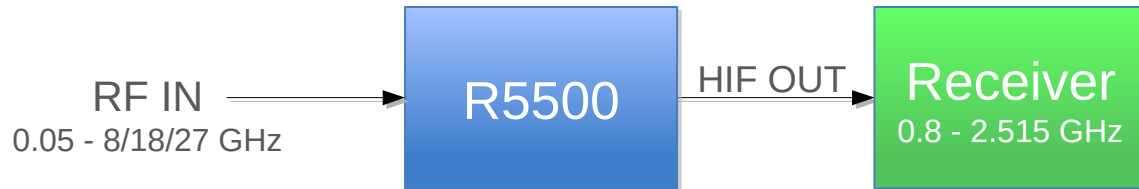Application Note

74-0061-180604

Using R5500 With HIF Output

This application note gives an overview of the R5500's HIF technology and how to use it with the HIF output port.

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Overview

ThinkRF R5500 Real-Time Spectrum Analyzer (RTSA) is equipped with a High Intermediate Frequency (HIF) conversion technology, which is designed to enable frequency extensions to receivers that are limited in frequency range. The R5500 HIF technology translates an RF input signal in the frequency range of 0.05 - 8/18/27 GHz to an IF usable for the receiver.

RF IN
0.05 - 8/18/27 GHz → **R5500** —HIF OUT→ **Receiver**
0.8 - 2.515 GHz

The analog HIF output signal is presented at the HIF OUT port of the RTSA to be process by a receiver, which is tuned to one of the available IFs shown in the table below. Which IF frequency presented at the HIF OUT port will depend on the R5500's center frequency and the RFE (Radio Front End) mode used. The receiver, hence, should be tunable between 800 MHz and 2515 MHz.

RFE Mode	IF Frequencies (MHz)
SH, SHN	836, 915, 1819 or 2515
ZIF	1850 or 2450

Usage

An R5500 must be set to have output through the HIF port using the SCPI command:

`:OUT:MODE HIF`

The IF frequency at any given R5500 center frequency varies. Use the SCPI command:

`[:SENSE]:FREQUENCY:IF? -1`

to determine the IF frequency corresponding that center frequency.

The Instantaneous Bandwidth (IBW) of the output at HIF port varies depending on the RFE mode used. The RFE modes available for HIF are ZIF with IBW 100 MHz, SH 40 MHz, and SHN 10 MHz. The receiver connected to the R5500 shall have an IBW less than that of the R5500 to avoid signals or spurs outside this IBW.

In addition, HIF output can be used with all the capabilities which the R5500 offers with the aforementioned RFE modes, such as sweep list (a list of frequencies to step through), trigger (level or external pulse), 10 MHz IN/OUT synchronization, gain control, to name a few.

See the R5500 Programmer's Guide and User Guide for more information.

Document Revision History

This section summarizes document revision history.

Document Version	Release Date	Revisions and Notes
v1.0	Oct 15, 2017	First release
v1.1	June 4, 2018	Minor correction to Overview section

Contact us for more information

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