

# Single Cell Cavity Activity Outline

1. ANL EP optimization (TE1AES005)
2. R&D cavities
  - A. Tumble, 2 cavities (TE1ACC004, NR-6, TE1CAT001, TE1CAT002)
  - B. Laser re-melting, 2 cavities (TE1ACC003)
  - C. CMP process, 1-2 cavities (TE1ACC002)
  - D. ECS investigation, 2 cavities (TE1ACC005, TE1ACC006)
  - E. manufacturing optimization, 2 cavities
  - F. Atomic Layer Deposition (ALD) cavities
  - G. Traveling wave cavity, 2 cavities (TW1AES001, TW1AES002)
3. Vendor qualification
  - RRCAT Collaboration, 2 cavities (TE1CAT001, TE1CAT002)
  - ABLE EP 2 cavities (NR-4), 3 TE1PAVxxx cavities are being Opti. insp.
4. Infrastructure support
  - Furnace verification, 1 cavity. (completed)
  - Diode T-map and second sound development 1 cavity (TE1ACC001)
  - ANL HPR water verification 1 cavity (TE1ACC001)
  - X-ray at NorthStar (TE1ACC004, TE1CAT002) (completed)
5. Basic R&D
  - A. EP cavity Q-slope studies
  - B. General Q-slope studies (TE1AES002)
  - C. Cut-out study (TE1AES004)

# Single cell list, out dated, please refer to on-base front page sent in e-mail

| Number    | Current location | Main purpose             | Latest Activity      | Current status                               | Notes   |
|-----------|------------------|--------------------------|----------------------|--|---------|
| TE1AES004 | A0               | Equator quenching, T-map | HPR clean assembly   | In queue for RF test                         |         |
| TE1AES005 | ICB              | CMP, EP, ABLE            |                      | To be HF rinsed                              |         |
| TE1ACC001 | ICB              |                          |                      |  |         |
| TE1ACC002 | CABOT            | CMP                      |                      | RF test done, to be polished at CABOT        |         |
| TE1ACC003 | ANL              | laser remelting          | Molding extraction   | In queue for HPR                             |         |
| TE1ACC004 | IB4              | Tumbling                 | Inspected/replicated | Tumble media verification for 9-cell         |         |
| TE1ACC005 | ICB              | Eddy current scanning    | Molding              | Optical inspected and one final EP (40micon) |         |
| TE1ACC006 | ICB              | Eddy current scanning    | Molding              | To receive progressive EP                    |         |
| NR-1      | ANL              | ANL RF commissioning     | RF tested            |  |         |
| NR-4      | IB1              | ABLE EP                  | 120 C baking         | In queue for RF test                         |         |
| NR-5      | FNAL/ICB         | E-beam remelting on Pit  |                      | inspected, to be processed                   |         |
| NR-6      | IB1              | Tumble                   | RF test done         | In queue for RF test (100K 8h)               |         |
| TE1PAV001 | PAVAC            |                          | Incoming inspection  | three inside weld                            | This wk |
| TE1PAV002 | PAVAC            |                          | Incoming inspection  |  |         |
| TE1PAV003 | PAVAC            |                          | Incoming inspection  |  |         |
| TE1PAV004 | PAVAC            |                          |                      | Three normal weld                            |         |
| TE1PAV005 | PAVAC            |                          |                      |  |         |
| TE1PAV006 | PAVAC            |                          |                      |  |         |
| TE1CAT001 | IB1              | RRCAT collaboration      | RF test done         | In queue for RF test (100K 8h)               |         |
| TE1CAT002 | IB4              | RRCAT collaboration      | Tumble polishing     | In queue for EP                              |         |
| TW1AES001 | MDTL             | Traveling wave prototype | RF test              |  |         |
| TW1AES002 | IB1              | Traveling wave prototype | RF test              | RF test with more T-map, and NbTi flanges    |         |

# Single-Cell Summary

| Serial Number | Aliases | Current Location      | Current Plan            | Current Status    | Latest Performance | Best Performance          | History              | Travelers            |
|---------------|---------|-----------------------|-------------------------|-------------------|--------------------|---------------------------|----------------------|----------------------|
| NR-1          | NR1     | ANL                   | ANL RF commissioning    | RESERVED: ONSITE  | 25.7 MV/m (Quench) | 26.5 MV/m (FE and Quench) | <a href="#">Link</a> | <a href="#">Link</a> |
| NR-2          | NR2     | CORNELL UNIVERSITY    |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| NR-3          | NR3     | CORNELL UNIVERSITY    |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| NR-4          | NR4     | IB1                   | ABLE EP                 | RESERVED: ONSITE  | 30.9 MV/m (Quench) | 32.7 MV/m ( )             | <a href="#">Link</a> | <a href="#">Link</a> |
| NR-5          | NR5     | ICB                   | E-beam remelting of pit | RESERVED: ONSITE  |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| NR-6          | NR6     | A0 - SERVICE BUILDING | Cut out candidate       | RESERVED: ONSITE  | 32.2 MV/m (Quench) | 32.2 MV/m (Quench)        | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1ACC001     |         | ICB                   |                         | RESERVED: OFFSITE | 38.5 MV/m (Quench) | 41.3 MV/m (FE)            | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1ACC002     |         | CABOT                 |                         | RESERVED: OFFSITE | 34.1 MV/m (Quench) | 37.1 MV/m (Quench)        | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1ACC003     |         | A0 - SERVICE BUILDING |                         | RESERVED: ONSITE  | 40.2 MV/m (Quench) | 42 MV/m (Quench)          | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1ACC004     |         | ICB                   | Tumble polishing        | RESERVED: ONSITE  | 40.5 MV/m (Quench) | 40.5 MV/m (Quench)        | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1ACC005     |         | ANL                   | Eddy current scanning   | RESERVED: OFFSITE | 38.1 MV/m (Quench) | 38.1 MV/m (Quench)        | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1ACC006     |         | MP9                   | Eddy current scanning   | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1AES001     |         | JLAB                  | Vertical EP             | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1AES002     |         | CORNELL UNIVERSITY    |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1AES003     |         | TRIUMF                | Cut out study           | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1AES004     |         | A0 - SERVICE BUILDING | T-map test at JLAB      | RESERVED: ONSITE  | 34 MV/m (Quench)   | 39.6 MV/m (quench)        | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1AES005     |         | ANL                   |                         | RESERVED: OFFSITE | 36.3 MV/m (Quench) | 36.3 MV/m (Quench)        | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1AES006     |         | CORNELL UNIVERSITY    |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1CAT001     |         | A0 - SERVICE BUILDING |                         | RESERVED: ONSITE  | 19.2 MV/m (Quench) | 19.2 MV/m (Quench)        | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1CAT002     |         | ANL                   |                         | RESERVED: OFFSITE | 20.9 MV/m (quench) | 20.9 MV/m (quench)        | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1PAV001     |         | ICB                   | EP at ANL               | RESERVED: OTHER   |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1PAV002     |         | ICB                   | EP at ANL               | RESERVED: OTHER   |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1PAV003     |         | ICB                   | EP at ANL               | RESERVED: OTHER   |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1PAV004     |         | PAVAC                 |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1PAV005     |         | PAVAC                 |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1PAV006     |         | PAVAC                 |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1PAV007     |         | PAVAC                 |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> | <a href="#">Link</a> |
| TE1RRC001     |         | RRCAT                 |                         | RESERVED: OFFSITE |                    |                           | <a href="#">Link</a> |                      |
| TW1AES001     |         | ICB                   |                         | RESERVED: ONSITE  | 16 MV/m (quench)   | 16 MV/m (quench)          | <a href="#">Link</a> |                      |
| TW1AES002     |         | IB1                   |                         | RESERVED: ONSITE  | 22 MV/m (quench)   | 22 MV/m (quench)          | <a href="#">Link</a> |                      |

# For next two weeks

- TE1ACC003 (Laser)
  - HPR did not remove cracked molding residual, in queue to tumble polishing
- TE1ACC005&006 (ECS)
  - TE1ACC005 in queue for EP (ANL)
- TW1AES001&002 (traveling wave)
  - TW2 RF test done (IB1), NbTi flanges in progress
- TE1CAT001/NR-6 (Tumble Polishing)
  - RF test done, inspection done. Set aside.
- TE1CAT002 (RRCAT collaboration)
  - Tumble polishing, in queue for EP
- TE1AES004 (basic SRF)
  - RF test done at A0 with active pumping, in queue for JLAB test
- NR-4 (ABLE electropolishing)
  - in queue for RF test and H bakeout
- TE1PAVxxx incoming inspection and optical insp. Done.
  - Molding done, in queue for EP