

COAXIAL CAVITIES



DESCRIPTION

Aerial Oy supplies coaxial cavity resonators for filter applications. Different kinds of cavity circuit combinations can be constructed to reject interfering frequencies or to isolate receivers or transmitters when using a common antenna.

Power rating, transmission and VSWR values depend on the selected cavity combination, filtered frequencies, interconnection cable and connector types which are all agreed with the customer. Tuning is factory-made at Aerial Oy premises unless agreed otherwise.

FEATURES

- Available as single cavity or multicoupler
- Passive element → minimum maintenance, maximum power
- Temperature drift compensated by using Invar steel as a conductor piston (tuning rod) material.
- Constructed and tuned individually according to the customer's order
- Materials: Aluminium alloy and silver plated brass
- Colour: Light grey
- High power version CR200-95 available for FM
- Installation between antenna and receiver(s) or transmitter(s).

MECHANICAL AND ELECTRICAL DATA

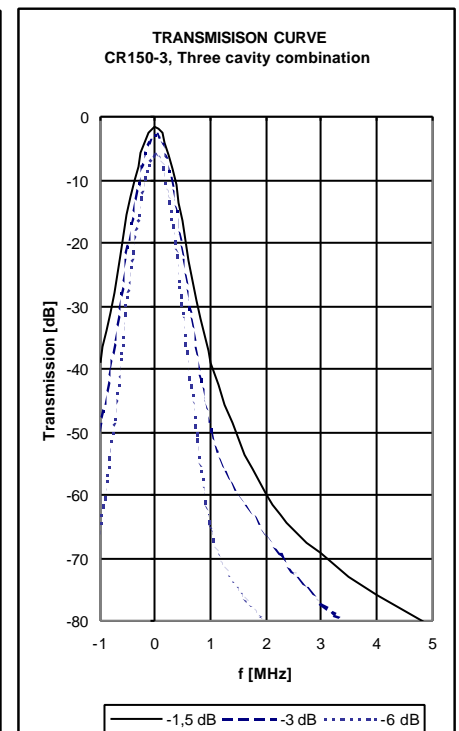
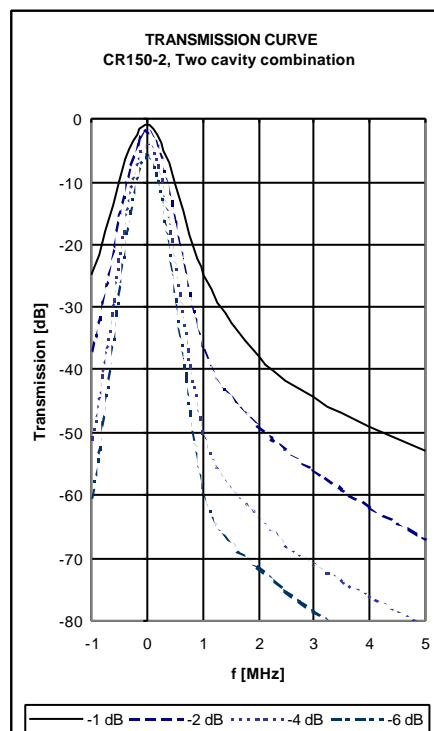
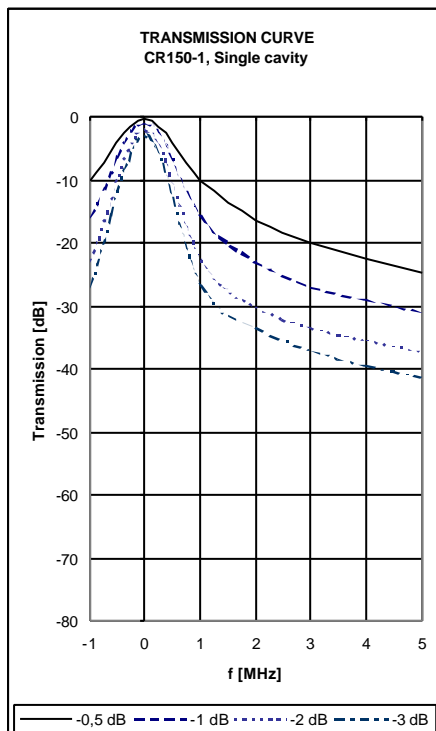
Type	CR110-75	CR110-95	CR200-95	CR110-120	CR110-150	CR110-450
Tuning range	68-88 MHz	88-108 MHz	88-108 MHz	118-144 MHz	146-174 MHz	380-470 MHz
RF-connector	N female	N female	7/16 female	N female	N female	N female
Diameter	Ø 110 mm	Ø 110 mm	Ø 200 mm	Ø 110 mm	Ø 110 mm	Ø 110 mm

BANDPASS FILTERS

Shape and steepness of the transmission curve can be adjusted by selecting the most suitable out of four possible positions of the coupling loops which are situated in the front panel of the cavity (see the picture below). However using radical coupling affects also the bandpass attenuation so this feature has to be used deliberately.

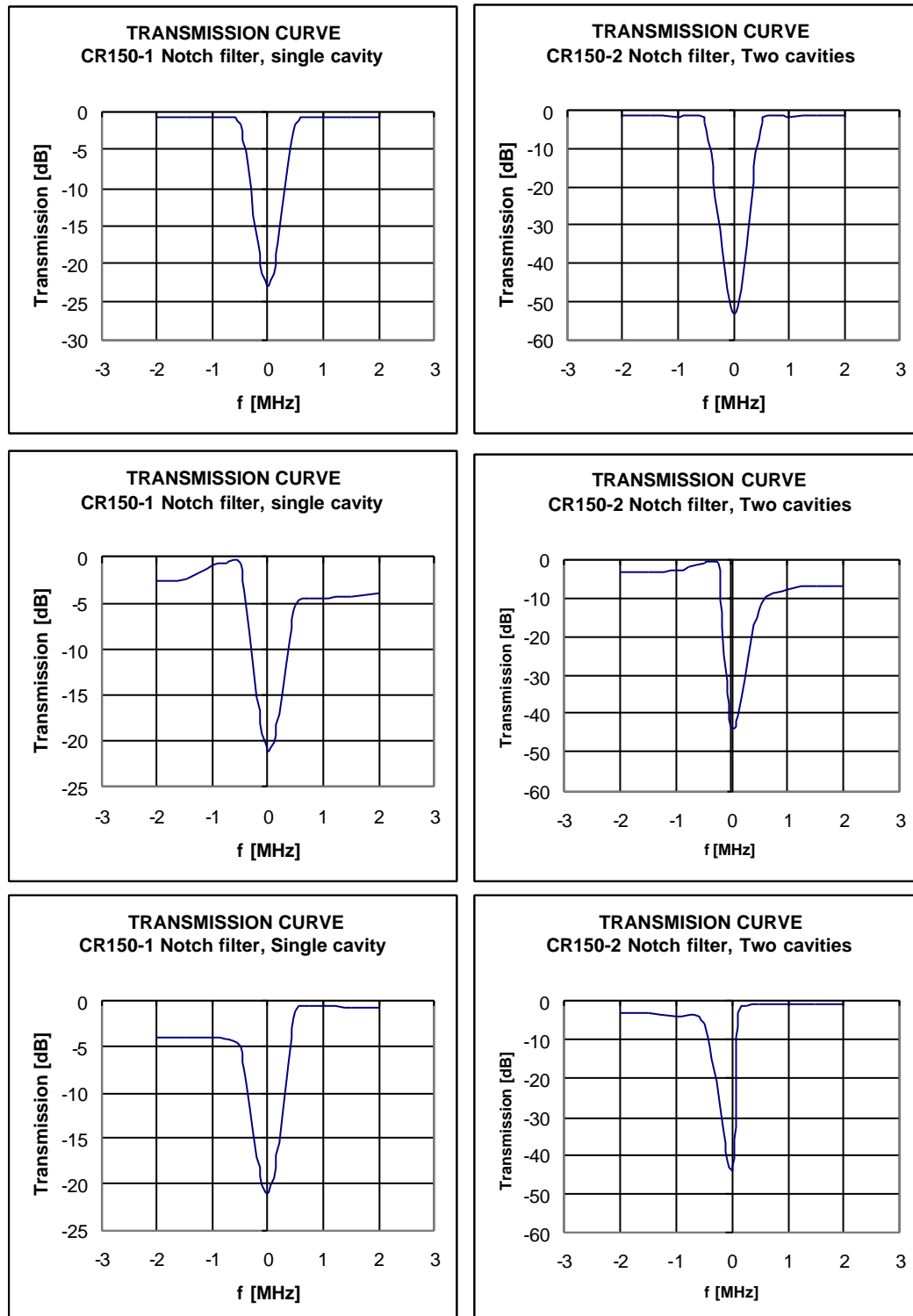
Adjustable loops are available for cavities with N-connectors only.

Illustrating example curves of one, two and three cavity circuits with different loop settings are below.



NOTCH FILTERS

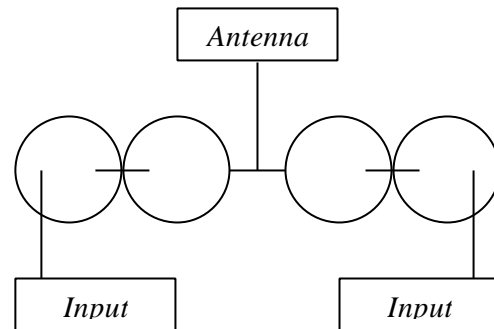
To reject interfering spot frequencies coaxial cavity circuits can be tuned as notch filters. Some examples of possible 146...174 MHz range patterns are below:



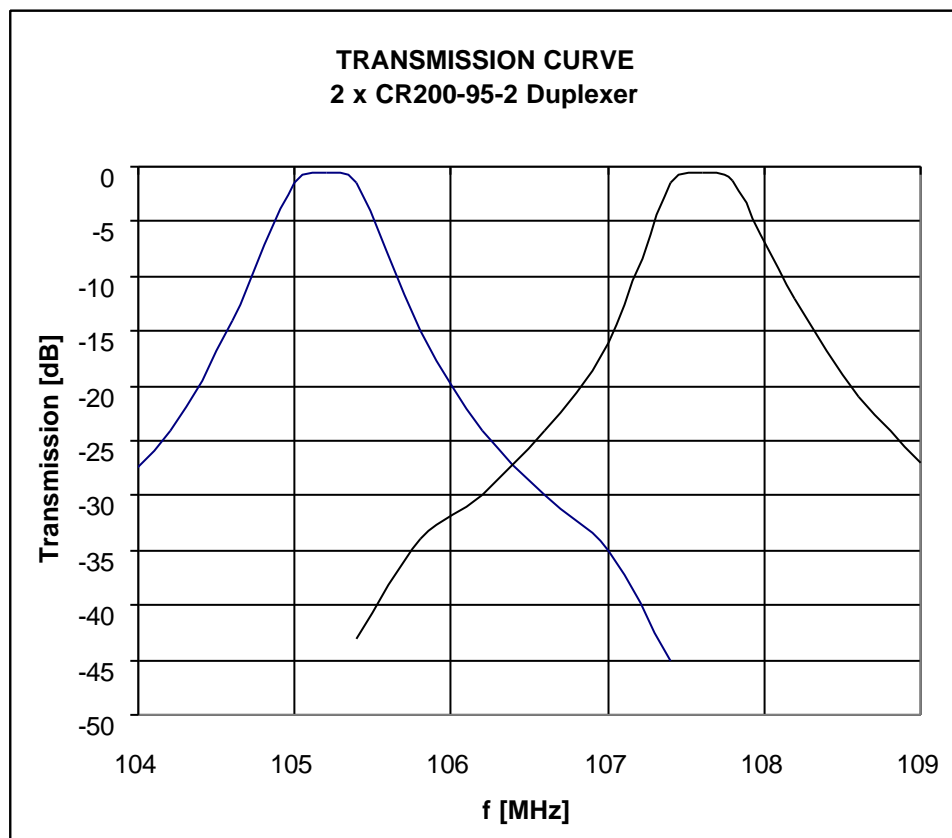
DUPLEXERS (MULTICOUPLERS)

Duplexer circuits can be used to couple multiple receivers or transmitters to a common antenna. This following measured example graph is a FM duplexer which couples two local radio transmitter feed signals together for common feed cable and antenna system. The block diagram of the system is on the right.

f1 = 105,2 MHz
 f2 = 107,7 MHz
 Bandpass attenuation 0,6 dB
 Isolation 45 dB



System return loss can be matched better than 20 dB for a ± 100 kHz frequency band.



ORDERING INFORMATION

To order a correct filter type please contact our sales personnel and be prepared to inform us about the frequencies, bandwidths, Return loss values, power handling, bandpass and band reject attenuation or isolation which are required in your system. You can also leave the decision to our skilled engineers.