

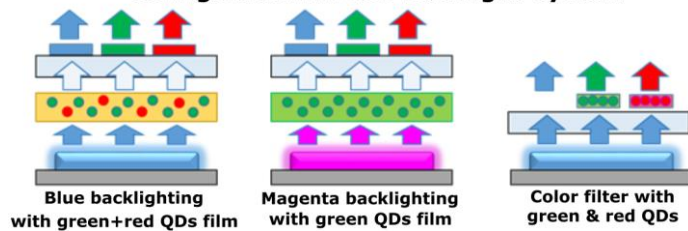
QDot™ SharpGreen Perovskite QDs for LCD Displays

Quantum dots extend the color gamut of LCD displays, present more vibrant colors with better contrast in TVs, laptops and tablets. Ideal solution for HDR displays to meet Rec2020 standard. On top of that, QDs help to reduce the energy consumption (up to 25 %). Nowadays, the technology is adopted by many TV manufacturers. QUANTUM SOLUTIONS offers novel QDot™ SharpGreen Perovskite QDs for LCD application (“LCD backlighting” and “Printable color filters”). This material has emission 520-530 nm, high photoluminescence efficiency (up to 100 %) and narrow band emission (< 20-25 nm) that make it a better quality alternative to the current CdSe or InP QDs.

BENEFITS:

- Emission for Rec2020 and beyond: 520-530 nm
- The narrowest FWHM among all QDs (< 20-25 nm)
- High PLQY up to 100 %
- High absorption coefficient of the blue light
- RoHS compliant for LCD backlighting, cadmium free
- High reliability (RA) to thermal and photo exposure


Configuration in LCD Backlight System



QDot™ SharpGreen Perovskite QDs Film:

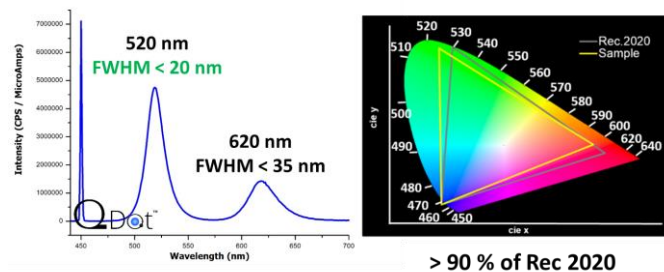
QDot™ SharpGreen Perovskite QDs Film can be used as a LCD backlighting unit in combination with magenta LEDs. The film possesses superb optical properties in combination with high reliability.

Qdot™ SharpGreen Film LCD optical properties

Emission peak	520 ± 3 nm 525 ± 3 nm	
FWHM	< 20-25 nm	
PLQY	> 80-90 %	
Pb content	< 1000 ppm (RoHS compliant)	

QDot™ SharpGreen Perovskite QDs:

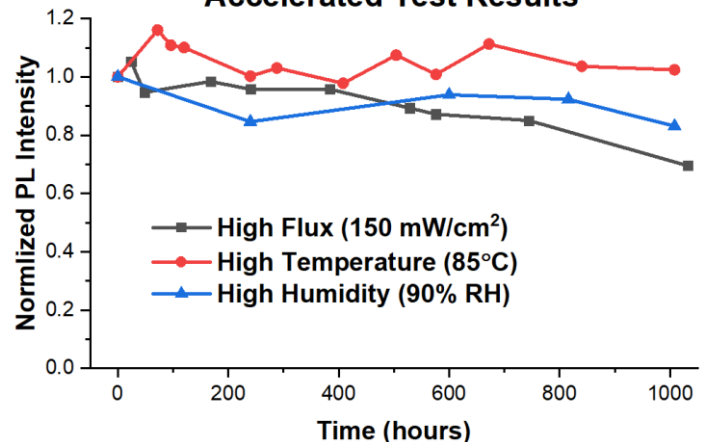
QDot™ SharpGreen Perovskite QDs can be used as a green emissive material in combination with red QDs (CdSe or InP QDs based) for LCD backlighting. QDot™ SharpGreen Perovskite QDs improve color gamut in LCD beyond NTSC standards and performing > 90% area of Rec.2020.



QDot™ SharpGreen Film has high reliability under heat, light and humidity. It retains > 70-80 % of initial photoluminescence within 1000 h of accelerated exposure tests:

- ✓ under heat (85 °C/blue light 10 mW/cm² exposure)
- ✓ under high relative humidity (90 % RH at 60 °C)
- ✓ under high flux exposure (150 mW/cm²).

Accelerated Test Results



Products portfolio:

[QDot™ SharpGreen Perovskite QDs](#)

[QDot™ SharpGreen Perovskite QDs Film](#)

