

Realistic DX-440 Receiver Plus External Attenuator

A while back I bought a used DX-440 shortwave receiver. The receiver included the longwave band and the reason why I wanted it. Unfortunately it worked poorly on longwave due to AM broadcast interference.



I now use it almost exclusively to monitor the 20 meter AM frequency, 14.286 MHz. There was a problem here also. When connected to a decent outside antenna it pretty much died due to front end overload from other signals. The receiver doesn't appear to have any front end selectivity. Turning down the the RF gain helped a little but not much.

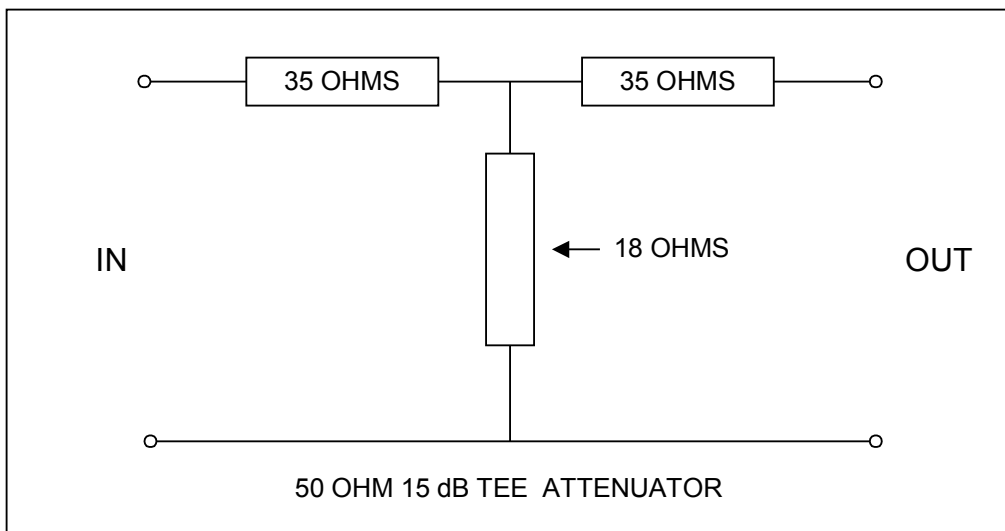
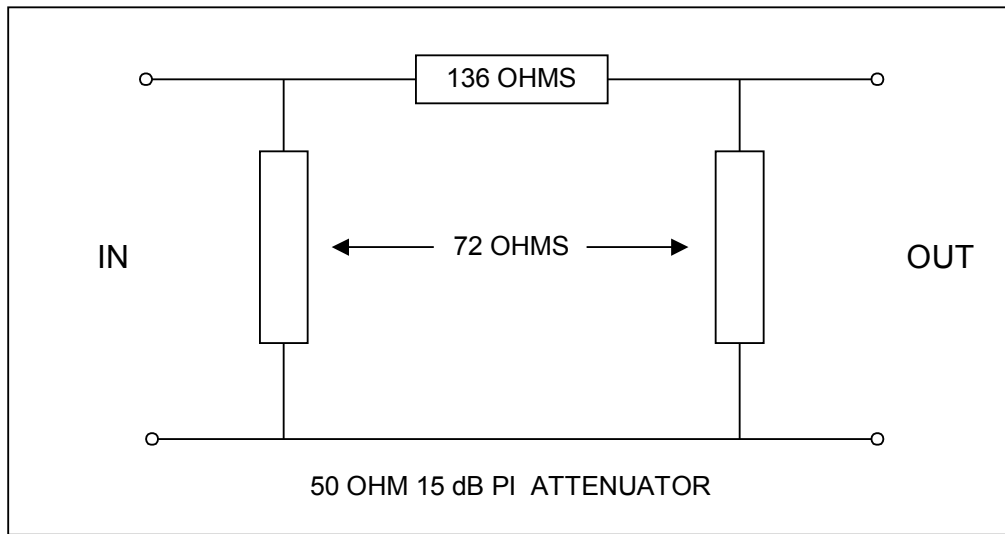
I experimented using a 50 Ω step attenuator that can be set in 1 dB increments at the antenna input to determine any performance improvements. In my case 15 dB of attenuation seemed to be a good compromise where the interference almost went away while still providing reasonable sensitivity.

On longwave and the AM broadcast band only the internal antenna is used therefore an attenuator at the external antenna connector will not work.

I built up a 15 dB attenuator (PAD) using standard $\frac{1}{4}$ Watt resistors. I installed them in an old Motorola Motrac Two-Way radio low pass filter box shown above. Being H.F. any available container should work. The resistor values used are not exact due to the calculated values are not available when

standard 5 % or 10 % resistors are used. The resistors values were calculated using 50 Ω input and output impedances . I don't know the input impedance of the DX-440. It probably varies over frequency. Anyway, this doesn't seem to be to critical. Some type of preselector probably would have been a better choice but the attenuator is simple to build.

Shown below are drawings of 15 dB 50 Ω PI and TEE attenuators. Both will work and the two are shown so that the closes available resistor values can be used. For different values of attenuation a Google search will lead you to different on-line attenuator calculators.



Initially I was considering building the attenuator inside the DX-440 case. After looking inside I decided it would be a better idea to build it externally. In my opinion this radio is not built very well and mucking around the inside may leave it inoperable.

With the external attenuation the receiver actually does a pretty good job of receiving AM on 20 meters. Adding external attenuation may help other receivers with similar problems.

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