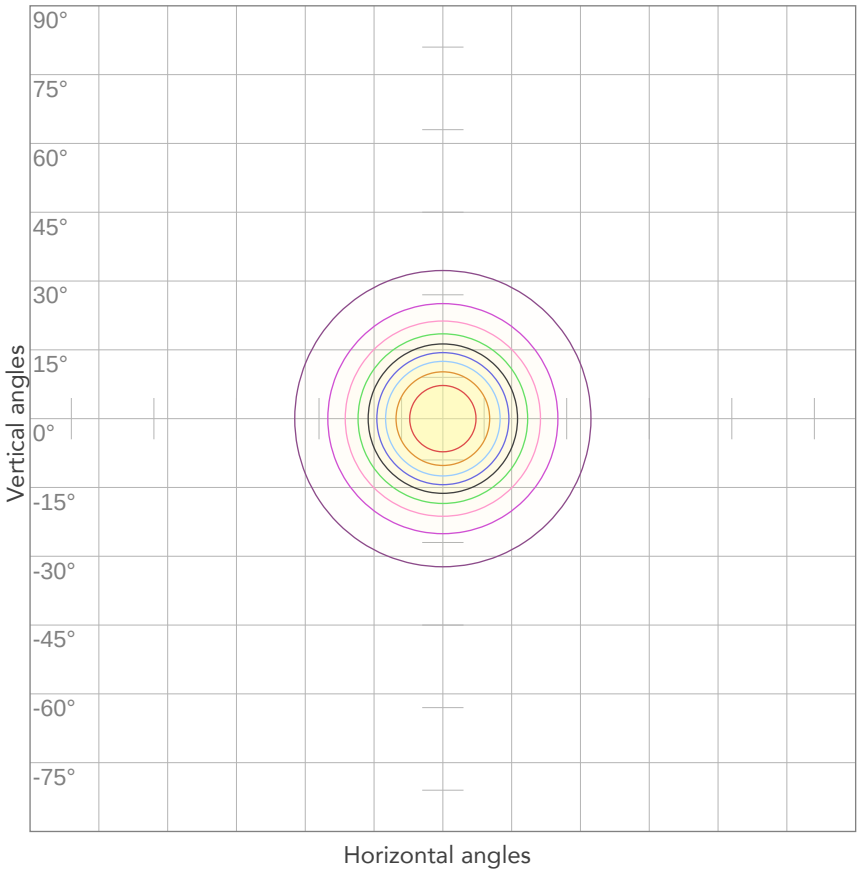
ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
225V	0,396A	83,9W	25lm/W

Powerr FC
0,97

ISO DIAGRAMS

ISO CANDELA DIAGRAM



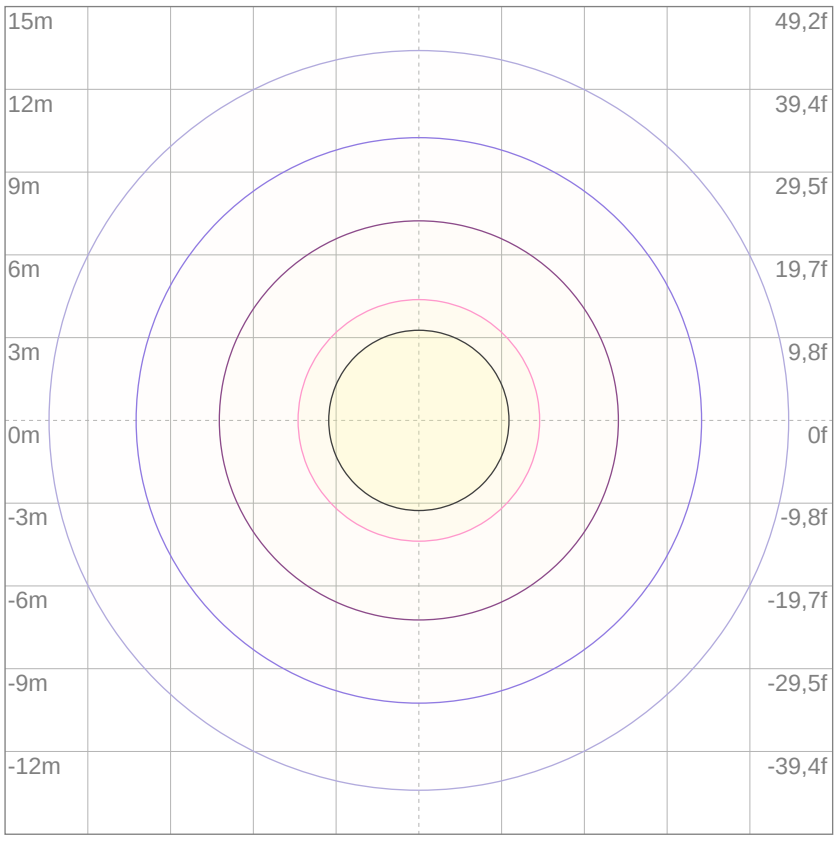
10%	391 cd
20%	781 cd
30%	1172 cd
40%	1562 cd
50%	1953 cd
60%	2343 cd
70%	2734 cd
80%	3124 cd

Conditions:

Number of c-planes: 2

Candela at center: 3905 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	1,17 lx
5%	1,95 lx
10%	3,91 lx
30%	11,7 lx
50%	19,5 lx

Conditions:

Number of c-planes: 2

Lux at center: 39,1 lx

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

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Total lumen output:

2206 lm

Peak candela output:

13160 cd

Light quality:

CRI: 95,2

Color temperature:

7755 K

PRODUCT NAME:

STUDIOCOBPLUSTW

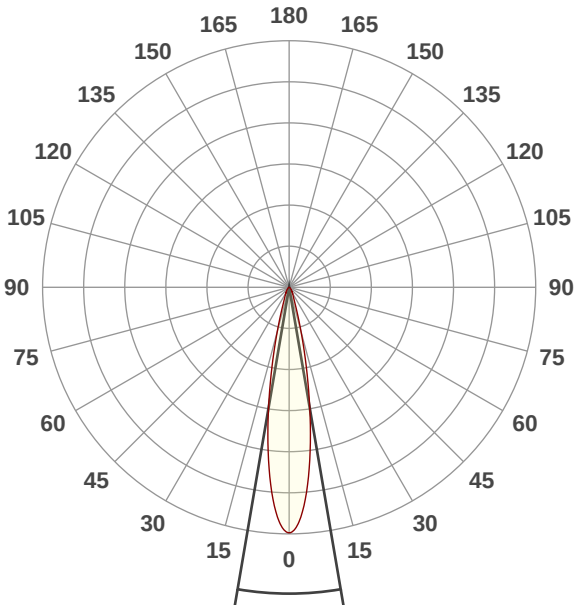
MEASURAMENT CONDITIONS:

Beam angle:
Narrow

Target:
Cold White

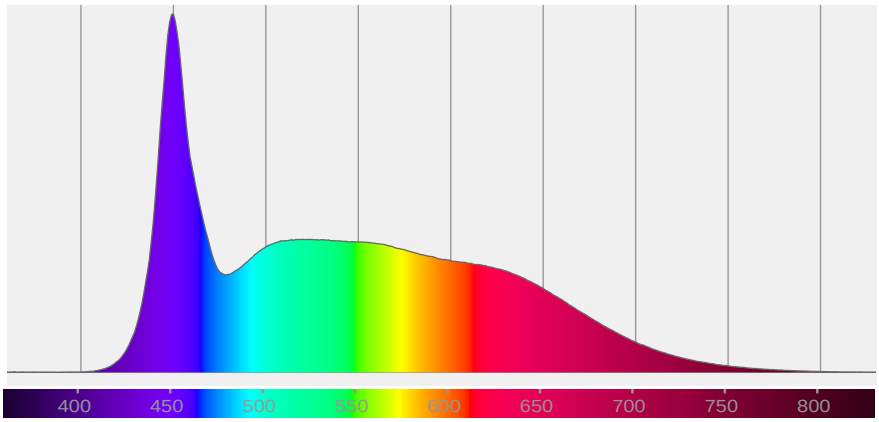
Operator:
Paolo Carvone

Date and time:
19/11/2020 12:58:21



Beam angle 50%: 19,4°
Field angle 10%: 36°
Cut off angle 2.5%: 62,6°

Spectra



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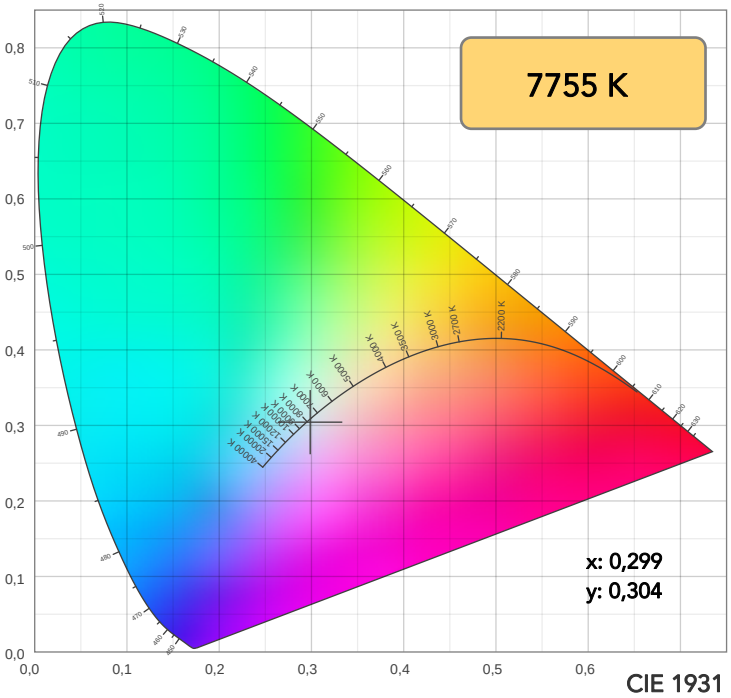
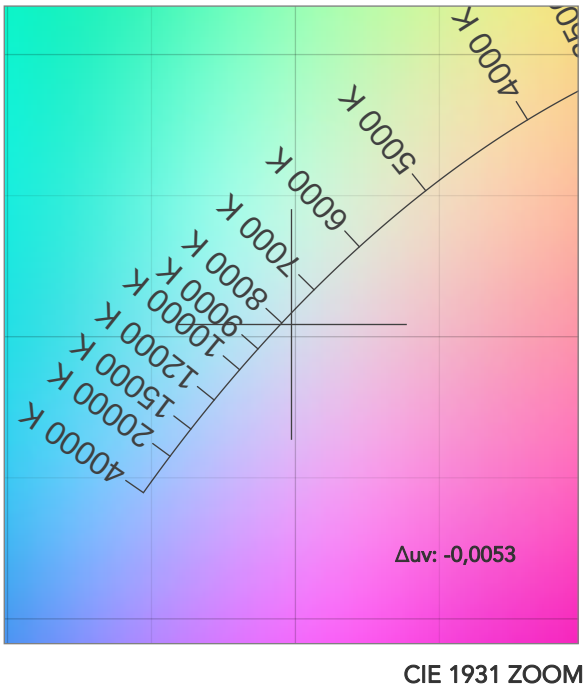
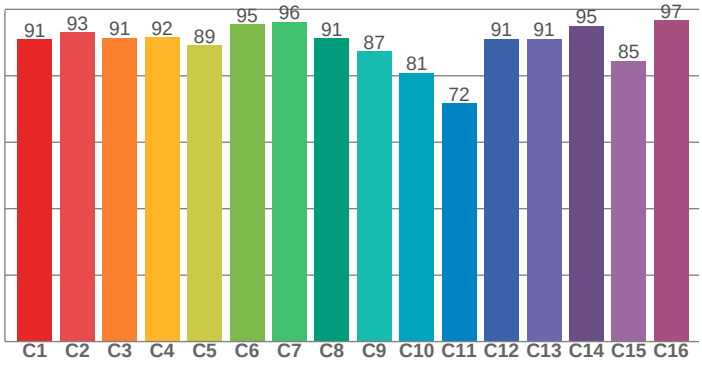
COLOR DETAILS

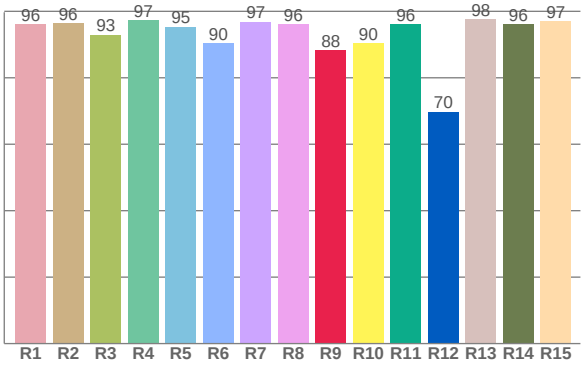




TM30: 89,5



CRI: 95,2 (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
96,1	96,4	93,0	97,4	95,3	90,5	96,8	96,2	88,4	90,4	96,0	69,8	97,6	96,2	97,0

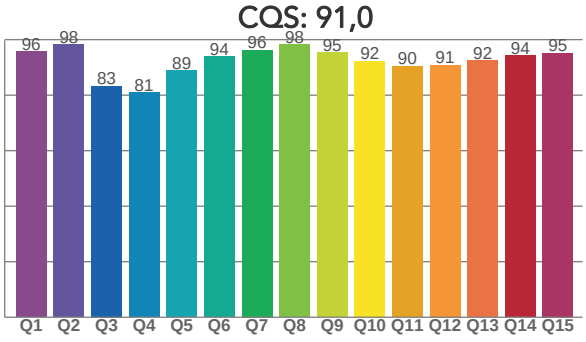
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90,9	93,1	91,4	91,6	89,1	95,5	96,2	91,3	87,4	81,0	71,7	91,1	91,1	95,0	84,5	96,7

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
95,8	98,3	83,4	81,0	88,8	93,9	96,3	98,2	95,4	92,2	90,4	90,9	92,5	94,3	95,2

CQS: 91,0



COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
7755 K	95,2	88,4	89,5	100,4	91,0	96	0,299	0,304	-0,0053

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TM30 DETAILS

PROLiGHTS

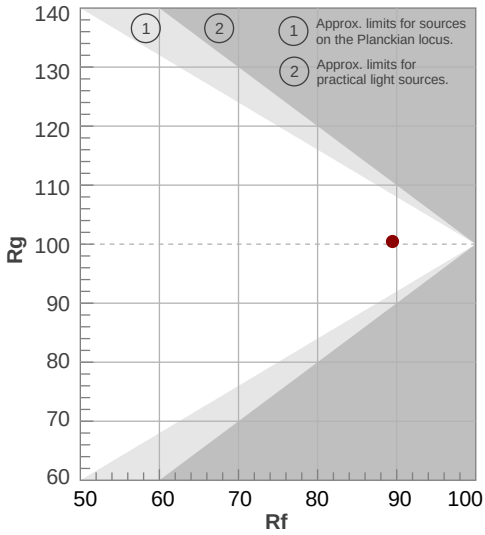
Rf 89,5

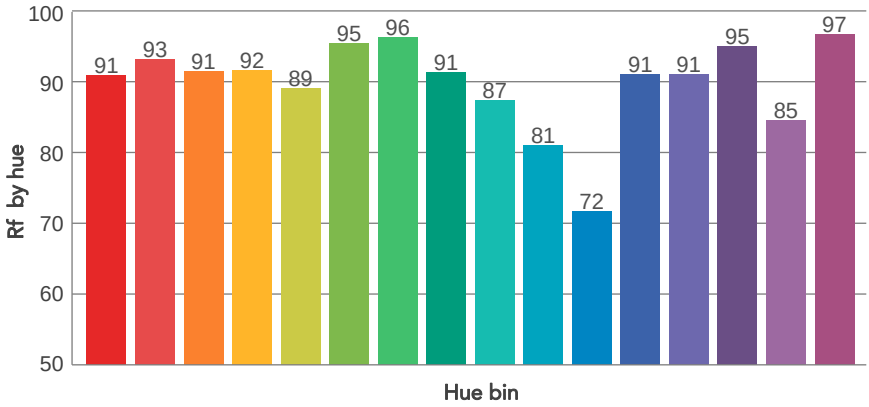
Fidelity index Rf

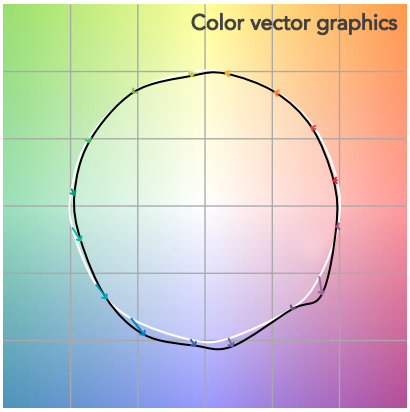
Rg 100,4

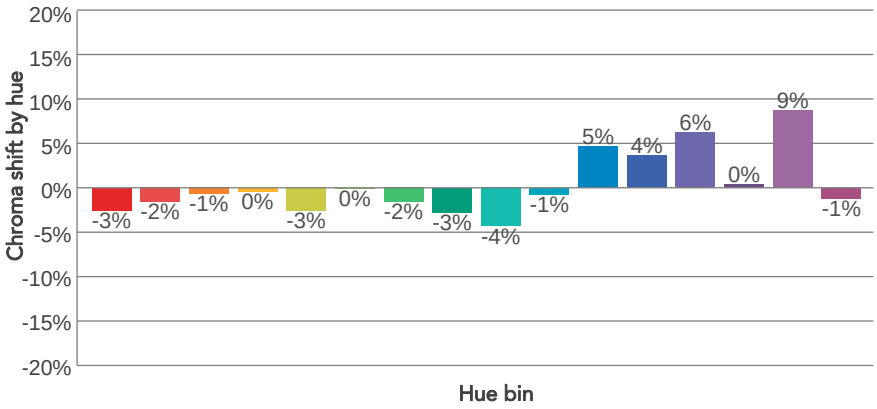
Gammut index

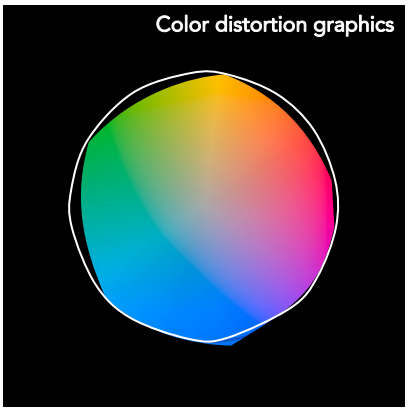
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	91	-3%	0%
2	93	-2%	3%
3	91	-1%	3%
4	92	0%	3%
5	89	-3%	1%
6	95	0%	0%
7	96	-2%	1%
8	91	-3%	3%
9	87	-4%	10%
10	81	-1%	12%
11	72	5%	15%
12	91	4%	4%
13	91	6%	2%
14	95	0%	-1%
15	85	9%	-10%
16	97	-1%	0%

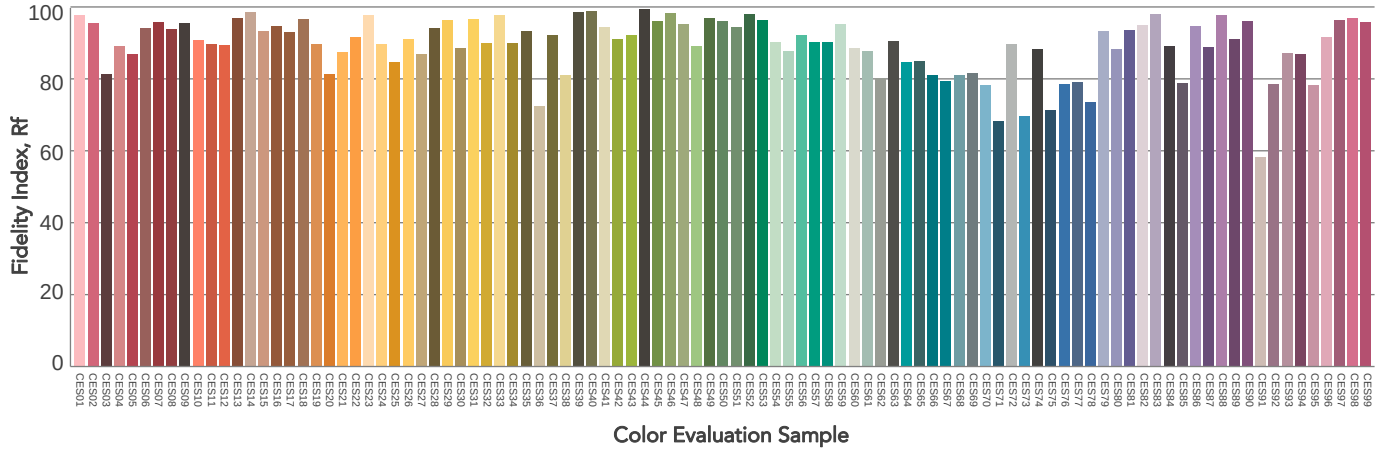












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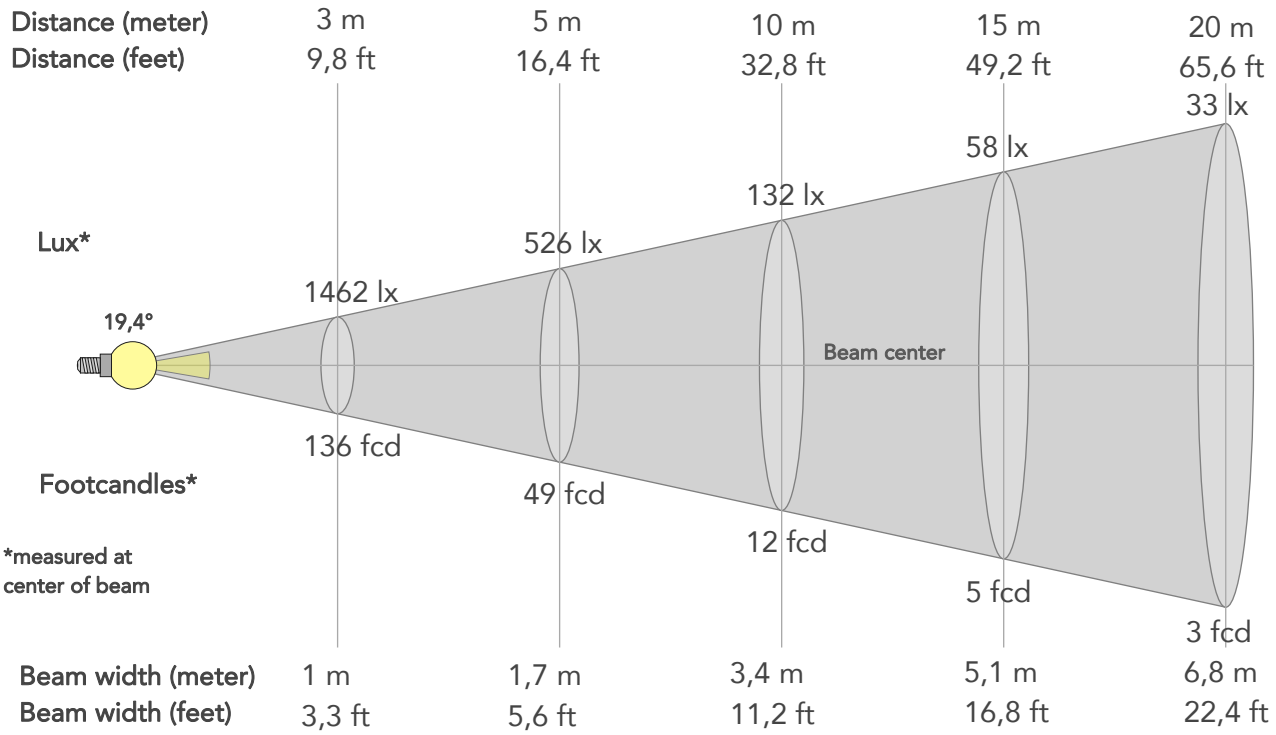
BEAM DETAILS

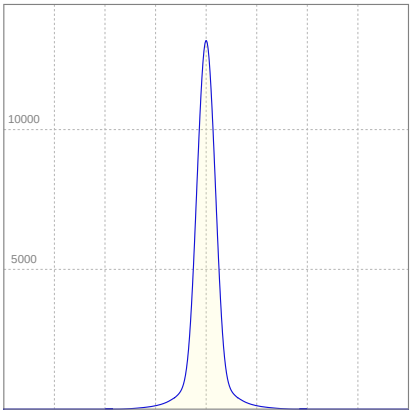
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
19,4°	36°	62,6°	98,7%	94,3%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	13160lx	3290lx	1462lx	823lx	526lx	234lx	132lx	58lx	33lx	21lx	15lx	8lx	5lx
Footcand.	1223fcd	306fcd	136fcd	76fcd	49fcd	22fcd	12fcd	5fcd	3fcd	2fcd	1fcd	1fcd	0fcd
Beam wid.	0,3m	0,7m	1m	1,4m	1,7m	2,6m	3,4m	5,1m	6,8m	8,5m	10,2m	13,7m	17,1m
Beam wid.	1,1ft	2,3ft	3,3ft	4,5ft	5,6ft	8,4ft	11,2ft	16,8ft	22,4ft	28ft	33,6ft	44,8ft	56ft

LINEAR DISTRIBUTION DIAGRAM



ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
226V	0,389A	82,4W	27lm/W

Powerr FC
0,97

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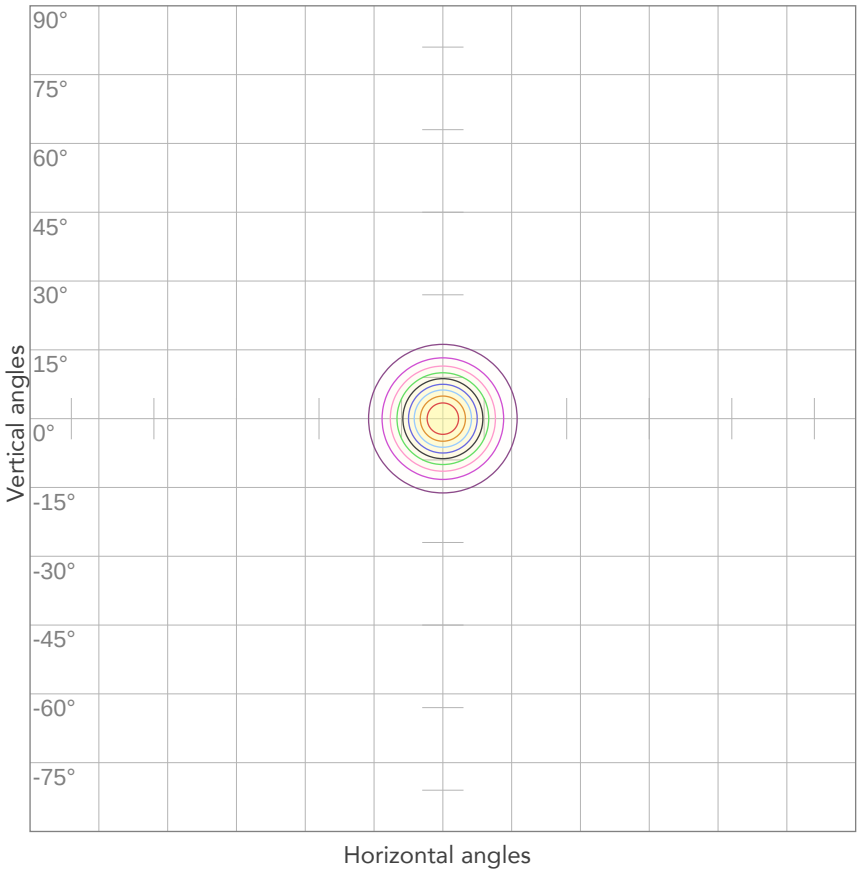
ISO DIAGRAMS

ISO CANDELA DIAGRAM



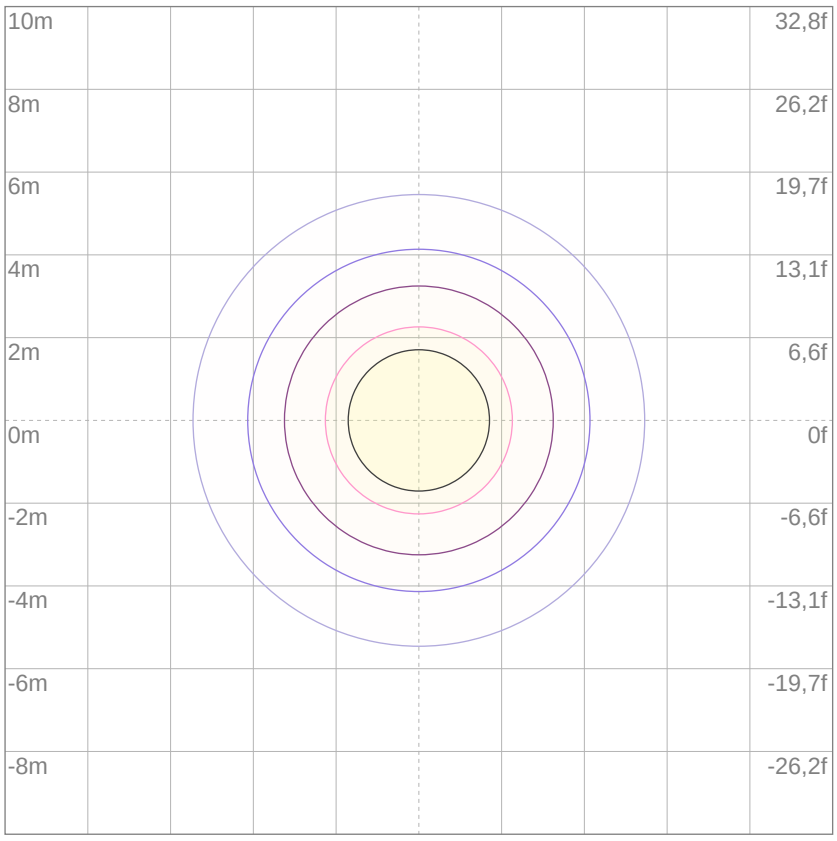
10%	1316 cd
20%	2632 cd
30%	3948 cd
40%	5264 cd
50%	6580 cd
60%	7896 cd
70%	9212 cd
80%	10528 cd

Conditions:

Number of c-planes: 2

Candela at center: 13160 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	3,95 lx
5%	6,58 lx
10%	13,2 lx
30%	39,5 lx
50%	65,8 lx

Conditions:

Number of c-planes: 2

Lux at center: 132 lx

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

Total lumen output:

3517 lm

Peak candela output:

4641 cd

Light quality:

CRI: 96,5

Color temperature:

5157 K

PRODUCT NAME:

STUDIOCOBPLUSTW

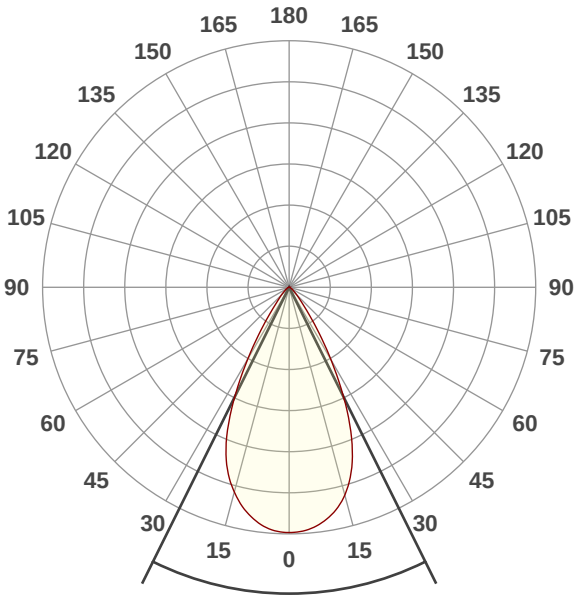
MEASURAMENT CONDITIONS:

Beam angle:
Wide

Target:
Neutral White

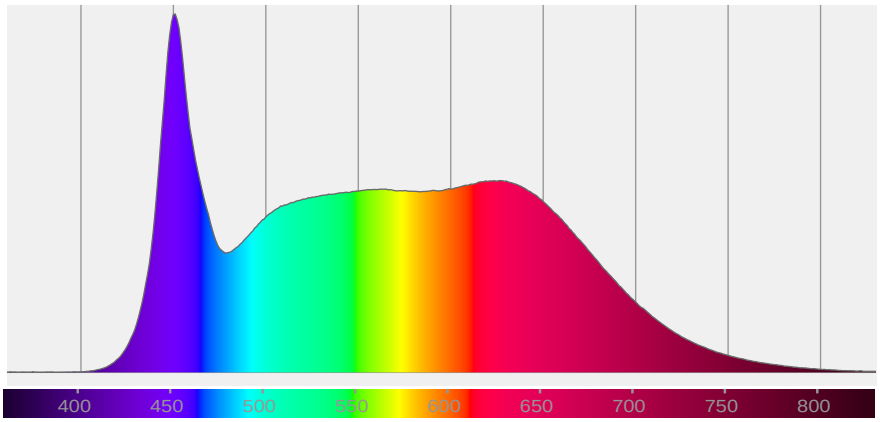
Operator:
Paolo Carvone

Date and time:
19/11/2020 14:48:33

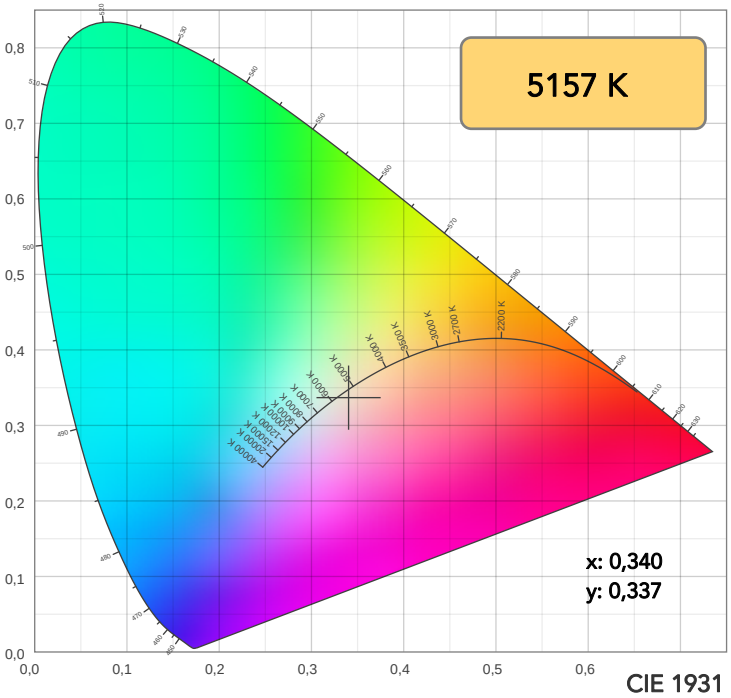


Beam angle 50%: 52,8°
Field angle 10%: 76,3°
Cut off angle 2.5%: 101,2°

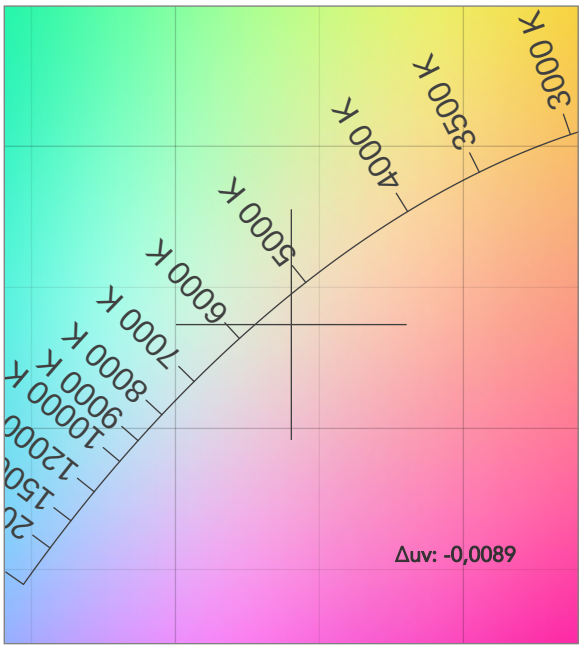
Spectra



COLOR DETAILS

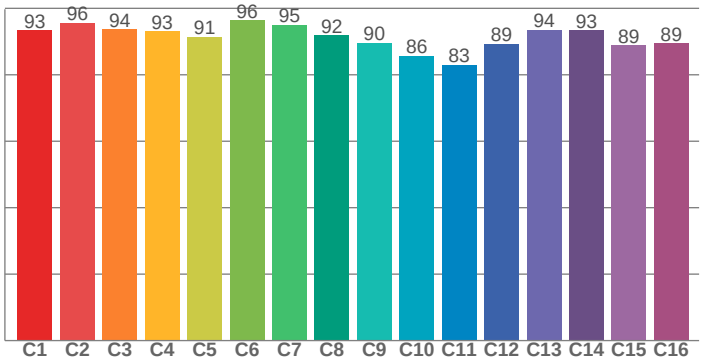


CIE 1931

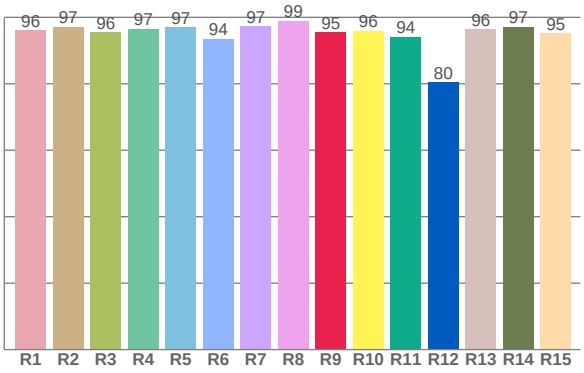


CIE 1931 ZOOM

TM30: 91,5



CRI: 96,5 (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
96,1	97,2	95,6	96,6	96,9	93,5	97,4	99,0	95,4	95,9	94,2	80,4	96,4	97,1	95,2

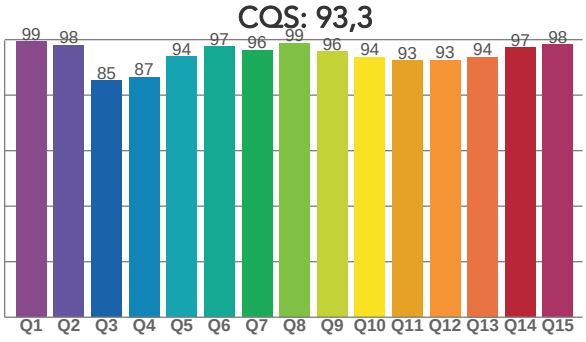
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
93,4	95,5	93,7	93,1	91,3	96,4	95,1	91,8	89,7	85,7	83,0	89,2	93,5	93,4	88,8	89,4

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
99,2	98,0	85,3	86,6	93,9	97,5	96,2	98,8	95,6	93,6	92,5	92,6	93,7	97,2	98,3

CQS: 93,3



COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
5157 K	96,5	95,4	91,5	101,7	93,3	98	0,340	0,337	-0,0089

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TM30 DETAILS

PROLiGHTS

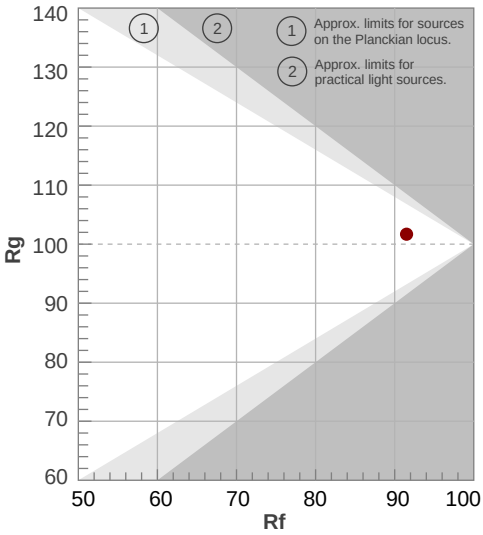
Rf 91,5

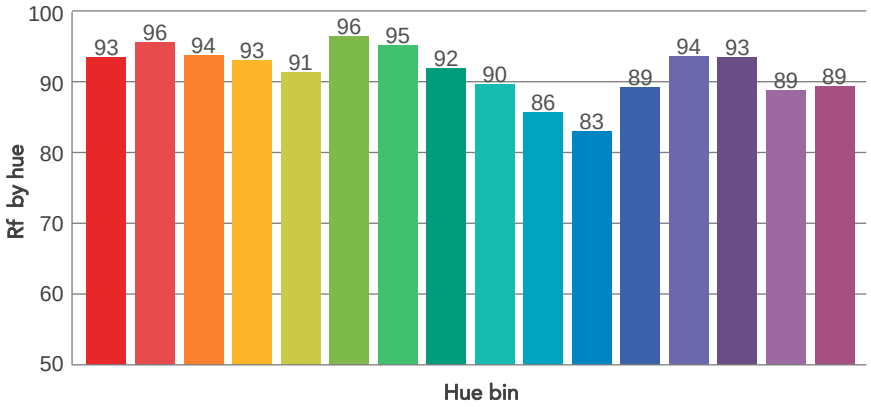
Fidelity index Rf

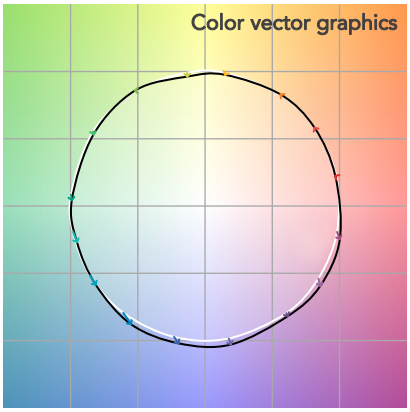
Rg 101,7

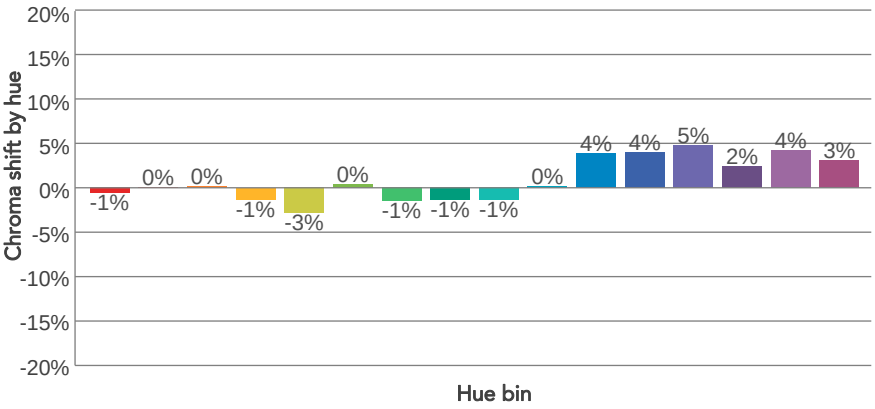
Gammut index

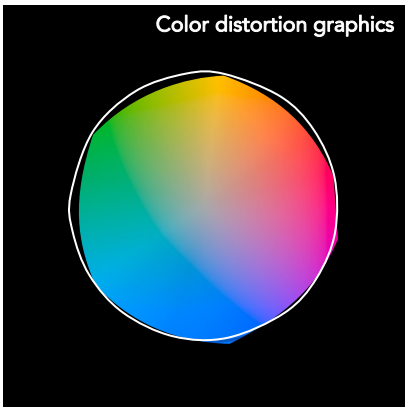
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	93	-1%	1%
2	96	0%	1%
3	94	0%	1%
4	93	-1%	0%
5	91	-3%	0%
6	96	0%	1%
7	95	-1%	2%
8	92	-1%	4%
9	90	-1%	8%
10	86	0%	8%
11	83	4%	9%
12	89	4%	4%
13	94	5%	1%
14	93	2%	0%
15	89	4%	-4%
16	89	3%	-5%

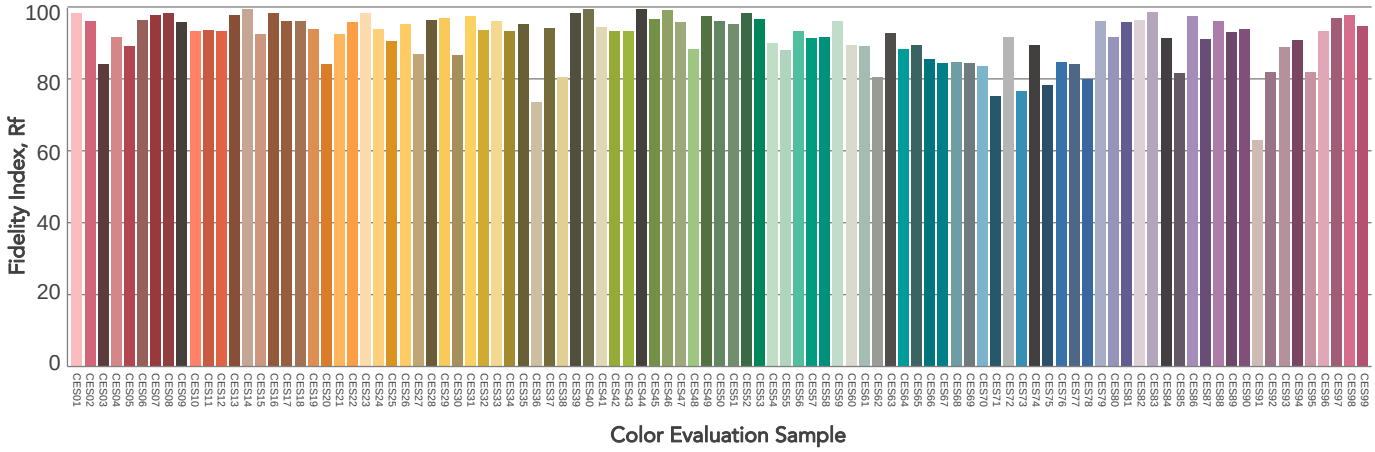












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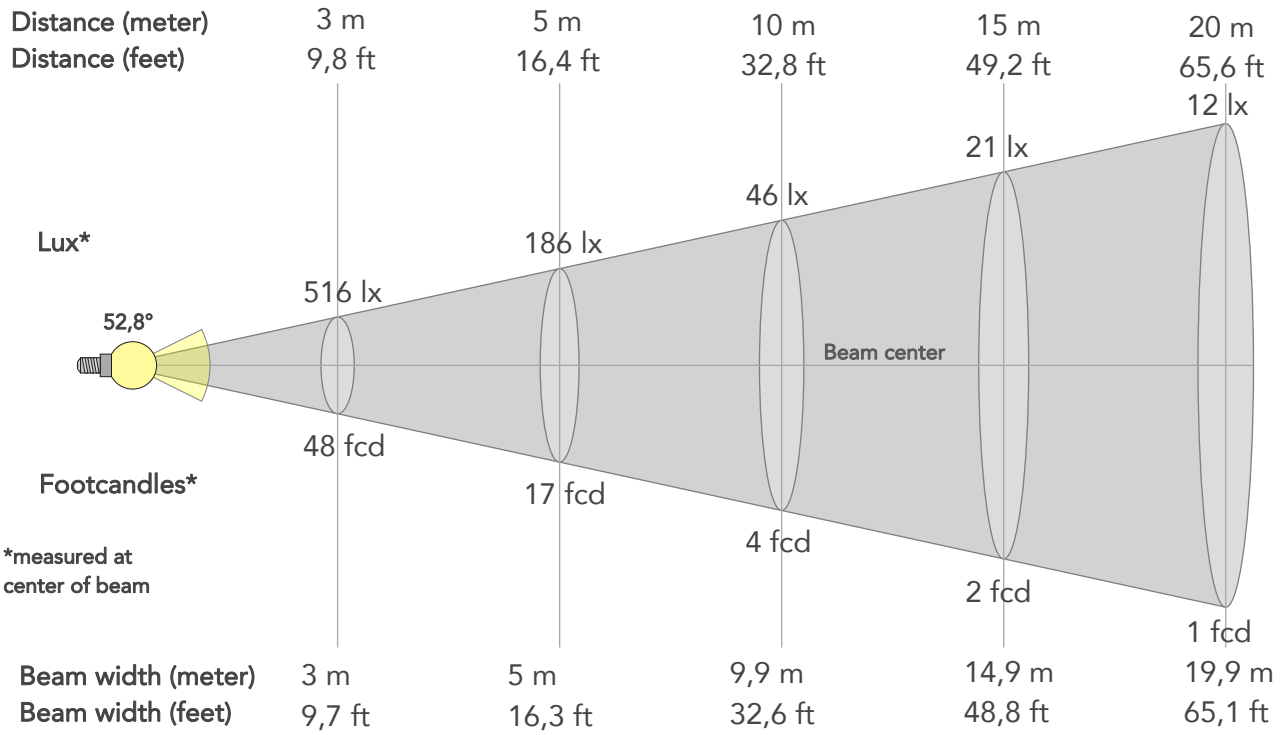
BEAM DETAILS

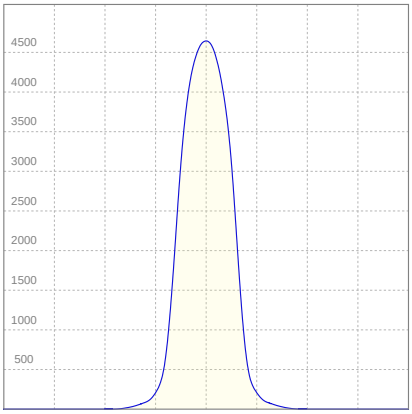
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
52,8°	76,3°	101,2°	98,7%	94,7%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	4640lx	1160lx	516lx	290lx	186lx	82lx	46lx	21lx	12lx	7lx	5lx	3lx	2lx
Footcand.	431fcd	108fcd	48fcd	27fcd	17fcd	8fcd	4fcd	2fcd	1fcd	1fcd	0fcd	0fcd	0fcd
Beam wid.	1m	2m	3m	4m	5m	7,4m	9,9m	14,9m	19,9m	24,8m	29,8m	39,7m	49,6m
Beam wid.	3,3ft	6,6ft	9,7ft	13ft	16,3ft	24,4ft	32,6ft	48,8ft	65,1ft	81,4ft	97,7ft	130,2ft	162,8ft

LINEAR DISTRIBUTION DIAGRAM



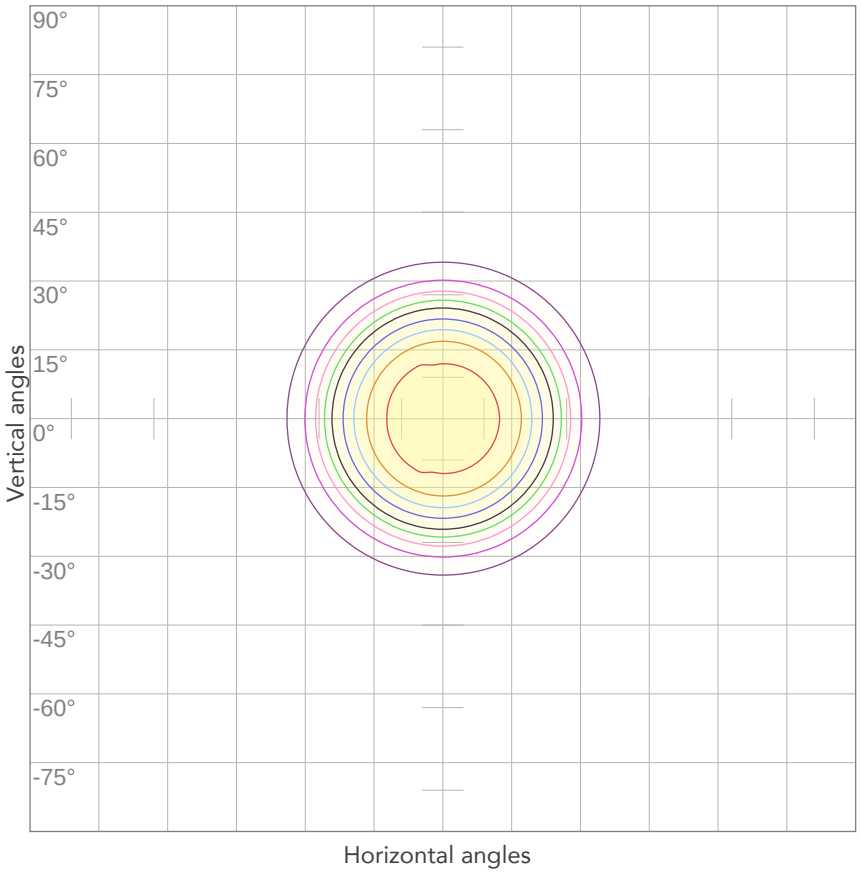
ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
223V	0,724A	155,9W	23lm/W

Powerr FC
0,97

ISO DIAGRAMS

ISO CANDELA DIAGRAM



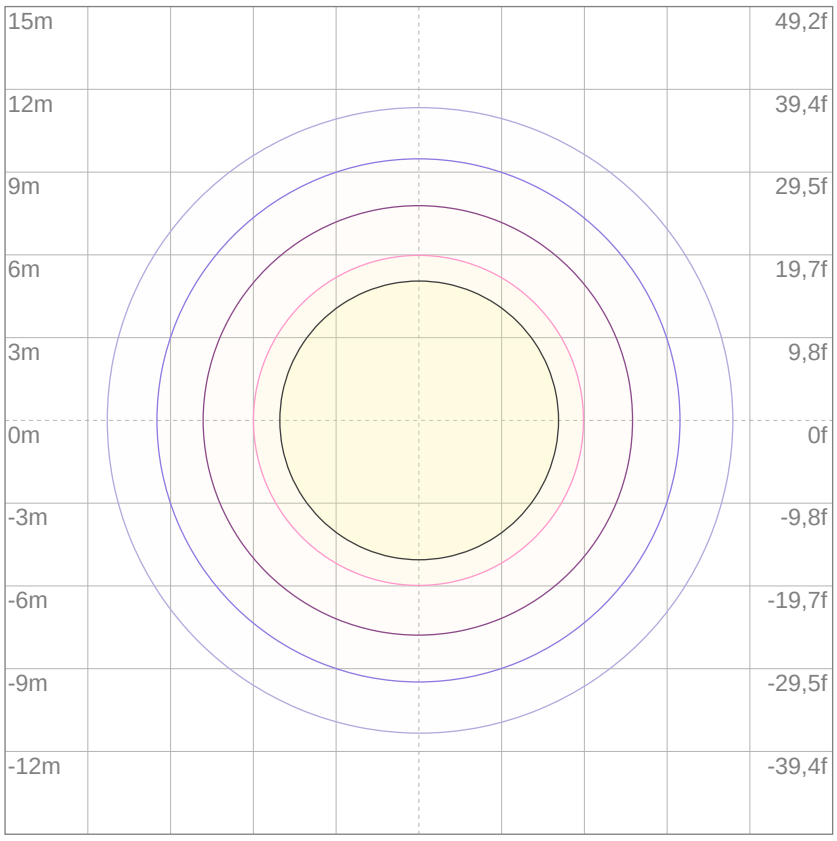
10%	464 cd
20%	928 cd
30%	1392 cd
40%	1856 cd
50%	2320 cd
60%	2784 cd
70%	3248 cd
80%	3712 cd

Conditions:

Number of c-planes: 2

Candela at center: 4640 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	1,39 lx
5%	2,32 lx
10%	4,64 lx
30%	13,9 lx
50%	23,2 lx

Conditions:

Number of c-planes: 2

Lux at center: 46,4 lx

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

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Total lumen output:

3510 lm

Peak candela output:

6584 cd

Light quality:

CRI: 96,6

Color temperature:

5150 K

PRODUCT NAME:

STUDIOCOBPLUSTW

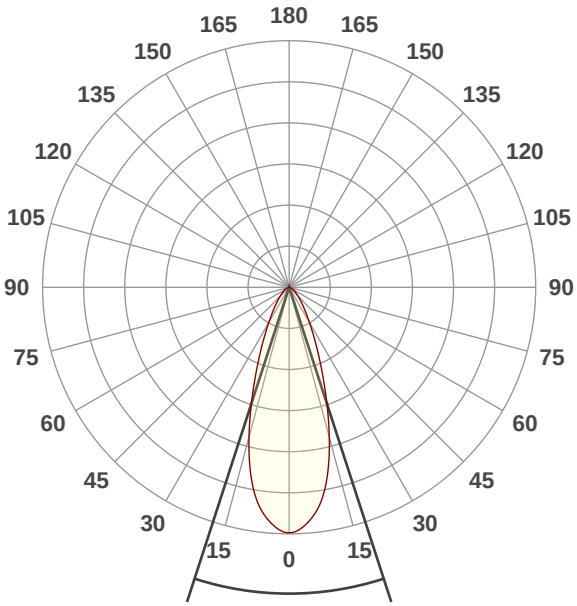
MEASURAMENT CONDITIONS:

Beam angle:
Medium

Target:
Neutral White

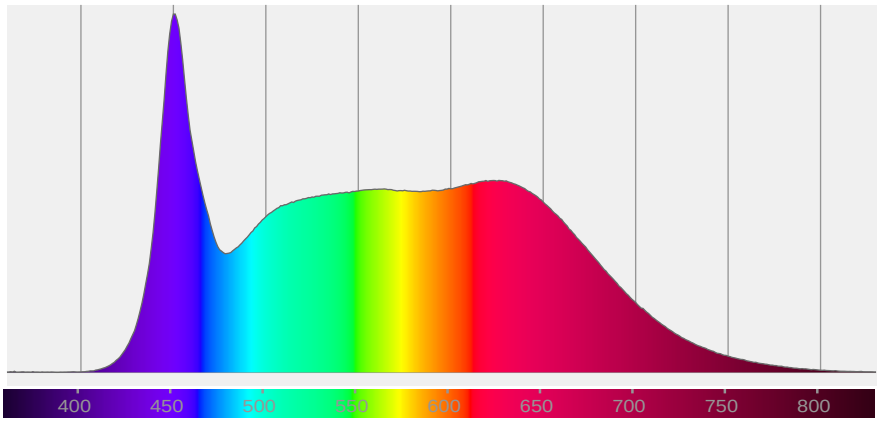
Operator:
Paolo Carvone

Date and time:
19/11/2020 14:15:09

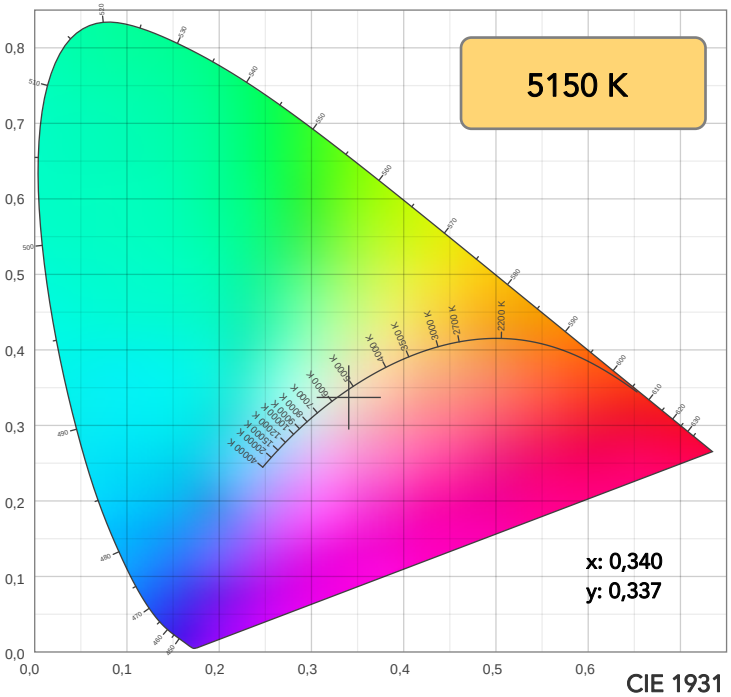


Beam angle 50%: 36°
Field angle 10%: 72,4°
Cut off angle 2.5%: 112,7°

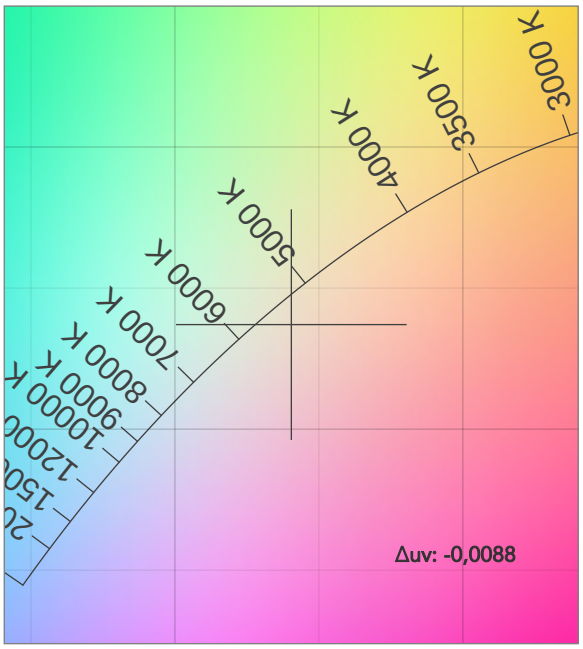
Spectra



COLOR DETAILS

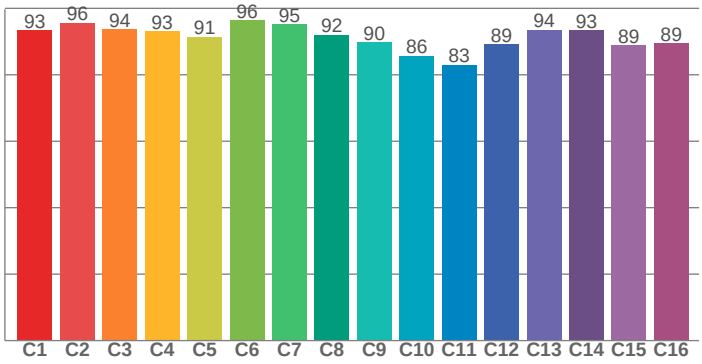


CIE 1931

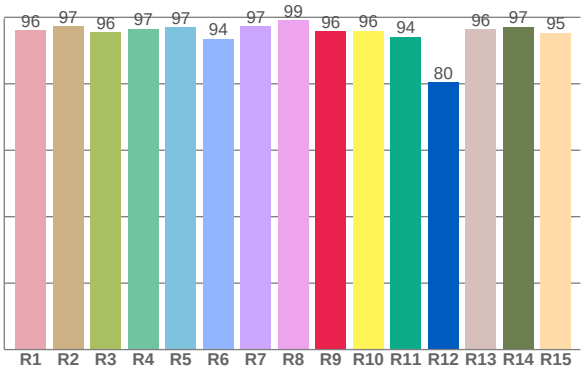


CIE 1931 ZOOM

TM30: 91,5



CRI: 96,6 (R1-R8)



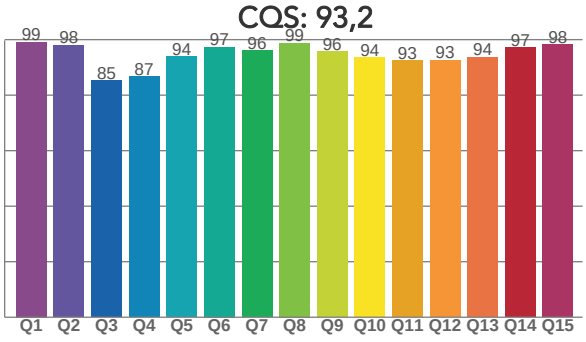
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
96,2	97,2	95,5	96,6	97,0	93,5	97,3	99,1	95,9	95,9	94,2	80,4	96,5	97,1	95,4

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
93,4	95,6	93,6	93,1	91,4	96,4	95,1	91,9	89,7	85,7	82,9	89,2	93,5	93,4	88,8	89,4

CQS: 93,2



CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
99,2	97,9	85,3	86,6	93,9	97,4	96,1	98,8	95,7	93,6	92,5	92,5	93,7	97,1	98,2

COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
5150 K	96,6	95,9	91,5	101,7	93,2	97	0,340	0,337	-0,0088

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TM30 DETAILS

PROLiGHTS

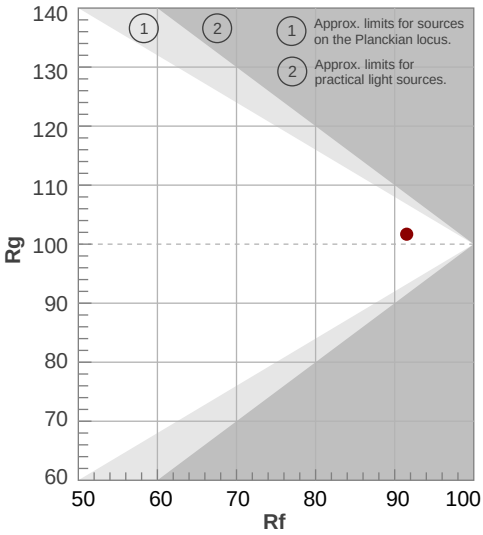
Rf 91,5

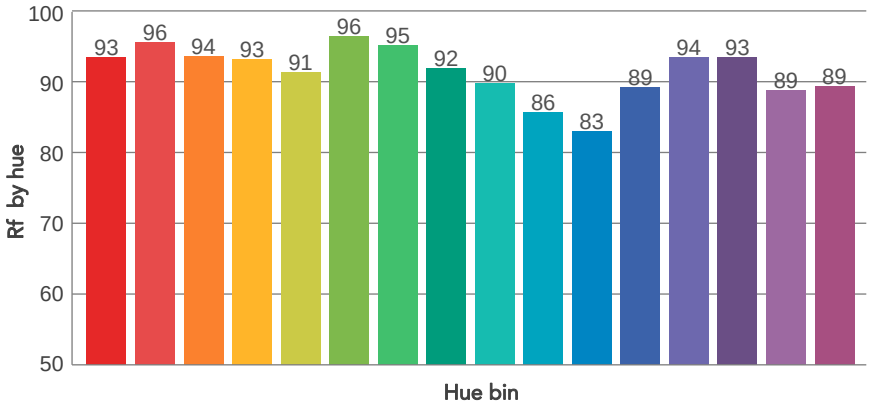
Fidelity index Rf

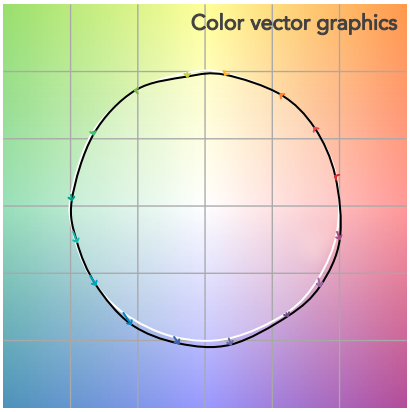
Rg 101,7

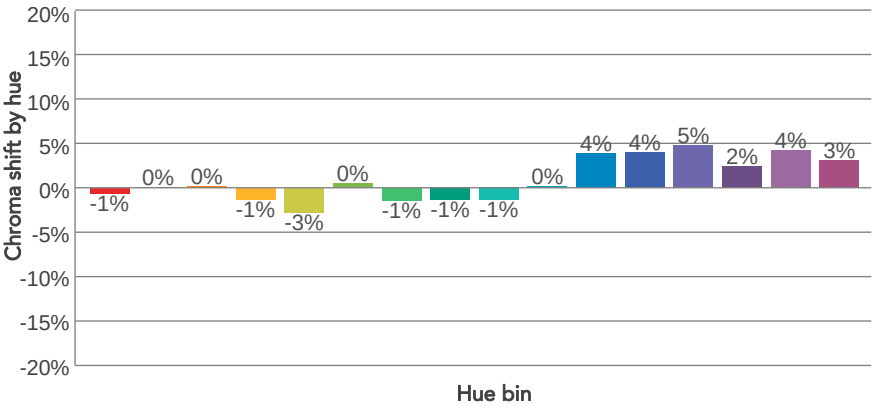
Gammut index

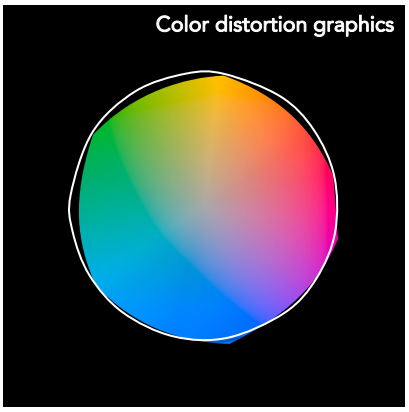
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	93	-1%	1%
2	96	0%	1%
3	94	0%	1%
4	93	-1%	0%
5	91	-3%	1%
6	96	0%	1%
7	95	-1%	2%
8	92	-1%	4%
9	90	-1%	8%
10	86	0%	8%
11	83	4%	9%
12	89	4%	4%
13	94	5%	1%
14	93	2%	0%
15	89	4%	-4%
16	89	3%	-5%

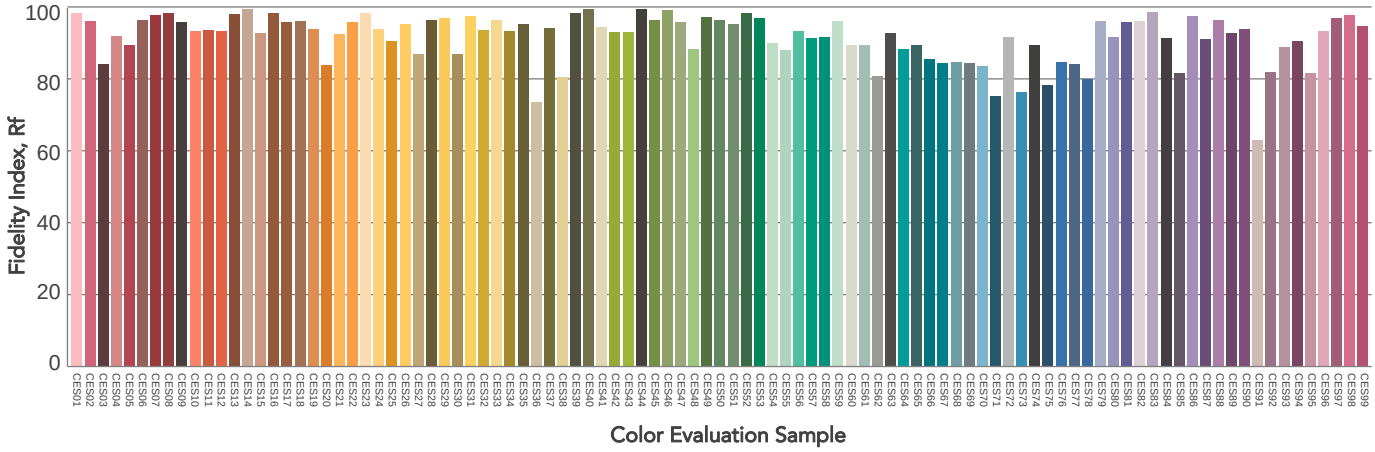












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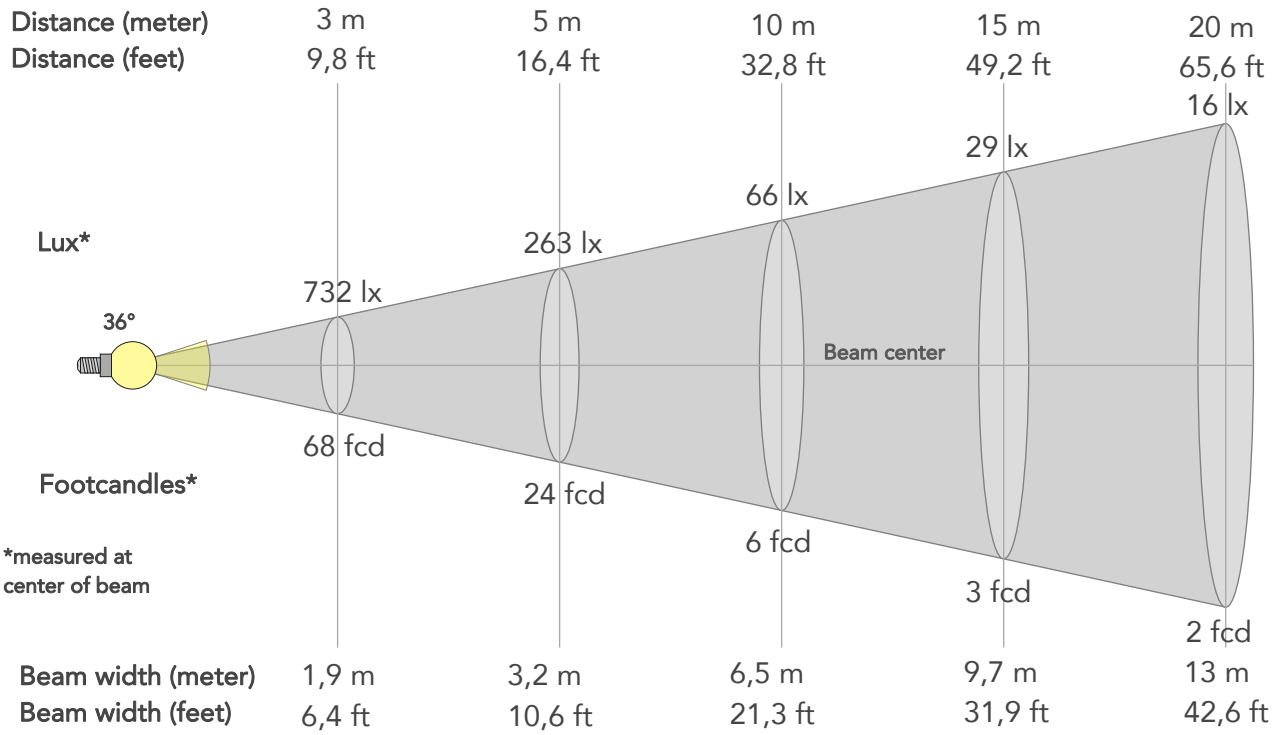
BEAM DETAILS

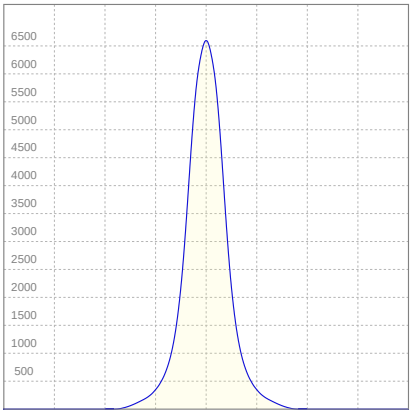
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
36°	72,4°	112,7°	97,1%	89,1%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	6584lx	1646lx	732lx	411lx	263lx	117lx	66lx	29lx	16lx	11lx	7lx	4lx	3lx
Footcand.	612fcd	153fcd	68fcd	38fcd	24fcd	11fcd	6fcd	3fcd	2fcd	1fcd	1fcd	0fcd	0fcd
Beam wid.	0,6m	1,3m	1,9m	2,6m	3,2m	4,9m	6,5m	9,7m	13m	16,2m	19,5m	26m	32,5m
Beam wid.	2,1ft	4,3ft	6,4ft	8,5ft	10,6ft	16ft	21,3ft	31,9ft	42,6ft	53,2ft	63,9ft	85,2ft	106,5ft

LINEAR DISTRIBUTION DIAGRAM



ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
225V	0,721A	156,6W	22lm/W

Powerr FC
0,97

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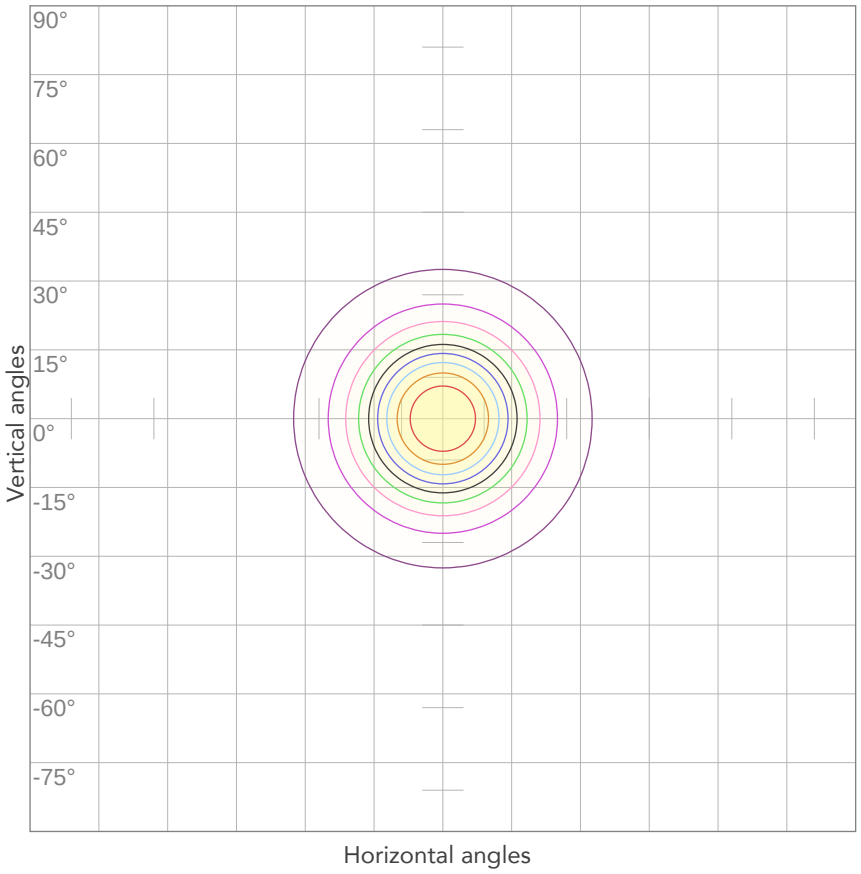
ISO DIAGRAMS

ISO CANDELA DIAGRAM



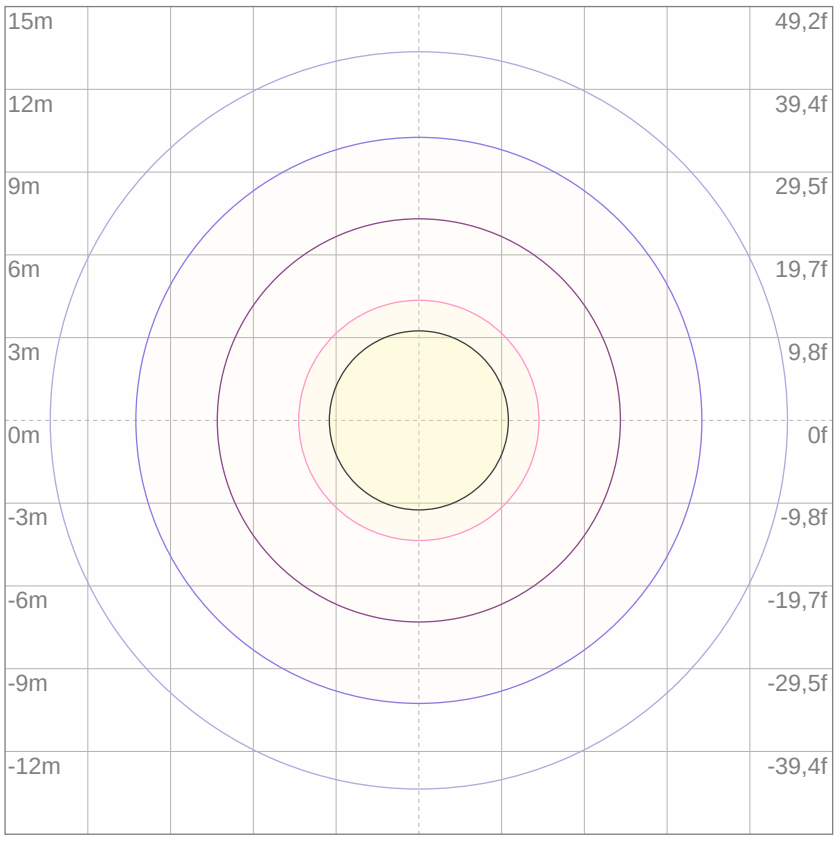
10%	658 cd
20%	1317 cd
30%	1975 cd
40%	2633 cd
50%	3292 cd
60%	3950 cd
70%	4609 cd
80%	5267 cd

Conditions:

Number of c-planes: 2

Candela at center: 6584 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	1,98 lx
5%	3,29 lx
10%	6,58 lx
30%	19,8 lx
50%	32,9 lx

Conditions:

Number of c-planes: 2

Lux at center: 65,8 lx

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

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Total lumen output:

3809 lm

Peak candela output:

20808 cd

Light quality:

CRI: 96,4

Color temperature:

5113 K

PRODUCT NAME:

STUDIOCOBPLUSTW

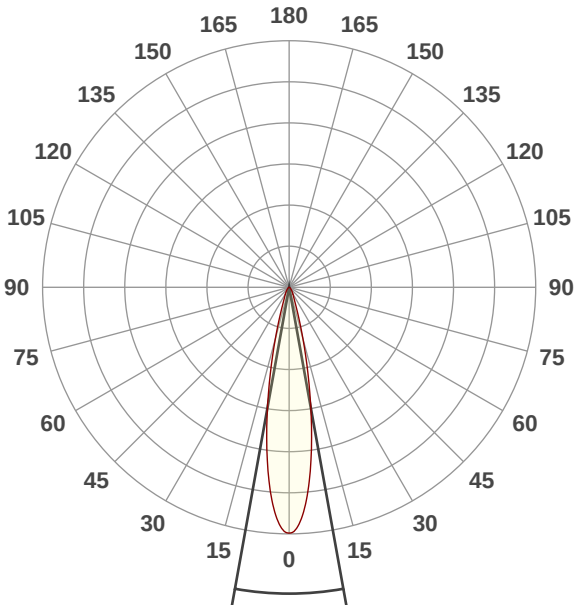
MEASURAMENT CONDITIONS:

Beam angle:
Narrow

Target:
Neutral White

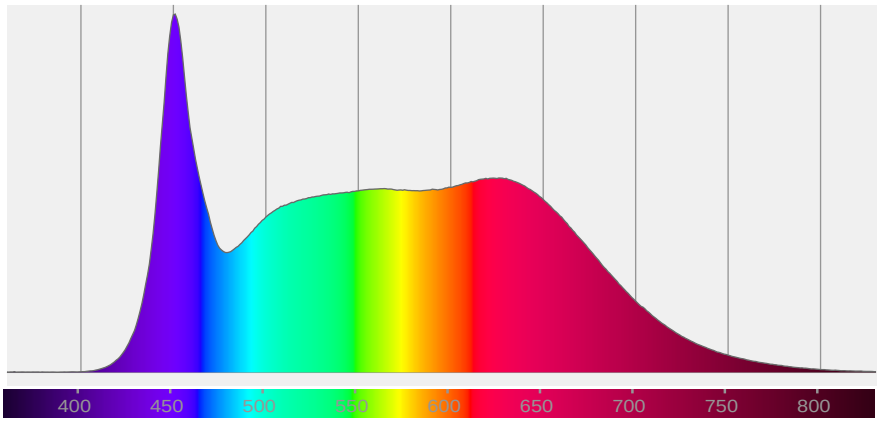
Operator:
Paolo Carvone

Date and time:
19/11/2020 13:01:36

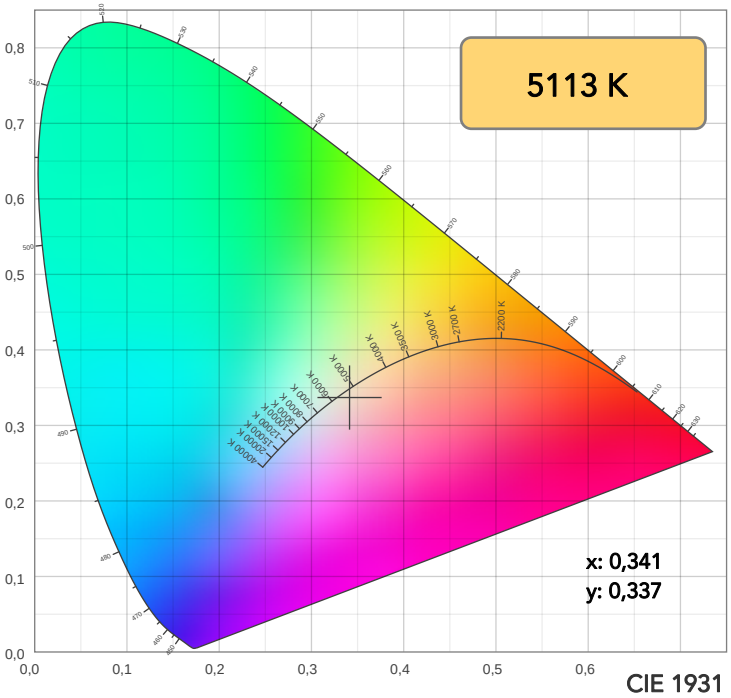


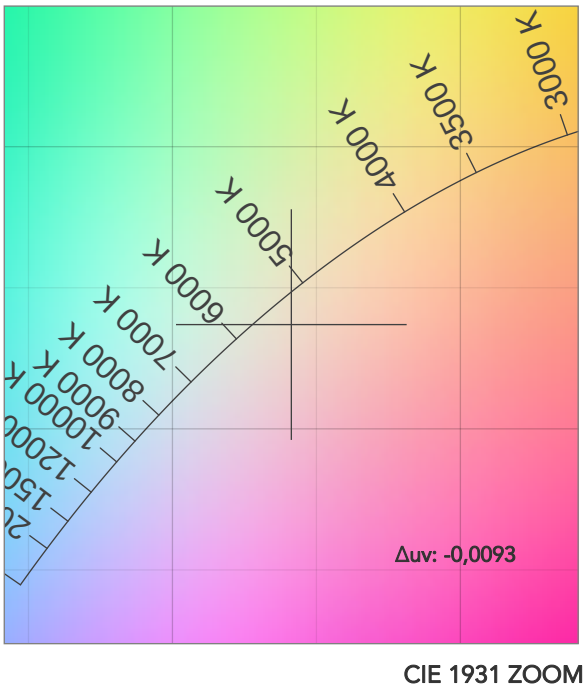
Beam angle 50%: 20,4°
Field angle 10%: 37,7°
Cut off angle 2.5%: 64,9°

Spectra

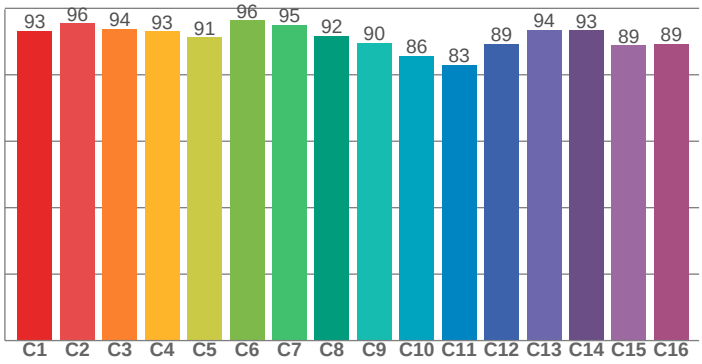


COLOR DETAILS

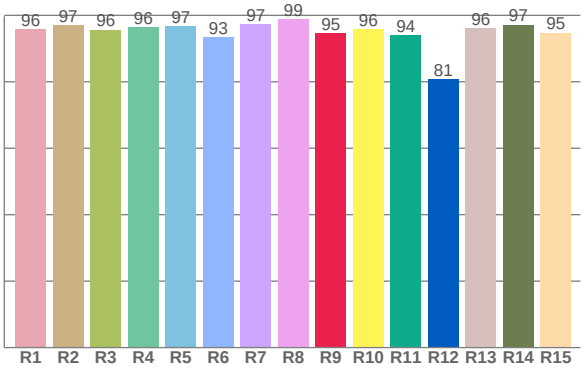




TM30: 91,5



CRI: 96,4 (R1-R8)



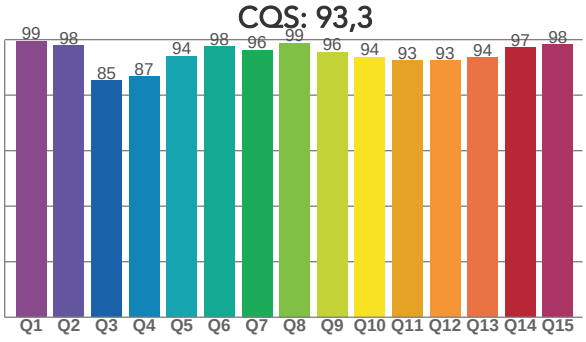
CRI R values, only R1-R8 are used to calculate final CRI value

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
95,8	97,0	95,6	96,4	96,7	93,5	97,4	98,7	94,7	95,9	93,9	80,7	96,1	97,2	94,8

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
93,3	95,5	93,7	93,1	91,3	96,3	95,0	91,7	89,6	85,7	83,0	89,3	93,6	93,4	88,8	89,3

CQS: 93,3



CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
99,4	97,9	85,3	86,7	94,0	97,5	96,2	98,9	95,6	93,6	92,5	92,5	93,6	97,1	98,3

COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
5113 K	96,4	94,7	91,5	101,8	93,3	98	0,341	0,337	-0,0093

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TM30 DETAILS

PROLiGHTS

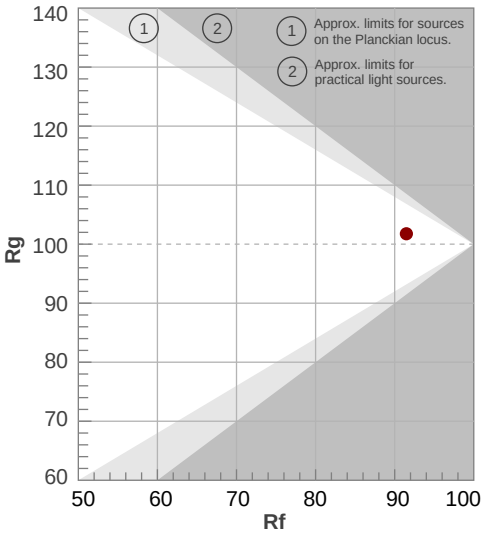
Rf 91,5

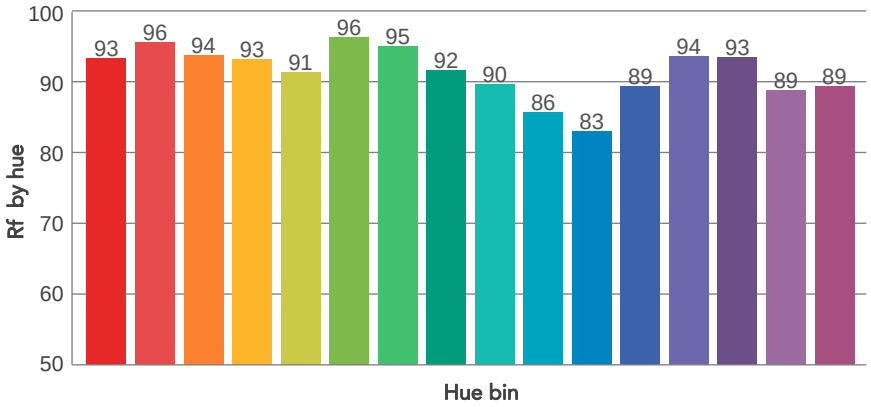
Fidelity index Rf

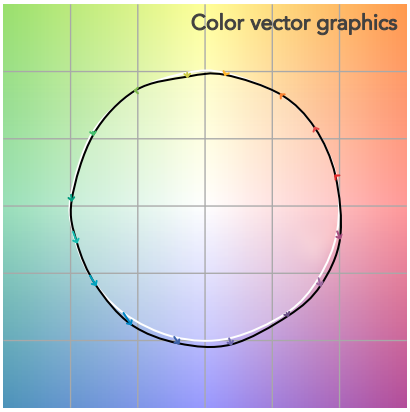
Rg 101,8

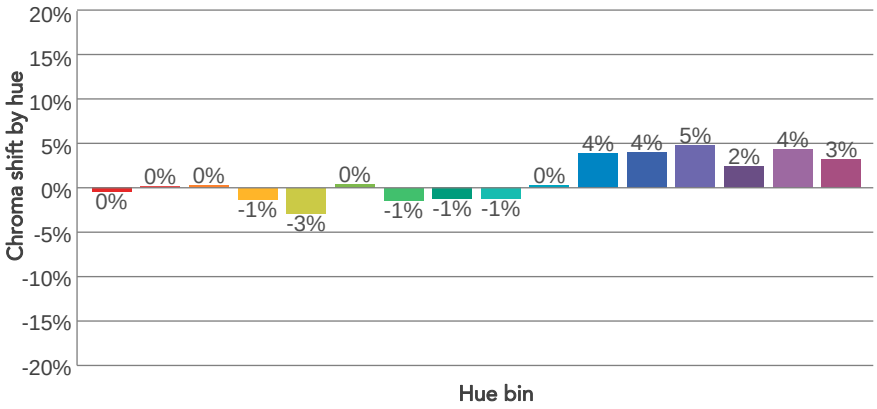
Gammut index

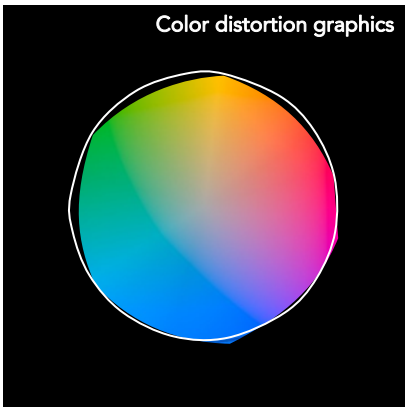
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	93	0%	1%
2	96	0%	1%
3	94	0%	1%
4	93	-1%	0%
5	91	-3%	0%
6	96	0%	1%
7	95	-1%	2%
8	92	-1%	4%
9	90	-1%	8%
10	86	0%	8%
11	83	4%	9%
12	89	4%	4%
13	94	5%	1%
14	93	2%	0%
15	89	4%	-4%
16	89	3%	-5%

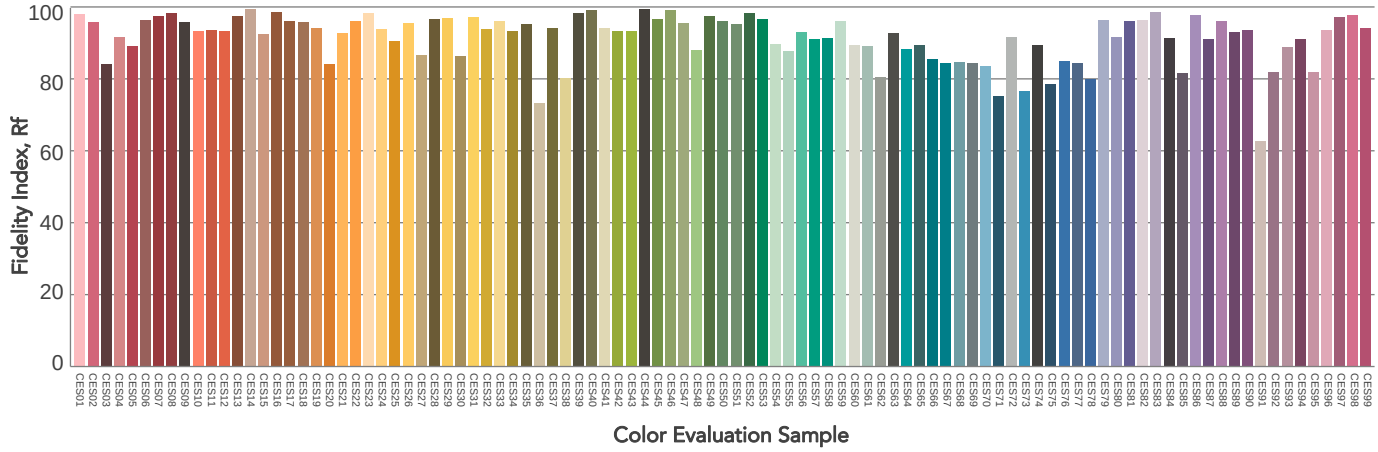












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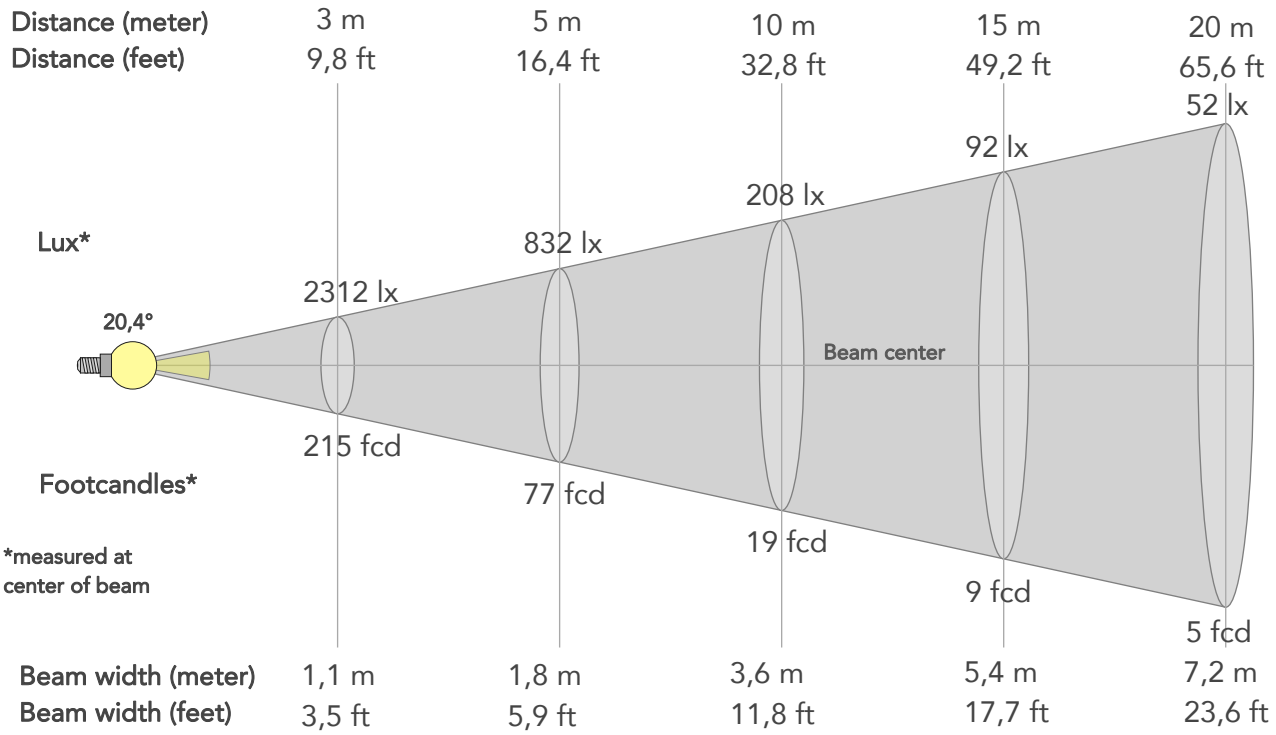
BEAM DETAILS

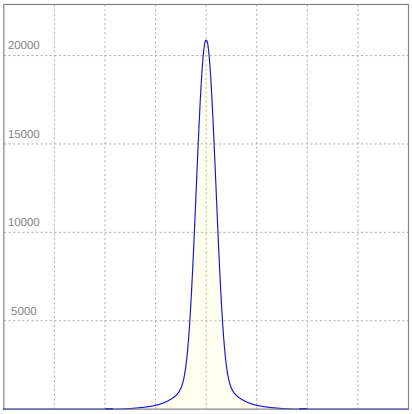
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
20,4°	37,7°	64,9°	98,5%	93,9%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	20808lx	5202lx	2312lx	1301lx	832lx	370lx	208lx	92lx	52lx	33lx	23lx	13lx	8lx
Footcand.	1933fcd	483fcd	215fcd	121fcd	77fcd	34fcd	19fcd	9fcd	5fcd	3fcd	2fcd	1fcd	1fcd
Beam wid.	0,4m	0,7m	1,1m	1,4m	1,8m	2,7m	3,6m	5,4m	7,2m	9m	10,8m	14,4m	18m
Beam wid.	1,2ft	2,4ft	3,5ft	4,7ft	5,9ft	8,8ft	11,8ft	17,7ft	23,6ft	29,5ft	35,4ft	47,2ft	59ft

LINEAR DISTRIBUTION DIAGRAM



ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
223V	0,719A	155W	25lm/W

Powerr FC
0,97

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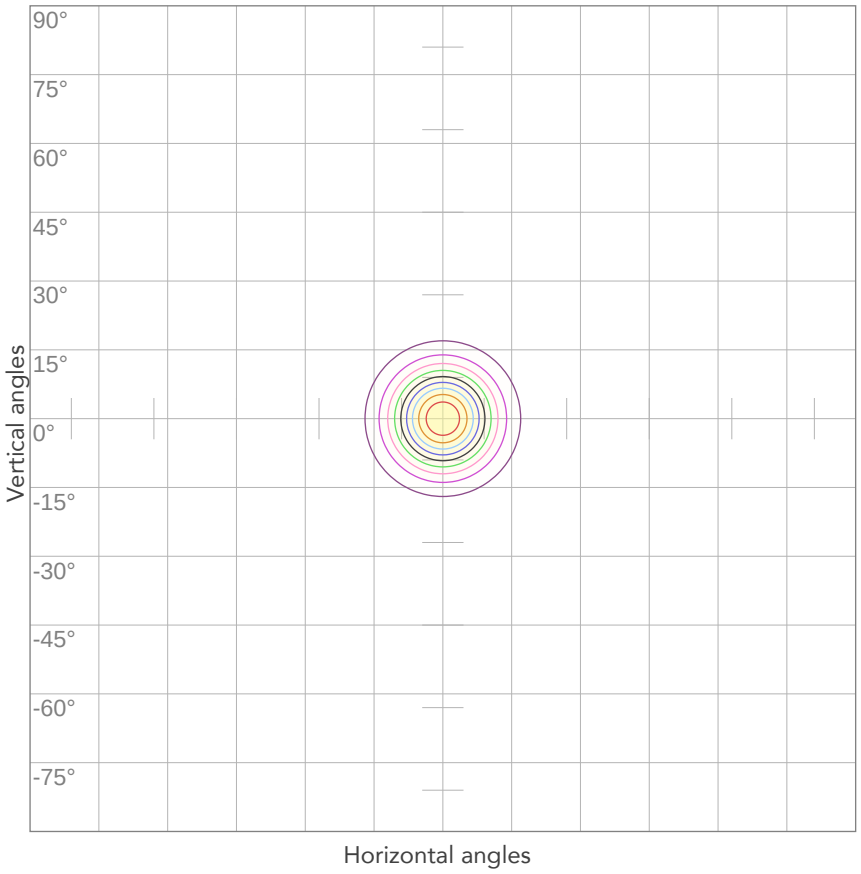
ISO DIAGRAMS

ISO CANDELA DIAGRAM



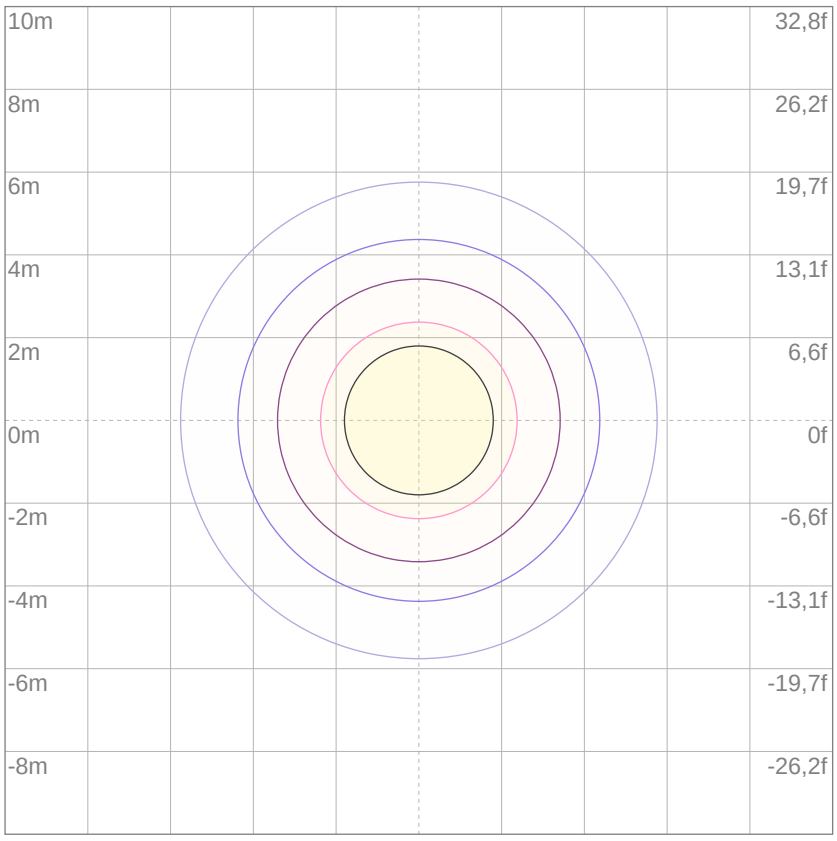
10%	2081 cd
20%	4162 cd
30%	6243 cd
40%	8323 cd
50%	10404 cd
60%	12485 cd
70%	14566 cd
80%	16647 cd

Conditions:

Number of c-planes: 2

Candela at center: 20808 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	6,24 lx
5%	10,4 lx
10%	20,8 lx
30%	62,4 lx
50%	104 lx

Conditions:

Number of c-planes: 2

Lux at center: 208 lx

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

Total lumen output:

1599 lm

Peak candela output:

2059 cd

Light quality:

CRI: 98,2

Color temperature:

3378 K

PRODUCT NAME:

STUDIOCOBPLUSTW

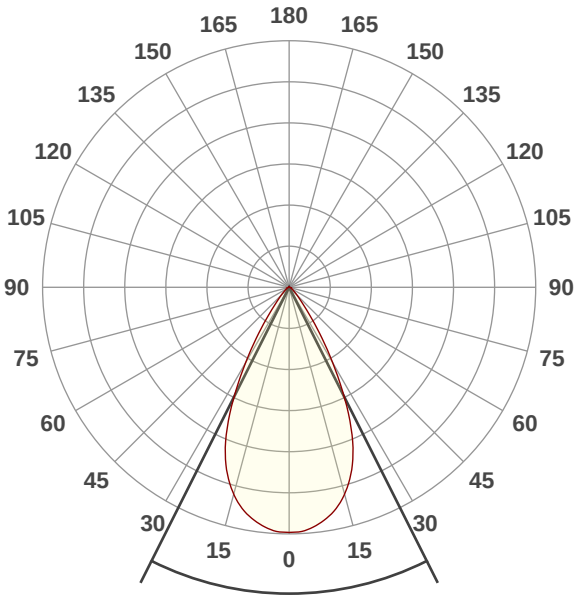
MEASURAMENT CONDITIONS:

Beam angle:
Wide

Target:
Warm White

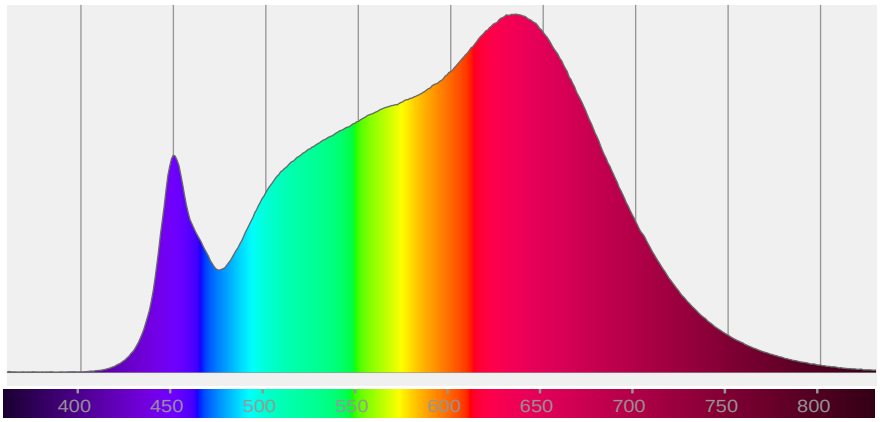
Operator:
Paolo Carvone

Date and time:
19/11/2020 14:46:59

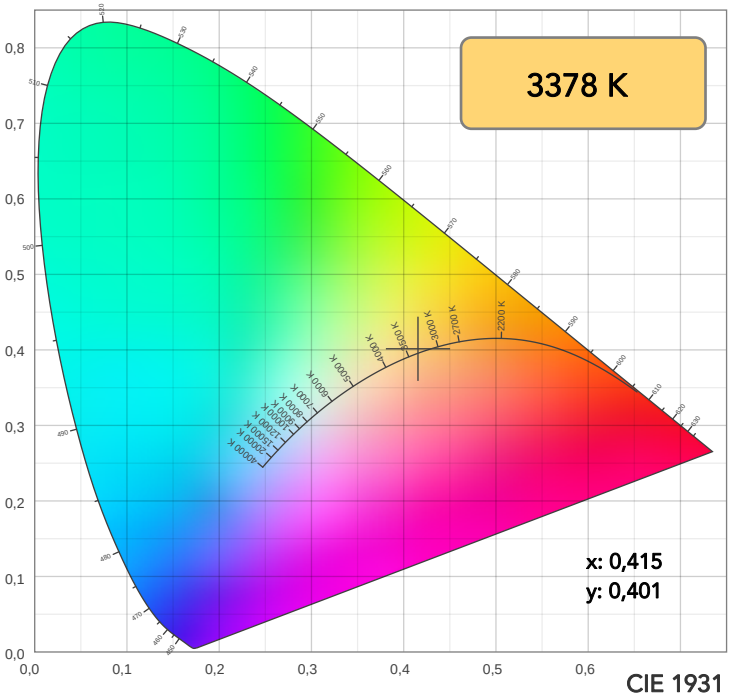


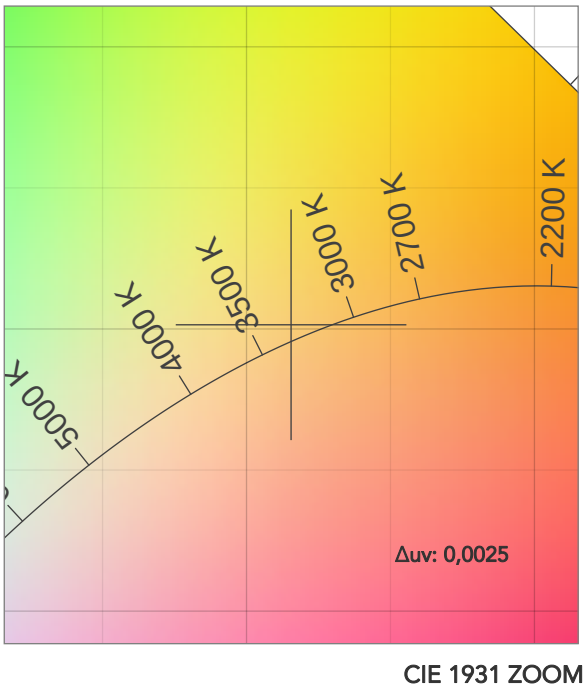
Beam angle 50%: 53,4°
Field angle 10%: 77,5°
Cut off angle 2.5%: 102,2°

Spectra

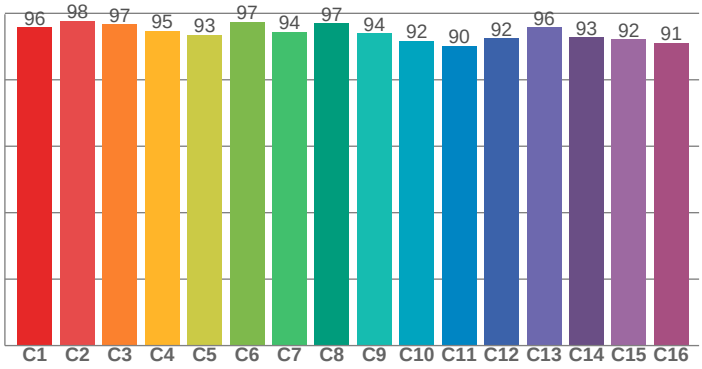


COLOR DETAILS

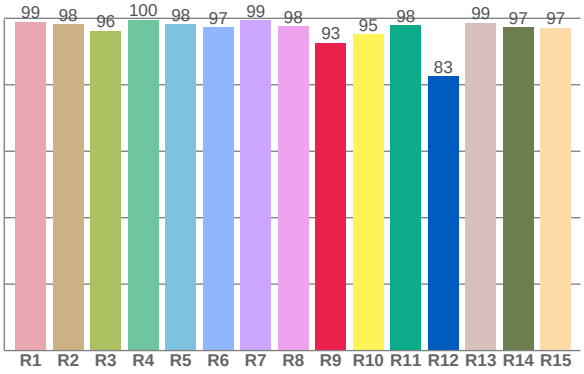




TM30: 94,1



CRI: 98,2 (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
99,0	98,2	96,2	99,6	98,1	97,3	99,4	97,7	92,6	95,1	97,9	82,7	98,6	97,3	97,1

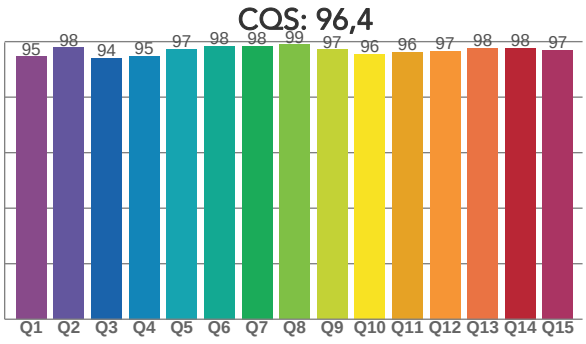
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
95,8	97,7	96,7	94,8	93,5	97,3	94,5	97,0	93,9	91,7	90,3	92,4	95,8	92,7	92,1	91,1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
94,6	97,9	94,0	94,8	97,3	98,3	98,5	98,9	97,1	95,6	96,3	96,7	97,7	97,8	96,9

CQS: 96,4



COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
3378 K	98,2	92,6	94,1	99,8	96,4	99	0,415	0,401	0,0025

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TM30 DETAILS

PROLiGHTS

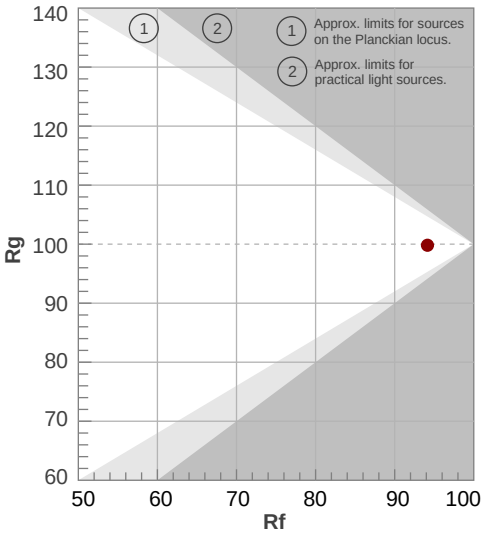
Rf 94,1

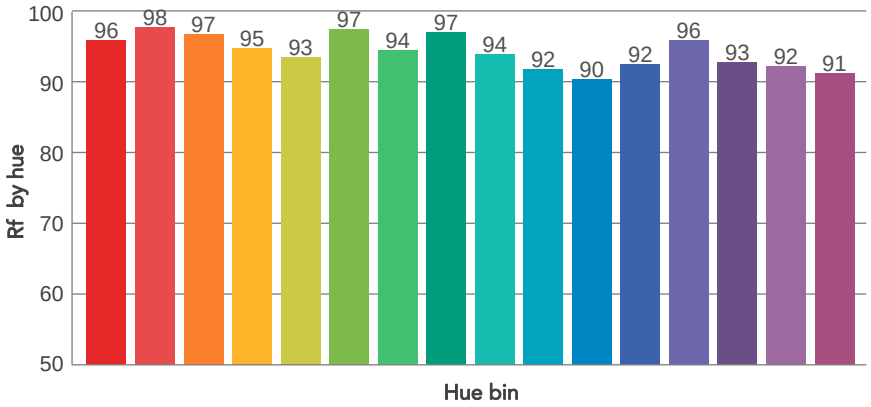
Fidelity index Rf

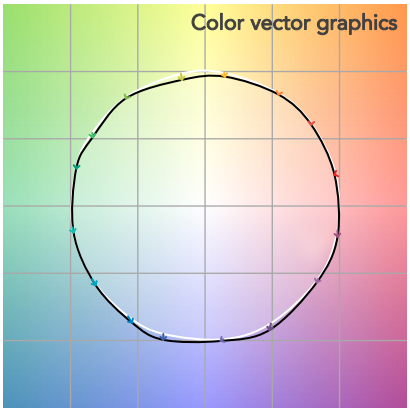
Rg 99,8

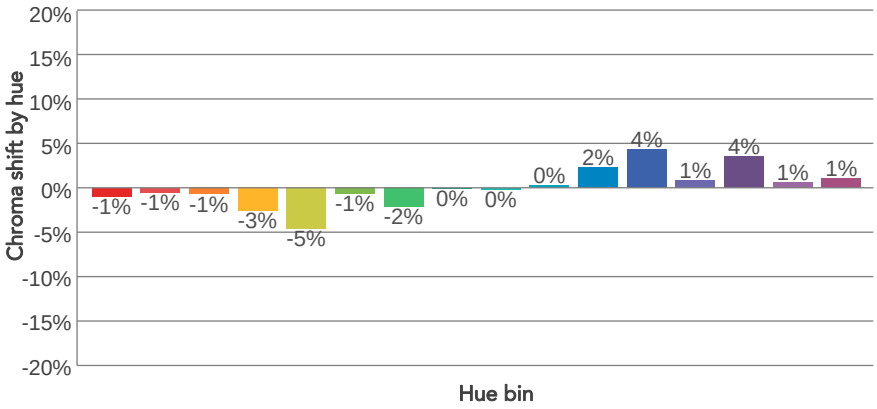
Gammut index

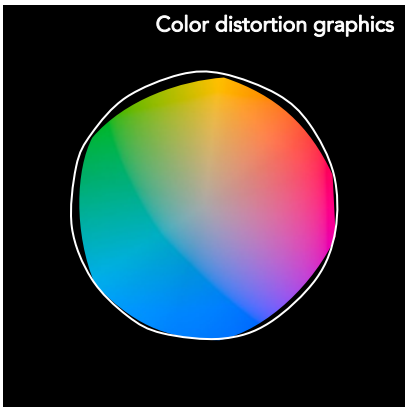
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	96	-1%	0%
2	98	-1%	-1%
3	97	-1%	0%
4	95	-3%	-1%
5	93	-5%	0%
6	97	-1%	1%
7	94	-2%	2%
8	97	0%	2%
9	94	0%	4%
10	92	0%	5%
11	90	2%	5%
12	92	4%	1%
13	96	1%	-2%
14	93	4%	-4%
15	92	1%	-3%
16	91	1%	-4%

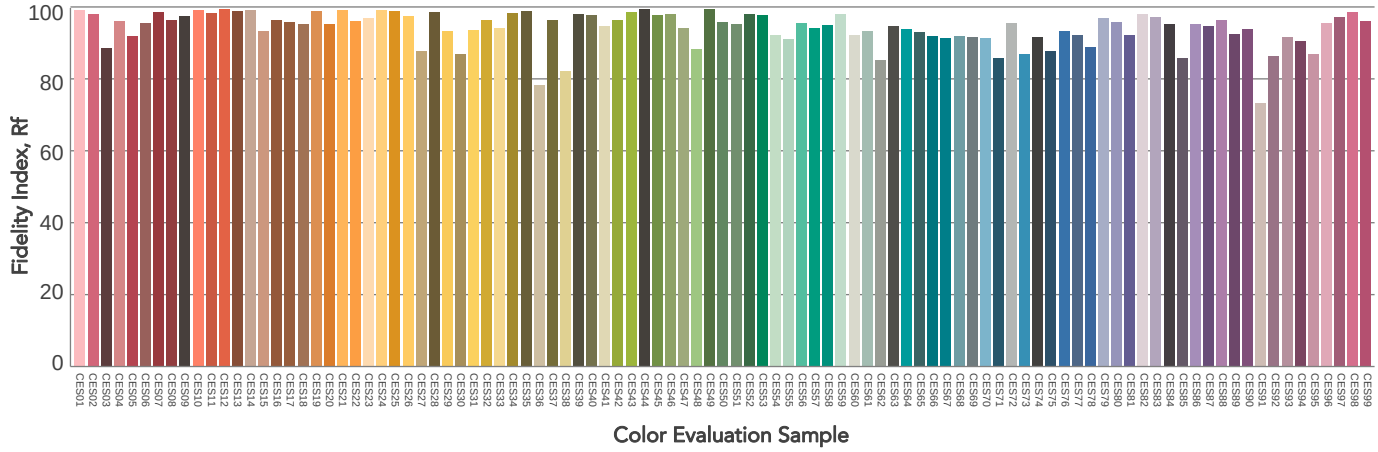












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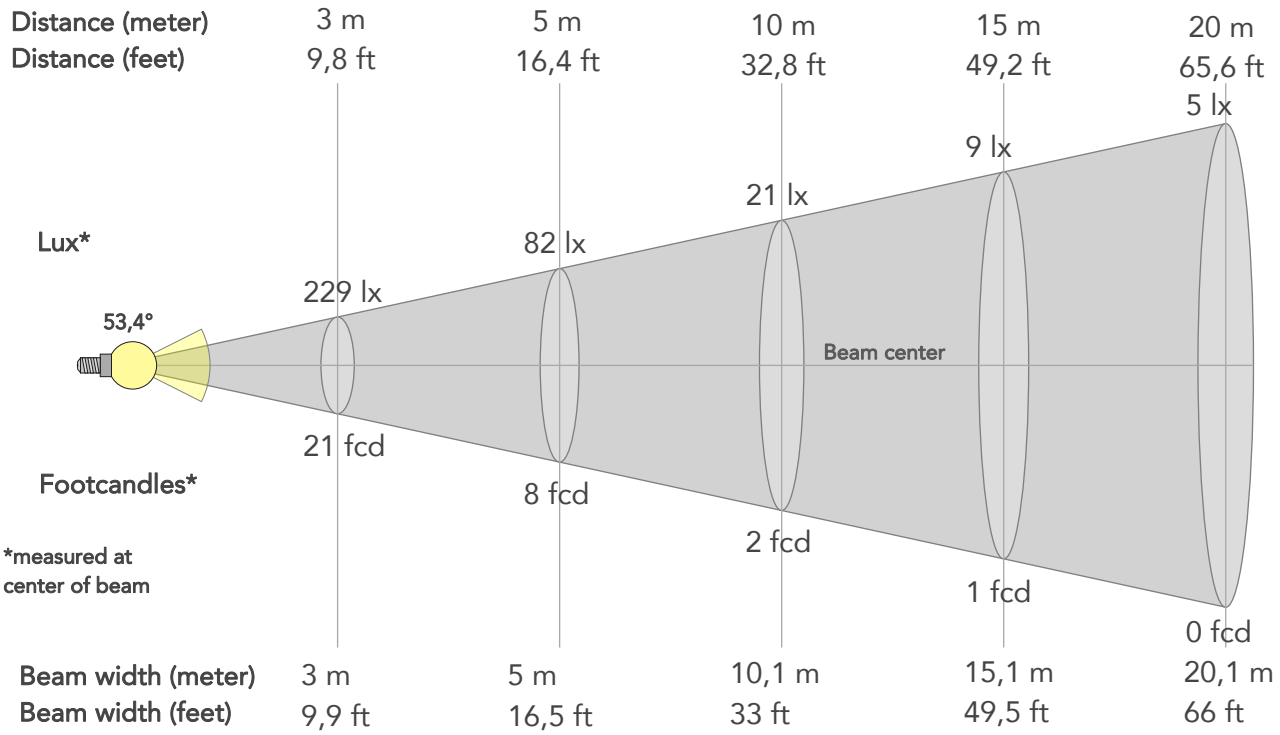
BEAM DETAILS

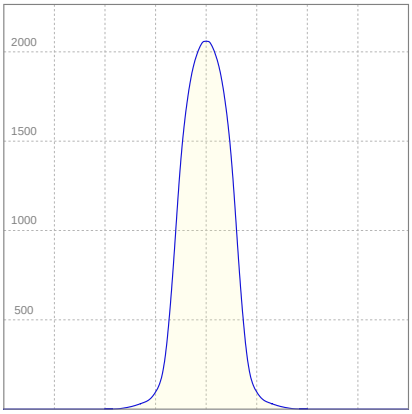
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
53,4°	77,5°	102,2°	98,6%	94,5%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	2059lx	515lx	229lx	129lx	82lx	37lx	21lx	9lx	5lx	3lx	2lx	1lx	1lx
Footcand.	191fcd	48fcd	21fcd	12fcd	8fcd	3fcd	2fcd	1fcd	0fcd	0fcd	0fcd	0fcd	0fcd
Beam wid.	1m	2m	3m	4m	5m	7,5m	10,1m	15,1m	20,1m	25,1m	30,2m	40,2m	50,3m
Beam wid.	3,3ft	6,6ft	9,9ft	13,2ft	16,5ft	24,7ft	33ft	49,5ft	66ft	82,5ft	99ft	132ft	165ft

LINEAR DISTRIBUTION DIAGRAM



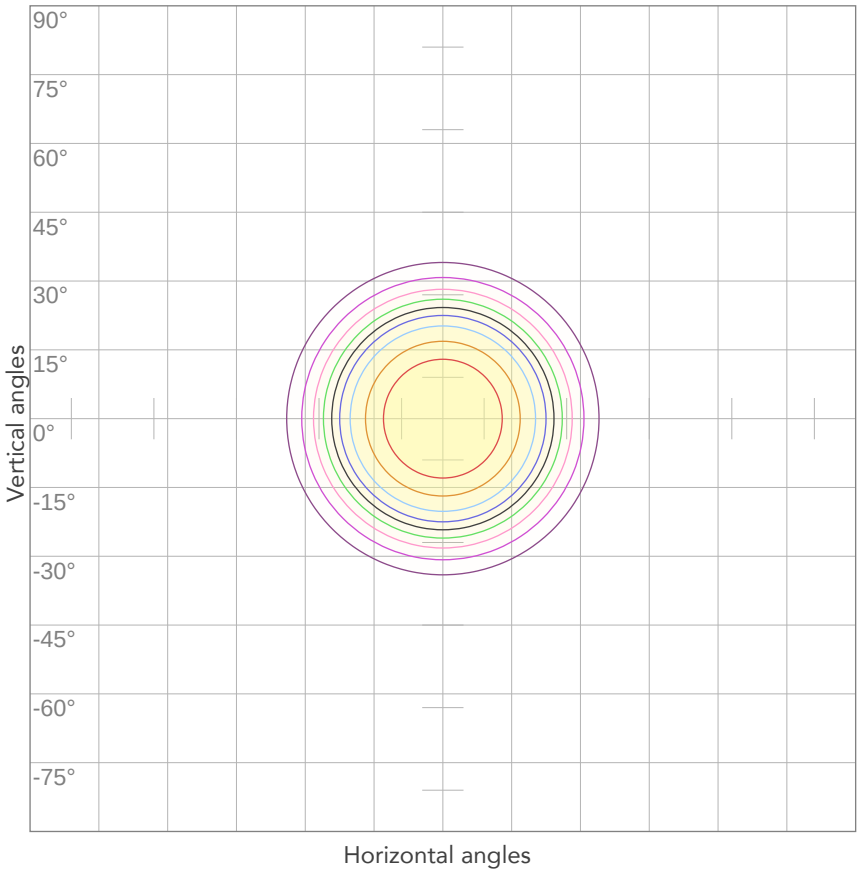
ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
224V	0,394A	83,3W	19lm/W

Powerr FC
0,97

ISO DIAGRAMS

ISO CANDELA DIAGRAM



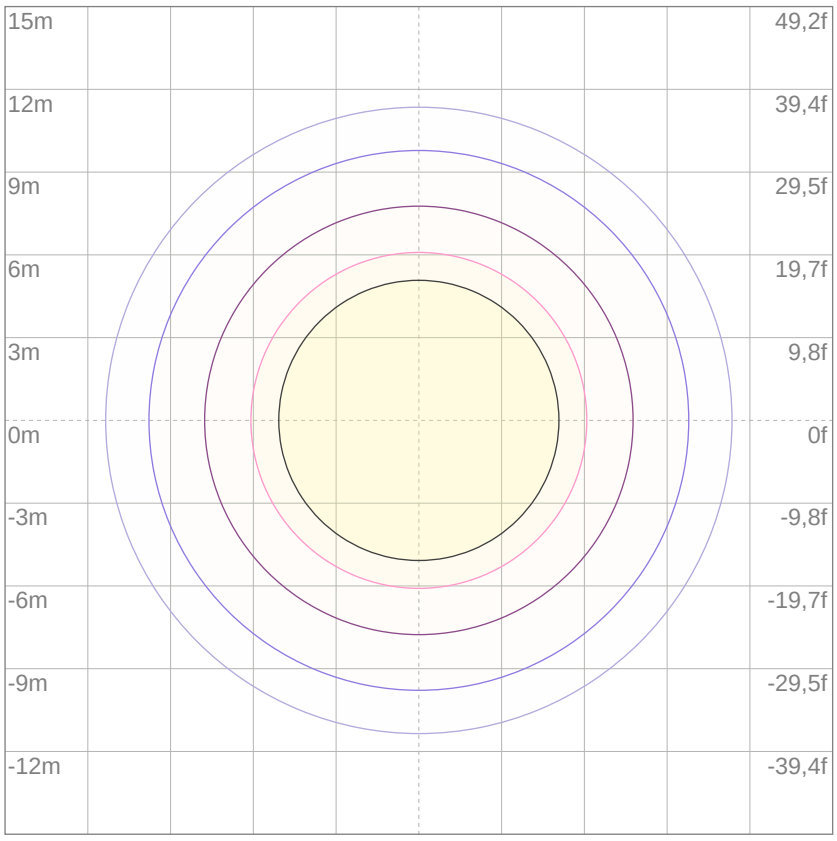
10%	206 cd
20%	412 cd
30%	618 cd
40%	824 cd
50%	1030 cd
60%	1236 cd
70%	1442 cd
80%	1647 cd

Conditions:

Number of c-planes: 2

Candela at center: 2059 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	0,618 lx
5%	1,03 lx
10%	2,06 lx
30%	6,18 lx
50%	10,3 lx

Conditions:

Number of c-planes: 2

Lux at center: 20,6 lx

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

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Total lumen output:

1584 lm

Peak candela output:

2976 cd

Light quality:

CRI: 98,2

Color temperature:

3372 K

PRODUCT NAME:

STUDIOCOBPLUSTW

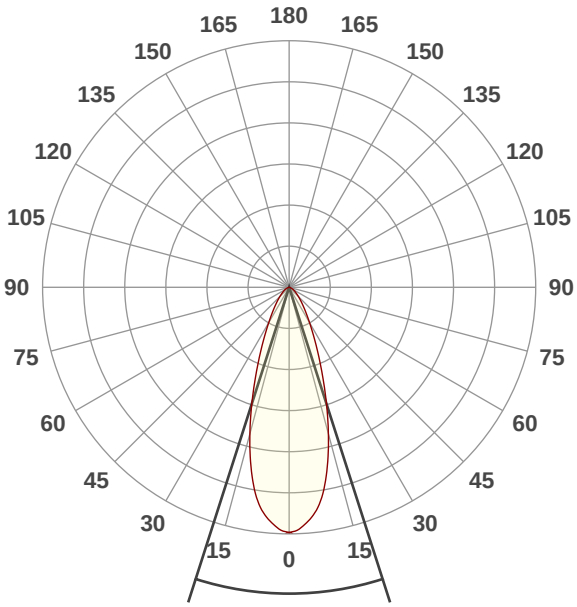
MEASURAMENT CONDITIONS:

Beam angle:
Medium

Target:
Warm White

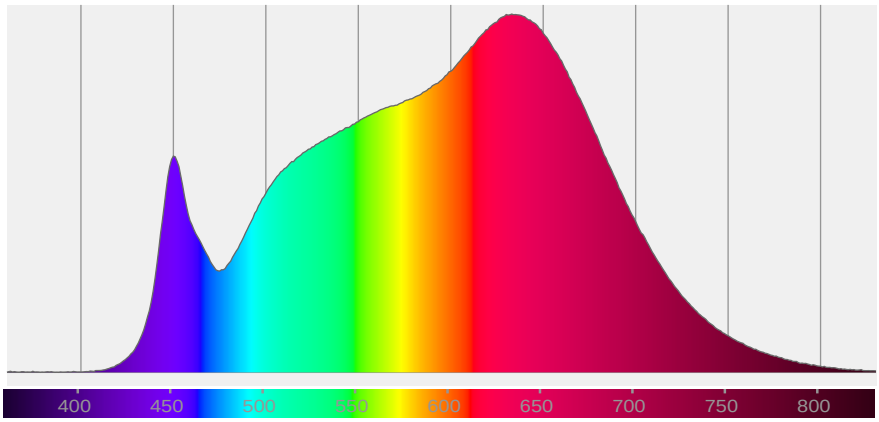
Operator:
Paolo Carvone

Date and time:
19/11/2020 14:13:39

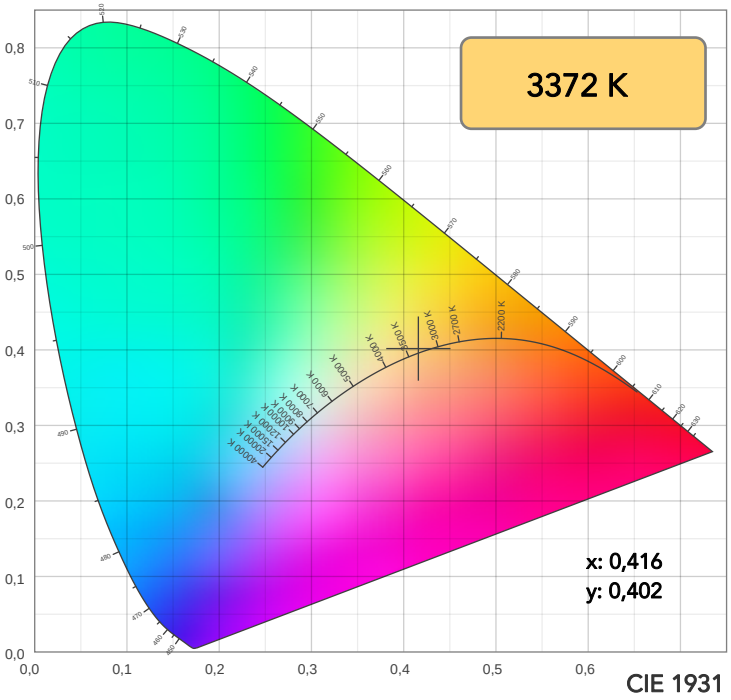


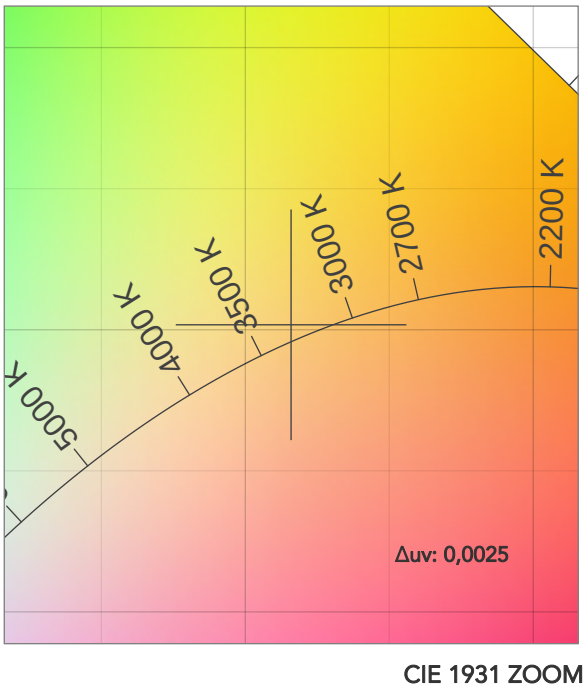
Beam angle 50%: 35,5°
Field angle 10%: 72,8°
Cut off angle 2.5%: 113,5°

Spectra

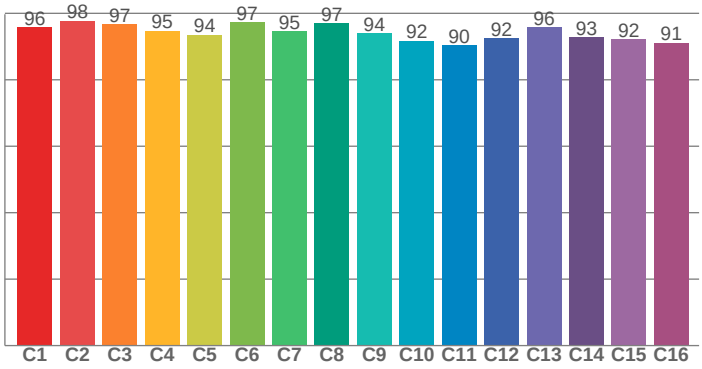


COLOR DETAILS

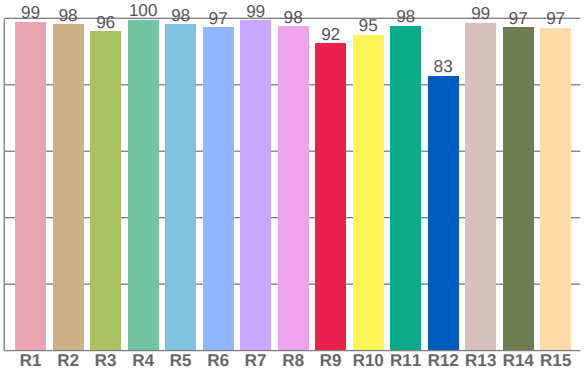




TM30: 94,2



CRI: 98,2 (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
99,0	98,1	96,2	99,5	98,2	97,3	99,5	97,6	92,4	95,1	97,8	82,7	98,6	97,3	97,1

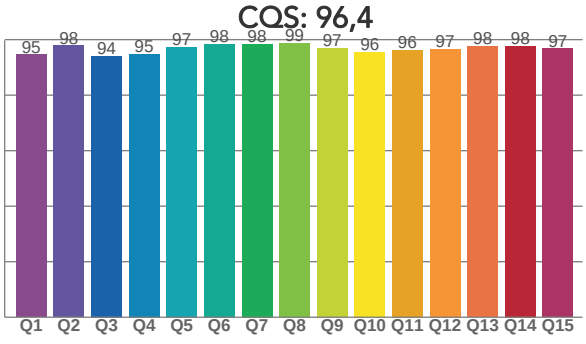
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
95,8	97,7	96,7	94,8	93,5	97,3	94,5	97,0	94,0	91,8	90,3	92,4	95,8	92,7	92,1	91,1

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
94,6	97,9	94,0	94,8	97,3	98,4	98,5	98,8	97,0	95,5	96,2	96,6	97,6	97,7	96,8

CQS: 96,4



COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
3372 K	98,2	92,4	94,2	99,8	96,4	99	0,416	0,402	0,0025

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TM30 DETAILS

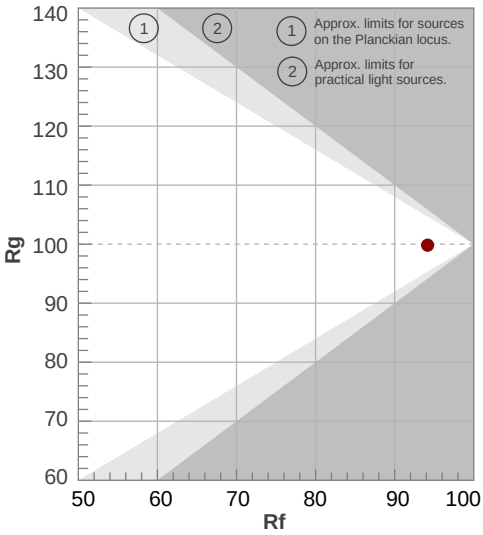
Rf 94,2

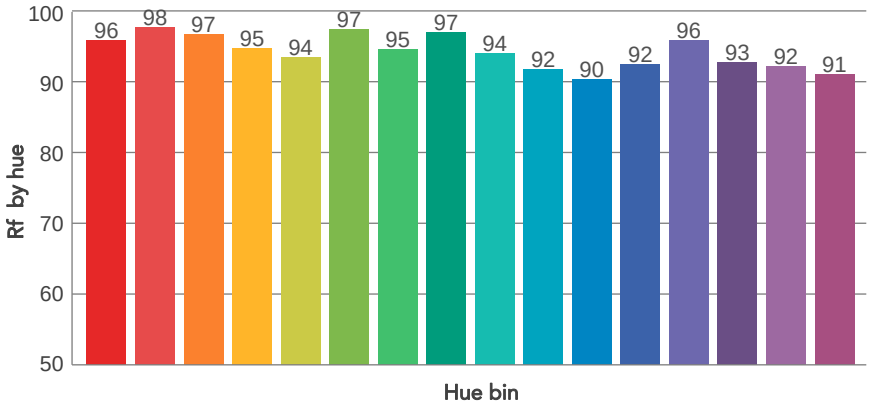
Fidelity index Rf

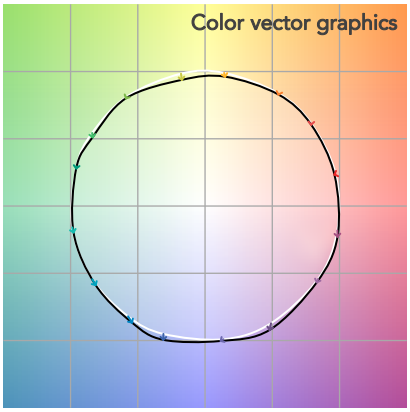
Rg 99,8

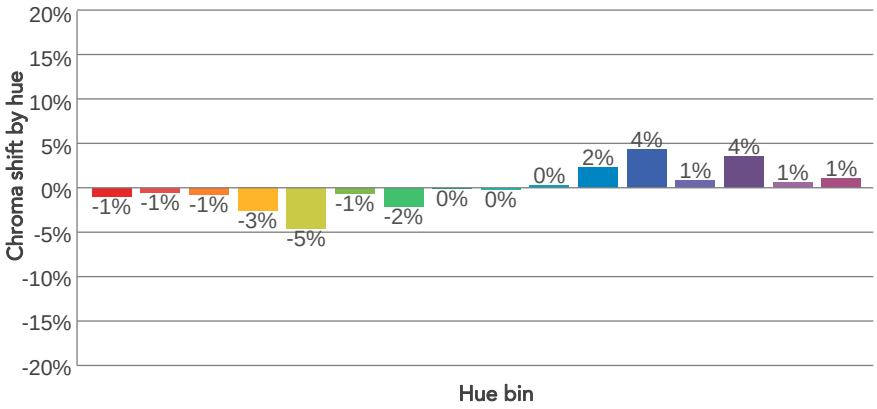
Gammut index

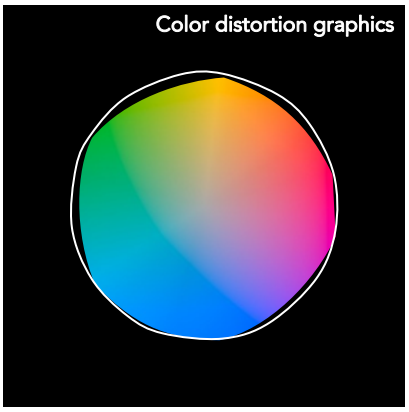
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	96	-1%	0%
2	98	-1%	-1%
3	97	-1%	0%
4	95	-3%	-1%
5	94	-5%	0%
6	97	-1%	1%
7	95	-2%	2%
8	97	0%	1%
9	94	0%	4%
10	92	0%	5%
11	90	2%	5%
12	92	4%	1%
13	96	1%	-2%
14	93	4%	-4%
15	92	1%	-3%
16	91	1%	-4%

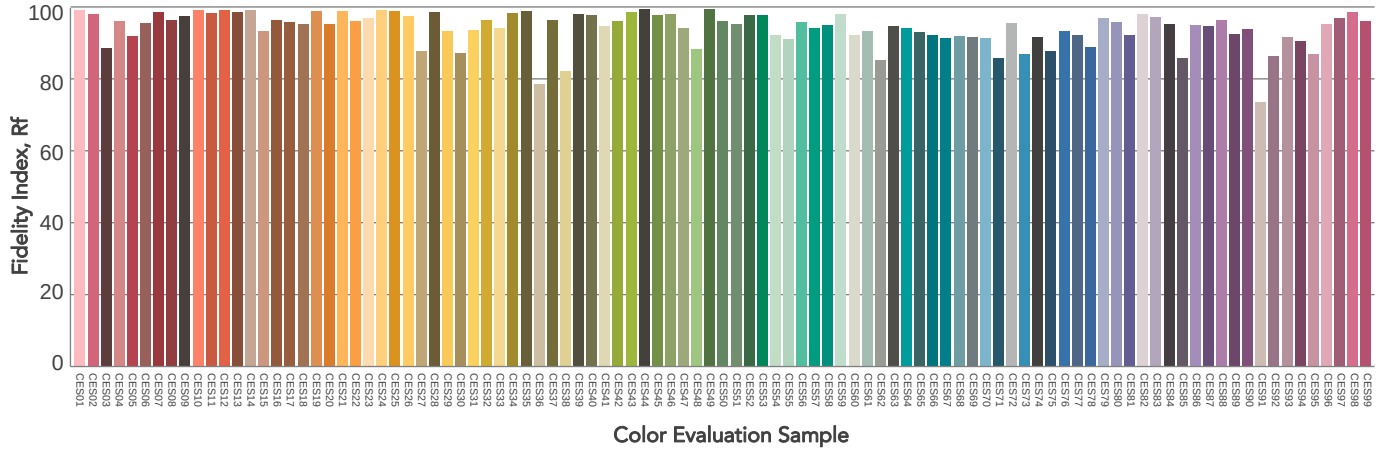












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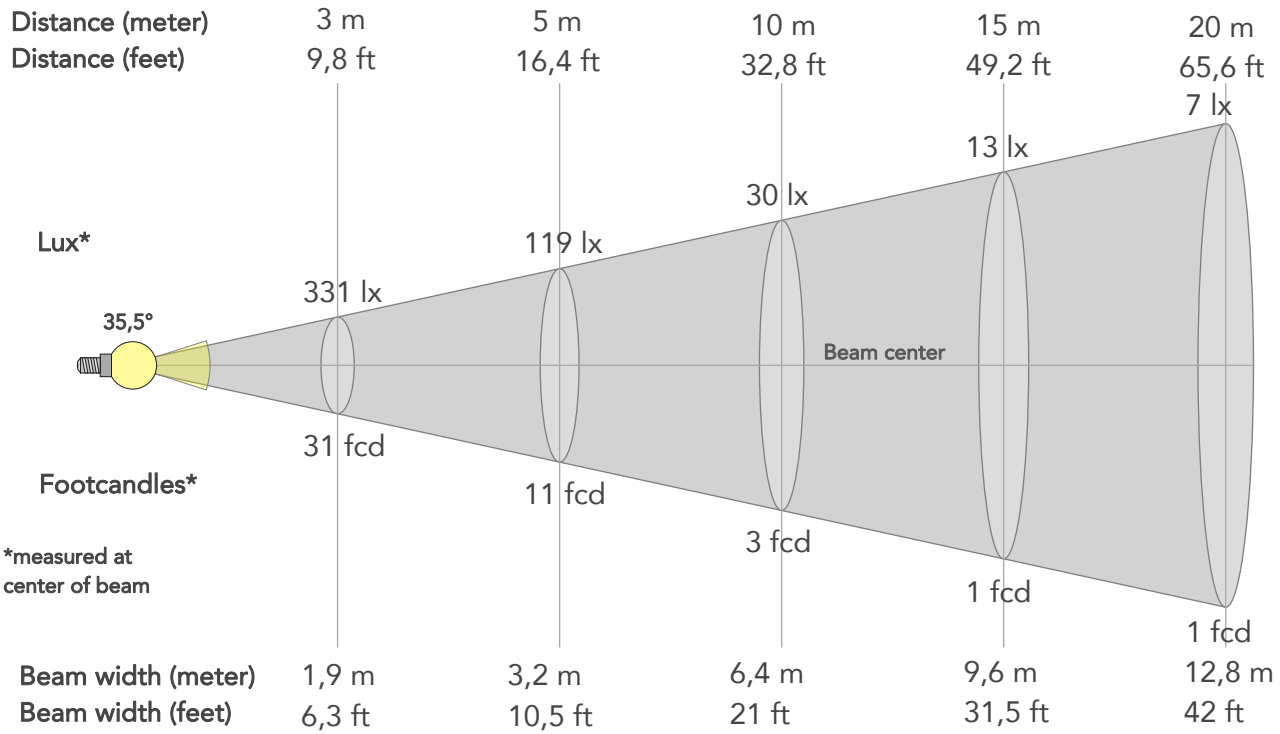
BEAM DETAILS

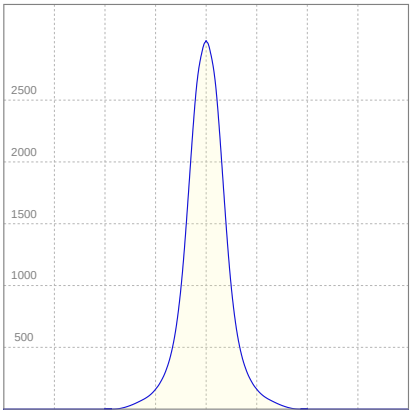
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
35,5°	72,8°	113,5°	96,9%	88,7%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	2976lx	744lx	331lx	186lx	119lx	53lx	30lx	13lx	7lx	5lx	3lx	2lx	1lx
Footcand.	277fcd	69fcd	31fcd	17fcd	11fcd	5fcd	3fcd	1fcd	1fcd	0fcd	0fcd	0fcd	0fcd
Beam wid.	0,6m	1,3m	1,9m	2,6m	3,2m	4,8m	6,4m	9,6m	12,8m	16m	19,2m	25,6m	32m
Beam wid.	2,1ft	4,2ft	6,3ft	8,4ft	10,5ft	15,8ft	21ft	31,5ft	42ft	52,5ft	63,1ft	84,1ft	105,1ft

LINEAR DISTRIBUTION DIAGRAM



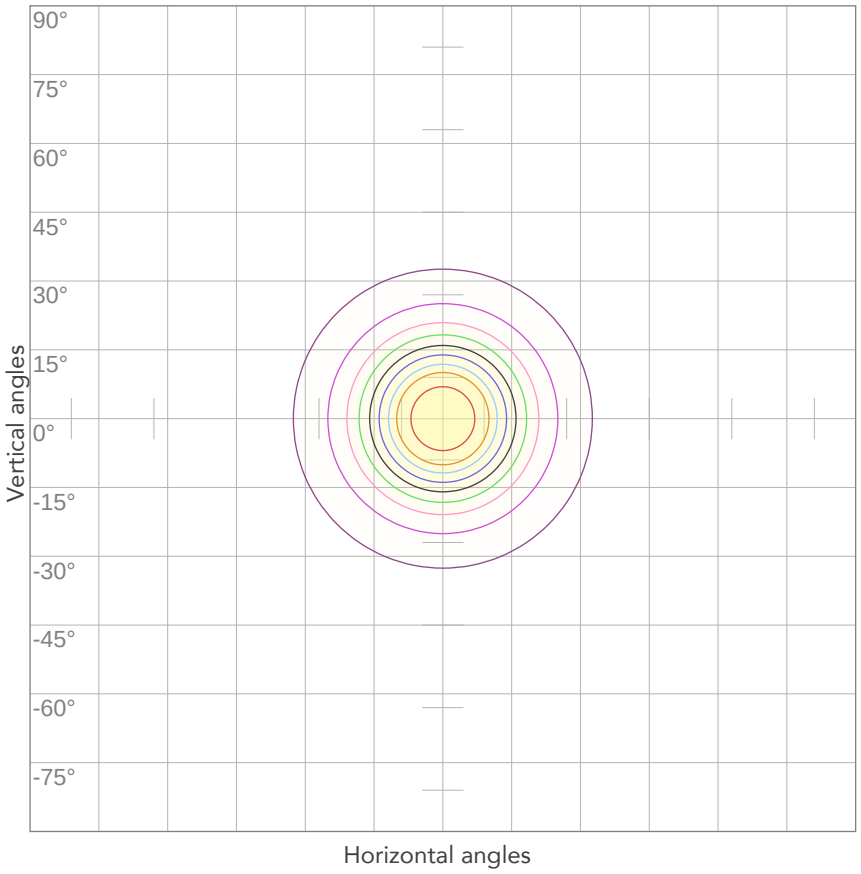
ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
225V	0,394A	83,5W	19lm/W

Powerr FC
0,97

ISO DIAGRAMS

ISO CANDELA DIAGRAM



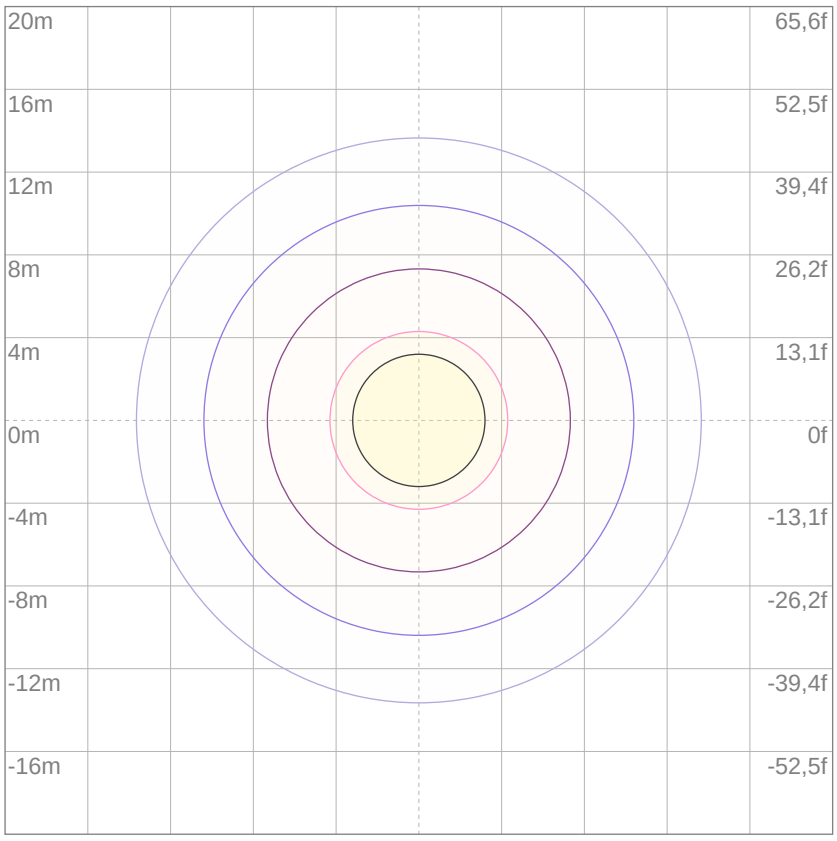
10%	298 cd
20%	595 cd
30%	893 cd
40%	1191 cd
50%	1488 cd
60%	1786 cd
70%	2083 cd
80%	2381 cd

Conditions:

Number of c-planes: 2

Candela at center: 2976 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	0,893 lx
5%	1,49 lx
10%	2,98 lx
30%	8,93 lx
50%	14,9 lx

Conditions:

Number of c-planes: 2

Lux at center: 29,8 lx

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

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Total lumen output:

1742 lm

Peak candela output:

8611 cd

Light quality:

CRI: 98,4

Color temperature:

3363 K

PRODUCT NAME:

STUDIOCOBPLUSTW

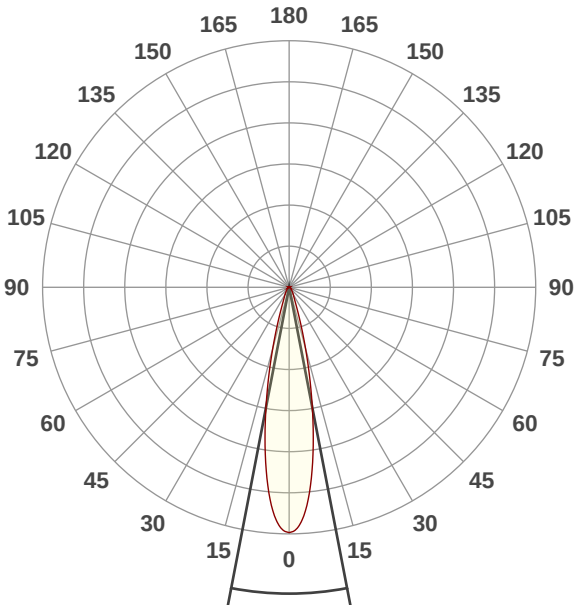
MEASURAMENT CONDITIONS:

Beam angle:
Narrow

Target:
Warm White

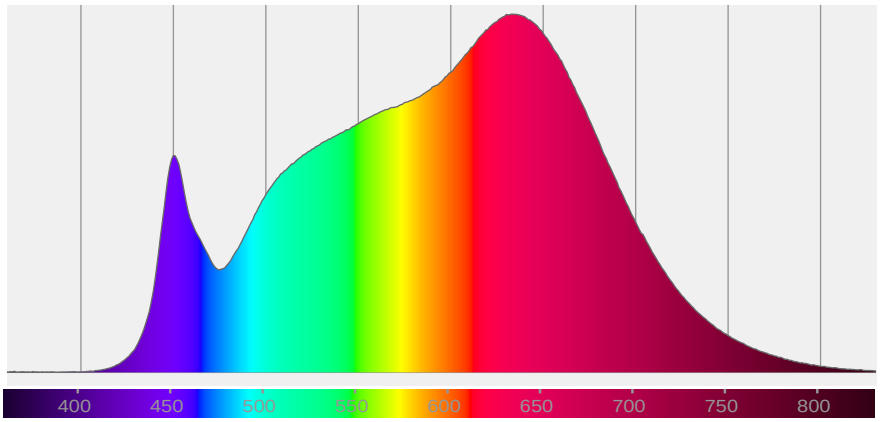
Operator:
Paolo Carvone

Date and time:
19/11/2020 13:00:08



Beam angle 50%: 21,8°
Field angle 10%: 39,7°
Cut off angle 2.5%: 67,9°

Spectra



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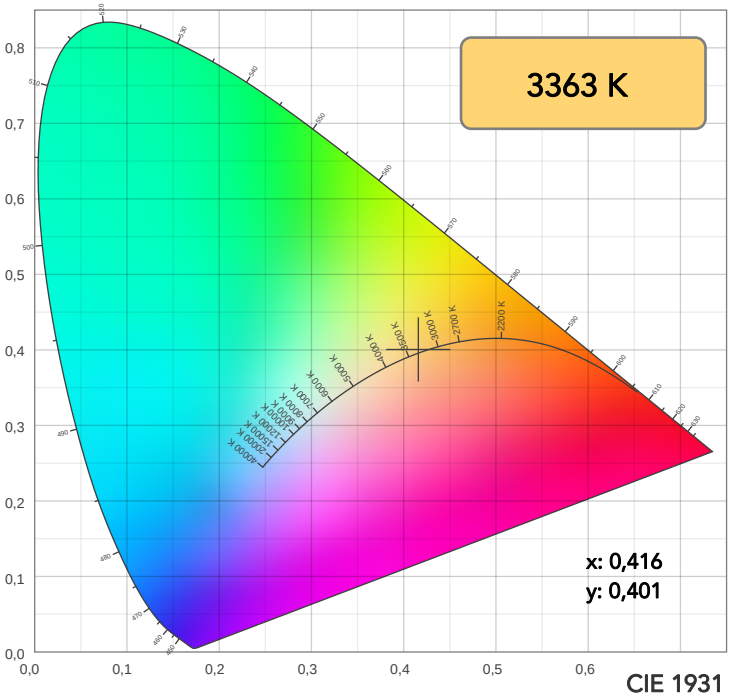
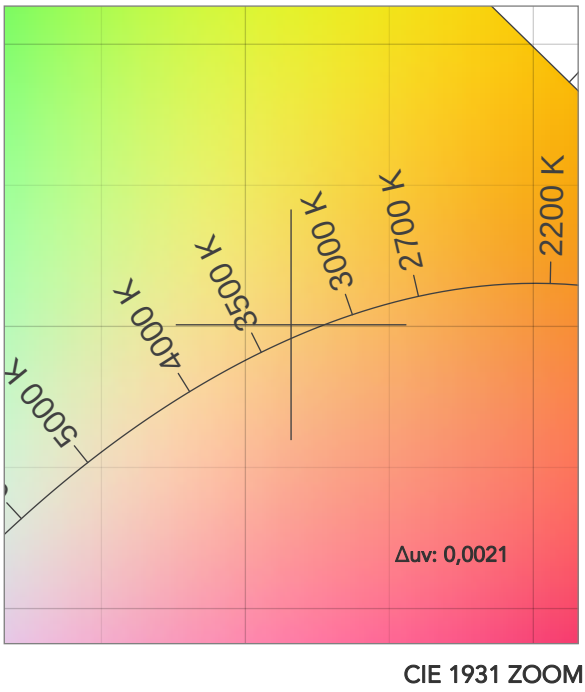
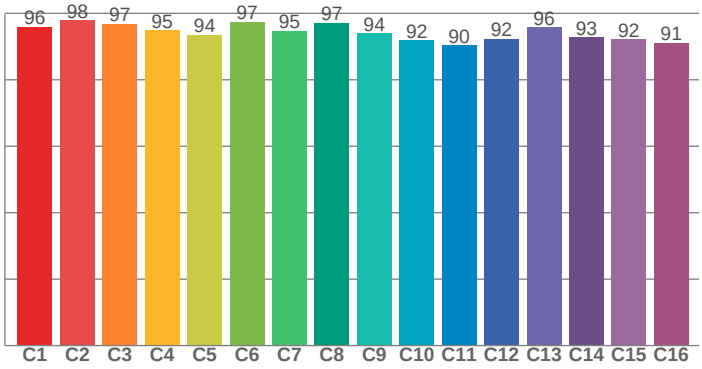
COLOR DETAILS

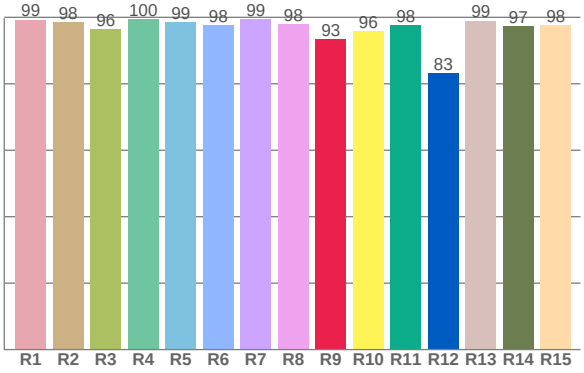




TM30: 94,2



CRI: 98,4 (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
99,3	98,5	96,4	99,5	98,5	97,6	99,4	97,9	93,4	95,8	97,5	83,1	99,0	97,3	97,5

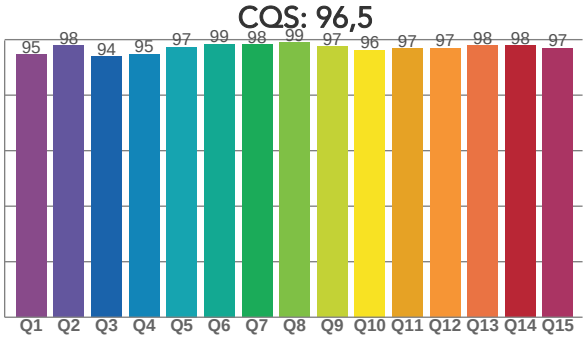
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
95,9	97,9	96,8	94,9	93,6	97,4	94,7	97,2	94,0	91,9	90,3	92,4	95,8	92,7	92,2	91,2

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
94,7	97,9	93,9	94,7	97,3	98,5	98,3	98,9	97,4	96,2	96,7	97,0	97,8	97,9	96,9

CQS: 96,5



COLOR PARAMETERS

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Television lighting index	Color coordinate cie 1931	Color coordinate cie 1931	Color diviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	TLCI	x	y	Δuv
3363 K	98,4	93,4	94,2	100,0	96,5	99	0,416	0,401	0,0021

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TM30 DETAILS

PROLiGHTS

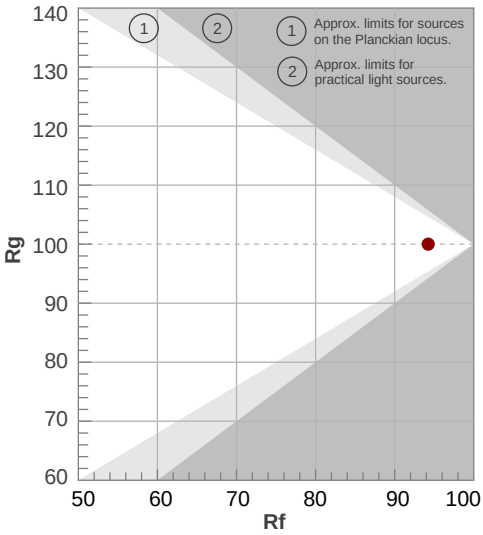
Rf 94,2

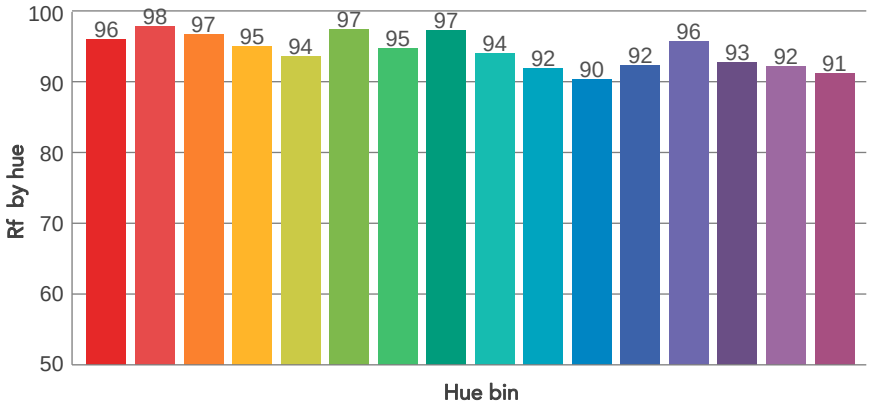
Fidelity index Rf

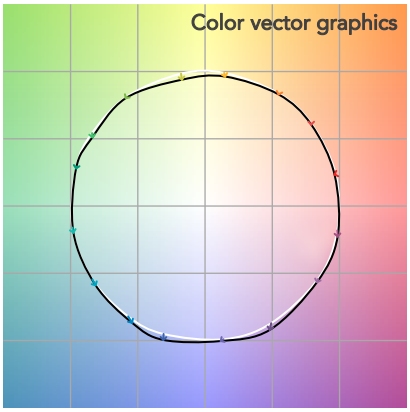
Rg 100,0

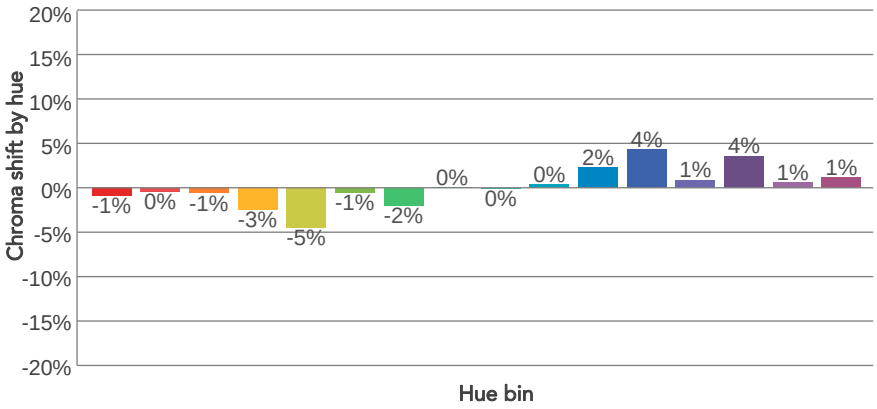
Gammut index

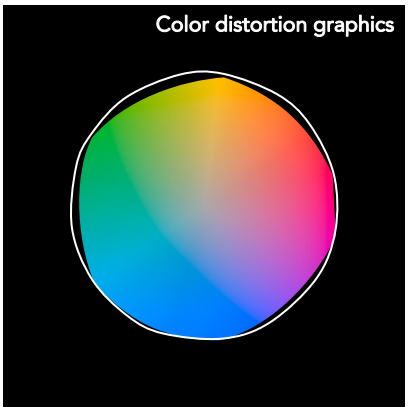
		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	96	-1%	0%
2	98	0%	-1%
3	97	-1%	0%
4	95	-3%	-1%
5	94	-5%	0%
6	97	-1%	1%
7	95	-2%	2%
8	97	0%	1%
9	94	0%	4%
10	92	0%	5%
11	90	2%	5%
12	92	4%	1%
13	96	1%	-2%
14	93	4%	-4%
15	92	1%	-3%
16	91	1%	-4%

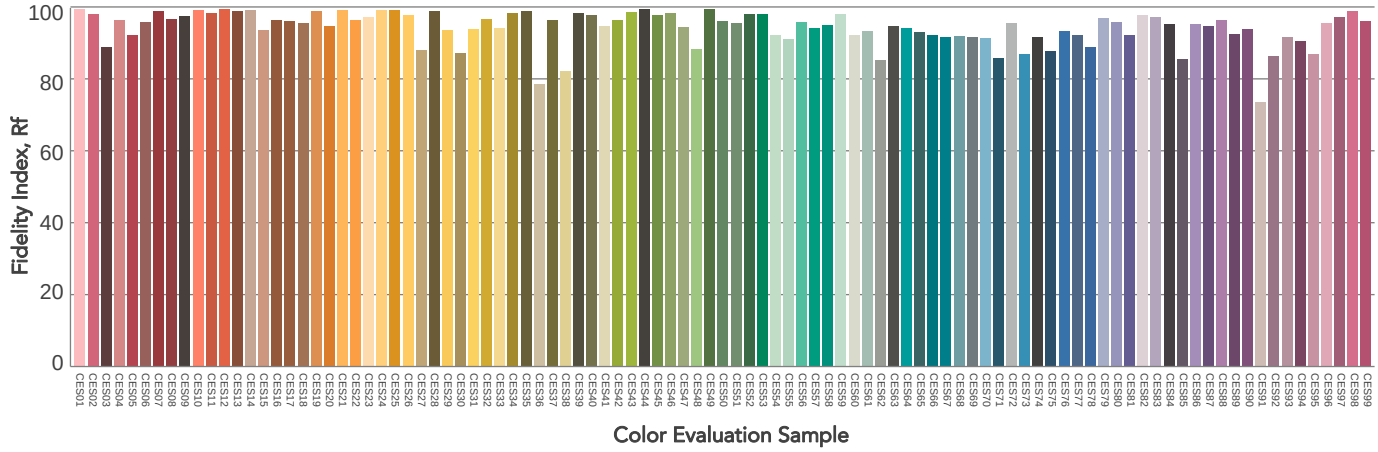












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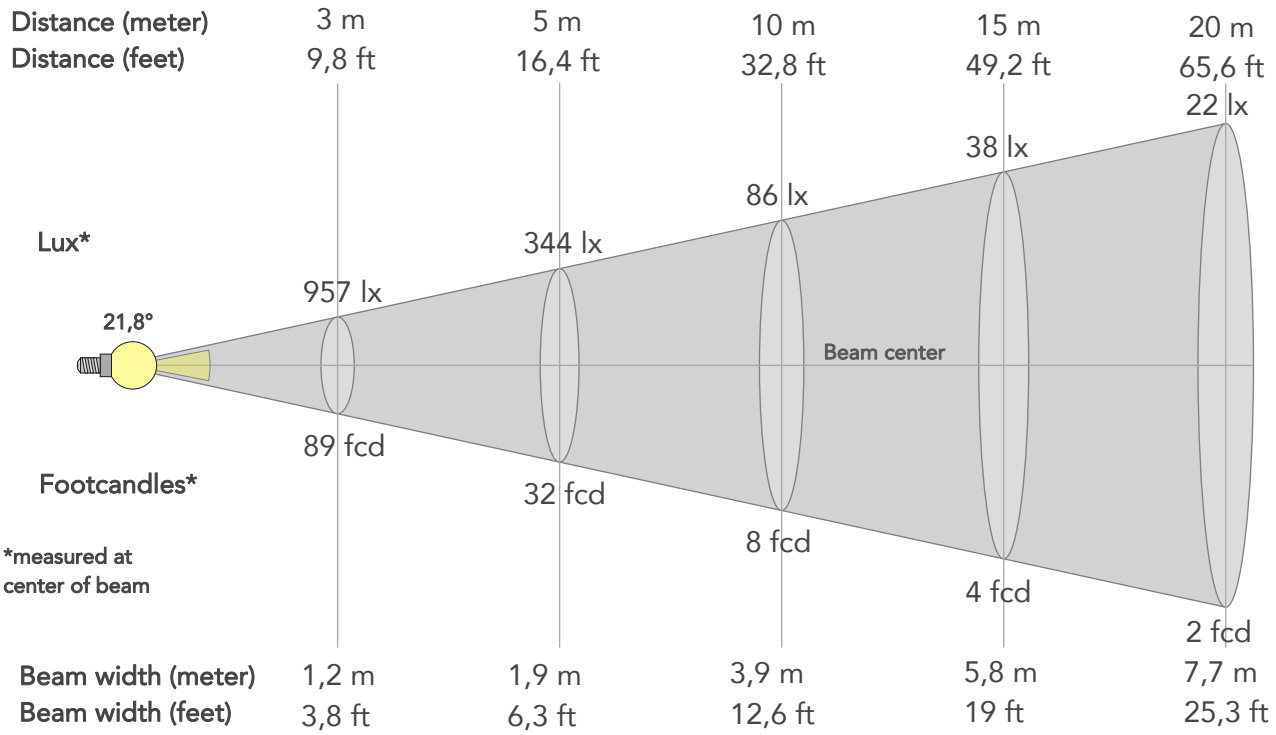
BEAM DETAILS

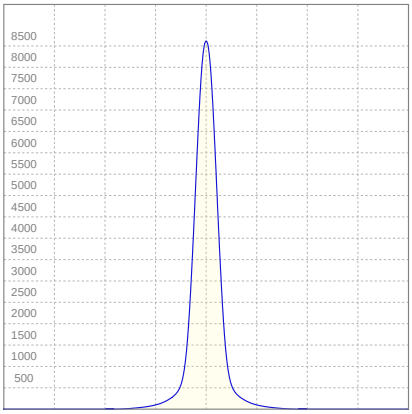
Beam angle 50%	Field angle 10%	Cut off angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
21,8°	39,7°	67,9°	98,5%	94,0%



BEAM INTENSITIES AND WIDTHS

Distance	1m	2m	3m	4m	5m	7,5m	10m	15m	20m	25m	30m	40m	50m
Distance	3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	24,6ft	32,8ft	49,2ft	65,6ft	82ft	98,4ft	131,2ft	164ft
Lux	8611lx	2153lx	957lx	538lx	344lx	153lx	86lx	38lx	22lx	14lx	10lx	5lx	3lx
Footcand.	800fcd	200fcd	89fcd	50fcd	32fcd	14fcd	8fcd	4fcd	2fcd	1fcd	1fcd	0fcd	0fcd
Beam wid.	0,4m	0,8m	1,2m	1,5m	1,9m	2,9m	3,9m	5,8m	7,7m	9,6m	11,6m	15,4m	19,3m
Beam wid.	1,3ft	2,5ft	3,8ft	5ft	6,3ft	9,5ft	12,6ft	19ft	25,3ft	31,6ft	37,9ft	50,5ft	63,2ft

LINEAR DISTRIBUTION DIAGRAM



ELECTRICAL SPECIFICATIONS

Input voltage	Input current	Input power	Effeciency
225V	0,389A	82,4W	21lm/W

Powerr FC
0,97

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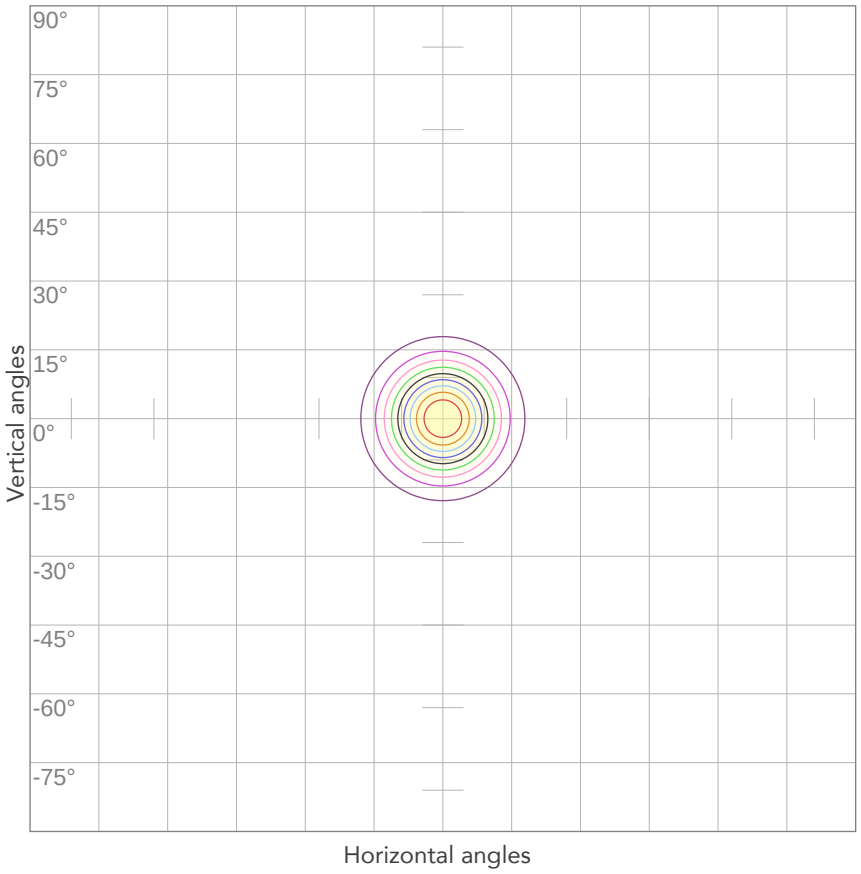
ISO DIAGRAMS

ISO CANDELA DIAGRAM



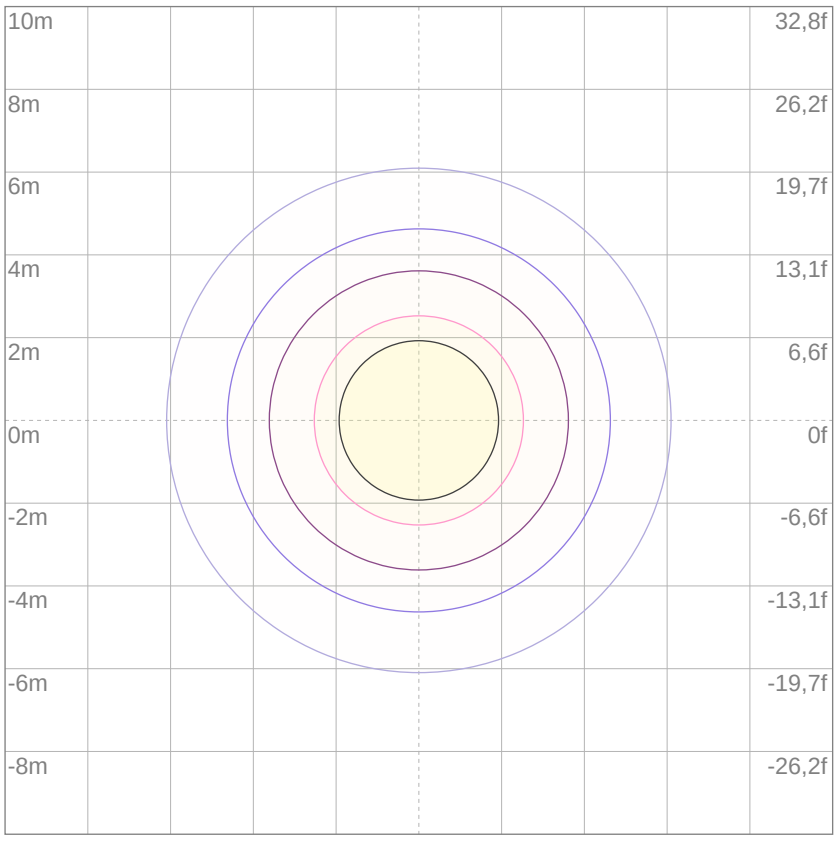
10%	861 cd
20%	1722 cd
30%	2583 cd
40%	3444 cd
50%	4305 cd
60%	5166 cd
70%	6028 cd
80%	6889 cd

Conditions:

Number of c-planes: 2

Candela at center: 8611 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

3%	2,58 lx
5%	4,31 lx
10%	8,61 lx
30%	25,8 lx
50%	43,1 lx

Conditions:

Number of c-planes: 2

Lux at center: 86,1 lx

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

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