

# CS-5998 Ultra-Broadband Microwave Tuner



The CS-5998 is an ultra-broadband microwave tuner featuring 2 GHz IF output.

The CS-5998 is a 2 GHz bandwidth set-on microwave tuner covering the 1.5 - 18 GHz frequency tuning range with the edges covering the 0.5 - 19 GHz frequency range. It has a low noise figure, high dynamic range, and low phase noise. The 2 GHz bandwidth, centered at 3 GHz, provides the user the opportunity to look at an ultra-wide IF anywhere in the microwave range. Optional IF configurations with outputs centered at 1000 MHz and 160 MHz are also available to enable easy use with the Rockwell Collins CS-3001/3002 Pulse Analyzer Unit. The 3 GHz IF spectrum is inverted across the entire band to obtain the best spurious performance. The optional 1000 MHz

and 160 MHz IF spectrum presentation is non-inverted. Local oscillator re-radiation is very low, and the filters are designed for low group delay and minimum ripple. The CS-5998 uses switched preselection and fundamental mixing. Typical tuning resolution is 10 kHz, although tuning down to a 100 Hz resolution is possible.

The CS-5998 can be equipped with ultra broadband FM demodulation and ultra broadband LOG video outputs as options. These video outputs are compatible with the CS-3001/3002 series pulse analyzer units for processing ELINT signals with 2 GHz of instantaneous bandwidth.

The CS-5998 can also be provided with a frequency extension interface option, allowing the user to purchase standard millimeter-wave downconverters that are then powered and controlled by the CS-5998 unit. The unit can also be optionally configured to support operation with independent millimeter-wave conversions such as with the CS-1040 ELINT Spinning Antenna. The internal synthesizer has very low phase noise and is locked to an internal crystal reference. The internal reference automatically locks to an accurate external 10 MHz reference signal and can be updated automatically on command when the external reference is applied.

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## SPECIFICATIONS

Input frequency	1.5 - 18 GHz center frequency
IF output #1 (standard)	
Center frequency	3 GHz (inverted spectrum)
Bandwidth	2 GHz nominal
IF output #2 (option)	
Center frequency	1000 MHz (non-inverted)
Bandwidth	500 MHz nominal
IF output #3 (option)	
Center frequency	160 MHz (non-inverted)
Bandwidth	85 MHz nominal
Group delay	3.0 nsec typical, 5.0 nsec max
RF-IF gain (all IF outputs)	15 dB min
Noise figure (at 25°C)	12 dB typical (standard)
Input third-order intercept	0 dBm typical, -2 dBm min
Image rejection	-90 dB typical, -80 dB min
Spurious responses	
Signal related (single)	-50 dBc typical, -45 dBc min
Internally generated	-85 dBm typical, -80 dBm min (equivalent input level)
Tuning time	10 ms typical, 15 ms max
Tuning resolution	10 kHz
Internally generated	-75 dBm max equivalent input spurious
Integrated phase noise	0.5° RMS SSB max 0.25° RMS typical
LOG video output (optional)	
Dynamic range	50 dB min
Video bandwidth	50 MHz typical
FM video output (optional)	
Video bandwidth	50 MHz typical
Video rise time	10 ns max
Dimensions	3.5 x 8.5 x 21 in
Weight	18 lb (8.2 kg) typical

## PRODUCT ATTRIBUTES

- 1.5 - 18 GHz CF tuning range
- 2 GHz bandwidth IF output
- 10 kHz tuning resolution
- 3 GHz CF IF output
- Optional WB LOG/VIDEO output
- Optional blanking/RF attenuation

## OPTIONS

- Option 1 – Alternate IF output configurations
- Option 2 – Digital interfaces including Ethernet and RS-232/422
- Option 3 – WB LOG amplifier and FM discriminator video outputs
- Option 4 – Frequency extension
- Option 5 – Software configuration for external independent MMW
- Option 6 – RF input blanking/attenuator
- Option 7 – Extended warranty

## RELATED EQUIPMENT

- CS-3001 Pulse Analyzer
- CS-3002 Dual Pulse Analyzer
- CS-5040 VXI Tuner 0.1 - 18+ GHz
- CS-5999 VXI Ultra Broadband Tuner
- CS-5072 VXI Ultra Broadband Demodulator

## SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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