

Light efficiency:

136 Lumen/Watt

Output: 4190 lm

Light quality:

CRI: 86.0

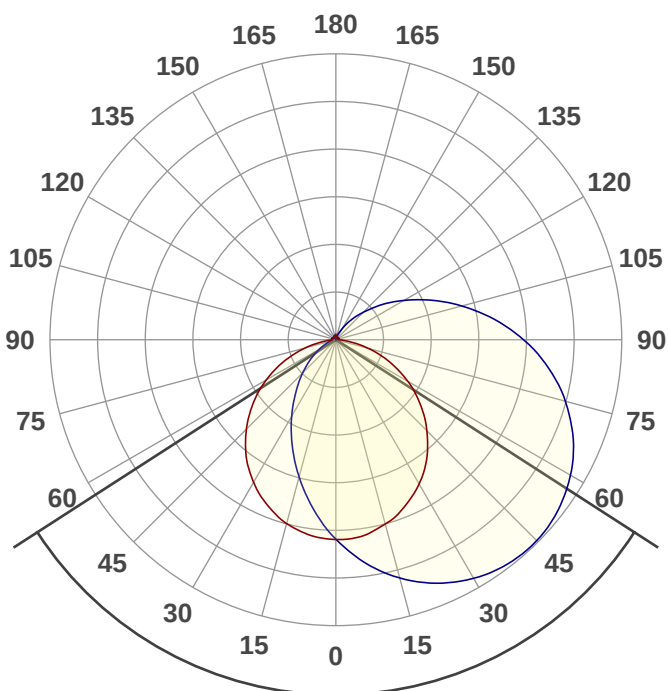
Peak: 1324 cd

Color temperature:

3954 K

Power: 30.9 W

PF: 1.0



Product name:

CRN2-30W-150K-C-FL-CT-FA at 30 W

Date and time:

9/3/2020 11:16:26 AM

Beam angle

114.4°

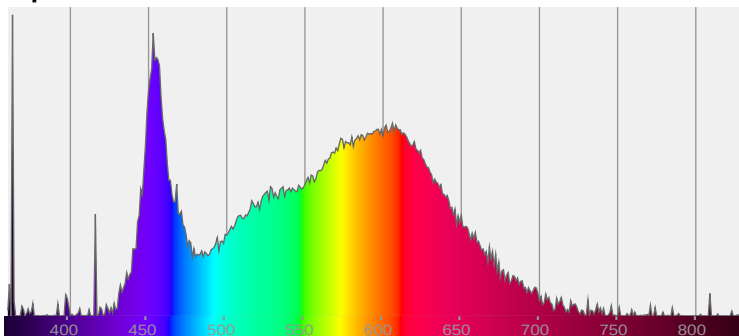


CIE 1931

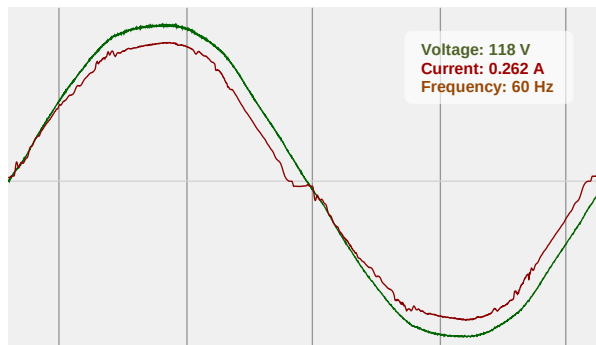
x: 0.378

y: 0.360

Spectra



Power



Voltage: 118 V
Current: 0.262 A
Frequency: 60 Hz



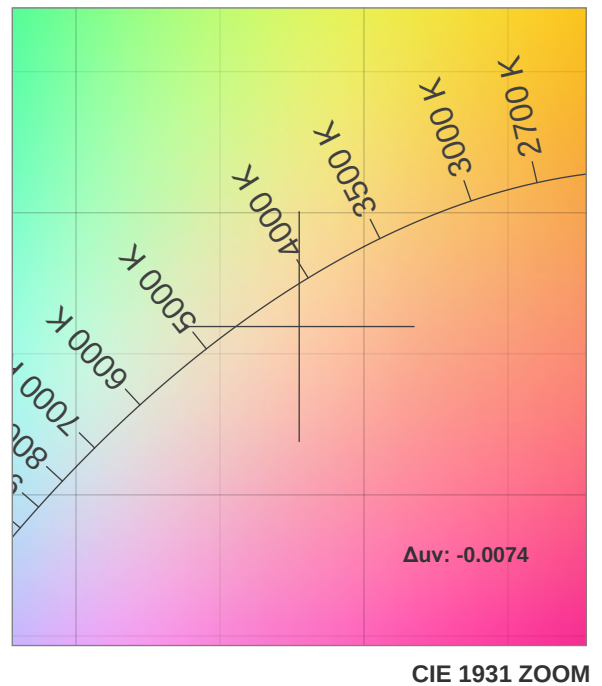
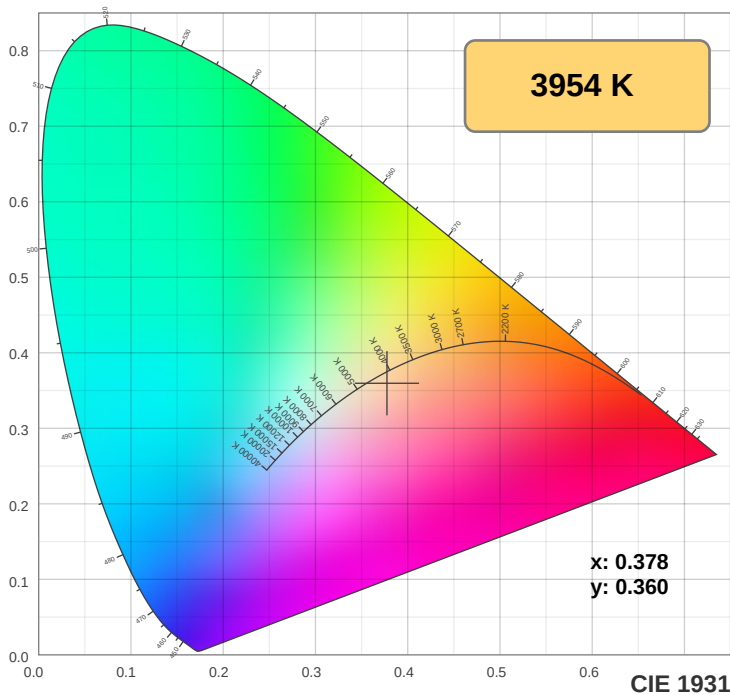
T 314.743.3067

F 314.972.6202

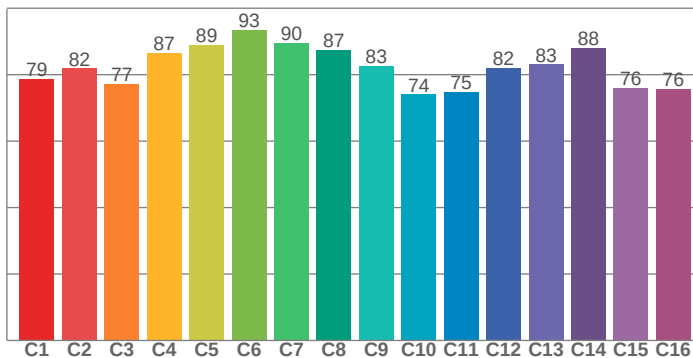
email: commercial-sales@superbrightleds.com

www.superbrightleds.com/

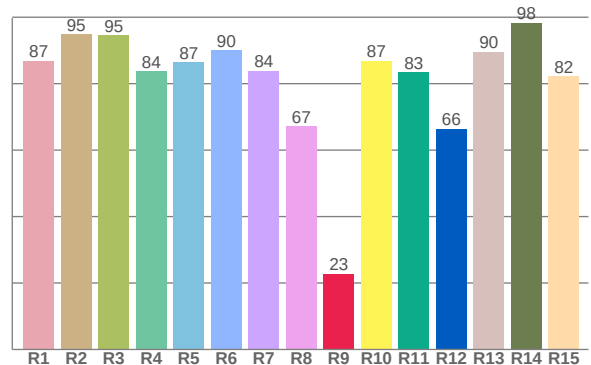
Color Specifications



TM30: 82.2



CRI: 86.0 (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
86.9	94.9	94.6	83.7	86.5	90.0	83.9	67.3	22.8	86.9	83.4	66.5	89.6	98.4	82.3

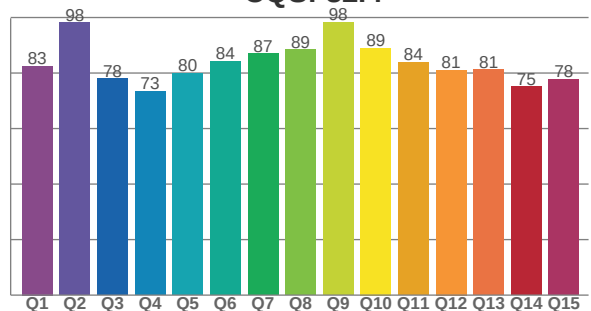
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
78.7	81.9	77.2	86.7	89.0	93.4	89.6	87.5	82.6	74.0	74.9	82.0	83.1	88.1	76.0	75.8

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
82.6	98.2	78.0	73.4	79.9	84.2	87.0	88.5	98.3	89.0	83.9	81.1	81.3	75.1	77.8

CQS: 82.4



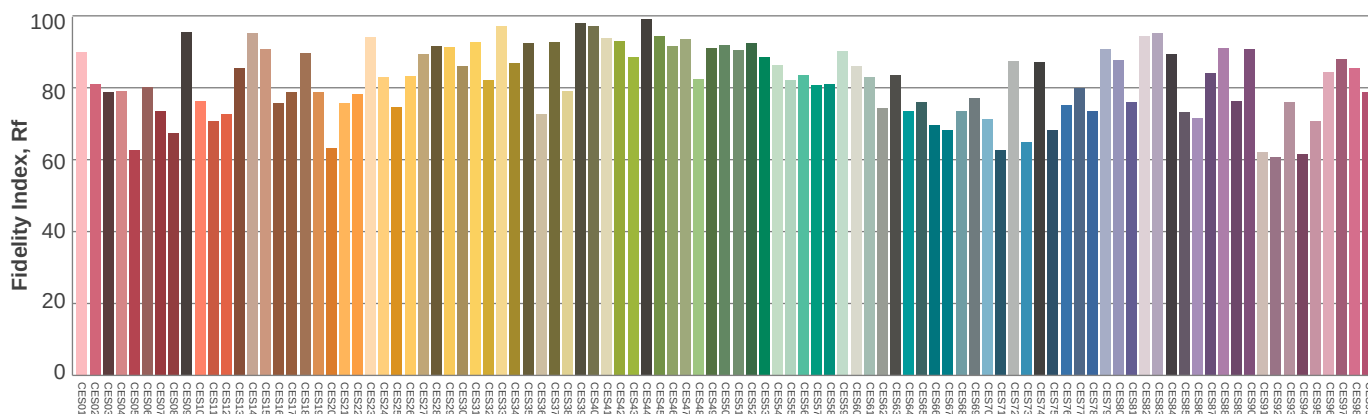
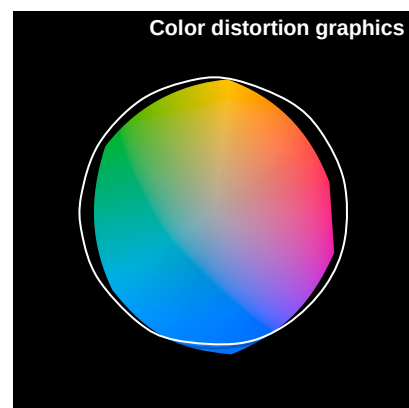
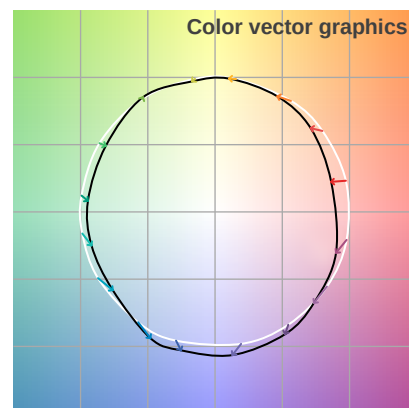
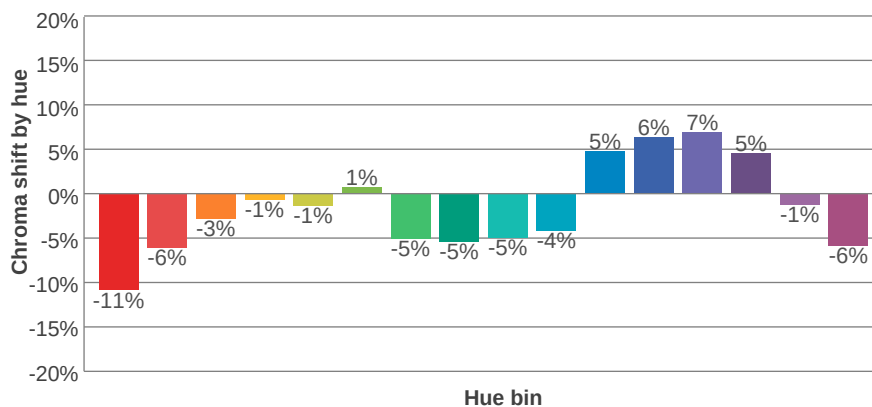
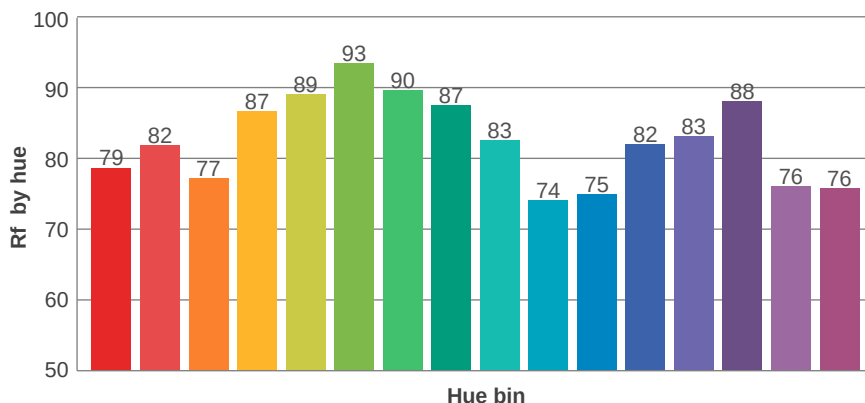
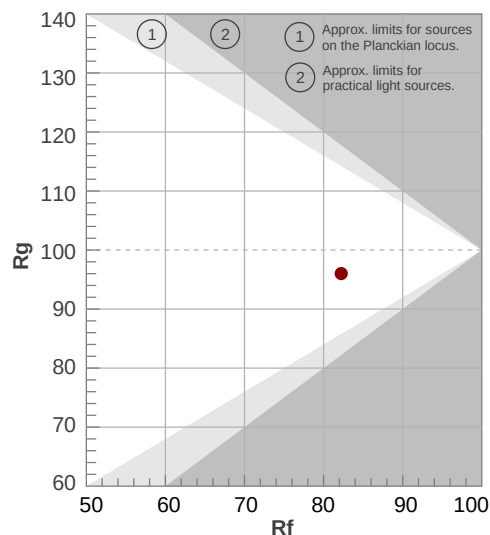
Color parameters

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 deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3954 K	86.0	22.8	82.2	96.0	82.4	0.378	0.360	0.230	0.329	-0.0074

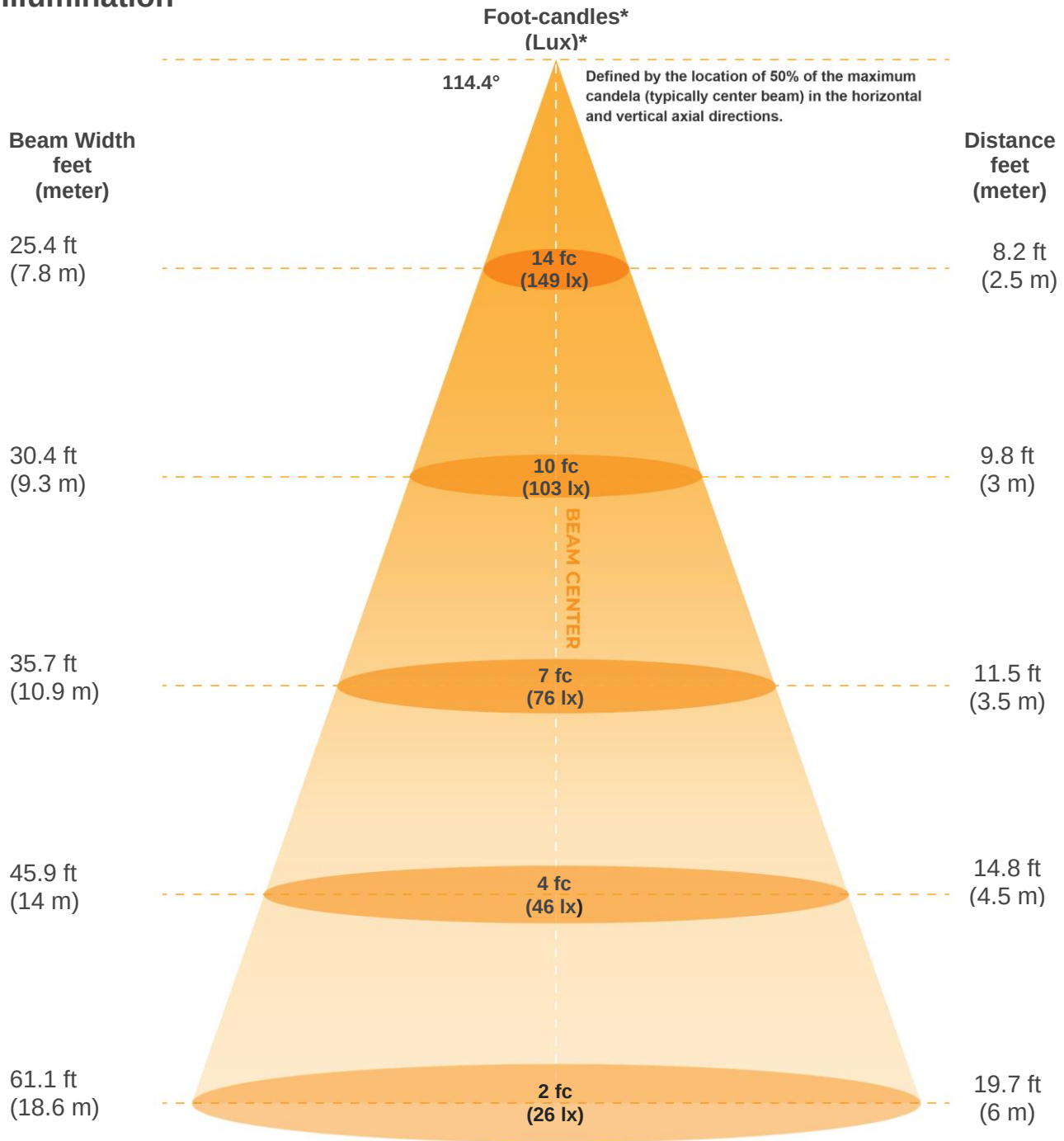


Gammut index Rg

		Graphic shifts (%)	
Hue Bin	R_f	Chroma	Hue
1	79	-11%	1%
2	82	-6%	7%
3	77	-3%	10%
4	87	-1%	5%
5	89	-1%	2%
6	93	1%	-1%
7	90	-5%	-1%
8	87	-5%	3%
9	83	-5%	10%
10	74	-4%	14%
11	75	5%	14%
12	82	6%	5%
13	83	7%	-8%
14	88	5%	-6%
15	76	-1%	-15%
16	76	-6%	-11%



Illumination



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
929lx	232lx	103lx	58lx	37lx	26lx	19lx	15lx	11lx	9lx	8lx	6lx	5lx	5lx	4lx	4lx	3lx	3lx	3lx	2lx
86.3fcd	21.6fcd	9.6fcd	5.4fcd	3.5fcd	2.4fcd	1.8fcd	1.3fcd	1.1fcd	0.9fcd	0.7fcd	0.6fcd	0.5fcd	0.4fcd	0.4fcd	0.3fcd	0.3fcd	0.3fcd	0.2fcd	0.2fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
114.4°	183°	216.9°	54.2%	35.2%



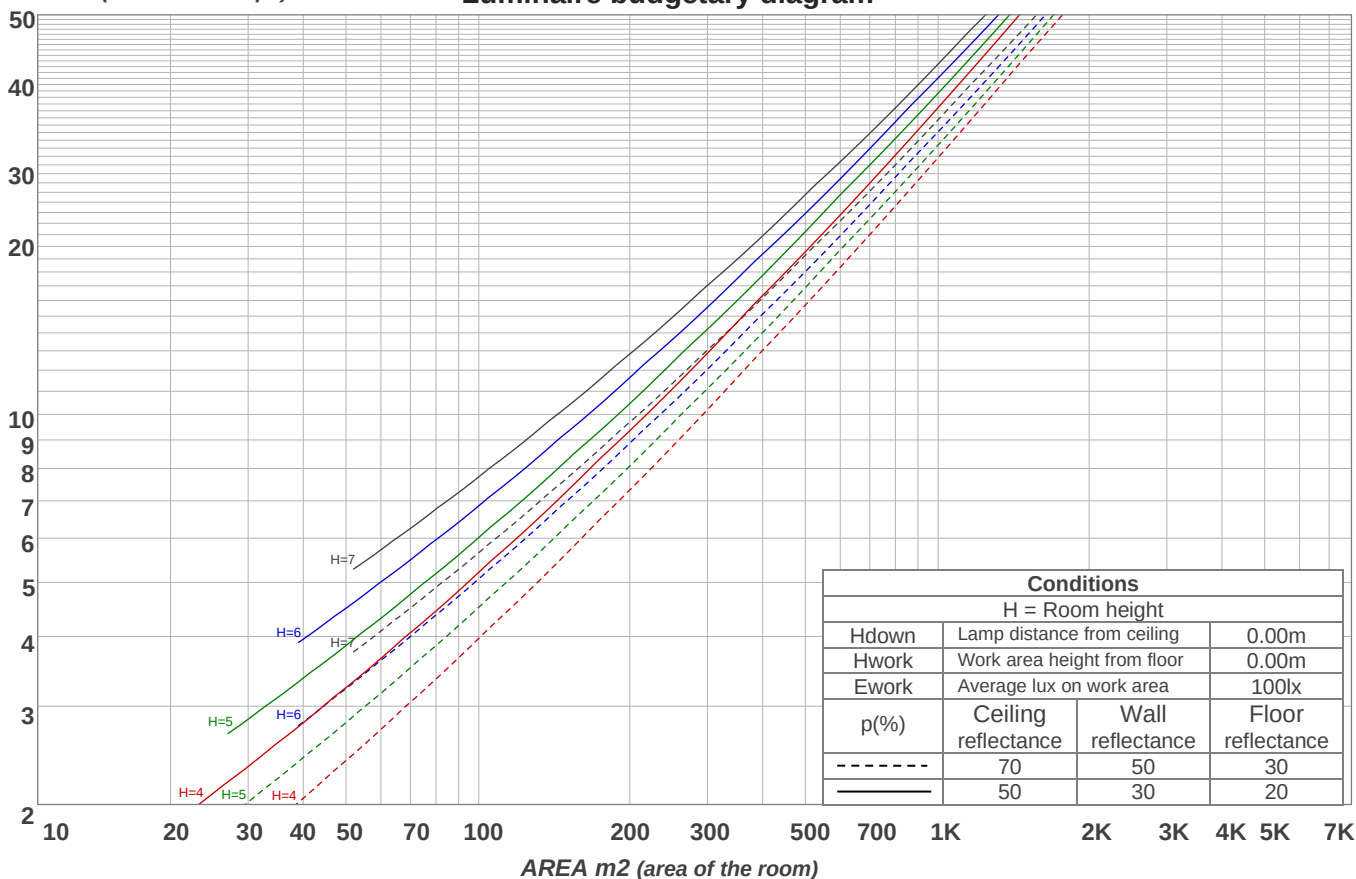
Light Planning

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	115	115	115	115	111	111	111	111	102	102	102	94	94	94	87	87	87	84
1	102	96	90	85	97	92	87	82	84	80	77	78	74	71	71	69	66	63
2	91	82	74	67	87	78	71	65	72	66	61	66	61	57	61	57	53	50
3	83	71	62	54	79	68	60	53	63	56	50	57	52	47	53	48	44	41
4	75	62	53	45	72	60	51	44	55	48	42	51	44	39	47	41	37	34
5	69	55	46	39	66	53	44	38	49	41	36	45	39	34	42	36	32	29
6	63	49	40	33	60	48	39	32	44	36	31	41	34	29	38	32	28	25
7	59	45	35	29	56	43	34	28	40	32	27	37	31	26	34	29	24	22
8	54	41	32	26	52	39	31	25	36	29	24	34	27	23	31	26	22	20
9	51	37	29	23	49	36	28	22	33	26	21	31	25	20	29	24	20	17
10	48	34	26	21	45	33	25	20	31	24	19	29	23	19	27	22	18	16

LAMPS (number of lamps)

Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
88.2 lm	254 lm	390 lm	484 lm	529 lm	527 lm	484 lm	413 lm	331 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
252 lm	180 lm	118 lm	70.7 lm	38.1 lm	18.5 lm	8.75 lm	4.42 lm	1.44 lm

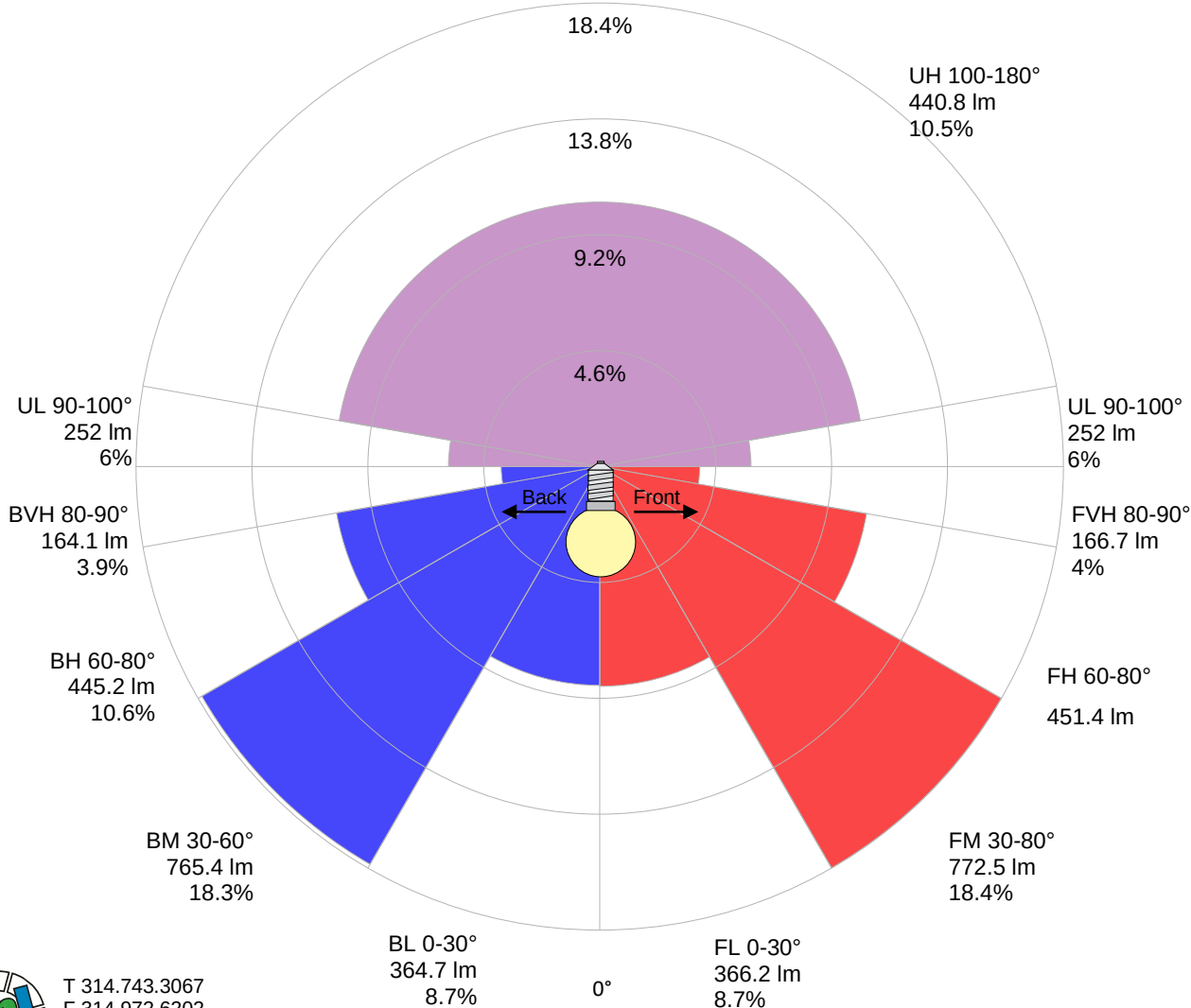


Road Report

LCS table

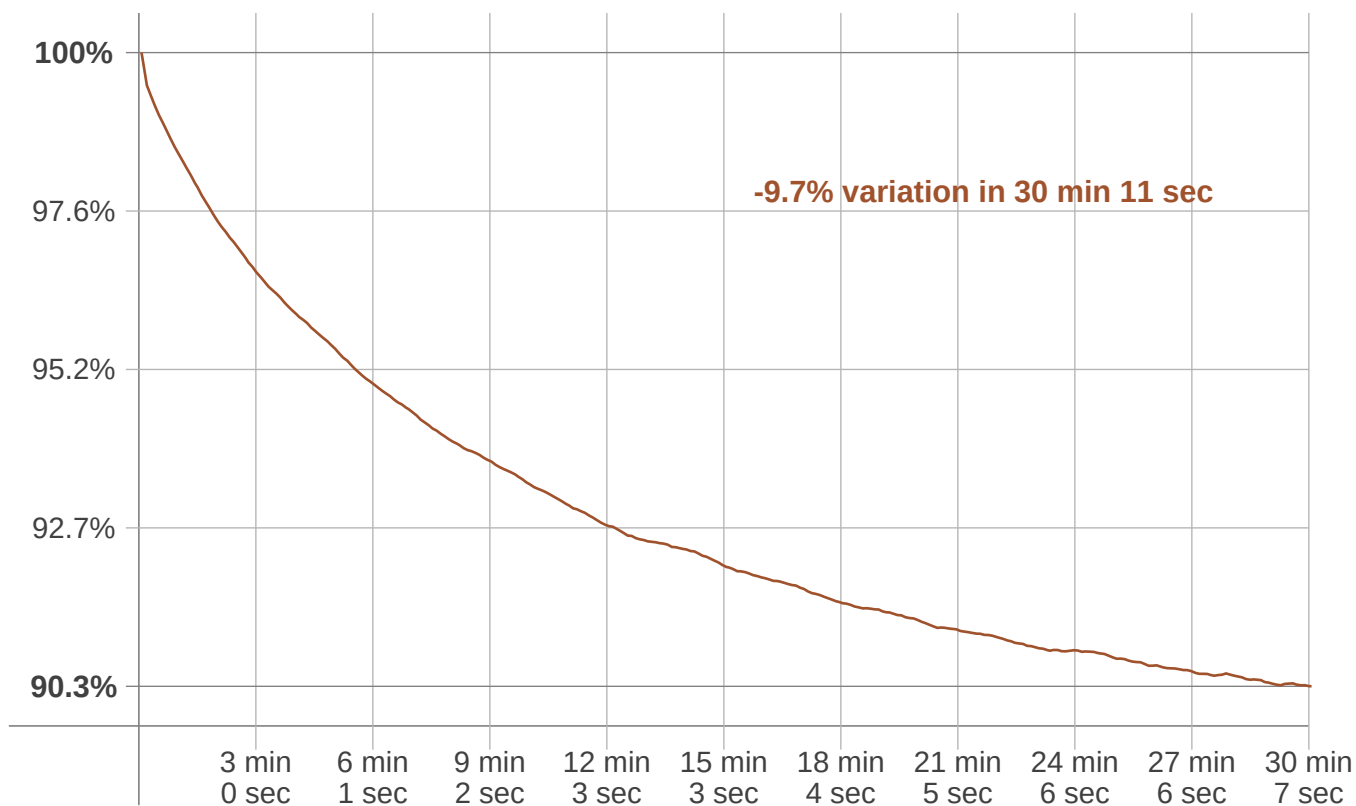
BUG rating:	B1 U3 G2	
Forward light	Lumens	Lumens %
Low(0-30):	366.2	8.7%
Medium(30-60):	772.5	18.4%
High(60-80):	451.4	10.8%
Very high(80-90):	166.7	4%
Back light		
Low(0-30):	364.7	8.7%
Medium(30-60):	765.4	18.3%
High(60-80):	445.2	10.6%
Very high(80-90):	164.1	3.9%
Uplight		
Low(90-100):	252	6%
High(100-180):	440.8	10.5%

LCS graph



Stabilization

Warmup curve



Warmup result

Warmup time:	30 min 11 sec
Warmup variation	-10.3%

Warmup conditions

Stable period:	15 min
Stable change max:	2.0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
3936 K	+18 K	3954 K

Output change

Output start	Output change	Output end
4424 lm	-233 lm	4190 lm

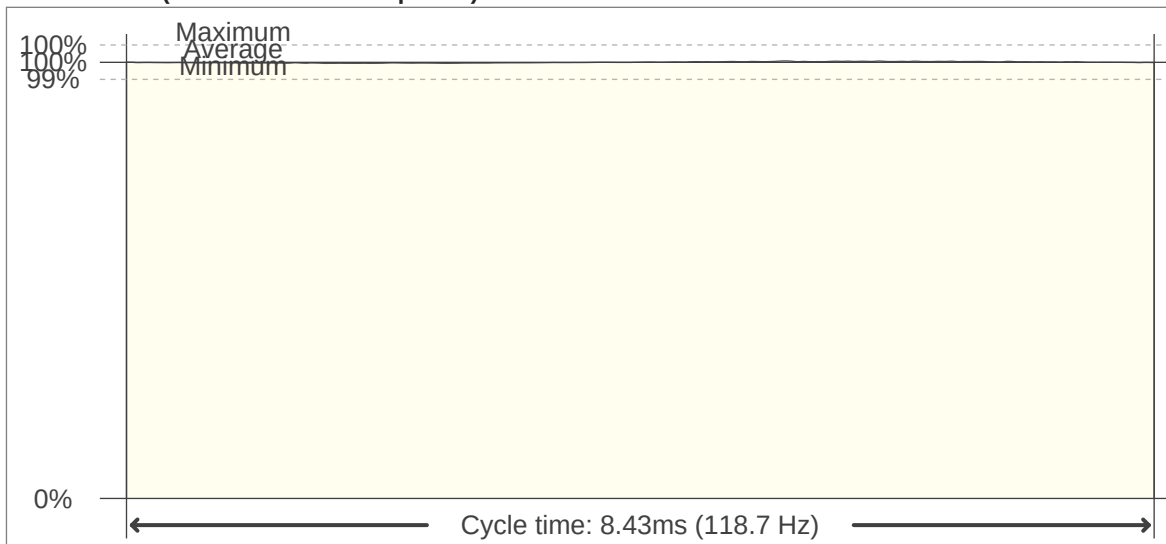


Flicker

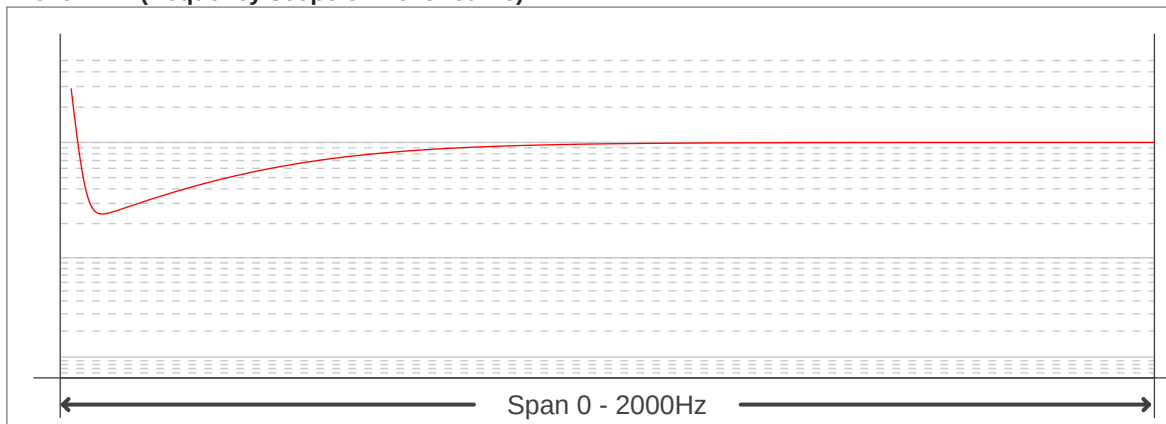
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	118.69 Hz
Flicker index:	0
Flicker percentage:	0.34 %
SVM: (Visual flicker)	0.01

Flicker conditions:

Sample rate:	40000 samples/second
--------------	----------------------



Light efficiency:

139 Lumen/Watt

Output: 2728 lm

Light quality:

CRI: 85.9

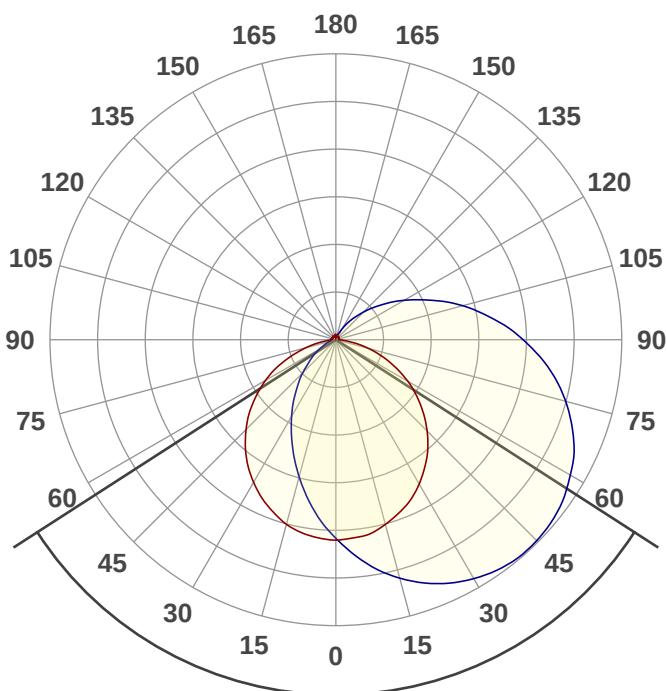
Peak: 858 cd

Color temperature:

3972 K

Power: 19.6 W

PF: 0.99



Product name:

CRN2-30W-150K-C-FL-CT-FA at 20 W

Date and time:

9/3/2020 12:02:56 PM

Beam angle

114.4°

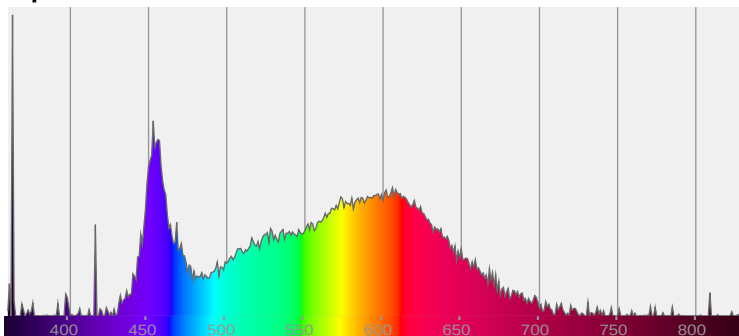


CIE 1931

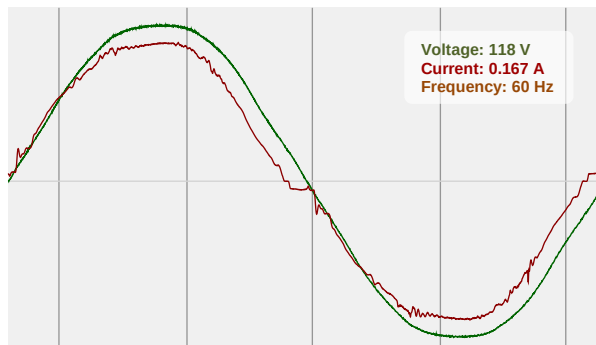
x: 0.377

y: 0.360

Spectra



Power



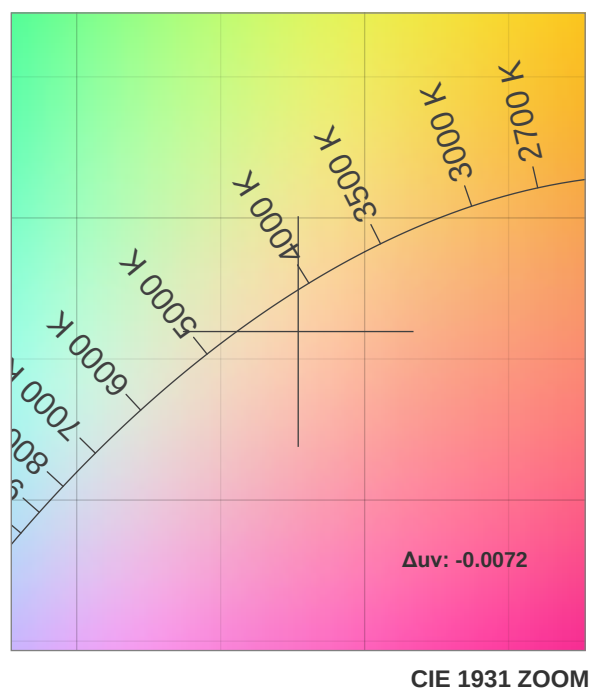
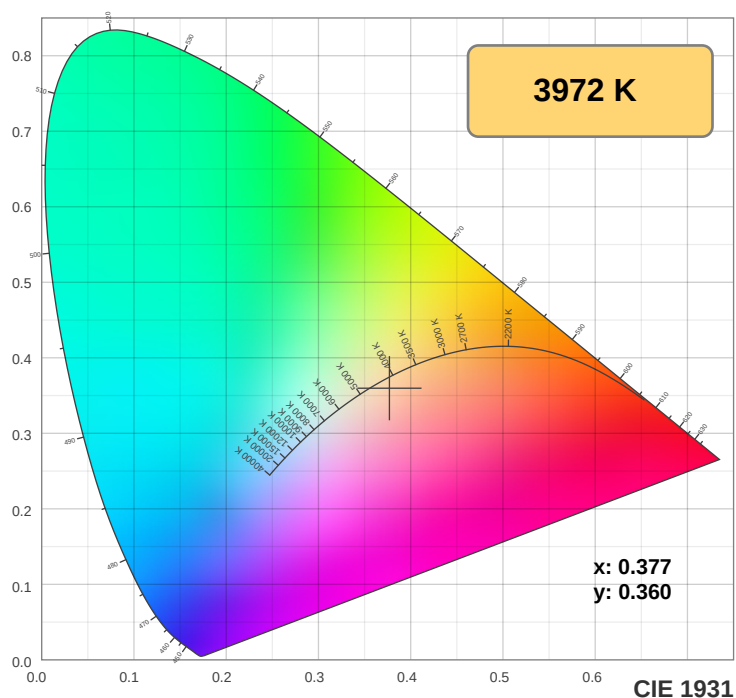
T 314.743.3067

F 314.972.6202

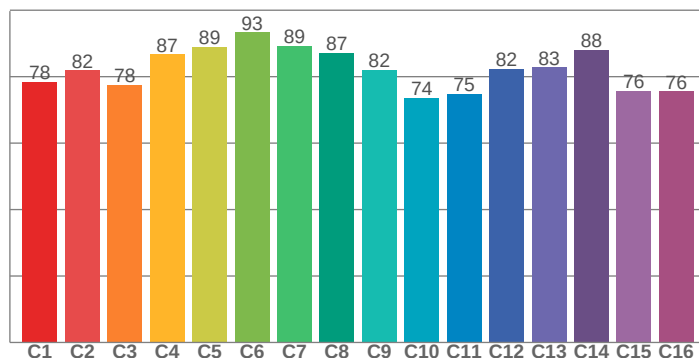
email: commercial-sales@superbrightleds.com

www.superbrightleds.com/

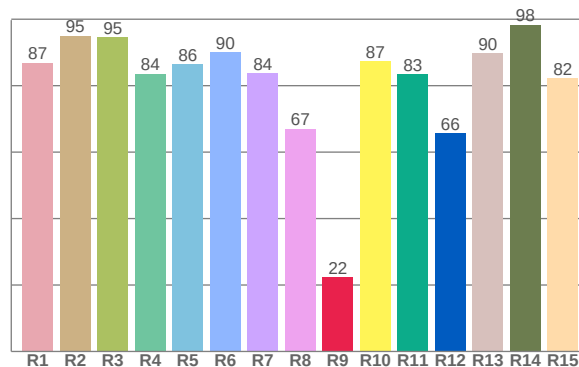
Color Specifications



TM30: 82.1



CRI: 85.9 (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
86.9	95.1	94.5	83.6	86.5	90.1	83.8	67.1	22.3	87.3	83.4	65.6	89.8	98.4	82.2

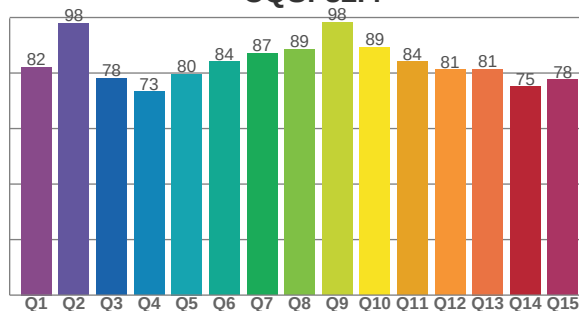
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
78.4	81.9	77.5	86.7	88.9	93.3	89.3	87.1	82.1	73.7	74.8	82.3	82.8	88.1	75.7	75.5

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
82.2	98.0	78.1	73.3	79.7	84.0	87.1	88.6	98.3	89.3	84.2	81.3	81.4	75.0	77.6

CQS: 82.4



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 deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3972 K	85.9	22.3	82.1	95.7	82.4	0.377	0.360	0.230	0.329	-0.0072



TM30 Report

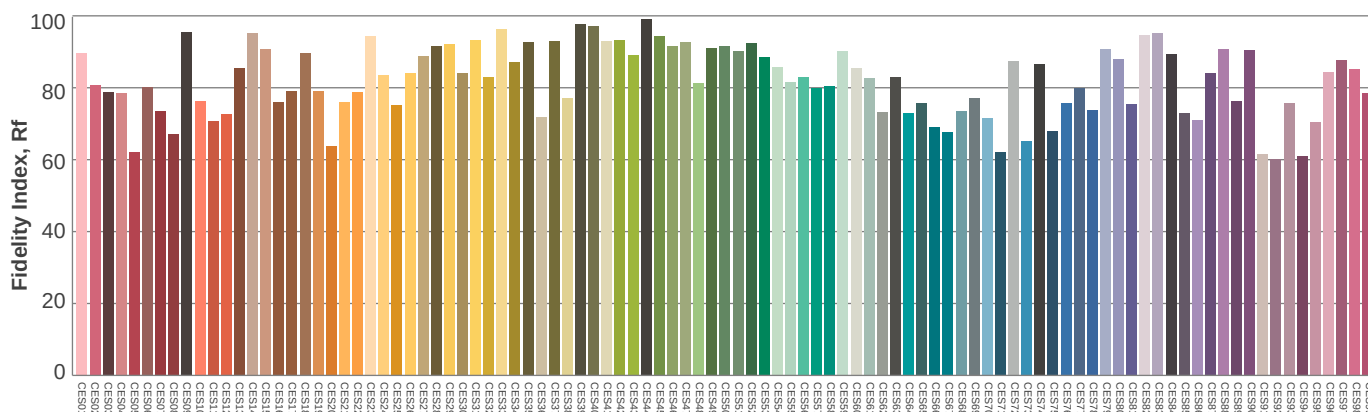
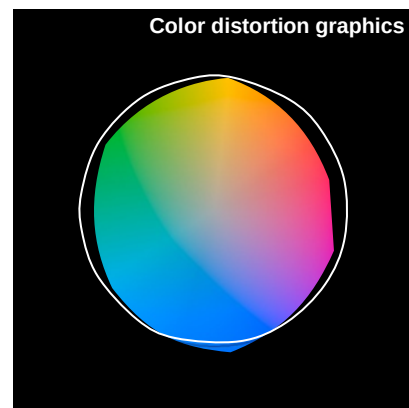
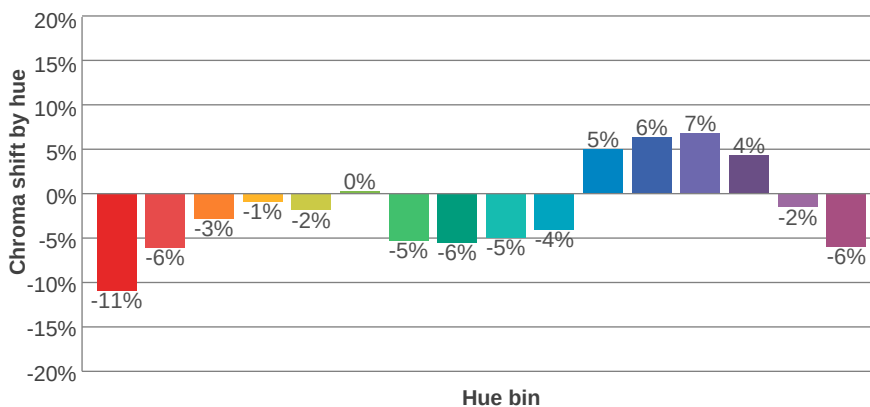
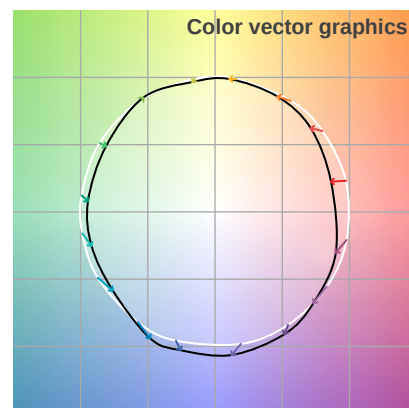
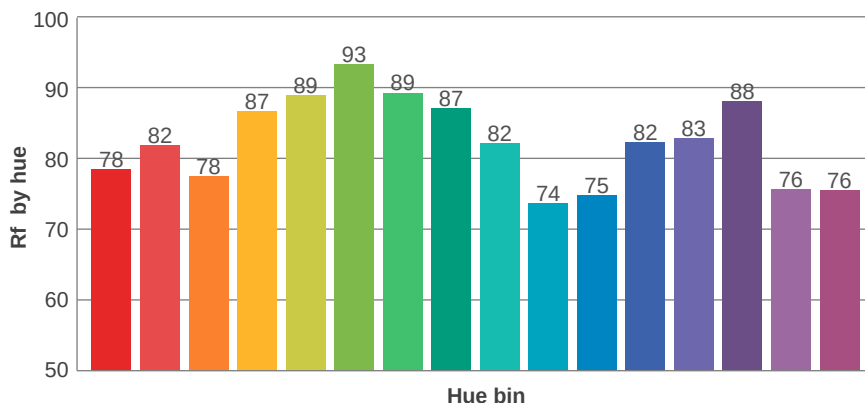
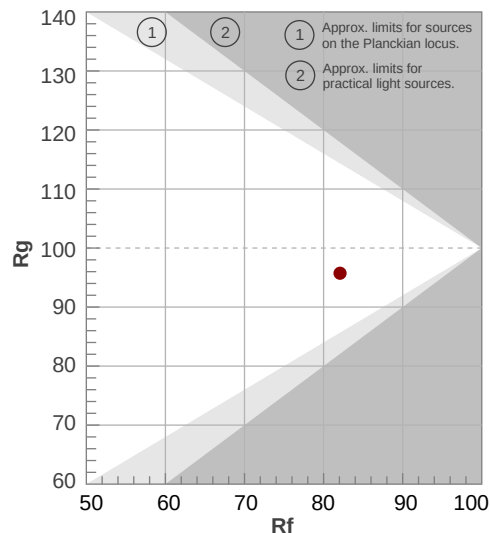
Rf 82.1

Fidelity index Rf

Rg 95.7

Gammut index Rg

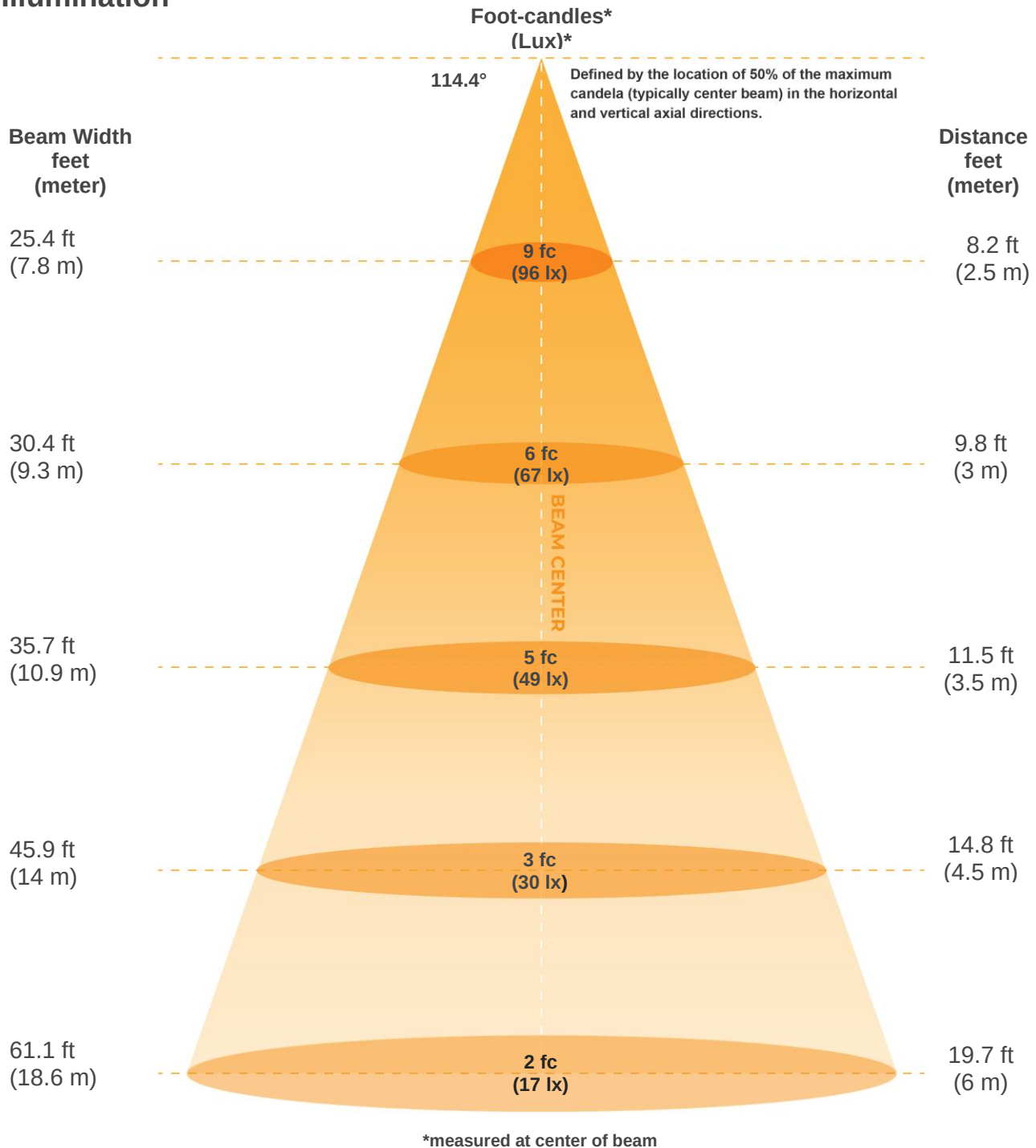
Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	78	-11%	1%
2	82	-6%	6%
3	78	-3%	10%
4	87	-1%	5%
5	89	-2%	2%
6	93	0%	-1%
7	89	-5%	-1%
8	87	-6%	3%
9	82	-5%	10%
10	74	-4%	14%
11	75	5%	14%
12	82	6%	5%
13	83	7%	-8%
14	88	4%	-6%
15	76	-2%	-16%
16	76	-6%	-11%



Color Evaluation Sample



Illumination



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
603lx	151lx	67lx	38lx	24lx	17lx	12lx	9lx	7lx	6lx	5lx	4lx	4lx	3lx	3lx	2lx	2lx	2lx	2lx	2lx
56fcd	14fcd	6.2fcd	3.5fcd	2.2fcd	1.6fcd	1.1fcd	0.9fcd	0.7fcd	0.6fcd	0.5fcd	0.4fcd	0.3fcd	0.3fcd	0.2fcd	0.2fcd	0.2fcd	0.2fcd	0.2fcd	0.1fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
114.4°	183°	232.2°	54.0%	35.1%



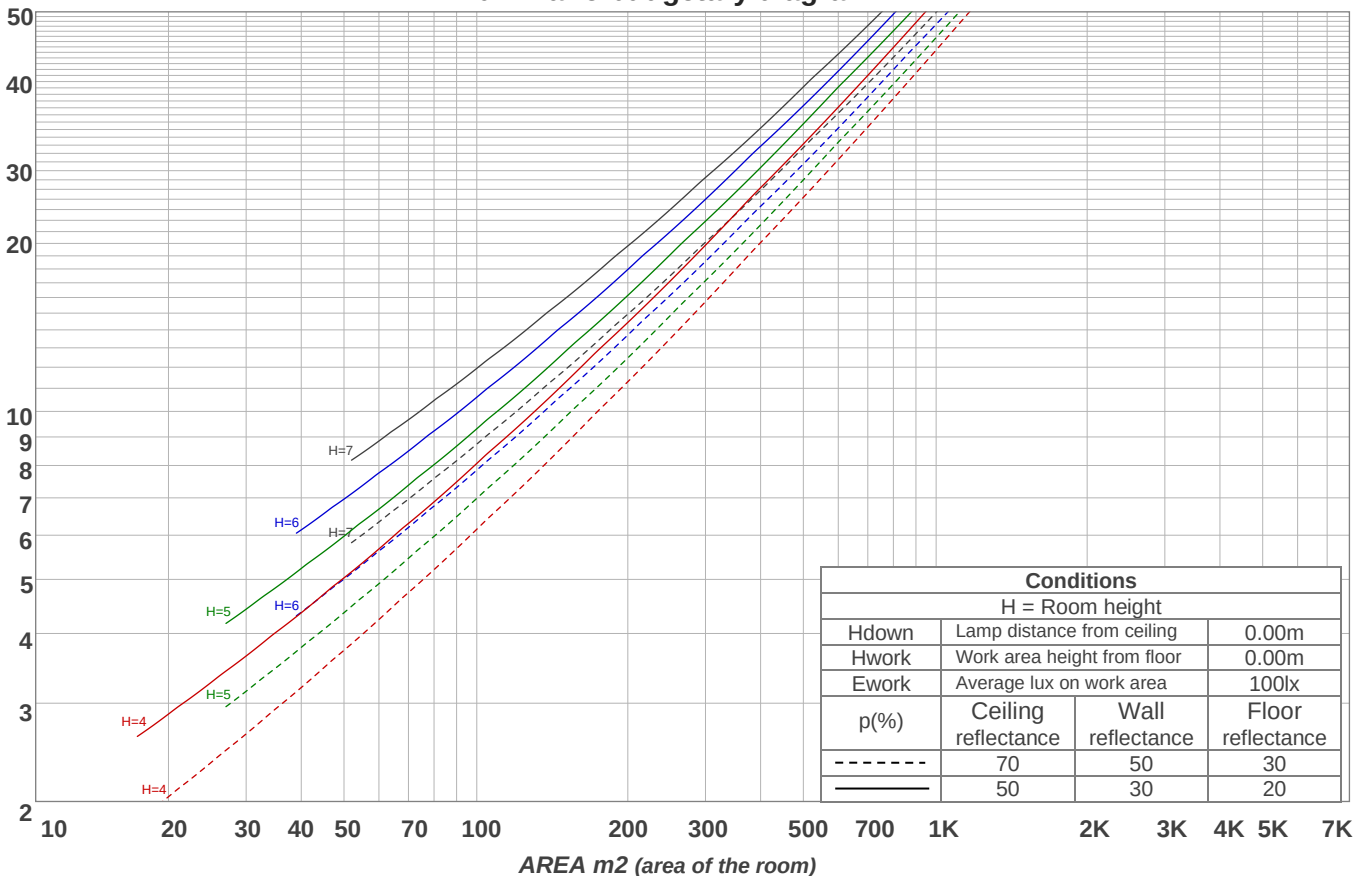
Light Planning

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	115	115	115	115	110	110	110	110	102	102	102	94	94	94	87	87	87	83
1	102	96	90	85	97	92	87	82	84	80	77	77	74	71	71	69	66	63
2	91	82	74	67	87	78	71	65	72	66	61	66	61	57	61	57	53	50
3	83	71	62	54	78	68	60	53	62	55	50	57	52	47	53	48	44	41
4	75	62	53	45	71	60	51	44	55	48	42	51	44	39	47	41	37	34
5	69	55	46	38	65	53	44	37	49	41	36	45	39	34	42	36	32	29
6	63	49	40	33	60	47	39	32	44	36	31	41	34	29	38	32	28	25
7	59	45	35	29	56	43	34	28	40	32	27	37	30	26	34	29	24	22
8	54	40	32	26	52	39	31	25	36	29	24	34	27	23	31	26	22	19
9	51	37	29	23	48	36	28	22	33	26	21	31	25	20	29	23	19	17
10	48	34	26	21	45	33	25	20	31	24	19	29	23	18	27	21	18	16

LAMPS (number of lamps)

Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
57.1 lm	165 lm	252 lm	313 lm	343 lm	342 lm	314 lm	269 lm	216 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
165 lm	118 lm	77.8 lm	47.1 lm	25.9 lm	12.9 lm	6.32 lm	3.34 lm	1.10 lm

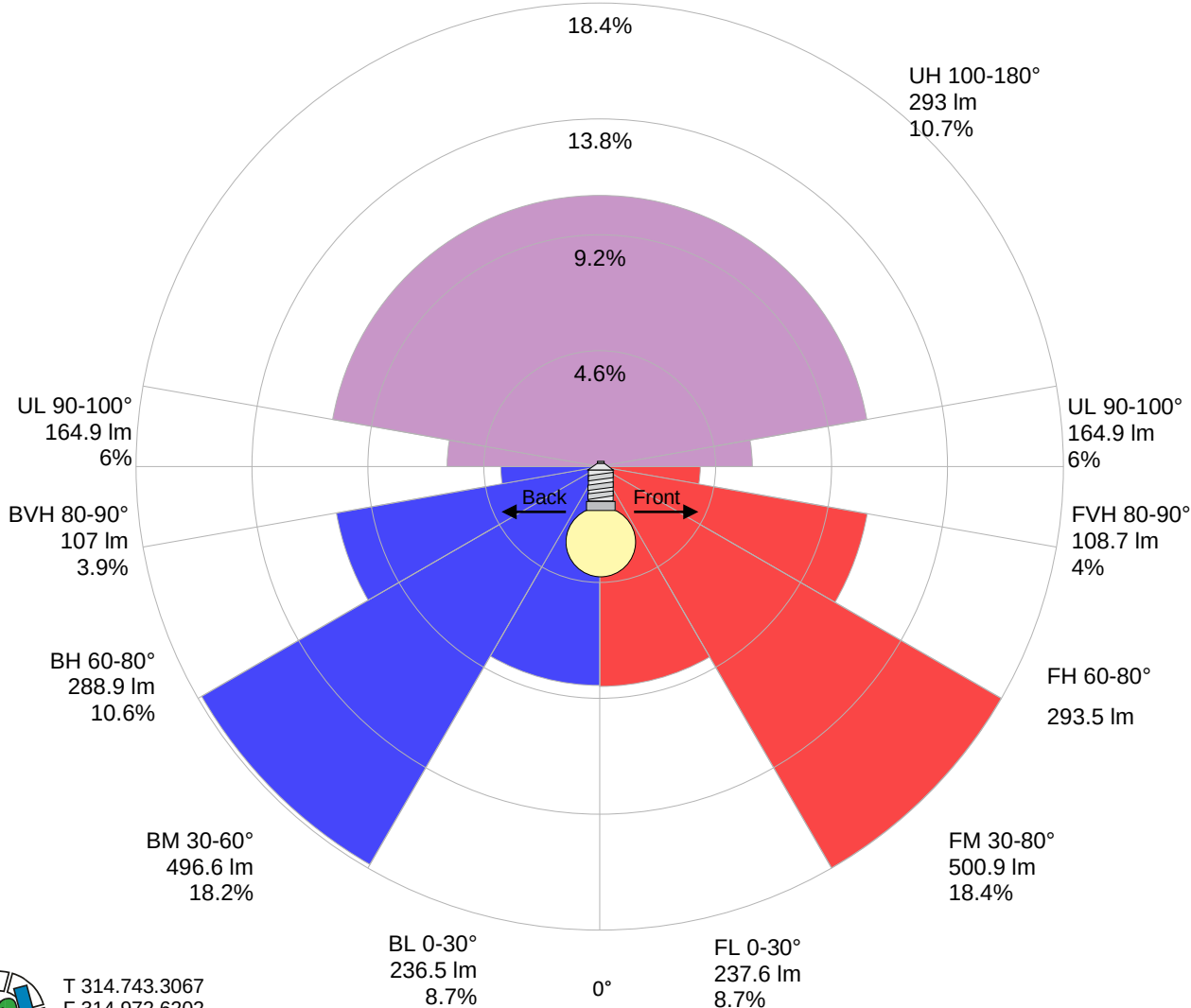


Road Report

LCS table

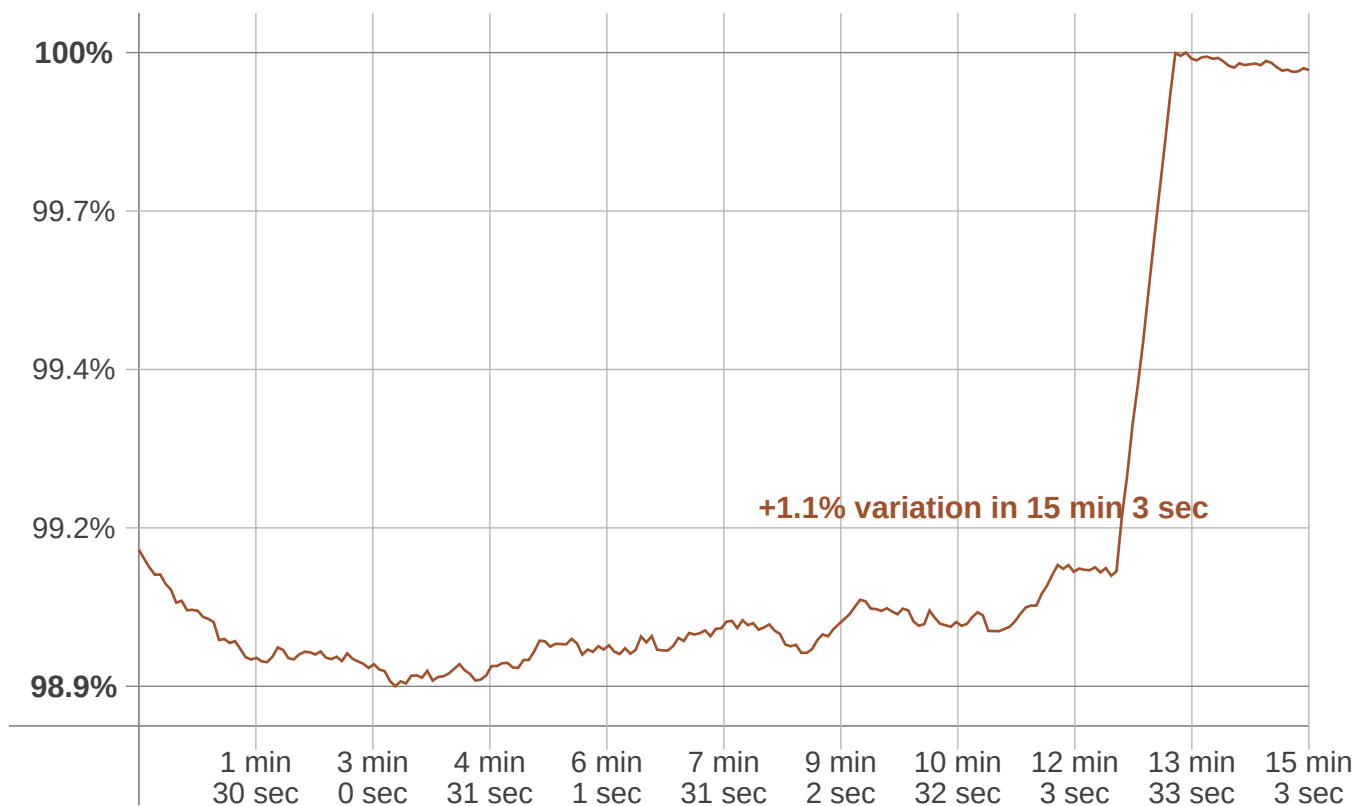
BUG rating:	B1 U3 G2	
Forward light	Lumens	Lumens %
Low(0-30):	237.6	8.7%
Medium(30-60):	500.9	18.4%
High(60-80):	293.5	10.8%
Very high(80-90):	108.7	4%
Back light		
Low(0-30):	236.5	8.7%
Medium(30-60):	496.6	18.2%
High(60-80):	288.9	10.6%
Very high(80-90):	107	3.9%
Uplight		
Low(90-100):	164.9	6%
High(100-180):	293	10.7%

LCS graph



Stabilization

Warmup curve



Warmup result

Warmup time:	15 min 3 sec
Warmup variation	+1.1%

Warmup conditions

Stable period:	15 min
Stable change max:	2.0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
3975 K	-3 K	3972 K

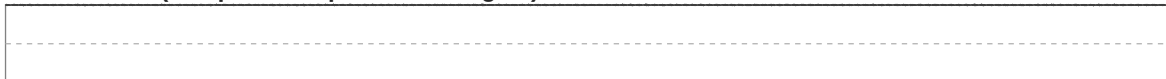
Output change

Output start	Output change	Output end
2709 lm	+19 lm	2728 lm

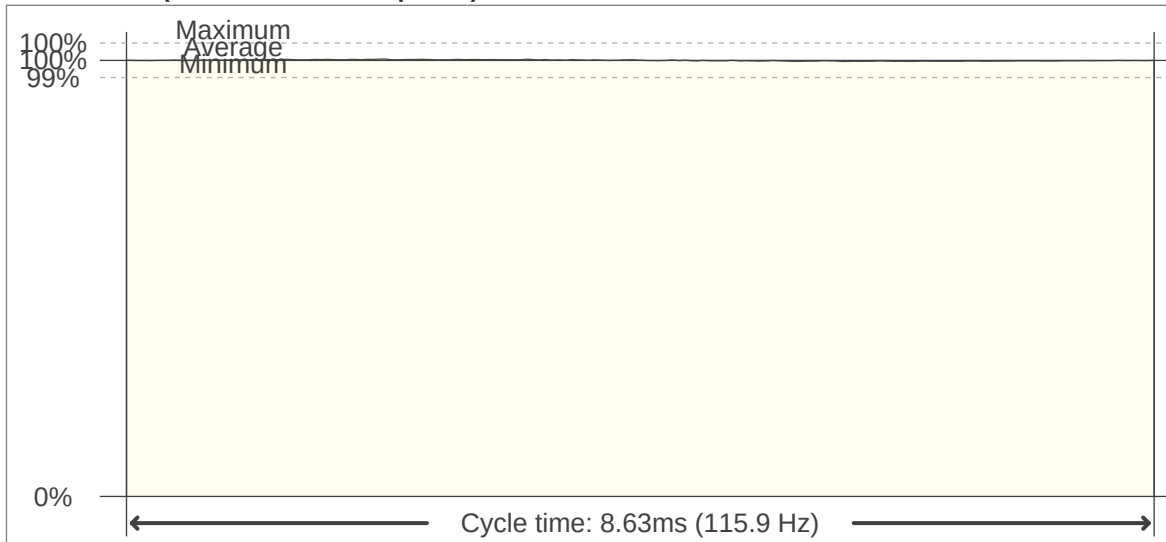


Flicker

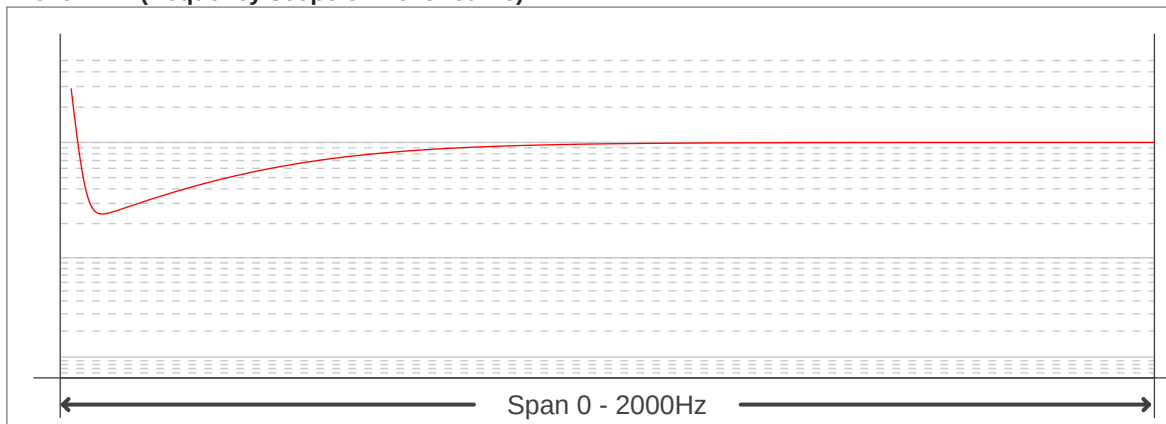
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	115.94 Hz
Flicker index:	0
Flicker percentage:	0.36 %
SVM: (Visual flicker)	0.01

Flicker conditions:

Sample rate:	40000 samples/second
--------------	----------------------



Light efficiency:

140 Lumen/Watt

Output: 2043 lm

Light quality:

CRI: 85.9

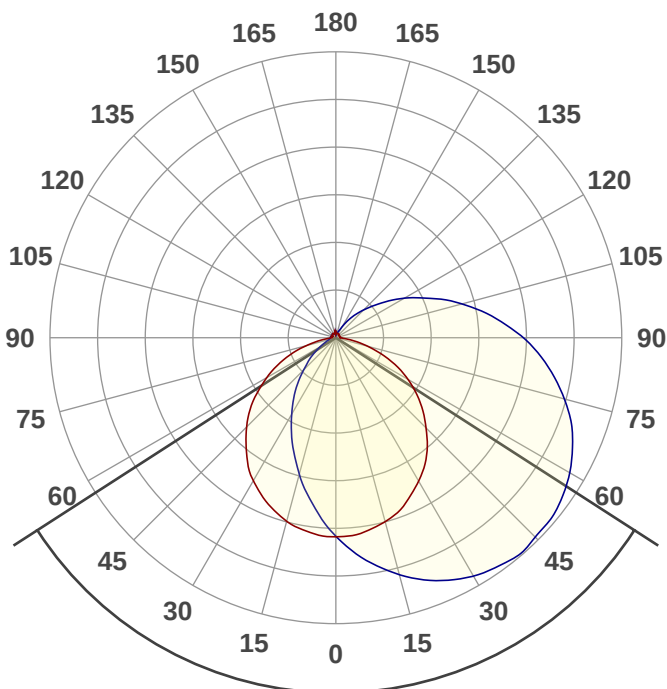
Peak: 643 cd

Color temperature:

3990 K

Power: 14.6 W

PF: 0.98



Product name:

CRN2-30W-150K-C-FL-CT-FA at 14 W

Date and time:

9/3/2020 12:58:44 PM

Beam angle

114.4°

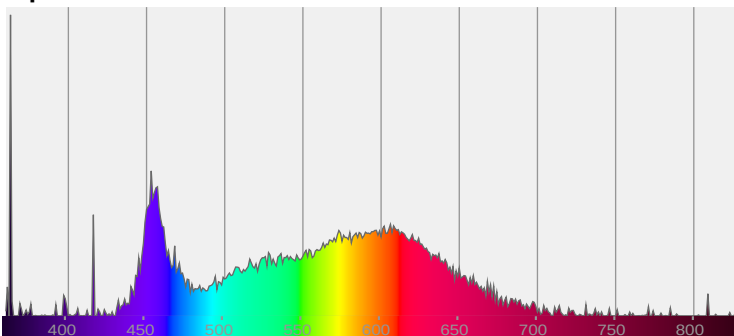


CIE 1931

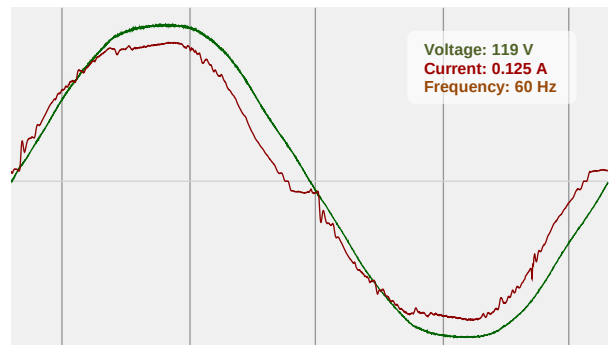
x: 0.376

y: 0.359

Spectra



Power



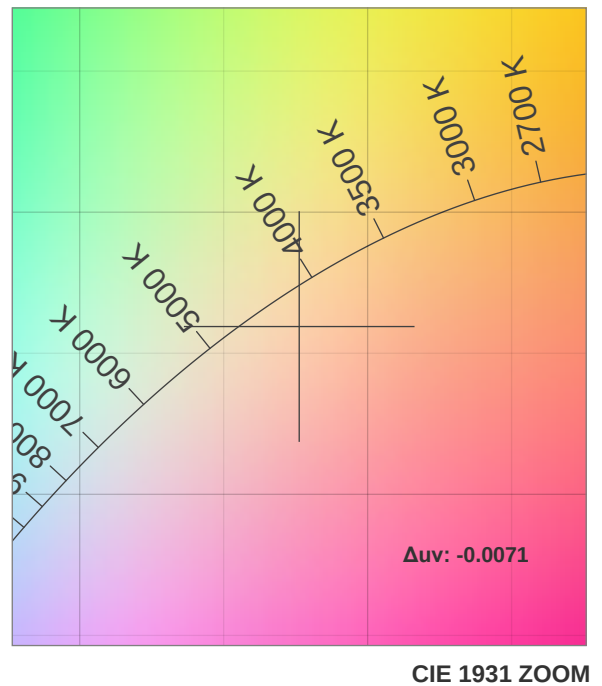
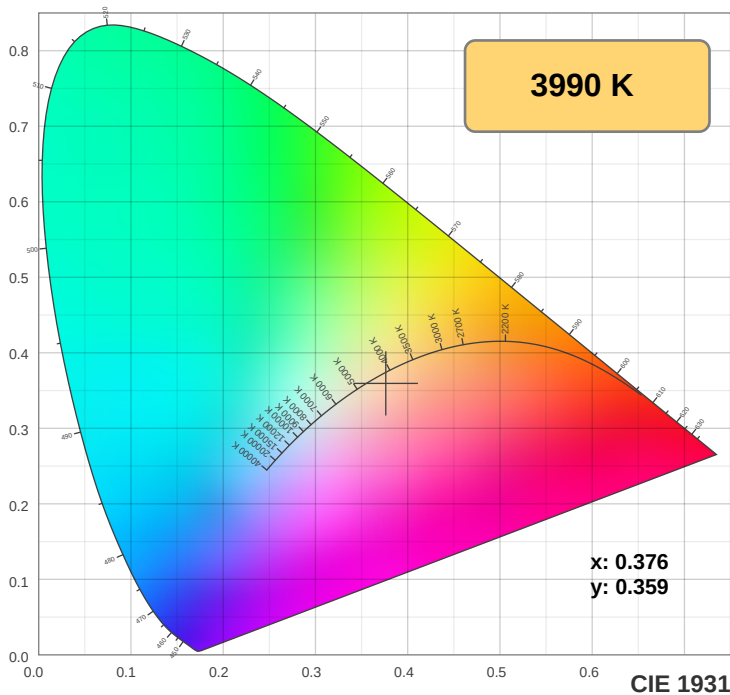
T 314.743.3067

F 314.972.6202

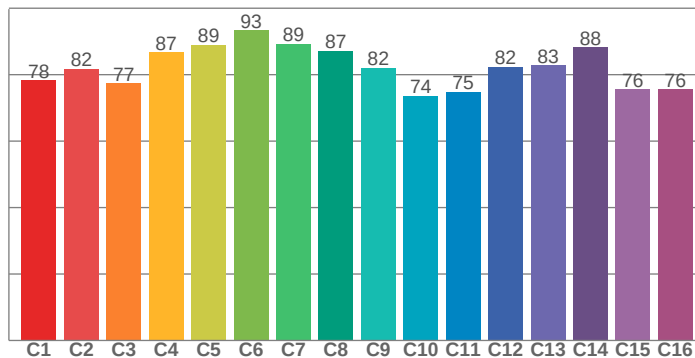
email: commercial-sales@superbrightleds.com

www.superbrightleds.com/

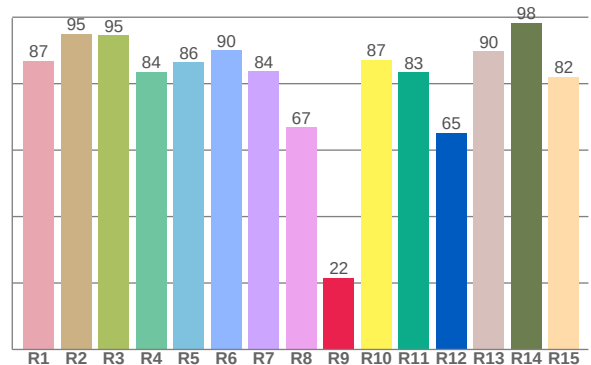
Color Specifications



TM30: 82.1



CRI: 85.9 (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
86.9	95.1	94.5	83.6	86.4	90.1	83.7	66.8	21.5	87.2	83.4	65.2	89.7	98.4	82.1

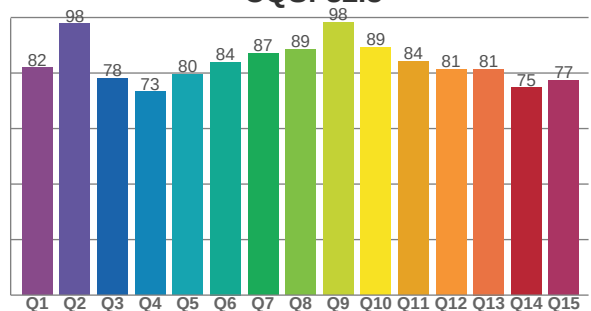
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
78.3	81.8	77.4	86.7	88.9	93.3	89.3	87.2	82.1	73.6	74.9	82.4	82.8	88.2	75.6	75.6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
82.0	97.9	78.1	73.3	79.6	84.0	87.1	88.6	98.3	89.3	84.2	81.3	81.4	74.8	77.4

CQS: 82.3



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 deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3990 K	85.9	21.5	82.1	95.6	82.3	0.376	0.359	0.229	0.329	-0.0071



TM30 Report

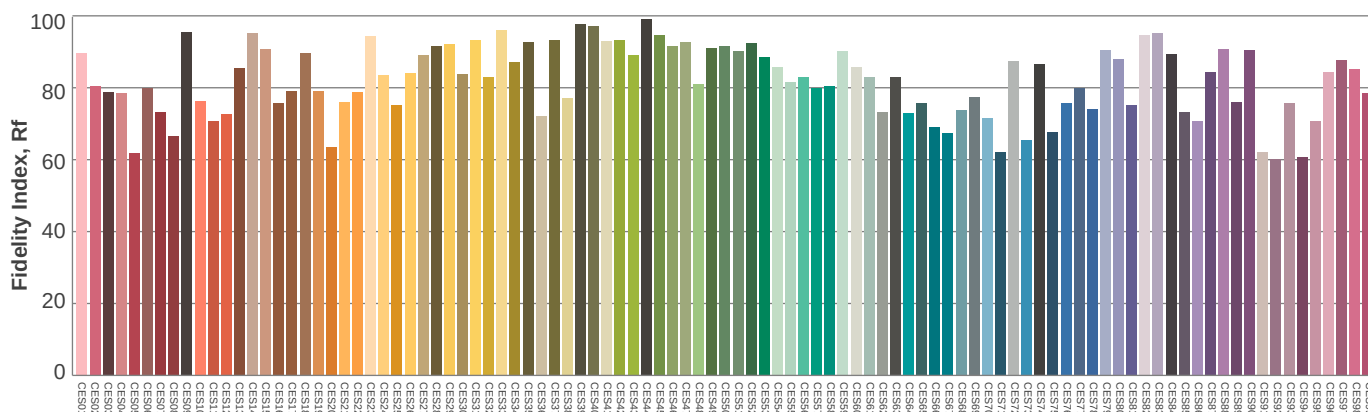
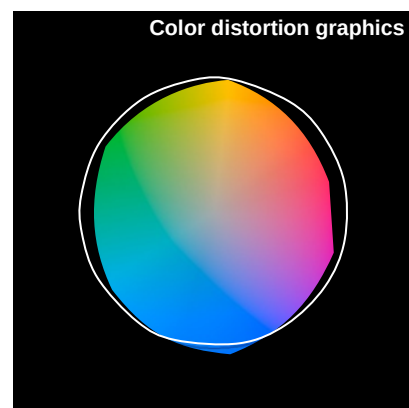
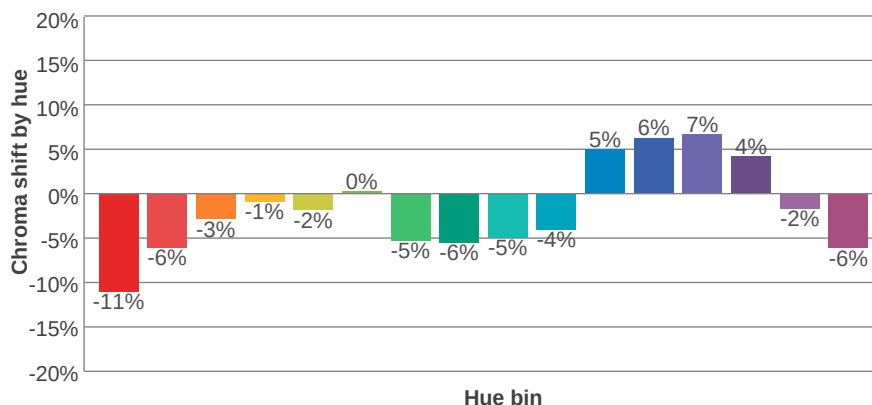
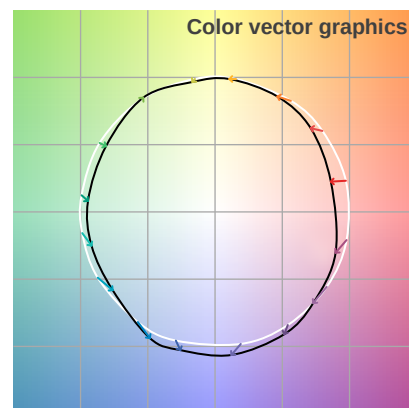
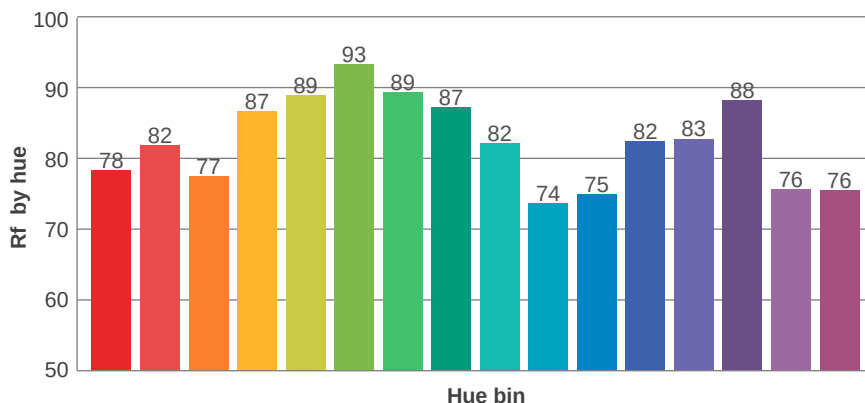
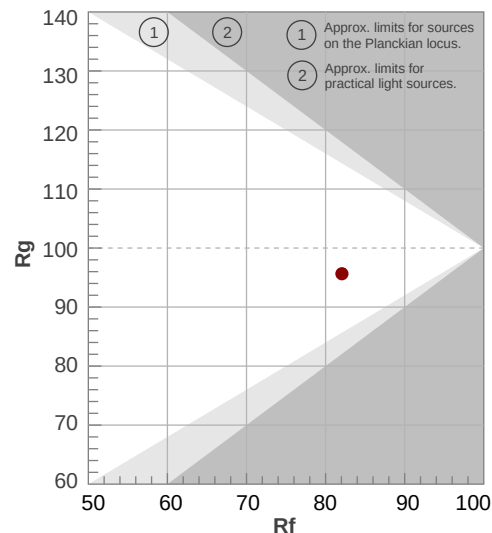
Rf 82.1

Fidelity index Rf

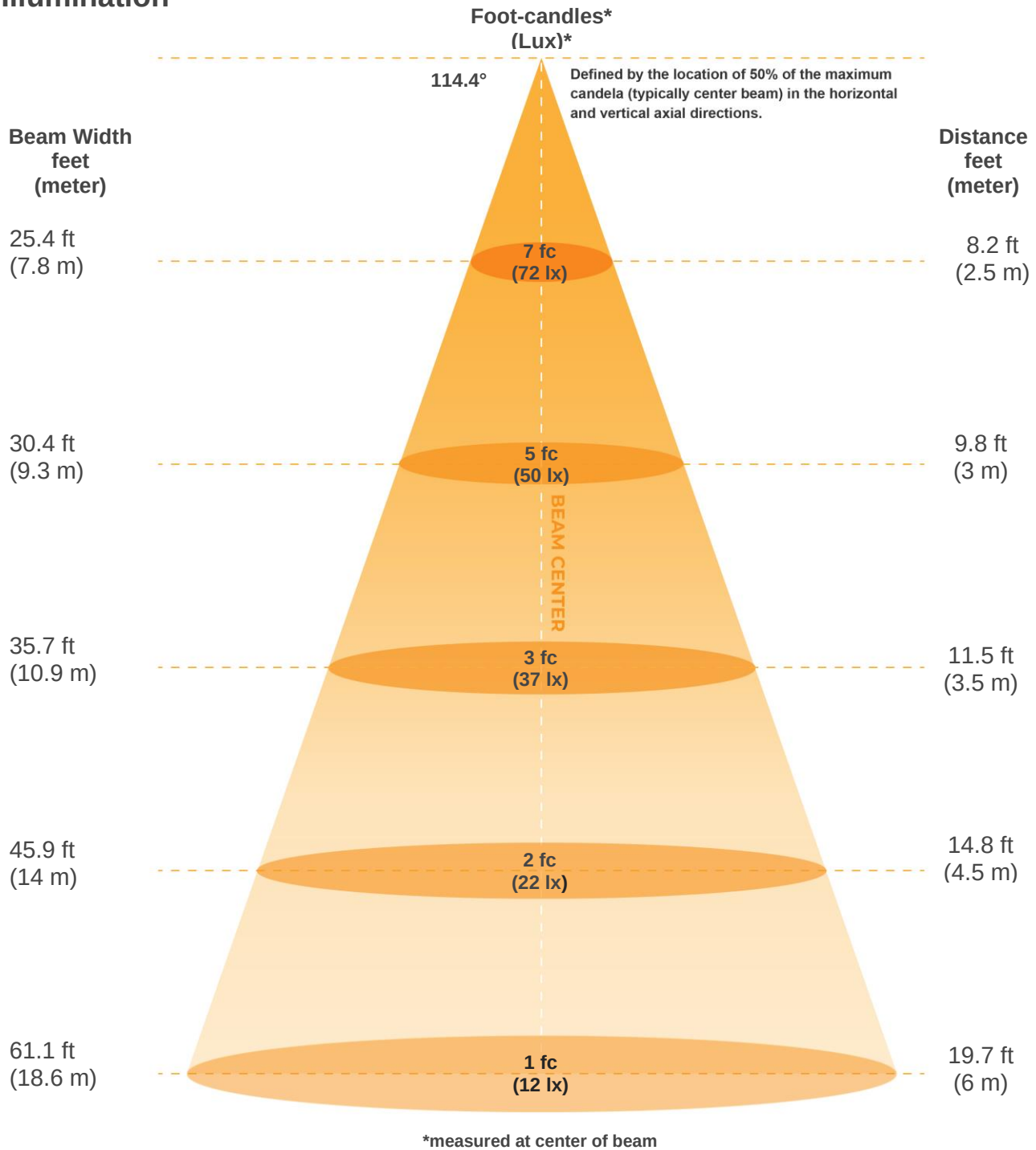
Rg 95.6

Gamut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	78	-11%	2%
2	82	-6%	7%
3	77	-3%	10%
4	87	-1%	5%
5	89	-2%	2%
6	93	0%	-1%
7	89	-5%	-1%
8	87	-6%	3%
9	82	-5%	10%
10	74	-4%	14%
11	75	5%	14%
12	82	6%	5%
13	83	7%	-8%
14	88	4%	-6%
15	76	-2%	-16%
16	76	-6%	-11%



Illumination



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
450lx	112lx	50lx	28lx	18lx	12lx	9lx	7lx	6lx	4lx	4lx	3lx	3lx	2lx	2lx	2lx	2lx	1lx	1lx	1lx
41.8fcd	10.4fcd	4.6fcd	2.6fcd	1.7fcd	1.2fcd	0.9fcd	0.7fcd	0.5fcd	0.4fcd	0.3fcd	0.3fcd	0.2fcd	0.2fcd	0.2fcd	0.2fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
114.4°	183°	262.7°	53.7%	35.0%



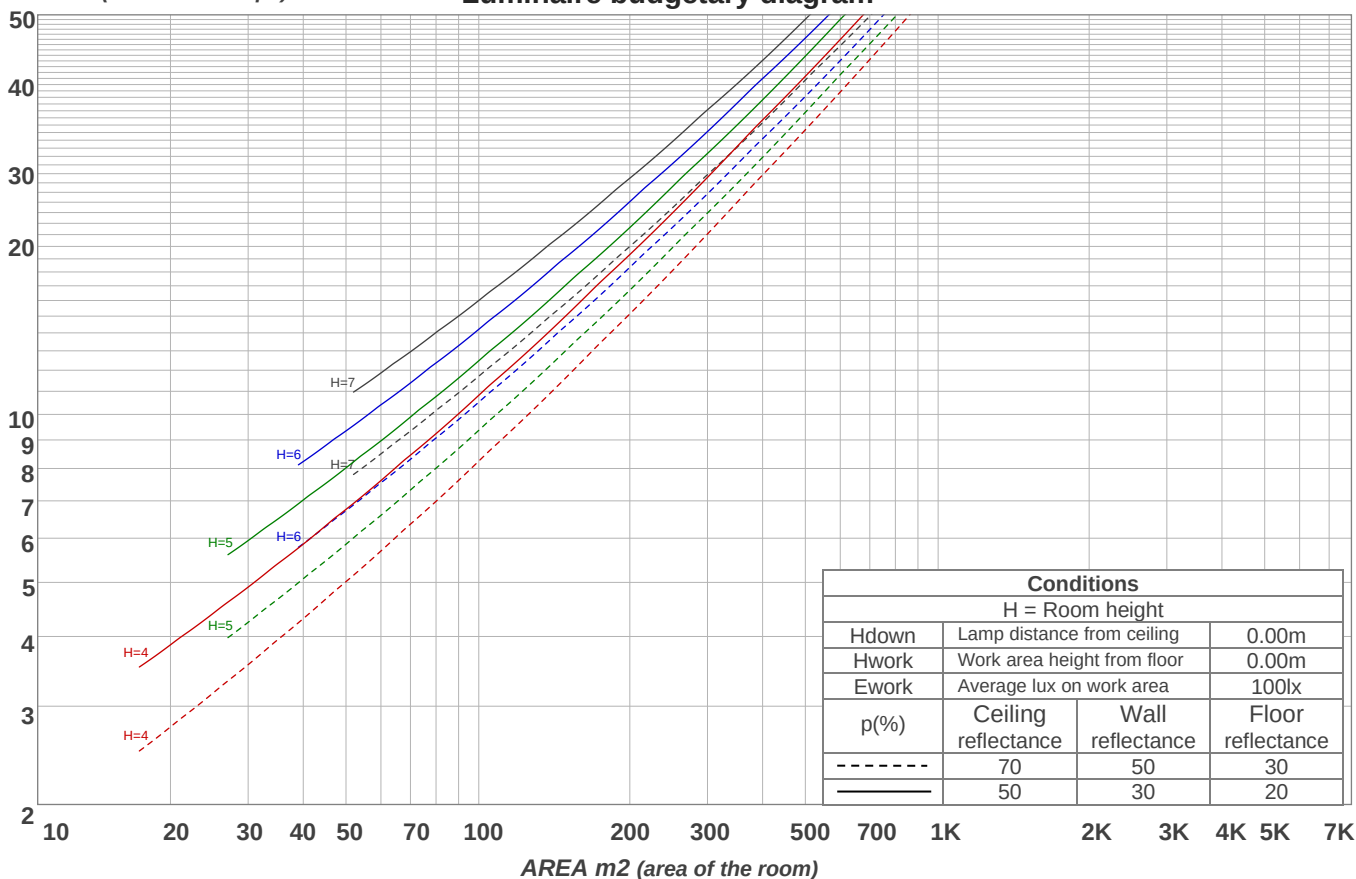
Light Planning

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	115	115	115	115	110	110	110	110	102	102	102	94	94	94	86	86	86	83
1	102	96	90	85	97	92	87	82	84	80	76	77	74	71	71	68	66	63
2	91	82	74	67	87	78	71	65	72	66	61	66	61	57	60	56	53	50
3	82	71	62	54	78	68	60	53	62	55	50	57	51	47	52	48	44	41
4	75	62	53	45	71	60	51	44	55	47	42	50	44	39	46	41	37	34
5	69	55	46	38	65	53	44	37	49	41	35	45	39	34	41	36	32	29
6	63	49	40	33	60	47	39	32	44	36	31	41	34	29	37	32	28	25
7	59	45	35	29	56	43	34	28	40	32	27	37	30	26	34	29	24	22
8	54	40	32	26	52	39	31	25	36	29	24	34	27	23	31	26	22	19
9	51	37	29	23	48	36	28	22	33	26	21	31	25	20	29	23	19	17
10	48	34	26	21	45	33	25	20	31	24	19	29	23	18	27	21	18	16

LAMPS (number of lamps)

Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
42.6 lm	123 lm	189 lm	234 lm	255 lm	254 lm	234 lm	201 lm	162 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
124 lm	88.9 lm	58.8 lm	36.1 lm	20.3 lm	10.6 lm	5.44 lm	2.87 lm	0.968 lm

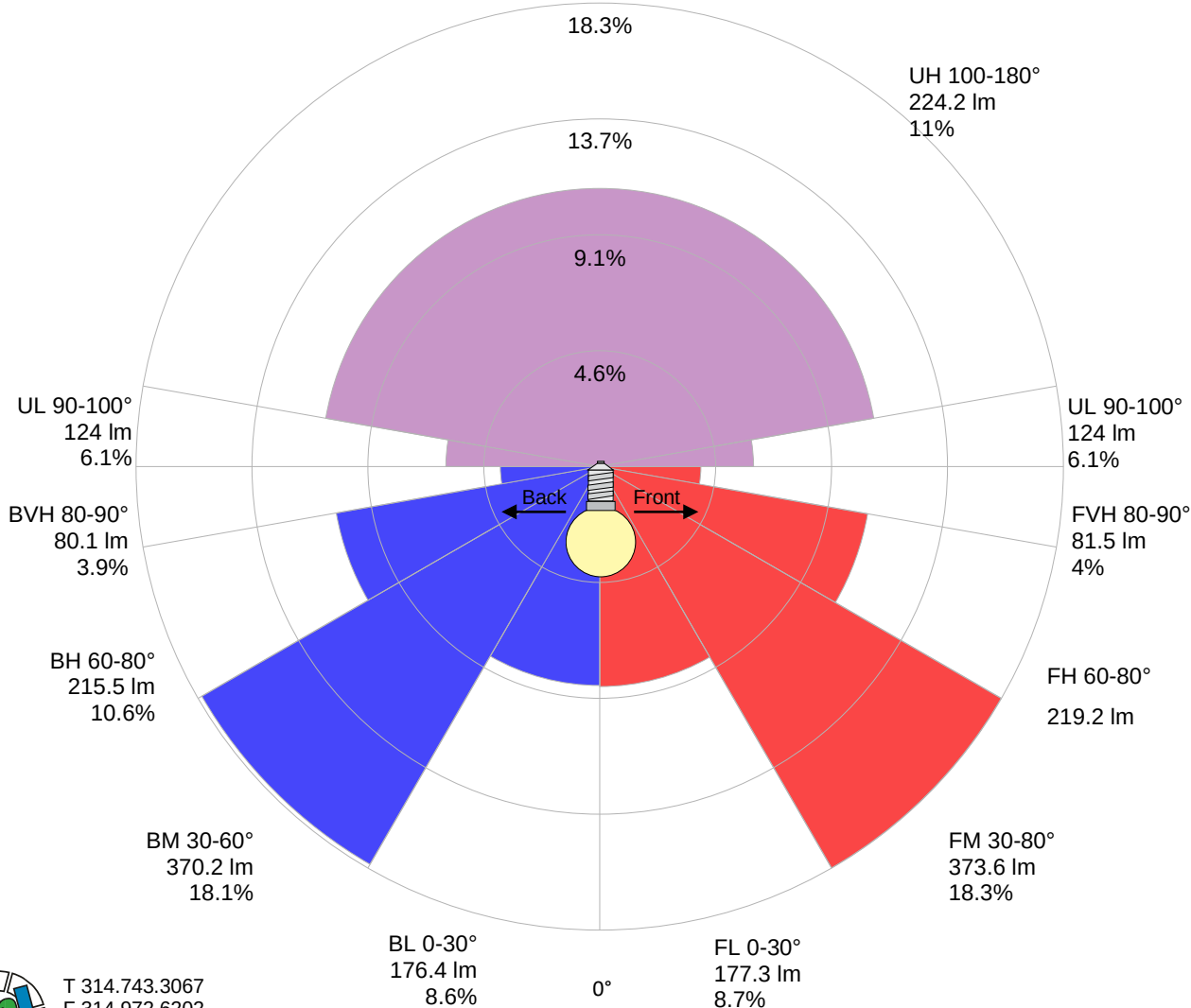


Road Report

LCS table

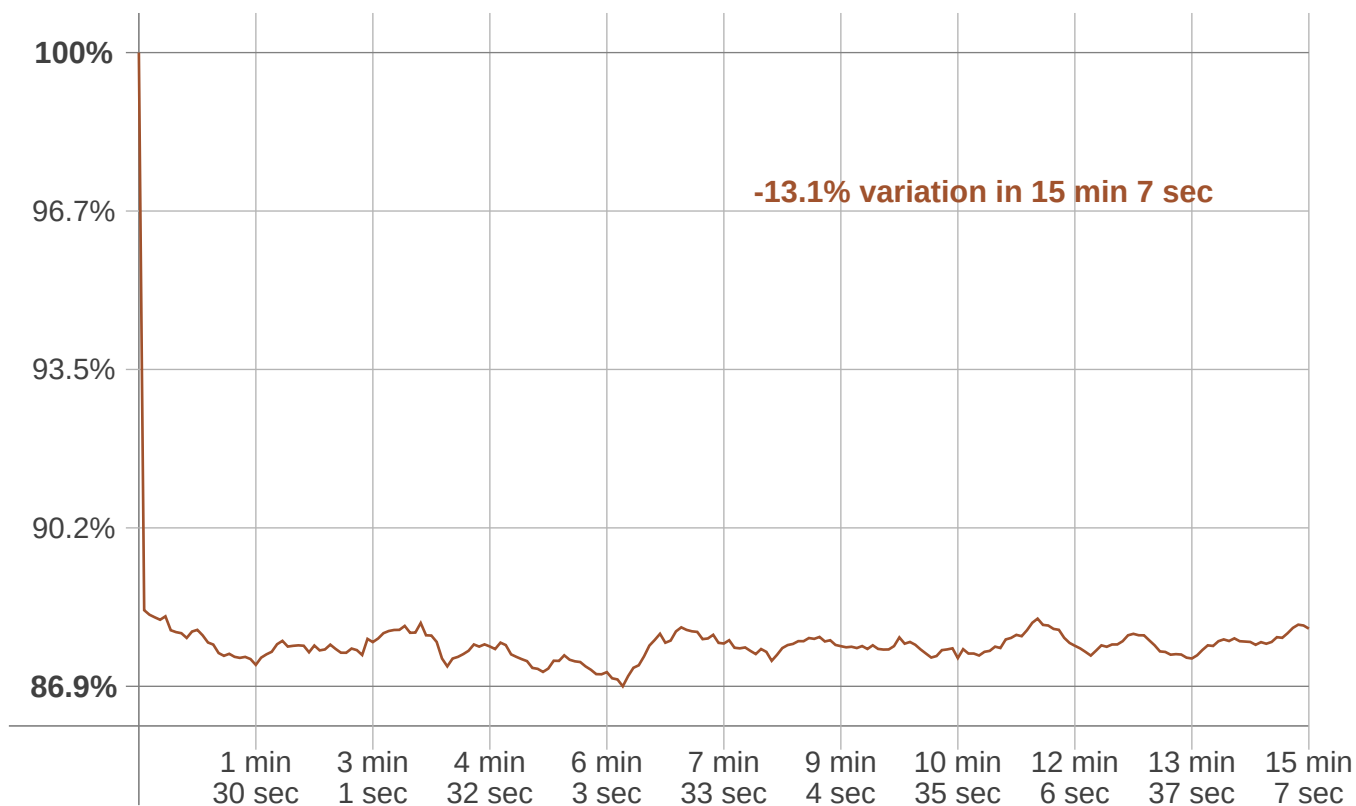
BUG rating:	B1 U3 G1	
Forward light	Lumens	Lumens %
Low(0-30):	177.3	8.7%
Medium(30-60):	373.6	18.3%
High(60-80):	219.2	10.7%
Very high(80-90):	81.5	4%
Back light		
Low(0-30):	176.4	8.6%
Medium(30-60):	370.2	18.1%
High(60-80):	215.5	10.6%
Very high(80-90):	80.1	3.9%
Uplight		
Low(90-100):	124	6.1%
High(100-180):	224.2	11%

LCS graph



Stabilization

Warmup curve



Warmup result

Warmup time:	15 min 7 sec
Warmup variation	-13.1%

Warmup conditions

Stable period:	15 min
Stable change max:	2.0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
4012 K	-22 K	3990 K

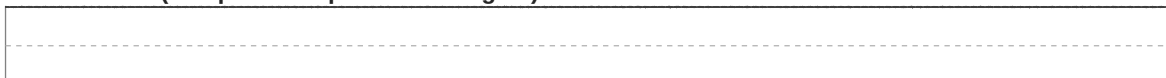
Output change

Output start	Output change	Output end
2104 lm	-62 lm	2043 lm

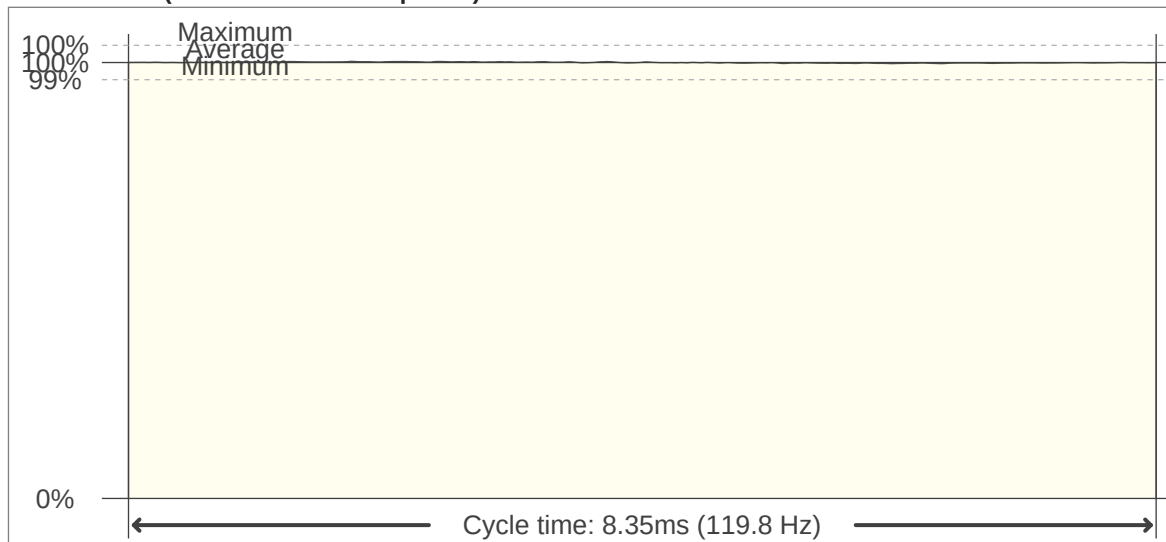


Flicker

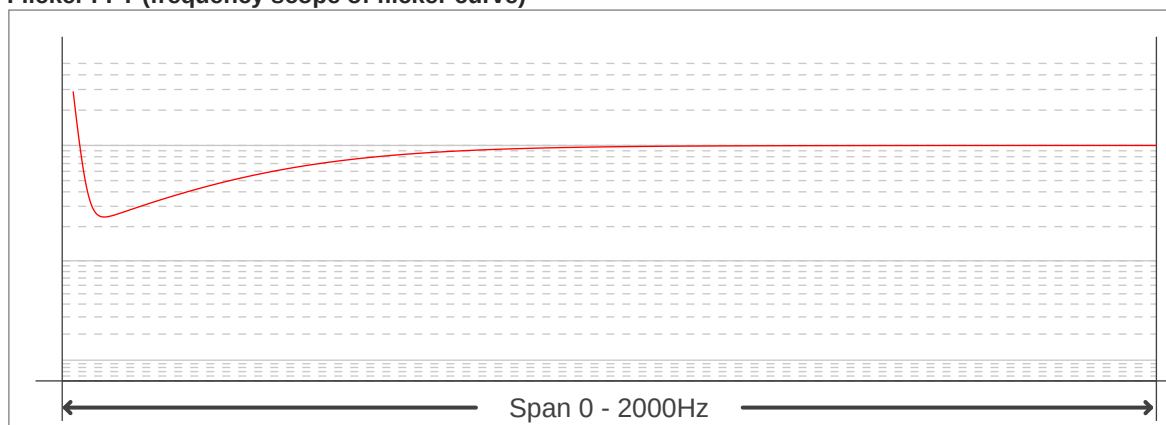
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	119.76 Hz
Flicker index:	0
Flicker percentage:	0.38 %
SVM: (Visual flicker)	0.01

Flicker conditions:

Sample rate:	40000 samples/second
--------------	----------------------



Light efficiency:

136 Lumen/Watt

Output: 1335 lm

Light quality:

CRI: 85.7

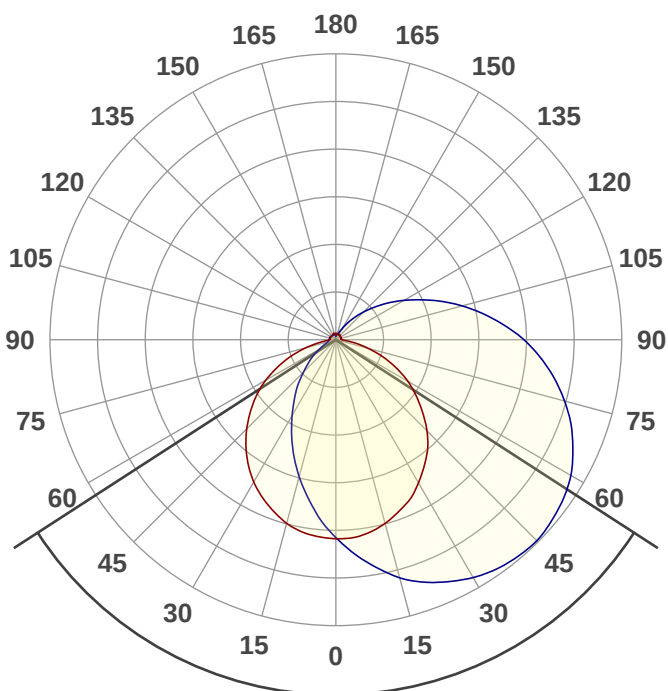
Peak: 418 cd

Color temperature:

4027 K

Power: 9.8 W

PF: 0.89



Product name:

CRN2-30W-150K-C-FL-CT-FA at 10 W

Date and time:

9/3/2020 2:38:42 PM

Beam angle

114.2°

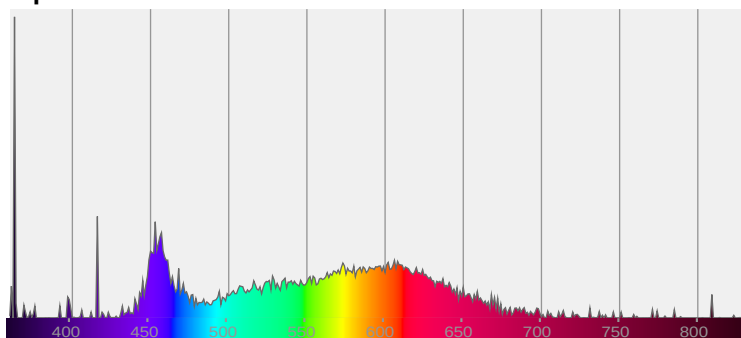


CIE 1931

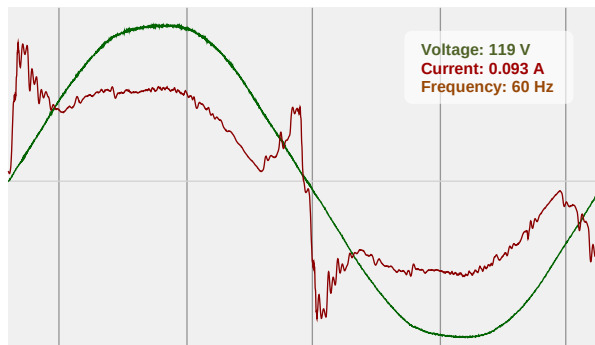
x: 0.375

y: 0.359

Spectra



Power



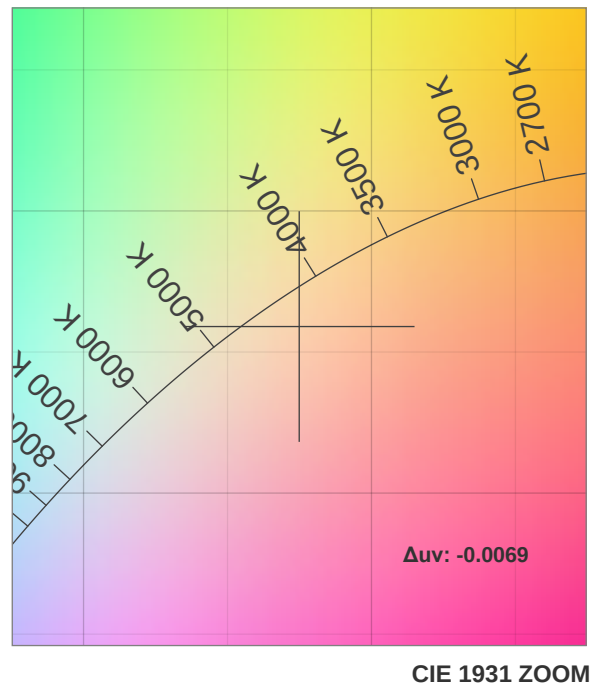
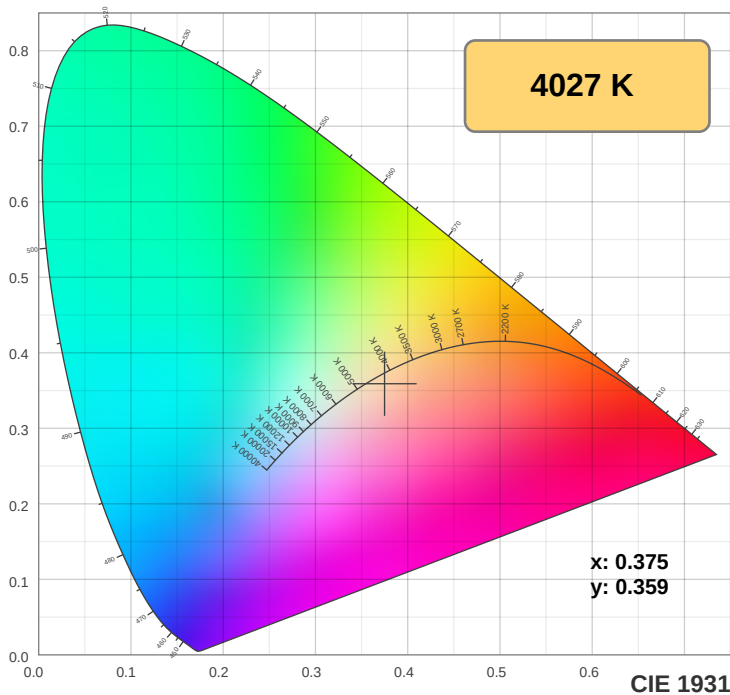
T 314.743.3067

F 314.972.6202

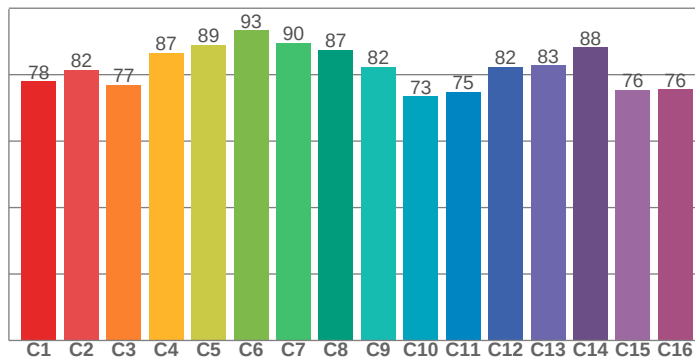
email: commercial-sales@superbrightleds.com

www.superbrightleds.com/

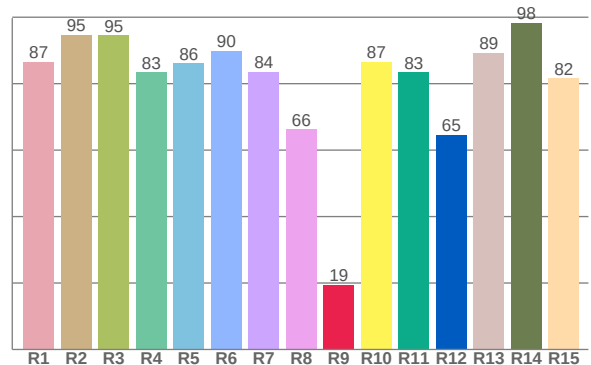
Color Specifications



TM30: 82.0



CRI: 85.7 (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
86.6	94.7	94.5	83.4	86.1	89.9	83.6	66.3	19.4	86.6	83.4	64.6	89.4	98.4	81.6

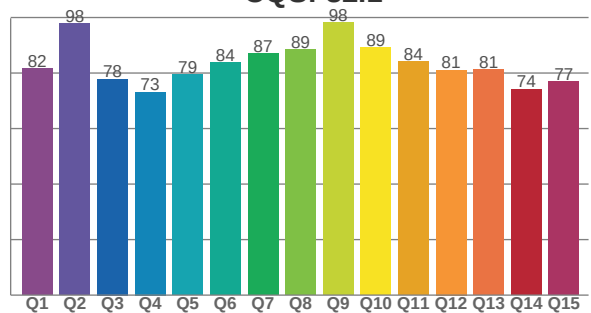
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
78.0	81.5	76.9	86.5	89.0	93.3	89.5	87.4	82.4	73.5	74.8	82.3	82.8	88.3	75.5	75.6

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
81.6	97.9	77.9	73.1	79.4	83.8	87.0	88.5	98.2	89.1	84.1	81.1	81.2	74.1	76.9

CQS: 82.1



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 deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
4027 K	85.7	19.4	82.0	95.5	82.1	0.375	0.359	0.229	0.328	-0.0069



TM30 Report

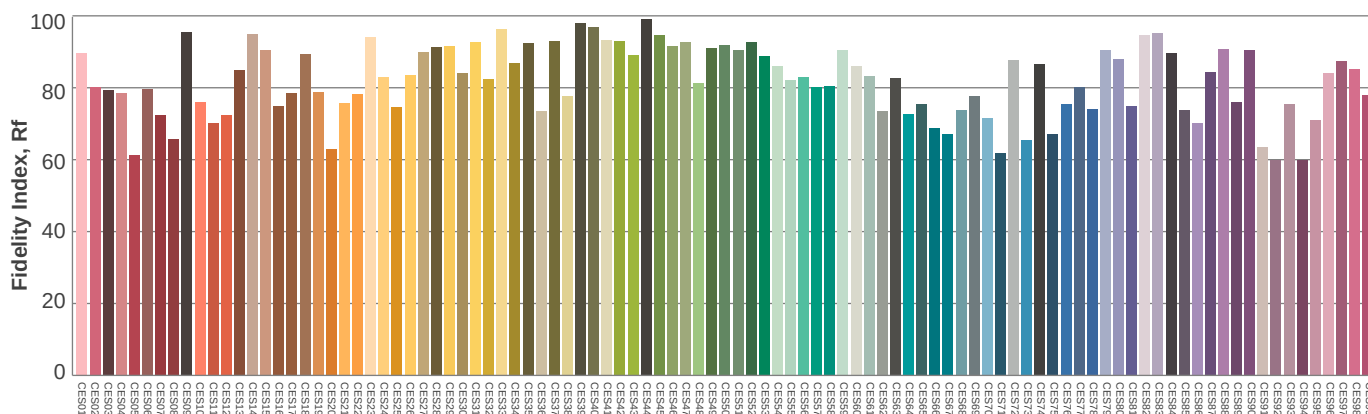
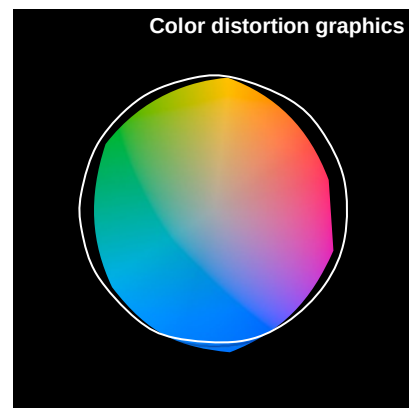
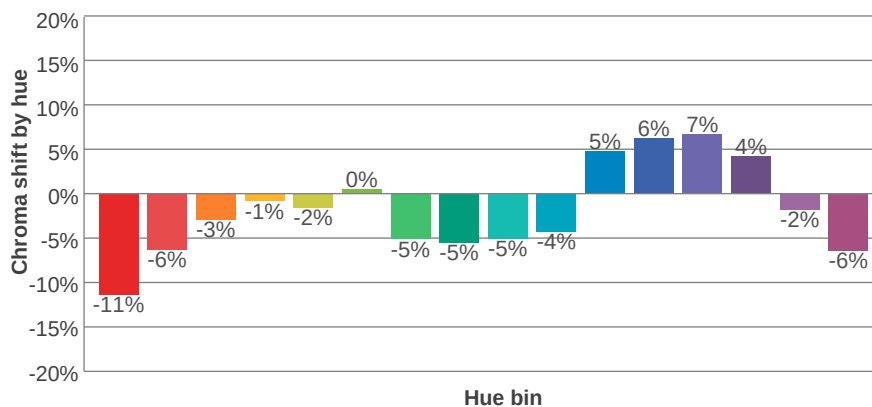
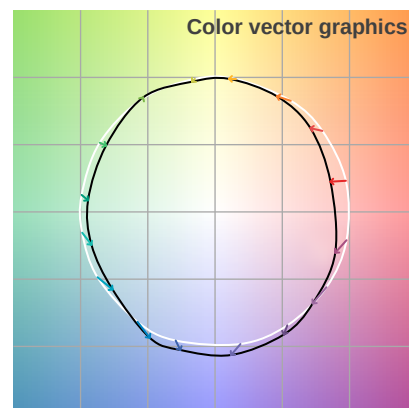
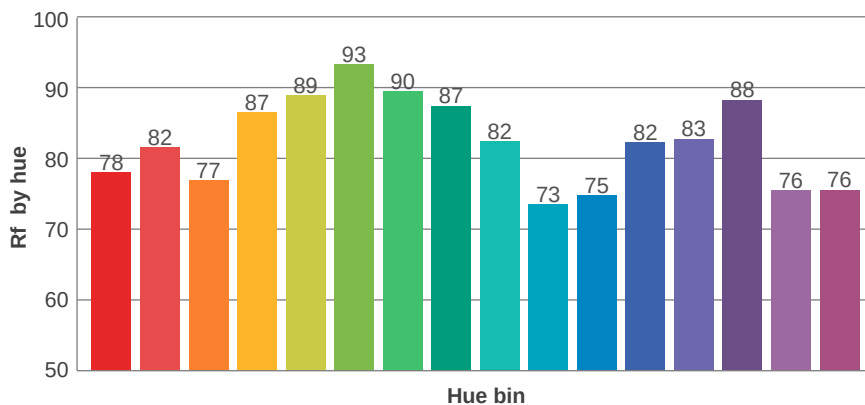
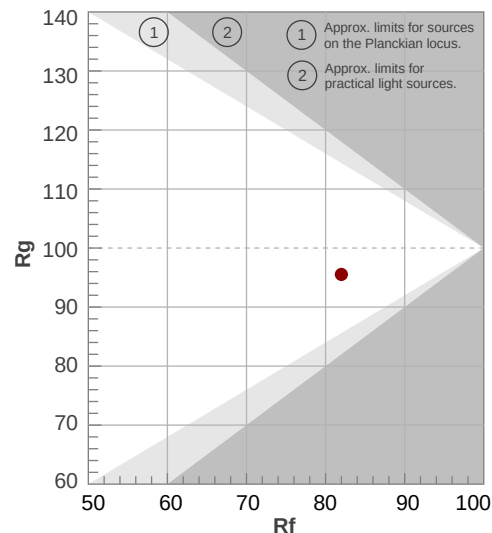
Rf 82.0

Fidelity index Rf

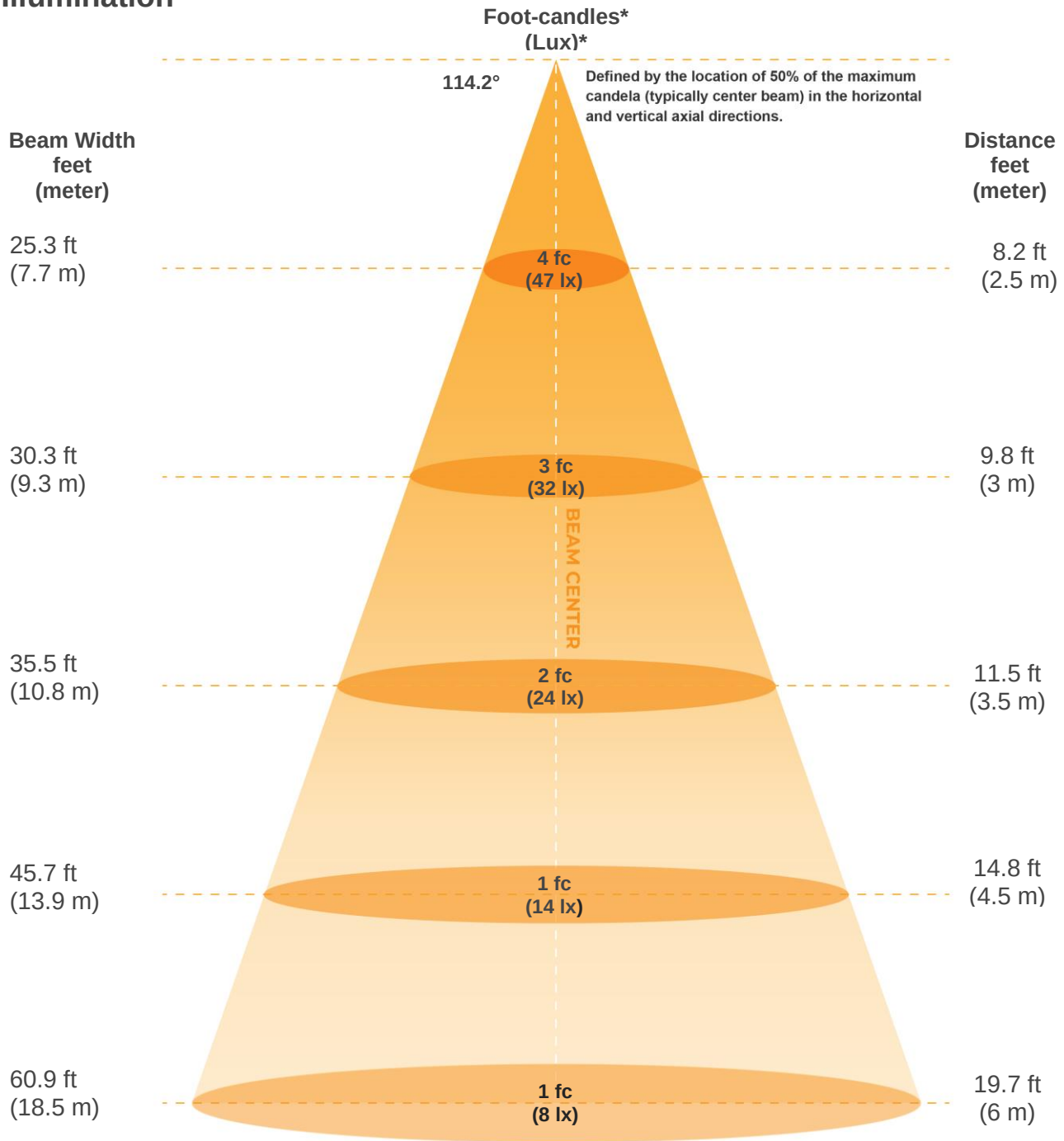
Rg 95.5

Gamut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	78	-11%	2%
2	82	-6%	7%
3	77	-3%	10%
4	87	-1%	5%
5	89	-2%	3%
6	93	0%	-1%
7	90	-5%	-1%
8	87	-5%	3%
9	82	-5%	10%
10	73	-4%	14%
11	75	5%	14%
12	82	6%	5%
13	83	7%	-8%
14	88	4%	-6%
15	76	-2%	-16%
16	76	-6%	-11%



Illumination



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
292lx	73lx	32lx	18lx	12lx	8lx	6lx	5lx	4lx	3lx	2lx	2lx	2lx	1lx	1lx	1lx	1lx	1lx	1lx	1lx
27.1fcd	6.8fcd	3fcd	1.7fcd	1.1fcd	0.8fcd	0.6fcd	0.4fcd	0.3fcd	0.3fcd	0.2fcd	0.2fcd	0.2fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd	0.1fcd

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
114.2°	182.9°	300.6°	53.4%	34.7%



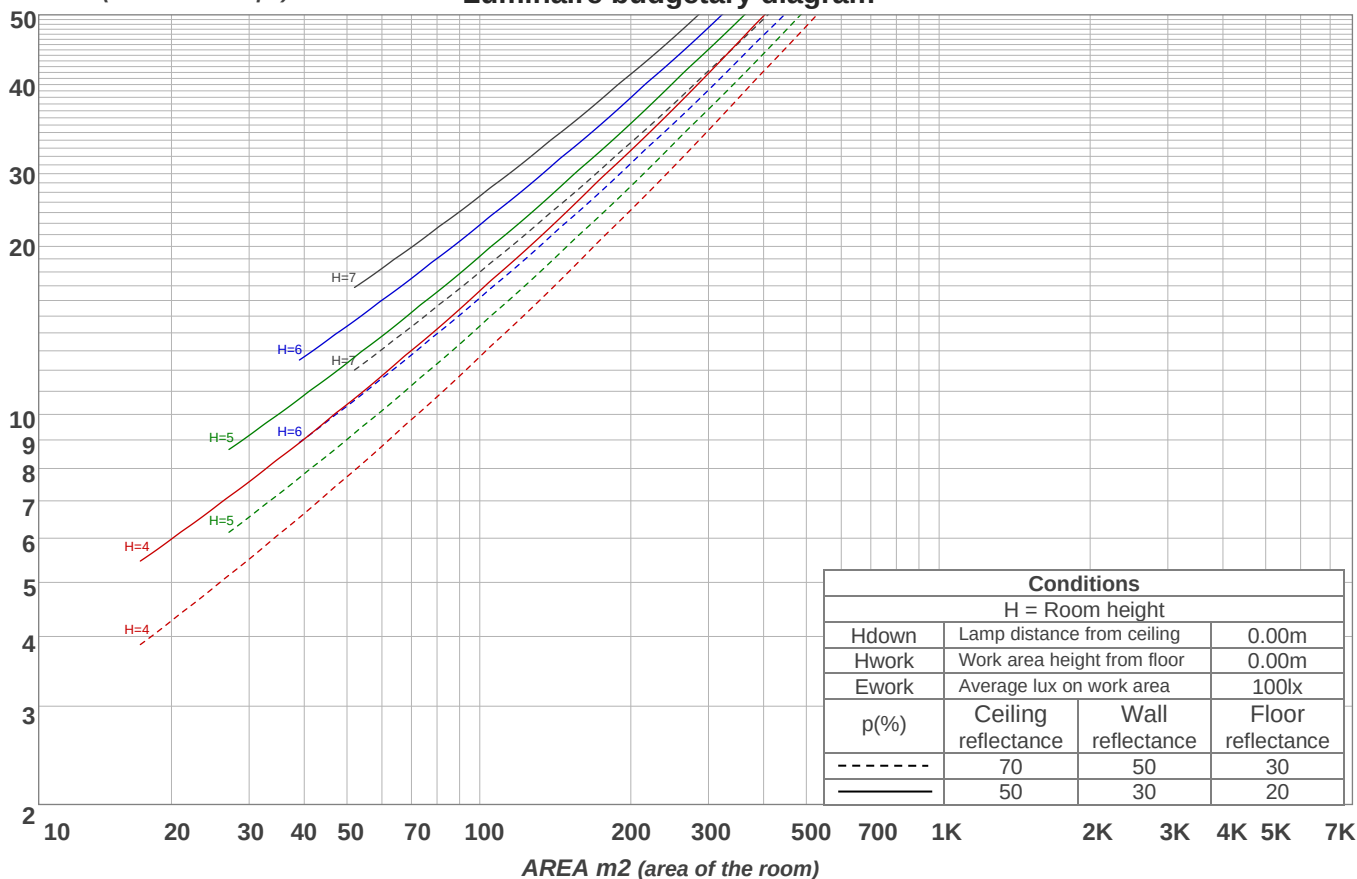
Light Planning

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	115	115	115	115	110	110	110	110	101	101	101	93	93	93	86	86	86	83
1	102	95	90	85	97	91	86	82	84	80	76	77	74	71	70	68	66	62
2	91	82	74	67	87	78	71	65	72	66	61	66	61	57	60	56	53	49
3	82	71	62	54	78	68	59	53	62	55	50	57	51	46	52	48	43	40
4	75	62	53	45	71	59	51	44	55	47	41	50	44	39	46	41	37	34
5	69	55	45	38	65	53	44	37	49	41	35	45	38	33	41	36	31	29
6	63	49	40	33	60	47	39	32	44	36	31	40	34	29	37	32	27	25
7	59	44	35	29	56	43	34	28	40	32	27	37	30	25	34	28	24	22
8	54	40	32	26	52	39	31	25	36	29	24	34	27	23	31	26	21	19
9	51	37	29	23	48	36	28	22	33	26	21	31	25	20	29	23	19	17
10	47	34	26	21	45	33	25	20	31	24	19	29	23	18	27	21	17	16

LAMPS (number of lamps)

Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
27.6 lm	79.5 lm	122 lm	152 lm	166 lm	165 lm	153 lm	131 lm	106 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
81.5 lm	58.8 lm	39.2 lm	24.4 lm	14.1 lm	7.66 lm	4.32 lm	2.36 lm	0.770 lm

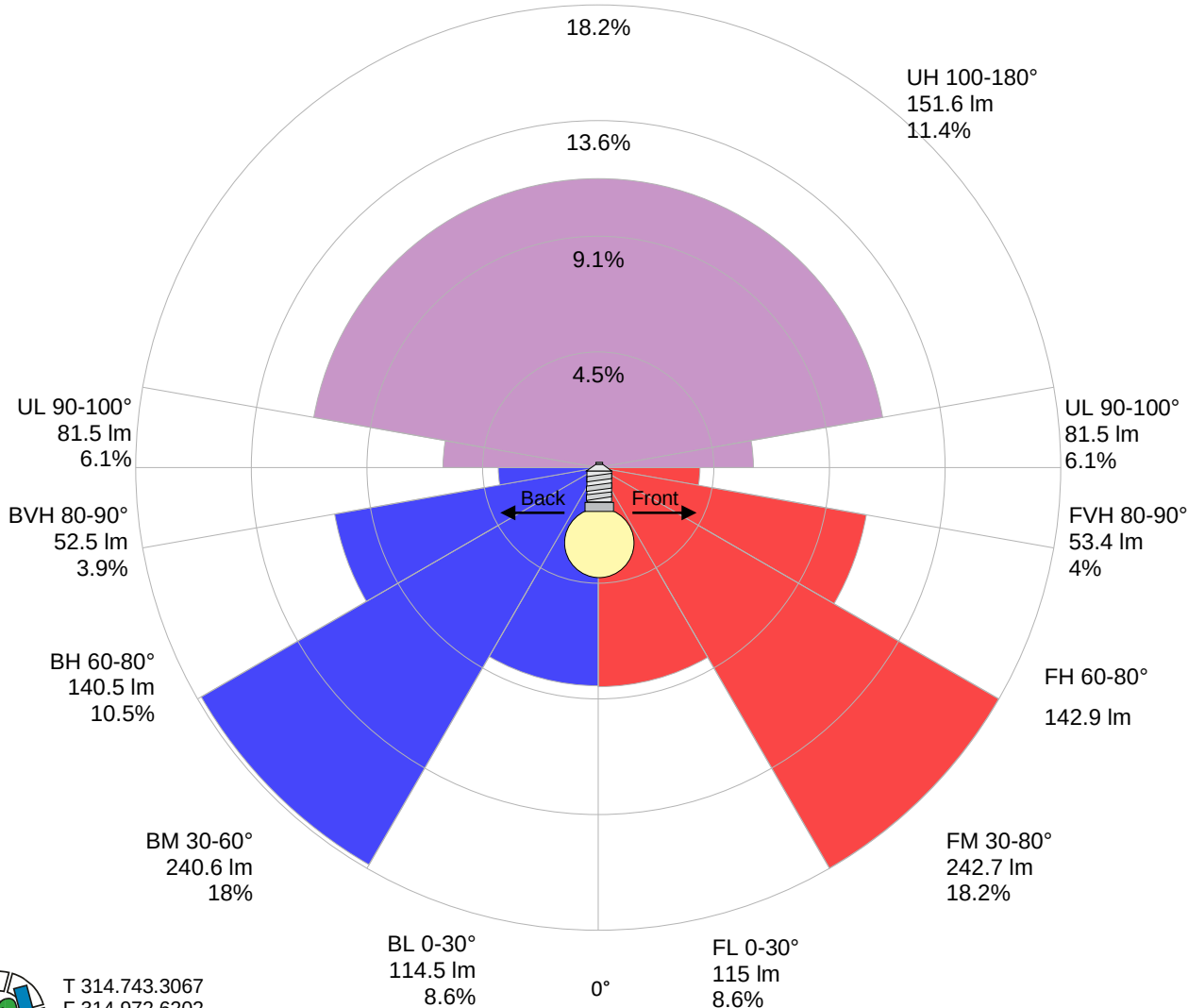


Road Report

LCS table

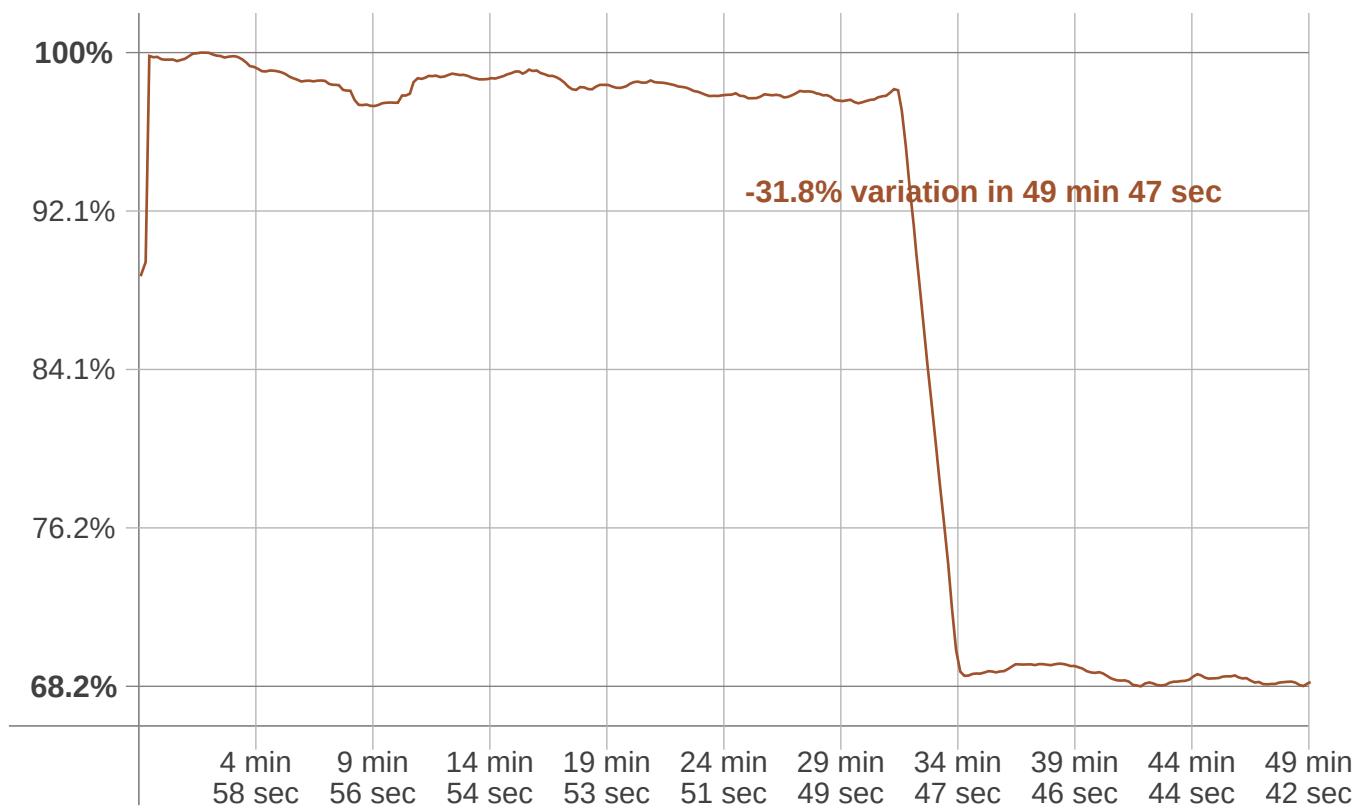
BUG rating:	B1 U3 G1	
Forward light	Lumens	Lumens %
Low(0-30):	115	8.6%
Medium(30-60):	242.7	18.2%
High(60-80):	142.9	10.7%
Very high(80-90):	53.4	4%
Back light		
Low(0-30):	114.5	8.6%
Medium(30-60):	240.6	18%
High(60-80):	140.5	10.5%
Very high(80-90):	52.5	3.9%
Uplight		
Low(90-100):	81.5	6.1%
High(100-180):	151.6	11.4%

LCS graph



Stabilization

Warmup curve



Warmup result

Warmup time:	49 min 47 sec
Warmup variation	-31.8%

Warmup conditions

Stable period:	15 min
Stable change max:	2.0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
4074 K	-47 K	4027 K

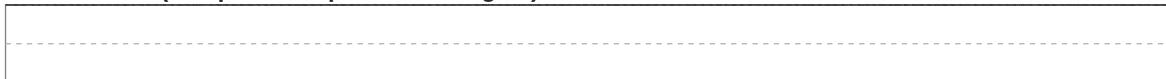
Output change

Output start	Output change	Output end
1283 lm	+52 lm	1335 lm

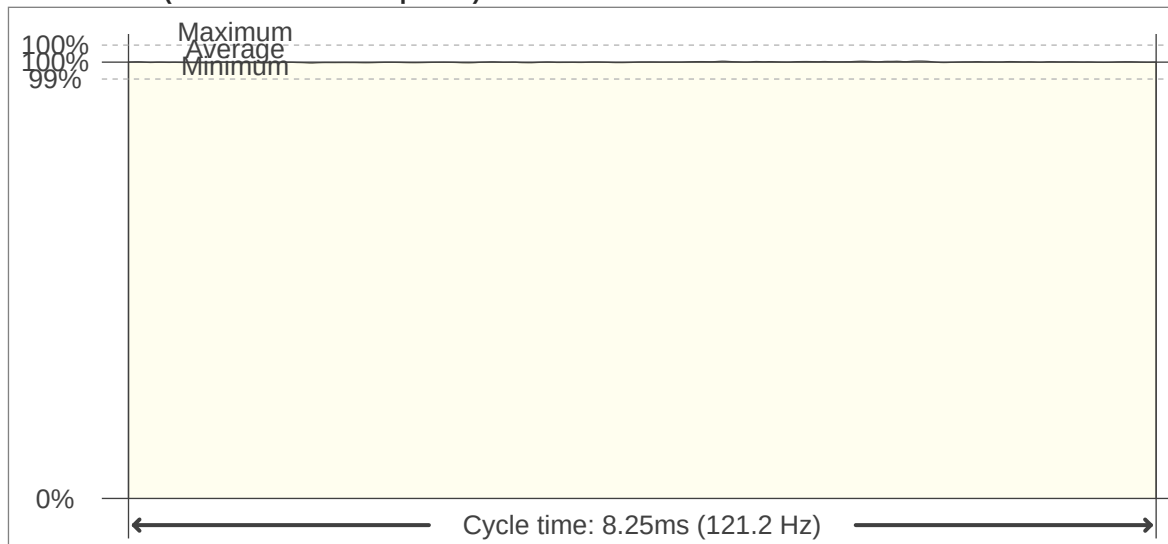


Flicker

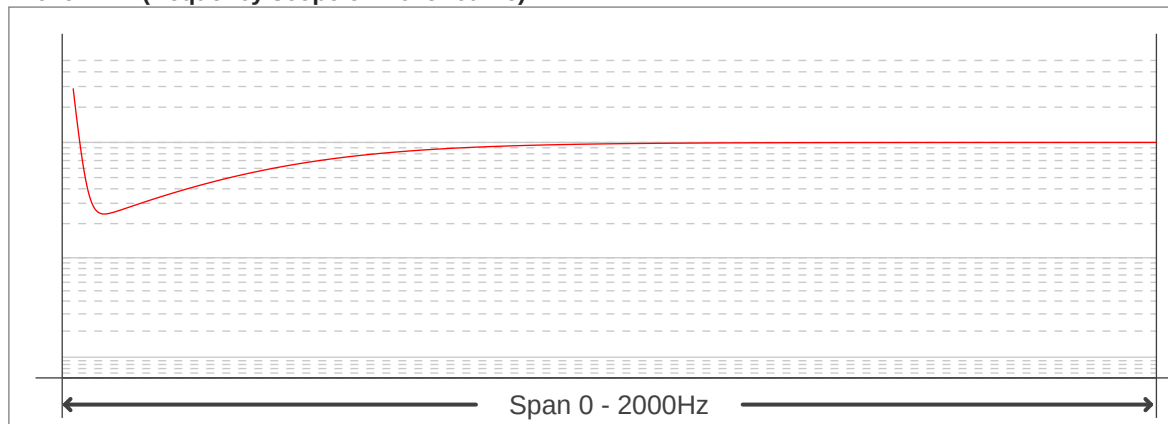
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	121.21 Hz
Flicker index:	0
Flicker percentage:	0.28 %
SVM: (Visual flicker)	0

Flicker conditions:

Sample rate:	40000 samples/second
--------------	----------------------

