

Light efficiency:



Light quality:



Color temperature:

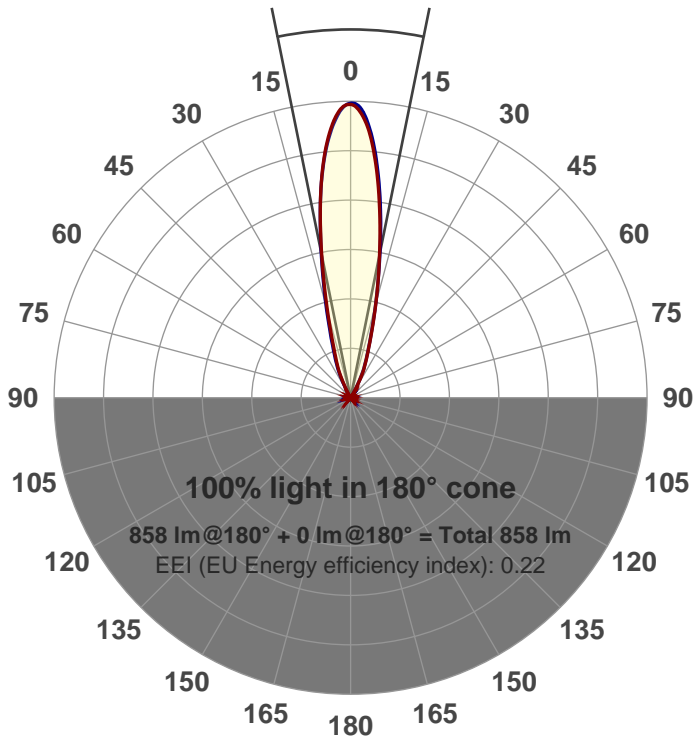


**Output: 858 lm**  
**Peak: 4167 cd**  
**Power: 15.1 W**  
**PF: 0.98**



Beam angle

**22.9°**



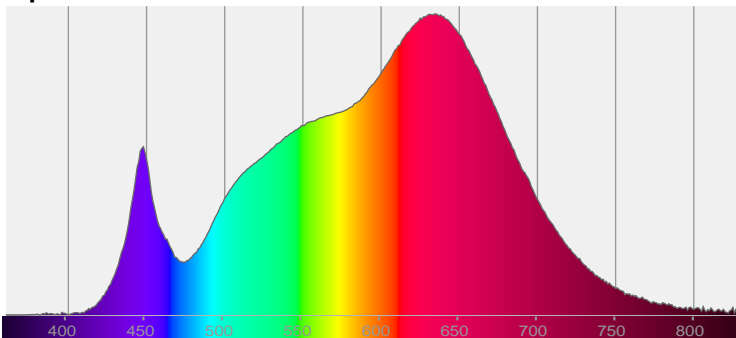
Product name:  
**GR-AD-NF-RD**  
 Item number:  
**GR-AD-NF-RD**  
 Date and time:  
**8/9/2017 4:24:43 PM**  
 Description:

**LUM: 858**  
**PPF: 16.3**

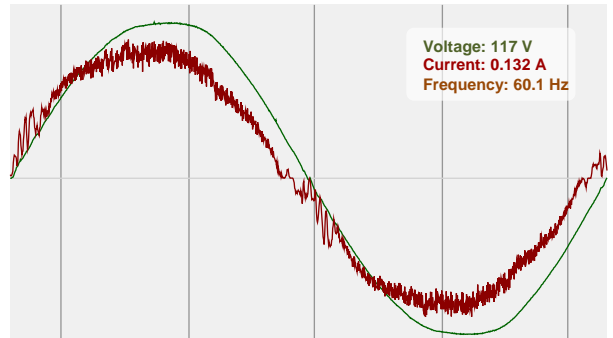


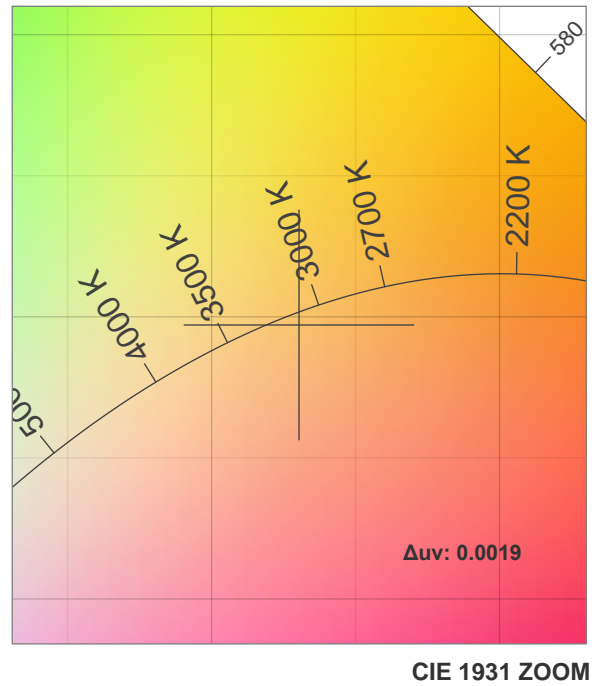
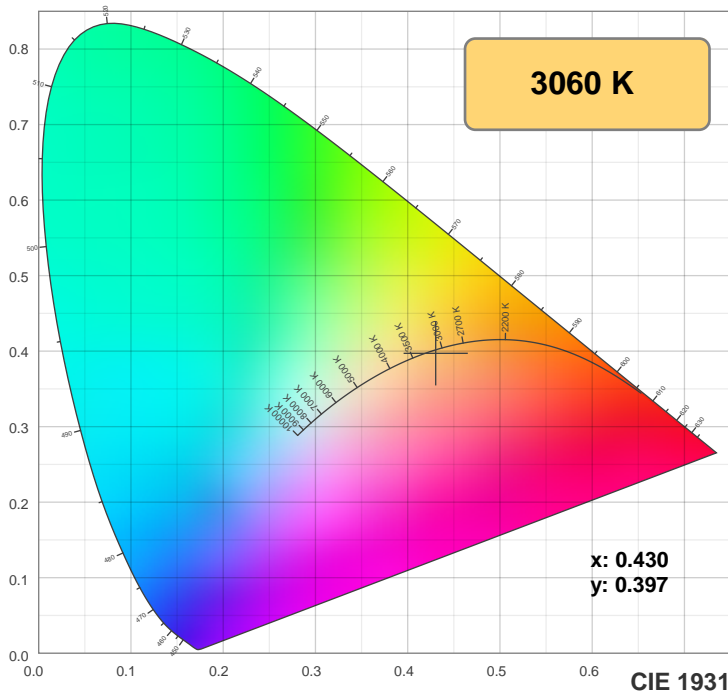
CIE 1931  
 x: 0.430  
 y: 0.397

Spectra

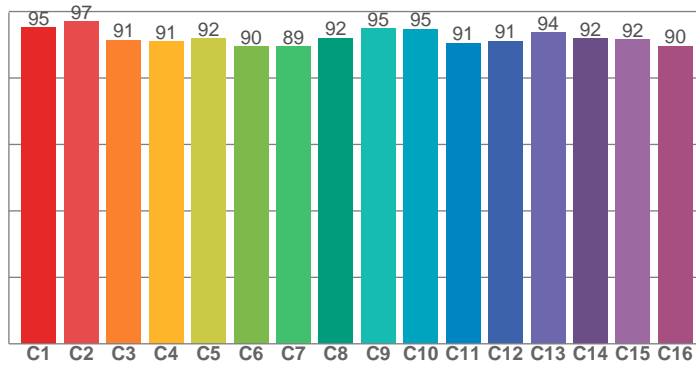


Power

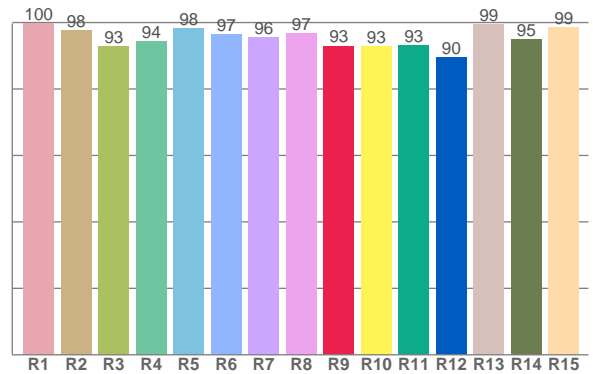




**TM30: 92.5**



**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  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 99.8 | 97.6 | 92.8 | 94.2 | 98.3 | 96.5 | 95.7 | 96.6 | 93.0 | 92.9 | 93.1 | 89.6 | 99.3 | 95.0 | 98.7 |

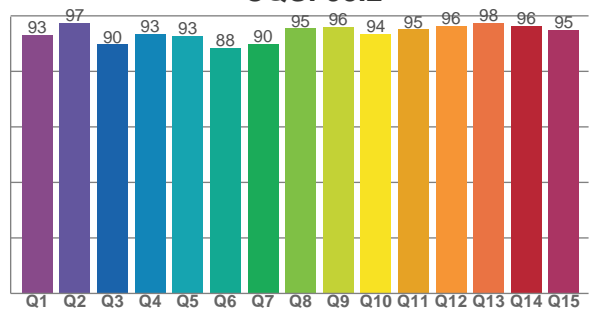
TM30 C values, 16 binned values out of total of 99 C values

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   | C9   | C10  | C11  | C12  | C13  | C14  | C15  | C16  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 95.2 | 97.0 | 91.5 | 91.0 | 91.9 | 89.5 | 89.5 | 92.1 | 94.8 | 94.8 | 90.6 | 91.2 | 93.7 | 91.8 | 91.6 | 89.7 |

CQS Q values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   | Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 93.0 | 97.5 | 89.7 | 93.5 | 92.7 | 88.4 | 89.8 | 95.4 | 96.0 | 93.6 | 95.1 | 96.5 | 97.6 | 96.5 | 94.9 |

**CQS: 93.2**



## Color parameters

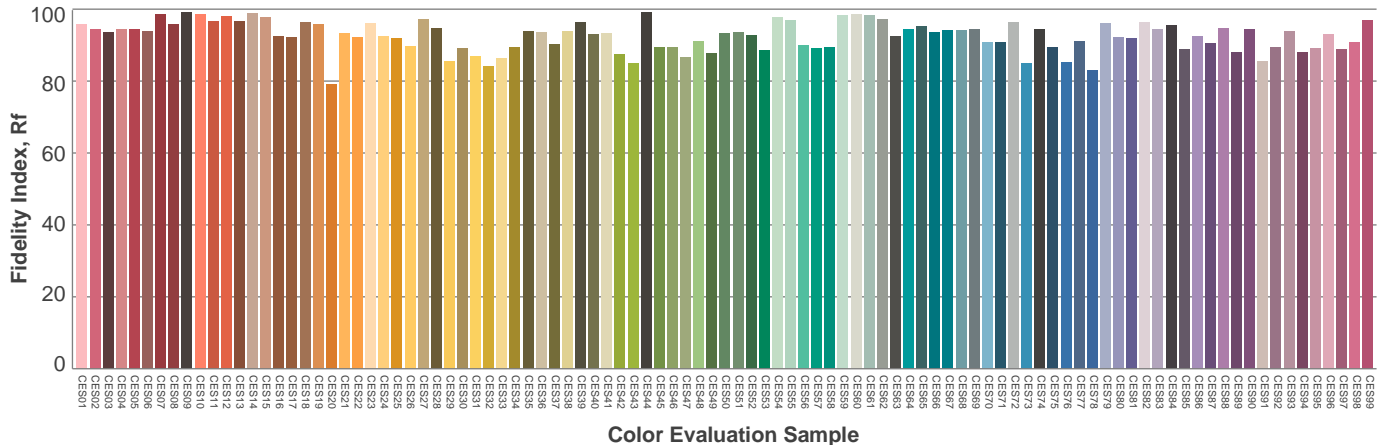
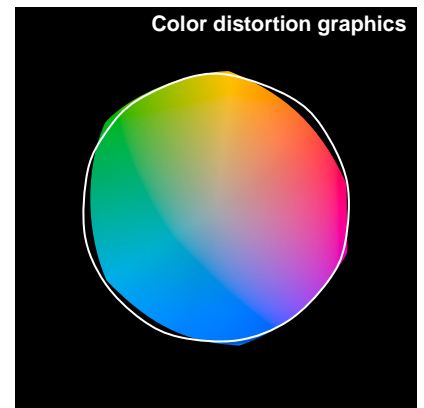
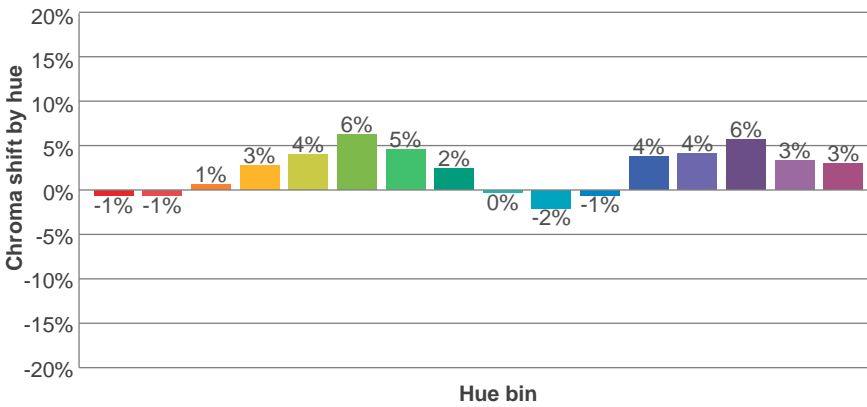
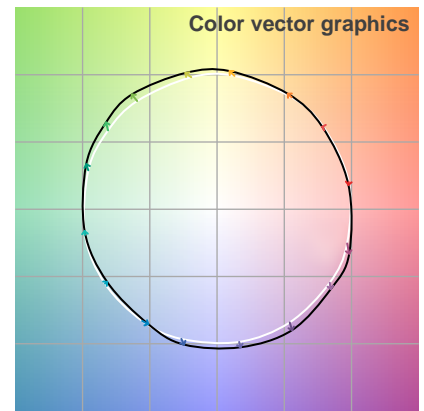
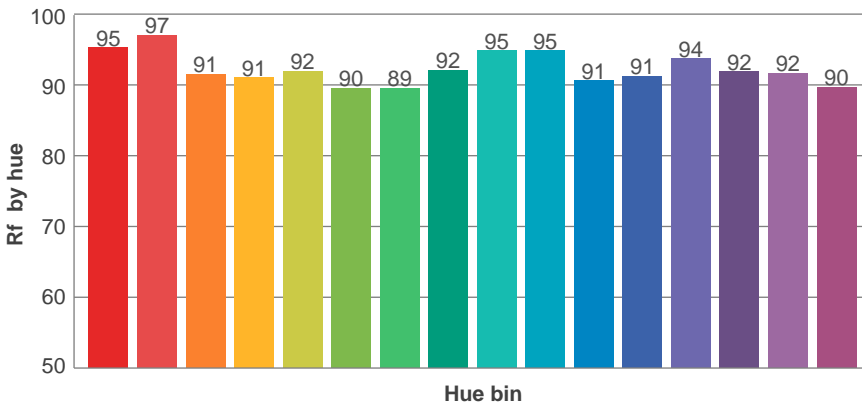
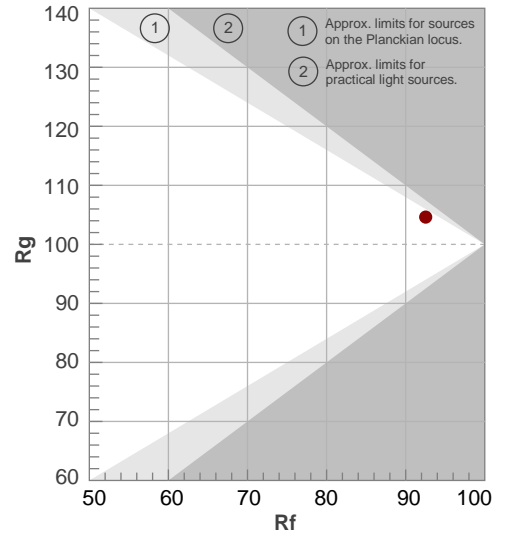
| Color temperature | Color rendering index | Red component | Color fidelity | Color gamut | Color quality scale | Color coordinate cie 1931 | Color coordinate cie 1931 | Color coordinate | Color coordinate | Color deviation from black body |
|-------------------|-----------------------|---------------|----------------|-------------|---------------------|---------------------------|---------------------------|------------------|------------------|---------------------------------|
| CCT               | CRI                   | CRI R9        | TM30 Rf        | TM30 Rg     | CQS                 | x                         | y                         | u                | v                | Δuv                             |
| 3060 K            | 96.4                  | 93.0          | 92.5           | 104.6       | 93.2                | 0.430                     | 0.397                     | 0.249            | 0.345            | 0.0019                          |

# TM30 details

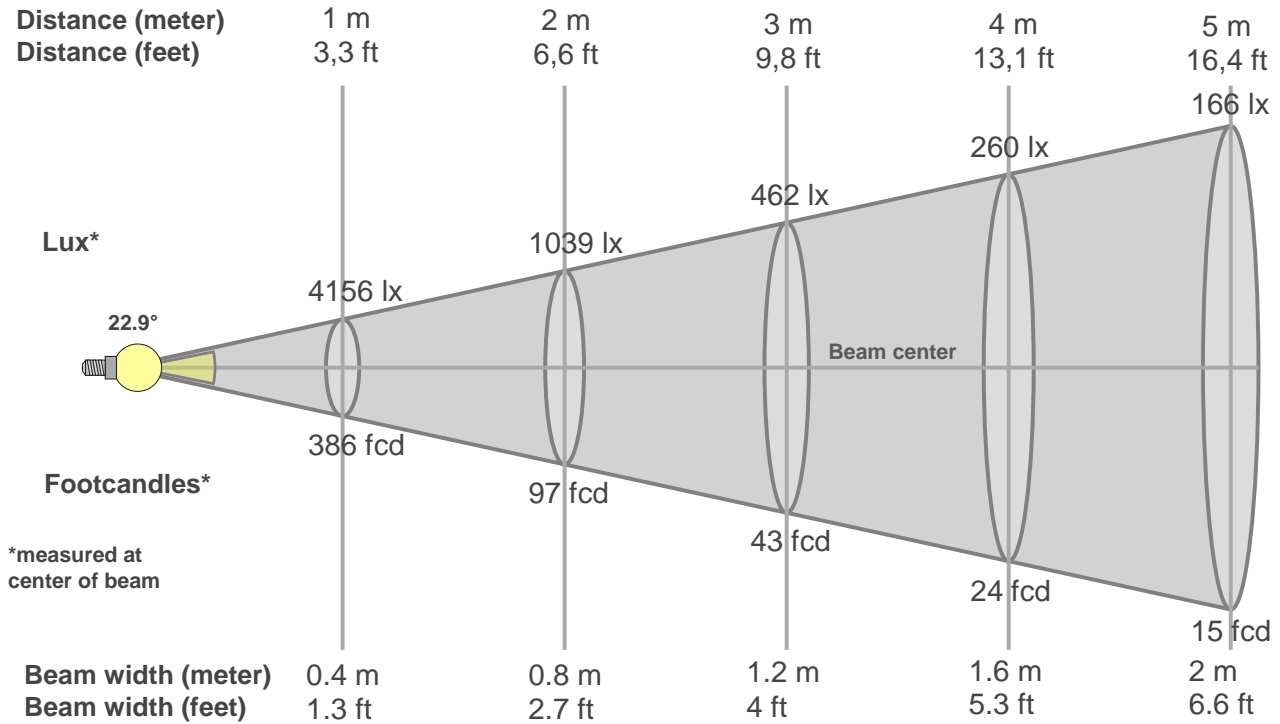
**Rf 92.5**  
Fidelity index Rf

**Rg 104.6**  
Gammut index Rg

| Hue Bin | R <sub>f</sub> | Graphic shifts (%) |     |
|---------|----------------|--------------------|-----|
|         |                | Chroma             | Hue |
| 1       | 95             | -1%                | -2% |
| 2       | 97             | -1%                | 1%  |
| 3       | 91             | 1%                 | 4%  |
| 4       | 91             | 3%                 | 4%  |
| 5       | 92             | 4%                 | 4%  |
| 6       | 90             | 6%                 | 1%  |
| 7       | 89             | 5%                 | -4% |
| 8       | 92             | 2%                 | -4% |
| 9       | 95             | 0%                 | -3% |
| 10      | 95             | -2%                | 0%  |
| 11      | 91             | -1%                | 5%  |
| 12      | 91             | 4%                 | 3%  |
| 13      | 94             | 4%                 | 0%  |
| 14      | 92             | 6%                 | -2% |
| 15      | 92             | 3%                 | -3% |
| 16      | 90             | 3%                 | -7% |



# 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 |
| 4156lx   | 1039lx  | 462lx   | 260lx   | 166lx   | 115lx   | 85lx   | 65lx   | 51lx   | 42lx   | 34lx   | 29lx   | 25lx   | 21lx   | 18lx   | 16lx   | 14lx   | 13lx   | 12lx   | 10lx   |
| 386.1fcd | 96.5fcd | 42.9fcd | 24.1fcd | 15.4fcd | 10.7fcd | 7.9fcd | 6fcd   | 4.8fcd | 3.9fcd | 3.2fcd | 2.7fcd | 2.3fcd | 2fcd   | 1.7fcd | 1.5fcd | 1.3fcd | 1.2fcd | 1.1fcd | 1fcd   |

### 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° |
|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 4156 | 4084 | 3846 | 3483 | 3008 | 2455 | 1915 | 1449 | 1078 | 805 | 628 | 499 | 380 | 232 | 101 | 20  | 9   | 9   | 8   | 6   |
| 100% | 98%  | 93%  | 84%  | 72%  | 59%  | 46%  | 35%  | 26%  | 19% | 15% | 12% | 9%  | 6%  | 2%  | 0%  | 0%  | 0%  | 0%  | 0%  |

### 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° |
|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 4156 | 4065 | 3815 | 3456 | 3001 | 2464 | 1958 | 1521 | 1158 | 893 | 693 | 551 | 428 | 275 | 154 | 45  | 9   | 8   | 8   | 7   |
| 100% | 98%  | 92%  | 83%  | 72%  | 59%  | 47%  | 37%  | 28%  | 21% | 17% | 13% | 10% | 7%  | 4%  | 1%  | 0%  | 0%  | 0%  | 0%  |

### 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° |
|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 4156 | 4035 | 3769 | 3357 | 2880 | 2394 | 1942 | 1557 | 1217 | 949 | 747 | 605 | 487 | 376 | 229 | 95  | 16  | 9   | 9   | 5   |
| 100% | 97%  | 91%  | 81%  | 69%  | 58%  | 47%  | 37%  | 29%  | 23% | 18% | 15% | 12% | 9%  | 6%  | 2%  | 0%  | 0%  | 0%  | 0%  |

### 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° |
|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 4156 | 4097 | 3825 | 3425 | 2949 | 2448 | 1963 | 1547 | 1200 | 926 | 731 | 590 | 468 | 333 | 198 | 86  | 11  | 7   | 6   | 5   |
| 100% | 99%  | 92%  | 82%  | 71%  | 59%  | 47%  | 37%  | 29%  | 22% | 18% | 14% | 11% | 8%  | 5%  | 2%  | 0%  | 0%  | 0%  | 0%  |

| Beam angle 50% | Field angle 10% | Cutoff angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|-------------------|------------------------------|-----------------------------|
| 22.9°          | 49°             | 58.2°             | 1.0%                         | 1.0%                        |



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