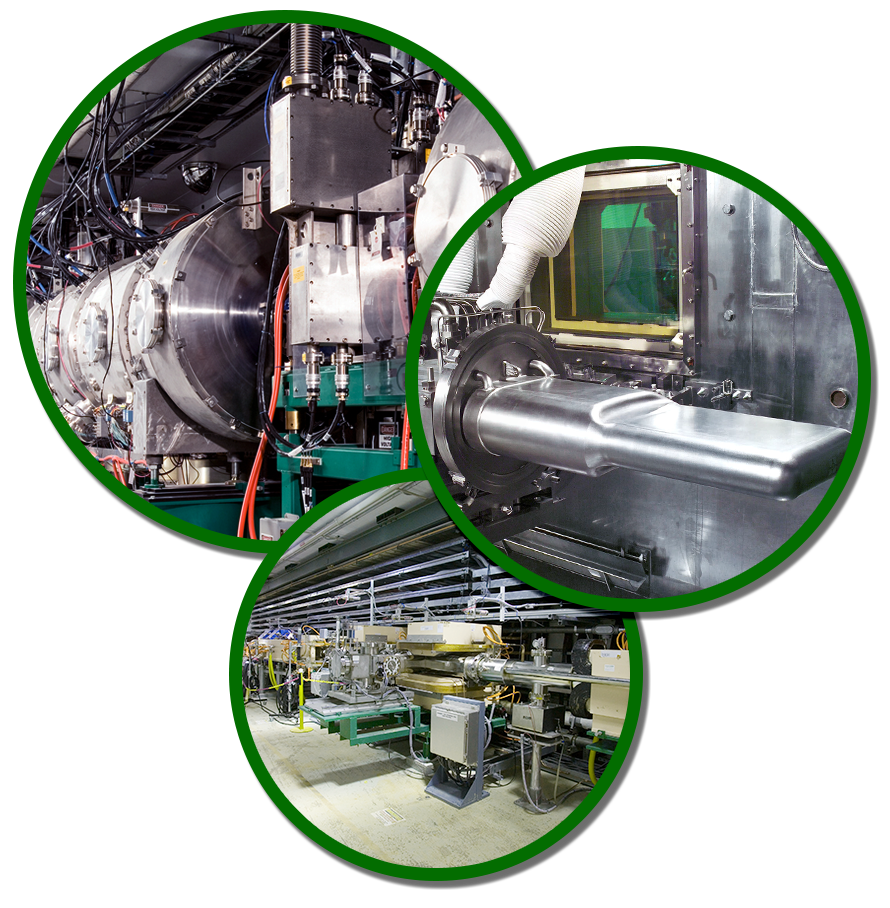


PPUP-200-TA0001 R00

PROTON POWER UPGRADE (PPU) PROJECT

Acceptance Criteria

**PPU SRF CAVITY INCOMING INSPECTION**



Date: 4/15/2019

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PROTON POWER UPGRADE (PPU) PROJECT

Acceptance Criteria – PPUP-200-TA0001

Date : 4/15/2019

Prepared by: Date

Level 3 Manager

Approved by: Date

Project Level 2 Manager

Approved by: Date

SCL Group Leader

Approved by: Date

PPU Project Manager

Revision History

|  |  |  |
| --- | --- | --- |
| Revision | Date Released | Description of Change |
| R0 |  |  |

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# Scope

PPU cavities will be fabricated, processed and assembled at Research Instruments in Germany and shipped to Jefferson Lab for qualification. This document outlines the criteria for acceptance of these cavities as received at Jefferson Lab.

# Related Production Procedures

The procedure for PPU SRF Cavity Incoming Inspection are identified in the following procedures:

CRYO-xxxxxxx

# Incoming Inspection Acceptance Criteria

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Visual Inspection Shipping Container | Tests to be Conducted | Nominal Value | Pass/Fail | Inspector / Date |
| 1. Visual Inspection - shipping box and packaging | Inspect Shipping container for damage | No significant damage to shipping box |  |  |
| Inspection of Cavity and Hardware | Tests to be Conducted | Nominal Value | Pass/Fail | Inspector / Date |
| 1. Visual Inspection – assembled cavity | Visual Inspection of the assembled cavity for physical damage. | Any Identifying abnormality |  |  |
| 1. Position of Hardware | Are flanges in the right location on assembled cavity | Do they meet assembly qualification drawing  104211800-M8U-8330-A001 |  |  |
| 1. Position of Valve | Should be fully closed | Fully Closed |  |  |
| 1. OAL measurement | Measure cavity flange to flange length (rough measurement) | 50.83 ± 0.12 inches |  |  |
| 1. Torque Value on Screws | A286 5/16 – 30 ft-lb  A286 8-32 – 40 in-lb | Meet minimal torque specifications all bolts |  |  |
| Inspection of Cavity Data and records | Tests to be Conducted | Inspection Data | Pass/Fail | Inspector / Date |
| 1. Cavity Serial No. | Record Cavity Serial # |  |  |  |
| 1. Vacuum Leak Check | Review leak check data was cavity leak rate ≤ 1e-9 Torr L /s |  |  |  |
| 1. Frequency Tuning Data | Check Tuning data  Pi (803.95 to 804.06) MHz |  |  |  |
| 1. Chemistry Data | EP etch data recorded  Bulk Removal ≥ 200µm  Final Removal ≥100µm |  |  |  |
| 1. Cell Serialization | Material serialized for tracking |  |  |  |
| Inspection of RF Tuning and Calibration | Tests to be Conducted | Inspection Data | Pass/Fail | Inspector / Date |
| 1. Measured RF Through Loss | Measured Range:  -90.2 ~ -96.7dB  (with 48dB gain on field probe) |  |  |  |
| 1. Frequency Pass Band | Pi (803.95 to 804.06) MHz  5/6pi (803.15 to 803.25) MHz  4/6pi (800.98 to 801.08) MHz  3/6pi (797.97 to 798.07) MHz  2/6pi (794.90 to 795.00) MHz  1/6pi (792.59 to 792.69) MHz |  |  |  |
| Inspection of Cavity Vacuum | Test to be Conducted | Inspection Data | Pass/Fail | Inspector / Date |
| 1. Vacuum Check | Measure cavity pressure upon valve opening (cleanroom)  ≤ 1e-4 Torr |  |  |  |
| 1. Vacuum Leak Check | Pump cavity and perform leak check  ≤ 1e-9 Torr L/s |  |  |  |
| 1. SME Signoff | Pass | Fail | NCR# | |