

**Reply® Transmitter Model TX216SYN**  
**FCC ID: FBR-TX216SYN-2**

## **Test Procedure Description**

### **1.0 Introduction**

This document covers the test fixture requirements for the Fleetwood Model TX216SYN transmitter module.

### **2.0 Tests and Limits**

#### **2.1 Accept Firmware**

The fixture shall provide the required programming signals and interface hardware to download firmware from a PC to the on-board processor.  
Limit: None.

#### **2.2 Test Current Drain**

The fixture shall provide a front-panel current reading.  
Limit: Less than 100mA (preliminary) when transmitting.

#### **2.3 Align Reference**

The fixture shall provide an interface to a frequency counter that will read the UHF output frequency from a direct connection to external antenna port. This test will occur on one single channel with the modulation disabled.  
Limit: Set-on to less than 1kHz error.

#### **2.4 Test Conducted Power and Spurious**

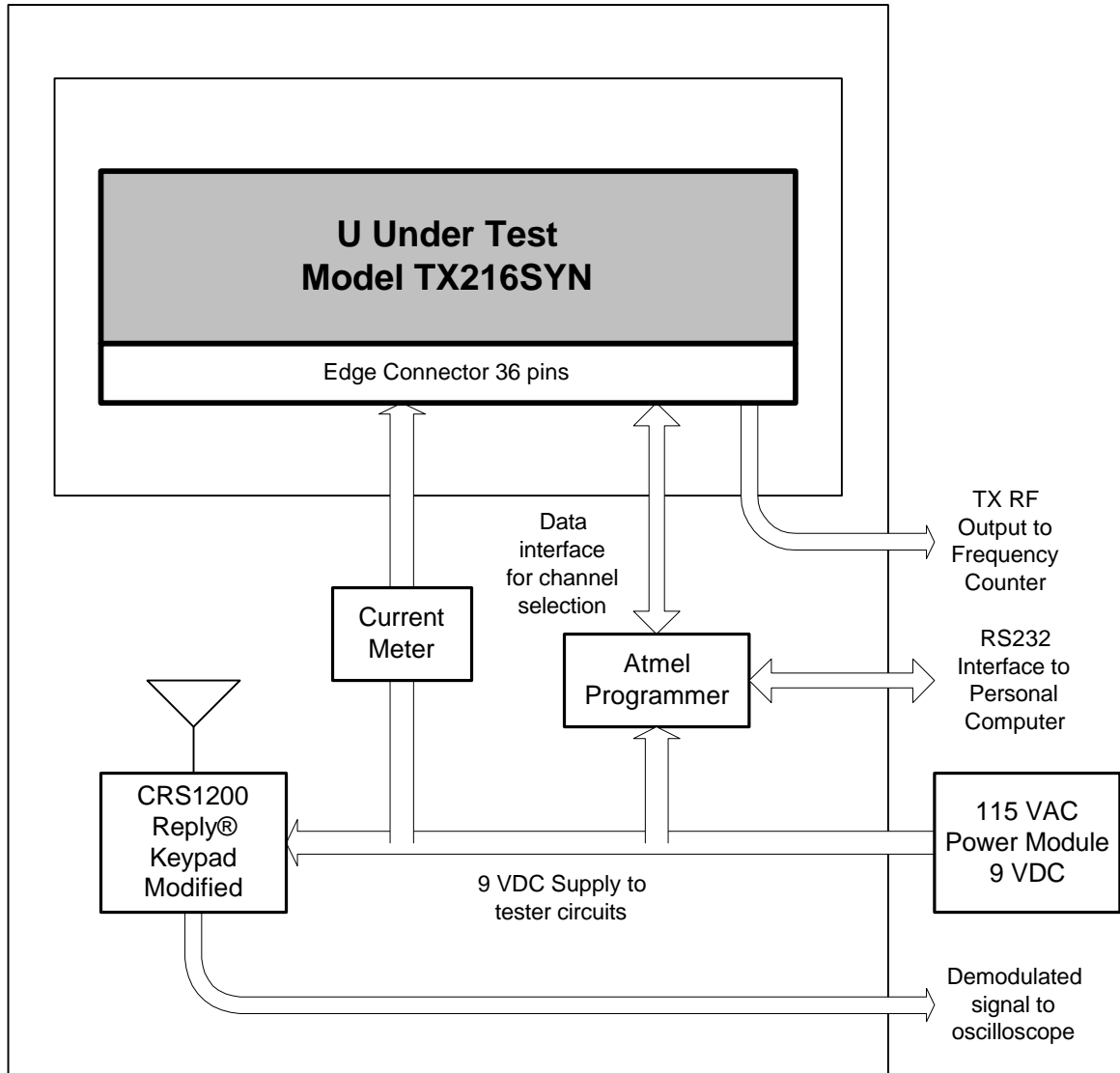
The fixture shall provide a direct connection to the RF output. The connection shall be used to measure the conducted RF power and spurs.  
Limit: 17dBm +/- 1dB with less than -40 dBc spurs

#### **2.5 Test Radiated Power and Fidelity**

The test fixture shall have an integral antenna capable of receiving the electromagnetic signal. The signal will be demodulated and sent to a connector for viewing on an oscilloscope. The integral antenna will be adjusted so that the receiving system will operate well above the receiver's sensitivity limits. This test will occur on all channels.  
Limit: Waveform shall have less than 10% error, which will validate both modulation limits and close in spurious.

### 3.0 Fixture

#### 3.1 Block Diagram



### 3.2 Description

The test fixture uses a 36 pin edge connector for all electrical connections to the UUT: Power is supplied at 9 Volts (dropped through a 20 Ohm resistor). Current is measured with a front panel in-line meter.

The channel may be selected simultaneously on both the UUT and the internal receiver through the integral processor on the modified Reply CRS1200 Keypad. The UUT interfaces using 'CHSEL'. The keypad will have special test fixture code that:

- a) Maintains the receiver active upon any key press (aside from clear).
- b) Never activates its own transmitter.
- c) Cycles through the receive channels as the '#' key is pressed.
- d) Selects the (same) channel on the UUT through a 3-wire bus.
- e) Activates and de-activates a transmitter data test waveform (called "MODULATION") upon command.
- f) Allows a reset function when "Clear" is pressed.

The fixture has two means of setting the UUT TX channel:

- a) The synthesizer three-wire bus is available through a 25 pin jack (suitable for a computer parallel interface connection). This means has no specific purpose other than providing future access to the three wire bus for diagnostic purposes.
- b) The 'CHSEL' lines (AVRSEL, AVRCLK, and AVRDATA). This connection normally operates as general purpose serial data interface. However, if four lines are held high simultaneously (TXPWR, F4, F5, and SYNPOWER as controlled by SW4) then the serial bus changes modes to accommodate a channel selection (AVRSEL=LSB, AVRDATA=MSB).

The Reply CRS1200 Keypad is used to output the demodulated FM signal as required to check the transmitter fidelity. It uses an antenna that is integral to the test set. The UUT receives a modulation signal as provided. The modulation signal simulates the true transmitter data stream; it is activated and deactivated with SW1.

The UUT has an internal processor that is programmed through U6. The control of the programming function is accomplished through an external computer connected with a 25 pin RS-232 jack.

The UUT processor may be reset by toggling SW3 to ground.