POLYMATECH COB · 30 MM PLATFORM

# Horticulture Blue + Red CoB

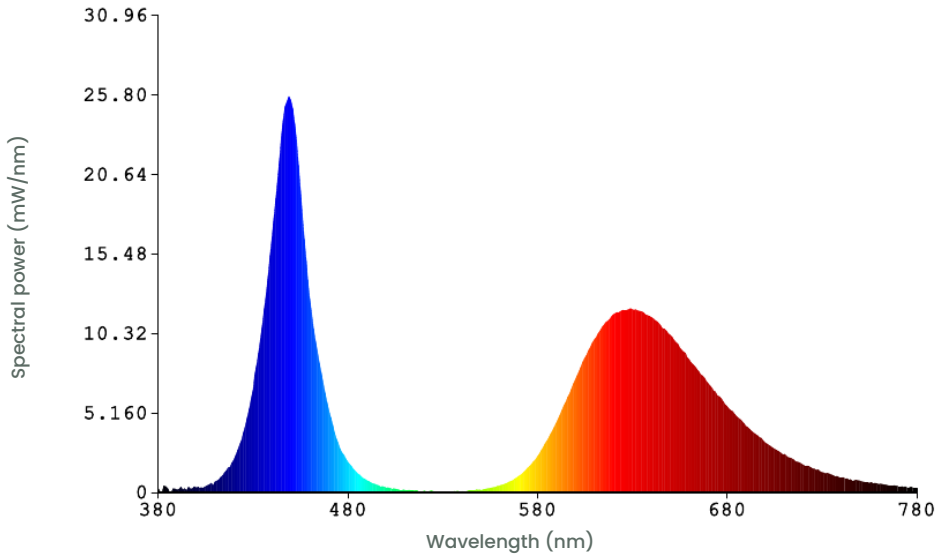
## 450 nm + 650 nm · Dual-band plant grow-light CoB

A dual-band chip-on-board LED with a deep-blue band and a broad red band in a single high-power package, matched to the blue and red absorption regions used by plants for photosynthesis. Built on Polymatech's common 30 mm CoB platform for straightforward integration into grow-light and controlled-environment luminaires.

### Key features

- Two emission bands in one emitter: blue peak at 449.2 nm and a broad red band (see measured spectrum)
- Red-dominant mix: colour ratio R 60.3 %, G 29.7 %, B 10.0 %, as used for supplemental and sole-source growth lighting
- Recommended drive 350–700 mA constant current; power variants from 10 W to 54 W by die series / parallel configuration
- Common 30 × 30 mm platform, 17 mm light-emitting surface, 120° viewing angle, RoHS compliant

## Spectral distribution




Measured spectral power distribution at 350 mA, 25 °C (laboratory spectral test, September 2026).

## Applications

**Vertical farms and CEA**
Sole-source lighting for vertical farms and controlled-environment agriculture.

**Leafy greens and microgreens**
Vegetative-stage lighting for leafy greens, herbs and microgreens.

**Greenhouse supplemental lighting**
Extends photoperiod and adds intensity in low-light seasons.

**Tissue culture and propagation**
Controlled spectrum for laboratory propagation and nursery benches.

**Flowering and fruiting crops**
Red-biased spectrum for crops such as tomato and strawberry.

**Research and breeding chambers**
Defined red-to-blue ratio for plant research and breeding.

## Electrical and optical characteristics

| Parameter | Value (Ta = 25 °C) |
|---|---|
| Test current (IF) | 350 mA |
| Recommended drive current | 350 – 700 mA, constant current |
| Driver voltage compliance | ≥ 32 V recommended |
| Forward voltage (VF) at 350 mA | 27.81 V |
| Electrical power at 350 mA | 9.73 W |
| Luminous flux / efficacy at 350 mA | 216.4 lm / 22.24 lm/W |
| Radiant power at 350 mA | 1,814 mW |
| Power variants | 10 W – 54 W, by die series / parallel configuration |
| Peak wavelength (blue) | 449.2 nm; half-width 22.7 nm |
| Colour ratio | R 60.3 % · G 29.7 % · B 10.0 % |
| Chromaticity (CIE 1931) | x = 0.3388, y = 0.1433 |
| PPF and PPE | Available on request |

## Mechanical

| Item | Specification |
|---|---|
| Platform | Polymatech CoB, 30 mm square |
| Dimensions | 30.00 × 30.00 × 1.00 mm |
| Light-emitting surface | 17.00 mm diameter |
| Viewing angle | 120° |
| Lens | Flat |
| Compliance | RoHS |
| Packaging | Box |
| Manufacturer / country | AEIM Pte. Ltd. · made in Singapore |

## Ordering

| Series | Order description |
|---|---|
| Product | Polymatech CoB — Blue + Red 450 + 650 nm Dual-Band |
| Also listed as | Red Light Therapy CoB · Skin Care CoB (same order code) |

## Application notes

- Mount on a metal-core PCB or aluminium heat sink with thermal interface material; keep case temperature below 60 °C and derate current above 60–70 °C.
- Drive with a constant-current LED driver (350 – 700 mA, ≥ 32 V compliance). Typical PPFD target 100 – 400 µmol/m²/s depending on crop and stage; photoperiod 12 – 18 h.
- Ingress protection is a property of the finished luminaire, not of the bare CoB.
- High-intensity blue light: do not look directly at the energised emitter.
- Values are laboratory measurements of production samples at 350 mA and 25 °C (September 2026); they are typical, not guaranteed limits. Contact AEIM for application support.

### Enquiries

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