

## **Specifications for 4-Channel HF Amplifier Transmit Test System**

This order is for the purchase of items required to implement 4 independent HF transmit channels. The system will incorporate hardware capable of receiving 4 separate low level analog input signals, amplifying them to a minimum power level and transmitting each channel out of a broad band antenna. The components required for the system, listed in order of priority, and their minimum specifications are as follows:

### **1. High Power Amplifiers:**

- a. *Quantity:* 5
- b. *Output Power, CW, Linear @ P1dB:* 75 Watts
- c. *Gain:* 50 dB min. and must not contain any ALC circuitry.
- d. *Frequency Range:* 5 – 30 MHz
- e. *Spurious Response:* 60 dBc
- f. *Harmonic Distortion:* 20 dBc
- g. *3<sup>rd</sup> Order Output Intercept:* 60 dBm
- h. *Primary Power:* 110 VAC, 60 Hz
- i. *Input & Output Jacks:* 'N' Female
- j. *Flatness:* 1 dB in any 500 KHz sub-band
- k. *Modulation Capability:* Faithfully reproduces AM, FM or pulse modulation appearing on input signal
- l. *Input and Output Impedance:* 50 ohm
- m. *Cooling:* Forced Air (Self Contained Fans)
- n. *Mismatch Tolerance & Output Protection:* Will operate without damage or oscillation with any magnitude and phase of source and load impedance including short circuit protection. May limit at rated output.
- o. *EMI Shielding:* > 40 dB

### **2. High Power Couplers:**

- a. *Quantity:* 4
- b. *Input Power:* 100W
- c. *Main Line Loss:* < 1 dB
- d. *Coupled Output:* < 50 dB
- e. *Frequency Range:* 5 – 30 MHz
- f. *Input and Output Jacks:* 'N' Female

### **3. High Power Loads:**

- a. *Quantity:* 8
- b. *Power:* 100W
- c. *Frequency Range:* 5 – 30 MHz
- d. *Termination:* 50 ohms
- e. *Connector:* 'N' Female

**4. Antennas:**

- a. *Quantity:* 4
- b. *Gain:* > 0 dB at specified frequency coverage
- c. *Efficiency:* < 1 dB
- d. *Frequency Range:* Cover all or parts of 5 to 30 MHz, NOTE adjustable or tunable is acceptable
- e. *Connector:* 'N' Female

**5. RF Coax Cables:**

- a. *Quantity:* 4 @ 75'
- b. *Quantity:* 8 @ 10'
- c. *Min. Transmit Power Through Cables:* 100W
- d. *Loss:* < 1.5 dB/100' from 1 to 50 MHz
- e. *EMI Shielding:* > 40 dB
- f. *Connectors:* 'N' Male both ends

**6. Spectrum Monitoring Antenna:**

- a. *Quantity:* 1
- b. *Gain:* > -20 dB
- c. *Efficiency:* < -1 dB
- d. *Frequency Range:* 5 - 30 MHz, NOTE adjustable or tunable is acceptable
- e. *Connector:* 'SMA' Female

**7. High Power Harmonic Filters:**

- a. *Quantity:* 2 complete sets
- b. *Passband Frequency Coverage:* 5 – 30 MHz
- c. *Harmonic Suppression:* > 50 dBc (can be achieved with filter bank)
- d. *Passband Loss:* < 3 dB
- e. *Filter Selection:* RS-232, 9-pin Type D female or Rotary Switch
- f. *Power Rating:* 100 W
- g. *Connectors:* 'N' Female