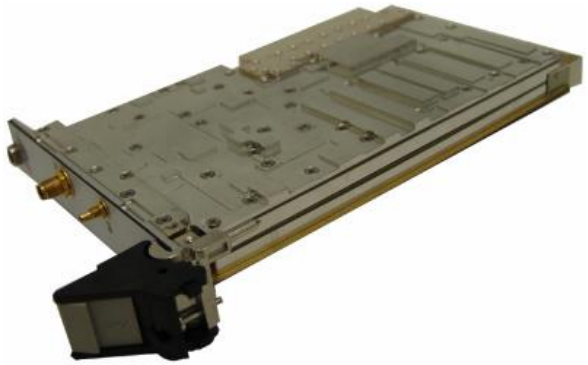
Digital Receiver Technology, Inc.

The One Measure for Wireless Performance



DRT4013- Microwave Tuner

Signal Reception for Software Defined Radio

DESCRIPTION

The DRT4013, a member of the OEM Software Defined Radio (SDR) family, is a high dynamic range digital tuner that covers the frequency range of 200 MHz to 8.5 GHz. The 4013 outputs an 80 MHz-bandwidth spectrum with 75 dB of instantaneous dynamic range – all in one 3U size CompactPCI slot, consuming less than 20 watts. Optionally, the digitized IF output(s) may be replaced by a single, high-level analog output that can directly drive an external A/D conversion board.

- 200 MHz to 8.5 GHz frequency coverage
- 75 dB dynamic range
- Controlled via standard 32-bit CompactPCI interface
- Multiple tuners can be ganged together to perform a variety of communication applications
- Single-wide 3U CompactPCI form factor and control interface
- Wideband architecture allows for multiple channels to be simultaneously received
- Reconfigurable FPGA can perform filtering, resampling, digital downconversion, 1 Hz-resolution tuning, pulse-processing, and other DSP functions on the wideband digital IF data
- Wide range of tuning for arbitrary re-configuration and application flexibility for supporting a Software Defined Radio (SDR) system

Preliminary - July 2005
Rev. 1.1

SPECIFICATIONS

The One Measure for Wireless Performance

RF Input

- **VSWR** 2.0:1 typ, 3 max
- **RF Input Frequency Range**: 200 to 8500 MHz
- **Final IF Bandwidth** 80 MHz
- **LO Re-Radiation** -90 dBm max
- **Maximum Working Level** 0 dBm
- **Input Damage Level** +30 dBm

Front Panel Analog IF Output

- **Bandwidth** 80 MHz minimum, tunable in 20-MHz steps
- **Impedance** 50 Ω
- **Center Frequency** 250 MHz
- **Level** 0 dBm full-scale (Analog output version)
  ~ -34 dBm full-scale (Sample output on Digital version)

Front Panel Digital IF Output-(Preliminary)

- **Bandwidth** 80 MHz
- **Resolution** 12 Bits
- **Sample Rate** 200 Msps
- **Spectral Sense** Noninverted

In-Band Dynamic Range

- **Noise Figure**

Preamp Bypassed		Preamp Engaged	
Typ	**Max**	**Typ**	**Max**
25 dB	27 dB	13 dB	15 dB

- **Signal-Related Spurs** <75 dBc relative to full-scale single tone input

- **Gain Control (manual or AGC)**

Gain Control Range	Max Single-Tone Input Signal before A/D Converter clips	Max Two-Tone Input Signal (each) for 75-dB Dynamic Range
50 dB	0 dBm	-38 dBm

- **Phase Noise** < -132 dBc offsets > 10 MHz
  < -106 dBc offsets 100 kHz to 10 MHz
  < -98 dBc offsets < 10 kHz

- **Self-Generated Spurs** < -75 dBc relative to full-scale received signal

Out of Band Dynamic Range

- **Input 2nd-Order Intercept Point, IIP2** +50 dBm
- **Input 3rd-Order Intercept Point, IIP3** +0 dBm

- **Image Rejection** > 80 dB
- **IF Rejection** > 90 dB

Physical

- **Operating Temperature Range** -20 to +60ºC (-4 to +140°F)
- **Size** Single-slot 3U CompactPCI
  approximately 0.8” wide x 4” high x 6” deep
  (2 cm wide x 10.16 cm high x 15.24 cm deep)
- **Weight** 1.0 lbs. max (453.59 g)
- **Power Consumption** 20 W max

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