

# FILTER TEST PROCEDURE

## EQUIPMENT LIST

### Suggested - A network analyzer with a 50Ω test set

- Select the frequency band to be used and calibrate the network analyzer in accordance with the manufacturer's instructions. Consider calibrating the network analyzer for both the passband and the rejection band; store the calibrations prior to making measurements
- Using amplitude and phase matched 50Ω test cables with the analyzer you may now connect the filter between the cables and take measurements.

*Filters need to be terminated externally in their characteristic termination  $\pm 10\%$ . When testing filters do not introduce reactive devices such as transformers, splitters, combiners or other reactive devices as these will affect filter performance.*

### Optional - A signal generator, two voltmeters with dB scales and a frequency counter

- When using this test equipment it is important to use one of the voltmeters to monitor the output of the signal generator as the resistive terminations may load the generator and the output voltage will need to be reset prior to taking measurements.

## TEST PROCEDURE

### Bandpass Filters

- Using suggested test equipment measure from low frequency passband edge to the high frequency passband edge
- Both the return loss and amplitude response may be tested
- Measure the rejection bands from the lower rejection band to the upper rejection band
- The stopband extends to  $10^*F_{-3dBc}$  for the low frequency filters and less for higher frequency filters

### Band Rejection Filters

- Using suggested test equipment measure from low frequency passband edge to the high frequency passband edge
- Both the return loss and amplitude response may be tested
- Measure the rejection bands from the lower rejection band to the upper rejection band
- The stopband extends to  $10^*F_{-3dBc}$  for the low frequency filters and less for higher frequency filters

### Lowpass Filters

- These filters pass from DC to a specified passband edge. The attenuation at the passband edge is -3dBc unless otherwise stated on the specifications page(s).
- The passband reference frequency is located at  $0.1^*F_{-3dBc}$
- The stopband typically extends to  $10^*F_{-3dBc}$  for low frequency filters and less for higher frequency filters.

### Highpass Filters

- These filters typically pass from  $10^*F_{-3dBc}$  for most low frequency types. Higher frequency highpass filters will have a limited passband.
- The rejection band extends from DC to the initial rejection frequency as listed on the specification page.