

Tetrode Tester Operation Manual, rev. 1

PREPARED BY:

Gian Trento 10-29-2009

PURPOSE:

The purpose of this manual is to define the process for operating the Tetrode Tester (TT) and recording performance data on the TH5188 tetrode, pull down cage and the Gun Anode Pulse Reference card.

HAZARDS: Electrical.

HAZARD CONTROLS:

All personnel operating the Tetrode Tester must wear proper PPE, which include: safety glasses and safety shoes.

Results of Shock Hazard Analysis (NFPA-70E 2004 130.2)		
Maximum Voltage: No exposed	Glove Voltage Rating: NA	(Inspect gloves before use, check certification date)
Limited Approach Boundary: 0 ft 0 in	Restricted Approach Boundary: NA	Prohibited Approach Boundary: NA
Results of Arc Flash Hazard Analysis (NFPA-70E 2004 130.3)		
Risk Category: 0	Flash Protection Boundary: 1.5(ft.)	Incident Energy at 18" (cal/cm ²) <1.2
<input checked="" type="checkbox"/> All Natural Fiber Outerwear (minimal 4.5 oz/yd ² long sleeve shirt and pants)		
<input type="checkbox"/> Fire Retardant Clothing	ATPV Rating: (cal/cm ²)	
<input checked="" type="checkbox"/> Required Additional PPE: safety glasses and safety shoes		

WORK PLAN:

- Verify that all unit under test (UUT) components; TH5188 tetrode, pull down (PD) cage, and gun anode pulse reference card, have been properly installed within the TT.
- Record the following UUT data in the Tetrode Tester Logbook:
 TH5188 tetrode serial number (s/n): _____
 Installer's name & date installed: _____
 PD cage s/n: _____
 Installer's name & date installed: _____
 Gun anode pulse reference card s/n: _____
 Installer's name & date installed: _____
- Verify that the TT tank is properly sealed and all tank hardware is in place.
- Plug in the 120VAC TT control box cord into a 120Vac receptacle.
- Power on the TT control box.
- Verify that the TT interlock has cleared, PD cage ready LED is illuminated and voltage plus current is applied to the TH5188 tetrode.
- Verify that the TT anode adjust is set to 0.

- Plug in the Spellman model SL60N1200 208VAC power cord into the High Voltage Test Cage's (HVTC) 208VAC receptacle.
- Refer to Procedure # 1110-00146, Safety Procedure for the partial Discharge Test Set Operation in the High-Voltage Test Cage in Bldg. 420, and ready the HVTC for operation.
- Power on the Spellman model SL60N1200 208VAC power supply and raise its output to -60 KV.
- Record any component failures before or during the following test process. Troubleshoot and / or repair the performance failure if necessary.
- Record the operator's name and the following in the Tetrode Tester Logbook:

For testing a TH5188 Tube or Pull-Down Cage use the following table.

Date	Spellman		Tetrode Tester Control Box			
Time	kilo-Volts	milli-Amps	Anode Set Point (kV)	Anode Voltage (kV)	Filament Voltage (Vac)	Filament Current (Aac)
	-60		0			
	-60		-10			
	-60		-20			
	-60		-30			
	-60		-40			
	-60		-50			
	-60		-60			
	-60		-50			
Run	All	Day	@ -50	-----	-----	-----
	-60		-50			
	-60		-40			
	-60		-30			
	-60		-20			
	-60		-10			
	-60		0			

For testing a Gun Anode Pulse Reference Card use the following table.

Date	Spellman		Tetrode Tester Control Box			
Time	kilo-Volts	milli-Amps	Anode Set Point (kV)	Anode Voltage (kV)	Filament Voltage (Vac)	Filament Current (Aac)
	-60		0			
	-60		-10			
	-60		-20			
	-60		-30			
	-60		-40			
	-60		-50			
	-60		-60			
	-60		-50			
Run	ONE	Hour	@ -50	-----	-----	-----
	-60		-50			
	-60		-40			
	-60		-30			
	-60		-20			
	-60		-10			
	-60		0			

- Power off the Spellman model SL60N1200.
- Power off the HVTC.
- Remove the Spellman model SL60N1200 208Vac power cord from the HVTC receptacle and store on the TT tank.
- Power off the TT control box.
- Unplug the TT 120VAc cord from the receptacle.

REFERENCES:

Latest version of APS-RF00178-00, APS-RF00179-00, APS-RF00180-00, APS-RF00181-00, Procedure # 1110-00146, Safety Procedure for the partial Discharge Test

DOCUMENTATION:

- Record all activities within the respective Tetrode Tester Logbook.

Description of Document/Record (include ID number, if applicable)	Custodian	Storage Location and Medium	Retention Requirement
Tetrode Tester Logbook	RF Group	Building 420 TT operator point	5 years

CONSTRUCTIVE FEEDBACK: