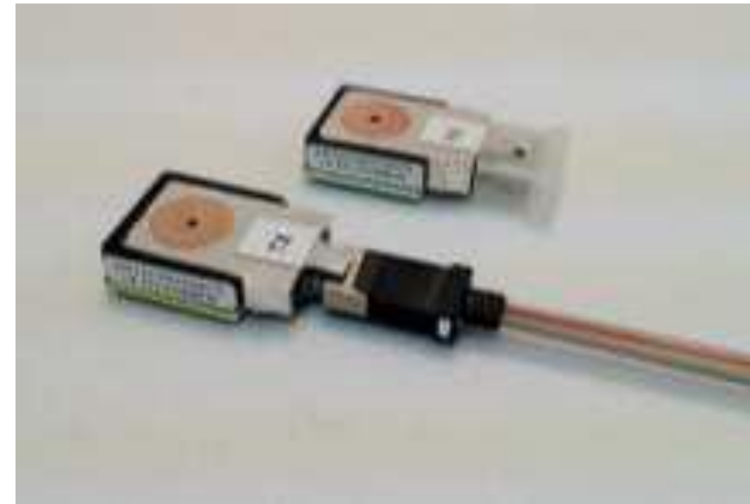
LightABLE ATLAS TX

- **Problems with AOC TXs**
  - **Deaths (central channels)**
  - **10%/year decrease in power**
- **Need backwards compatible solution**
  - **Commercial OSA: LightABLE**



LightABLE/TX

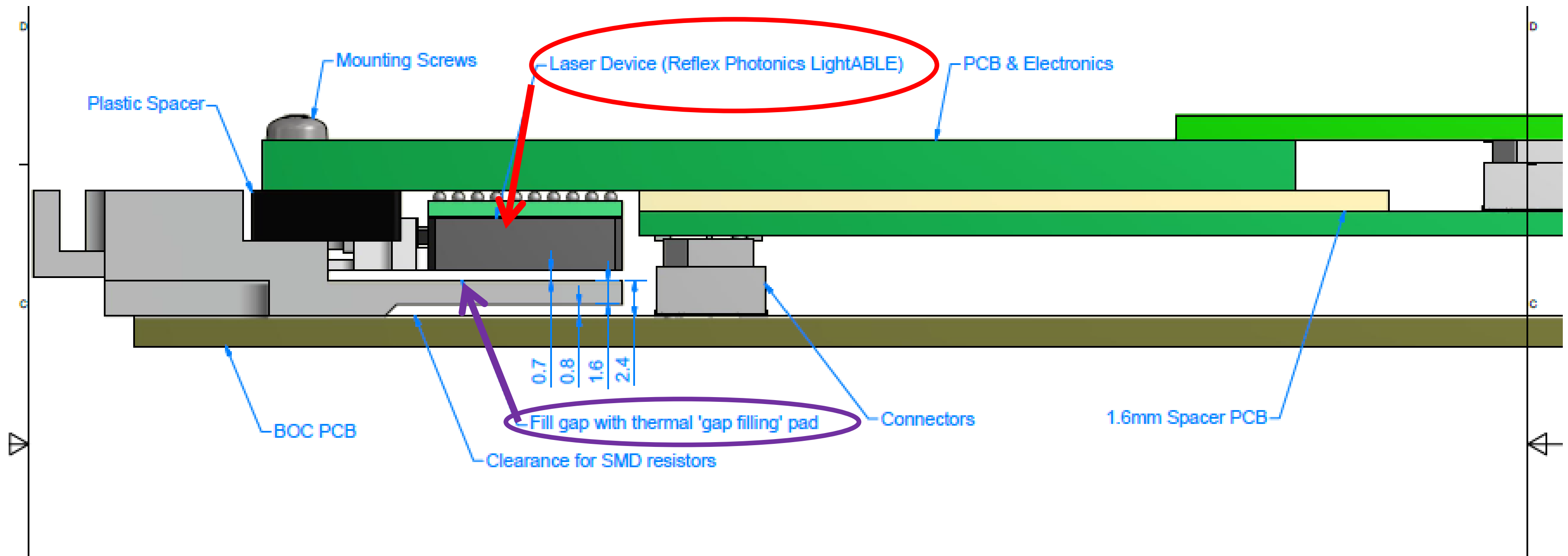
- Sample 10 devices passed 1000 hours 70C/85% RH
- Batch of 20 devices: power> ATLAS spec.
- Passed BER tests @Cambridge
- Operated successfully in ATLAS
- Minor tweaks:
  - Mechanics
  - Cooling
  - Micro to adjust optical power
  - Underfill epoxy for BGA
- Launched full production after review March ‘13.

Improvements

- **Mechanics**
  - **Insertion difficult for some of the first prototypes.**
  - **Solved with**
    - **Shorter guide MT guide pins**
    - **Jig to control alignment during reflow**
- **Cooling (next slide)**
- **Microprocessor**
  - **Allows decrease of optical power and monitors currents.**
- **Underfill for BGA**
  - **Not a good idea because of CTE mismatch**
  - **Aggressive thermal cycle + mate/demate testing to validate reliability**

Cooling

- Thermal path from LightABLE to front panel via Thermal Gap Filler (3 Wm/K)
- OSA analysis ➔ ΔT from junction to ambient =20°C.

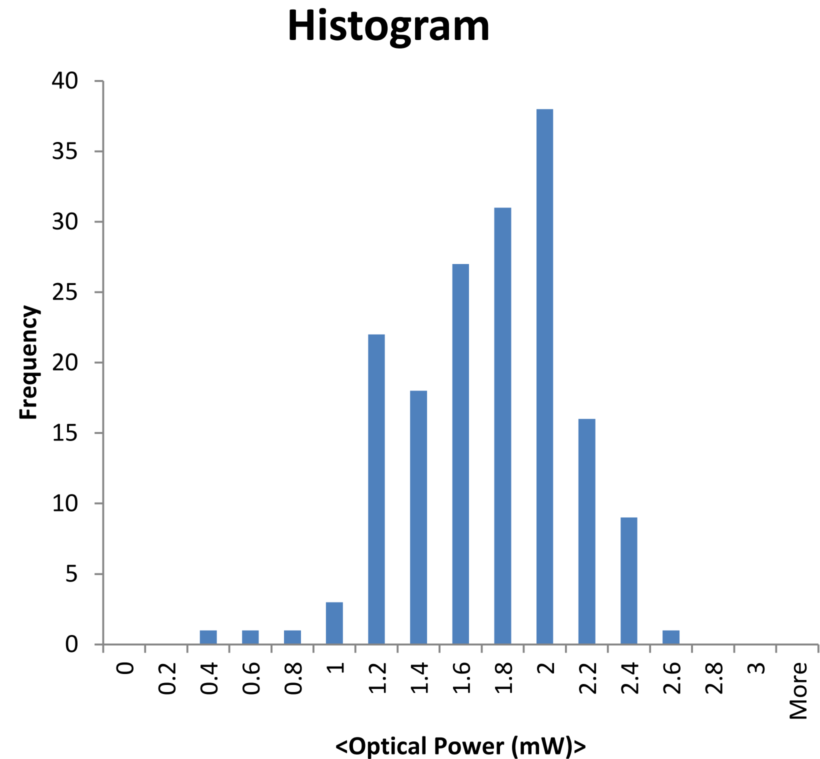


Production

- 2 panels of two flavours of PCBs produced.
- First test with micro successful.
  - Day 1 code allows us to test devices
  - Maurice working on code development. Will allow optical power to be decreased.
  - Minor problem found 28/10/13 … need to tweak zPCB layout.
- 14 more LTXs assembled and alive.
  - Wire bonded at RAL.
  - Will be used for reliability studies at CERN and Oxford.
- Production order for PCBs being placed.
- Chips, passives and connectors purchased.
- First batch of 90 LightABLEs delivered (higher optical power).
- Delays in production at Reflex
  - Next batch has only 14 devices now shipped.
  - More news on schedule in ~ 1 week …

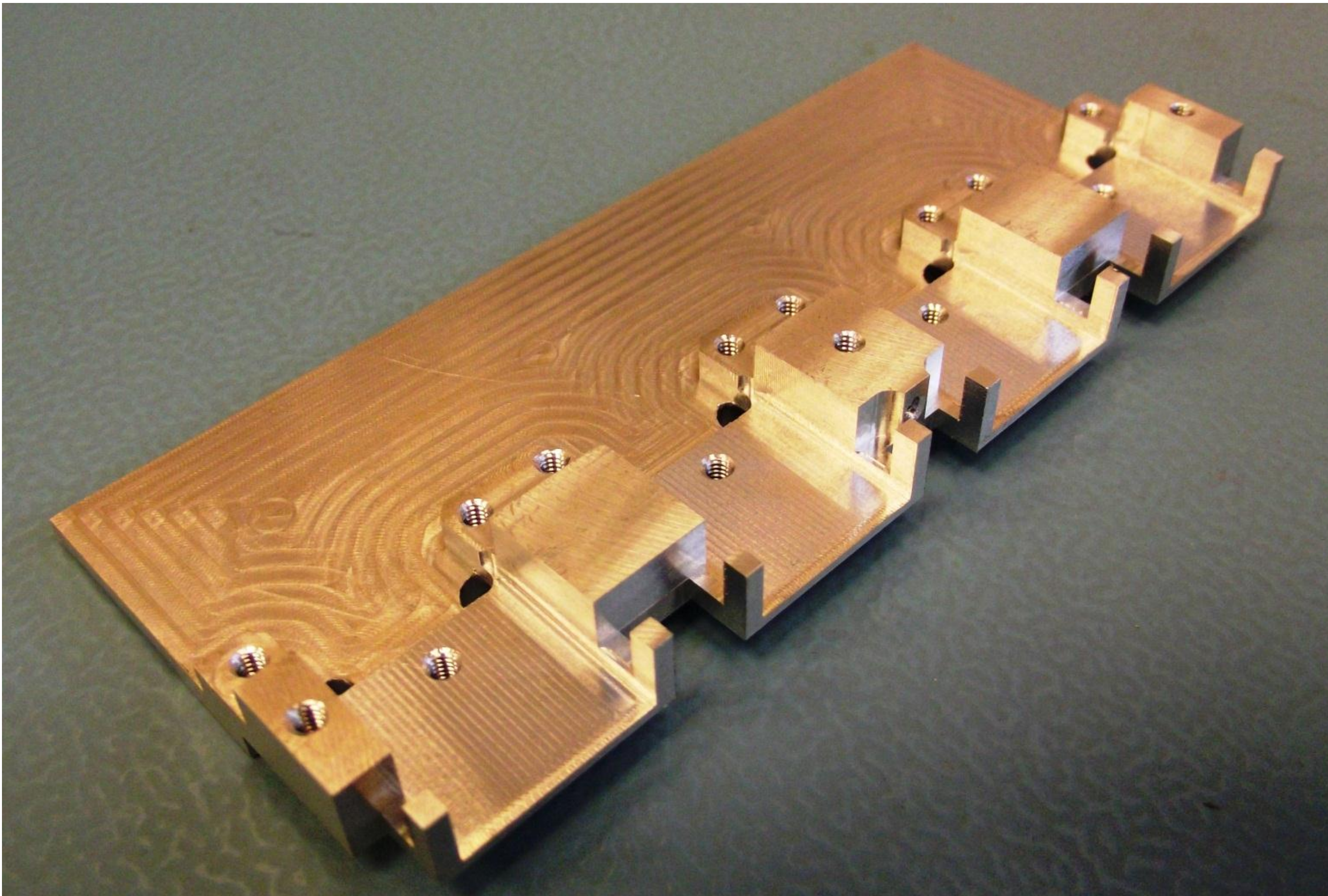
Optical Power QA

- **14 devices assembled**
  - **All pass ATLAS QA <power> >0.375 mW**



Backup

New BOC Metalwork



Laird TECHNOLOGIES®

T-flex™ 600 Series Thermal Gap Filler

global solutions :
local support™

T-flex™ 600 Series Thermal Gap Filler

Exceptionally soft, highly compressible gap filler

T-flex™ 600 is an exceptionally soft, highly compressible gap filling interface pad with a thermal conductivity of 3 W/mK. These outstanding properties are the result of a proprietary boron nitride filler in the composition.

The high conductivity, in combination with extreme softness produces incredibly low thermal resistances.

While extremely soft, T-flex™ 600 recovers to over 90% of its original thickness after compression under low pressure. T-flex™ 600 is naturally tacky and requires no additional adhesive coating that can inhibit thermal performance. T-flex™ 600 is electrically insulating, stable from –45°C to 200°C and meets UL 94 V0 rating.

Features and Benefits:

- Very high compressibility for low stress applications
- 3 W/mK thermal conductivity
- Available in thicknesses from 0.020" - 0.200" (0.5mm - 5.0mm)
- Naturally tacky, needs no further adhesive coating

Applications:

- Cooling components to the chassis or frame
- High speed mass storage drives
- RDRAM memory modules
- Heat pipe thermal solutions
- Automotive engine control units
- Telecommunications hardware