SED   *Decimator D3*
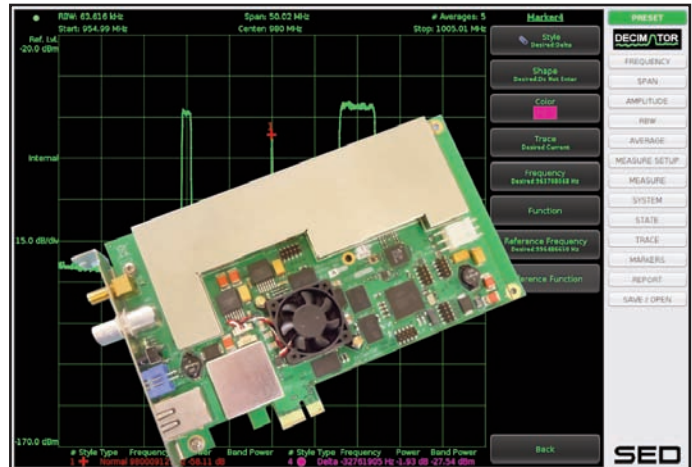
SED's Decimator D3 is a third generation spectrum measurement and analysis card providing high-end performance at a low price. It can function as either an independent spectrum analyzer in a satellite, cable or terrestrial network or can easily be integrated into a satellite terminal, equipment enclosure or as part of a larger measurement network.

Decimator D3 uses state of the art digital technology and Fast Fourier Transformations to make lightning fast and accurate measurements. With a very low noise floor and large dynamic range, it is well-suited to measure any type of satellite, cable or terrestrial wireless carrier, including very small carriers, beacon signals and for carrier monitoring applications. Decimator accepts all signals from 5 MHz to 3 GHz and input power levels ranging from –110 to +5 dBm. RBW varies from 1 Hz to 15 MHz. The Decimator can be connected to an external 10 MHz reference for improved frequency accuracy and stability. All data communications with the Decimator occurs via its built-in Ethernet port.

It is only 4" x 7" x 0.8" and is therefore ideal for integration into small spaces. It can be installed in any enclosure or computer chassis. It is a half size PCI express (PCIe) card and can be installed in an available computer PCIe slot, providing power to the card. Alternately, it can be mounted on standoffs and powered through a 3-pin connector (12 and 3.3 to 5 Vdc) for integration into any enclosure.

The Decimator's powerful Graphical User Interface (GUI) is available using any standard web browser. No additional software is required. The GUI is very easy to use and operates like most traditional spectrum analyzers. It provides user-selectable colors for markers and traces, allows storage of multiple traces and provides measurement reporting. The Decimator GUI also includes a powerful built-in Carrier Monitoring function, which provides notification via email or SNMP of carrier measurements that exceed user-defined limits, offering you peace of mind that up to 100 of your carriers are operating as expected.

The Decimator provides network access to all technical staff connected to the facility network or a corporate wide area network. This allows all technical staff the ability to monitor feeds and carriers at any time and from any location in the world using only a web browser.

For integration into a satellite terminal or measurement system, the Decimator can be operated via its built-in GUI or the user can create a separate user interface using the publicly available API. An SNMP status interface is also provided.

Features

Overview

- covers full satellite L-band plus cable and wireless bands from 5 MHz to 3 GHz
- built-in Carrier Monitoring function
- external 10 MHz reference or internal reference
- web browser or API control
- SNMP status interface
- installs in half size PCIe slot or equipment enclosure

Physical Interfaces

RF inputs: SMA, 50 ohms
Control: RJ-45
Reference: SMA, 50 ohms
Power: PCIe or 3-pin Molex connector
Mechanical: half size PCIe card, 6.875 by 4.2 inches

FFT sizes

FFT sizes	Windows
128	Flattop
256	Hanning
512	Hamming
1024	Uniform
2048	Blackman-Harris
4096	
8192	

Measurement Speed[3]

500 MHz span, 1 MHz RBW, 200 ms
200 MHz span, 30 kHz RBW, 630 ms
80 MHz span, 100 kHz RBW, 170 ms
3.5 MHz span, 8 kHz RBW, 90 ms

Custom designed versions supporting other frequency bands or form factors are available. Contact SED for more information.

For further information on this innovative product please contact:

decimator@sedsystems.ca

Phone: (306) 931-3425
Ask for Decimator Sales

Fax: (306) 933-1486
Attention Decimator Sales

Specifications

RF Input:

Input Frequency Range:	5 MHz to 3,000 MHz
Useable Dynamic Range:	-110 to +5 dBm (aggregate)
Noise Floor:	-160 dBm/Hz typical at min atten
	-160 dBM/Hz typical at max atten
Phase Noise:	-80 dBc/Hz at 1 kHz offset
(worst case at 3 GHz)	-95 dBc/Hz at 100 kHz offset
	-125 dBc/Hz at 1 MHz offset
Maximum Safe Input:	+15 dBm

Measurements:

Amplitude Accuracy:	$\pm$ 0.5 dB (at 25°C)[1]
	$\pm$ 1.0 dB (0 to 55°C)
Frequency Accuracy:	$\pm$ 2.6 ppm (internal)
	or as per external reference
Frequency Resolution:	1 Hz
Resolution Bandwidth:	1 Hz to 15 MHz
Analysis Bandwidth:	up to 220 MHz
Spurious:	
Images:	< -55 dBc (typical)
Aliasing:	< -55 dBc (typical)
DC Offset:	< -30 dBc (typical)
Averaging:	up to 255 averages

Other Specifications:

Reference Input:	10 MHz, -5 dBm to +13 dBm
Control Interface:	TCP/IP API, SNMP, HTTP
Power Requirements:	PCIe or 12/3.3 to 5 Vdc, 18W max.
Operational Temperature Range:	0 to 55°C

Modes of Operation:

Raw Snapshot Mode: Number of IQ time samples is approx 32 million
Linear Power/Bin (4096 samples, up to 255 averages)
Log Power/Bin (4096 samples, up to 255 averages)
Raw IQ Samples - decimated 16 - 4092 in steps of 4 - sampling frequency up to 3.7 MHz
Selectable Spectral Inversion
Programmatic measurement and control over ethernet based API

Notes:

1. Measurement conditions: 10 averages, input level between -8 dBm and -68 dBm, 3 sigma.
2. Resolution bandwidths auto or manual adjustable.
3. Expected rates with 10 averages, speed optimization.
4. All specification at 25°C unless otherwise noted and are subject to change.