

SPCL-00597 Tunable Non-Reflective Bandreject Filter

◆ Features:

This device is placed after the DUT to protect the Spectrum Analyzer from high-power fundamentals and provide harmonic measurements. The non-reflective functionality prevents energy from bouncing back to the DUT and raising the noise floor level. Broadband matching improves dynamic range and reduces measurement uncertainty. The energy flow from the DUT is shown in the figure below. Connecting the DUT to Port 1 of the unit splits the input spectrum using the highpass/lowpass (HP/LP) duplexer. While the fundamental carriers and neighboring IMD products flow through the LP filter, harmonics and other components are routed through the HP filter and exit at Port 2.

Upon exiting the LP, the fundamental carriers are admitted by the two identical tunable bandpass filters. These filters are terminated by the user at Ports 4 and 5. Careful attention MUST be paid to selecting terminations capable of handling the power level flowing from the DUT. Optionally, the user might place monitoring couplers or even recombine Ports 4 and 5 into a single port via 3dB hybrid. The IMD products below and above the fundamental carriers travel through the lower and upper passbands, respectively, of the tunable bandreject filter and out to Port 3. Given a frequency target, the user manually tunes SPCL-00597 using the three knobs and a network analyzer. Fine-tuning entails symmetric distribution of the S11 pattern around the target frequency, as shown in the data plots. With the fundamental carriers adequately suppressed by the HP filter and the tunable bandreject filter, it is safe to connect the Spectrum Analyzer to Ports 2 and 3 and proceed with desired measurements.

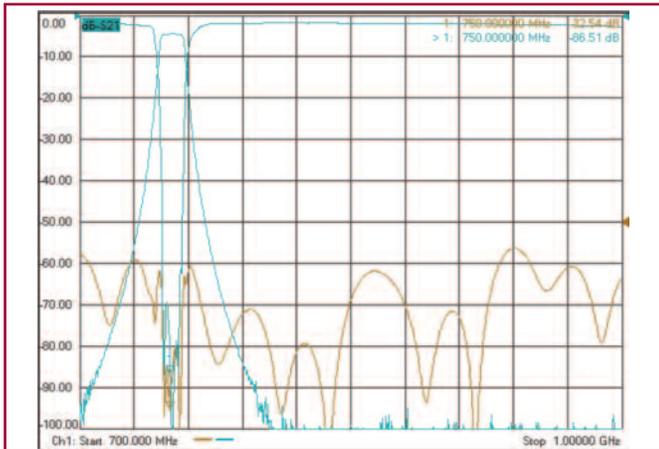
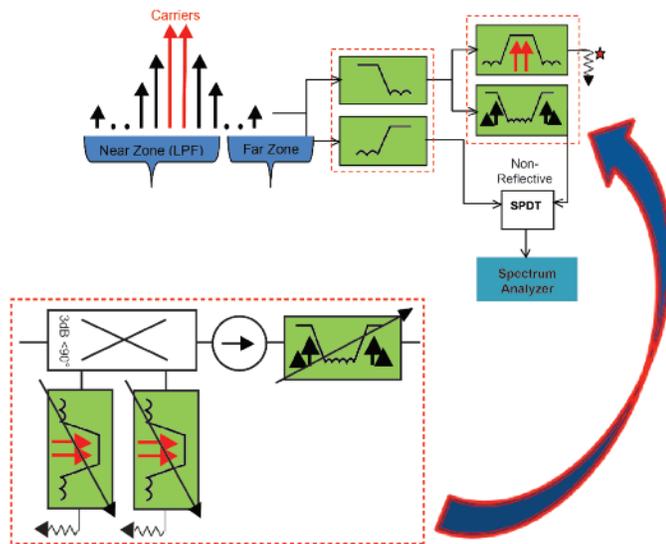
SPCL-00597 can be made fully digitally-controlled using servo-mechanical motors and controllers. Similar devices for other LTE bands available upon request.

◆ Specifications:

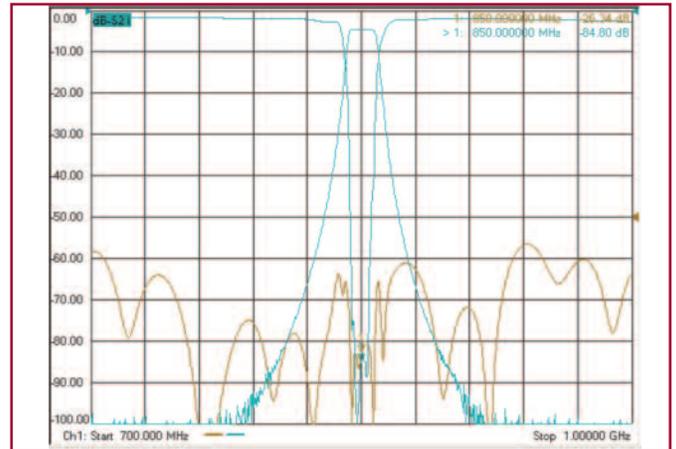
- Tuning Range: 700 MHz-1000 MHz
- Harmonic Output: 1400 MHz-4000 MHz (X2-X3-X4) - This range can be extended if needed.
- Input/Output Return Loss: -14 dB
- Rejection: 40 dB (BW) = 10 MHz and 3 dB (BW) = 20 MHz
- Power Handling: 50 W CW
- IP3 = +100 dBm



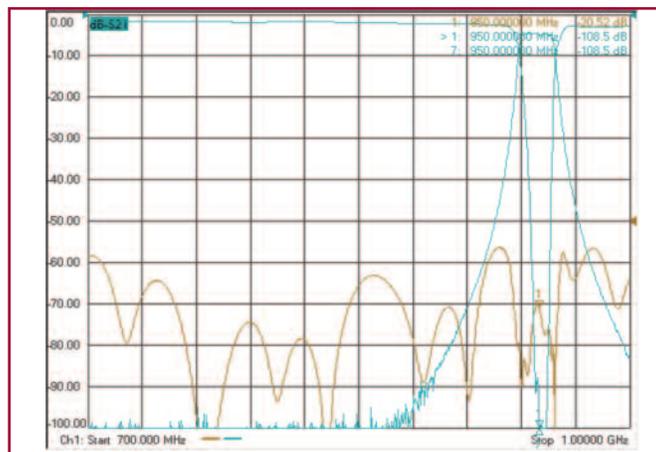
SPCL-00597 Tunable Non-Reflective Bandreject Filter



750 MHz



850 MHz



950 MHz