

Mini Equipment Review

The MFJ-247 SWR analyser with LCD frequency counter

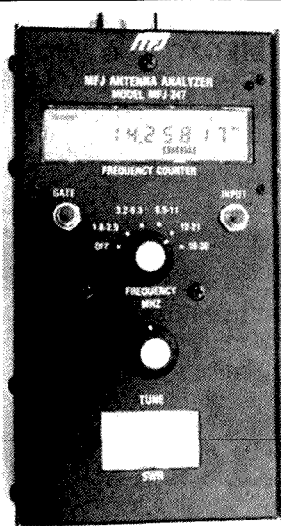
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IN THE MARCH 1992 issue of *Amateur Radio*, I reviewed the MFJ-207 SWR analyser. At the conclusion of that review, I mentioned that MFJ would soon be releasing an upgraded version which would incorporate an LCD digital readout. The MFJ-247 is that model. The digital readout can be used in two ways. Firstly, it will read the frequency to which the internal oscillator of the SWR analyser is tuned, but it can also be used as an external frequency counter which is useable up to 150 MHz.

However, for those who haven't got the original MFJ-207 review handy, let's take a quick look at just what an SWR analyser does. The oscillator in the analyser is actually a low-power transmitter which is connected to the antenna, the feedline, the ATU, or a combination of all three, to determine if a 50-ohm match exists. A bridge circuit is coupled to the front panel meter which is calibrated in SWR at the following points: 1, 1.2, 1.5, 1.7, 2, 2.5 and 3, which is at about three-quarter scale on a scale length of about 25mm.

The frequency range of 1.8 to 30 MHz is covered in five ranges, as is the MFJ-207, but where the latter offered full coverage between these frequencies, the MFJ-247 has a few gaps. The actual coverage is 1.8 to 2.9, 3.2 to 5.3, 6.5 to 11, 12 to 21 and 18 to 30 MHz. In actual practice there is some slight extension on this coverage both above and below these frequencies. However, it could be a limiting factor for commercial users trying to tune an antenna on an RFDS channel in the 5.5 MHz region.

With the counter built in, the 247 is slightly larger than the 207. It is 101mm wide as against 63mm for the 207. At



The MFJ Model MFJ 247 Antenna Analyser — Front View.

the same time, the depth is actually 12mm less. External connections are an SO-239 to connect to the antenna under test, a BNC connector for external input to the frequency counter, and an external DC power input which is still not labelled for polarity. Internal battery power has been changed from a

nine-volt transistor type battery to six AA cells. It's still necessary to remove eight screws to put new batteries in. Current drain is about 170mA, so the use of alkaline batteries as recommended by MFJ would certainly be a good idea.

The MFJ-247 In operation

I put the 247 into use with the several HF antennas available around the shack, and the results were most interesting. The frequency counter allows you to set the analyser to your exact operating frequency. However, I found that, in most cases, the analyser gave very different measurements from normal in-line SWR meters. The analyser will get you in the ball park, but you will still need your normal SWR meter to get your antenna tuned to your operating frequency. The frequency counter itself is a rather nice unit. With a whip antenna connected to the BNC input, and the counter input selected to external, I could easily read the frequency of my two-metre equipment. The error at two metres was about 1.5 kHz, but I expect the counter time base could be adjusted to put this right.

The Instruction Manual does not mention that the time base uses a 10 MHz crystal with .01, .1, 1, and 10-second gate times, but these points are covered in the advertising brochure.

Instructions on the use of the analyser are good. You won't have any trouble here except in trying to determine the polarity of the external DC input; however, I will let you into a secret. The tip of the plug is positive.

After a bit of use, I noted a few strange quirks with the 247. Occasion-



The MFJ-247 with the cover removed.