

# SM18 Test Plan

Week: 50-51  
Cool-down ?

Christmas TS

Week: 02-03  
RF/Align Checks

Week: 03-04  
Cooldown

Week: 05-08  
Installation/Checks

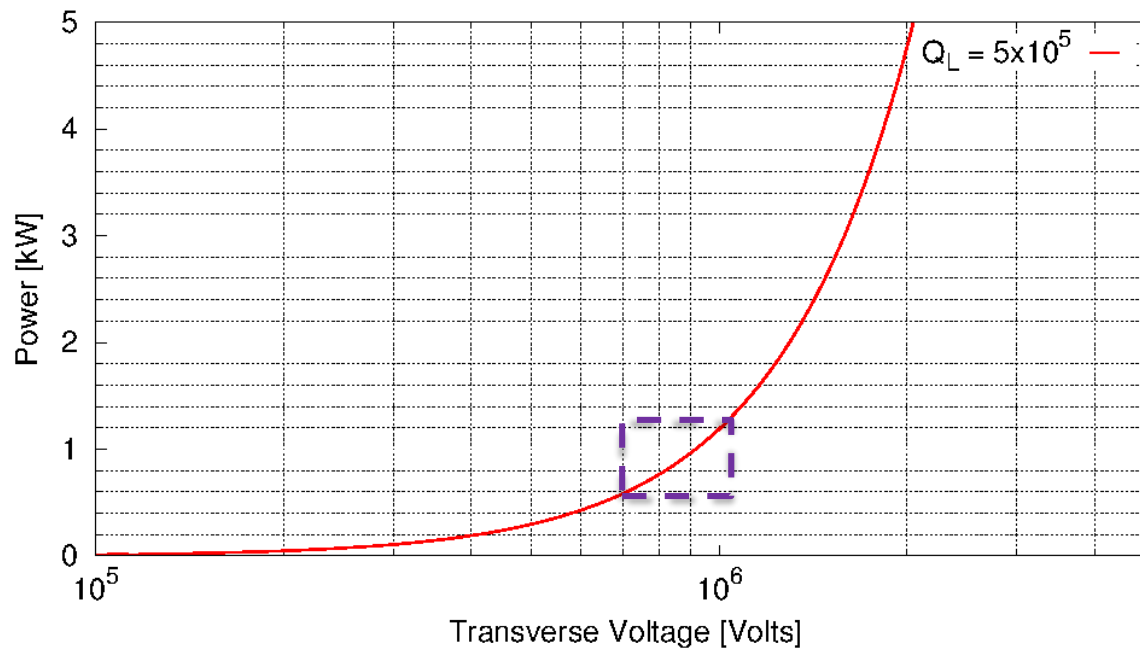
Consider this list is a general guideline needing your input. Each hardware/task responsible should make sure that necessary infrastructure is requested for M7

- All PU+HOM cables attenuation Cavity-CM (in reflection + TDR) & interlock checkout
- Warm coupler conditioning (1 kW ?)
- 2K cooldown (Cryo) + Frequency (& HOM) tracking during cooldown, B-field sensors
- Freq tuning (400.528-400.788 MHz) with low power RF, motor control
- HOM measurements + full spectrum check for two cavities (low power), determination of  $Q_L$
- Calibration of input power ( $P_f$ ,  $P_r$ ,  $P_t$ ), power level (?) and  $Q_{ext}$  measurement (decay)
- Pulsed RF conditioning, 1kW SSA
- Kick voltage determination as a function of  $P_f$  &  $P_t$  (after a power recalibration with LLRF)
- LLRF (cavity & tuning loops), feedback, RF phasing, amplitude stability, phase noise
- Lorentz force compensation, Microphonics measurements, pulsed operation (?)
- Dynamic heat load with voltage ramping + feedback on ( $Q_0$  measurement using  $\Delta P$ )
- Logging of X-rays at high field (at 1 kW, very little or none)

Qualification generally done independently first and then together (cross talk)

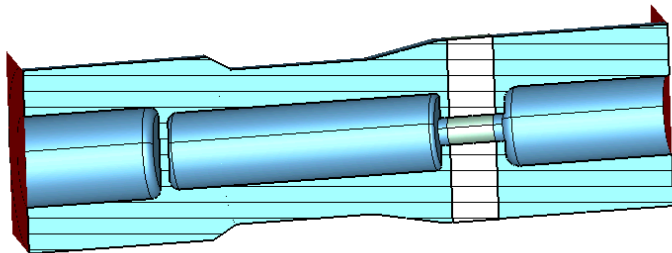
# RF Input Power w/o Beam

- The present baseline is to install 1 kW in SM18 to reach  $\sim 0.9$  MV per cavity
- An IOT solution in SM18 as a backup with  $\sim 6$ -months notice

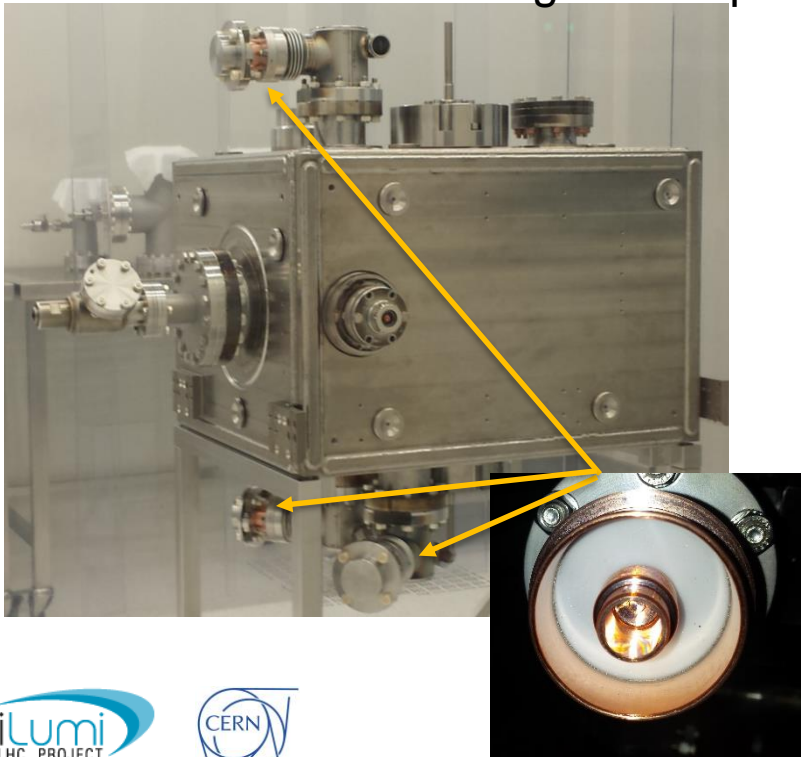


# HOM Feedthrough Replaced

Original feedthrough  
~ 1kW HOM power

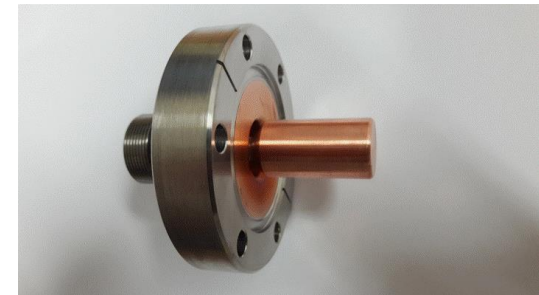
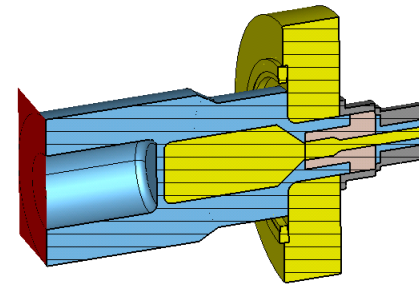


2 out three leak during warm up



Replacement feedthrough  
Installed in mid-July

Will limit the total HOM power ~200 W



HOM power interlocked at 200 W  
Additional interlock added

# Cryostating...

