

# ChromaLit™ XT (glass substrate)

## CL-XXX-XXX-XT Series

### Product Overview

Intematix Remote Phosphor light source will change the way you approach solid-state lighting design. ChromaLit™ offers beautiful light quality with unprecedented design freedom, colour control, system flexibility and efficiency. ChromaLit™ is ideal for the most efficient and innovative lighting system designs.

Compared to conventional LED designs, where Blue chips are coated with a Phosphor compound, the ChromaLit™ collection leverages a Phosphor composite separated from the Blue LED energy source. This architecture provides unparalleled design freedom, more efficient manufacturing processes, exceptional light quality and up to 30 percent higher system efficacy.



### Applications

- Downlights
- High bay and industrial lighting
- Outdoor area lighting
- Spots and Floods
- Track lighting
- High-temperature and high-intensity applications
- LED modules
- Entertainment lighting
- Task lighting

### Technical Features

- High operating temperature/high lumen output
- Off-state Neutral Colour
- Meets V0 flammability requirement and UV resistant
- Up to 30% higher system efficacy compared to conventional LED lighting designs
  - Improves system performance and lowers cost
- Powered by radiant energy from Blue LEDs, lasers and OLEDs
- Enables streamlined supply and production of luminaires
  - One Blue light engine required. Change CCT/colour temperature (k) CRI with ChromaLit™
- Glare-free and uniform light quality
- High CRI
- Consistent colour matching

## Product Nomenclature

The part number designation for the CL series is explained as follows:

CL-xxx-yyyy-zz

### Where:

XXX–Designates first digit in CRI followed by the first two digits in CCT/colour temperature (k)

YYYY–Designates shape and dimension, R-Round, S-Square, L-Linear

ZZ–Designates product family (PC for Polycarbonate substrate/XT for Glass substrate)

### Example:

CL-830-R75-XT represents ChromaLit™ 80CRI, 3000K CCT, 75mm Round, XT product family

## Product Options

### ChromaLit™ Round

Dimension Designation	Example Application	Typical Lumen Output (lm)	Diameter (mm)	Thickness (mm)	CCT (K)	lm/Wrad 2
CL-XXX-R23-XT	Spot	500	22.5	2.1	2700 - 5000	161 - 230
CL-XXX-R34-XT	Spot	1100	34	2.1	2700 - 5000	161 - 230
CL-XXX-R45-XT	Module, Downlight, Area Lighting	2000	45	2.1	2700 - 5000	161 - 230
CL-XXX-R62-XT	Module, Downlight, Area Lighting	3700	61.5	2.1	2700 - 5000	161 - 230
CL-XXX-R75-XT	Module, Downlight, Area Lighting	5500	75	2.1	2700 - 5000	161 - 230
CL-XXX-R100-XT	Module, Downlight, Area Lighting	10000	100	2.1	2700 - 5000	161 - 230

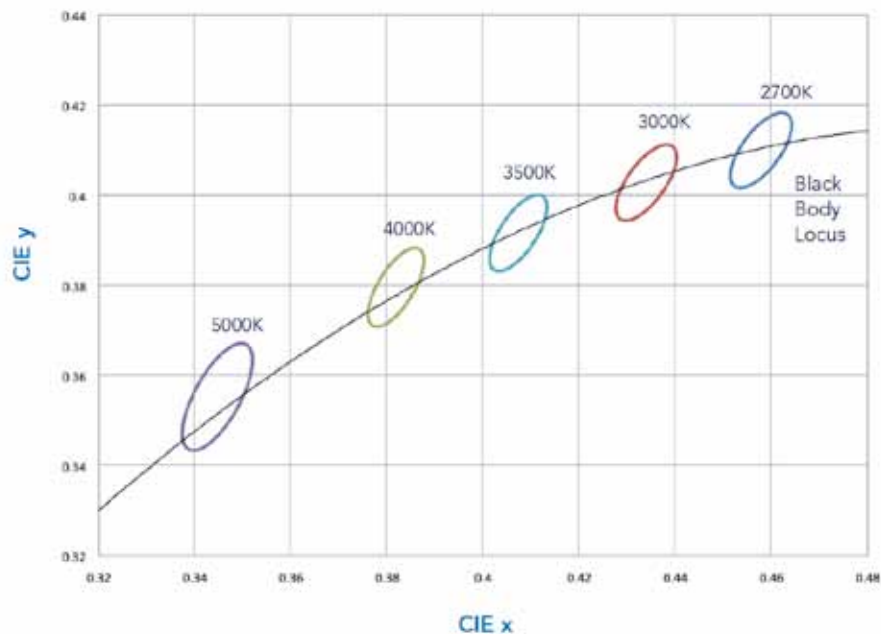
### ChromaLit™ Square

Dimension Designation	Example Application	Typical Lumen Output (lm)	Dimensions (mm)	Thickness (mm)	CCT (K)	lm/Wrad 2
CL-XXX-S65-XT	Spot Downlight Area Lighting	5300	65.0 x 65.0	2.1	2700 - 5000	161 - 230
CL-XXX-S95-XT	Spot Downlight Area Lighting	11300	95.0 x 95.0	2.1	2700 - 5000	161 - 230

### ChromaLit™ Linear

Dimension Designation	Example Application	Typical Lumen Output (lm)	Dimensions (mm)	Thickness (mm)	CCT (K)	lm/Wrad 2
CL-830-L152-XT	Task/Linear/Panel Lighting	4300	152.5 x 22.5	2.1	3000 - 4000	202 - 110

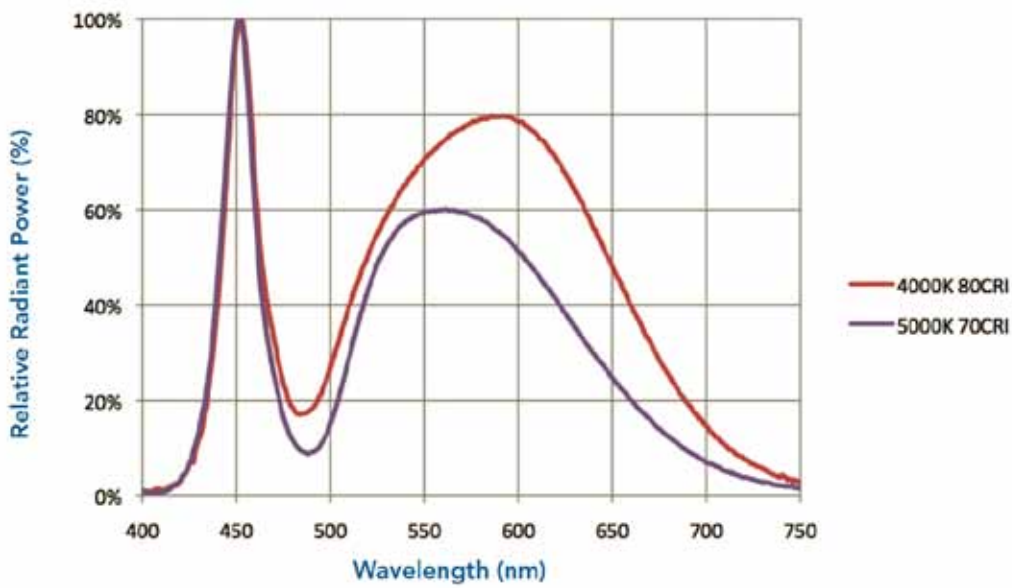
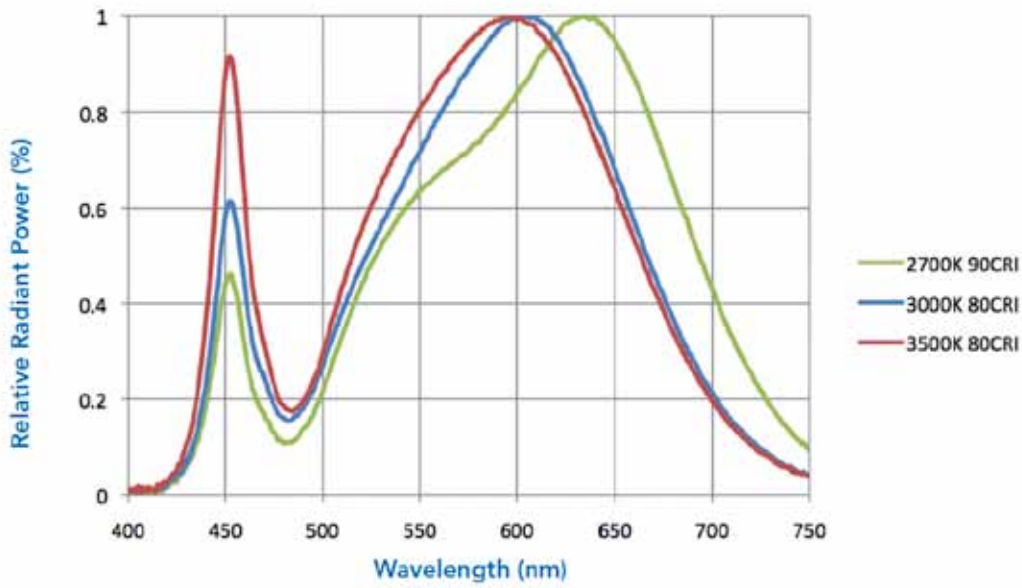
**ChromaLit™ Binning Diagram**



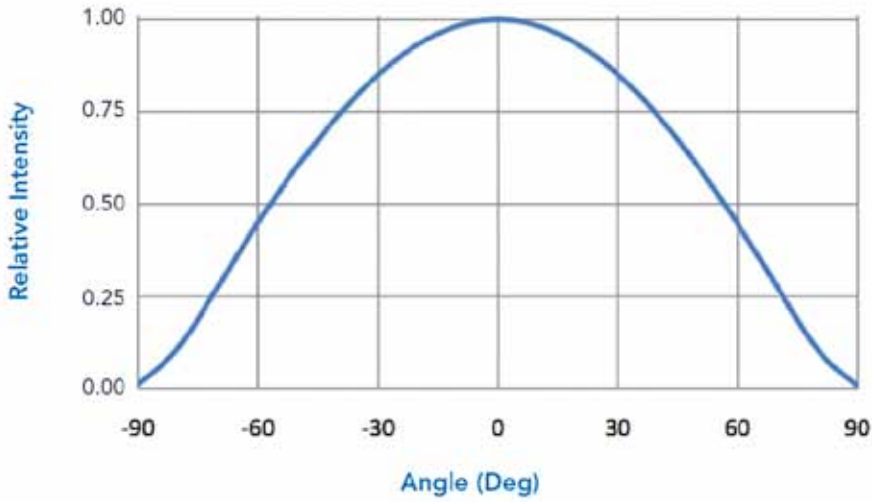
**Centre Points**

Colour Temp (k)	x	y
2700K	0.4578	0.4101
3000K	0.4338	0.403
3500K	0.4073	0.3917
4000K	0.3818	0.3797
5000K	0.3447	0.3553

Relative Spectral Power Distribution

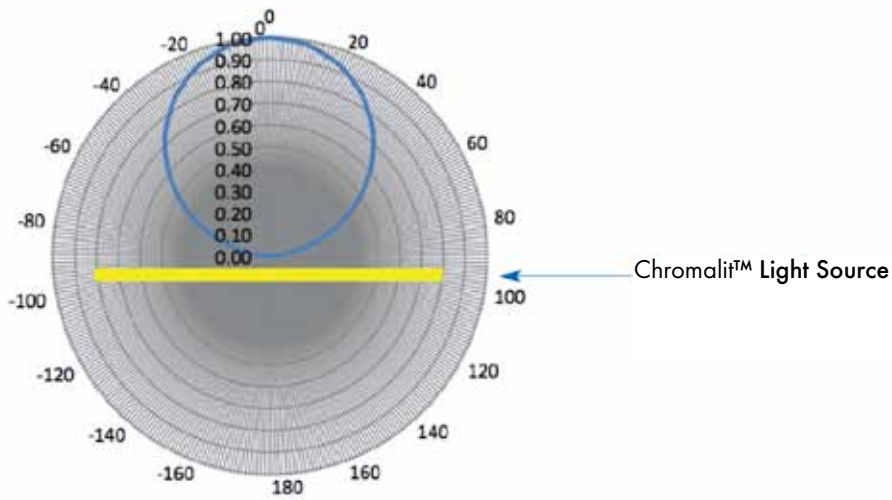


### Luminous Intensity Distribution Diagram<sup>1</sup>



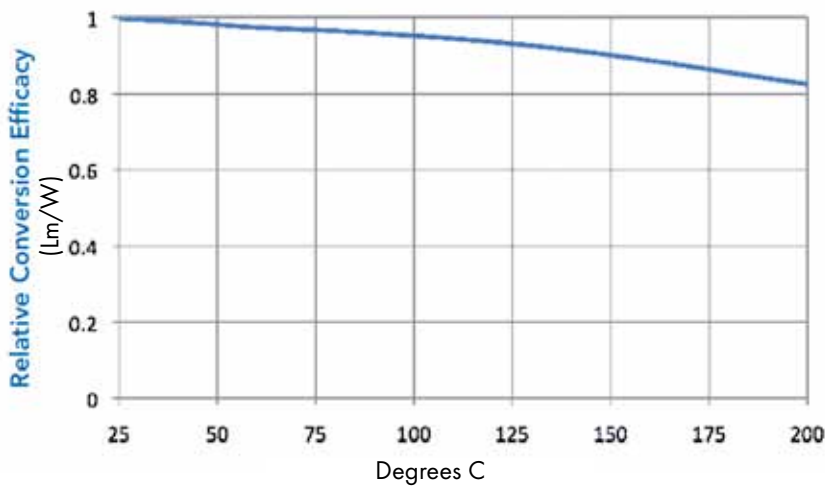
<sup>1</sup>Intensity distribution pattern is characterized using CL-830-LR-PC products and reference design.

### Luminous Intensity Polar Diagram

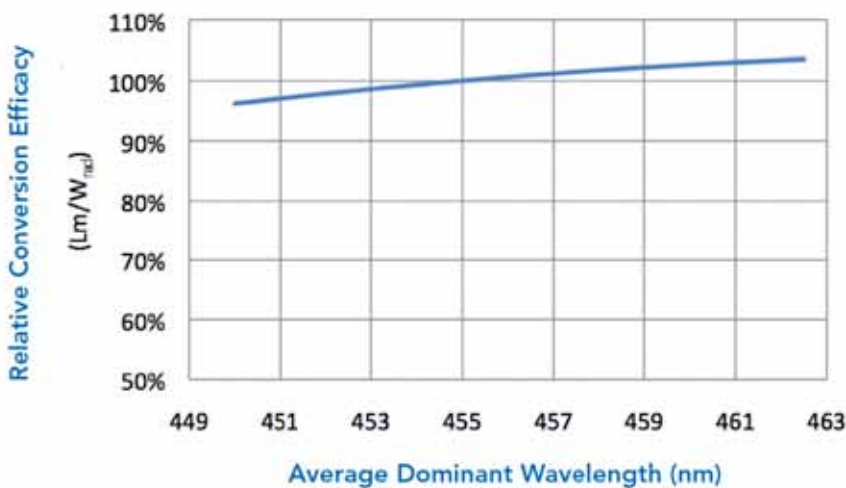


**Performance Characteristics**

**Relative Conversion Efficacy vs. Operating Temperature**



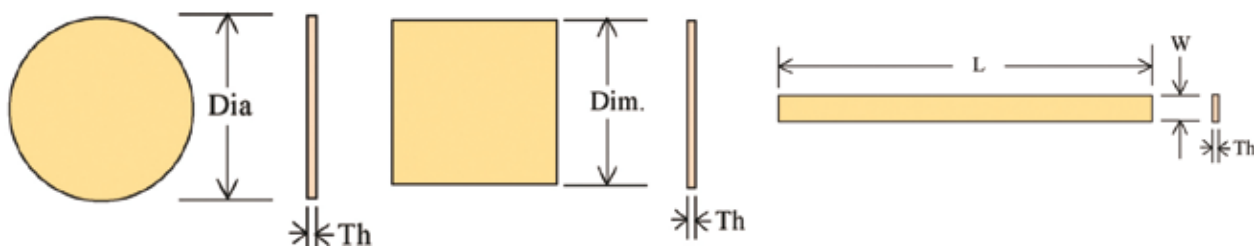
**Relative Conversion Efficacy over Wavelength<sup>1</sup>**



**Relative CIE Chromaticity Shift over Wavelength**

	Average Dominant Wavelength				
	450nm	452.5nm	455nm	457.5nm	460nm
Δ CIE X Coordinate	-0.003	-0.002	0	0.001	0.001
Δ CIE Y Coordinate	-0.014	-0.007	0	0.005	0.008

**Mechanical Characteristics**



### Additional Mechanical Characteristics

Dimension Designation	Example Application
Thickness	2.1 mm ±0.2mm
Substrate	Glass (Low Iron Soda Lime)
Orientation	Glossy side out, Matt side facing LED
Coefficient of Thermal Expansion	9.3x10-6/°C

### Absolute Maximum Ratings

Description	Maximum Value
Maximum operating temperature (Tmax <sup>1</sup> )	180°C
Minimum operating temperature	-40°C
Max storage temperature	180°C
Minimum storage temperature	-40°C
Response time to full light output	<10µs

<sup>1</sup>Tmax is the maximum temperature measured on the inner surface of ChromaLit™.

Please consult application guide for additional information on measurement location.

### Reliability and Environmental Ratings

Description	Maximum Value
Temperature/Humidity (non-condensing)	60° C at 90%
Flammability	V0
RoHS	RoHS Compliant

### Handling Considerations

As a dirty or damaged Phosphor layer could result in alteration in product performance, ChromaLit™ light sources should be handled similarly to most optical components. It is best to handle the parts at the edges and prevent mechanical abrasion. If epoxies are used, they must be kept off of the entrance or exit apertures of ChromaLit™, since they could greatly impact performance. If parts require cleaning, use a lint free tissue, isopropanol (IPA), or mild detergent. Dry using compressed air.

### ILS recommended LED solutions

Available soon

### ILS recommended Chamber solutions

Available soon

## Safety Information

- The LED module itself and all its components must not be mechanically stressed.
- Assembly must not damage or destroy conducting paths on the circuit board.
- The mounting of the module is carried out by attaching it at the mounting holes. Metal mounting screws must be insulated with synthetic washers to prevent circuit board damage and possible short circuiting.
- To avoid mechanical damage to the connecting cables, the boards should be attached securely to the intended substrate. Heavy vibration should be avoided.
- Observe correct polarity!
- Depending on the product, incorrect polarity will lead to emission of red or no light. The module can be destroyed!
- Pay attention to standard ESD precautions when installing the LED.
- LEDs, as manufactured, have no conformal coating and therefore offer no inherent protection against corrosion.
- Damage by corrosion will not be accepted as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.
- For outdoor usage, a housing is definitely required to protect the board against environmental influences. The design of the housing must correspond to the IP standards in the application. It is also the responsibility of the user to ensure any housings or modifications keep the Tc junction temperature to within stated ranges.
- To also ease the luminaire/installation approval, electronic control gear for LED or LED modules should carry the CE mark and be ENEC certified. In Europe the declarations of conformity must include the following standards: CE: EC 61374-2-13, EN 55015, IEC 61547 and IEC 61000-3-2 - ENEC: 61374-2-13 and IEC/EN 62384.
- The evaluation of eye safety occurs according to the standard IEC 62471:2006 ("photobiological safety of lamps and lamp systems"). Within the risk grouping system of this CIE standard, the LED specified in this data sheet falls into the class "moderate risk" (exposure time 0.25s). Under real circumstances (for exposure time, eye pupils, observation distance), it is assumed that no endangerment to the eye exists from these devices. As a matter of principle, however, it should be mentioned that intense light sources have a high secondary exposure potential due to their blinding effect. As is also true when viewing other bright light sources (e.g. headlights), temporary reduction in visual acuity and afterimages can occur, leading to irritation, annoyance, visual impairment and even accidents, depending on the situation.

## For further information please contact ILS

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.