
1.3 GHz Cavity Fabrication work- Status Updates.

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- **1.3 GHz Improved single cell cavity .**
- **1.3 GHz 5-cell cavity with simple beam pipe.**
 - **Dumbbell development (5 cell cavity)**
- **1.3 GHz End Group Development (for 9-cell cavity)**
- **650 MHz single cell cavity**

Two nos 1.3 GHz (Improved) prototype single cell cavities have been manufactured (RRCAT + IUAC).

The Cavity TE1CAT003 has already arrived at FNAL.

Optical inspection & RF Measurements have been done, (Presented by Arun on 21 June 2011)

RF Measurements comparison RRCAT-FNAL

	length (mm)	Frequency (MHz) 300K	Quality factor 300 K
TE1CAT003 (at RRCAT)	391.62	1299.875	9470
TE1CAT003 (at FNAL)	391.62	1299.91	9074

We understand that TE1CAT003 is waiting in Queue for processing consisting of EP,HPR & HT stages.

The Cavity TE1CAT004 has also been fabricated.
The Pre –dispatch qualification testing have been completed
This will be shipped in about 2 weeks time



TE1CAT004 with RRCAT-IUAC team members

Observations:

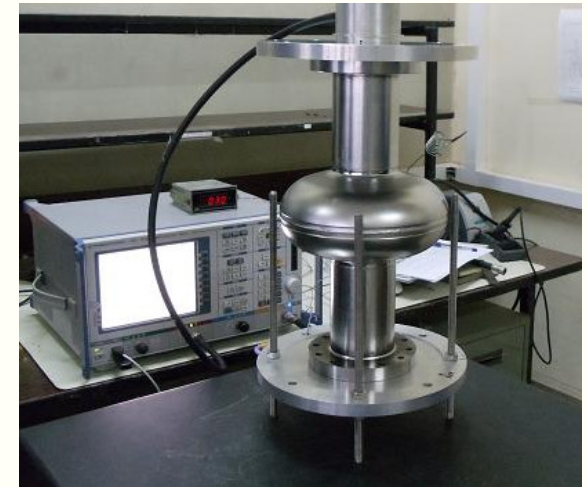
Equator: It is noticed that the inner bead has improved considerably wrt to earlier Equator Welding . under bead is good & uniform without any undulation.

Iris: under bead is good & uniform.

PDI of Single cell TE1CAT004

	Total length (mm)	Perpendicularity (mm)	Parallelism (mm)	Concentricity (mm)
Dwg dim	392 ±1	0.40	0.10	0.10
TE1CAT004	390.08	Could not be checked	0.89	0.18

RF measurements (300 K)



After Equator Welding	length (mm)	Frequency (MHz) 300K	Quality factor 300 K
TE1CAT004 Cell ID # Nb-111 + Nb- 167	390.08	1299.710	9237

Leak testing

Leak testing at 300 K & 77 K

Qualified for leak rate of 1×10^{-12} mbar l/sec .

Now the cavity will be ready for dispatch for processing & testing at FNAL.



End Group Development for 1.3 GHz Multi cell Cavity (Aluminum)

As part of our Multicell cavity we are also working on 1.3 GHz standard End group.

We have initiated the welding activities for Aluminum end group with Indian Industry.



Niobium End- Group:

Machining of Niobium components is in progress.

- **Five cell cavity**
 - Niobium Half cell forming is completed
 - Machining of half cell is completed
 - Waiting for Welding activities at IUAC .
 - Meantime we plan to make five cell cavity in aluminum to understand the field flatness & fabrication issues.

650 MHz Single cell cavity

- Half cell Machining fixture has been designed.
- Fabrication of prototype machining fixture is completed, waiting for trial as soon as formed half cell ready.
- Welding fixture is under fabrication stage.

Thank You & best of luck for
SRF-2011 Conference