# RT FCC PART 90 MEASUREMENTS

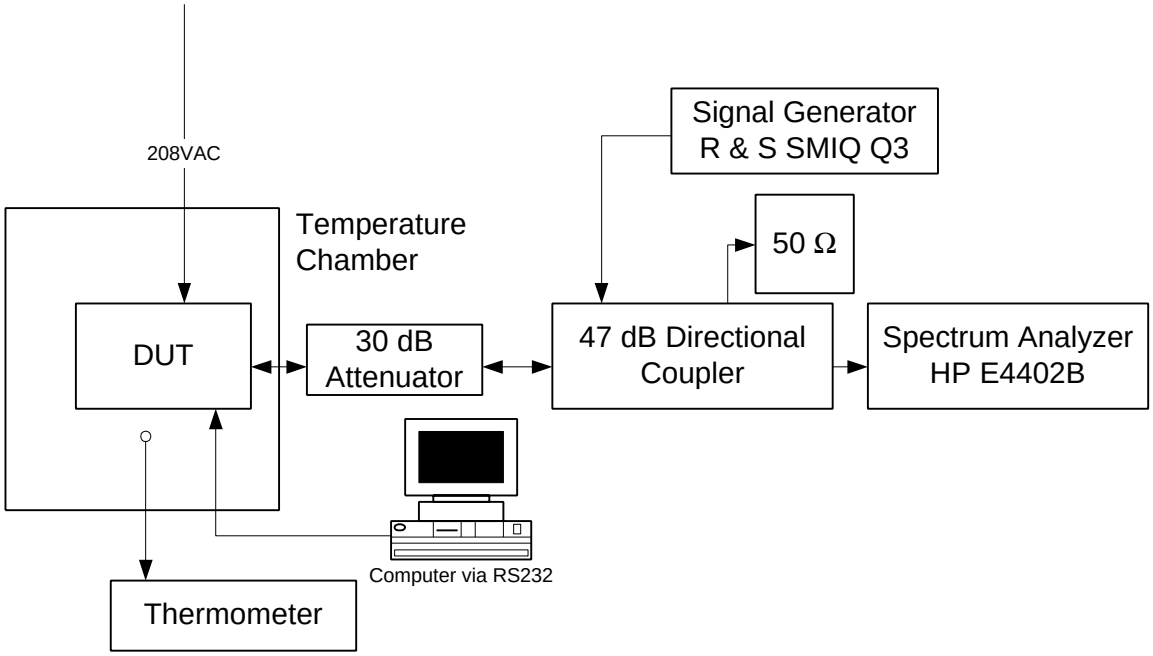


**Figure 1 Test Equipment Setup for Mask verses Temperature Tests.**

## Equipment List

-- Thermotron Model S1.2
Serial Number 16576

-- Rohde & Schwarz Model SMIQ Q3 RF Signal Generator
Calibrated 25/02/02 Cal Interval 1096 Days
Serial Number DE23617

-- HP Model E4402B Spectrum Analyzer
Calibrated 12/11/01 Due 12/11/02
Serial Number 962588

--Omega HH501DK Type K Thermometer
Purchase Date 19/3/02 Calibrated at Factory
Serial Number 905

--HP Model 8753D Network Analyzer
Calibrated 31/10/01 Due 31/10/02
Serial Number 3410A09201

--MECA KS-21603L 3 Directional Coupler
Swept with calibrated HP Network Analyzer
Serial Number 1918

--Bird 8306-300-N 30dB Attenuator
Swept with calibrated HP Network Analyzer
Serial Number MFC70998

--Fluke 179 True RMS Multi meter
Purchase Date: 12/8/02 Calibrated at Factory
Serial Number: 80800710

--Form S meter box assembly with Linear 120 – 240 VAC Step up converter
Purchase Date: 12/06/02 Calibrated at Factory.
Serial Number: 2917011A-0758

--PowerStat Variable Autotransformer Type:116B
Tantalus Asset number: 100001

## Procedure (Mask versus temperature –30°C to +60°C)

1) The RT with its associated plastic enclosure is placed in the temperature chamber. The RT is powered on and the software allowed to initialize. The temperature chamber is programmed for the target temperature. After the calibrated digital thermometer reached the target temperature the RT is given time to reach thermal equilibrium.

2) The RT's normal operation is to disable its transmitter when it detects a temperature change of five degrees or more. It then will wait for a frequency correction command from the Basestation. The laptop computer mimics the base station by issuing these commands through its serial port. At this time the RT is given the command to frequency correct by the laptop computer.

3) The RT receives the signal from the RF generator at a level of –110dBm which mimics the Base station and corrects its internal oscillator by a measurement and comparison method. The transmitter is keyed on with constant carrier and the peak of the signal adjusted to the top of the mask on the spectrum analyzer. Then the modulation is applied at the appropriate data rate. The transmitter power and deviation is measured and calibrated before being put in the chamber with the calibrated attenuator and spectrum analyzer for 37dBm (5 Watts) and +/- 750 Hz. respectively.

4) The modulated data is taken with maximum hold function of the spectrum analyzer enabled. Then the transmitter is keyed off.

5) This procedure is repeated for the low, middle and high channels at all the measured temperatures.

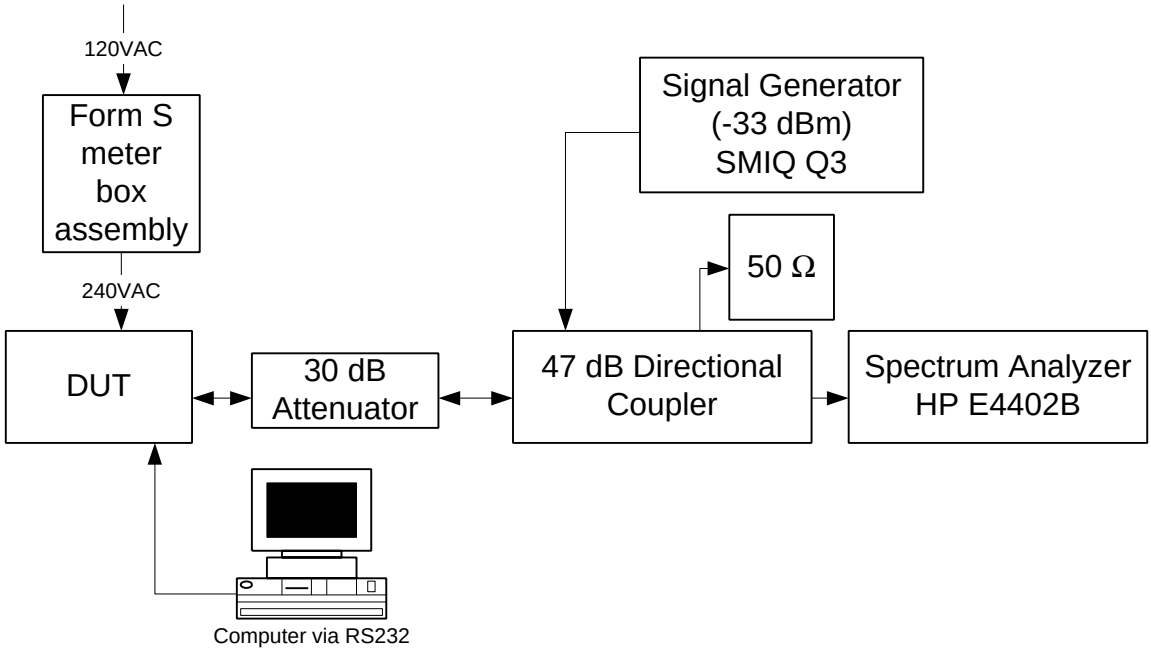


**Figure 2 Test Setup for Occupied Bandwidth and Supply Variation tests.**

## Procedure (Occupied Bandwidth)

1) The test setup in Figure 2 is used to test the Occupied Bandwidth at room temperature. This is measured to be at 25°C using the Omega HH501DK Type K Thermometer.

2) The occupied bandwidth is measured using the “Occupied Bandwidth” function of the HP Model E4402B Spectrum Analyzer. Both data speeds were measured and the data plotted.

## Procedure (Frequency Stability versus primary supply voltage variation)

1) The test setup in Figure 2 is used to test the Frequency Stability at room temperature. This is measured to be at 25°C using the Omega HH501DK Type K Thermometer.

2) The 120VAC supply is varied by the autotransformer and the supply voltage to the DUT is measured at the DUT supply input pins by the Fluke 179 True RMS Multi-meter.

3) Measurements are made on all three test frequencies as per the instructions stated in “Procedure – Mask versus Temperature” above.