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To : Chief, Design Section R&D Laboratory

From :

Subject : Cursory Check of the TA-1A Adaptor and Modulator Units

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1. The newest versions of the TA-1A Adaptor unit and of the modulator unit were subjected to a cursory evaluation by the A&A Section, R&D Laboratory. A summary of the electrical characteristics of the units and the details of the test results are presented in the following paragraphs.

2. Summary

2.1. Frequency Range

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2.2. RF Power Output (average)

Low Band - Fundamental Operation: 3.26 watts

High Band - Doubling: 1.80 watts

2.3. RF Crystal Current

Low Band -	Resonant	Off-resonant
Maximum :	34 ma	100 + ma
Minimum :	11 ma	2 ma
Average :	26.5 ma	58.2 ma

High Band -		
Maximum :	60 ma	98 ma
Minimum :	20 ma	20 ma
Average :	40.8 ma	58.2 ma

2.4. DC Input Power

Resonance: 8.75 watts
Off Resonance: 18.75 watts

2.5. Keyed Waveform

The rise time of the keyed waveform appears to be conventional. The decay time drops off rather sharply.

2.6. Modulator Performance

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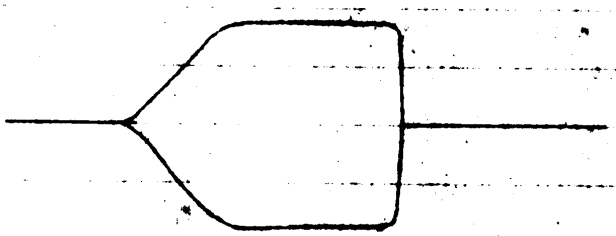
3.3 TA-1A DC Input Power -

Resonance - 250 Volts/35 ma, 8.75 watts

Off-Resonance - 250 volts/75 ma, 18.75 watts

3.4 TA-1A Keyed Waveform



3.5 TA-1A Modulator Unit

The TA-1A Modulator Unit modulates the carrier approximately 85% with no clipping.

4. Conclusions

4.1. TA-1A Adaptor

The adaptor unit operated satisfactorily during the tests, excepting high off-resonant crystal current (tune position).

4.2. Modulator Unit

The modulator operated satisfactorily although the percentage of modulation is lower than was obtained with the earlier transistorized model.

5. Recommendations

5.1. TA-1A Adaptor

(a) A new chassis top plate with appropriate control markings should be fabricated for use on the present model. ~~The portable~~, this should be done before the units is sent out for field testing.

b) Additional design work should be done on future models of the transmitter unit to reduce high off-resonant crystal current (time position). One method of reducing the crystal current may be to load the oscillator ~~...~~ during Tuning, with a resistor connected into the 'tune position' circuit.

5.2. Modulator Unit

The present model of the modulator has several favorable features when compared to the Transistorized modulator. These favorable features include size, weight and economy factors. It is desirable to improve the modulator circuitry to increase the percentage of modulation.