Data sheet

Version 01.00

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Cavity Filter R&S®HS 9043/9

VHF range 100 MHz to 156 MHz

- Manually tuned
- Excellent mechanical precision
- Versatility in use for multiport filters or multicouplers
- Reasonable size
- Good price/performance ratio

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The Cavity Filters R&S®HS 9043/9 are proven "workhorses" that have been used successfully for decades. They are applied to single-channel systems where medium power-handling and medium selectivity are sufficient.

There are two basic types: VHF Cavity Filter R&S®HS 9043/9 and UHF Cavity Filter R&S®HS9043/0 (see separate data sheet). They are equal in design and function, but differ in their specifications and dimensions.

The R&S®HS 9043/9 is cylinder-shaped and designed as a coaxial resonant-line circuit with an inner and outer conductor. The input and output coupling is made with variable coupling loops which can be rotated separately to vary the coupling degree (K) and thus the selectivity of the filter.

Special filter and multicoupler capability

The R&S®HS 9043/9 can be configured to the following:

- Special filter types, e.g.
  - with three ports for three radios and three antennas
  - with two filters per port (double-section filter) to increase selectivity
- Starpoint multicouplers

The appropriate number of Cavity Filters R&S®HS 9043/9 is assembled together with a mechanical slide-in unit, special coaxial 2-, 4- or 8-way starpoints, RF cables, transformation stages, etc, to form a compact 19" plug-in for rack integration.

Specifications

Specifications refer to filters and multicouplers, unless stated otherwise, and to nominal RF terminations (50 Ω).

Frequency range	100 MHz to 156 MHz
RF power-handling	50 W AM
Bandwidth	≥0.2 % (K3)[1]
Selectivity	≥14 dB 1 %[1] (K3)[2]
Insertion loss	≤2.0 dB (K3)[2] ≤0.5 dB (K10)[2]
Circuit design characteristics	variable-coupled cavity resonator filters
Input and output coupling degree	manually settable for both: K ≤ 10
Input impedance (radio port) of a single-section filter	50 Ω, VSWR: ≤1.1 : 1 (f_0) ≤2.0 : 1 (f_0 ±0.1 % at coupling degree K5), valid for filters; multicouplers see below
Input impedance (radio port) of a double-section filter	50 Ω, VSWR: ≤1.2 : 1 (f_0) ≤1.5 : 1 (f_0 ±100 kHz)
Output impedance (antenna port)	50 Ω
RF connectors (radio or antenna port)	N female
Effect of temperature	≤3 kHz/°C
Different specifications for multicouplers	
Number of inputs (radio ports)	up to 4 depending on type and model
Total RF input power	up to 4 × 50 W AM carrier, 100 %[3]
Insertion loss	depends on project-specific filter settings
General data	
Max. operating temperature	+55 °C
Dimensions	148 mm × 446 mm (diameter × length)
VHF filter or multicoupler with 3 × R&S®HS 9043/9, 19" 4 HU rack plug-in	483 mm × 177 mm × 446 mm (W × H × D)
Weight	7 kg

Ordering information

Designation	Type	Order no.
Cavity Filter (VHF, cylinder-type filter)	R&S®HS 9043/9	0138.5746.02
VHF filter and combiners, configuration examples 19" plug-in assemblies with several inputs (radio ports)		
VHF 1-Port Filter (1 × R&S®HS 9043/9)	R&S®FU432W1	0713.7305.02
VHF 2-Port Filter (1 × R&S®HS 9043/9 per port)	R&S®FU 256	0682.7016.02
VHF 2-Port Filter (2 × R&S®HS 9043/9 per port)	R&S®FU 255	0679.8815.02
VHF 3-Port Filter (1 × R&S®HS 9043/9 per port)	R&S®FU 253	6009.3000.xx (RX filter = 02, TX filter = 03)
Further options on request.		

[1] Attenuation at x % frequency separation from center frequency f_0.
[2] R&S®HS 9043 filters have variable coupling degree (K1 to K10).
[3] The maximum power-handling capacity is a function of the coupling degree.

Certified Quality System ISO 9001 DQS REG. NO 1954 QM

Certified Environmental System ISO 14001 DQS REG. NO 1954 UM

More information at
www.rohde-schwarz.com
(search term: HS9043)

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