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FINAL REPORT ON TYPE TEST OF TS-406/UP TEST OSCILLATOR.

BY
I.W.Fuller, M.L. Burnett

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Approved by:
F.D.Schaller-Assistant Section Head

Dr. R.M. Page
Acting Supt. Airborne Radio Division

Commodore H.A. Schade, USN
Director, Naval Research Laboratory

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ABSTRACT

1. The TS-406/UP Test Oscillator is a single unit consisting of an attenuator, buzzer and cavity, housed in a metal case. It is a portable instrument for providing a low power test signal for receivers in the frequency range from 1000 to 3500 megacycles. This signal is pulsed at a frequency of approximately 2000 c.p.s. The power supply consists of a 3 volt battery (BA-205/U) which is housed within the metal case. The weight of this instrument including output cable is 13.7 pounds.

2. This report covers all tests made on the TS-406/UP Test Oscillator. The tests indicate that the equipment fulfills the requirements of the applicable specifications.

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RESULTS OF TESTS

3. The TS-406/UP was placed in a temperature controlled box at -40° Centigrade. When the equipment was turned on, the buzzer did not operate. After re-adjusting the buzzer, satisfactory operation was obtained at this temperature. The signal output was essentially the same as it was at room temperature. The temperature chamber was evacuated to a pressure corresponding to 30,000 feet altitude at -40° centigrade, and the TS-406/UP continued to operate satisfactorily. Total operating time during this test was one hour. At the conclusion of this test, the battery was replaced, because the terminal voltage of the battery used during the test had dropped to 2.2 volts under load. With a new battery the terminal voltage under load was approximately 2.9 volts. When the temperature was raised to +50° centigrade low humidity, the buzzer again required adjustment to obtain operation. Once adjusted, the buzzer functioned satisfactorily at this temperature. The relative humidity was increased to 96% and held for 48 hours, after which time the TS-406/UP operated satisfactorily.

4. At the conclusion of the temperature tests, a new battery was installed and the buzzer was re-adjusted. The TS-406/UP then operated continuously at room temperature for a period of 48 hours without requiring any attention.

COMMENTS

5. At frequencies other than the resonant frequency of the cavity the signal strength is down about 25 db. as compared to the signal strength at the resonant frequency.

6. The buzzer used in the TS-406/UP required frequent adjustments, especially when a variation of temperature was involved.

7. With the attenuator set at minimum attenuation, the output of the TS-406/UP was greater than 10 microvolts over the entire frequency range of the instrument.

CONCLUSIONS

8. It is concluded that the TS-406/UP will operate satisfactorily over the temperature range of -40°C. to +50°C., provided proper adjustment of the buzzer is maintained.

9. It is also concluded that the buzzer will require adjustment whenever a substantial change in temperature has occurred since the previous adjustment was made.

RECOMMENDATIONS

10. It is recommended that the buzzer mounting position be changed to a position where the adjusting screws will be more readily accessible.

REFERENCES

(a) BuAer ltr. AER-E-3163-RBP NOas-6676 of 14 August 1945 to Director, NRL (Secretary Radio Problems Priority Board)
(b) Presto Recording Corporation Manufacturing Specifications for Type TS-406/UP Test Set dated 13 September 1945.

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