

# CEBAF C100 Cryomodule Plasma Process Readiness Review

## Traveler

- Pansophy
- Traveler Sections
  - Pre Plasma Processing (Initial) Cryomodule Measurements
  - Plasma Processing Set up and Rounds
  - Post Plasma Processing Cryomodule Measurements

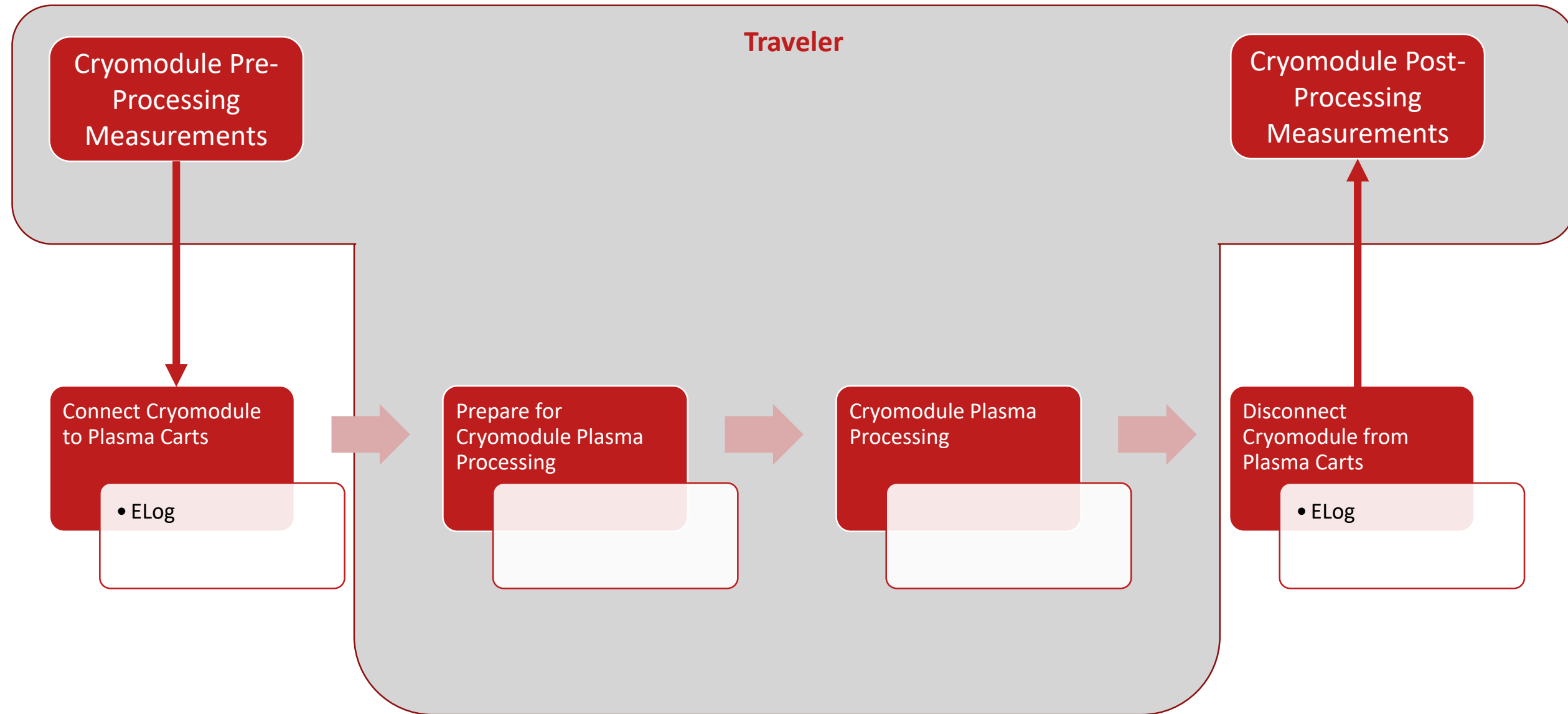
Traveler is organized in the order in which work will be performed but is only used to store data. Detailed work instructions are provided in checklists and procedures.

Traveler developed based on input from the work center leads on critical data fields to be recorded and data files to be uploaded.

T. Ganey

Tuesday, February 28, 2023

# Traveler Overview



# JLab Pansophy

- Pansophy is a web-accessible data and process management tool
- Revision control is maintained for history and records.
- Data entry and comments are made by the user as prescribed process points.

Select Traveler:  VIEW all SAVE PDF Page: 4 FIRST PREV NEXT LAST NEW

SerialNum: 0 Traveler ID: C100R-CMTF-CM-ACTS Rev: R3 Page: 4 Traveler Seq Number: 0

| Step No       | Instructions  |              |              |              | Data Inputs           |              |            |
|---------------|---|--------------|--------------|--------------|-----------------------|--------------|------------|
| 18            | Record cavity warm frequencies (in MHz) in table below. |              |              |              | WarmFreqOperator: -0- |              |            |
| Cavity Number | 1/7 PI  | 2/7 PI       | 3/7 PI       | 4/7 PI       | 5/7 PI                | 6/7 PI       | PI         |
| 1             | Cav1Warm17Pi  | Cav1Warm27Pi | Cav1Warm37Pi | Cav1Warm47Pi | Cav1Warm57Pi          | Cav1Warm67Pi | Cav1WarmPi |
| 2             | Cav2Warm17Pi  | Cav2Warm27Pi | Cav2Warm37Pi | Cav2Warm47Pi | Cav2Warm57Pi          | Cav2Warm67Pi | Cav2WarmPi |
| 3             | Cav3Warm17Pi  | Cav3Warm27Pi | Cav3Warm37Pi | Cav3Warm47Pi | Cav3Warm57Pi          | Cav3Warm67Pi | Cav3WarmPi |
| 4             | Cav4Warm17Pi  | Cav4Warm27Pi | Cav4Warm37Pi | Cav4Warm47Pi | Cav4Warm57Pi          | Cav4Warm67Pi | Cav4WarmPi |
| 5             | Cav5Warm17Pi  | Cav5Warm27Pi | Cav5Warm37Pi | Cav5Warm47Pi | Cav5Warm57Pi          | Cav5Warm67Pi | Cav5WarmPi |
| 6             | Cav6Warm17Pi  | Cav6Warm27Pi | Cav6Warm37Pi | Cav6Warm47Pi | Cav6Warm57Pi          | Cav6Warm67Pi | Cav6WarmPi |
| 7             | Cav7Warm17Pi  | Cav7Warm27Pi | Cav7Warm37Pi | Cav7Warm47Pi | Cav7Warm57Pi          | Cav7Warm67Pi | Cav7WarmPi |
| 8             | Cav8Warm17Pi  | Cav8Warm27Pi | Cav8Warm37Pi | Cav8Warm47Pi | Cav8Warm57Pi          | Cav8Warm67Pi | Cav8WarmPi |

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# General Information and Initial Checks

| Step No.    | Instructions   | Data Input  |      |             |      |             |      |
|-------------|--|---|------|-------------|------|-------------|------|
| 1           | Is the cryomodule in the CMTF or CEBAF for plasma processing?  | [[CM_Location]]<br>{ {CEBAF,CMTF,OTHER} } <<SELECT>><br><br>If Other is selected, fill in the location:<br>[[Location_Other]] <<COMMENT>> |      |             |      |             |      |
|             | Enter the Cryomodule SN.   | [[CMSN]] <<CMSN>>   |      |             |      |             |      |
|             | If the work is being performed in CEBAF, enter the cryomodule's zone.<br>Examples:   | [[CEBAF_Zone]] <<TEXT>>   |      |             |      |             |      |
|             | <table><tr><td>Injector</td><td>Inxx</td></tr><tr><td>North Linac</td><td>NLxx</td></tr><tr><td>South Linac</td><td>SLxx</td></tr></table> | Injector  | Inxx | North Linac | NLxx | South Linac | SLxx |
| Injector    | Inxx   |   |      |             |      |             |      |
| North Linac | NLxx   |   |      |             |      |             |      |
| South Linac | SLxx   |   |      |             |      |             |      |
| 2           | Initial Cryomodule Test Information. To provide a baseline measure of cryomodule performance prior to Plasma Processing.                   | [[Init_CMTestTech]] <<SRF>><br><br>[[Init_CMTestTime]] <<TIMESTAMP>>  |      |             |      |             |      |
|             | Record the Beamline Vacuum prior to the start of high power operations.  | [[Init_BLVac]] <<FLOAT>> Torr   |      |             |      |             |      |
|             | Verify that the radiation detectors are connected and correctly positioned around the cryomodule.  | [[Init_RadDetOK]] <<YESNO>>   |      |             |      |             |      |

# Cryomodule Probe Calibrations

| Step No | Instructions  |                                | Data Inputs                          |
|---------|---|--------------------------------|--------------------------------------|
| 3       | Record the Probe Calibrations (GGPRB) for each cavity in the table below. |                                |                                      |
|         | <b>Cavity #</b>   | <b>Probe Calibration Value</b> | <b>Comments</b>                      |
|         | 1   | [[InitC1_GGPRB]] <<FLOAT>>     | [[InitC1_GGPRB_Comment]] <<COMMENT>> |
|         | 2   | [[InitC2_GGPRB]] <<FLOAT>>     | [[InitC2_GGPRB_Comment]] <<COMMENT>> |
|         | 3   | [[InitC3_GGPRB]] <<FLOAT>>     | [[InitC3_GGPRB_Comment]] <<COMMENT>> |
|         | 4   | [[InitC4_GGPRB]] <<FLOAT>>     | [[InitC4_GGPRB_Comment]] <<COMMENT>> |
|         | 5   | [[InitC5_GGPRB]] <<FLOAT>>     | [[InitC5_GGPRB_Comment]] <<COMMENT>> |
|         | 6   | [[InitC6_GGPRB]] <<FLOAT>>     | [[InitC6_GGPRB_Comment]] <<COMMENT>> |
|         | 7   | [[InitC7_GGPRB]] <<FLOAT>>     | [[InitC7_GGPRB_Comment]] <<COMMENT>> |
|         | 8   | [[InitC8_GGPRB]] <<FLOAT>>     | [[InitC8_GGPRB_Comment]] <<COMMENT>> |

# Initial Cryomodule Measurements

| Step No | Instructions   |   |                                |                                    |                                  | Data Inputs                      |                                    |                                     |
|---------|--|---|--------------------------------|------------------------------------|----------------------------------|----------------------------------|------------------------------------|-------------------------------------|
| 4       | Record the Emax and the limiting condition in the table below. See the procedure CP-C100-COM-CM-CAV-EMAX for instructions. |   |                                |                                    |                                  |                                  |                                    |                                     |
|         | <b>Cavity</b>  | <b>Emax Limit</b>   | <b>Emax (MV/m)</b>             | <b>Field Emission Onset (MV/m)</b> | <b>100 mR/hr Gradient (MV/m)</b> | <b>Maximum Dose Rate (mR/hr)</b> | <b>Attach Files</b>                | <b>Comments</b>                     |
|         | 1  | [[InitC1_EmaxLimit]]<br>[ {{Arc Fault,IR Fault,Cavity Quench,End Group Quench,BL Vac Fault,WG Vac Fault,Power Limited,Admin Limited,Other}} ]<br><<SELECT>> | [[InitC1_Emax]]<br>[ <<FLOAT>> | [[InitC1_FEOn]]<br>[ <<FLOAT>>     | [[InitC1_100G]]<br>[ <<FLOAT>>   | [[InitC1_MaxDR]]<br>[ <<FLOAT>>  | [[InitC1_Files]]<br><<FILEUPLOAD>> | [[InitC1_Comment]]<br>[ <<COMMENT>> |
|         | 2  | [[InitC2_EmaxLimit]]<br>[ {{Arc Fault,IR Fault,Cavity Quench,End Group Quench,BL Vac Fault,WG Vac Fault,Power Limited,Admin Limited,Other}} ]<br><<SELECT>> | [[InitC2_Emax]]<br>[ <<FLOAT>> | [[InitC2_FEOn]]<br>[ <<FLOAT>>     | [[InitC2_100G]]<br>[ <<FLOAT>>   | [[InitC2_MaxDR]]<br>[ <<FLOAT>>  | [[InitC2_Files]]<br><<FILEUPLOAD>> | [[InitC2_Comment]]<br>[ <<COMMENT>> |
|         | 3  | [[InitC3_EmaxLimit]]  | [[InitC3_Emax]]                | [[InitC3_FEOn]]                    | [[InitC3_100G]]                  | [[InitC3_MaxDR]]                 | [[InitC3_Files]]                   | [[InitC3_Comment]]                  |

# Phase Shifter Measurements

| Step No  | Instructions  | Data Inputs   |                                 |                                 |                  |            |                    |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |
|----------|---|---|---------------------------------|---------------------------------|------------------|------------|--------------------|---|--------------------------------------|------------------------|---------------------------------|---------------------------------|---|--------------------------------------|------------------------|---------------------------------|---------------------------------|---|--------------------------------------|------------------------|---------------------------------|---------------------------------|
| 5        | Plasma Processing<br>Record the planned recipe for plasma processing this cryomodule. Actual values will be recorded later. | <p>Round 1:</p> <p>[[PPR1_PlanO2Percent]] &lt;&lt;FLOAT&gt;&gt; %<br/>           [[PPR1_PlanProcGas]] { {Argon,Helium,Other} }<br/>           &lt;&lt;SELECT&gt;&gt;<br/>           [[PPR1_PlanComment]] &lt;&lt;COMMENT&gt;&gt;</p> <p>Round 2:</p> <p>[[PPR2_PlanO2Percent]] &lt;&lt;FLOAT&gt;&gt; %<br/>           [[PPR2_PlanProcGas]] { {Argon,Helium,Other} }<br/>           &lt;&lt;SELECT&gt;&gt;<br/>           [[PPR2_PlanComment]] &lt;&lt;COMMENT&gt;&gt;</p> <p>Additional Rounds / Other Information:<br/>           [[PP_PlanAddInfo]] &lt;&lt;COMMENT&gt;&gt;</p>   |                                 |                                 |                  |            |                    |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |
| 6        | Perform the Phase Shifter Measurements and record the information in the table below.                                       | <p>[[PS_Tech1]] &lt;&lt;SRF&gt;&gt;<br/>           [[PS_Tech2]] &lt;&lt;SRF&gt;&gt;<br/>           [[PS_Tech3]] &lt;&lt;SRF&gt;&gt;</p> <p>[[PS_TS]] &lt;&lt;TIMESTAMP&gt;&gt;<br/>           [[PS_Comment]] &lt;&lt;COMMENT&gt;&gt;</p> <table border="1"> <thead> <tr> <th>Cavity #</th><th>Phase Shifter HOM</th><th>Phase Shifter ID</th><th># of Steps</th><th>Phase Shifter File</th></tr> </thead> <tbody> <tr> <td>1</td><td>[[PSC1_HOM]] { {A,B} }<br/>&lt;&lt;SELECT&gt;&gt;</td><td>[[PSC1_PSID]] &lt;&lt;TEXT&gt;&gt;</td><td>[[PSC1_NumStep]]<br/>&lt;&lt;INTEGER&gt;&gt;</td><td>[[PSC1_File]]<br/>&lt;&lt;FILEUPLOAD&gt;&gt;</td></tr> <tr> <td>2</td><td>[[PSC2_HOM]] { {A,B} }<br/>&lt;&lt;SELECT&gt;&gt;</td><td>[[PSC2_PSID]] &lt;&lt;TEXT&gt;&gt;</td><td>[[PSC2_NumStep]]<br/>&lt;&lt;INTEGER&gt;&gt;</td><td>[[PSC2_File]]<br/>&lt;&lt;FILEUPLOAD&gt;&gt;</td></tr> <tr> <td>3</td><td>[[PSC3_HOM]] { {A,B} }<br/>&lt;&lt;SELECT&gt;&gt;</td><td>[[PSC3_PSID]] &lt;&lt;TEXT&gt;&gt;</td><td>[[PSC3_NumStep]]<br/>&lt;&lt;INTEGER&gt;&gt;</td><td>[[PSC3_File]]<br/>&lt;&lt;FILEUPLOAD&gt;&gt;</td></tr> </tbody> </table> | Cavity #                        | Phase Shifter HOM               | Phase Shifter ID | # of Steps | Phase Shifter File | 1 | [[PSC1_HOM]] { {A,B} }<br><<SELECT>> | [[PSC1_PSID]] <<TEXT>> | [[PSC1_NumStep]]<br><<INTEGER>> | [[PSC1_File]]<br><<FILEUPLOAD>> | 2 | [[PSC2_HOM]] { {A,B} }<br><<SELECT>> | [[PSC2_PSID]] <<TEXT>> | [[PSC2_NumStep]]<br><<INTEGER>> | [[PSC2_File]]<br><<FILEUPLOAD>> | 3 | [[PSC3_HOM]] { {A,B} }<br><<SELECT>> | [[PSC3_PSID]] <<TEXT>> | [[PSC3_NumStep]]<br><<INTEGER>> | [[PSC3_File]]<br><<FILEUPLOAD>> |
| Cavity # | Phase Shifter HOM   | Phase Shifter ID  | # of Steps                      | Phase Shifter File              |                  |            |                    |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |
| 1        | [[PSC1_HOM]] { {A,B} }<br><<SELECT>>  | [[PSC1_PSID]] <<TEXT>>  | [[PSC1_NumStep]]<br><<INTEGER>> | [[PSC1_File]]<br><<FILEUPLOAD>> |                  |            |                    |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |
| 2        | [[PSC2_HOM]] { {A,B} }<br><<SELECT>>  | [[PSC2_PSID]] <<TEXT>>  | [[PSC2_NumStep]]<br><<INTEGER>> | [[PSC2_File]]<br><<FILEUPLOAD>> |                  |            |                    |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |
| 3        | [[PSC3_HOM]] { {A,B} }<br><<SELECT>>  | [[PSC3_PSID]] <<TEXT>>  | [[PSC3_NumStep]]<br><<INTEGER>> | [[PSC3_File]]<br><<FILEUPLOAD>> |                  |            |                    |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |   |                                      |                        |                                 |                                 |



# HOM Modes

| Step No | Instructions   |                                      |                                   | Data Inputs  |
|---------|--|--------------------------------------|-----------------------------------|--|
| 7       | Create the Plasma Processing Mode Files for each cavity and record the information in the table below. |                                      |                                   | [[Modes_Tech1]] <<SRF>><br>[[Modes_Tech2]] <<SRF>><br>[[Modes_Tech3]] <<SRF>><br><br>[[Modes_TS]] <<TIMESTAMP>><br>[[Modes_Comment]] <<COMMENT>> |
|         | Cavity #   | RF Input HOM                         | Modes File Upload                 | Comments   |
|         | 1  | [[RFINC1_HOM]]<br>{{A,B}} <<SELECT>> | [[RFINC1_File]]<br><<FILEUPLOAD>> | [[RFINC1_Comment]] <<COMMENT>>   |
|         | 2  | [[RFINC2_HOM]]<br>{{A,B}} <<SELECT>> | [[RFINC2_File]]<br><<FILEUPLOAD>> | [[RFINC2_Comment]] <<COMMENT>>   |
|         | 3  | [[RFINC3_HOM]]<br>{{A,B}} <<SELECT>> | [[RFINC3_File]]<br><<FILEUPLOAD>> | [[RFINC3_Comment]] <<COMMENT>>   |
|         | 4  | [[RFINC4_HOM]]<br>{{A,B}} <<SELECT>> | [[RFINC4_File]]<br><<FILEUPLOAD>> | [[RFINC4_Comment]] <<COMMENT>>   |
|         | 5  | [[RFINC5_HOM]]<br>{{A,B}} <<SELECT>> | [[RFINC5_File]]<br><<FILEUPLOAD>> | [[RFINC5_Comment]] <<COMMENT>>   |
|         | 6  | [[RFINC6_HOM]]<br>{{A,B}} <<SELECT>> | [[RFINC6_File]]<br><<FILEUPLOAD>> | [[RFINC6_Comment]] <<COMMENT>>   |
|         | 7  | [[RFINC7_HOM]]<br>{{A,B}} <<SELECT>> | [[RFINC7_File]]<br><<FILEUPLOAD>> | [[RFINC7_Comment]] <<COMMENT>>   |
|         | 8  | [[RFINC8_HOM]]<br>{{A,B}} <<SELECT>> | [[RFINC8_File]]<br><<FILEUPLOAD>> | [[RFINC8_Comment]] <<COMMENT>>   |

# Plasma Processing Round 1

| Step No  | Instructions  | Data Inputs  |                               |                              |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
|----------|---|--|-------------------------------|------------------------------|---------------------|------------------|---|----------------------------------|--------------------------------|-------------------------------|------------------------------|---|----------------------------------|--------------------------------|-------------------------------|------------------------------|---|----------------------------------|--------------------------------|-------------------------------|------------------------------|---|----------------------------------|--------------------------------|-------------------------------|------------------------------|---|----------------------------------|--------------------------------|-------------------------------|------------------------------|---|----------------------------------|--------------------------------|-------------------------------|------------------------------|---|----------------------------------|--------------------------------|-------------------------------|------------------------------|---|----------------------------------|--------------------------------|-------------------------------|------------------------------|--|
| 8        | Plasma Processing Round 1   | [[R1_Tech1]] <<SRF>><br>[[R1_Tech2]] <<SRF>><br>[[R1_Tech3]] <<SRF>><br><br>[[R1_StartTime]] <<TIMESTAMP>><br>[[R1_Comment]] <<COMMENT>>   |                               |                              |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
|          | Record the processing gas, the measured oxygen percentage, mass flow setpoint, measured mass flow, pressure setpoint, and measured pressure.<br><br>Upload the RGA baseline file.   | [[R1_ProcGas]] {{Argon,Helium,Other}} <<SELECT>><br>[[R1_O2Percent]] <<FLOAT>> %<br>[[R1_MassFlowSetpoint]] <<FLOAT>> SCCM<br>[[R1_MassFlowMeasured]] <<FLOAT>> SCCM<br>[[R1_PressureSetpoint]] <<FLOAT>><br>[[R1_PressureMeasured]] <<FLOAT>><br><br>[[R1_GasComment]] <<COMMENT>><br><br>[[R1_RGABaselineFile]] <<FILEUPLOAD>> |                               |                              |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
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| Cavity # | Round 1 Start Time  | Round 1 Stop Time  | Round 1 File Upload           | Round 1 Comments             |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
| 1        | [[R1C1_StartTime]] <<TIMESTAMP>>  | [[R1C1_EndTime]] <<TIMESTAMP>>   | [[R1C1_Files]] <<FILEUPLOAD>> | [[R1C1_Comment]] <<COMMENT>> |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
| 2        | [[R1C2_StartTime]] <<TIMESTAMP>>  | [[R1C2_EndTime]] <<TIMESTAMP>>   | [[R1C2_Files]] <<FILEUPLOAD>> | [[R1C2_Comment]] <<COMMENT>> |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
| 3        | [[R1C3_StartTime]] <<TIMESTAMP>>  | [[R1C3_EndTime]] <<TIMESTAMP>>   | [[R1C3_Files]] <<FILEUPLOAD>> | [[R1C3_Comment]] <<COMMENT>> |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
| 4        | [[R1C4_StartTime]] <<TIMESTAMP>>  | [[R1C4_EndTime]] <<TIMESTAMP>>   | [[R1C4_Files]] <<FILEUPLOAD>> | [[R1C4_Comment]] <<COMMENT>> |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
| 5        | [[R1C5_StartTime]] <<TIMESTAMP>>  | [[R1C5_EndTime]] <<TIMESTAMP>>   | [[R1C5_Files]] <<FILEUPLOAD>> | [[R1C5_Comment]] <<COMMENT>> |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
| 6        | [[R1C6_StartTime]] <<TIMESTAMP>>  | [[R1C6_EndTime]] <<TIMESTAMP>>   | [[R1C6_Files]] <<FILEUPLOAD>> | [[R1C6_Comment]] <<COMMENT>> |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
| 7        | [[R1C7_StartTime]] <<TIMESTAMP>>  | [[R1C7_EndTime]] <<TIMESTAMP>>   | [[R1C7_Files]] <<FILEUPLOAD>> | [[R1C7_Comment]] <<COMMENT>> |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
| 8        | [[R1C8_StartTime]] <<TIMESTAMP>>  | [[R1C8_EndTime]] <<TIMESTAMP>>   | [[R1C8_Files]] <<FILEUPLOAD>> | [[R1C8_Comment]] <<COMMENT>> |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |
|          | Upload the End of Round 1 Files   | [[R1_Files]] <<FILEUPLOAD>>  |                               |                              |                     |                  |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |   |                                  |                                |                               |                              |  |

# Plasma Processing Round 2

| Step No | Instructions  |                                  |                                |                               | Data Inputs  |
|---------|---|----------------------------------|--------------------------------|-------------------------------|--|
| 9       | Plasma Processing Round 2   |                                  |                                |                               | [[R2_Tech1]] <<SRF>><br>[[R2_Tech2]] <<SRF>><br>[[R2_Tech3]] <<SRF>><br><br>[[R2_StartTime]] <<TIMESTAMP>><br>[[R2_Comment]] <<COMMENT>>   |
|         | Record the processing gas, the measured oxygen percentage, mass flow setpoint, measured mass flow, pressure setpoint, and measured pressure.<br><br>Upload the RGA baseline file. |                                  |                                |                               | [[R2_ProcGas]] {{Argon,Helium,Other}} <<SELECT>><br>[[R2_O2Percent]] <<FLOAT>> %<br>[[R2_MassFlowSetpoint]] <<FLOAT>> SCCM<br>[[R2_MassFlowMeasured]] <<FLOAT>> SCCM<br>[[R2_PressureSetpoint]] <<FLOAT>><br>[[R2_PressureMeasured]] <<FLOAT>><br><br>[[R2_GasComment]] <<COMMENT>><br><br>[[R2_RGABaselineFile]] <<FILEUPLOAD>> |
|         | <b>Cavity #</b>   | <b>Round 2 Start Time</b>        | <b>Round 2 Stop Time</b>       | <b>Round 2 File Upload</b>    | <b>Round 2 Comments</b>  |
|         | 1   | [[R2C1_StartTime]] <<TIMESTAMP>> | [[R2C1_EndTime]] <<TIMESTAMP>> | [[R2C1_Files]] <<FILEUPLOAD>> | [[R2C1_Comment]] <<COMMENT>>   |
|         | 2   | [[R2C2_StartTime]] <<TIMESTAMP>> | [[R2C2_EndTime]] <<TIMESTAMP>> | [[R2C2_Files]] <<FILEUPLOAD>> | [[R2C2_Comment]] <<COMMENT>>   |
|         | 3   | [[R2C3_StartTime]] <<TIMESTAMP>> | [[R2C3_EndTime]] <<TIMESTAMP>> | [[R2C3_Files]] <<FILEUPLOAD>> | [[R2C3_Comment]] <<COMMENT>>   |
|         | 4   | [[R2C4_StartTime]] <<TIMESTAMP>> | [[R2C4_EndTime]] <<TIMESTAMP>> | [[R2C4_Files]] <<FILEUPLOAD>> | [[R2C4_Comment]] <<COMMENT>>   |
|         | 5   | [[R2C5_StartTime]] <<TIMESTAMP>> | [[R2C5_EndTime]] <<TIMESTAMP>> | [[R2C5_Files]] <<FILEUPLOAD>> | [[R2C5_Comment]] <<COMMENT>>   |
|         | 6   | [[R2C6_StartTime]] <<TIMESTAMP>> | [[R2C6_EndTime]] <<TIMESTAMP>> | [[R2C6_Files]] <<FILEUPLOAD>> | [[R2C6_Comment]] <<COMMENT>>   |
|         | 7   | [[R2C7_StartTime]] <<TIMESTAMP>> | [[R2C7_EndTime]] <<TIMESTAMP>> | [[R2C7_Files]] <<FILEUPLOAD>> | [[R2C7_Comment]] <<COMMENT>>   |
|         | 8   | [[R2C8_StartTime]] <<TIMESTAMP>> | [[R2C8_EndTime]] <<TIMESTAMP>> | [[R2C8_Files]] <<FILEUPLOAD>> | [[R2C8_Comment]] <<COMMENT>>   |
|         | Upload the End of Round 2 Files   |                                  |                                |                               | [[R2_Files]] <<FILEUPLOAD>>  |

# Post-Processing Cryomodule Probe Calibrations

| Step No | Instructions  |                                | Data Inputs                           |
|---------|---|--------------------------------|---------------------------------------|
| 10      | Record the Probe Calibrations (GGPRB) for each cavity in the table below. |                                |                                       |
|         | <b>Cavity #</b>   | <b>Probe Calibration Value</b> | <b>Comments</b>                       |
|         | 1   | [[FinalC1_GGPRB]] <<FLOAT>>    | [[FinalC1_GGPRB_Comment]] <<COMMENT>> |
|         | 2   | [[FinalC2_GGPRB]] <<FLOAT>>    | [[FinalC2_GGPRB_Comment]] <<COMMENT>> |
|         | 3   | [[FinalC3_GGPRB]] <<FLOAT>>    | [[FinalC3_GGPRB_Comment]] <<COMMENT>> |
|         | 4   | [[FinalC4_GGPRB]] <<FLOAT>>    | [[FinalC4_GGPRB_Comment]] <<COMMENT>> |
|         | 5   | [[FinalC5_GGPRB]] <<FLOAT>>    | [[FinalC5_GGPRB_Comment]] <<COMMENT>> |
|         | 6   | [[FinalC6_GGPRB]] <<FLOAT>>    | [[FinalC6_GGPRB_Comment]] <<COMMENT>> |
|         | 7   | [[FinalC7_GGPRB]] <<FLOAT>>    | [[FinalC7_GGPRB_Comment]] <<COMMENT>> |
|         | 8   | [[FinalC8_GGPRB]] <<FLOAT>>    | [[FinalC8_GGPRB_Comment]] <<COMMENT>> |

# Post-Processing Cryomodule Measurements

| Step No | Instructions   |  |                            |                             |                            | Data Inputs                 |                                  |                                 |
|---------|--|--|----------------------------|-----------------------------|----------------------------|-----------------------------|----------------------------------|---------------------------------|
| 11      | Record the Emax and the limiting condition in the table below. See the procedure CP-C100-COM-CM-CAV-EMAX for instructions. |  |                            |                             |                            |                             |                                  |                                 |
|         | Cavity   | Emax Limit   | Emax (MV/m)                | Field Emission Onset (MV/m) | 100 mR/hr Gradient (MV/m)  | Maximum Dose Rate (mR/hr)   | Attach Files                     | Comments                        |
|         | 1  | [[FinalC1_EmaxLimit]] {{Arc Fault,IR Fault,Cavity Quench,End Group Quench,BL Vac Fault,WG Vac Fault,Power Limited,Admin Limited,Other}} <<SELECT>> | [[FinalC1_Emax]] <<FLOAT>> | [[FinalC1_FEO]] <<FLOAT>>   | [[FinalC1_100G]] <<FLOAT>> | [[FinalC1_MaxDR]] <<FLOAT>> | [[FinalC1_Files]] <<FILEUPLOAD>> | [[FinalC1_Comment]] <<COMMENT>> |
|         | 2  | [[FinalC2_EmaxLimit]] {{Arc Fault,IR Fault,Cavity Quench,End Group Quench,BL Vac Fault,WG Vac Fault,Power Limited,Admin Limited,Other}} <<SELECT>> | [[FinalC2_Emax]] <<FLOAT>> | [[FinalC2_FEO]] <<FLOAT>>   | [[FinalC2_100G]] <<FLOAT>> | [[FinalC2_MaxDR]] <<FLOAT>> | [[FinalC2_Files]] <<FILEUPLOAD>> | [[FinalC2_Comment]] <<COMMENT>> |
|         | 3  | [[FinalC3_EmaxLimit]] {{Arc Fault,IR Fault,Cavity Quench,End Group   | [[FinalC3_Emax]] <<FLOAT>> | [[FinalC3_FEO]] <<FLOAT>>   | [[FinalC3_100G]] <<FLOAT>> | [[FinalC3_MaxDR]] <<FLOAT>> | [[FinalC3_Files]] <<FILEUPLOAD>> | [[FinalC3_Comment]] <<COMMENT>> |

# Questions?

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## CEBAF C100 Cryomodule Plasma Process Readiness Review

### Traveler

- Traveler will be in the Pansophy system for data entry and management
- 3 Primary sections to the Traveler
  - Pre Plasma Processing (Initial) Cryomodule Measurements
  - Plasma Processing Setup and Processing Rounds Data
  - Post Plasma Processing Cryomodule Measurements
- Critical values recorded in specific data fields in the Traveler for easier data mining and searching
- Detailed data files (raw and processed data) attached and uploaded to the Traveler