

Spectrum Analyzer Audio Demodulation Tips for AM/FM

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The SIGLENT SSA and SVA series of spectrum analyzers feature the ability to demodulate AM or FM transmissions and then play the audio output using an external speaker or earphone.

Here are some tips to optimizing the audio quality:

1. Set the center frequency to match the channel of interest and place Marker 1 at the center frequency for the channel-of-interest. For example, if you wish to monitor/demodulate a signal at 100.7 MHz, set the center frequency to 100.7 MHz and place the marker at 100.7 MHz.
2. Set the span to fully capture the entire transmission bandwidth. Most North American Am/FM radio station channels have bandwidths < 1 MHz.
3. Set the RBW $>$ the modulation bandwidth of the signal. For most radio transmissions, this is > 20 kHz. An RBW setting of 100 kHz or greater should be a good starting point.
4. Set the demodulation time to 10 s or so. The analyzer will update the signal trace every 10 s. This decreases the audio interruptions that occur during a sweep update but still provides some signal information.
5. Turn the volume to 1 before enabling the demodulation. Enable demodulation and check the volume as you slowly raise the volume to an acceptable level.
6. Remember that the bandwidth of human voice audio is 4k and radio broadcast transmissions are often 20 kHz. So an RBW larger than 40 kHz is required (Nyquist Sampling).



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