Important Considerations when using the WSA5000

Any and all external signal sources connected to the WSA5000 (RF IN, LO1 IN, LO2 IN, LO3 IN and 10 MHz IN) must be turned on only after powering on the WSA5000 and turned off prior to powering down the WSA5000.

Connecting Signal Sources to the WSA5000 Receiver Front-end (RF IN)

ThinkRF's receivers can tolerate a maximum input signal of **+10 dBm**. **Injecting signal levels that exceed these specifications will result in permanent damage to the receiver.**

It is therefore recommended that the output of a signal source be verified with the use of a power meter prior to connecting the source directly to the RF IN connector. Please refer to the user guide for more information on how to query the attenuation.

The Use of ThinkRF Products with External Local Oscillators (LO1, LO2 and LO3)

ThinkRF's WSA5000 with option ELO can be used with External Local Oscillators for applications such as those that require phase-coherent radio front-ends. In this product variant, the internal local oscillators are disabled and external LO signals are applied at the input ports LO1, LO2 and LO3.

Note: The 308 / 408 only have LO1 and LO2.

It is very important to verify the output power levels from the sources using a calibrated power meter or spectrum analyzer prior to connecting these to the WSA5000. A calibrated power meter would provide more accurate power measurements than a spectrum analyzer.

SETUP STEPS:

- Set LO1, LO2 and LO3 source power to **0 dBm ± 1 dB**.

Caution: Setting the LO power levels higher than this value will result in permanent damage to the receiver front-end.

It is important to power down the external LOs before powering down the WSA5000 units. Leaving the LOs powered on while the WSA5000 is on will result in permanent damage to the receiver front-end.

- Use SCPI commands to set the WSA's center frequency and then read the frequencies to which LO1, LO2 and LO3 must be set.

- The SCPI commands associated with this option are:

   :SYSTEM:OPTIONS?

   - query if the unit has the external LO option "001" (this code represents ELO)

   :FREQUENCY:LOSCILLATOR? <1 | 2 | 3>

   - get the frequency for the LO1, LO2 or LO3 to be set.

See the Programmer's Guide for further details on the commands.

The Use of ThinkRF Products with External 10 MHz Reference (10 MHz IN)

ThinkRF's WSA5000 can be synchronized with the use of an external 10 MHz reference. The 10 MHz reference can be obtained, for example, from an external oscillator or from the digitizer section of the data acquisition system. As well, this 10 MHz is redistributed within the WSA5000 and sent to the 10 MHz OUT SMA connector for use by external equipment that needs a 10 MHz reference source.

To set the WSA to use the external 10 MHz reference, send the SCPI command `:SOURCE:REFERENCE:PLL EXT` (Refer the Programmer's Guide for more details)

The external 10 MHz reference level must be between **-10 dBm** and **+10 dBm**.

⚠️ **Caution:** **Exceeding the level of +10 dBm will result in permanent damage to the internal clock circuit. Additionally, the 10 MHz reference must be powered down prior to powering down the WSA5000.**

For any questions on the above information please email: support@thinkrf.com.

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