

2. Modulation Characteristics--part 2.987

Equipment: (same as for RF Power measurement, plus)
Audio generator, Eico Model 377
Audio Voltmeter, Simpson Model 715
D.C. voltmeter, Triplett Model 60
Audio Voltmeter, rms reading, Fluke Model
8030A (digital)
Oscilloscope, Hewlett-Packard Model 1222A

Procedure:

- (a) connect RF Wattmeter and RF Load, via coax cables, to antenna connector of Model MB
- (b) Tune up transmitter section, per method 1 in technical description
- (c) connect audio generator to microphone input and set frequency to 1000 Hz. With transmitter operating, increase generator signal level until ALC circuit just begins to operate, as indicated by a decrease in the dc voltage applied to the gate of Q3. This occurs for about 30-40 millivolts generator signal; the ALC audio output should then be about 600 millivolts.
- (d) adjust R75 (schematic 4101070) until the modulator output to the transmitter shows more than 80% modulation, or evidence of "soft clipping"--a flattening of tops of sinusoidal waveform as seen on oscilloscope. The modulated voltage should then measure about 7.1 volts rms. Note audio generator voltage.
- (e) holding the audio generator output constant at this value, vary the generator frequency from 100 Hz to 10000 Hz, recording the modulator output voltage at suitable intervals. The oscilloscope may be used to observe the modulator waveform. Note: some degree of distortion is normal below 350 Hz, due to the output transformer.

Note: if the input signal is increased the frequency response is broadened, especially at the low-frequency end, because of the action of the ALC. However, the ALC has little effect above 5 KHz, due to the bandpass of the ALC's detector.

Results: plotted on accompanying graph