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Vireo™

Portable Arbitrary Waveform RF Signal Generator With Collection, Analysis and Synthesis Capability

Key Features

- **Wideband signal generation: Up to 100 MHz (210 MHz sample rate) baseband output, or upconvert a 25 MHz (30 MHz optional) bandwidth signal to RF**
- **Wide RF coverage: HF through UHF Bands up to 3 GHz**
- **Storage and playback of a 25 MHz bandwidth signal waveform**
- **Create complex simulated signals using SignalWorks® SignalGen application - or use your own application**
- **Capture snapshots, then play them back at any RF up to 3 GHz**
- **Powerful signal capture and analysis capability is included**
- **Portable, housed in carry-on sized transit case**

TriaSys Technologies' Vireo™ **arbitrary waveform RF signal generator** represents the pinnacle in capability for complex signal synthesis in the **HF through UHF bands** offering unparalleled **4 GBytes memory depth** for extremely long duration wideband waveform playback. The Vireo™ provides baseband playback capability up to 100 MHz bandwidth with a 210 MHz max. sampling rate. The baseband playback is coupled into a HF/VHF/UHF upconverter that translates the entire **25 or 30 MHz signal bandwidth** to any HF through UHF frequency **up to 3 GHz**. This playback capability is a direct digital waveform playback of up to **50 seconds** of stored wideband digital signal.

In addition to the waveform playback capability, the Vireo™ system offers a full-featured **signal collection and analysis** capability. Accepting the IF from any communications receiver, the Vireo™ system has all of the collection and analysis capabilities of our popular Phoenix™ signal analysis system, including the **SignalWorks®** suite of the signal analysis applications.

The Vireo™ system is **unique** in its ability to **collect** IF signals, then **play them back** as they were recorded, modified at IF, or using the **SignalGen** application in SignalWorks® to create your own modulated waveform: PSK, FSK, QAM, you name it, and SignalGen will synthesize it. The Vireo™ system includes an integrated rugged laptop computer for turn-key operation out of the box.

All this, housed in a rugged, lightweight, **portable** case. The Vireo™ system can be powered by any worldwide AC supply or by a **battery pack** – perfect for field verification of systems to give a quick GO/NO-GO mission decision.

Scenarios:

- Simulate or capture four complete TV channels – 50 seconds long!
- Capture an entire WiFi channel packet stream – beacons, data, everything – and play it back.
- Simulate an entire FHSS band, including signals, interference, interferers, even noise.
- Capture the entire FM broadcast band and play it back.
- Play back captured signal to test acquisition, detection and recognition systems in their actual environments

Applications:

- Reconnaissance System Test - Program the system to generate any signal, then test the performance of detection/ recognition systems against that signal.
- Jamming / Spoofing - With the addition of a power amplifier and high gain antenna, the Vireo system makes a very powerful targeted jammer or spoofer.
- Training - Use simulated or actual off-the-air collections

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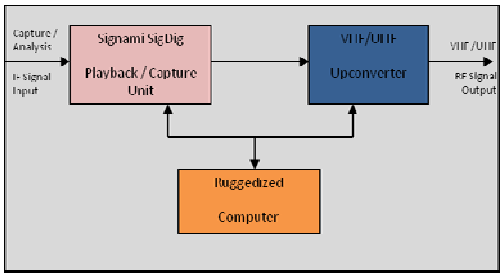
Key Specifications

System Components:

- **SignalWorks® Signal Analysis and Synthesis Software**
- **Signami SigDig-III Digitizer/Playback Unit**
- **DRS SI-7001 VHF/UHF Upconverter**
- **Ruggedized Computer**
- **Vireo Integrated System Software**



System

Portable Arbitrary Waveform VHF/UHF Signal Generator

Operations	Collect, Analyze, Synthesize, Upconvert
Signal Generator Waveform Sources	Digitized or Synthesized
Baseband Bandwidth	up to 100 MHz
Upconverted Bandwidth	25 MHz (30 MHz with reduced performance)
Upconverted Center Frequency	2 MHz to 3 GHz
Memory Depth	4 GBytes
Waveform Record Length	50 Seconds @ 30 MHz BW, Loop or One-Shot

Baseband Waveform Generator

Internal Sample Clocks for Direct IF Playback	40.0,80.0, 93.3, 105.0, 186.6, 210.0 MHz
Internal Sample Clocks for use with Upconverter	80.0, 93.3 MHz
Sample Resolution	8 bits
Sample Date Format	2's complement
Storage	4 GBytes
Signal Record Length	50 Seconds (80 MHz clock)

Upconverter RF Output Section

Upconverter Input Center Frequency	16.25 MHz
Output Frequency Tuning Range	20 to 3000 MHz
Tuning Resolution	100 KHz
Output Impedance	50 ohms, nominal
Maximum Power	-10 dBm (compliant), 0 dBm (degraded performance)
Gain Control	-46 to 0 dB, in 1 dB steps
IF Bandwidth	25 MHz (30 MHz with reduced performance)
In-Band Third Order Intercept	23 dBm Minimum
Internal Reference Stability	2.5 ppm, 0 to +50C
LO Phase Noise	
1 KHz Offset	-75 dBc/Hz, typical
20 KHz Offset	-95 dBc/Hz, typical
100 KHz Offset	-105 dBc/Hz, typical

Signal Acquisition

Internal Clocks	40.0, 80.0, 93.3, 105.0, 186.6, 210.0 MHz
External Clock Accepted	20 to 210 MHz, +10 dBm
Resolution	8 bits
Snapshot Storage	4 GBytes

System is fully configured and integrated with all software installed.

Software

Collection, Analysis, and Synthesis Software, SignalWorks®

Signal Simulation Capability

Modulation Types CW, FSK, M-ary FSK, Coherent FSK, 2, 4, 8,16 PSK Up to 1024 QAM (subject to ITAR), Staggered QAM

Computer

- Model Panasonic CF-74 Toughbook Laptop (or better)
- CPU 1.7 GHz, 512 MB RAM, 2 MB L2 Cache, 400 MHz FSB
- Disk Drive 40 GByte
- Display 1024 x 768 TFT LCD
- Operating System Windows
- Optical Drive CDRW/DVD Combo Drive
- System Interfaces Ethernet, USB 2.0

Mechanical, Envionmental and Power

- 110-220 VAC Universal Power supply
- Power, Approx. 100W max. including Laptop
- Weight 32 Lbs.
- Dimensions L x W x H 20.5 x 11.5 x 7.2 in (Airline Carry On OK)
- Operating Temperature Range 0 to 40 C
- Altitude 0 to 12,000 ft
- Humidity 10 to 90% non-condensing
- Enclosure All components mounted in the included transit case, or may be rack mounted in standard 19" rack

Product Formerly a Signami / Signami DCS Product

To Inquire or Order

For a demonstration, further information, or to contact a representative, please call 978.244.1060, or visit our website at www.triasys.us.