

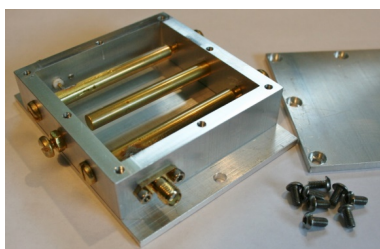
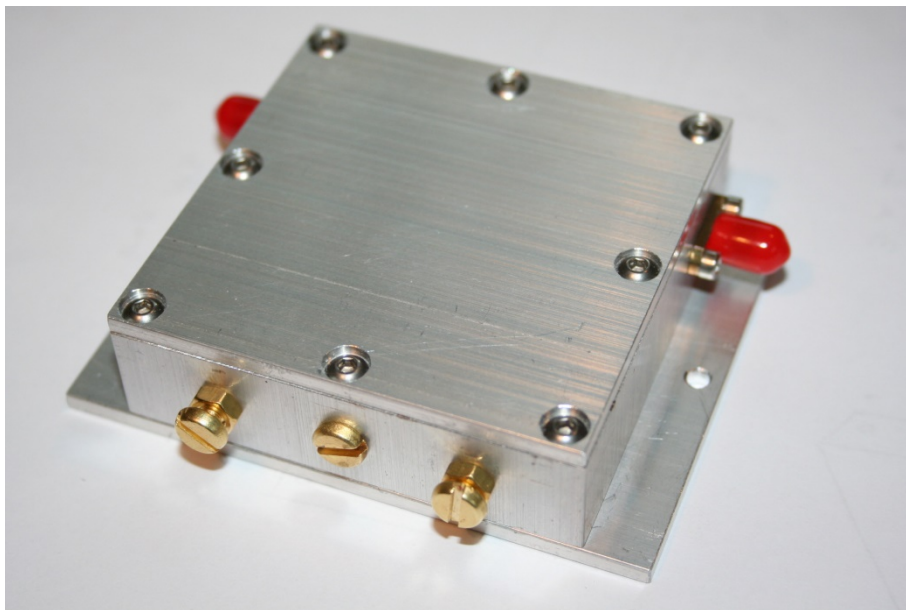
Aerial Parts of Colchester

1296MHz Interdigital Filter – generation 2

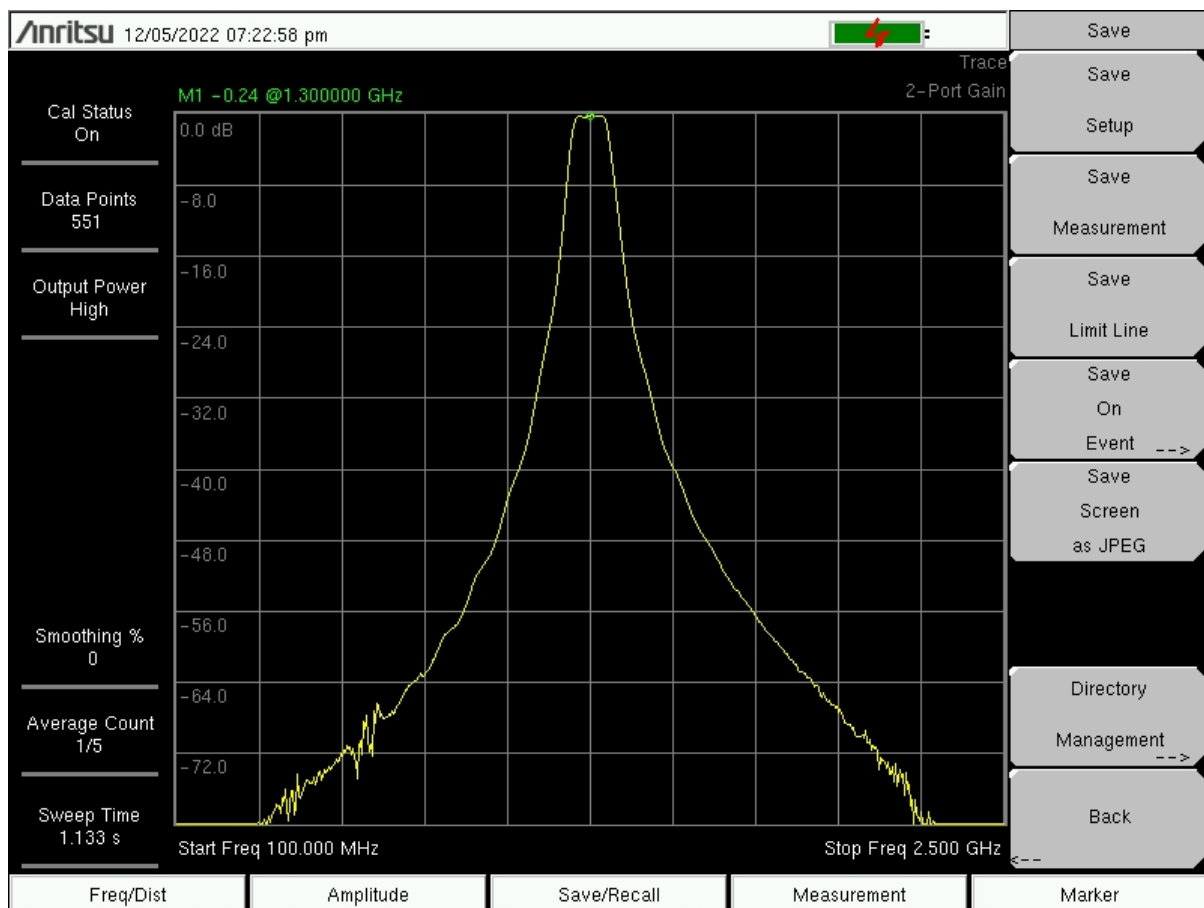
The quest for very low noise receive amplifiers on 1296MHz has led to designs which lack selectivity in front of the active device. At the same time, the UHF radio spectrum is increasingly populated by high numbers of powerful transmitters including digital terrestrial television and mobile phone base stations.

Close proximity of high power transmitters to a radio amateur station can lead to intermodulation in the front end or in subsequent receiver stages. Intermodulation can present itself as a rise in noise level on various beam headings and is often indistinguishable from transistor noise; it is broadband and without identifying modulation.

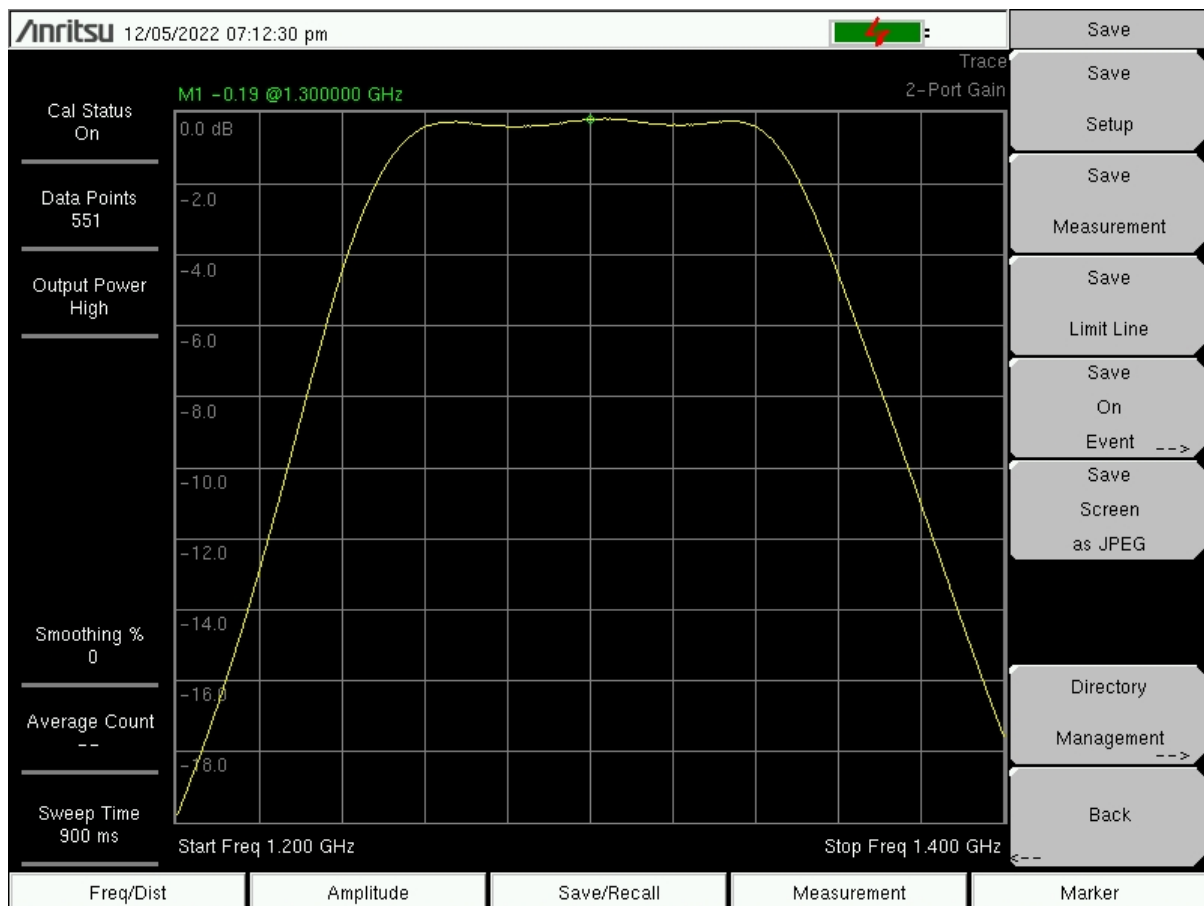
Intermodulation effects can be removed or reduced by placing a selective filter before the first stage of signal amplification. The filter needs to be low loss so as to have minimum impact on the system noise figure and sufficiently selective to reduce frequencies outside the amateur band to manageable levels. In addition, the Return Loss at both ports needs to be controlled so that 50 ohms is maintained throughout – doing so will ensure that the subsequent active device retains its noise figure. A carefully designed and constructed interdigital filter will fulfil these criteria.



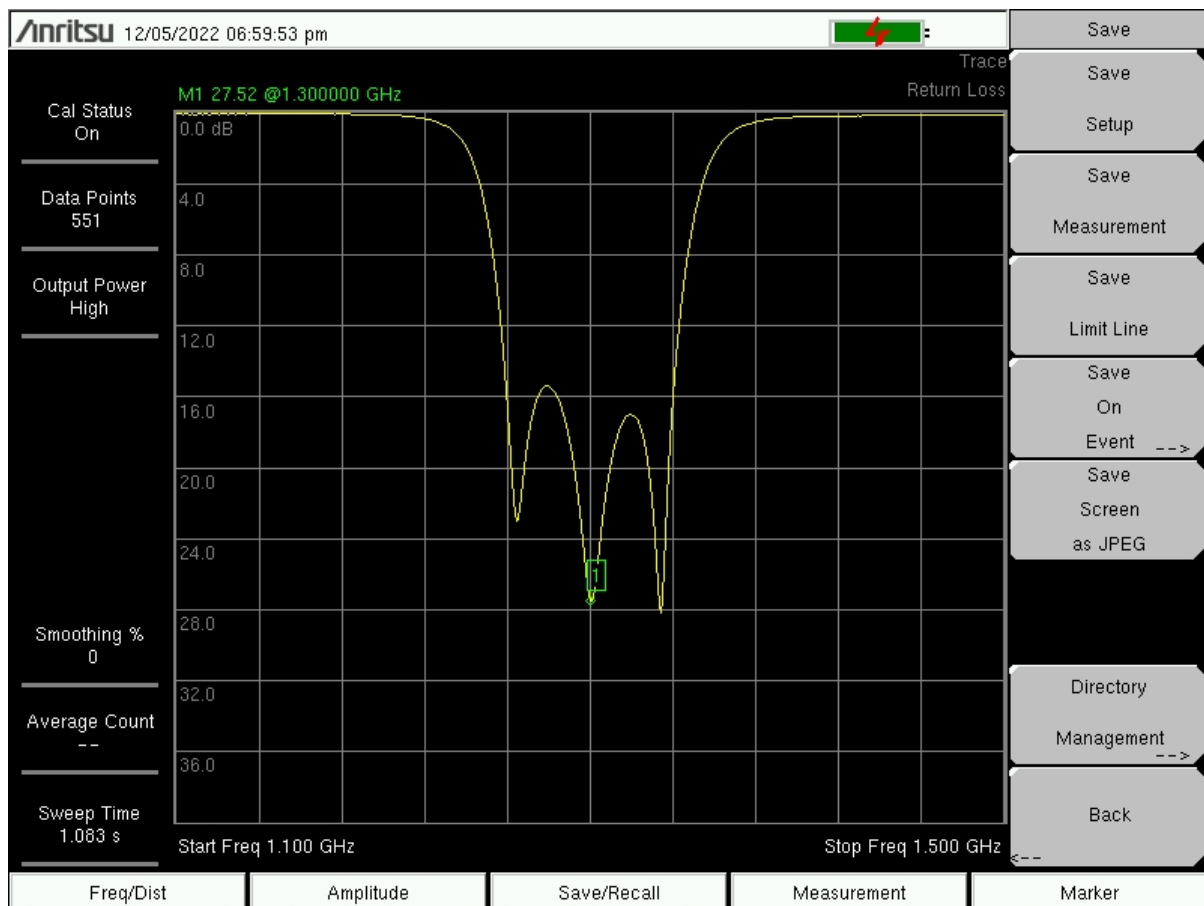
- Filter type: 3 pole interdigital filter
- Through loss at 1296MHz: better than 0.5dB, typically 0.3dB
- 3dB bandwidth: nominal 110MHz
- Attenuation at 950MHz (mobile phone): 45dB minimum
- Attenuation at 450 to 850MHz (television): 55dB minimum
- Attenuation at 1800MHz (mobile phone): 50dB minimum
- Input return loss, both ports: better than 20dB
- Size: 85 x 90 x 23mm
- Weight: 200g
- Connectors: SMA female



Typical response 100 to 2500MHz



Typical close-in response 1200 to 1400MHz



Typical Return Loss