

TTCvo – a VME format TTC Splitter

- Background
- Prototypes
 - Performance
- Future

Background

- Originally Optical Splitter design for TTC system housed the optical component and fibre in a 19" rack enclosure
 - This does not give you a very high density
 - Max. 32 outputs per 2U
 - Either the enclosure has solid top & base so that airflow in the rack is blocked, or the air flows over the optical fibres inside and they wave in the wind
- Since the optical component itself is small, why not house it in a 6U VME card sized module?
 - Higher density
 - 21 slots x 16 (32) outputs = 336 (672) per 6U \equiv 112 (224) per 2U
 - Can enclose the fibres without blocking airflow
 - Can place splitters amongst other cards in a rack

Background (2)

- Meanwhile, Singlemode optical splitters have dropped dramatically in price
 - CMS has chosen a singlemode optical TTC distribution tree
- Required change in vendor, so good opportunity to work on changing the physical implementation
 - Also take advantage of modern small form-factor optical connectors

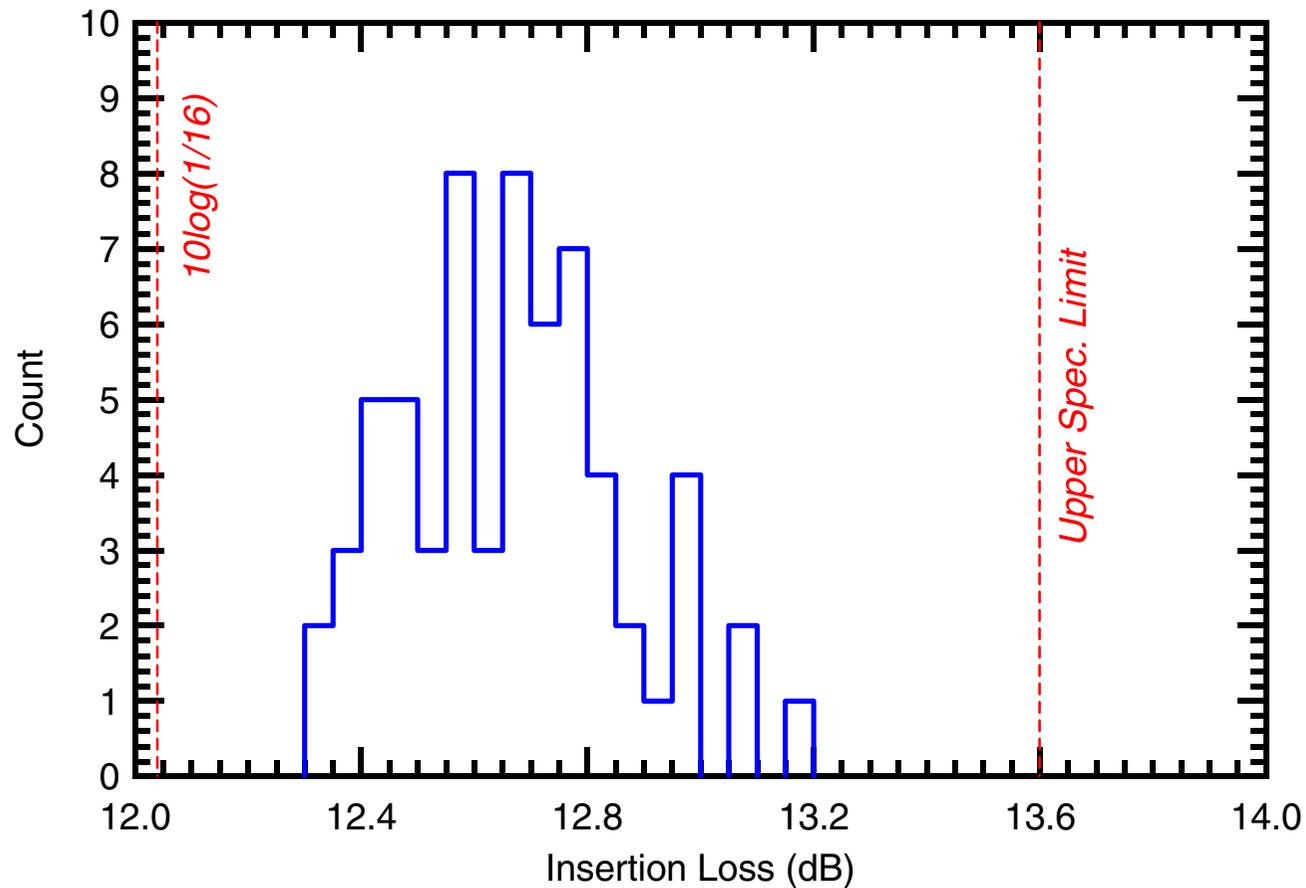
Prototypes

- 4 Prototypes received June 2004
- Prototype 6U front-panel fabricated
 - Problems with tooling prohibited making a 9U front-panel
- Optical tests carried out in lab



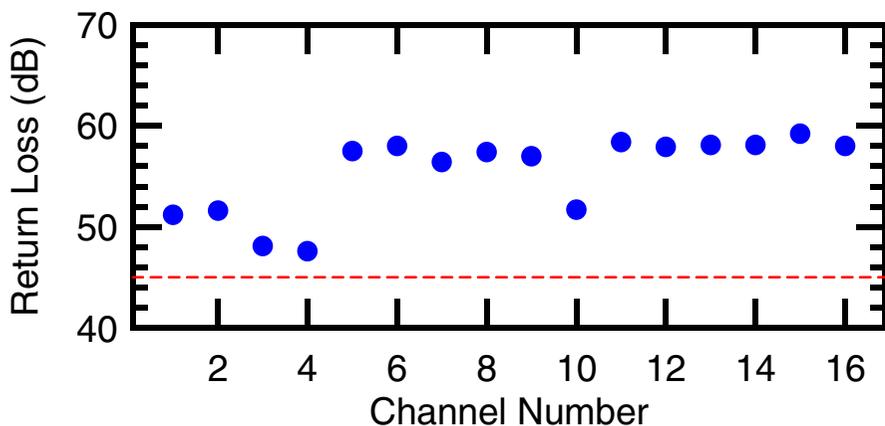
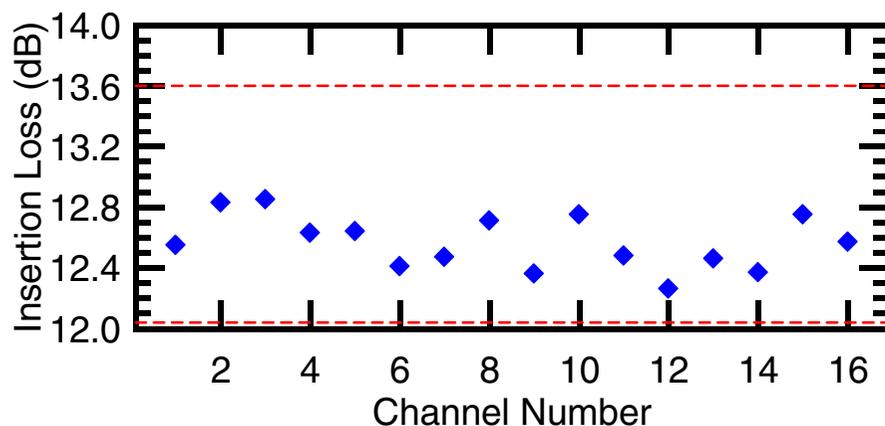
Optical Performance

- Insertion Loss data supplied per channel by the manufacturer:



Performance measurements

- Measured optical insertion- and return-loss in our lab



- Reasonable agreement with manufacturer measurements
- Return Loss performance verified
- Slight issue with connector cleanliness

Future

- Radiation hardness test T.B.D.
- Changes may be made after consultation with the manufacturer regarding 1x32 versions and/or changing the connector configuration
- This development will go ahead for CMS and will be implemented in the experiment
 - I cannot take on the distribution of such objects to others if interest is shown
 - Especially not for multimode versions
 - In this case I would invite PH-ESS to consider supporting this item

Conclusions

- 6U single-slot VME form-factor optical splitter suitable for use in a singlemode TTC distribution system has been shown
- Prototypes show excellent optical performance
- If this is of interest to other collaborations then a common ordering & distribution path must be found