



DB-4002
118-512 MHz

BANDPASS CAVITIES

THE DB-4002 is a high performance coaxial cavity for use between the antenna and the receiver, or between the antenna and the transmitter, to reduce interference which is frequency rejectionable. The cavity is available in four models to cover different frequency ranges in the 118-512 MHz band. Model DB-4002-A covers the frequency range of 118-148 MHz. Model DB-4002-B covers the range 144-174 MHz. Model DB-4002-C covers the range 406-420 MHz. Model DB-4002-D covers the range 450-512 MHz. Each cavity is supplied with three sets of coupling loops so the installer can choose the loops that provide optimum selectivity. The cavity should be mounted in a vertical position on any flat surface (floor, wall) in a location where it will not be exposed to the elements. A mounting bracket is supplied with each cavity.

HIGHER PERFORMANCE is possible with the DB-4002 because of its size and the high conductivity of the materials used in its construction. With an eleven inch diameter and with all current carrying elements made of copper or silver plated brass, the cavity has a very high "Q" factor. As a result the cavity provides greater selectivity than other smaller cavities and/or comparable cavities made of aluminum. This improvement of selectivity is especially useful when the frequency to be attenuated is extremely close to the frequency to be passed.

VERSATILITY. The same basic cavity assembly is used for models covering the 144-174, 406-420 and 450-512 MHz bands. Only the coupling loops are different. As a result, a cavity can be converted for operation from one of these frequency bands to another by simply installing the appropriate coupling loops. In addition any of the three models can be converted to a band-reject filter for operation on any one of the three frequency bands by simply ordering the appropriate loop/harness kit from the factory. Contact factory for details on loop kits.

TUNING is accomplished by turning the tuning knob which in turn varies the length of a piston in the center coaxial conductor. Positive contact between the fixed and moving parts of the center conductor is maintained by beryllium copper fingerstock with spring compression. Frequency stability over a wide temperature range is achieved by the use of a threaded Invar steel rod to control the length of the cavity conductor. (Invar has nearly zero coefficient of expansion).

COUPLING LOOPS. Three sets of coupling loops are supplied with each cavity so that the required selectivity can be obtained with minimum loss at the desired frequency. These loops correspond to an insertion loss of 0.5 dB, 1.0 dB or 3.0 dB (nominal). For even greater selectivity, cavities can be added in series to obtain improved selectivity over that obtainable with a single cavity.

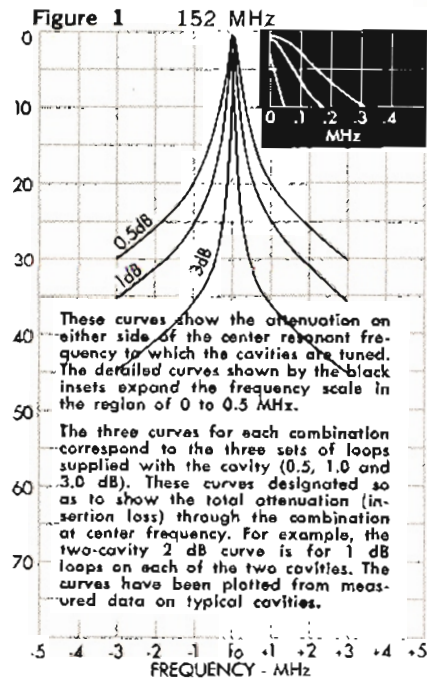


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DB-4002-B	144-174 MHz
DB-4002-C	406-420 MHz
DB-4002-D	450-512 MHz

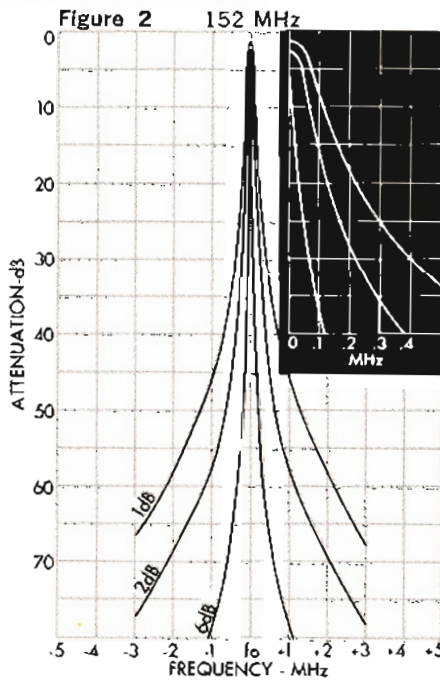
DECIBEL PRODUCTS, INC.

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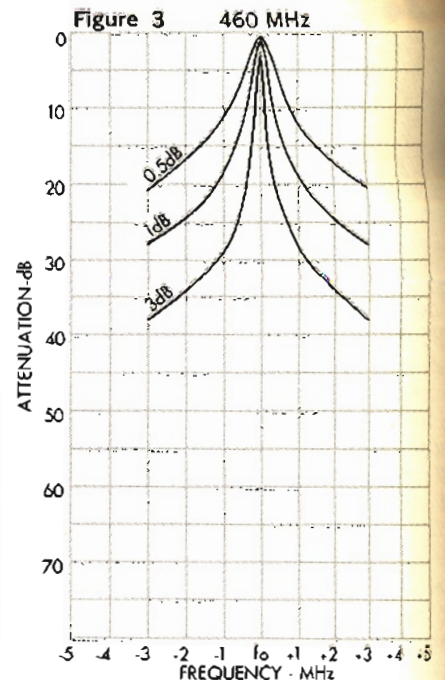
TYPICAL SELECTIVITY CHARACTERISTICS



**MODEL DB-4002-B
SINGLE CAVITY**



**MODEL DB-4002-2B
TWO CAVITY COMBINATION**



**MODEL DB-4002-D
SINGLE CAVITY**

ELECTRICAL DATA

	DB-4002-A	DB-4002-B	DB-4002-C	DB-4002-D
Frequency Range	118-148 MHz	144-174 MHz	406-420 MHz	450-512 MHz
Insertion Loss (desired frequency)	0.5, 1.0 & 3.0 dB loops supplied	0.5, 1.0 & 3.0 dB loops supplied	0.5, 1.0 & 3.0 dB loops supplied	0.5, 1.0 & 3.0 dB loops supplied
Attenuation (undesired frequency)	See Fig. 1	See Fig. 1	See Fig. 3	See Fig. 3
Impedance (nominal)	50 ohms	50 ohms	50 ohms	50 ohms
Maximum Power Input (continuous) with insertion loss per cavity at:				
0.5 dB	400 watts	400 watts	400 watts	400 watts
1.0 dB	350 watts	350 watts	350 watts	350 watts
3.0 dB	200 watts	200 watts	200 watts	200 watts
Temperature Range (for negligible frequency shift)	-30° to +60° C	-30° to +60° C	-30° to +60° C	-30° to +60° C
Cavity Electrical Length	1/4 wavelength	1/4 wavelength	3/4 wavelength	3/4 wavelength

MECHANICAL DATA

	DB-4002-A	DB-4002-B	DB-4002-C	DB-4002-D
Materials:				
Outer conductor	Copper	Copper	Copper	Copper
Inner conductor	Copper & brass	Copper & brass	Copper & brass	Copper & brass
End plates	Copper & brass	Copper & brass	Copper & brass	Copper & brass
Coupling loops	Copper	Copper	Copper	Copper
Tuning rod	Invar	Invar	Invar	Invar
Dimensions:				
Individual cavity	11" dia. x 31"	11" dia. x 31"	11" dia. x 31"	11" dia. x 31"
Maximum, outside (with tuning rod extended)	12" x 12" x 35"	12" x 12" x 35"	12" x 12" x 35"	12" x 12" x 35"
Connector Terminations	UHF female	UHF female	UHF female	UHF female
Finish	Beige vinyl enamel	Beige vinyl enamel	Beige vinyl enamel	Beige vinyl enamel
Net Weight	39 lbs.	36 lbs.	36 lbs.	36 lbs.
Shipping Weight	48 lbs.	45 lbs.	45 lbs.	45 lbs.

ORDERING INFORMATION

<p>DB-4002-A Cavity (118-148 MHz)</p> <p>DB-4002-B Cavity (144-174 MHz)</p> <p>DB-4002-C Cavity (406-420 MHz)</p> <p>DB-4002-D Cavity (450-512 MHz)</p>	<p>Specify model and frequency band as shown at left. For protection during shipment, the cavity is shipped with the tuning rod in its lowest position. Instructions are included for field tuning the cavity with use of ordinary test equipment.</p>
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