thinkRF™ R5750
Real-Time Spectrum Analyzer

with Global Navigation Satellite System (GNSS) for positional and temporal information
9 kHz to 8 GHz / 18 GHz / 27 GHz

COMPACT & LIGHT DESIGN
257.3 x 193.7 x 60 mm
(10.13” x 7.63” x 2.36”)
2.54 kg (5.6 lbs)

SILENT
Fanless design for quite operation

NETWORKING CAPABILITY
Designed for remote deployment

www.thinkrf.com
OVERVIEW

R5750
Real-Time Spectrum Analyzer with GNSS

Compact, fanless, networked and remote deployable real-time spectrum analyzers with GNSS

1
9 kHz to 8, 18 or 27 GHz

2
0.1 / 10 / 40 / 100 MHz Real-time bandwidth (RTBW)

3
Up to 28 GHz/s @ 10 kHz RBW Sweep Rate

4
20 W @ 12V input power consumption

5
257.3 x 193.7 x 60 mm (10.13" x 7.63" x 2.36") Compact

6
2.54 kg (5 lbs) Light

The performance of traditional lab-grade spectrum analyzers at a fraction of the cost, size, weight and power consumption.

thinkRF™ makes the cost-effective testing and monitoring of billions of wireless devices possible. Using innovative software-defined radio technologies, the thinkRF R5750 Real-Time Spectrum Analyzer with GNSS has the performance of traditional lab-grade spectrum analyzers at a fraction of the cost, size, weight and power consumption. The sleek, lightweight, and fanless thinkRF R5750 analyzer provides the benefits of a high-performance software-defined RF receiver, digitizer and analyzer along with integrated GNSS technology offering location and time information. The R5750 Real-Time Spectrum Analyzer is based on an optimized software-defined radio receiver architecture coupled with real-time digitization and digital signal processing. This enables wide bandwidth, deep dynamic range and 27 GHz frequency range in a small, one-box, stylish platform. Designed for stand-alone, outdoor, mobile, remote and/or distributed wireless signal analysis, the R5750 analyzer can be deployed as a single unit or a network of radio sensors, making it ideal for monitoring, management and surveillance of transmitters, whether they are in-building or spread across a geographic area. Weather resistant option is available for increased durability and ruggedness in challenging environments.
PERFORMANCE

R5750 Real-Time Spectrum Analyzer (RTSA)

1. LARGE FREQUENCY RANGE
The frequencies and bandwidths of commercial wireless systems have been increasing steadily to accommodate the growing demand for larger data rates. The R5750 supports frequency ranges from 9 kHz up to 27 GHz which enables testing of modern systems including tests such as third-order intercept.

2. WIDE INSTANTANEOUS BANDWIDTH
Modern waveforms such as 802.11ac standard utilize waveforms that occupy up to 80 MHz in bandwidth and LTE-Advanced utilizes bandwidths of up to 20 - 40 MHz. The R5750 provides up to 100 MHz of instantaneous bandwidth in its direct conversion mode.

3. DEEP DYNAMIC RANGE
RF measurements for characterizing IP3 generally require a dynamic range of around 100 dB. The R5750 supports multiple ADCs thereby providing wide IBW with 70 dB dynamic range and a narrow IBW with 100 dB dynamic range.

4. REAL-TIME ACQUISITION MEMORY AND TRIGGER CAPABILITY
Modern waveforms such as those associated with the wireless LAN standards utilize packet-based signaling techniques. The R5750 enables real-time capture of multiple data packets by providing real-time hardware-based frequency domain triggering capability in conjunction with real-time memory storage of up to 64 million samples.

5. GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)
The integrated GNSS capability allows location coordination activities with a number of different satellite constellations, including GPS/ QZSS, GLONASS, and BeiDou. Location, position and time are sent through VRT packets along with time-stamping, frequency reference and data output for captures.

6. SMALL SIZE, WEIGHT, AND POWER
The R5750 has a length and width less than a sheet of paper, weighs less than 3 kg and consumes less than 25 W of power making it a fraction of the size, weight and power of traditional lab-grade spectrum analyzers.
**ARCHITECTURE**

**R5750 Real-Time Spectrum Analyzer (RTSA)**

**The Receiver Front End**

The R5750 has a patented hybrid receiver consisting of a super-heterodyne front-end with a backend that utilizes an I/Q mixer similar to that in a direct-conversion receiver. Depending on the frequency of the signals being analyzed, one of three receiver signal processing paths is selected. Signals in the frequency range 9 kHz to 50 MHz are directly digitized, while all other signals are translated to the frequencies of the first IF block via one of the two signal processing paths. The IF block consists of a bank of multiple IF filters. Depending on the mode of operation, i.e. super-heterodyne or Zero-IF, either one or both outputs are utilized to process either 40 MHz or 100 MHz instantaneously. The IF analog outputs are digitized using one of two ADCs: a 125 MS/s sampling rate with a typical* dynamic range of 70 dB; or a 300 kS/s sampling rate with a typical* dynamic range in excess of 100 dB.

![Receiver Front End Diagram](image)

**The Digitizer**

The digitized signal is continuously processed in. The R5750 provides digital signal processing including optional digital down conversion; optional frequency domain triggering; sophisticated capture controlled; and optionally stored in fast local memory for subsequent forwarding or streaming across the Ethernet.

User configurable sophisticated capture control combined with fast deep caching enables fast signal searches, sweeps, triggering and captures of only the signals of interest. The R5750 digitizer has a dual-core embedded microprocessor with operating system, control, management and remote maintenance application. It supports the SCPI standard for user control and VITA VRT for data path.

* thinkRF expects this performance by design in 90% of the units produced. Variability is possible from unit to unit.
ARCHITECTURE

R5750 Real-Time Spectrum Analyzer (RTSA)

The R5750 hardware largely consists of:

- a hybrid super-heterodyne, direct-conversion and direct-digitization RF receiver front-end (RFE)
- 10 MHz input and output clock references for multi-unit synchronization
- a GNSS module with embedded 10 MHz reference clock source for long term stability and to compensate for the ageing effect
- a 125 MSamples/sec 14-bit wideband (WB) ADC with a dynamic range of greater than 70 dB
- a 325 kSamples/sec 24-bit narrowband (NB) ADC with a dynamic range in excess of 100 dB
- an FPGA with built-in dual-core ARM®-based processor and embedded digital signal processing (DSP) logic
- 128 MB of internal DDR3 for data storage
- GPIO port for external triggers and sweep synchronization
- 10/100/1G Ethernet port for control and network interface
- +12 V DC power input allowing automobile sources and personal mobility with an external battery

Extensible Hardware Interfaces

If you’re looking for a powerful, cost-effective spectrum analyzer hardware to pair with your software, the R5750 Real-Time Spectrum Analyzer is a universal and versatile platform designed for use across wireless industries and applications.
APPLICATIONS

R5750 Real-Time Spectrum Analyzer (RTSA)

S240 Real-Time Spectrum Analysis Application Software
By utilizing the power of the R5750, the S240 application has all the standard features you expect from a traditional lab spectrum analyzer as well as powerful features such as real-time triggering. The S240 is designed to run on Windows PC. Simply install the software and connect your device through an Ethernet, network switch or direct connection and you’re ready to get started. With the S240’s simple and intuitive user interface you’ll be using your new device in no time.

Keysight 89600 VSA®
Support for the Keysight 89600 VSA provides a comprehensive set of software tools for demodulation and vector signal analysis enabling users to monitor complex waveforms in more locations.
APIS - PROGRAMMING ENVIRONMENTS

R5750 Real-Time Spectrum Analyzer (RTSA)

By supporting a rich set of industry-leading standard protocols, the R5750 can easily integrate into your new or existing applications.

**Python™ and PyRF development framework**

PyRF enables rapid development of powerful applications that leverage the new generation of measurement-grade software-defined radio technology. It is built on the Python Programming Language and includes feature-rich libraries, example applications and source code and is openly available, allowing commercialization of solutions through BSD open licensing.

**NI LabVIEW®**

Easily and quickly integrate the R5750 into your existing or new NI LabVIEW® based acquisition, measurement, automated test and validation systems.

**MATLAB®**

thinkRF provides MATLAB® APIs for connecting to thinkRF’s R5750 Real-Time Spectrum Analyzers and MATLAB® program code examples to get you started towards developing your own.

**C/C++ APIs and DLL**

Underneath our rich set of APIs and programming environments is the C/C++ API and DLL which abstracts the SCPI command and VITA VRT dataflow from the R5750.

STANDARD PROTOCOLS

Compliance with standard protocols provides you both multi-vendor independence and device interoperability.

**SCPI and VITA VRT**

The R5750 supports the Standard Commands for Programmable Instruments (SCPI) for control and the VITA-49 Radio Transport (VRT) protocol for data flow.

thinkRF provides extensive documentation and examples for programming and interfacing at the SCPI and VITA-49 VRT level.

**HiSLIP**

The R5750 supports HiSLIP, which is an industry standard TCP/IP-based protocol for remote instrument control of LAN-based test and measurement instruments.
## RF and Digitization Specifications

### Frequency

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Ranges</td>
<td>9 kHz to 8 / 18 / 27 GHz</td>
</tr>
<tr>
<td>Frequency Reference</td>
<td>±1.0 ppm</td>
</tr>
<tr>
<td></td>
<td>±1.0 ppm 0°C to 55°C</td>
</tr>
<tr>
<td></td>
<td>±1.0 ppm per year</td>
</tr>
<tr>
<td>Real-Time Bandwidth (RTBW)</td>
<td>0.1 / 10 / 40 / 100 MHz</td>
</tr>
<tr>
<td>Spurious Free Dynamic Range (SFDR)</td>
<td>60 dBc (typical*)</td>
</tr>
<tr>
<td></td>
<td>70 dBc (typical*)</td>
</tr>
<tr>
<td></td>
<td>100 dBc (typical*)</td>
</tr>
<tr>
<td>Accuracy at room temperature</td>
<td>100 MHz RTBW</td>
</tr>
<tr>
<td>Stability over temperature Aging</td>
<td>10 / 40 MHz RTBW</td>
</tr>
<tr>
<td></td>
<td>0.1 MHz RTBW</td>
</tr>
</tbody>
</table>

### 10 MHz Disciplined Oscillator

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Accuracy (Lock to GNSS)</td>
<td>± 0.005 ppm</td>
</tr>
<tr>
<td>Frequency Accuracy (Holdover, 24 hrs)</td>
<td>± 0.100 ppm</td>
</tr>
</tbody>
</table>

### Amplitude

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amplitude Accuracy (25 °C ± 5 °C)</td>
<td>± 2.00 dB typical*</td>
</tr>
<tr>
<td></td>
<td>50 MHz to 27 GHz</td>
</tr>
<tr>
<td>Attenuator Range</td>
<td>0 to 30 dB in 10 dB steps</td>
</tr>
<tr>
<td>Maximum Safe RF Input Level</td>
<td>+10 dBm, Max DC: 10 V</td>
</tr>
</tbody>
</table>

### Displayed Average Noise Level (DANL | at 25 °C ± 5 °C, typical*)

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>8 GHz (typical*)</th>
<th>18 GHz (typical*)</th>
<th>27 GHz (typical*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 GHz</td>
<td>-157 dBm/Hz</td>
<td>-161 dBm/Hz</td>
<td>-160 dBm/Hz</td>
</tr>
<tr>
<td>0.5 GHz</td>
<td>-155 dBm/Hz</td>
<td>-160 dBm/Hz</td>
<td>-159 dBm/Hz</td>
</tr>
<tr>
<td>1 GHz</td>
<td>-156 dBm/Hz</td>
<td>-160 dBm/Hz</td>
<td>-159 dBm/Hz</td>
</tr>
<tr>
<td>2 GHz</td>
<td>-154 dBm/Hz</td>
<td>-154 dBm/Hz</td>
<td>-153 dBm/Hz</td>
</tr>
<tr>
<td>3 GHz</td>
<td>-152 dBm/Hz</td>
<td>-158 dBm/Hz</td>
<td>-157 dBm/Hz</td>
</tr>
<tr>
<td>4 GHz</td>
<td>-151 dBm/Hz</td>
<td>-162 dBm/Hz</td>
<td>-162 dBm/Hz</td>
</tr>
<tr>
<td>5 GHz</td>
<td>-150 dBm/Hz</td>
<td>-158 dBm/Hz</td>
<td>-158 dBm/Hz</td>
</tr>
<tr>
<td>6 GHz</td>
<td>-149 dBm/Hz</td>
<td>-157 dBm/Hz</td>
<td>-157 dBm/Hz</td>
</tr>
<tr>
<td>7 GHz</td>
<td>-150 dBm/Hz</td>
<td>-153 dBm/Hz</td>
<td>-155 dBm/Hz</td>
</tr>
<tr>
<td>8 GHz</td>
<td>-144 dBm/Hz</td>
<td>-160 dBm/Hz</td>
<td>-161 dBm/Hz</td>
</tr>
<tr>
<td>9 GHz</td>
<td>-158 dBm/Hz</td>
<td>-158 dBm/Hz</td>
<td>-161 dBm/Hz</td>
</tr>
<tr>
<td>10 GHz</td>
<td>-160 dBm/Hz</td>
<td>-160 dBm/Hz</td>
<td>-161 dBm/Hz</td>
</tr>
<tr>
<td>11 GHz</td>
<td>-156 dBm/Hz</td>
<td>-158 dBm/Hz</td>
<td>-157 dBm/Hz</td>
</tr>
<tr>
<td>12 GHz</td>
<td>-158 dBm/Hz</td>
<td>-157 dBm/Hz</td>
<td>-157 dBm/Hz</td>
</tr>
<tr>
<td>13 GHz</td>
<td>-151 dBm/Hz</td>
<td>-154 dBm/Hz</td>
<td>-154 dBm/Hz</td>
</tr>
<tr>
<td>14 GHz</td>
<td>-160 dBm/Hz</td>
<td>-157 dBm/Hz</td>
<td>-157 dBm/Hz</td>
</tr>
<tr>
<td>15 GHz</td>
<td>-160 dBm/Hz</td>
<td>-156 dBm/Hz</td>
<td>-156 dBm/Hz</td>
</tr>
<tr>
<td>16 GHz</td>
<td>-157 dBm/Hz</td>
<td>-156 dBm/Hz</td>
<td>-156 dBm/Hz</td>
</tr>
<tr>
<td>17 GHz</td>
<td>-150 dBm/Hz</td>
<td>-156 dBm/Hz</td>
<td>-156 dBm/Hz</td>
</tr>
<tr>
<td>18 GHz</td>
<td>-144 dBm/Hz</td>
<td>-156 dBm/Hz</td>
<td>-156 dBm/Hz</td>
</tr>
<tr>
<td>19 GHz</td>
<td>-149 dBm/Hz</td>
<td>-156 dBm/Hz</td>
<td>-156 dBm/Hz</td>
</tr>
</tbody>
</table>

* thinkRF expects this performance by design in 90% of the units produced. Variability is possible from unit to unit.
# RF and Digitization Specifications

## Displayed Average Noise Level (DANL | at 25 °C ± 5 °C, typical*)

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>8 GHz (typical*)</th>
<th>18 GHz (typical*)</th>
<th>27 GHz (typical*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 GHz</td>
<td></td>
<td></td>
<td>-154 dBm/Hz</td>
</tr>
<tr>
<td>21 GHz</td>
<td></td>
<td></td>
<td>-153 dBm/Hz</td>
</tr>
<tr>
<td>22 GHz</td>
<td></td>
<td></td>
<td>-152 dBm/Hz</td>
</tr>
<tr>
<td>23 GHz</td>
<td></td>
<td></td>
<td>-153 dBm/Hz</td>
</tr>
<tr>
<td>24 GHz</td>
<td></td>
<td></td>
<td>-155 dBm/Hz</td>
</tr>
<tr>
<td>25 GHz</td>
<td></td>
<td></td>
<td>-153 dBm/Hz</td>
</tr>
<tr>
<td>26 GHz</td>
<td></td>
<td></td>
<td>-150 dBm/Hz</td>
</tr>
<tr>
<td>27 GHz</td>
<td></td>
<td></td>
<td>-148 dBm/Hz</td>
</tr>
</tbody>
</table>

*At 1 GHz, measured with external oscillator not present.*

## Third Order Intercept (TOI) at max gain

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>TOI at max gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 GHz</td>
<td>+12 dBm, typical*</td>
</tr>
</tbody>
</table>

*Based on 1 GHz, measured with external oscillator not present.*

## Third Order Intercept (TOI) at max gain

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>TOI at max gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 GHz</td>
<td>+12 dBm, typical*</td>
</tr>
</tbody>
</table>

*Based on 1 GHz, measured with external oscillator not present.*

## Third Order Intercept (TOI) at max gain

<table>
<thead>
<tr>
<th>Frequency (GHz)</th>
<th>TOI at max gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>27 GHz</td>
<td>+12 dBm, typical*</td>
</tr>
</tbody>
</table>

*Based on 1 GHz, measured with external oscillator not present.*

## Spectral Purity

<table>
<thead>
<tr>
<th>SSB Phase Noise</th>
<th>Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>25°C ± 5°C</td>
<td></td>
</tr>
<tr>
<td>25°C ± 5°C At 1GHz, measured with external oscillator not present</td>
<td></td>
</tr>
<tr>
<td>25°C ± 5°C At 1GHz, measured with external oscillator present</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offset</th>
<th>-90 dBc/Hz</th>
<th>-92 dBc/Hz</th>
<th>-99 dBc/Hz</th>
<th>-109 dBc/Hz</th>
<th>-118 dBc/Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 kHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 kHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 kHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Digitization

<table>
<thead>
<tr>
<th>Data Sampling Rate and Resolution</th>
<th>125 MS/s, 14 bit</th>
<th>10 / 40 / 100 MHz RTBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 kS/s, 24 bit</td>
<td></td>
<td>0.1 MHz RTBW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sweep Rate</th>
<th>Up to 28 GHz/s @ 10 kHz RBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stream Rate</td>
<td>Up to 360 Mbit/s</td>
</tr>
</tbody>
</table>

## Global Navigation Satellite System (GNSS)

### Global Positioning System (Concurrent reception of up to 2 GNSS)

<table>
<thead>
<tr>
<th>GNSS Types supported</th>
<th>GPS, GLONASS, BeiDou</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNSS Antenna Power</td>
<td>3.3 V, 50 mA</td>
</tr>
<tr>
<td>Time to first fix, maximum</td>
<td>From 2 sec (hot) to 36 sec (cold start), -130 dBm input signal power</td>
</tr>
<tr>
<td>Horizontal positional accuracy (CEP, 50%, 24 hours Static, -130 dBm, &gt;6 SVs)</td>
<td>GPS &amp; GLONASS, GPS &amp; BeiDou, GPS GLONASSBeiDou</td>
</tr>
<tr>
<td>Data Timestamp Resolution</td>
<td>8 ns</td>
</tr>
</tbody>
</table>

*thinkRF expects this performance by design in 90% of the units produced. Variability is possible from unit to unit.*
Spectral Purity on GPS Disciplined Oscillator
Freq=10.000000MHz Jitter=0.6ps (Typ, 10Hz-1MHz)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Phase Noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Hz</td>
<td>-101 dBC/Hz</td>
</tr>
<tr>
<td>100 Hz</td>
<td>-125 dBC/Hz</td>
</tr>
<tr>
<td>1 kHz</td>
<td>-144 dBC/Hz</td>
</tr>
<tr>
<td>10 kHz</td>
<td>-155 dBC/Hz</td>
</tr>
<tr>
<td>100 kHz</td>
<td>-156 dBC/Hz</td>
</tr>
</tbody>
</table>

General Specifications

Connectors

- RF In: SMA female, 50 Ω
- 10 MHz Reference In and Out: SMA female, 50 Ω
- 10/100/1000 Ethernet: RJ45
- USB Console: Type B mini
- GPIO: 25-pin male D-Subminiature
- GNSS Antenna Port: SMA female, 50 Ω (Active 3.3VDC)
- Power: LEMO Connector, female

Status Indicators

- PLL Lock / 10 MHz reference clock status
- Ethernet Link and Activity Status
- CPU and Power Status: Refer to the R5750 User Manual

Power

- Physical Power Supply: Use AC Wall Power Adaptor provided
- Power Consumption: 25W with Power Adaptor provided (427) At room temperature
- Can also be used with the thinkRF P120 - Vehicular Power Conditioner

Physical

- Operating Temperature Range: 0°C to +50°C
- Storage Temperature Range: -40°C to +85°C
- Warm up time: 30 minutes
- Dimensions: 257.3 x 193.7 x 66 mm (10.13” x 7.63” x 2.61”) With mounting feet
- Weight: 2.54 kg (5.6 lbs) 2.72 kg (6 lbs) 408 427
- Security: Kensington Security Slot Located on back end-plate
### General Specifications

#### Regulatory Compliance

<table>
<thead>
<tr>
<th>RoHS Compliance</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks</td>
<td>CE</td>
</tr>
<tr>
<td>EMC Directive 2014/30/EU</td>
<td>EN 61326-1:2013</td>
</tr>
<tr>
<td>Low Voltage Directive 2006/95/EC</td>
<td>EN 61010-1:2010 Class 1</td>
</tr>
<tr>
<td>FCC</td>
<td></td>
</tr>
</tbody>
</table>

#### Environmental

<table>
<thead>
<tr>
<th>Humidity &amp; Temperature</th>
<th>MIL-STD-PRF-28800 Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock &amp; Vibration</td>
<td>MIL-STD-PRF-28800 Class 2</td>
</tr>
<tr>
<td></td>
<td>MIL-STD-PRF-28800 Class 3</td>
</tr>
</tbody>
</table>

#### S240 Real-Time Spectrum Analysis Software

<table>
<thead>
<tr>
<th>Resolution Bandwidth (RBW) Range</th>
<th>1 Hz to 488.28 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windowing</td>
<td>Hanning</td>
</tr>
<tr>
<td>Traces</td>
<td>6</td>
</tr>
<tr>
<td>Marker Frequency Resolution</td>
<td>0.01 Hz</td>
</tr>
<tr>
<td>Markers</td>
<td>12</td>
</tr>
<tr>
<td>Modes</td>
<td>Normal (Tracking), Delta, Fixed</td>
</tr>
<tr>
<td>GNSS Tracking Display (R5750 only)</td>
<td>Real time GPS data, updates every second</td>
</tr>
<tr>
<td>Save/Load Data</td>
<td>Power Spectral Data with Time Stamp, Context</td>
</tr>
<tr>
<td>Configurations</td>
<td>Save/Load Settings</td>
</tr>
<tr>
<td>Export Data</td>
<td>CSV</td>
</tr>
<tr>
<td>Demodulation Audio Signal Displays</td>
<td>FM 0%-300%</td>
</tr>
<tr>
<td></td>
<td>IQ Constellation</td>
</tr>
<tr>
<td></td>
<td>Frequency Domain</td>
</tr>
<tr>
<td></td>
<td>Time Domain</td>
</tr>
<tr>
<td></td>
<td>With Record/Playback</td>
</tr>
<tr>
<td></td>
<td>Host PC sound card</td>
</tr>
</tbody>
</table>

#### APIs and Protocols

<table>
<thead>
<tr>
<th>Python™</th>
<th>PyRF RTSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>LabVIEW</td>
<td>LabVIEW Base Development System for Windows (version 2014 and up)</td>
</tr>
<tr>
<td>MATLAB®</td>
<td>MATLAB® Release 2014b - 2019b</td>
</tr>
<tr>
<td>C/C++</td>
<td>ISO/IEC 14882:2011</td>
</tr>
<tr>
<td>SCPI</td>
<td>IEEE 488.2 - Standard Commands for Programmable Instruments</td>
</tr>
<tr>
<td>VRT</td>
<td>VITA-49 Radio Transport</td>
</tr>
<tr>
<td>HiSLIP</td>
<td>IVI TCP/IP-based protocol v1.0</td>
</tr>
</tbody>
</table>
### General Specifications

**Recommended PC**

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Windows 10 (32 or 64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum RAM Size</td>
<td>4 GB</td>
</tr>
<tr>
<td>Minimum Free Hard Disk Space</td>
<td>2 GB</td>
</tr>
<tr>
<td>Ethernet Port</td>
<td>1 GigE</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>1920 x 1080</td>
</tr>
</tbody>
</table>

### Ordering Information

#### Base Units

<table>
<thead>
<tr>
<th>Base Units</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 GHz RTSA</td>
<td>R5750-408</td>
<td>9 kHz to 8 GHz, RTBW up to 100 MHz</td>
</tr>
<tr>
<td>18 GHz RTSA</td>
<td>R5750-418</td>
<td>9 kHz to 18 GHz, RTBW up to 100 MHz</td>
</tr>
<tr>
<td>27 GHz RTSA</td>
<td>R5750-427</td>
<td>9 kHz to 27 GHz, RTBW up to 100 MHz</td>
</tr>
</tbody>
</table>

#### R5750 Power Plug Options

<table>
<thead>
<tr>
<th>Power Plug Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>North American power plug (115 V, 60 Hz)</td>
</tr>
<tr>
<td>1</td>
<td>Universal Euro power plug (220 V, 50 Hz)</td>
</tr>
<tr>
<td>2</td>
<td>United Kingdom power plug (240 V, 50 Hz)</td>
</tr>
<tr>
<td>3</td>
<td>Australia power plug (240 V, 50 Hz)</td>
</tr>
<tr>
<td>4</td>
<td>Switzerland power plug (220 V, 50 Hz)</td>
</tr>
<tr>
<td>5</td>
<td>Japan power plug (100 V, 50/60 Hz)</td>
</tr>
<tr>
<td>6</td>
<td>China power plug (50 Hz)</td>
</tr>
<tr>
<td>7</td>
<td>India power plug (50 Hz)</td>
</tr>
</tbody>
</table>

#### Accessories

<table>
<thead>
<tr>
<th>Software Included</th>
<th>S240</th>
<th>Real-Time Spectrum Analysis Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>APIs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rack Shelf</td>
<td>R5750-RACK-SHELF</td>
<td>19&quot; rack shelf supports two horizontally mounted R5750s</td>
</tr>
<tr>
<td>Vehicular Power Conditioner</td>
<td>P120-012</td>
<td></td>
</tr>
</tbody>
</table>