

WinSpectrum III User Manual v3.0.1.1

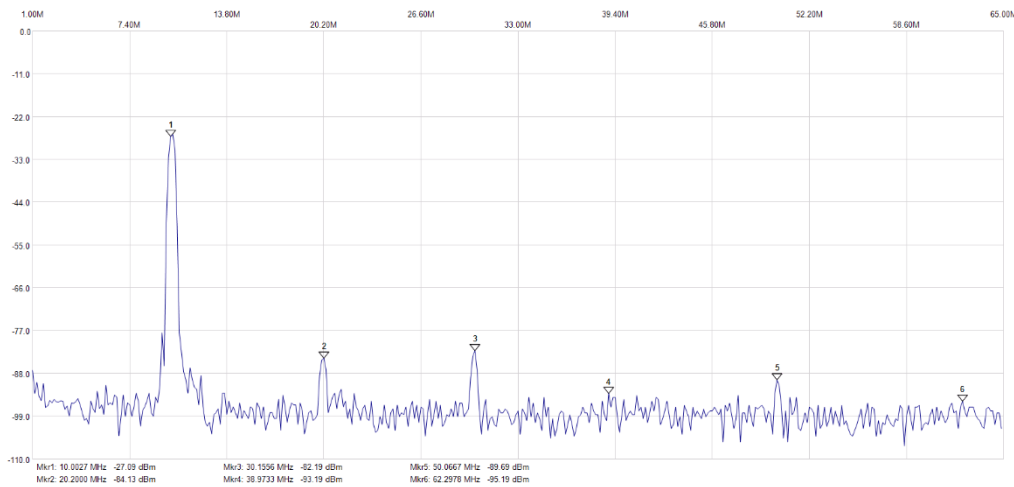
Developed for tiny SA Ultra+ model: ZS-406

(Firmware version 1.4-196/-197)

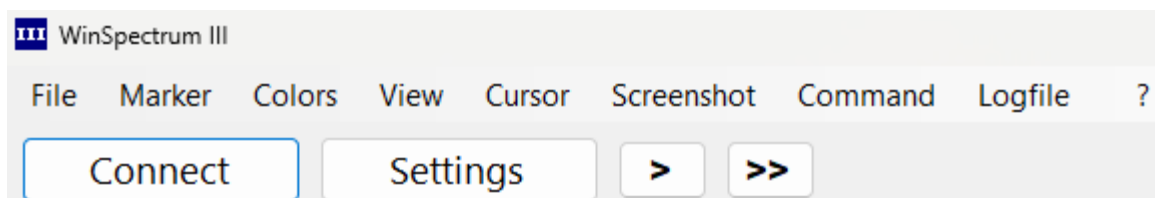
Tested on Windows 10 and Windows 11 (64 bits)

WinSpectrum III is compatible with both the tinySA (basic) and the tinySA Ultra (non plus) models. The only difference is that the tinySA (basic) supports a maximum of 290 points and does not include an LNA (Low Noise Amplifier).

Tested successfully on tinySA (basic) version 1.4-40 and tinySA Ultra (non plus) version 1.4-156.



1. Main Window



1.1 File

- **Save file as s1p:** Saves current scan in s1p file format.
- **Clear settings:** Resets WinSpectrum III to its default settings.

1.2 Marker

- **Opens** the Marker dialog box.

When the **Peak** option is selected, the application allows you to specify three parameters:

1. **Peak Frequency:** The central frequency value (e.g., 10 MHz).
2. **Tolerance (%):** Defines the search range around the specified frequency.
For example, if a peak frequency of 10 MHz is set with a 5% tolerance, the marker will search for the maximum frequency within a range of **10 MHz ± 500 kHz** (i.e., from **9.5 MHz to 10.5 MHz**).

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3. **Δ Delta:** Specifies the reference marker used to calculate **frequency and amplitude differences**.

1.3 Palette

- **Change Palette** Change default app colors.
- **Restore defaults** Restore default app colors.

1.4 View

- Three possible configurations for the current view:
 - **Spectrum**
 - **Waterfall**
 - **Panafall (both)**

1.5 Cursor

- **Toggles** between showing and hiding the cursor.

1.6 Screenshot

- **Opens the Paint app with the selected option** from the four available:
 - **Spectrum**
 - **Waterfall**
 - **Panafall (Both)**
 - **Full Window**

1.7 Command

- **Allows sending commands** to Tiny SA Ultra.

1.8 Logfile

- **Records scan commands** sent to Tiny SA Ultra.

Buttons

- **Connect/Disconnect:** Connects/Disconnects from Tiny SA Ultra.
- **Settings:** Opens the settings' window.
- **Single Scan:** Sends a single scan or scanraw command to the device and show the results on the screen. Single Scan data is limited to 450 points. Scanraw is limited to 2000 points.
- **Continuous Scan:** Performs continuous sweeps, similar to single scan or scanraw.

2. Settings window

The Settings window is a dialog box with a title bar containing a window icon, the text 'Settings', and standard window controls (minimize, maximize, close). The window is divided into several sections by horizontal lines. The first section contains 'Start frequency' (87.5000) and 'Stop frequency' (108.0000), each with radio buttons for Hz, kHz, MHz (selected), and GHz. The second section contains 'Center frequency' (0.0000) and 'Span' (0.0000), also with radio buttons for Hz, kHz, MHz (selected), and GHz. The third section contains 'Shift' (1) with up/down arrows and '+'/'-' buttons, and radio buttons for Hz, kHz, MHz (selected), and GHz. The fourth section contains 'RBW' (auto), 'Points' (450), 'Top' (0 dBm), 'VBW' (auto), 'Attenuate' (0), and 'Bottom' (-110 dBm). The fifth section contains checkboxes for 'Spur' and 'LNA', a 'Repeat' spinner (1), 'Normalization' (none), and 'Unit' (dBm). At the bottom right are buttons for 'Presets', 'Apply', 'Accept', and 'Cancel'.

Start frequency:	87.5000	<input type="radio"/> Hz	<input type="radio"/> kHz	<input checked="" type="radio"/> MHz	<input type="radio"/> GHz
Stop frequency:	108.0000	<input type="radio"/> Hz	<input type="radio"/> kHz	<input checked="" type="radio"/> MHz	<input type="radio"/> GHz
Center frequency:	0.0000	<input type="radio"/> Hz	<input type="radio"/> kHz	<input checked="" type="radio"/> MHz	<input type="radio"/> GHz
Span:	0.0000	<input type="radio"/> Hz	<input type="radio"/> kHz	<input checked="" type="radio"/> MHz	<input type="radio"/> GHz
Shift:	1	<input type="radio"/> Hz	<input type="radio"/> kHz	<input checked="" type="radio"/> MHz	<input type="radio"/> GHz
RBW:	auto	Points	450	Top:	0 dBm
VBW:	auto	Attenuate:	0	Bottom:	-110 dBm
<input type="checkbox"/> Spur	<input type="checkbox"/> LNA	Repeat:	1		
Normalization:	none				
Unit:	dBm				

2.1 Start Frequency

- **Sets the scan start frequency** in Hz, kHz, MHz, GHz according to the selected option.

2.2 Stop Frequency

- **Sets the scan stop frequency** in Hz, kHz, MHz, GHz according to the selected option.

2.3 Center Frequency

- **Sets the scan center frequency** in Hz, kHz, MHz, GHz according to the selected option.

2.4 Span

- **Sets the scan span frequency** in Hz, kHz, MHz, GHz according to the selected option.

2.5 Shift

- **Shifts the scan frequency** up (button '+') or down (button '-') in Hz, kHz, MHz, GHz according to the selected option.

2.6 RBW (Resolution Bandwidth)

- **Sends RBW command** to the device.

2.7 VBW (Video Bandwidth)

- **Sends VBW command** to the device.

2.8 Points

- **Modifies the number of points** of the scan.

2.9 Attenuate

- **Sends attenuator input value** to the device

2.10 Top

- **Sets the upper value** of the graph.

2.11 Bottom

- **Sets the lower value** of the graph.

2.12 Spur On/Off

- **Sends 'spur on' command** to the device if checked.
- **Sends 'spur off' command** to the device if not checked.

2.13 Spur On/Off

- **Sends 'lna on' command** to the device if checked.
- **Sends 'lna off' command** to the device if not checked.

2.14 Repeat

- **Sets the number of measurements** that should be taken at every frequency

2.15 Normalization

The **Normalization** setting determines how scan values are displayed relative to the data received from the device.

- **None:** Displays raw values without any scaling or adjustment.
- **Maximum:** Normalizes values so that the highest point in each scan is **1.0** and the lowest is **0.0**, making comparisons between scans easier.
- **dB:** Converts values to a dB scale relative to the highest scan point for better signal visualization.

2.16 Unit

- **Sends 'trace' command** to the device.

Buttons

- **Presets:** Opens Presets Manager window.
- **Apply:** Applies the current settings.
- **Accept:** Applies and saves the current settings upon closing the app.

3 Presets Manager

The Presets Manager window displays a table of presets and configuration options. The table has columns for Start frequency, Stop frequency, Points, Repeat, Top, Bottom, and Attenuate. The first row is selected, showing a Start frequency of 25000000, Stop frequency of 35000000, 450 Points, 19 Repeat, Top of 0, Bottom of -120, and Attenuate of auto.

	Start frequency	Stop frequency	Points	Repeat	Top	Bottom	Attenuate
▶	25000000	35000000	450	19	0	-120	auto

Below the table, there are input fields for Start frequency (9.9750), Stop frequency (10.0250), Points (450), Repeat (0), and checkboxes for Raw and Spur. There are also units (Hz, kHz, MHz, GHz) and a Normalization dropdown (none). On the right, there are buttons for Paint, Apply, CLOSE, Add, and Delete.

Buttons

- **Paint:** Opens Paint app with the graph of the current selected rows (if any).
- **Apply:** Applies the selected row settings to the current settings.
- **Close:** Exits this window.
- **Add:** Saves the current settings as a preset.
- **Delete:** Deletes the selected row settings.

Notes: