

# **In-vessel Calibration Light Source hardware status**

**T.M. Biewer**

***Oak Ridge National Laboratory***

Slides for telecon Apr. 17, 2010

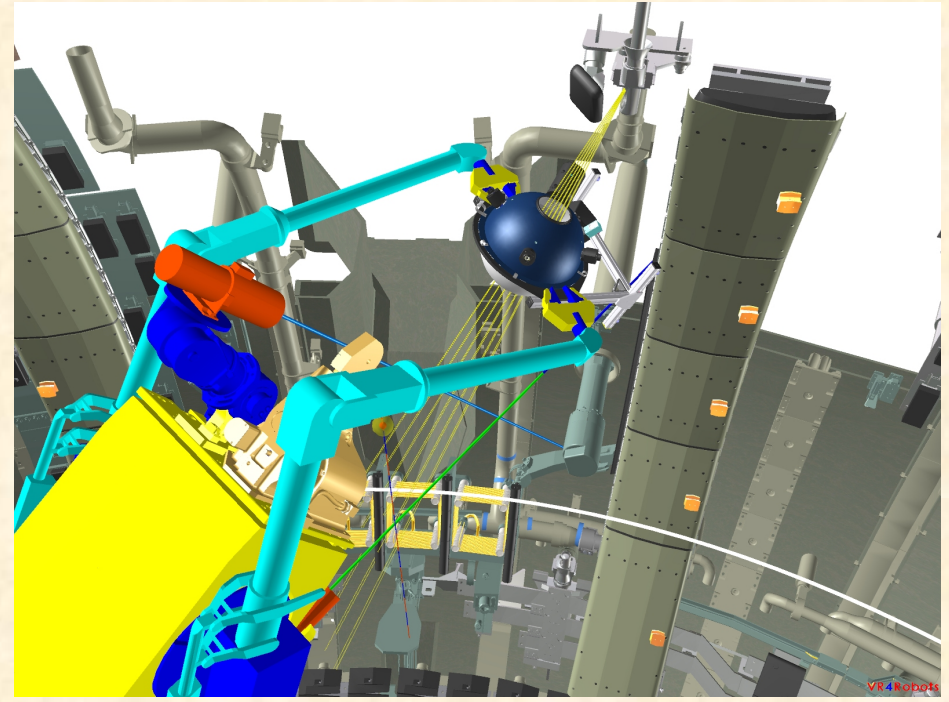
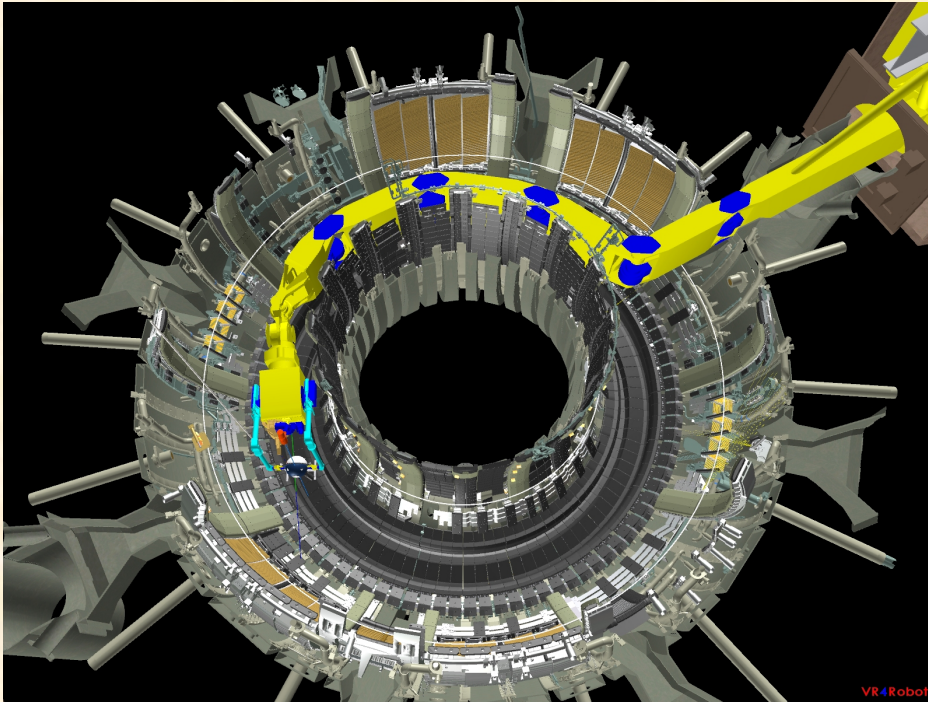
*Fusion Energy Division*



**OAK RIDGE NATIONAL LABORATORY**

Managed by UT-Battelle for the Department of Energy

# In-vessel diagnostic calibration on JET

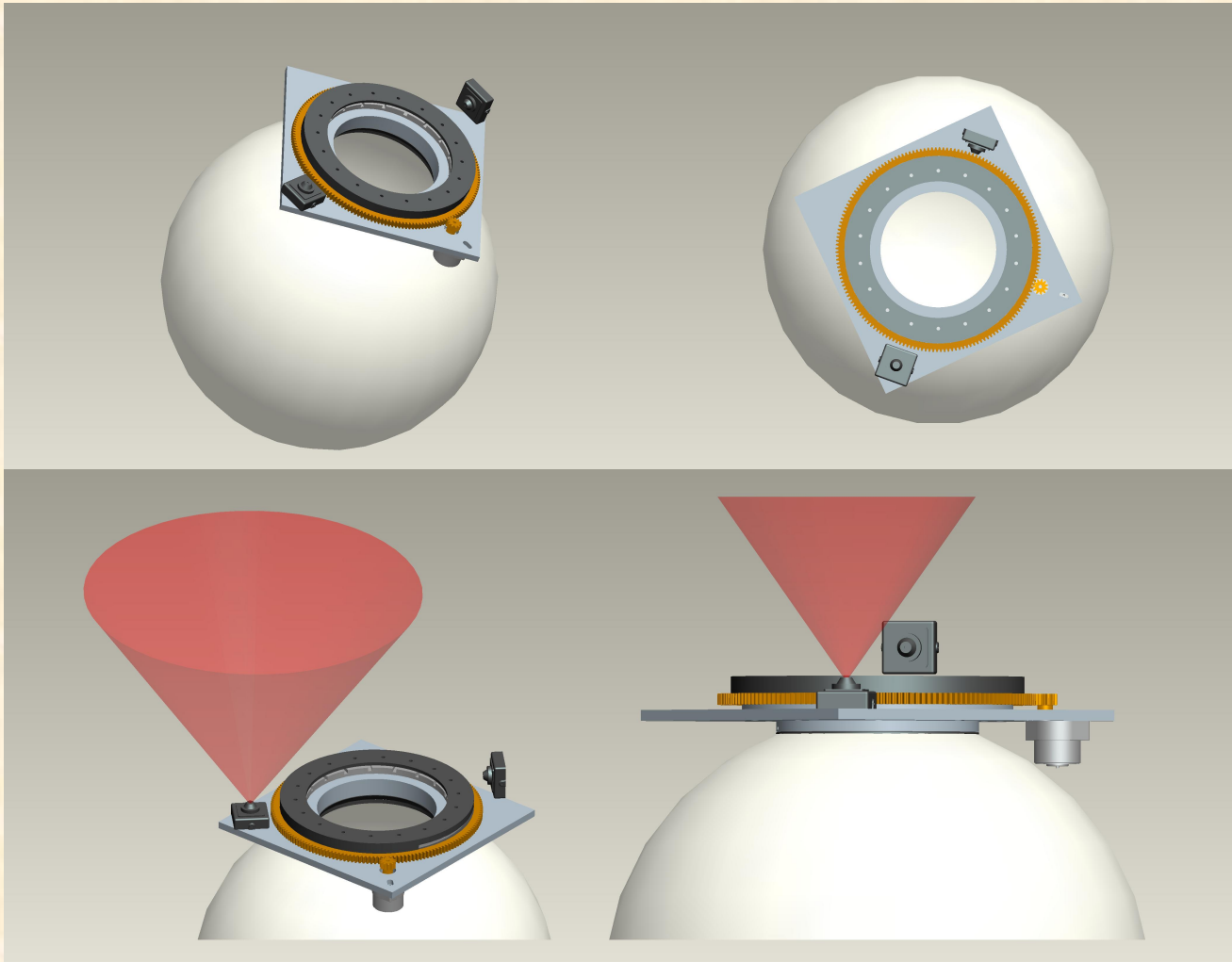


- ITER demonstration technology for *in-situ*, absolute intensity calibration of optical diagnostics via “remote handling.”
- ~20 visible diagnostics to be calibrated on JET in 2010 using this technique.

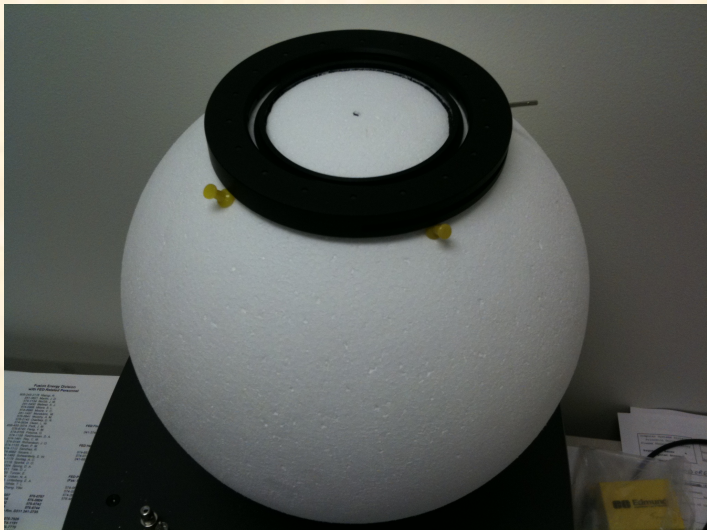
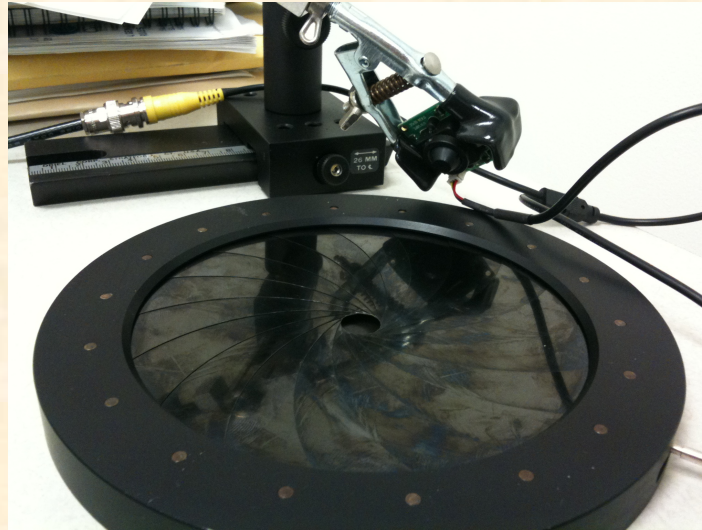
OAK RIDGE NATIONAL LABORATORY  
U. S. DEPARTMENT OF ENERGY



# Iris and cameras implementation: 1



# Iris and camera implementation: 2



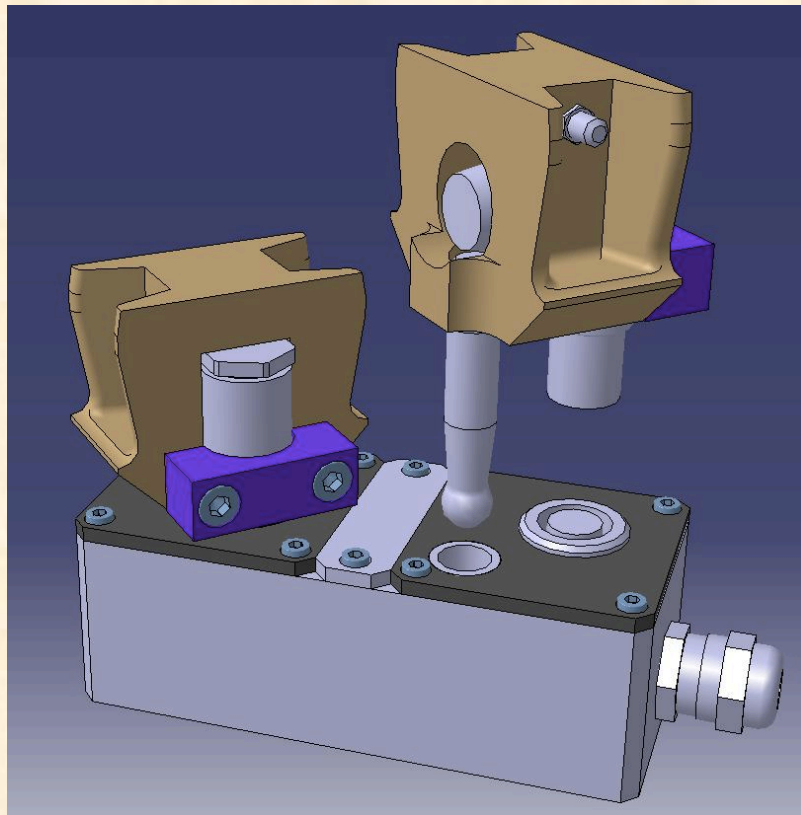
U. S. DEPARTMENT OF ENERGY

T.M. Biewer, ORNL

<http://www.youtube.com/watch?v=RD9XPvIlduY>



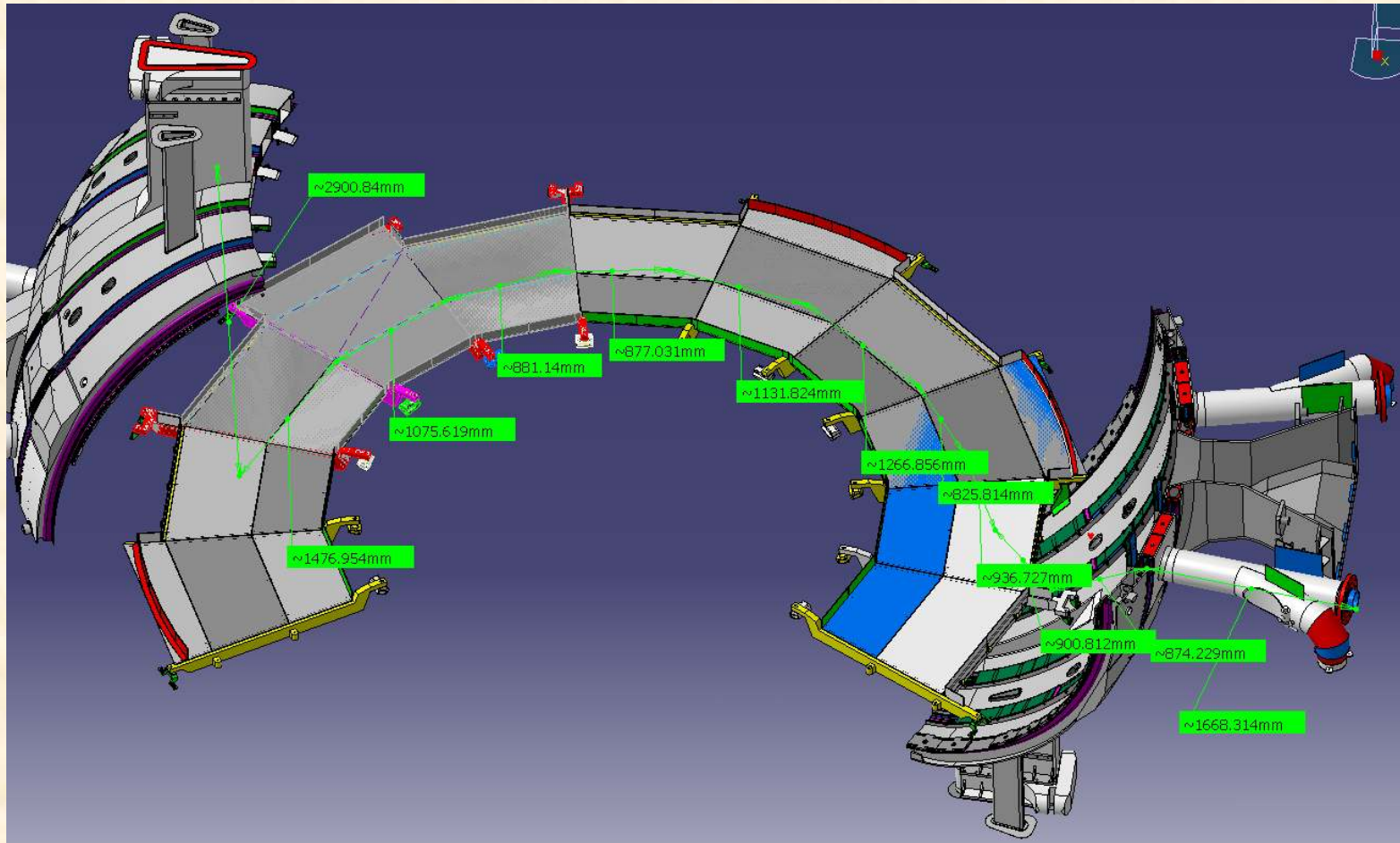
# RH compatible connectors



**OAK RIDGE NATIONAL LABORATORY**  
**U. S. DEPARTMENT OF ENERGY**



# Cable length verification



Estimated cable length from Oct outer limiter guide tube to top of outer vessel at Oct 5 = ~15m. However, some extra might need to be added to be safe. This does not include the length required ex-vessel to the power supply etc.

**OAK RIDGE NATIONAL LABORATORY**  
**U. S. DEPARTMENT OF ENERGY**



# Cable allocation

| CA-10230-000<br>Oak Ridge Natl Lab<br>Device |                     | Wire Budget                         |                                     |                  |               |                  |                 | TOTAL     |
|--|---------------------|-------------------------------------|-------------------------------------|------------------|---------------|------------------|-----------------|-----------|
| Wire AWG                                     | Variable Attenuator | 100W IHLS                           | 5W IHLS                             | Photopic Detecor | Si Detector   | Ext Range InGaAs | LED Lamp Driver |           |
| 22   |                     |                                     | 2                                   |                  |               |                  |                 | 2         |
| 20   |                     |                                     |                                     | 1                | 1             | 1                |                 | 3         |
| 18   |                     |                                     |                                     |                  |               |                  |                 | 0         |
| 16   |                     |                                     |                                     |                  |               |                  |                 | 0         |
| 14   |                     |                                     |                                     |                  |               |                  |                 | 0         |
| 12   |                     | 2                                   |                                     |                  |               |                  |                 | 2         |
| Drain/Shield                                 |                     | 1                                   | 1                                   | 1                | 1             | 1                |                 | 5         |
| <b>TOT # Wires</b>                           | <b>0</b>            | <b>3</b>                            | <b>3</b>                            | <b>2</b>         | <b>2</b>      | <b>2</b>         | <b>0</b>        | <b>12</b> |
| <b>Wire Type</b>                             |                     | 2conductor with shield & drain wire | 2conductor with shield & drain wire | RG-58 Coaxial    | RG-58 Coaxial | RG-58 Coaxial    |                 |           |
| <b>Number of Channels</b>                    | <b>1</b>            | <b>2</b>                            | <b>2</b>                            | <b>1</b>         | <b>1</b>      | <b>1</b>         | <b>1</b>        |           |
| <b>Total number of contacts required</b>     |                     |                                     |                                     |                  |               |                  |                 | <b>18</b> |

- **Need to finalize the number of each type of wire for incorporation into the cable and connector specification.**

# Schedule and other

- **Finalizing the Statement of Work and Quote**
  - Monday (next week)
- **Engineering drawings of the sphere**
  - End of April
- **Ensure JET hardware headed towards Labsphere**
  - May
- **Production and testing**
  - May/June
- **Shipment to JET**
  - June
- **RH testing and prep.**
  - July
- **ICLS use in JET**
  - September