BpBr Circuit® DUPLEXER

MODEL WP-678 is a 4-cavity BpBr Circuit® duplexer designed for use with duplex systems operating at 3 MHz or more separation in the 440-512 MHz band. It consists of four 4” OD copper cavities interconnected with double shielded cable in a bandpass-reject configuration. Three models, each with a tuning range of approximately 25 MHz are available to cover the 440-512 MHz range. To maintain maximum isolation, double shielded cable must be used to interconnect the duplexer to the transmitter and receiver. Numerous duplexer installation cable kits are available but must be ordered as an optional item.

MODEL WP-665 is almost identical to the above model but designed for use with duplex stations operating in the 400-440 MHz band when the Tx and Rx frequency separation is 3.0 MHz or more.

The BpBr Circuit®, which was developed and patented by Wacom, is a unique circuit for coupling energy into and out of a cavity filter. It provides a bandpass cavity response at the pass frequency and a deeper and wider notch at the reject frequency. BpBr Circuit® duplexers are equally suitable for use in systems with close or wide frequency separations.

WHEN ORDERING, specify model number and the exact transmit and receive frequencies to which the duplexer should be tuned.
PRODUCTS, INC.

MECHANICAL DATA

Materials:
- Cavity Outer Conductor: Copper
- Cavity Inner Conductor: Copper
- Cavity End Plates: Copper/Brass
- Cavity Tuning Rod: Invar

Dimensions:
- Individual Cavity (not incl. tuning rod): 4" dia. x 8 1/2"
- Duplexer (D x W x H) with tuning rods fully extended:
  - Model WP-665: 5 1/2" x 11" x 19"
  - Model WP-678: 5 1/2" x 11" x 19"

Connector Terminations:
- Type N Female

Finish:
- Black Enamel

Net Weight:
- Model WP-665: 19 lbs.
- Model WP-678: 18 lbs.

Shipping Weight:
- Model WP-665: 26 lbs.
- Model WP-678: 25 lbs.

ELECTRICAL DATA

Model WP-665 | Model WP-678
--- | ---
Tuning Range:
- A Range | 400-420 MHz
- B Range | 420-440 MHz
- C Range | 488-512 MHz

Minimum Frequency Separation: 3.0 MHz or more

Maximum Power Input (continuous duty): 200 watts

Insertion Loss (Tx and Rx to Antenna):
- at 3.0 MHz separation: 1.2 dB
- at 5.0 MHz separation: 1.2 dB

Attenuation at Tx Freq. and Rx Freq.:
- at 3.0 MHz separation: 90 dB
- at 5.0 MHz or more separation: 95 dB

Isolation (midway between channels):
- at 3.0 MHz separation: 45 dB
- at 5.0 MHz or more separation: 60 dB

Maximum VSWR (Ref. 50 ohms): 1.3 to 1

Temperature Range: -30° to +60°C

Number of Cavity Filters: 4

TYPICAL DUPLEX RESPONSE CURVES