

DRAFT RF Tech Note # 87

Operating Procedures for –1.3 GHz MDB 300 Kwatt RF System

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Turning **ON** the 300 Kwatt Klystron System

1. Check configuration control document AD-RF-00xx for configuring desired load.
2. Check to see that the Modulator is powered up and the klystron filament power supply is at RED HEAT. Typical Klystron filament parameters are: V=210, I=1.2amps, Power= blank display (needs upgraded power sensor).
3. Turn on the Solenoid power supply located in rack # HTS-1.
 - a. Turn **ON** power switch on front of solenoid controller chassis located in rack HTS-1.
 - b. Turn **ON** power switch on front of HP 6575A power supply (located in rack HTS-1).
 - c. On the HP power supply in HTS-1, under the function menu, push **voltage** button on keypad followed by the number 100 for 100 volts and push the enter key.
 - d. Also on the power supply in HTS-1, under the function menu, push the current button on the keypad followed by the number 12.0 for 12.0 amps and push the enter key.
 - e. On the power supply in HTS-1 under the function menu push the output ON/OFF key.
 - f. The supply should now show that it is in the current mode (“cc”) and display a current of 12.0 amps. Voltage should be around 95 volts (warm).
4. Push the reset switch on the front of the modulator’s control unit. All RED alarms should now be clear (except for possible modulator inhibit coming from Peter’s chassis).
5. Secure the ILCTA Cave or the HTC cave following the **Search & Secure** procedure.

See attached document titled: **Search & Secure / Access Guidelines**

6. Unlock configuration control lock.
 - a. Remove lock from 300 Kwatt charging supply cord.
 - b. Plug cord into wall socket.

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7. Switch **ON** the 208 V disconnect switch (PP-MDB7-1-1 Ckt 26,28,30) for the 300 Kwatt rf system charging supply (located on wall by modulator).
8. Reset the 300Kwatt RF interlock chassis located in rack HTS-1 using the master reset button in module 1.
9. All faults should now be clear on the interlock chassis. Bottom column of green LED's should all be green.
10. Reset the modulator to clear any remaining faults.
11. On the front of the modulator turn the interlock key to the right for permitting charging supply to be turned on.
12. Switch **ON** the high voltage switch on the modulator's control unit.
13. On the front of the charging supply push the green HV on Button. Red LED should light above the switch indicating charging supply in ON
14. Set the raw charging voltage to 60 Kvolts (**probably already set**) by setting 10 turn pot located in modulator' NIM crate module 7 to 5.85 (labeled Charging Supply voltage control). The supply will take about 30 seconds to charge the capacitor bank to full set voltage.

Dial Setting	Output Voltage
2.02	20 KV
3.05	30 KV
4.15	40 KV
5.2	50 KV
5.7	55 KV
6.125	60 KV

Table 1. Charging supply voltage vs dial setting

15. Check meter on front of charging supply for 60 Kvolts.
16. Switch **ON** current reference source and set the knob to 7.25 for 57 Kvolts gun voltage. Check on ACNET display page 23 for sampled gun voltage (should show 57 Kvolts).

Dial Setting	Output Voltage
1.27	10 KV
2.54	20 KV
3.82	30 KV
5.09	40 KV
6.35	50 KV
6.98	55 KV
7.6	60 KV

Table 2: Modulator Output voltage vs dial setting

17. Check Gun current on ACNET display page 23 (should be ~ 9.0 amps).
18. Turn **ON** TWT power supply breaker on from of supply in rack HTS - 1.
19. Push reset button on TWT power supply in HTS - 1.
20. Switch **ON** the TWT power supply located in rack HTS - 1.

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21. Turn **ON** low level rf drive from console.
22. Check "RF enable" LED in HTS -0.
23. Check cavity forward, reflected, & transmitted power.

Turning **OFF** the 200 Kwatt klystron system

1. Turn **OFF** low level rf drive.
2. Switch to **Standby** the TWT power supply located in rack HTS - 1.
3. Switch **OFF** the modulator's HV.
4. Let Capacitor bank discharge slowly to < 30 Kv before step 5 below by letting modulator continue to pulse.
5. Turn kirk key on the front of the modulator to the left. This will remove power to the charging supply.
6. Switch **OFF** the 208 V charging supply disconnect switch and place configuration control pad lock on line cord.