



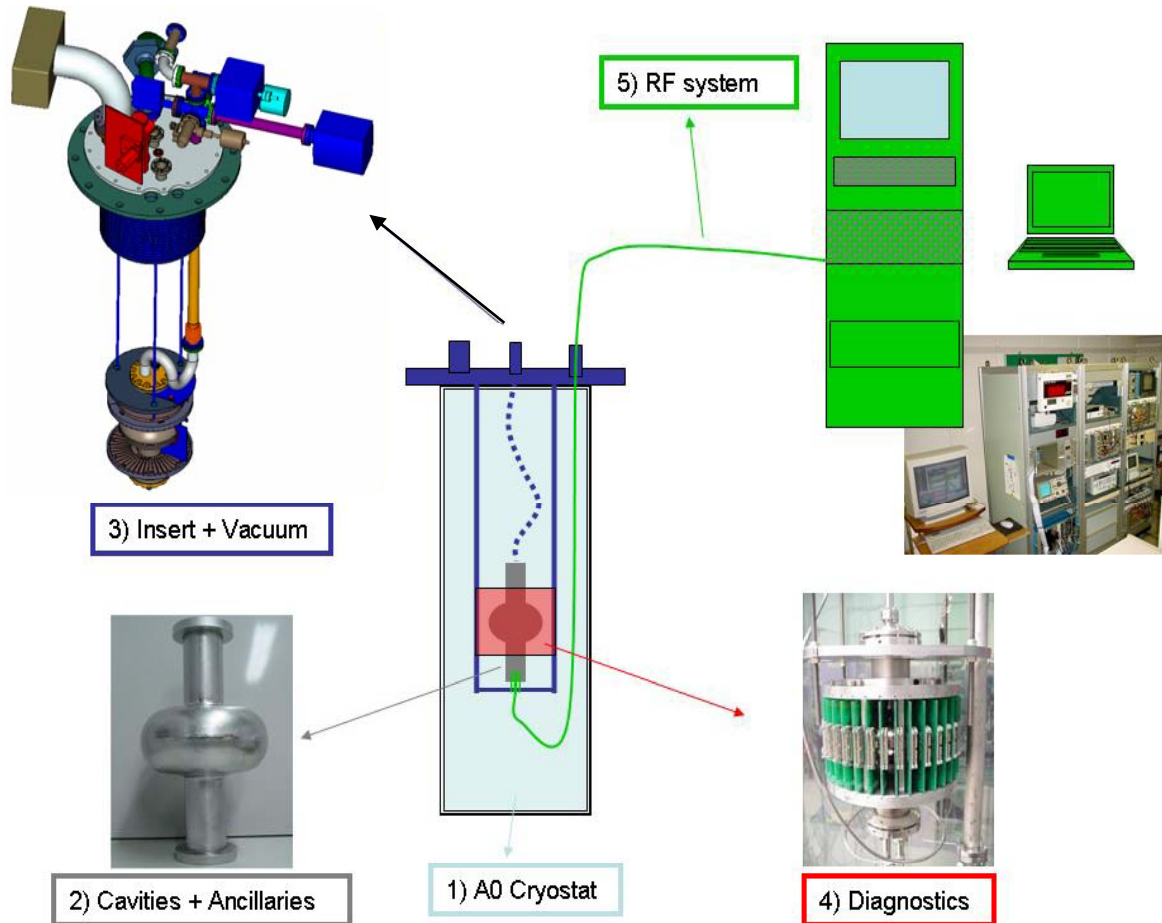
Single Cell Program - Status

August 30, 2007

Thursday



Single Cell Testing Facility at Fermilab



Goals:

- ⊙ Fast turnover testing of 1-cell cavities
- ⊙ ILC S0 milestone
- ⊙ Address, explore and incorporate other cavity research issues (Advanced R&D)
- ⊙ Collaborate with other labs (tight-loop processing,....)



Action Items

- 1. Testing Station**
- 2. Diagnostics**
- 3. Cavity Production**
- 4. Processing**

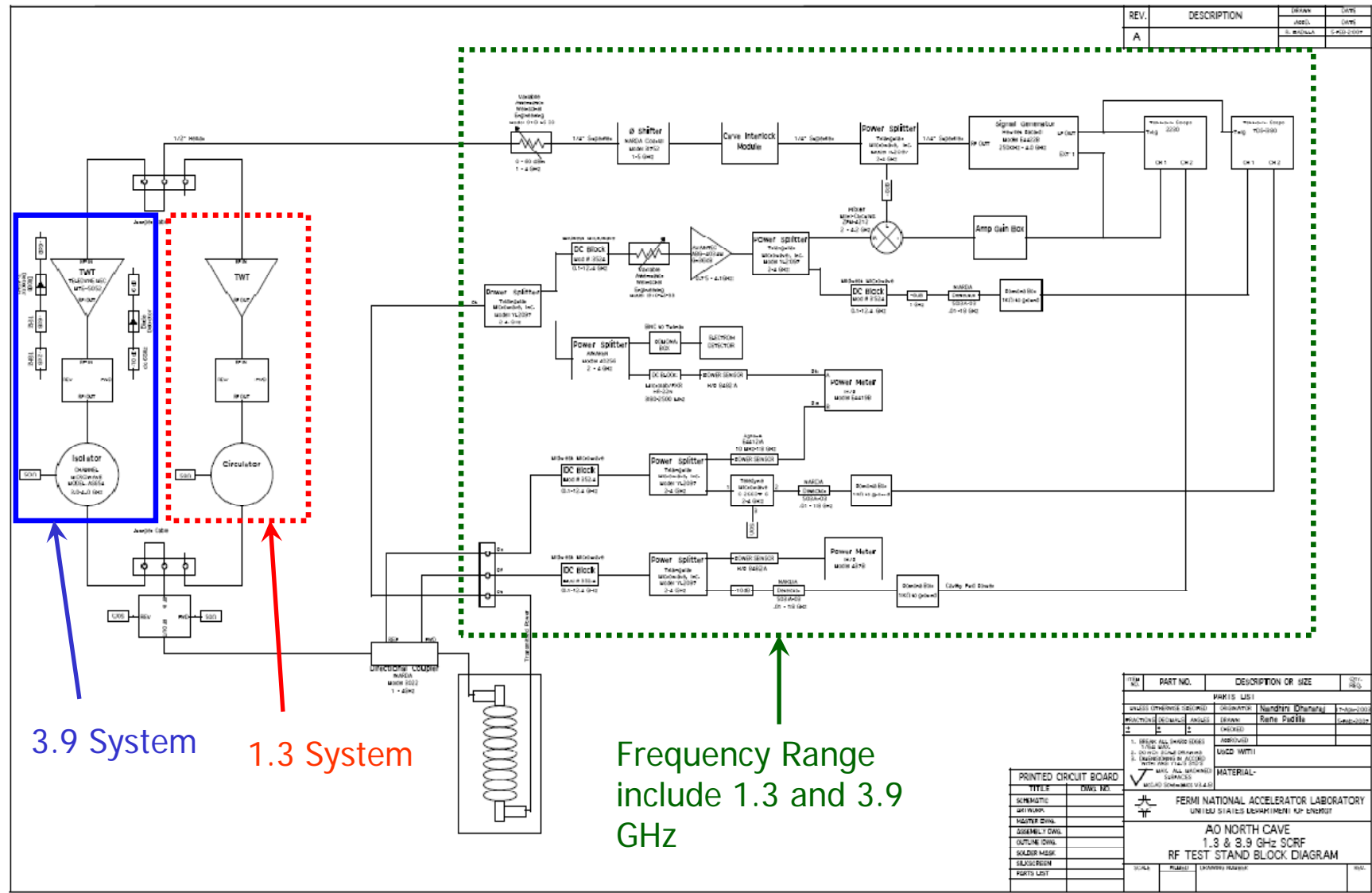


Testing Station-RF System

- A0 RF system – design modification complete
- All components in hand – waiting for approval from Elvin Harms to begin design change
- One –Time Recalibration of system– TBD (Rene and John Reid)
- Safety Interlock –TBD (Rene and John Reid)
- Software modification – Elvin and group working on it



Testing Station-RF System (Contd.)



REV.	DESCRIPTION	DRAWN	DATE
A		S. BHALLA	5-23-2004

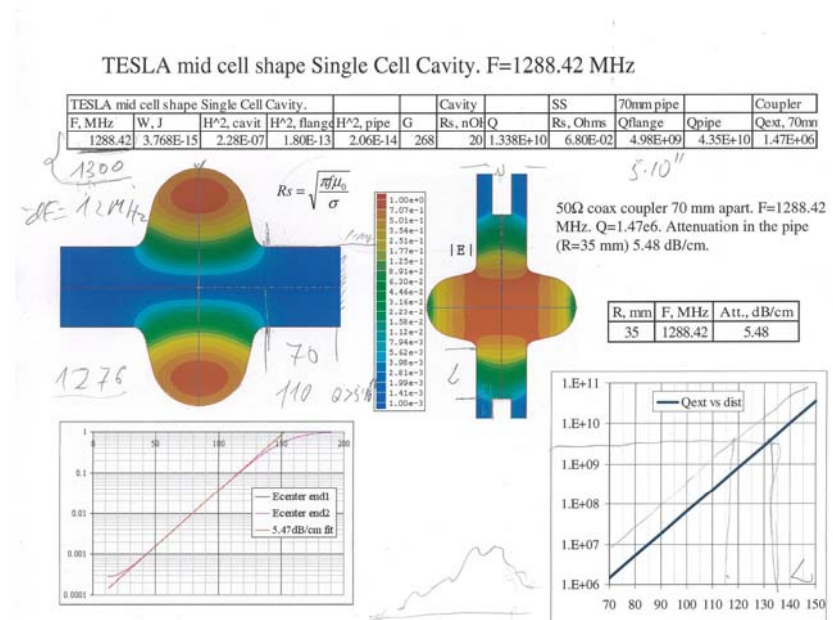
ITEM NO.	PART NO.	DESCRIPTION OR SIZE	QTY.																
PARTS LIST																			
UNLESS OTHERWISE SPECIFIED	QUANTITY	DESCRIPTION	DATE																
1	1	RF Test Stand	5-23-2004																
2	1	RF Test Stand	5-23-2004																
1. CHECK ALL DIMENSIONS 2. DIMENSIONS TO FACE UNLESS NOTED OTHERWISE 3. DIMENSIONS TO CENTER UNLESS NOTED OTHERWISE 4. DIMENSIONS TO CENTER UNLESS NOTED OTHERWISE																			
MATERIAL:																			
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Testing Station- Couplers

- Feedthroughs –Input and Pick-up are available – Fixed coupling
- Plan to make 3 different antenna tips– Lengths being determined (Genfa)
- Will be warm tested after end flanges are received from machine shop
- Variable coupler in future (2008)

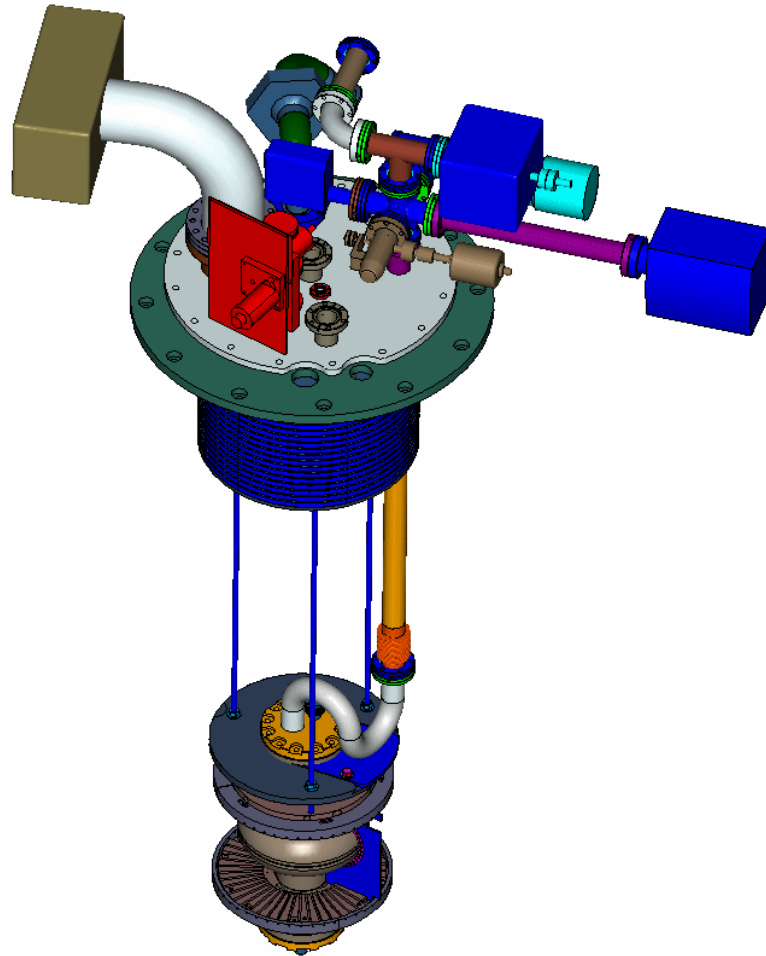
Input Coupler Feedthrough





Testing Station- Top Plate/Insert

- Design complete and Insert is being made at VMS – Shooting for Sep 31st completion



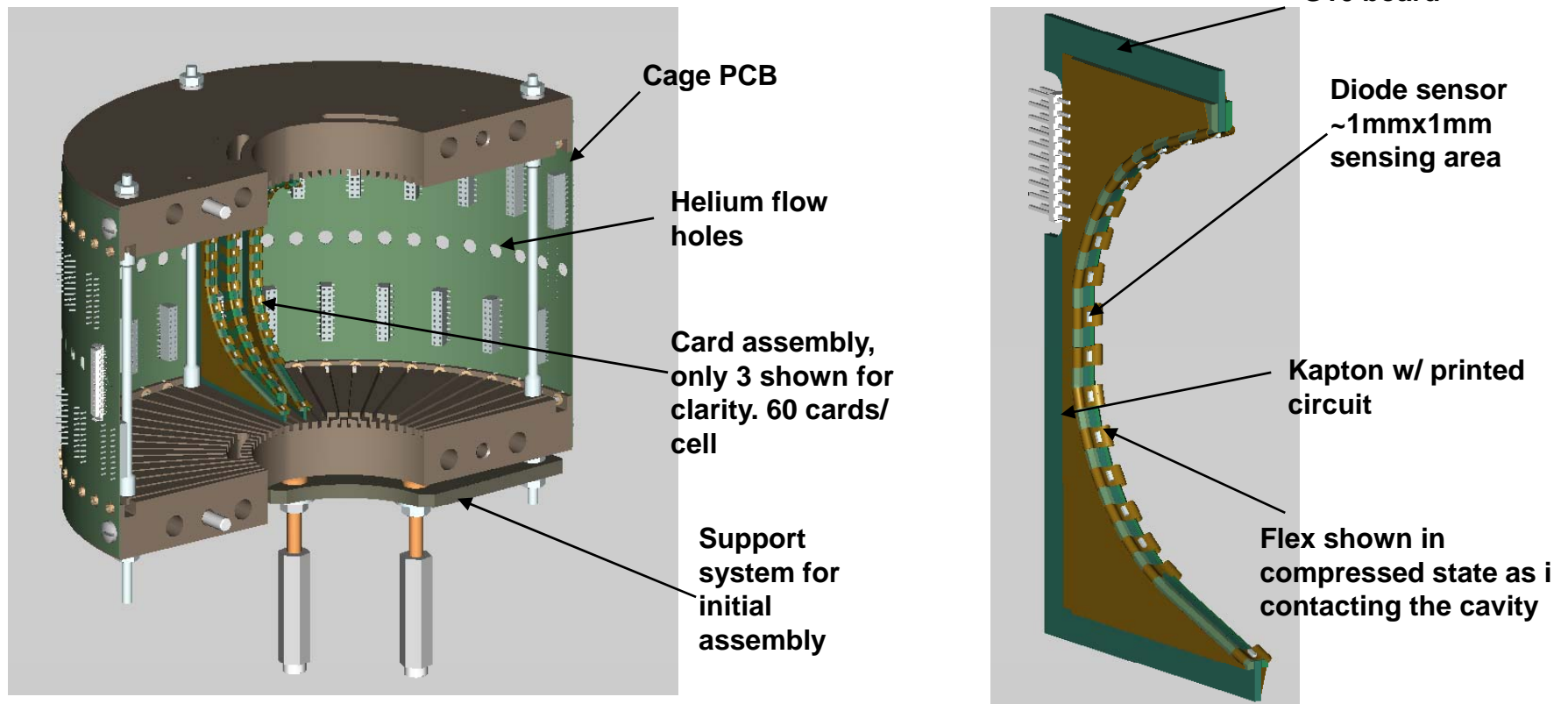
Connector tree plates

Top Plate



Diagnostics - Thermometry

- Fixture design complete, needs minor modification – Will be sent to manufacturer next week
- Boards are here – Diodes will be fixed coming week
- Read out will be done the week of Sep 10th.





Cavity Production

- 2 Cavities from DESY (1 here and other RRCAT (India) to make Dies
- Six single cell cavities ordered from AES – expect by the end of september
- Al-mg seals in hand –Dan Olis order



Processing

- A0 HPR system ready – adapters available
- EP to be done at Argonne

Adapters





Safety Reviews & Other Things

- Pressure vessel safety – Calculations complete, preparing documents for the test.
- Radiation Safety – In process of calculations and preparing documents



Budget

Priority Description		Manpower @ Fermi	M&S	Time scale	Comments
2007	1 Cell test stand Setup	1.00 FTE ENG 0.60 FTE DES	\$235K	1 year	Includes 3 1-cell cavities
2008	Program •S0 •SRF R&D	0.50 FTE TEC 0.75 FTE ENG 0.50 FTE TEC	\$100K \$60K	1 year startup	Helium + small material 3 additional cavities
Total FTE = 1.75 ENG + 1 TEC + 0.6 DES = 3.35					Total M&S
					\$395



Budget 2007

Budget allocated - \$165K

Currently spent - \$67K

Plan to spend:

VTS - \$20K

Thermometry- \$6K

Misc - \$5K

Balance - \$67K

Budget required for 2008: \$100K



Schedule 2007

- First Vertical Test for commissioning, VTS – Mid October
- Followed by commissioning tests for Thermometry – End of October
- Schedule for test program – In progress



Acknowledgement

- AD – Allan Rowe, Brian DeGraff, Wade Muranyi, Mike Rauchmiller (Rocky), Helen Edwards, John Reid, Rene Padilla, Mike Foley, Scott Reeves, Yun He
- SRF Materials Group
- VTS Group
- TD – Harry Carter, Timergali Khabiboulline, Charlie Cooper, Dave Burke, Camille Ginsburg, Tug Arkan, Dan Olis, Marc Ross, Shekhar Mishra, Jim Kerby, Don Mitchell, Lyle Rosine, Chuck Grimm, Frank Mcconologue, Kerry Ewald
- CDF – Aseet Mukherjee
- PPD
- Jlab – Gigi Ciovati, Peter Kneisel, Ganapati Myneni, Larry Turlington
- DESY – Wolf-Dietrich Moeller



Tentative Testing Plans

Process R&D (ILC-S0) – Test bed for 9-cell tests

- Reproducibility – EP and HPR, process parameters
- Alternative rinsing (ethanol, degreasing)
- Pre-processing (tumbling)
- Baking study

SRF R&D

- Post processing (plasma cleaning)
- Large grain
 - **Grain size, orientation**
 - **Grain boundary dynamics**
 - **Processing optimization**
- Beyond Nb (2-3 years from now)
 - **Multilayer (NbN, Nb₃Sn, MgB₂... on Nb)**
 - **Collaboration W. U**



Thank You !!