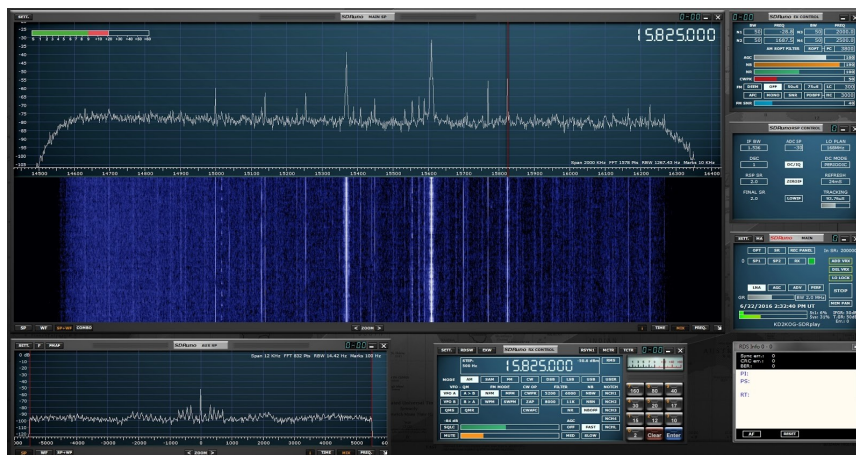# Radio Spectrum Processor 1A
14 bit SDR

The **SDR-play RSP1A is a major upgrade to the popular RSP1—it is a powerful wideband full featured 14 bit SDR which covers the RF spectrum from 1 kHz to 2 GHz. All it needs is a PC and an antenna to provide excellent communications receiver functionality. Combined with the power of readily available SDR receiver software (including 'SDRuno' supplied by SDRplay) you can monitor up to 10 MHz of spectrum at a time. Documented API allows developers to create new demodulators or applications around the platform.**

KEY BENEFITS

- Covers all frequencies from 1 kHz through LF, MW, HF, VHF, UHF and L-band
- Excellent dynamic range for challenging reception conditions
- Low levels of spurious responses
- Works with all the popular SDR software (including HDSDR, SDR Console, Cubic SDR and SDRuno)
- ExtIO based plugin available
- Software upgradeable for future standards
- Strong and growing software support network
- API provided to allow demodulator or application development
- Multiplatform driver and API support including Windows, Linux, Mac, Android and Raspberry Pi 2/3
- Up to 16 individual receivers in any 10MHz slice of spectrum using SDRuno
- Calibrated S meter and power measurements with SDRuno
- Ideal for monitoring of ISM/ IoT/ Telemetry bands <2 GHz
- Ideal for portable operation

KEY FEATURES

- Continuous coverage from 1 kHz to 2 GHz
- Up to 10 MHz visible bandwidth
- Powers over the USB cable with a simple type B socket
- 14-bit ADC silicon technology (not another 8 bit dongle!)
- 11 high-selectivity, built in front-end preselection filters
- Software selectable AM/FM and DAB broadcast band notch filters
- Software selectable multi-level Low Noise Preamplifier
- Bias -T power supply for powering antenna-mounted LNA
- RF shielding layer inside case
- SDRuno—World Class SDR software
- Documented API for new apps development
- Single SMA antenna socket covering entire frequency range

SPECIFICATIONS

General
- Weight 110g
- Size: 95mm x 80mm x 30mm
- Low Current: 120 – 175 mA (excl bias T)

Connectivity
- Single 50Ω RF connector (SMA)
- USB 2.0 (high speed) type B socket

Frequency Range
- Continuous coverage 1kHz – 2GHz
- Frequency Tolerance: 0.5ppm (max)

ADC Characteristics
- Sample frequency 2 – 10.66MSPS
- 14 bit native ADC (2 – 6.048MSPS)
    - 12 bit (6.048- 8.064 MSPS)
    - 10 bit (8.064- 9.216MSPS)
    - 8 bit (> 9.216 MSPS)

Bias T
- Software Selectable 4.7V @ 100mA

Reference
- High Stability 0.5PPM TCXO
- In-field trimmable to 0.01ppm.

Maximum recommended input power
- 0dBm continuous, 10dBm for short periods

Typical Noise Figures
- 14dB @ 3MHz
- 14dB @ 10MHz
- 14dB @ 20MHz
- 14dB @ 40MHz
- 3.3dB @ 100MHz
- 3.3dB @ 200MHz
- 6.0dB @ 330MHz
- 4.0dB @ 600MHz
- 5.0dB @ 1500MHz
- 6.0dB @ 1800MHz

IF Modes
- Zero IF, All IF bandwidths
- Low IF, IF bandwidths ≤ 1.536MHz

IF Bandwidths (3dB)
- 200kHz
- 300kHz
- 600kHz
- 1.536MHz
- 5.0 MHz
- 6.0 MHz
- 7.0 MHz
- 8.0 MHz

Front End Filtering
Automatically configured front end filtering:

Low Pass
- 2MHz

Band Pass
- 2-12MHz
- 12-30MHz
- 30-60MHz
- 60-120MHz
- 120-250MHz
- 250-300MHz
- 300-380MHz
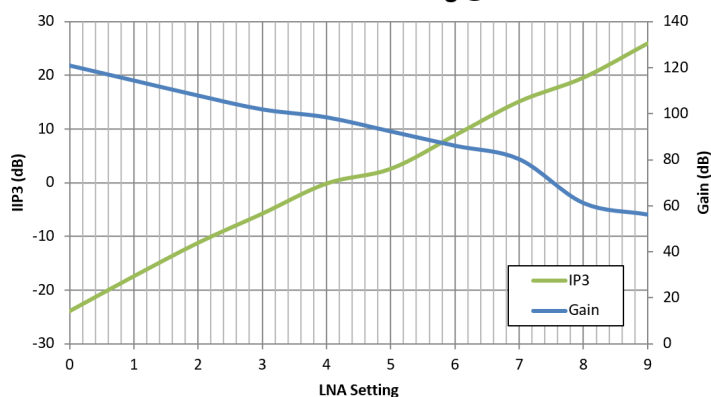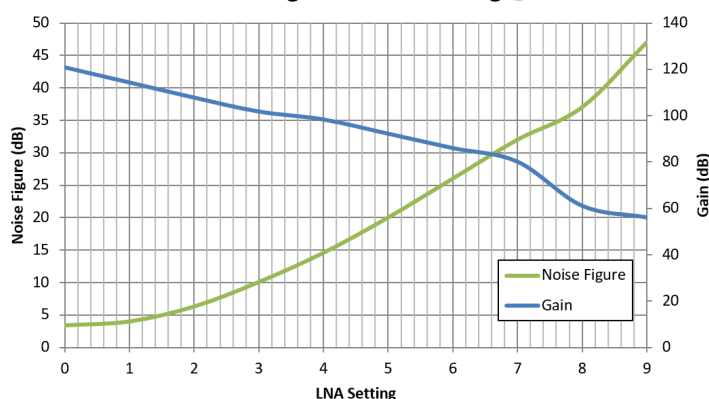- 380-420 MHz
- 420-1000MHz

High Pass
- 1000MHz

Notch Filters
- FM Filter:
>50dB 85 – 100MHz
- MW Filter:
>30dB 660 – 1550 kHz
- DAB Filter:
>30dB 165 – 230 MHz

Gain and IIP3 Vs LNA Setting @ 100MHz

Gain and Noise Figure Vs LNA Setting @ 100MHz

SDRuno FEATURES

- Multiple 'Virtual Receivers' which allow for simultaneous reception and demodulation of different types of signals within the same receiver bandwidth.
- A selectivity filter with an ultimate rejection greater than 140 dB.
- A unique distortion-free double stage AGC with fully adjustable parameters.
- Multiple notch filters with BW adjustable down to 1 Hz, Notch Lock feature.
- A unique synchronous AM mode with selectable/adjustable sidebands, dedicated PLL input filter, and selectable PLL time constants.
- SNR (stereo noise reduction), featuring a proprietary noise reduction algorithm for stereo broadcast.

- AFC for FM signals.
- Calibration for receiver frequency errors.
- Class leading audio quality
- Calibrated S meter and power measurements
- RDS support with "DX Mode" for low signal environment
- Active Noise cancelling
- CAT and Omnirig control
- SSB/AM and Synchronous AM modes
- WBFM and NFM with AFC