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| Traveler Title |  | | | |
| Traveler Abstract |  | | | |
| Traveler ID | SNSPPU-CAV-VTRF | | | |
| Traveler Revision | R1 | | | |
| Traveler Author | P. Dhakal | | | |
| Traveler Date |  | | | |
| NCR Emails |  | | | |
| Approval Names | P. Dhakal |  | E. Daly |  |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Project Manager |  |

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| References | List and Hyperlink all documents related to this traveler. This includes, but is not limited to: safety (THAs, SOPs, etc), drawings, procedures, and facility related documents. | | | |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |

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| Step No. | Instructions | Data Input |
| 1 | Record if cavity has helium vessel | [[HeliumVessel]] <<YESNO>> |
| 2 | Record method of cavity processing (electropolish (EP) or buffered chemical polish (BCP)) | [[ProcessingTechnique]] {{EP,BCP}} <<RADIO>> |
| 3 | Has the cavity been baked after processing? | [[Baked]] <<YESNO>>  [[BakedTemp]] <<FLOAT>> ℃  [[BakedTime]] <<FLOAT>> hr |
| 4 | Was data taken during pumpdown for determining RBCS? (Procedure: 805MHz Vertical Testing Procedure) | [[CooldownData]] <<YESNO>> |
| 5 | Cavity Serial Number | [[CAVSN]] <<CAVSN>> |
| 6 | Record test date, dewar number, test stand serial number and operator(s) | [[TestDate]] <<TIMESTAMP>>  [[DewarNo]] <<FLOAT>>  [[TSTDSN]] <<TSTDSN>>  [[TestOperator1]] <<SRF>>  [[TestOperator2]] <<SRF>> |
| 7 | Record cavity vacuum pressure, if so instrumented. | [[CavityVacuum]] <<FLOAT>> mbar |
| 8 | Record dewar helium bath liquid level, temperature, and pressure. Do not continue unless dewar LHe level is greater than/equal to 175 cm. | [[DewarHeLiquidLevel]] <<FLOAT>> (cm)  [[DewarTemp]] <<FLOAT>> (K)  [[DewarPressure]] <<FLOAT>> (torr) |
| 9 | Zero power meters, calibrate at cavity fundamental frequency (be sure to go off resonance when calibrating cables from dewar top plate to cavity), and preform low power network analyzer measurements (measure the six cavity mode frequencies). Record the cavity mode frequencies at the right. | [[Pi]] <<FLOAT>> (MHz)  [[5\_6Pi]] <<FLOAT>> (MHz)  [[4\_6Pi]] <<FLOAT>> (MHz)  [[3\_6Pi]] <<FLOAT>> (MHz)  [[2\_6Pi]] <<FLOAT>> (MHz)  [[1\_6Pi]] <<FLOAT>> (MHz) |
| 10 | Determine cavity coupling Procedure: 805 MHz Vertical Testing Procedure | [[CavityCoupling]] {{Overcoupled,Undercoupled}} <<RADIO>> |

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| **Step No** | **Instructions** | | | | **Data Inputs** | | |
| 11 | Determine the value of Qext2 by performing decay measurements at low gradient (typically ≤ 4-5 MV/m) and record 5 good sets of data. Make sure that the cavity Qo is constant in the gradient range used and that there is no field emission (observed radiation). Procedure: 805 MHz Vertical Testing Procedure | | | | Enter data in table below | | |
| Eacc (MV/m) | | Qo | Qext1 | Qext2 | | Qexy2 error % | Rad (mR/hr) |
| [[Eacc1]] <<FLOAT>> | | [[Qo1]] <<FLOAT>> | [[Qextin1]] <<FLOAT>> | [[Qextfp1]] <<FLOAT>> | | [[error1]] <<FLOAT>> | [[rad1]] <<FLOAT>> |
| [[Eacc2]] <<FLOAT>> | | [[Qo2]] <<FLOAT>> | [[Qextin2]] <<FLOAT>> | [[Qextfp2]] <<FLOAT>> | | [[error2]] <<FLOAT>> | [[rad2]] <<FLOAT>> |
| [[Eacc3]] <<FLOAT>> | | [[Qo3]] <<FLOAT>> | [[Qextin3]] <<FLOAT>> | [[Qextfp3]] <<FLOAT>> | | [[error3]] <<FLOAT>> | [[rad3]] <<FLOAT>> |
| [[Eacc4]] <<FLOAT>> | | [[Qo4]] <<FLOAT>> | [[Qextin4]] <<FLOAT>> | [[Qextfp4]] <<FLOAT>> | | [[error4]] <<FLOAT>> | [[rad4]] <<FLOAT>> |
| [[Eacc5]] <<FLOAT>> | | [[Qo5]] <<FLOAT>> | [[Qextin5]] <<FLOAT>> | [[Qextfp5]] <<FLOAT>> | | [[error5]] <<FLOAT>> | [[rad5]] <<FLOAT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 12 | Record Qext2 chosen for CW measurements and the % error in this value. | [[Qext2CW]] <<FLOAT>>  [[Qext2error]] <<FLOAT>> |
| 13 | Process the cavity and generate a Q0 vs Eacc curve  Procedure: 805 MHz Vertical Testing Procedure |  |
| 14 | Record maxium gradient achieved, onset of field emission, and highest radiation inside dewar lid. | [[Emax]] <<FLOAT>> (MV/m)  [[QoatEmax]] <<FLOAT>>  [[FirstFEOnset]] <<FLOAT>> (MV/m)  [[FinalFEOnset]] <<FLOAT>> (MV/m)  [[RadMax]] <<FLOAT>> (mR/hr) |
| 15 | Record Q0 at Eacc =~ 4 and 16 MV/m. | [[Qoat4MVm]] <<FLOAT>>  [[Qoat16MVm]] <<FLOAT>> |
| 16 | Record performace limitation. | [[PerformanceLimit]] {{RF Power,FE,Quench,Cable,Operator,OMP,Other}} <<RADIO>> |
| 17 | Performance notes – record information about cavit performance and techniques used to increase/reach gradient, such as pulse processing. | [[PerformanceNotes]] <<COMMENT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 18 | Upload raw data file | [[RawDataFile]] <<FILEUPLOAD>> |
| 19 | Start warm-up of cavity |  |
| 20 | Upload processed data file | [[RFTestProcessedData]] <<FILEUPLOAD>> |
| 21 | Upload processed Q-vs-Eacc curve/data | [[QvsEData]] <<FILEUPLOAD>> |
| 22 | Upload processed Rad-vs-Eacc curve/data. | [[RadvsEData]] <<FILEUPLOAD>> |
| 23 | Cavity qualified for string assembly? | [[CavQualified]] <<YESNO>> |