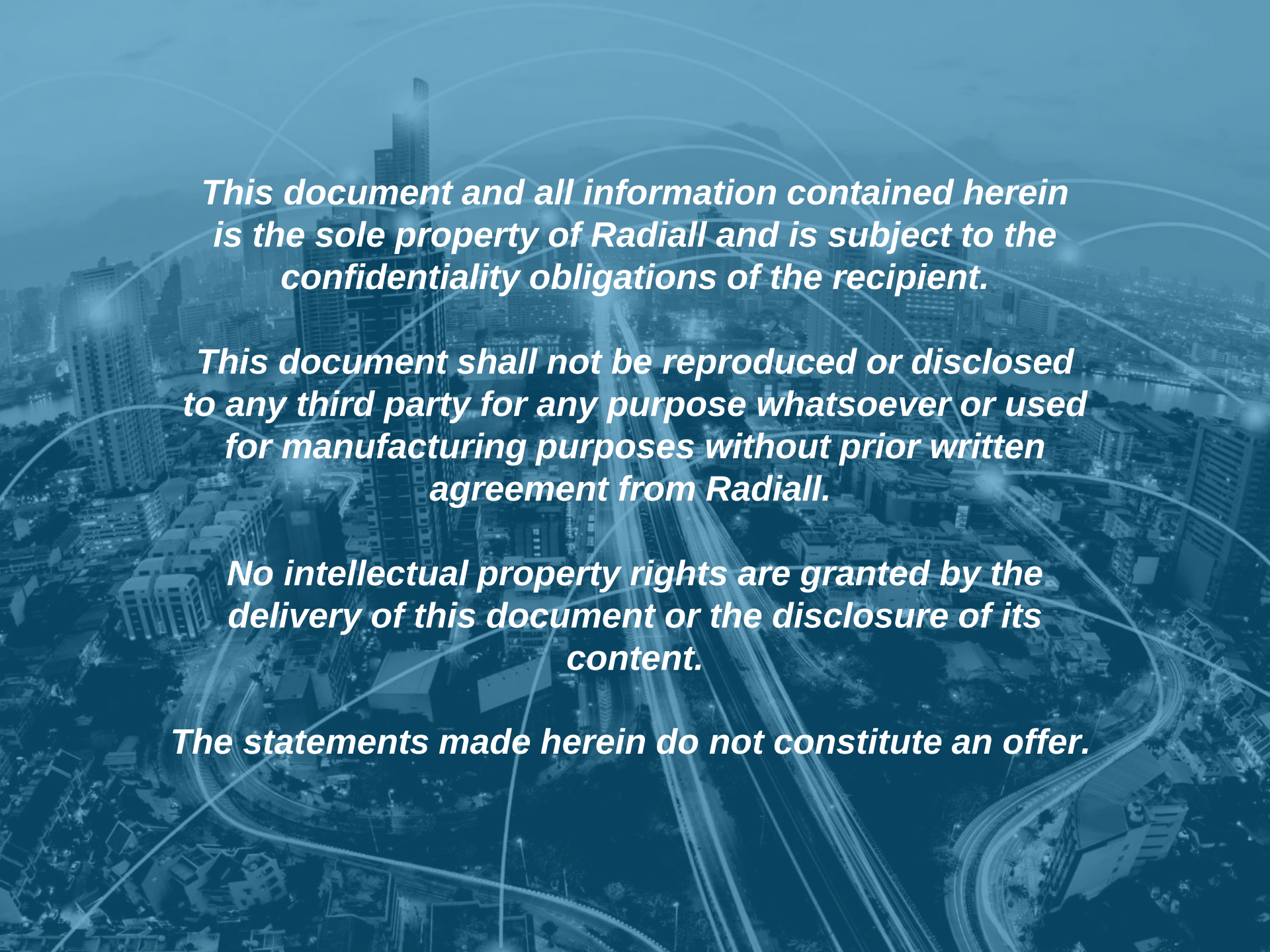
EXTERNAL

Radiall™ | SIMPLIFICATION *is our* INNOVATION

E-LIGHT™

Harsh Environment Optical Transceiver



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E-LIGHT™ RANGE EXPANDS D-LIGHTSYS® PORTFOLIO

- Ruggedized design for harsh environments
- Optical disconnect
- Electrical disconnect
- Small form factor
- High optical link budget



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E-LIGHT™: MAIN CHARACTERISTICS

- Designed to withstand **Mil/Aero environments** and to comply with the existing standards (ARINC, MIL)
- Small form factor package
- Tool-less **ARINC 801 optical contact disconnect**
  - Can receive **any 50 or 62.5/125 µm optical cable assembly** ending with an ARINC 801 contact
- **Key optoelectronic functions** of a transceiver



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E-LIGHT™ 5G TRANSCEIVER: MAIN FEATURES

Optoelectronic Core

- 1 Tx and 1 Rx channels
- 0.1 to 5 Gbps per channel
- Operating wavelength: 850 nm
- -40 to +90 °C operating range
- Constant Tx output power
- Single 3.3 V power supply
- < 330 mW per channel
- Compliant with
  - ARINC 818
  - IEEE std 1000base-SX,...

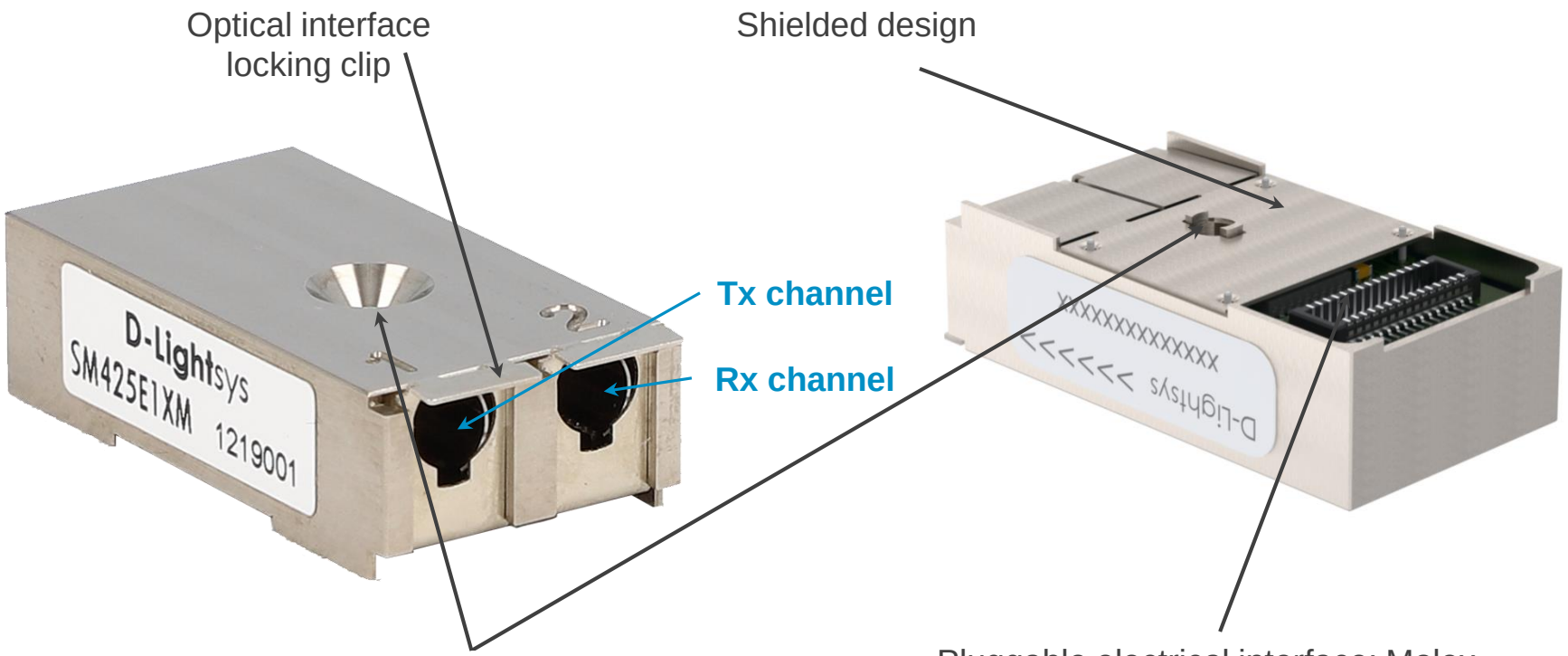
Mechanical & Optical Interfaces

- Small footprint
- Optical receptacle for LuxCis® contact (ARINC 801)
- Pluggable electrical interface
- Mechanical board fixture

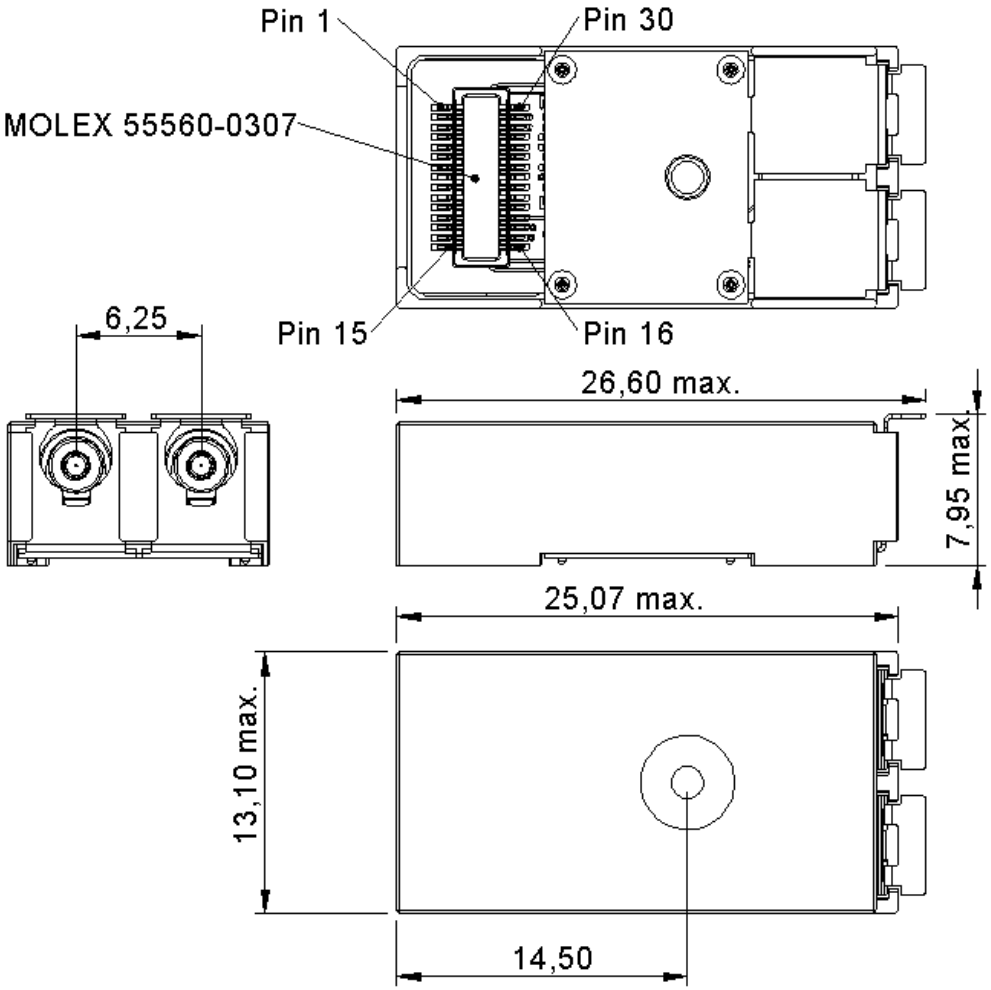


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E-LIGHT™ TRANSCEIVER: OVERVIEW



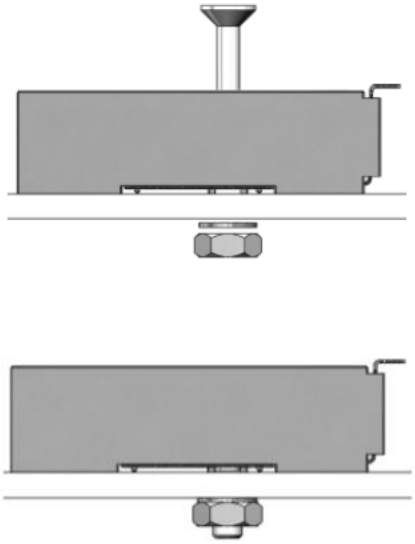
E-LIGHT™ TRANSCEIVER: DIMENSIONS



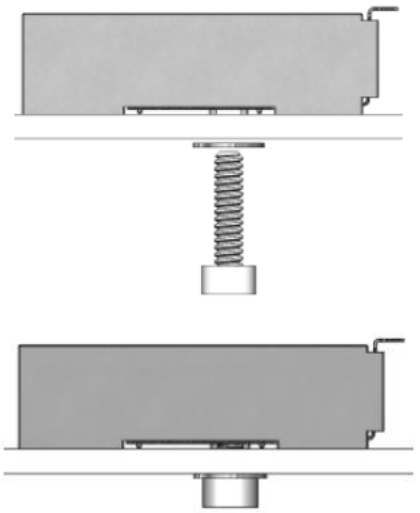
E-LIGHT™ TRANSCEIVER: INSTALLATION

- Easy screw-mount installation from the top or the bottom

Option 1
Captive screw M2.0 (supplied with the module SM425E2XM) with washer and M2 nut



Option 2
M2 screw with washer



E-LIGHT™ TRANSCEIVER: MONITORING

- The module can be monitored directly by the connector pins or by the I²C serial interface.

I²C Interface

- Internal temperature
- RSSI: Optical power on the receiver
- Loss of Signal (LOS)
- RxEn/TxEn: Rx and Tx enable
- Tx polarity
- Rx output amplitude
- Tx fault registers
- Tx de-emphasis function
- Average current through the VCSEL

Pin Interface

- TxEn: Tx enable
- Int Tx: Tx fault
- RxEn: Rx enable
- RxLOS: Loss of signal input

E-LIGHT™ TRANSCEIVER: KEY ADVANTAGES

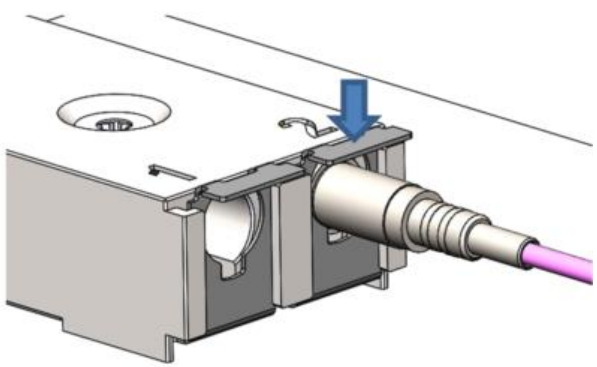
- Optical performances
  - Min optical power Tx: -4 dBm
  - Max sensitivity: -15 dBm @ 5 Gbps
  - High optical link budget: 11 dB min @ 5 Gbps

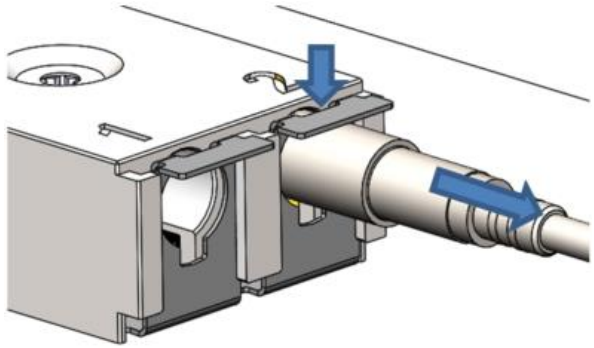
- Compact
  - Small footprint: < 330 mm^2
  - Low height: 7.95 mm max

- Monitored performances through an I^2C bus
  - Steady optical power over the temperature range
    - Signal detect function
    - Integrated optical power meter in the receiver

E-LIGHT™ TRANSCEIVER: KEY ADVANTAGES

- Easy optical mating and unmating
  - Tool-less innovative system to insert and extract the ARINC 801 LM optical contact





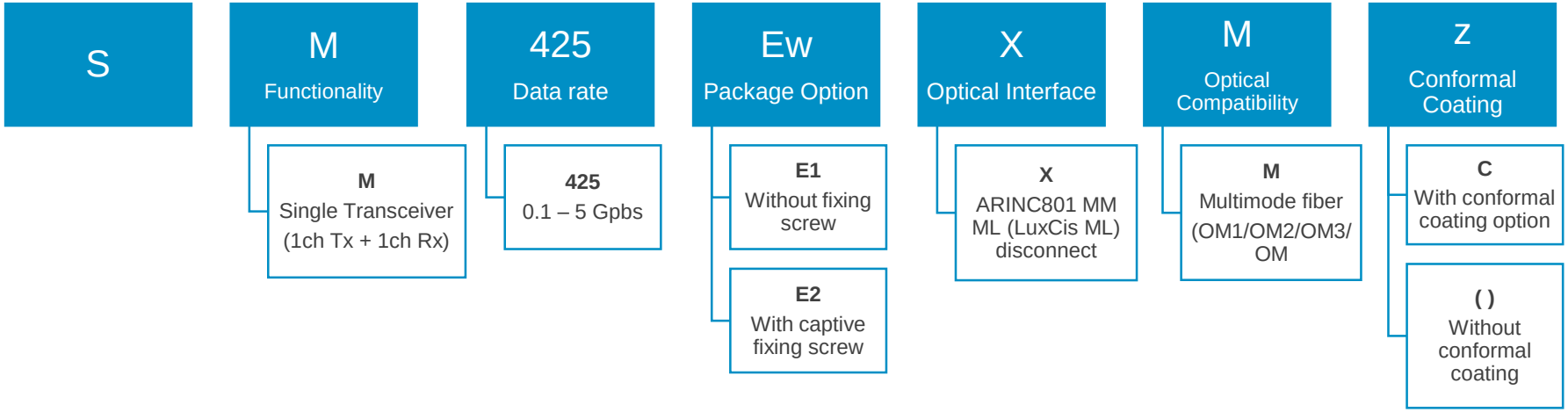
- The LuxCis® is standardized according to ARINC 801 by the aerospace industry
  - High performance in harsh environments
  - Simple and robust design

E-LIGHT™ TRANSCEIVER QUALIFICATION

- The E-Light will be fully qualified in Q4 2025
- Preliminary test levels:

Test	Standard	Conditions
Qualified temperature range	ARINC804	[-40; +90 °C]
Low temperature endurance	ARINC804	1,000 h @ -40 °C
High temperature endurance	ARINC804	2,000 h @ 90 °C
Rapid change of temperature	MIL-STD-883	-55/+125 °C, 500 cycles, 8 °C/ min, dwell time: 10 min
Thermal shock	MIL-STD-883	-40/+100 °C x15 - 30 min dwell time
Vibration	MIL-STD-883	20 g Y axis, 9 g X and Z axis 1 hour/axis
Mechanical shock	MIL-STD-883	1,500 g peak, 0.5 ms, 5x per orientation
Damp heat	ARINC804	500 h @ 40 °C HR 95%
Optical mating cycles	-	50 mating/unmating
Electrical mating cycles	-	30 mating/unmating

E-LIGHT™ P/N SYSTEM



E-LIGHT™ RANGE EXTENSION

- Radiall has a long-term plan to expand the E-Light™ range



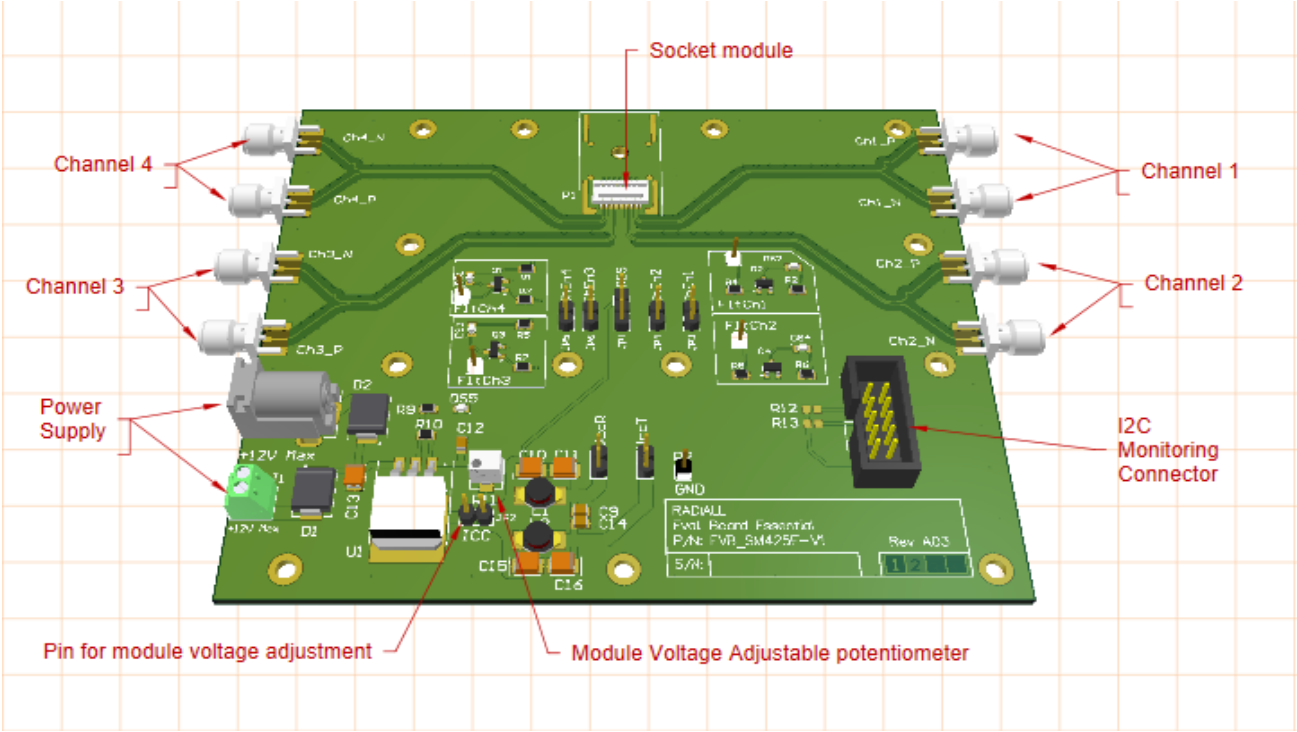
10 Gbps Transceiver

2-channel Receiver & 2-channel Transmitter

25 Gbps Transceiver

E-LIGHT™: EVALUATION BOARD

- An evaluation board is available to assess transceiver performances



- *The software will be available soon*

MAIN APPLICATIONS

- Civil aircraft
  - Displays
  - IFE (In-Flight Entertainment)
  - Data processing
  - Sensor interconnects
- Military systems
  - Digital video communication
  - Radar
  - Sensor interconnects
  - Data processing
- Industrial data links







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THANK YOU