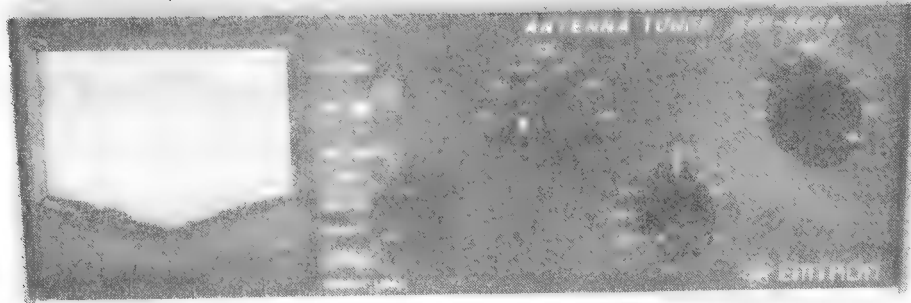




Equipment Review

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EMTRON EAT-300A ANTENNA TUNER



For some years now, Emtronics, under the direction of Rudi Breznik, have produced a wide range of antenna couplers, SWR meters and other ancillary items for the Australian amateur radio market. Rudi is to be congratulated for being one of the few to get into the rather limited Australian market.

Emtronics state in their advertisements that over 800 famous EAT-300 ATUs have been sold which would have to rate as a very good achievement.

The new EAT-300A is an improved version of the original 300 and provides the following facilities:

Matches everything from 1.8 MHz to 30 MHz and includes a built-in balun to feed a balanced line feeder, which was incorporated in the earlier model. The EAT-300A has the additional attributes of a cross needle forward and reverse power meter and a six position antenna selector switch. This permits the selection of a balanced line antenna, a long wire, two coaxial fed antennas, a coaxial fed antenna which bypasses the tuner or a final position that switches in a 100 watt dummy load.

The standard of construction is excellent with high quality components and first-class wiring. The cross needle power meter is of the Diawa type with two power scales of 20 and 200 watts. The metal cabinet is solidly built with an excellent enamel finish.

ON TEST

The tuner was set up with various antennas to test its ability under typical operating conditions. However, before starting the tests a few questions arose. The EAT-300A is rated at 300 watts but the power meter only reads to 200 watts. A little strange to say the least. Also, advertisements for the EAT-300A rate the dummy load at 100 watts, but the operating manual supplied with the tuner gives no specification at all. It just states *Do not apply full power out of your transmitter for longer than 1 (one) minute.* Perhaps I could ask what the full power output of your transmitter is.

The initial test was with a 100 watt output transceiver feeding a balanced transmission line to a centre fed 80 metre dipole. I have, in fact, been using this type of antenna for the last 25 years with good results using a Johnson Matchbox ATU.

The 300-A was able to tune up this antenna on all amateur bands from 80 to 10 metres, including the new WARC bands. It was noted though that the tuning on most of the bands was extremely critical. As the balun used to couple to the balanced line output was rather small, I expected that it might run hot after some extended operation with 125 watts output. However not so, it was stone cold after a couple of hours operation. Nevertheless, the air wound inductor used to tune the lower frequency bands became too hot to touch. I would suggest that if a full 300 watts had been used, the plastic supports used as the coil former would melt in a very short time. I should mention that this only occurred while testing on the 80 metre band. As a further test, I ran 100 watts through the tuner for one minute and then measured the temperature of the wire. It was 85 degrees Celsius. I hate to think what it might have been with 300 watts running through the tuner.

As the frequency was increased, the heating became less pronounced, with a slight warming being only noticeable on 20 metres.

It was also noted that tuning with 125 watts applied caused the capacitors to arc over although, with the unit correctly tuned, no trouble was noted. I would therefore recommend that initial tuning should be carried out with no more than about 50 watts applied from the transmitter. The 330A was tested with a coaxial input to a trap vertical antenna, which runs a high SWR, when used away from its resonant frequency. The tuner was easily able to cope with an initial SWR of up to 4:1.

I did not try a random length of wire, but there are no doubts that the tuner would be able to load a transmitter into the proverbial piece of 'wet



Rear View.

string.' The power meter readings proved to be very accurate when checked against my Drake W4 which in turn is regularly checked against a professional Bird Thru-Line wattmeter.

CONCLUSIONS

The Emtron EAT-300A is a very well constructed antenna tuner. It is felt that its advertised power rating of 300 watts is very optimistic. I would suggest that 100 watts is nearer the mark. This would certainly fit better with the 200 watt full scale reading power meter.

However, the greatest disappointment is the so



called operating manual. This consists of four pages (one being blank) of poorly presented information. There is no specifications included in the 'manual' and it is necessary to refer to Emtronics advertisements to work things out.

If you need an all band ATU, the EAT-300A is certainly very much better value than many of the imported units. It will cope with most feeder matching requirements encountered in the average amateur shack. My thanks to John Hill of Emtronics Melbourne outlet for the loan of our review unit.

ANTENNA RANGE

AUSTRALIA'S LONGEST MODERN ground reflection antenna test range has been set up by Telecom at Caldermeade, south-east of Melbourne.

With a range length of up to 2500 metres, it will be used by Telecom for antenna measurement and analysis work from VHF and UHF bands to the microwave and millimetre wavelengths.

Major features are a receiving and transmission site, linked by a computer-cased measurement and control system. At the receiving end is a 30 metre tower fitted with a crane, rotators and positioners needed to mount and control under test antennas.

The transmitting site consists of a trailer mounted tower on which the transmit antenna height, orientation and polarisation can be varied.

Mobile cranes can enter the site to mount antennas of up to 10 metres diameter weighing up to 6000 kilograms on the receiving tower.

The range in which Telecom has invested \$1.3 million has attracted the interest of government departments, OTC, CSIRO, private industry and universities interested in having their antennas tested.