

TR module testing using SIGNAL HOUND products

Budget is critical concerns when characterizing transmits receive modules (TR modules). Higher volume, lower cost products still require exhaustive testing. This demands that you reduce your test times, but without compromising the accuracy of the measurements – and at a cost that is affordable.

Signal hound:

- Spectrum analyzer
- Tracking generator
- Vector signal generator

Most popular parameter on testing TR modules

Power level & channel power measurement:

Power level measurement is a simple measurement for transmitter; it is a specification of *power* at a given frequency.

Directly the power level of transmitted signal is measured using signal hound spectrum analyzer,



Input drives level (sensitivity):

Sensitivity of the receiver is estimated or testing using SIGNAL HOUND VSG, by varying the output power on broadband signals.

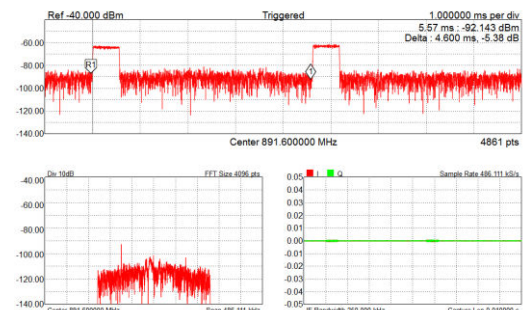


VSG25A is budget friendly complex signal generator; it is compatible with wide range of complex signals

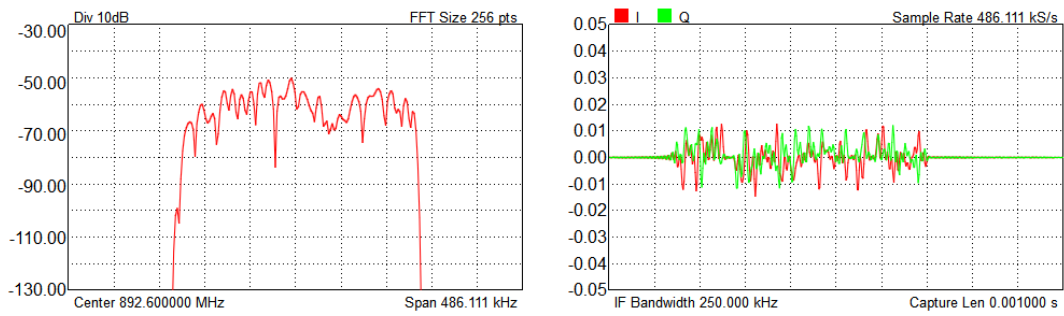
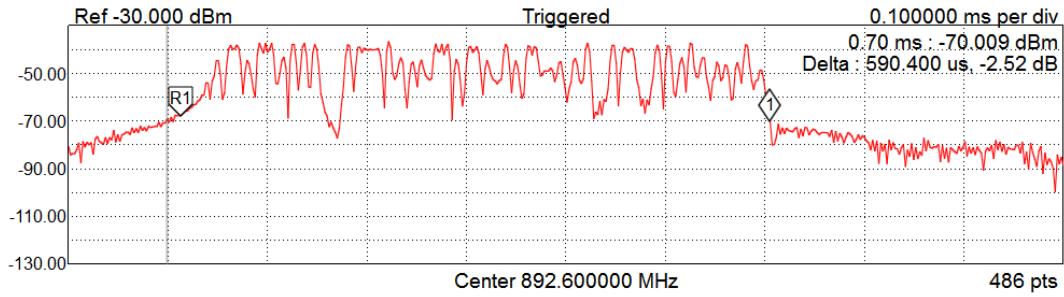
Transmit rise and fall time:

Signal hound spectrum analyzer software is full filled with all new features.

Zero span analysis modes in SPIKE with different triggering modes is useful to captures the rise and fall time of the transmitter.

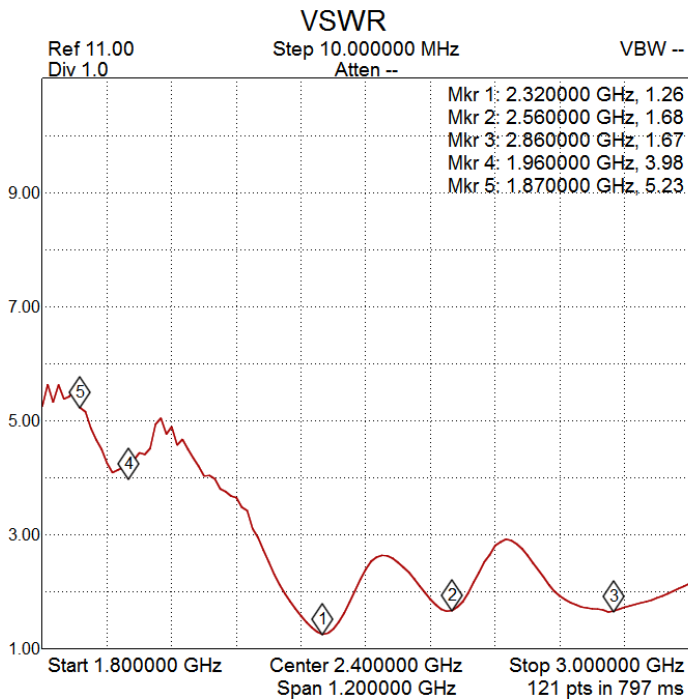


And time vs. power analysis is available with different triggers like video, external triggering



VSWR:

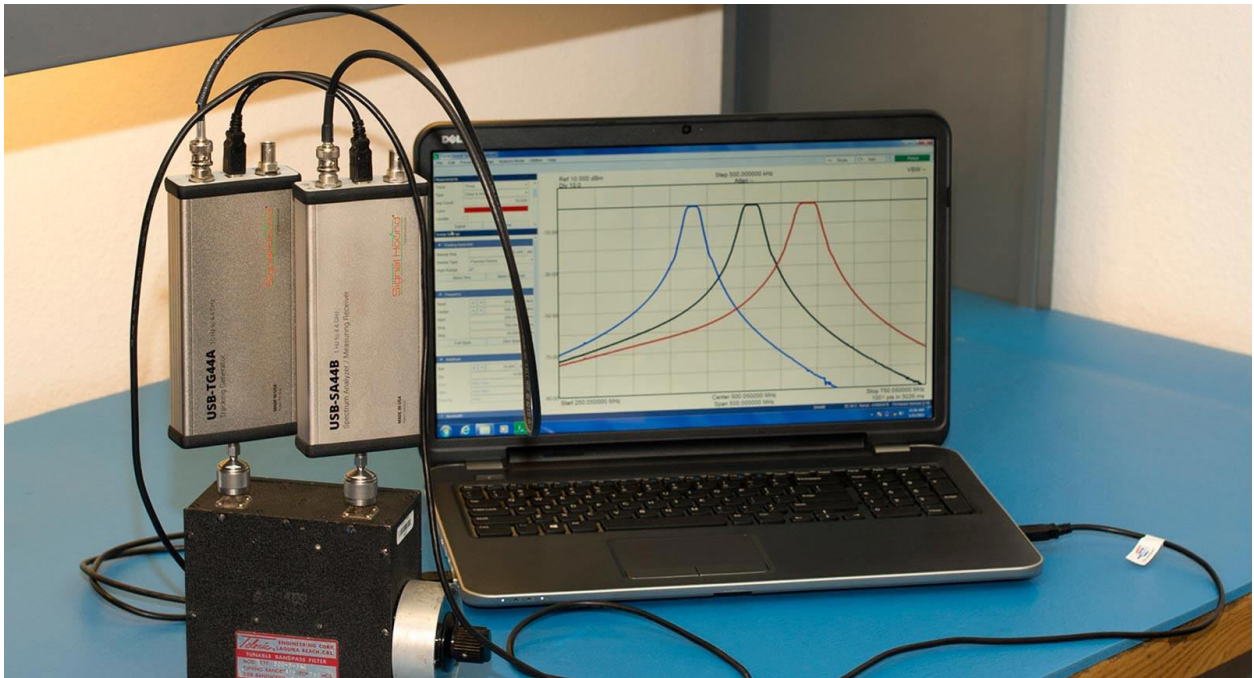
Normally TR modules are designed for 50 ohms impedances, VSWR is a measure of how well the port of different section matched with 50ohms



Insertion co-efficient measurement:

Insertion co-efficient measurement setup is use for so many parameters measurement in TR modules like

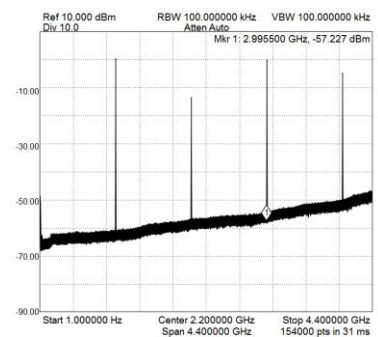
- Insertion loss of filter
- Gain of LNAs/power amplifiers
- Isolator/ circulators testing
- Attenuators or switching losses
- Etc.



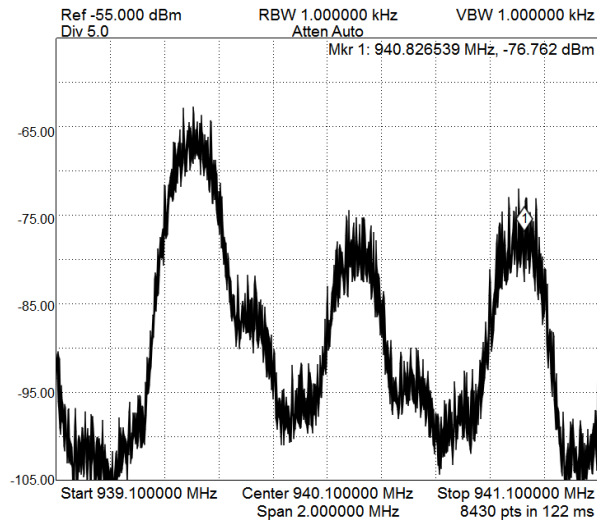
Harmonics, spurs, interferences & any other noise:

A perfect RF transmitter, the only signal transmitted would be the signal of interest. However, unwanted signals are a consequence of real-world transmitter design trade-offs. These unwanted signals like: harmonic, intermodulation, and spurious (spurs)

SPIKE software having measurement utilities for harmonics and phase noise.



The frequency stability of the LO is critical in high-quality RF communication and transmission systems. Any short-term frequency instability results in diminished performance. This short-term instability is known as phase noise.

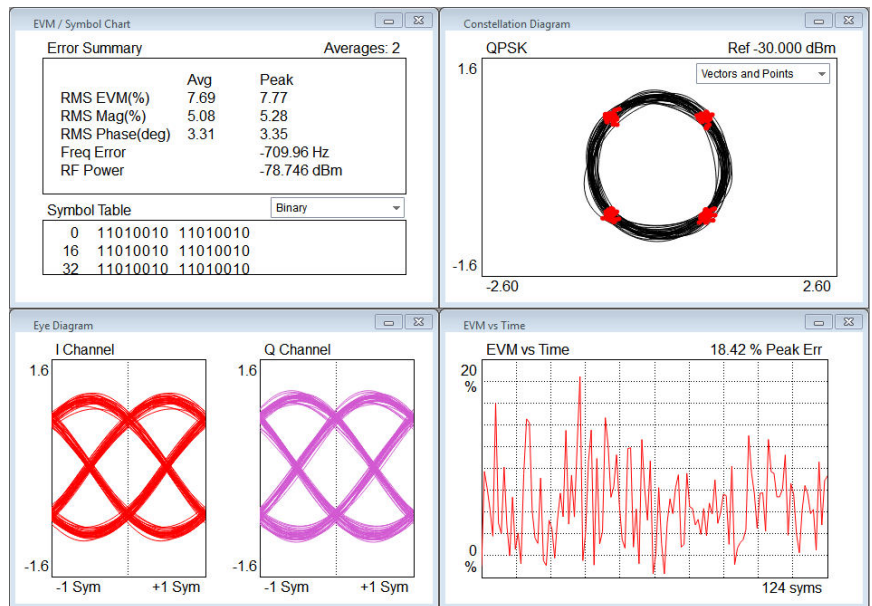


Modulation Quality:

RF transmitters encode information on one or more CW carriers with modulation. Evaluating the quality of the modulated signal provides insight into the health of the entire transmitter chain from baseband to RF output. Some tests are specific to a given modulation scheme, but others are widely used. For example, with AM and FM analog modulation, modulation index and depth are generally measured.

For digital IQ waveforms, error vector magnitude (EVM), also known as relative constellation error (RCE), depending on the standard being employed, describes the quality of the modulation.

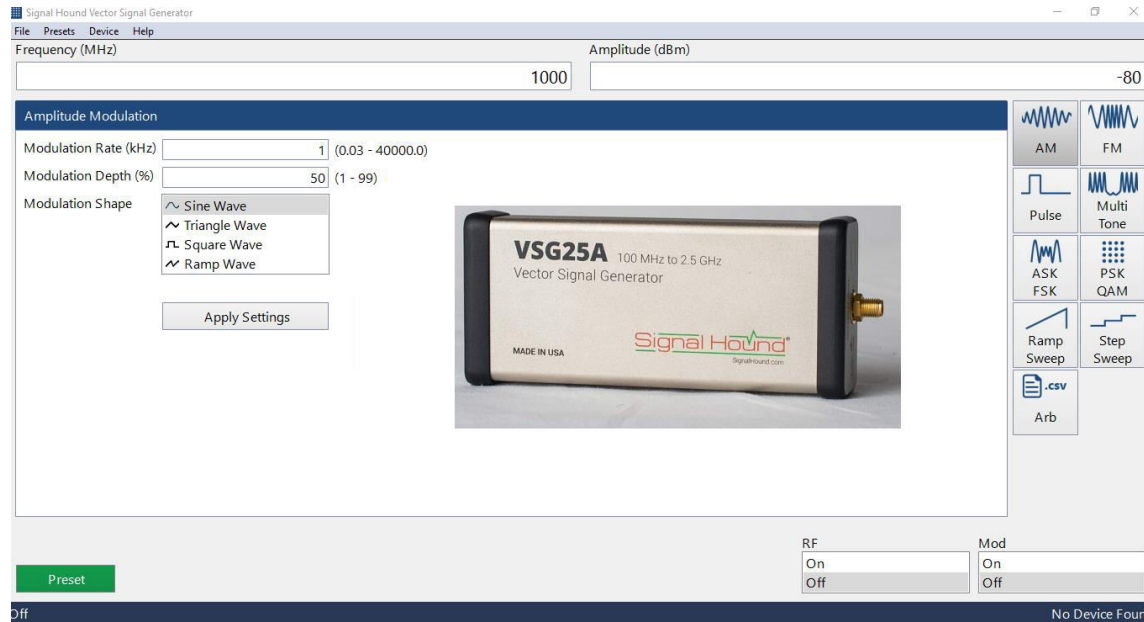
SPIKE analysis software supports all popular digital and analog modulation, and it supports different digital modulation analysis parameters like constellation, EVM, eye diagram etc.



Demodulation quality:

Using portable Vector signal generator from SIGNAL HOUND we can test the demodulation quality of receiver side.

VSG25A capable to generate AM,FM, PULSE, MULTITONE, ASK,FSK, All PSK modulations, QAM, sweep signals.



| Signal hound spectrum analyzer and signal generator | |
|--|--|
| Transmitter section | Receiver section |
| <ul style="list-style-type: none">• Power level & power in band• Harmonics• spurs• phase noise• Filters• Power amplifiers• Modulator quality testing• Rise and fall time• VSWR | <ul style="list-style-type: none">• Sensitivity testing• Interference• Filters• LNA• Demodulation quality testing• VSWR |