

Light efficiency:



Light quality:



Color temperature:

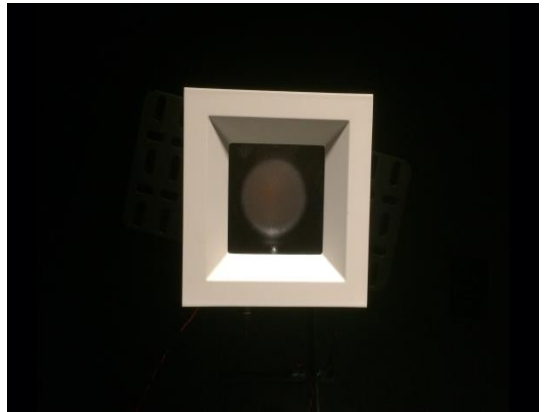


Output: 1485 lm

Peak: 6999 cd

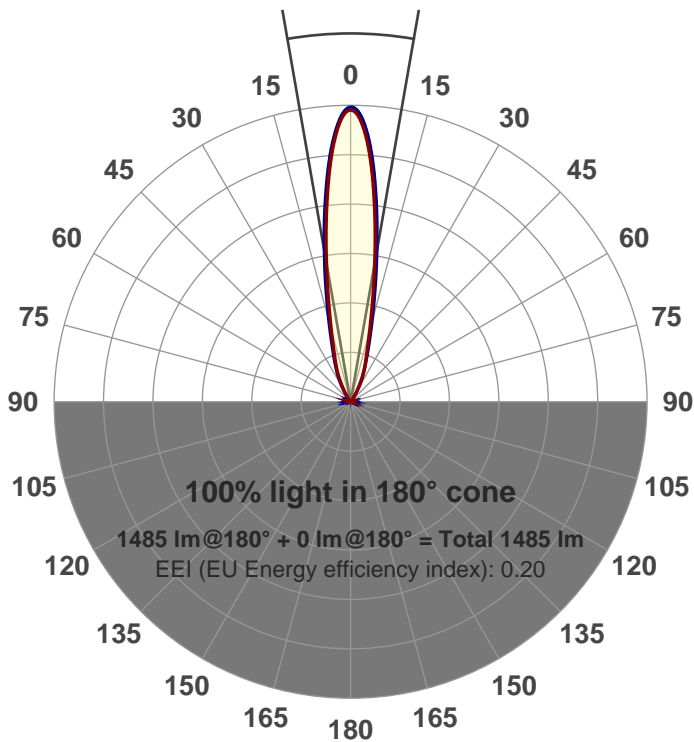
Power: 21.3 W

PF: 0.99



Beam angle

19.8°



Product name:

GRO-CZ20-SP-SQ-91A

Item number:

GRO-CZ20-SP-SQ-91A

Date and time:

4/3/2017 11:24:21 AM

Description:

LUM: 1485

PPF: 23.9

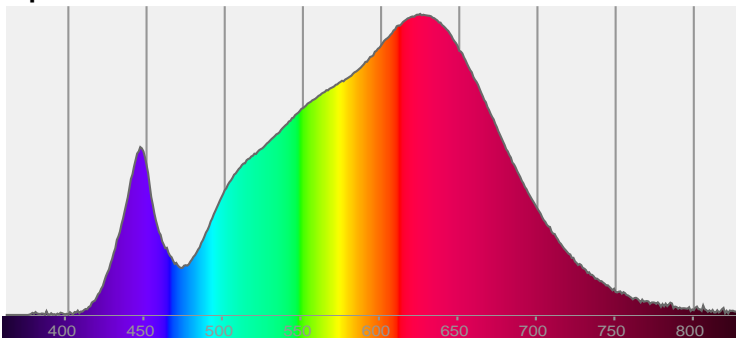


CIE 1931

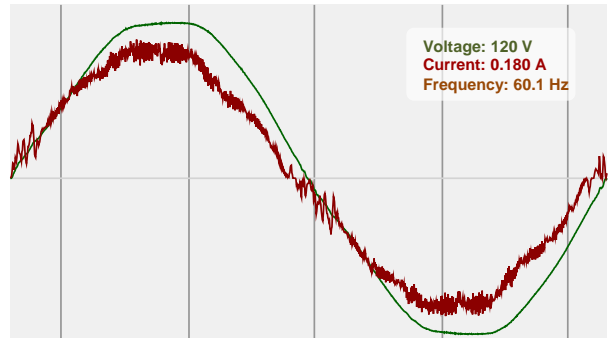
x: 0.429

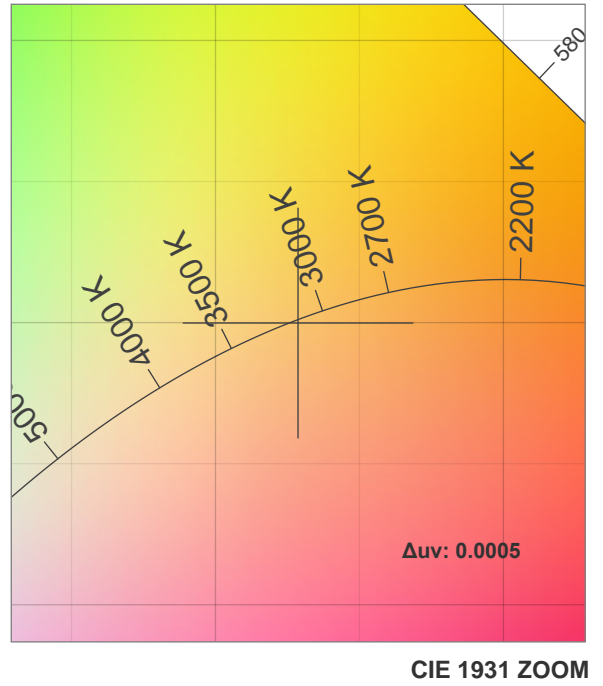
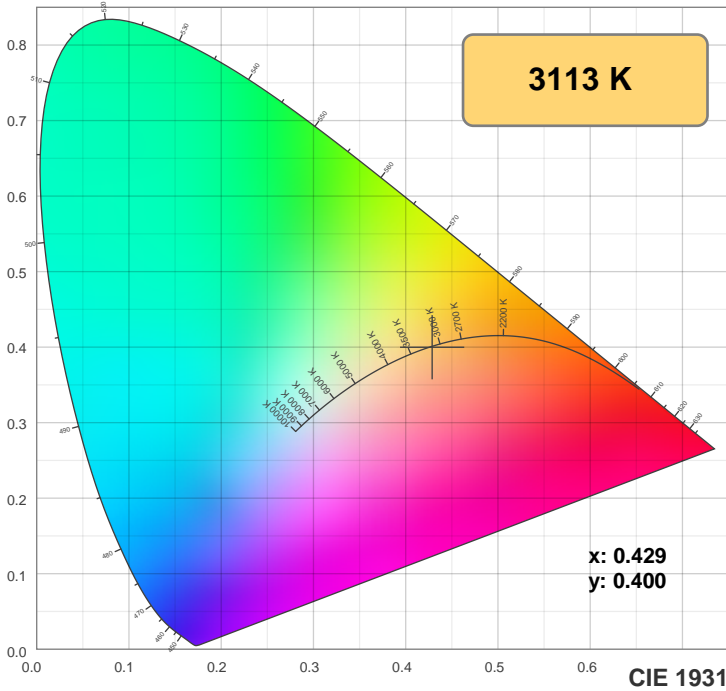
y: 0.400

Spectra



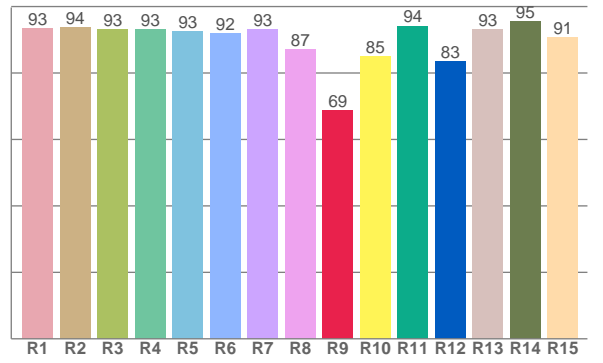
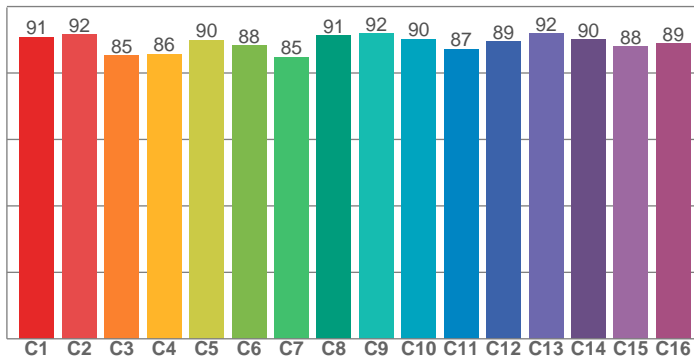
Power





**TM30: 89.2**

**CRI: 92.3 (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
93.4	93.9	93.0	93.1	92.6	92.1	93.2	87.2	68.7	85.1	94.2	83.4	93.2	95.4	90.7

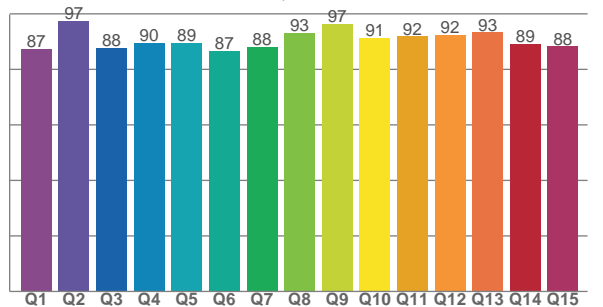
TM30 C values, 16 binned values out of total of 99 C values

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
90.8	91.7	85.2	85.7	89.9	88.3	84.8	91.3	91.9	90.2	87.2	89.5	91.8	90.0	87.9	88.9

CQS Q values

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
87.4	97.3	87.8	89.5	89.5	86.5	88.0	93.1	96.5	91.4	91.8	92.5	93.3	89.1	88.3

**CQS: 90.2**



## Color parameters

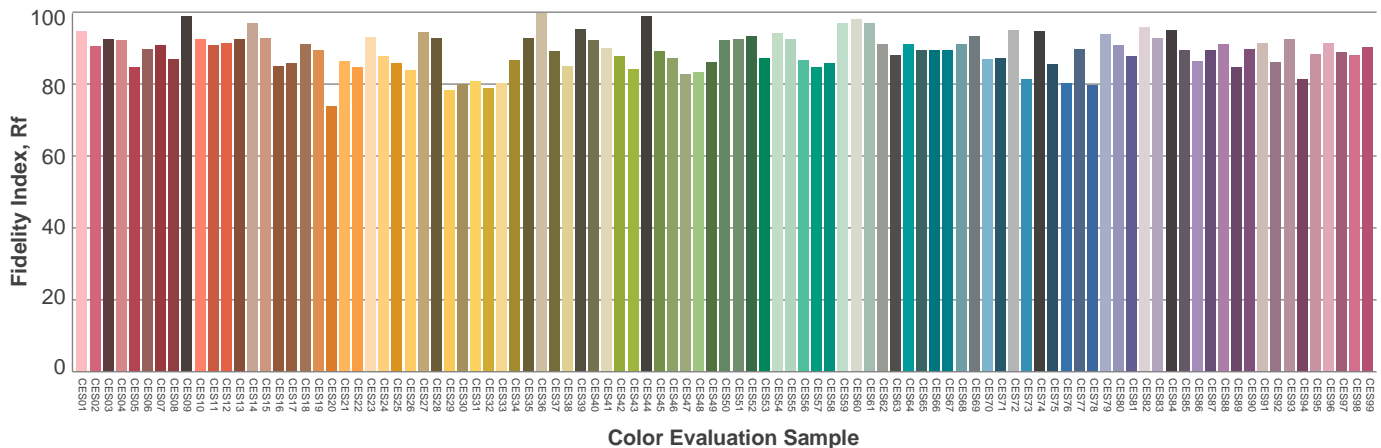
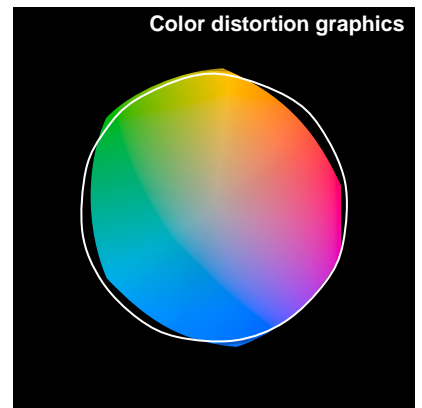
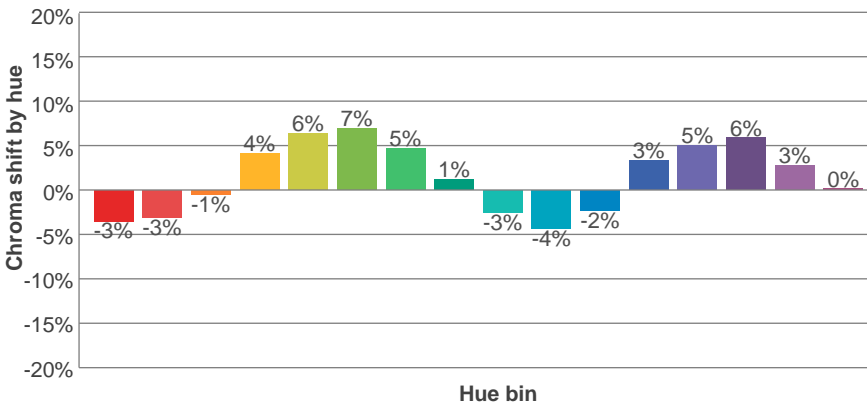
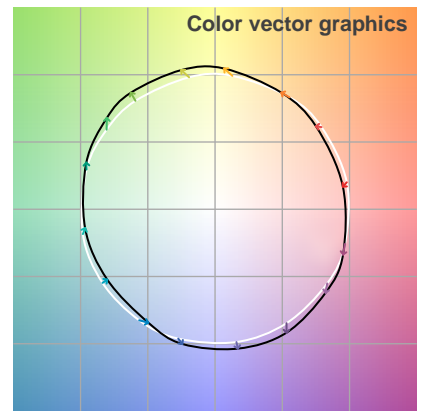
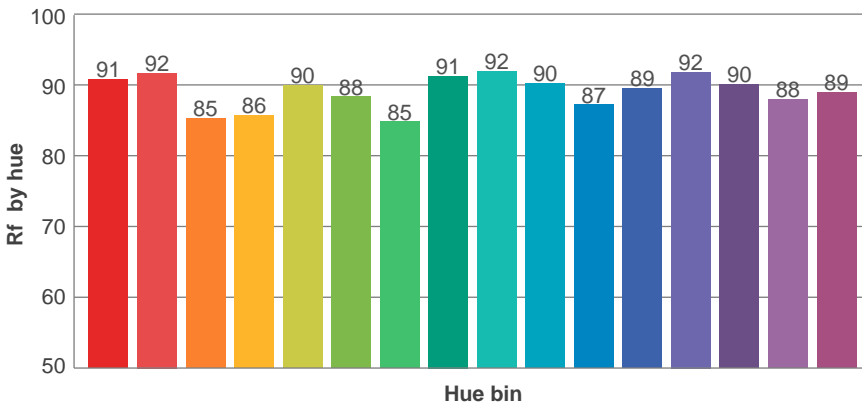
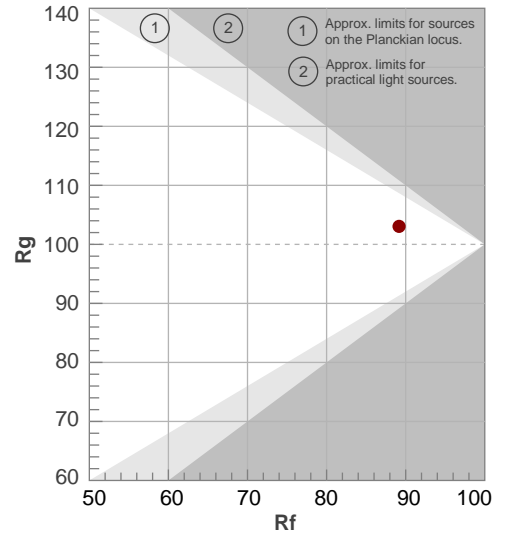
Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate	Color deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
3113 K	92.3	68.7	89.2	103.1	90.2	0.429	0.400	0.247	0.346	0.0005

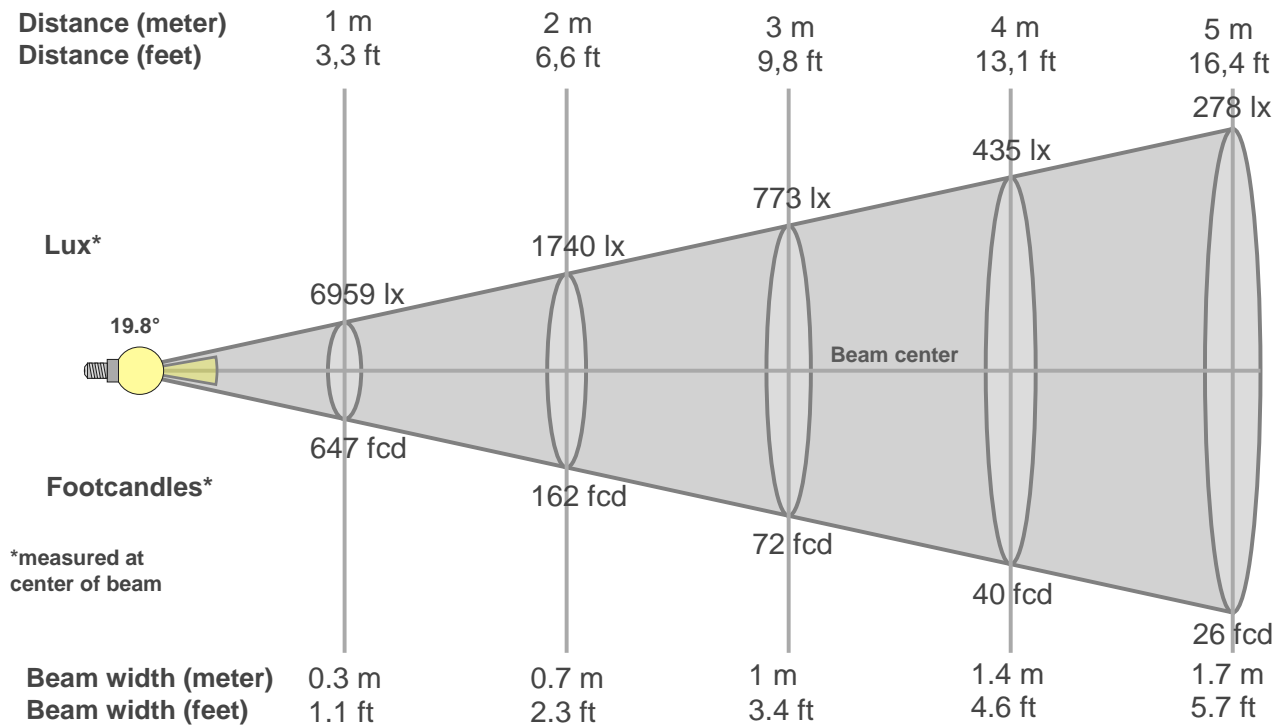
# TM30 details

**Rf 89.2**  
Fidelity index Rf

**Rg 103.1**  
Gammut index Rg

Hue Bin	R <sub>f</sub>	Graphic shifts (%)	
		Chroma	Hue
1	91	-3%	-3%
2	92	-3%	3%
3	85	-1%	7%
4	86	4%	7%
5	90	6%	5%
6	88	7%	0%
7	85	5%	-7%
8	91	1%	-5%
9	92	-3%	-4%
10	90	-4%	0%
11	87	-2%	7%
12	89	3%	4%
13	92	5%	0%
14	90	6%	-4%
15	88	3%	-6%
16	89	0%	-8%





### 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
6959lx	1740lx	773lx	435lx	278lx	193lx	142lx	109lx	86lx	70lx	58lx	48lx	41lx	36lx	31lx	27lx	24lx	21lx	19lx	17lx
646.5fcd	161.6fcd	71.8fcd	40.4fcd	25.9fcd	18fcd	13.2fcd	10.1fcd	8fcd	6.5fcd	5.3fcd	4.5fcd	3.8fcd	3.3fcd	2.9fcd	2.5fcd	2.2fcd	2fcd	1.8fcd	1.6fcd

### Intensities in 0° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
6959	6686	6043	5130	4174	3287	2559	1990	1581	1289	1077	908	750	598	447	314	206	132	82	50
100%	96%	87%	74%	60%	47%	37%	29%	23%	19%	15%	13%	11%	9%	6%	5%	3%	2%	1%	1%

### Intensities in 90° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
6959	6761	6164	5337	4442	3579	2844	2237	1777	1428	1180	985	820	672	525	387	267	177	117	78
100%	97%	89%	77%	64%	51%	41%	32%	26%	21%	17%	14%	12%	10%	8%	6%	4%	3%	2%	1%

### Intensities in 180° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
6959	6689	6055	5141	4180	3286	2541	1968	1555	1265	1061	907	768	633	487	352	238	156	99	61
100%	96%	87%	74%	60%	47%	37%	28%	22%	18%	15%	13%	11%	9%	7%	5%	3%	2%	1%	1%

### Intensities in 270° c-plane

0°	2°	4°	6°	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°	32°	34°	36°	38°
6959	6807	6237	5397	4467	3582	2814	2198	1729	1381	1119	910	732	583	436	312	217	150	103	72
100%	98%	90%	78%	64%	51%	40%	32%	25%	20%	16%	13%	11%	8%	6%	4%	3%	2%	1%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
19.8°	50.9°	69.7°	1.0%	1.0%



