




Open Application Development for Wireless Signal Analysis

It's now easier than ever to develop the kinds of powerful applications that the new generation of measurement-grade software-defined radio technology enables. Introducing PyRF, the openly available, comprehensive development framework for wireless signal analysis.

 **python**™ Built on the Python Programming Language, it's the only framework of its kind, including feature-rich libraries, example applications and source code, all specific to the requirements of signal analysis. Your resulting applications may be commercialized and are interoperable with any acquisition device that supports the standard APIs for SCPI and VRT. PyRF handles the low-level details of real-time acquisition, signal processing and visualization, allowing you to concentrate on your analysis solutions.

Develop Quickly

PyRF with Python is the ideal framework for rapid development of comprehensive wireless signal analysis applications.

Develop Openly

PyRF is openly available, allowing commercialization of solutions through BSD open licensing and offering device independence via standard hardware APIs.

Develop Powerfully

PyRF enables powerful wireless signal analysis solutions when combined with high-performance software-defined RF receivers such as the ThinkRF WSA platform.



PyRF source code offerings include:

- Acquisition device control
- Signal processing blocks
- GUI visualization and controls
- Application examples



The ThinkRF Wireless Signals Intelligence Platform

ThinkRF provides the most cost-effective wireless signals intelligence platform to acquire, process and analyze any RF signals. This enables a wide range of R&D, OEM and government applications. The compact and powerful WSA5000 is a full-featured, software-defined RF receiver/digitizer/analyzer that easily integrates into your applications.

Apply wireless signals intelligence to satisfy your analysis requirements

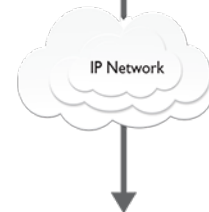
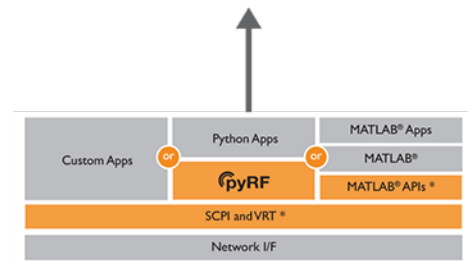
- Wireless R&D including cognitive radio, dynamic spectrum allocation and 4G
- Wideband data acquisition, spectrum monitoring and signals intelligence
- Wireless network optimization, troubleshooting and interference mitigation

Analyze your data with the choice of development environment that suits your requirements

- Freely available open-source examples, libraries, source and application programming interfaces
- Application support via the standard SCPI/VRT network protocols, Python language and MATLAB® development environments

Acquire RF data with measurement-grade accuracy using the most cost-effective platform on the market

- Integrated RF receiver, digitizer and analyzer with patented software-defined receiver technology
- 100 kHz to 27 GHz tuning with 10/40/100 MHz IBW
- Real-time search and loss-less capture of signals of interest
- Stand-alone, remote and/or distributed deployment



There is simply no better way to go from concept to real-world, real-time field-deployable applications than to use the PyRF framework and easily integrate them onto the ThinkRF Platform. It's the fast, affordable and powerful wireless signals analysis solution.



Accelerate your development by using PyRF's abstractions

PyRF uses open source Python libraries to abstract multiple functionalities to accelerate the development of RF application. The Python programming language is a high level language, which is easy to develop with, has a rich environment of diverse and comprehensive libraries and is widely used by the scientific community.

Automate Use built in functions to abstract all communication with measurement devices

- Use standard blocking network sockets, or non-blocking Synchronous sockets to build applications for real-time purposes
- Abstract packet decoding, and use built-in functions to interpret Context data
- Interface with multiple devices to build a comprehensive wireless solution

Analyze your data with the choice of development environment that suits your requirements

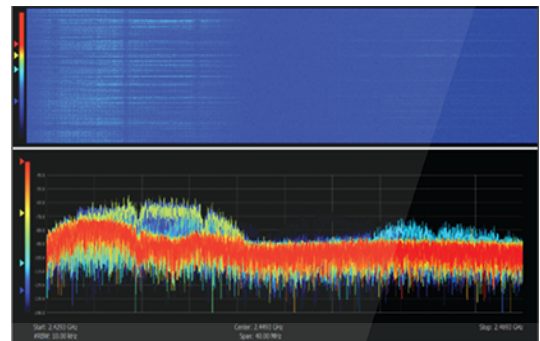
- Use built in functions such as FFTs, IQ Corrections, and DC corrections to clean raw data
- Analyze signals of interest using Channel Power measurement, Peak finds and much more
- Apply functions which concatenate multiple data points for swept measurements, or use the built in triggers for real-time analysis

Execute solutions

- Supports Qt for thorough and complete application development
- Persistence and Waterfall widgets for data visualization
- Use PyInstaller to create executables ready for distribution

```
dut = WSA()
dut.connect(IP)
dut.request_read_perm()
dut.freq(CENTER_FREQ)
dut.attenuator(ATTENUATOR)
data, context, pow_data =
dut.read_data(SAMPLE_SIZE)
```

```
dut = WSA()
peak_points = dut.peakfind()
noisefloor = dut.measure_noisefloor()
channel_power =
calculate_channel_power(pow_data)
```



Contact us today for more information on ThinkRF products, or the WSA5000 Wireless Signal and Spectrum Analysis Platform.

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