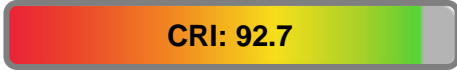


Light efficiency:



Light quality:



Color temperature:

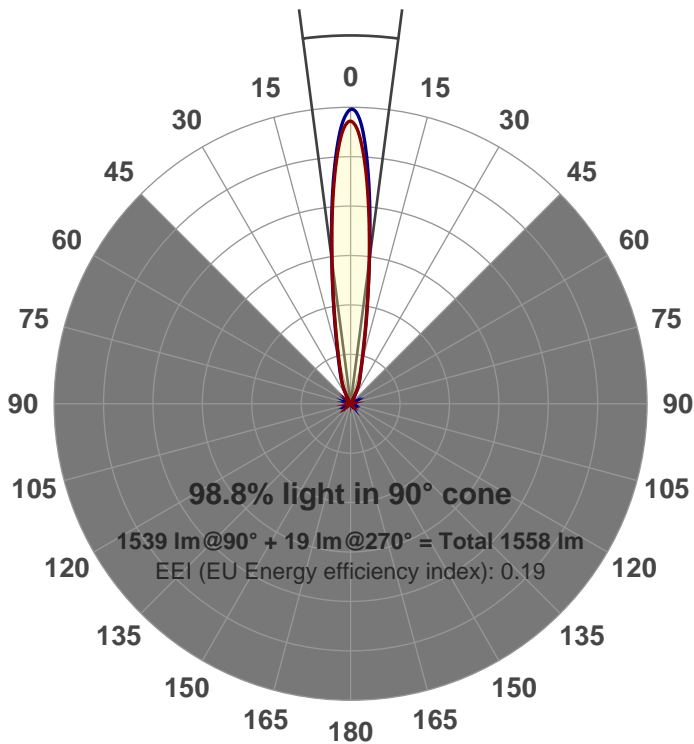


Output: 1539 lm
Peak: 12580 cd
Power: 21.0 W
PF: 0.99



Beam angle

14.9°



Product name:
GR-CZ20-SP-RD
Item number:
GR-CZ20-SP-RD
Date and time:
6/14/2017 2:02:08 PM
Description:
V6

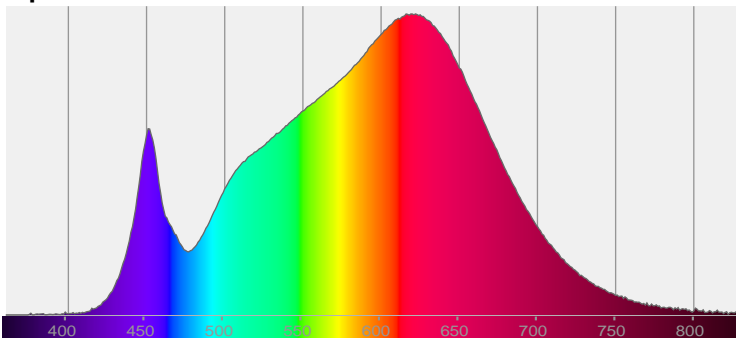
LUM: 1539

PPF: 25.9

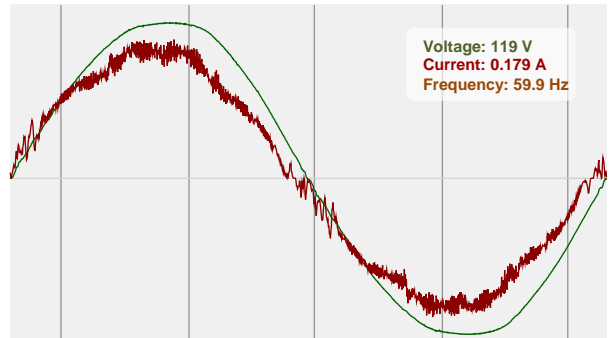


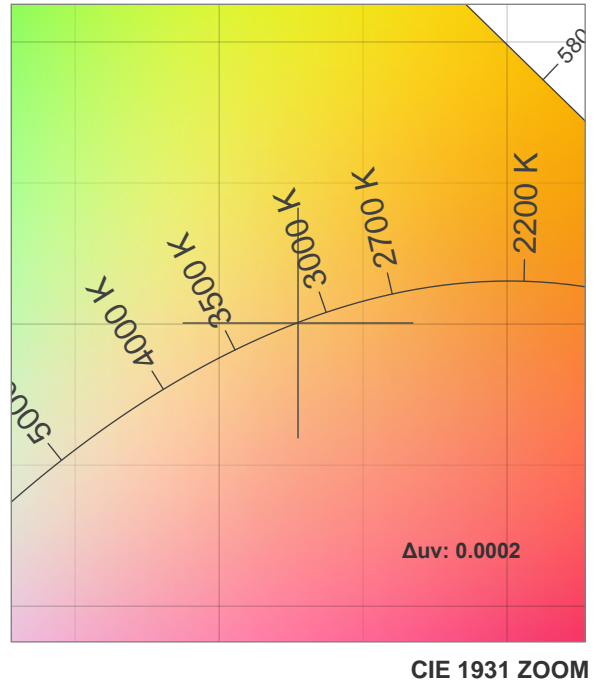
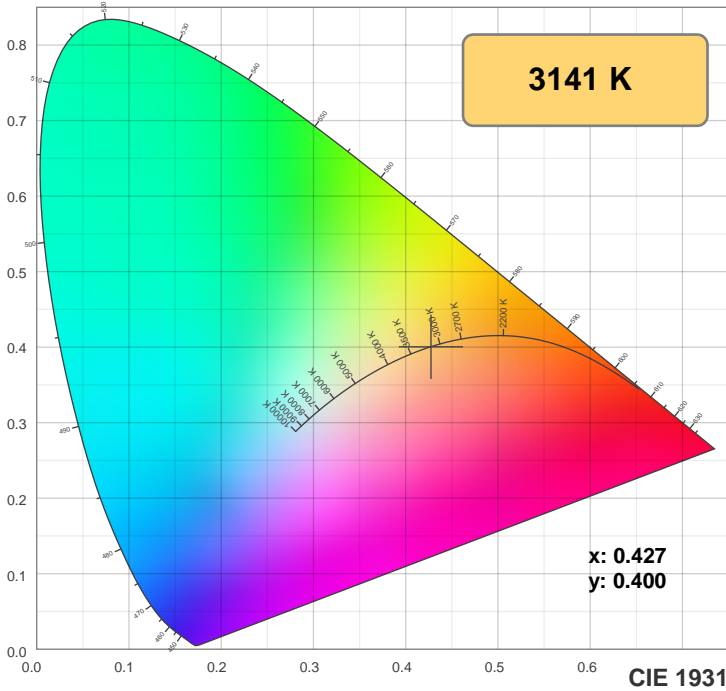
CIE 1931
x: 0.427
y: 0.400

Spectra

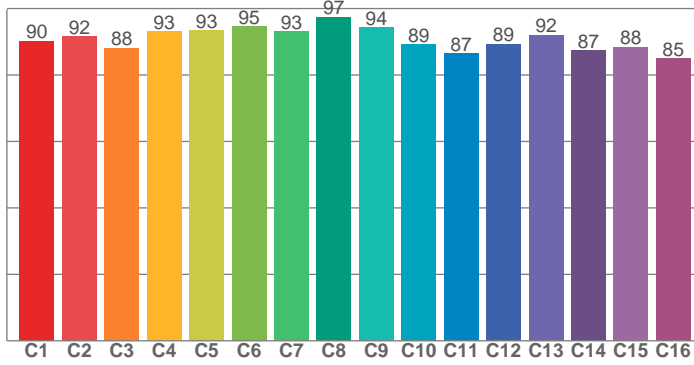


Power

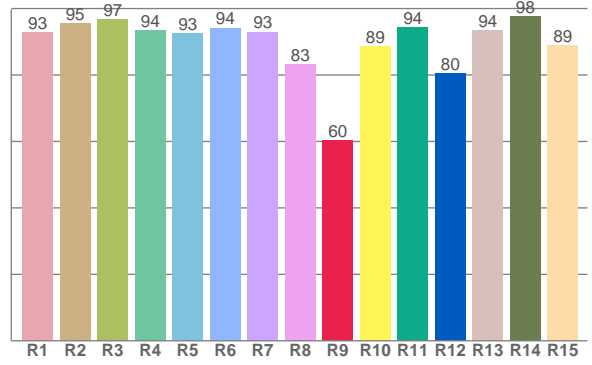




TM30: 90.9



CRI: 92.7 (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 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 92.9 | 95.5 | 96.7 | 93.5 | 92.5 | 94.2 | 93.0 | 83.2 | 60.2 | 88.7 | 94.3 | 80.4 | 93.6 | 97.6 | 89.0 |

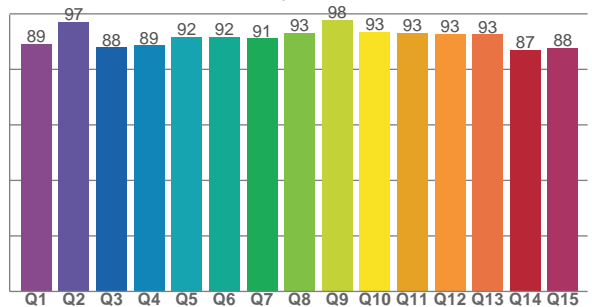
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 90.2 | 91.5 | 88.1 | 93.2 | 93.4 | 94.6 | 93.2 | 97.5 | 94.4 | 89.1 | 86.6 | 89.4 | 92.0 | 87.3 | 88.5 | 84.9 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 89.1 | 97.0 | 87.9 | 88.6 | 91.7 | 91.7 | 91.2 | 93.1 | 97.7 | 93.5 | 93.0 | 92.7 | 92.6 | 87.1 | 87.7 |

CQS: 91.0



Color parameters

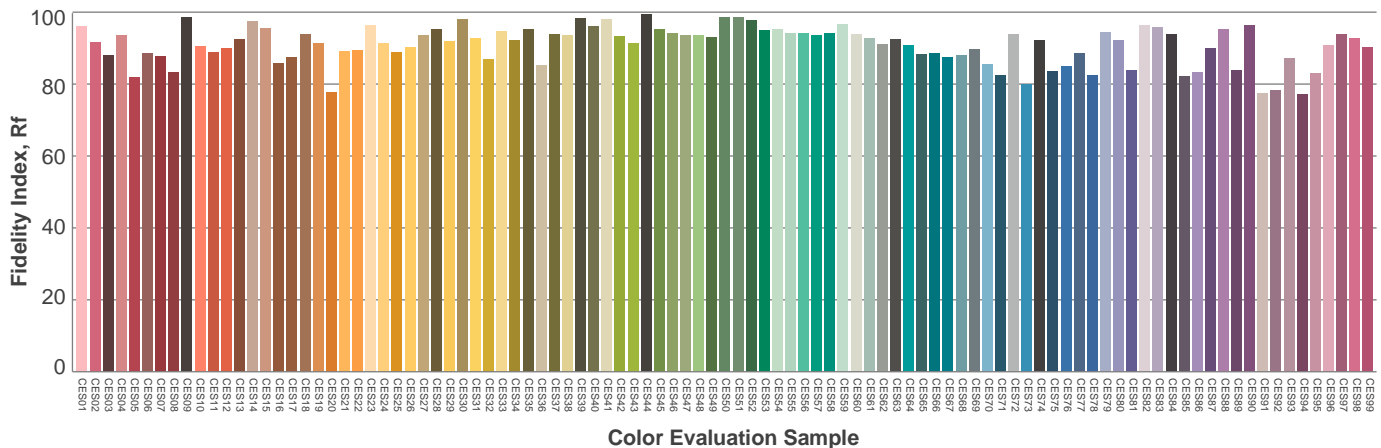
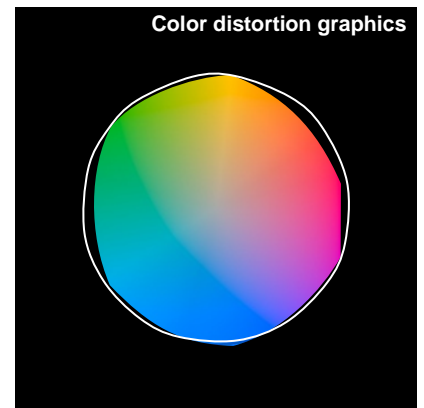
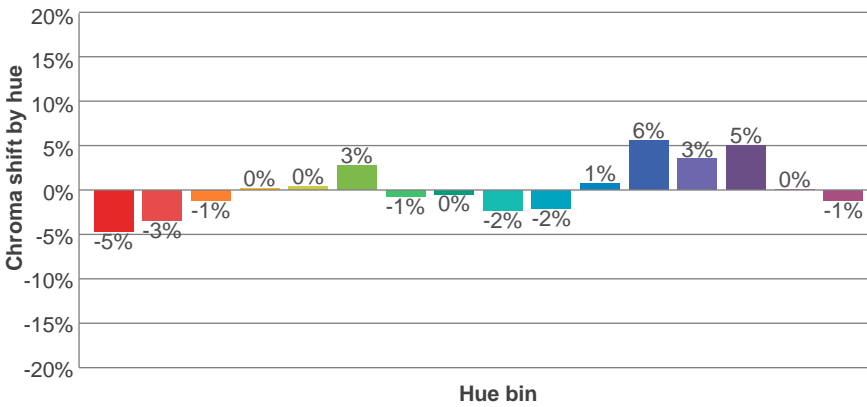
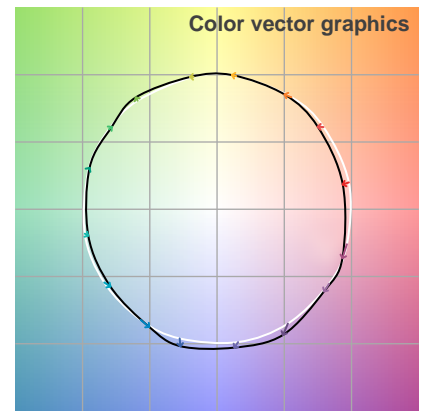
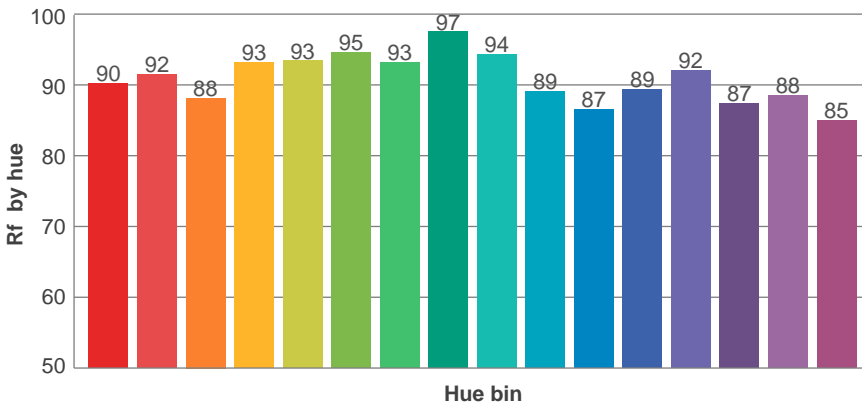
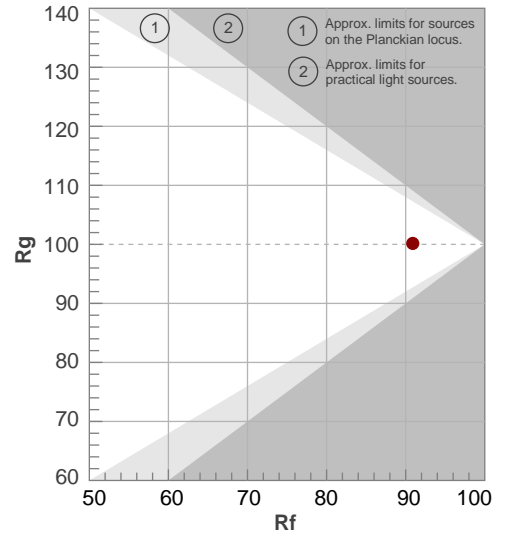
| Color temperature | Color rendering index | Red component | Color fidelity | Color gamut | Color quality scale | Color coordinate cie 1931 | Color coordinate cie 1931 | Color coordinate | Color coordinate | Color deviation from black body |
|-------------------|-----------------------|---------------|----------------|-------------|---------------------|---------------------------|---------------------------|------------------|------------------|---------------------------------|
| CCT | CRI | CRI R9 | TM30 Rf | TM30 Rg | CQS | x | y | u | v | Δuv |
| 3141 K | 92.7 | 60.2 | 90.9 | 100.2 | 91.0 | 0.427 | 0.400 | 0.246 | 0.346 | 0.0002 |

TM30 details

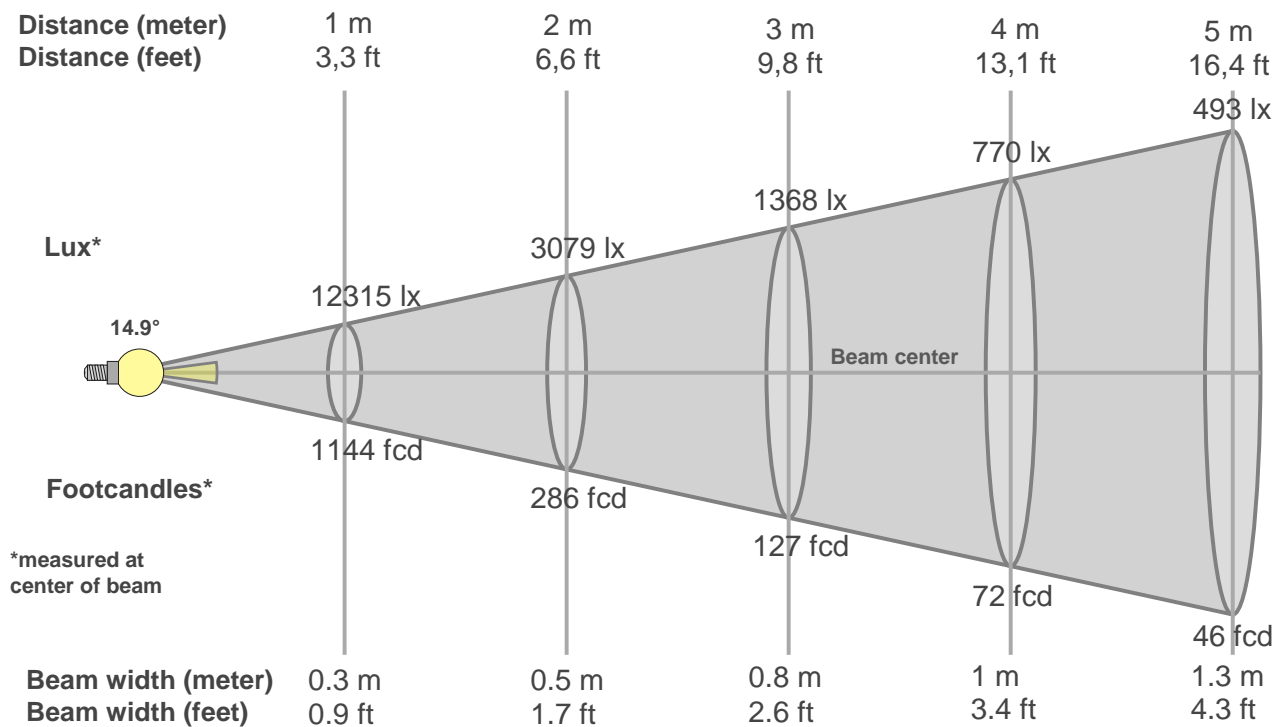
Rf 90.9
Fidelity index Rf

Rg 100.2
Gammut index Rg

| Hue Bin | R _f | Graphic shifts (%) | |
|---------|----------------|--------------------|------|
| | | Chroma | Hue |
| 1 | 90 | -5% | -1% |
| 2 | 92 | -3% | 3% |
| 3 | 88 | -1% | 5% |
| 4 | 93 | 0% | 3% |
| 5 | 93 | 0% | 3% |
| 6 | 95 | 3% | 0% |
| 7 | 93 | -1% | -3% |
| 8 | 97 | 0% | -1% |
| 9 | 94 | -2% | 2% |
| 10 | 89 | -2% | 5% |
| 11 | 87 | 1% | 8% |
| 12 | 89 | 6% | 2% |
| 13 | 92 | 3% | -3% |
| 14 | 87 | 5% | -8% |
| 15 | 88 | 0% | -7% |
| 16 | 85 | -1% | -11% |



Beam details



Beam intensities from 1-20m

| 1m | 2m | 3m | 4m | 5m | 6m | 7m | 8m | 9m | 10m | 11m | 12m | 13m | 14m | 15m | 16m | 17m | 18m | 19m | 20m |
|-----------|--------|----------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3.3ft | 6.6ft | 9.8ft | 13.1ft | 16.4ft | 19.7ft | 23ft | 26.2ft | 29.5ft | 32.8ft | 36.1ft | 39.4ft | 42.7ft | 45.9ft | 49.2ft | 52.5ft | 55.8ft | 59.1ft | 62.3ft | 65.6ft |
| 12315lx | 3079lx | 1368lx | 770lx | 493lx | 342lx | 251lx | 192lx | 152lx | 123lx | 102lx | 86lx | 73lx | 63lx | 55lx | 48lx | 43lx | 38lx | 34lx | 31lx |
| 1144.1fcd | 286fcd | 127.1fcd | 71.5fcd | 45.8fcd | 31.8fcd | 23.3fcd | 17.9fcd | 14.1fcd | 11.4fcd | 9.5fcd | 7.9fcd | 6.8fcd | 5.8fcd | 5.1fcd | 4.5fcd | 4fcd | 3.5fcd | 3.2fcd | 2.9fcd |

Intensities in 0° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 12.3K | 11.9K | 11.5K | 10.7K | 9.8K | 8.7K | 7.6K | 6.6K | 5.6K | 4.8K | 4.0K | 3.4K | 2.9K | 2.5K | 2.2K | 1.9K | 1.7K | 1.5K | 1.4K | 1.3K |
| 100% | 97% | 93% | 87% | 79% | 71% | 62% | 53% | 45% | 39% | 33% | 28% | 24% | 20% | 18% | 15% | 14% | 12% | 11% | 10% |

Intensities in 90° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 12.3K | 12.3K | 11.8K | 11.0K | 10.0K | 8.9K | 7.8K | 6.7K | 5.7K | 4.8K | 4.1K | 3.5K | 3.0K | 2.6K | 2.3K | 2.0K | 1.8K | 1.6K | 1.5K | 1.3K |
| 100% | 100% | 96% | 89% | 81% | 72% | 63% | 54% | 46% | 39% | 33% | 29% | 25% | 21% | 19% | 17% | 15% | 13% | 12% | 11% |

Intensities in 180° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 12.3K | 11.9K | 11.4K | 10.6K | 9.7K | 8.7K | 7.6K | 6.6K | 5.6K | 4.8K | 4.1K | 3.5K | 2.9K | 2.5K | 2.2K | 1.9K | 1.7K | 1.5K | 1.4K | 1.3K |
| 100% | 96% | 92% | 86% | 79% | 70% | 62% | 53% | 46% | 39% | 33% | 28% | 24% | 21% | 18% | 16% | 14% | 12% | 11% | 10% |

Intensities in 270° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 12.3K | 12.5K | 12.0K | 11.3K | 10.3K | 9.1K | 7.9K | 6.7K | 5.6K | 4.7K | 3.9K | 3.3K | 2.8K | 2.4K | 2.1K | 1.8K | 1.6K | 1.5K | 1.3K | 1.2K |
| 100% | 101% | 98% | 92% | 83% | 74% | 64% | 54% | 46% | 38% | 32% | 27% | 23% | 20% | 17% | 15% | 13% | 12% | 11% | 10% |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 14.9° | 38.7° | 55.3° | 1.0% | 1.0% |

THIS PAGE INTENSIONALLY LEFT BLANK