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| Traveler Title | R&D Cavity RF Inspection Traveler |
| Traveler Abstract | This traveler collects data from the RF inspection of R&D cavities. |
| Traveler ID | SRFRD-TUNE-CAV-RFIN |
| Traveler Revision  | R1 |
| Traveler Author | G. CIOVATI |
| Traveler Date | 11-Jul-25 |
| NCR Informative Emails | OVERTON |
| NCR Dispositioners | OVERTON,KDAVIS, FOREHAND |
| D3 Emails | OVERTON,KDAVIS |
| Approval Names | G. CIOVATI | R. OVERTON | K. DAVIS | R. GENG |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Production Rep | SRF S&T Dept. Head |

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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. Adapted from STP-CAV-PROC-TUNE-R1 |

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| Step No. | Instructions | Data Input |
| 1 | Record Project ID and any project specific instructions | [[PROJSN]] <<PROJSN>>[[PROJNAME]] <<TEXT>> [[ProjInstructions]] <<COMMENT>>[[ProjFiles]] <<FILEUPLOAD>> |
| 2 | Record cavity ID or serial number. Write the condition or process that the cavity received prior to this RF inspection. | [[CAVSN]] <<CAVSN>>[[CAVNAME]] <<TEXT>>[[Comment]] <<COMMENT>> |
| 3 | Record operator(s), process date and time. | [[Operator\_SRFCVP]] <<SRFCVP>>[[Operator\_SRFST]] <<SRFST>>[[DateAndTime]] <<TIMESTAMP>> |
| 4 | Measure the frequency of all modes of the TM010 passband and record their frequencies in MHz. Modes are numbered from 1 (pi-mode, highest frequency) to N (lowest frequency), with descending frequencies, where N is the cavity's number of cells. Take a bead-pull using the Pi-mode frequency and record the results. | [[Beadpull\_Initial]] <<FILEUPLOAD>>[[Mode1\_Freq]] <<FLOAT>>MHz[[Mode2\_Freq]] <<FLOAT>>MHz[[Mode3\_Freq]] <<FLOAT>>MHz[[Mode4\_Freq]] <<FLOAT>>MHz[[Mode5\_Freq]] <<FLOAT>>MHz[[Mode6\_Freq]] <<FLOAT>>MHz[[Mode7\_Freq]] <<FLOAT>>MHz[[Mode8\_Freq]] <<FLOAT>>MHz[[Mode9\_Freq]] <<FLOAT>>MHz |
| 5 | Record the following conditions of the tuning area:* Temperature in degree Celsius
* Relative humidity
* Barometric pressure
 | [[Temp]] <<FLOAT>>°C[[RelHum]] <<FLOAT>>%[[BarPress]] <<FLOAT>>mbar |
| 6 | Tune the cavity to the target frequency ± 100 kHz specified by the PI with a field flatness ≥ 95%. Upload the file with the beadpull results after tuning and record the frequency of all the modes of the TM010 passband. | [[Beadpull\_Tuned]] <<FILEUPLOAD>>[[Mode1\_Freq]] <<FLOAT>>MHz[[Mode2\_Freq]] <<FLOAT>>MHz[[Mode3\_Freq]] <<FLOAT>>MHz[[Mode4\_Freq]] <<FLOAT>>MHz[[Mode5\_Freq]] <<FLOAT>>MHz[[Mode6\_Freq]] <<FLOAT>>MHz[[Mode7\_Freq]] <<FLOAT>>MHz[[Mode8\_Freq]] <<FLOAT>>MHz[[Mode9\_Freq]] <<FLOAT>>MHz |
| 7 | Calibrate the antenna to be used for the rf power INPUT to the Qext value specified by the PI.Record the antenna length and diameter.Record any markings identifying the flange with the port where the feedthrough with antenna is bolted to.Record any marking identifying the rf feedthrough where the antenna is screwed on.Upload a picture of the input flange with rf feedthrough and antenna.Record the distance between the tip of the antenna and the inner surface of the flange, with the antenna screwed to the rf feedthrough, mounted to the flange. If the antenna tip is below the inner surface of the flange enter a negative number.Enter any comment such as any marking identifying the side of the cavity where the flange with input antenna is mounted to. | [[InputAntennaQext]] <<SCINOT>>[[InputAntennaLength]] <<FLOAT>>in[[InputAntennaDiam]] <<FLOAT>>in[[InputFlangeID]] <<TEXT>>[[InputRFFeedID]] <<TEXT>>[[InputFlangePic]] <<FILEUPLOAD>>[[InputAntennaDepth]] <<FLOAT>>in[[InputAntennaComm]] <<COMMENT>> |
| 8 | Calibrate the antenna to be used for the PICK-UP probe to the Qext value specified by the PI.Record the antenna length and diameter.Record any markings identifying the flange with the port where the feedthrough with antenna is bolted to.Record any marking identifying the rf feedthrough where the antenna is screwed on.Upload a picture of the pick-up flange with rf feedthrough and antenna.Record the distance between the tip of the antenna and the inner surface of the flange, with the antenna screwed to the rf feedthrough, mounted to the flange. If the antenna tip is below the inner surface of the flange enter a negative number.Enter any comment such as any marking identifying the side of the cavity where the flange with pick-up antenna is mounted to. | [[PickupAntennaQext]] <<SCINOT>>[[PickupAntennaLength]] <<FLOAT>>in[[PickupAntennaDiam]] <<FLOAT>>in[[PickupFlangeID]] <<TEXT>>[[PickupRFFeedID]] <<TEXT>>[[PickupFlangePic]] <<FILEUPLOAD>>[[PickupAntennaDepth]] <<FLOAT>>in[[PickupAntennaComm]] <<COMMENT>> |
| 9 | Upload any beadpull data on higher order modes, as requested by the PI. | [[HOMBeadpulls]] <<FILEUPLOAD>> |