

The Stefan Wikander Ultra-Deep Loran C Notch Filter

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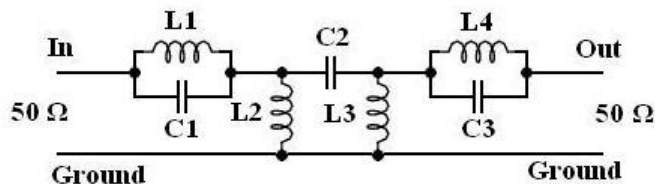
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Until the autumn of 1995, Berlevag was exceptionally quiet, RFI-wise. I didn't even need a shielded coax feedline to hear excellent DX. That all came to an abrupt end when they fired up a new 250 kW Loran C station 4 km away in late September that year. It wrecked havoc on my MW reception, especially since I was using an NRD-515 with its preselector disabled and MW sensitivity increased. I turned to Stefan Wikander, then living in Hammarstrand, Sweden, in despair. Stefan thought about it a while, and came up with a solution, a Loran C notch filter. He actually built it into a combined 1:2 splitter and preamp but also made a standalone unit. It literally saved my DX. Later receivers were less prone to overload from Loran C noise, but I still couldn't use longer antennas (such as beverages) without the Notch Filter.

In later years I have moved my DX equipment to Kongsfjord, around 15 km away from the Loran C mast, and the mast itself is not visible from my QTH. Still, if I put up beverages longer than 250 meters, and they are directed so that their main lobe falls within the Loran C bearing, I have lots of noise. So the Notch Filter is still an important part of my shack.

And even more today since I got my first Software Defined Radio, an RF Space SDR-IQ which has no filtering below 5 Mhz. Loran C was bleeding out all over the MW band leaving only the strongest stations to be heard. When I connected the Notch Filter, it all disappeared, as by magic. So, in case there are other DX-ers who have a Loran C station in unpleasant proximity, and also use SDRs, here is Stefan Wikander's Ultra-Deep Loran C Notch Filter:



L1 = L4 = 5 turns #24 enameled copper wire on ELFA 58-760 -99 ferrite toroid core, AL = 2810, 13/7.5/5 mm OD/ID/H, Amidon FT-50-75 may be substituted but be sure the windings are insulated from the ferrite

L2 = L3 = 12 turns #24 enameled copper wire on ELFA 58-765-84 ferrite toroid core, AL = 55, 14/9/5 mm OD/ID/H, Amidon FT-50-61 may be substituted

C1 = C3 = 0.03 μ F (0.022//0.01 or three 0.01//)

C2 = 0.01 μ F

The filter is exceptionally useful, or it wouldn't be called Ultra-Deep. The attenuation at 100 kHz is 75dB while the insertion loss is a very uniform 1-2 dB over the whole MW range (and upwards). The filter should be metal cased. If you use a splitter/multicoupler to feed several receivers, place the filter on the antenna side of the splitter. Stefan says it might be possible to make a deeper notch, but it is not likely to be necessary.

Thanks Stefan for excellent design, and thanks Dallas for making the schematic and parts list.