LAST SPIRAL2 10 kW CW RF COUPLER DESIGN

Y. GOMEZ (LPSC) LINAC08  02 September 2008
Tests of the coupler in the cryomodules

The protocol of preparation of the coupler was validated

The RF design was validated

First RF conditioning at 4.2K

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Main design changes

Weakness in the transport led to an updated mechanical design

More robust coupler was made

Prototype coupler

New coupler

Hollow antenna

Flanged pipe

Support

Shorter and stiffer air cooling
Updated simulation

- RF
- THERMICAL
- MECHANICAL

**Modal**

Mode 1 and 2. \( f_r = 73.5 \text{Hz} \)

Mode 3 and 4. \( f_r = 467.7 \text{Hz} \)

**Harmonic**

- 73.5 Hz \( \rightarrow \) 0.375 mm
- 0.375 mm \( \rightarrow \) 33MPa
- Endurance stress limit

**Transport**

Maximum acceptable acceleration is 10 g to avoid any lamination.

Simulations show the improvement of the new design

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