

## **7. PARTS LIST/TUNE-UP INFO**

### **7.1 Parts List**

The transmitter, can be subdivided as follows:

#### **External Exciter Modulator Tray**

##### **Driver Tray:**

Exciter Controller Board  
Downconverter Board  
Upconverter Board  
Pre-Driver Board  
Power Supply

##### **Power Amplifier Tray: (x4)**

Phase/Gain Board  
Interface Board  
Driver Pallet Board  
Top Splitter Board  
Bottom Splitter Board  
RF Pallets (x8)  
Top Combiner Board  
Bottom Combiner Board  
Power Combiner  
Power Detector  
Fan Power Supply Board

### **7.2 Tune-Up Information**

#### **7.2.1: Initial Test Set Up**

**This Exciter Digital transmitter was aligned at the factory and should not require additional adjustments to achieve normal operation.**

This section describes the set up of the Axciter Modulator system. The Axciter Modulator takes the SMPTE 310 or optional ASI digital stream input and converts it to a 44MHz intermediate frequency (IF). This IF then feeds the upconverter which converts the signal to the desired On Channel RF Output. The signal then drives the power amplifier section of the transmitter, which produces the system's output power level.

Check that the RF output at the DTV Mask Filter is terminated into a dummy load of at least the rated output of the system or connected to the antenna for your system. While performing the alignment, refer to the Test Data Sheet for the transmitter and compare the final readings from the factory with the readings on each of the modules. The readings should be very similar. If a reading is substantially different from the factory reading, it is likely that there is a problem in that module that should be rectified before proceeding with the transmitter setup.

Switch On the main AC for the system and the individual circuit breakers on the cabinets and assemblies. Check that AC is present to all systems.

This transmitter operates using a SMPTE 310M or optional ASI input that connects to J27 located on the rear panel of the Axciter Modulator Tray. Check that the input is present. If

an (Optional) external 10 MHz reference input from a GPS is used, check that it is connected to J9 on the Axciter Modulator.

The check of and the setup of the drive levels are completed using the front panel adjustments located on the Axciter Modulator Tray. The level of the RF output which includes adjustment of the drive level of the Intermediate Power Amplifier and the adjustment of the linearity and phase pre-distortion to compensate for any nonlinear response of the Power Amplifiers are controlled within the Axciter Modulator Tray.

### **7.2.2: Setting Up the Output Power of the Transmitter**

The following adjustments are completed using the LCD screen located on the front panel of the Axciter Modulator Tray. On the Axciter Main Screen, push the button next to the Upconverter tab on the right side of the screen. This will open the Upconverter Main Screen. Set the AGC to Manual by selecting 3 on the keyboard entry. The screen will now indicate AGC Manual. Set the transmitter to full power using the front panel screen of the Axciter.

### **7.2.3: Setting up of AGC 1**

To set up the AGC, first the AGC must be activated. Locate the 8 position DIP switch SW1 mounted on the Control Board in the Exciter Driver Tray. The Upconverter DIP Switch Position 6 must be switched ON (0) which allows the user to modify the AGC 1 and AGC 2 gain through the Axciter Modulator.

On the Axciter Upconverter Screen, set AGC 1 to 1.5 Volts, by selecting 4 on the keyboard entry. This will cause a detail screen to appear prompting you to enter a number value. Monitor the AGC 1 Gain Value on the screen and increase or decrease the value of the number entered until the monitored reading is 1.5 Volts.

### **7.2.4: Setting up of AGC 2**

On the Axciter Upconverter Screen, set AGC 2 to 1.7 Volts, by selecting 5 on the keyboard entry. This will cause a detail screen to appear prompting you to enter a number value. Monitor the AGC 2 Gain Value on the screen and increase or decrease the value of the number entered until the monitored reading is 1.7 Volts.

After the setting up of the AGC, the AGC must be de-activated to prevent accidental changes. The Upconverter DIP Switch SW1 Position 6 must be switched OFF (1) which locks the AGC 1 and AGC 2 gain.

### **7.2.5: Setting up of Overdrive Threshold**

On the Axciter Upconverter Screen set the Overdrive Threshold to 1.6 Volts, by selecting 7 on the keyboard entry. This will cause a detail screen to appear. Increase or decrease the voltage as needed until the monitored reading is 1.6 Volts.

Place the Transmitter into AGC by pushing the 3 of the keyboard entry on the Axciter Upconverter Screen. This will place the Transmitter AGC into Auto.

### **7.2.6: Axciter Pre and Post Filter Sample Values**

Pre and Post RF samples are connected to the rear panel of the Exciter Driver tray. These levels should be measured with a power meter before connecting them. Your installation

may require RF attenuators to be placed in line with the samples to get them within the desired range.

**J17 on the Exciter Driver Tray** is the connection to the Forward power sample of the coupler before the mask filter, Pre-Filter Sample.

The Level into the Relay at J1 or the Upconverter Tray at J17 should be 0 dBm to -10 dBm, -5 dBm typical.

**J16 on the Exciter Driver Tray** is the connection to the Forward power sample after the mask filter, Post-Filter Sample.

The Level into the Relay at J2 or the Upconverter Tray at J16 should be 0 dBm to -10 dBm. -5 dBm typical, but within .5 dB of the Pre-Filter sample.

### **7.2.7: Exciter Driver Adjustment**

On the Axciter Modulator, activate the Upconverter Main screen by selecting Upconverter using the button next to it on the right side of the Axciter Main Screen. Activate the Downconverter Output Gain by pushing 2 on the key board entry. Monitor the DTVision Linear Display by pushing the button next to the DTVision Linear display on the right side of the Axciter Main Screen. At the bottom of the DTVision linear screen, locate the reading next to RMS. If this reading is between -10 dBm & 0 dBm no adjustment is needed. If it is not, adjust the "Downconverter Gain", then view the RMS value until it is within the -10 dBm to 0 dBm range.

This completes the set up and adjustment of the transmitter using the Axciter Modulator.

If a problem occurred during set up, contact Axcera field service at 1-724-873-8100.