



Software Release Notes – S240v5 RTSA Application v5.1.2

April 23, 2021

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1 Introduction

This document describes the first maintenance release of the S240v5 Real-Time Spectrum Analyzer (RTSA) software, version 5.1.2. It is concurrently released with PyRF3 API v3.0.7 (PyRF3 is a Python 3 release of ThinkRF's original Python 2 version of the PyRF).

This software is distributed as a single Microsoft Windows binary file **ThinkRF_S240v5_RTSA_v5.1.2_Installer.exe**.

Reminder: S240v5 supports current RTSA devices such as R5500, R5550, R5700, & R5750, but not the obsoleted WSA products such as the WSA5000. End of life products and the RFE ZIF mode are still supported by the S240 application v4.3.0 or earlier.

2 Fixed Defects

Version 5.1.2 addresses the spur mitigation feature which does not work properly in previous versions. The Spur Mitigation feature will now be available only when:

- The **Stop** frequency is *not at* maximum and the **Start** frequency is from 50MHz or higher; or
- The **Stop** frequency is *at* max and the **Start** frequency is from 52MHz or higher.

These constraints are because there is no frequency tuning in DD range (DC to 50MHz) & a shift in the center frequency is needed for the spur mitigation algorithm to work.

Also, "Known Limitations of the Spur Mitigation Feature" has been added to the S240v5 User Guide, under "Configuring Spur Mitigation" section.

3 New Features

None.

4 Other Changes

The following changes appear in this release version.

- a) Incorporated PyRF3 updates from v3.0.5 to v3.0.7.
- b) Updated the S240v5 User Guide to reflect the new information and limitations in "Configuring Spur Mitigation" section.

5 Known Issues and Limitations

The following known issues and limitations exist in this version.

5.1 Demodulation Feature

The Demodulation feature is still in the beta stage; thus, there are known issues associated with it as listed in this section.

5.1.1 Scrubbing and Stepping

Scrubbing and the associated ability to step through the signals has not been implemented in this release. Although it is possible to see the location of the playback within a saved stream using the slider below the graph section of the user interface, it is not yet possible to move back and forth manually. Nor is it yet possible to move frame by frame in either direction.

5.1.2 Audio Record and Playback

The audio streams after demodulation cannot yet be saved and played independently of the IQ data. To hear the audio again, it must be demodulated again from the original saved VRT stream.

5.1.3 AM Broadcast

The application cannot at this time tune down into the AM broadcast frequencies. This limitation may be addressed in the future.

5.1.4 Others

- If **Span** is set to under 40 MHz, then after switching back from running the Demodulation feature for awhile, the data capture displayed in the main S240v5 panel might get stuck in the 'block' capture mode. This means changing of the Center Frequency will work but the sweep feature is no longer working. The work around for this is to use the **Preset** button or reconnect to the device from **Device > Connect**.
- If **Auto RBW** is unselected, then after switching back from running the Demodulation feature for awhile, the main S240v5's **Span** or **RBW** will not be switched back properly. Suggest to save the settings (**File > Save Settings**) before using the Demodulation feature so that the settings could be reloaded from the saved *.config file (**File > Load Settings**).

5.2 Other Known Issues

- When **Span** is 25 MHz or lower, the data returned is of I & Q mode due to decimation used, the DC offset correction is then activated. This means that any frequency input from a signal generator that is aligned with the S240v5's **Center** frequency will result in a 'clipped' input signal. Recommend to have the input frequency of the signal generator and the S240v5's **Center** frequency to be at least 10 Hz off from each other to avoid such signal clipping.
- There are rare cases where the automated mode switching can result in a frozen display, click on **Pause Capture**, **Single Capture**, then **Continuous Capture** to resume the capture. The cause of this issue is not yet understood.
- Sometimes, when a **Level Trigger** is active and the plot is frozen by lack of triggered data, switching to **Free Run** does not immediately restart continuous capture. This is easily remedied by clicking **Pause Capture** and then **Continuous Capture**.
- Before running the installation, recommend turning off the anti-virus software. Some anti-virus software might set off a false positive toward the PyInstaller application, which is used to generate the RTSA GUI executable from Python.
- During the installation, a Microsoft Certification warning might show-up. Accept the warning to continue the installation.
- **Fine Tuning** is still not yet available.
- See "Known Limitations of the Spur Mitigation Feature" in the S240v5 User Guide, under "Configuring Spur Mitigation" section.

Document Revision History

This section summarizes document revision history.

Document Version	Release Date	Revisions and Notes
v1.0	April 23, 2021	First release for S240v5 RTSA v5.1.2

6 Contact Us

ThinkRF Support website provides online documents for resolving technical issues with ThinkRF products at <http://www.thinkrf.com/resources>.

For all customers who hold a valid end-user license, ThinkRF provides technical assistance 9 AM to 5 PM Eastern Time, Monday to Friday. Contact us at support@thinkrf.com, sales@thinkrf.com or by calling **+1.613.369.5104**.

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