

USER MANUAL



Aircout Spectrum 0.3-3 GHz v.2
(FW V5.2.8.6)

Aircout Spectrum 2-8 GHz v.2
(FW V5.4.3.6)

Aircout Spectrum 24-40 GHz v.2
(FW V5.3.6.12)

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/TV technician for help.**



Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Airscout Spectrum does not contain serviceable parts. Warranty will not be applicable in the event Airscout Spectrum has been opened.

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Contents

1 OVERVIEW	4
1.1 Appearance & features.....	4
1.2 Technical specification Table1	5
1.3 Accessories.....	6
2 OPERATION	7
2.1 Basic operation.....	7
2.2 SWEEP CONT.	9
2.3 FREQ.....	9
2.4 SPAN.....	11
2.5 MARKER.....	12
2.6 RBW & VBW	13
2.7 LEVEL	15
2.7.1 REF	15
2.7.2 ATT*	16
2.7.3 LNA*	17
2.7.4 UNITS.....	19
2.7.5 SCALE	21
2.8 TRACE.....	23
2.9 POWER IN BAND	27
2.10 SAVE	29
2.11 PRESET	30
2.12 FULL SCREEN.....	31
2.13 TOOLS.....	32
2.13.1 FILES.....	33
2.13.2 PROFILES.....	34
2.13.3 MASK MODE	35
2.13.4 PATH CALC	36
2.13.5 HIGH CONTRAST	38
2.13.6 RECORD	39
2.13.7 RECORD TIME PLOT	41
2.13.8 AUTO ROTATE	43
2.13.9 ABOUT.....	44
2.13.10 SERVICE MENU.....	44
2.14 SETTINGS.....	46
2.14.1 BRIGHT	47
2.14.2 TIME.....	48
2.14.3 COLOR.....	49
2.14.4 SIGNAL ID	49
2.15 Firmware upgrade.....	50
2.16 Realtime mode with AirScout Spectrum Manager	51
CONTACTS	52

1. OVERVIEW

1.1 Appearance & Features



Airscout Spectrum analyzer is an ultra-light and easy-to-use measurement solution. This battery-powered device does not require external down-converters and is a must-have tool for any field engineer performing equipment installation, link troubleshooting, site planning, and maintenance. The instrument utilizes a resistive touch screen for ease of use in the field, allowing the engineer to wear gloves when using the device. Furthermore, its high sensitivity and low noise floor make it possible to detect even exceptionally weak signals. The Airscout Spectrum can also be used for high precision detection of existing interference on installed paths or available radio channels. Data logging of all spectrum scans is available on the Airscout Spectrum device, and enhanced data processing and analysis are provided by Tempo Communications designed PC software (included in the price of Airscout Spectrum).

- **Ultra-compact form factor**
- **Leading sensitivity**
- **Resistive LCD touchscreen**
- **Weatherproof - IP marking 54**
- **Stand-alone functionality**
- **USB Type-C for charging and data access**
- **PC software included in the price**

1.2 Technical Specification *Table 1*

P/N	ASPEC03BK	ASPEC08BK	ASPEC40BK
Frequency range	0.300 - 3.000 GHz	2.000 – 8.000 GHz	24.000 – 40.000 GHz
Displayed Average Noise Level	-128 dBm @ RBW=10 kHz	-119 dBm @ RBW=30 kHz	-100 dBm @ RBW=100 kHz
Max input power with LNA OFF	+27 dBm	+25 dBm	N/A
Max input power with LNA ON	+19 dBm	+17 dBm	0 dBm
RBW (Resolution bandwidth)	10, 30, 100, 300 kHz	30, 100, 300, 1000 kHz	100, 300, 1000 kHz
VBW (Video bandwidth)	1, 3, 10, 30 kHz	1, 3, 10, 30, 100 kHz	
Min span	0.5 MHz	1.5 MHz	5 MHz
Max span	Full bandwidth		
Sweep speed	0.15 s @ 15 MHz Span	0.2 s @ 50 MHz Span @1 MHz RBW	
Accuracy*	+/- 1 dB		
Mass memory	8 GB		
Input	50 ohm, SMA (f)		50 ohm, 2.92mm (f)
Interface	USB Type-C		
Battery life	up to 4 h		
Operating temperature	-15 °C to +55 °C/ 5 °F to 131 °F		
Dimensions	135 x 83 x 34 mm/ 5.31 x 3.27 x 1.34 in		
Weight	0.57 kg/ 20.11 oz		

*Guaranteed at 21°C/70°F CW signal

1.3 Accesories

0.3-3/2-8/24-40 GHz Airscout Spectrum has these accessories available:

- 1 SMA(F) to N(M) adapter
- 2 SMA (F) to RP-SMA (F)
- 3 SMA (F) to RP-SMA (M)
- 4 N-type adapter female-female
- 5 Waveguide adapter UDR70 to SMA, 5.38-8.2 GHz, WR137
- 6 Waveguide adapter UBR84 to SMA, 5.9-10 GHz, WR112
- 7 Waveguide adapter UBR100 to SMA, 8.2-12 GHz, WR90
- 8 Waveguide adapter UBR140 to SMA, 12-17 GHz, WR62
- 9 Waveguide adapter UBR220 to SMA, 17-24.3 GHz, WR42
- 10 Waveguide adapter UBR260 to 2.92, 22-33 GHz, WR34
- 11 Waveguide adapter UBR320 to 2.92, 26-40 GHz, WR28
- 12 RF cable
- 13 AC/DC USB-C charger
- 14 AC/DC USB-C charger for USA
- 15 Leather bag
- 16 USB-C – USB-C Cable
- 17 USB-C – USB-A adapter
- 18 Lanyard
- 19 Omni-directional antenna 0.6-6 GHz
- 20 Omni-directional antenna 0.3-1.1 GHz
- 21 Horn antenna 3-5 GHz
- 22 Horn antenna 5-7.5 GHz
- 23 Horn antenna 6-11 GHz
- 24 Horn antenna 11-17 GHz
- 25 Horn antenna 17-26 GHz
- 26 Horn antenna 26-43 GHz
- 27 Handle for YAGI-type antenna
- 28 Handle and Airscout Spectrum v.2 bracket for 3-5 GHz antenna
- 29 Handle and Airscout Spectrum v.2 bracket for 5-7.5 GHz antenna
- 30 Handle and Airscout Spectrum v.2 bracket for 6-10 GHz or 11-17 GHz antenna
- 31 Handle and Airscout Spectrum v.2 bracket for 17-26 GHz antenna
- 32 Handle and Airscout Spectrum v.2 bracket for 26-43 GHz antenna

2 OPERATION

2.1 Basic Operation



To turn on Airscout Spectrum, press and hold the power button on the left side for about 1.5 seconds. To turn the device off, press and hold the button again for about 1.5 seconds. The guaranteed operation time with a fully charged battery is 4 h. The small battery in the upper right corner indicates the current battery level. When there are about 15 minutes of active sweeping time left, a **red** warning "BATTERY LOW" will be displayed on the screen above the graph.



Turning off the continuous sweeping of the spectrum (SWEEP CONT.), when it is not monitored, and decreasing the screen background brightness (Main screen → TOOLS & SETTINGS → SETTINGS → BRIGHT) prolongs the operation time.

Airscout Spectrum charges through the USB type-C port. The device can sweep the spectrum continuously if attached to a power source that can supply 2 A at DC=5V.



Tempo Communications cannot guarantee that any charger, besides the one supplied with the unit, will ensure continuous sweep.

When Airscout Spectrum is connected to a power source, a quick press of the power button allows checking the battery status without turning on the device. While charging, the LED located under the transparent button will glow red. If the device is attached to a power source, but the battery is not charging (e.g. the power source does not provide enough current for charging), the LED will flash red. When the battery is fully charged, the LED will glow green.



It is recommended to fully charge and discharge a new device few times to ensure that the battery indication is completely accurate.

The screen of the spectrum analyzer is divided into two parts: the graph and the buttons, which represent the available menus and options.

The horizontal axis of the graph represents the linear frequency range in megahertz (MHz). The frequency value increases from left to right. The displayed frequency range can be selected at the FREQ menu. 1 pane represents 1/10th of the currently selected SPAN.

The vertical axis of the graph represents the logarithmic input power range in decibels referenced to one milliwatt "dBm" by default (see UNITS). The input power level increases from bottom to top. The displayed input power range can be adjusted at the SCALE menu. Above the graph, the input power level at the CENTER frequency is displayed (except for CUMULATIVE trace mode, see TRACE).

Tapping the clock in the upper right corner swaps the displayed time/date format. To save a spectrum curve for later review, use the SAVE button. The files are saved in Airscout Spectrum Curve file format (.scc). They can be reviewed in FILES menu and are accessible when the device is connected to a computer from folder CURVES.

Tapping the Tempo Communication logo in the upper left corner takes a screenshot. The screenshots are saved as bitmap (.bmp) images. The screenshots are available only when Airscout Spectrum is connected to a computer in the folder SCREENS.

The essential functions of the spectrum analyzer are accessible from the main screen. All the menus and options are described in detail in the following chapters.



If the detected signal power is higher than the reference level (see REF), a red warning "OVERLOAD" will be displayed on the screen. Initially perform a scan at full (default) span to detect overload presence since a signal outside of the displayed frequency range also contributes to overload!



For All Airscout Spectrum models exceeding the critical input power level mentioned in Table2 may irreversible damage equipment!

Maximum allowed signal level *Table2*

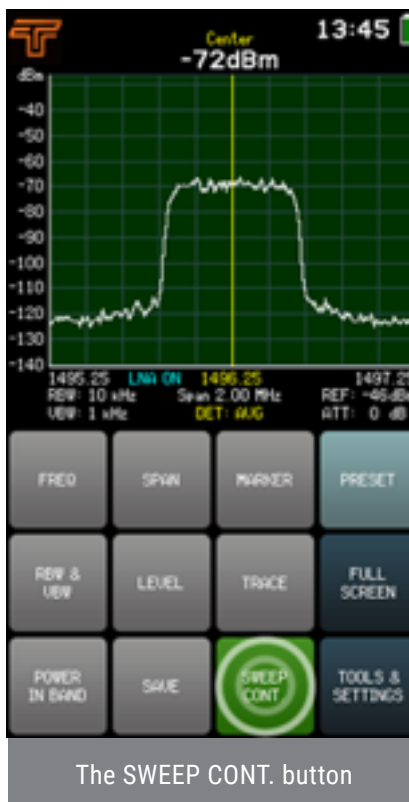
Max Input power	0.3-3 GHz	2-8 GHz	24-40 GHz
Max input power with LNA OFF	+27 dBm	+25 dBm	N/A
Max input power with LNA ON	+19 dBm	+17 dBm	0 dBm

2.2 Sweep

Tapping the SWEEP CONT. button starts and stops continuous sweep of the selected spectrum range and registering of a spectrum curve.

If a sweeping related parameter (frequency, level, or trace setting) is modified, the sweep is restarted from the beginning.

When SWEEP CONT. is enabled, the SWEEP CONT. button is green and a small white bar is moving under the graph, indicating how far the selected span has been swept. SWEEP CONT. is enabled by default.



2.3 Freq

The FREQ menu allows selecting START (left limit of the horizontal axis), CENTER (center value of the horizontal axis), and STOP (right limit of the horizontal axis) frequencies of the spectrum range in megahertz (MHz).



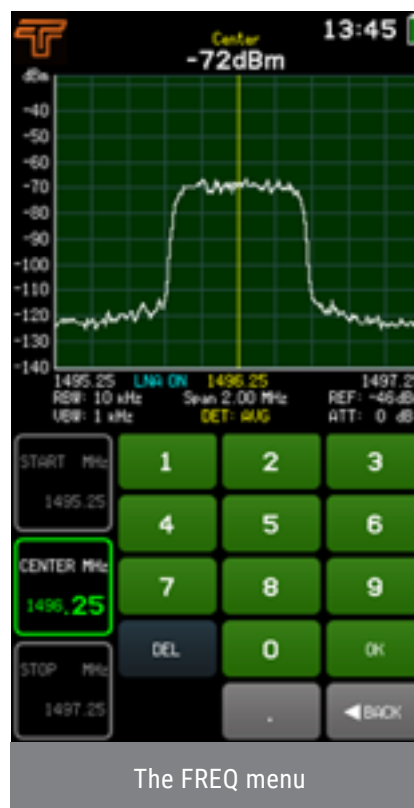
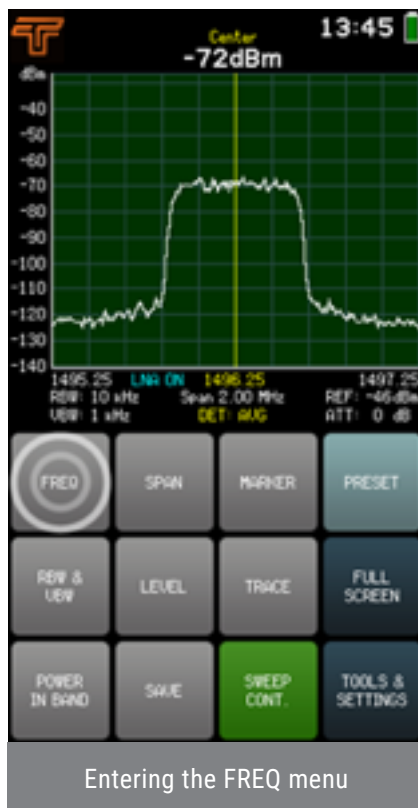
While at the FREQ menu, tapping the right part of the graph decreases SPAN (zooms in), and tapping the left part of the graph increases SPAN (zooms out). Sliding the graph to the right or to the left modifies START and STOP frequencies by equal amounts, keeping the SPAN constant.

Modifying START or STOP frequency will alter CENTER frequency and SPAN, but will preserve the STOP or START frequency, respectively. Modifying CENTER frequency will alter both START and STOP frequencies but will preserve SPAN, if possible (it may not be possible due to limits of supported frequency range).

The currently selected parameter (START/ STOP/ CENTER) is displayed in white. To select a different parameter, tap on it once. The color of the keypad buttons shows which numbers can be entered at the current digit position to obtain a valid parameter value – the numbers on the **green** buttons can be entered, the numbers on the **red** buttons cannot be entered. If the currently entered value is valid, it is displayed in **green** (also OK button is **green**). If the value is not valid, it is displayed in **red** (also OK button is **red**). To confirm a valid value, tap the OK button or tap the parameter's box.

The frequency value can be entered with a precision of 0.01 MHz (10 kHz) by using the "." on the keypad. To input a value with decimal digits, first enter the full MHz's, then tap the "." button and enter the rest of the digits. Until the value is confirmed, the digits after the point are displayed larger. If there are no digits displayed after the point, it means that they are zeroes.

To exit the FREQ menu and return to the main screen, tap BACK.



2.4 Span

The SPAN menu allows selecting the range of the horizontal axis (difference between START and STOP frequencies) i.e. span, in megahertz (MHz).



While at the SPAN menu, tapping the right part of the graph decreases SPAN (zooms in), and tapping the left part of the graph increases SPAN (zooms out). Sliding the graph to the right or to the left modifies START and STOP frequencies by equal amounts, keeping the SPAN constant.

Modifying SPAN preserves CENTER frequency, if possible, but alters START and STOP frequencies. Tapping the MIN SPAN or FULL SPAN button instantly sets SPAN to respectively minimum or maximum allowed value. If the current SPAN value is the actual minimum or maximum, the corresponding button will be **green**. FULL SPAN is enabled by default.



The AUTO function at the **RBW & VBW** menu automatically adjusts resolution and video bandwidths depending on the selected SPAN. AUTO ensures optimum use of the filters. AUTO is enabled by default.



The minimum allowed SPAN differs for each of the resolution bandwidths – 0.5 MHz for 10 kHz RBW, 1.5 MHz for 30 kHz RBW, 5 MHz for 100 kHz RBW, 15 MHz for 300 kHz RBW, and 50 MHz for 1 MHz RBW.

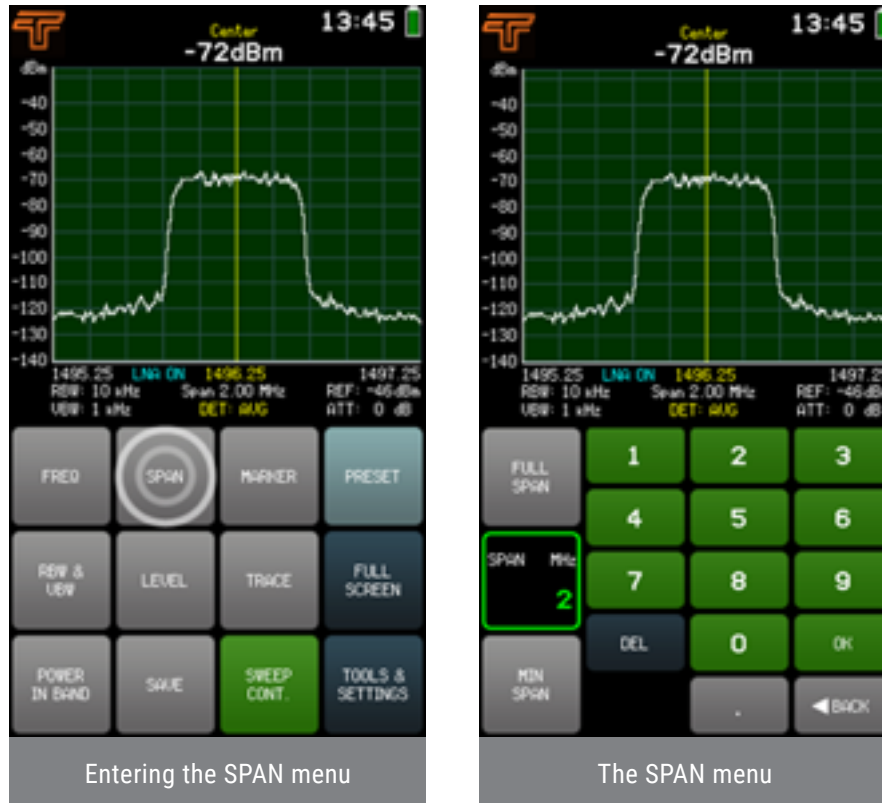
The maximum allowed SPAN for MIN/MAXHOLD trace Table3

AirScout Spectrum Frequency Range	0.3-3 GHz	2-8 GHz	24-40 GHz
Resolution bandwidth setting			
RBW 10 kHz	200 MHz	N/A	N/A
RBW 30 kHz	N/A	200 MHz	200 MHz
RBW 100 kHz	900 MHz	N/A	N/A
RBW 300 kHz	N/A	900 MHz	3000 MHz
RBW 1 MHz	N/A	N/A	9000 MHz

The current SPAN is displayed in white. The color of keypad buttons shows which numbers can be entered at the current digit position to obtain a valid parameter value – the numbers on the **green** buttons can be entered, the numbers on the **red** buttons cannot be entered. If the currently entered value is valid, it is displayed in **green** (also OK button is **green**). If the value is not valid, it is displayed in **red** (also OK button is **red**). To confirm a valid value, tap the OK button or tap the parameter's box.

The frequency value can be entered with a precision of 0.01 MHz (10 kHz) by using the "." on the keypad. To input a value with decimal digits, first enter the full MHz's, then tap the "." button and enter the rest of the digits. Until the value is confirmed, the digits after the point are displayed larger. If there are no digits displayed after the point, it means that they are zeroes.

To exit the SPAN menu and return to the main screen, tap BACK.



2.5 Marker

The MARKER menu allows placing a marker, which shows the input power level at the specified frequency.



MARKER and POWER IN BAND cannot be activated both at the same time.

Tapping the PEAK button turns on and off the automatic search for the highest input power level in the displayed frequency range, and places the MARKER there. Tapping the CENTER TO MARKER button changes the CENTER frequency to the current MARKER frequency (while preserving SPAN, if possible), i.e. centers the graph on the MARKER.

The current MARKER frequency is displayed in white. The color of the keypad buttons shows which numbers can be entered at the current digit position to obtain a valid parameter value – the numbers on the **green** buttons can be entered, the numbers on the **red** buttons cannot be entered. If the currently entered value is valid, it is displayed in green (also OK button is green). If the value is not valid, it is displayed in **red** (also OK button is **red**). To confirm a valid value, tap the OK button or tap the parameter's box.

The frequency value can be entered with a precision of 0.01 MHz (10 kHz) by using the "." on the keypad. To input a value with decimal digits, first enter the full MHz's, then tap the "." button and enter the rest of the digits. Until the value is confirmed, the digits after the point are displayed larger. If there are no digits displayed after the point, it means that they are zeroes.

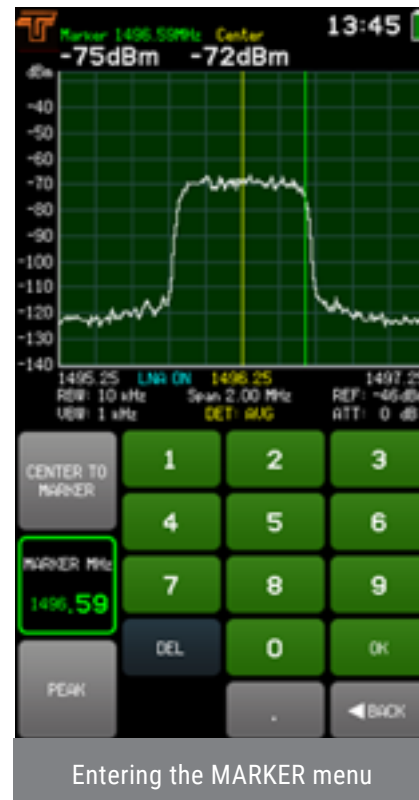


While in the MARKER menu, tapping the graph will place the MARKER there. MARKER can be moved also by dragging it.



If the MARKER frequency is outside of the currently displayed frequency range, arrows on the graph will indicate beyond which side of the graph the MARKER is positioned.

To exit the MARKER menu and return to the main screen, tap BACK. When MARKER is enabled, the MARKER button is green on the main screen. Tapping the MARKER button when it is active, disables the MARKER. MARKER is disabled by default.



2.6 RWB & VBW

The RBW & VBW menu allows selecting the resolution bandwidth (RWB) and video bandwidth (VBW) of the spectrum analyzer. The available RBW values are:

- 10 kHz*
- 30 kHz
- 100 kHz
- 300 kHz
- MHz**

Only Airscout Spectrum 0.3-3 GHz

** Only Airscout Spectrum 2-8 GHz, 24-40 GHz



Narrower RBW allows to distinguish closer signals, but the span is swept considerably slower.



The 10 kHz RBW for Airscout Spectrum 0.3-3 GHz and 30 kHz for Airscout Spectrum 2-8 GHz is most effectively utilized together with a lower reference level (see [REF](#)).

The available VBW values are:

- 1 kHz
- 3 kHz
- 10 kHz
- 30 kHz
- 100 kHz*

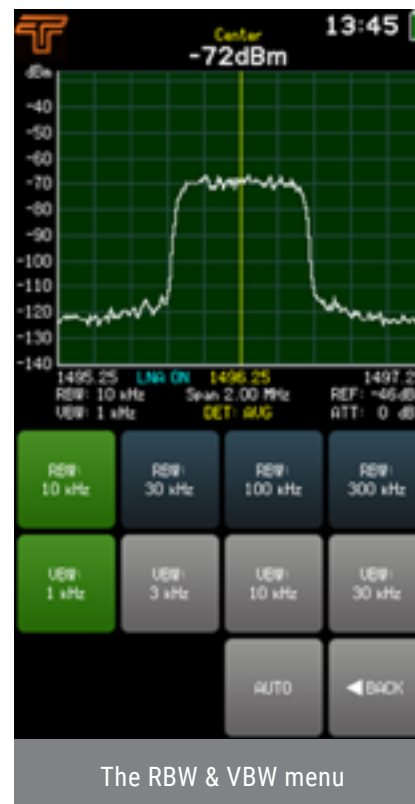
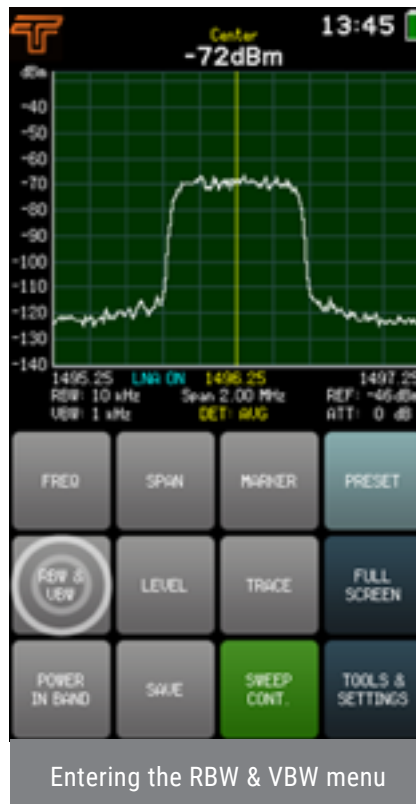
* Only Airscout Spectrum 2-8 GHz, 24-40 GHz



Narrower VBW stabilizes the displayed trace (i.e. smooths the noise) and allows to see weaker signals better, but for pulsating signals, a wider VBW should be used.



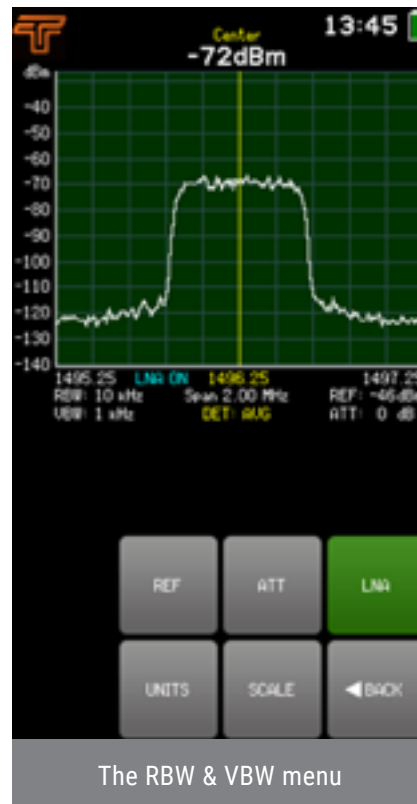
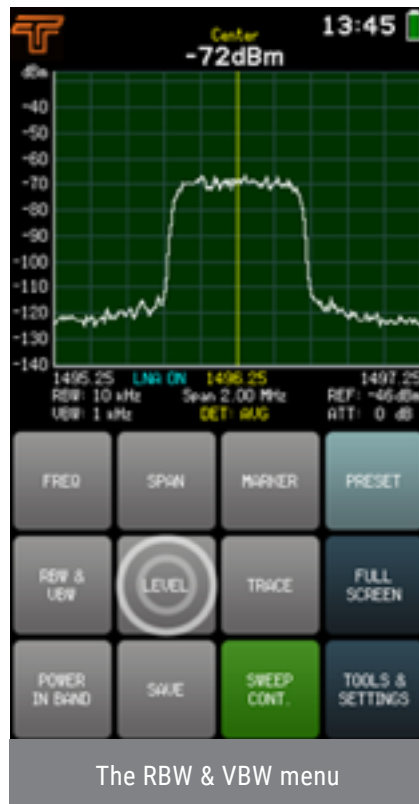
For most accurate power measurements AVG detector (see [TRACE](#)) is recommended. If utilizing the MAX or MIN detector, please note that a narrower VBW must be used. In case the manually selected VBW is too wide for the current RBW, there is a warning displayed on the screen, VBW indication under the graph is **red** and the indication "UNCAL" is put under the battery symbol.



Tapping the AUTO button enables and disables automatic adjustment of RBW and VBW depending on the selected SPAN. AUTO ensures optimum use of the filters. AUTO is enabled by default. When AUTO is enabled, the AUTO button is green at the RBW & VBW menu. AUTO is disabled instantly if a different RBW or VBW is selected manually. To exit the RBW

2.7 Level

The options regarding the displayed input power levels are accessible at the LEVEL menu. To exit the LEVEL menu and return to the main screen, tap BACK.



2.7.1 REF

The REF submenu is available for Airscout Spectrum 0.3-3 GHz for all its RBW and also REF submenu is available for Airscout Spectrum 2-8 GHz when selecting 30 kHz or 100 kHz RBW. It allows changing the gain and thus the reference level of the spectrum analyzer. The current reference level is displayed at this menu and on the right side under the graph. The reference level can be raised or lowered by 6 or 12 dB by using the buttons. Tapping the DEFAULT button sets the default reference level.



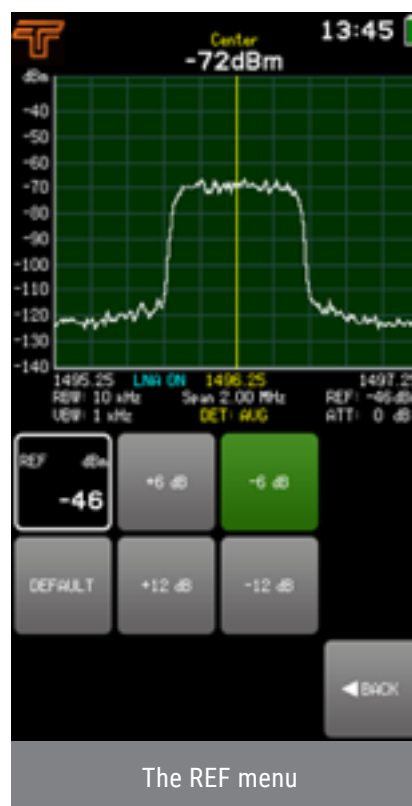
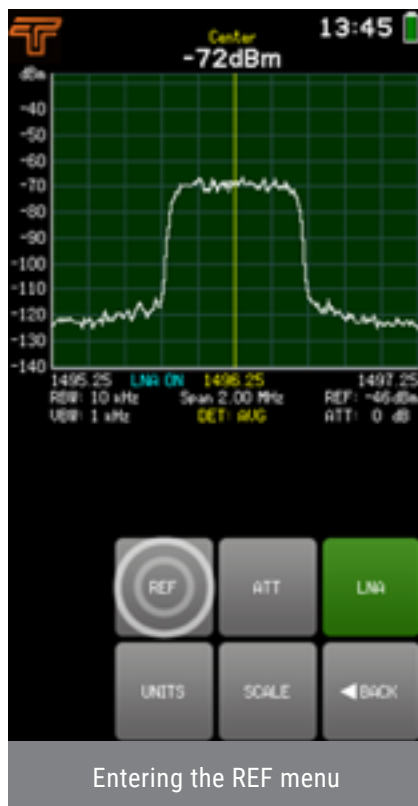
The reference level indicates the maximum input power level that Airscout Spectrum can display without distortions. By adjusting it, the usable input power range is tuned: higher reference level allows viewing stronger signals, lower reference level has lower noise floor thus allows viewing weaker signals.

The reference level is also raised by turning off the LNA and increasing the attenuation – either by increasing internal attenuation (Main screen → LEVEL → ATT) or by adding external attenuators and then correcting the displayed levels with an offset (Main screen → LEVEL → SCALE).



The displayed input power range is automatically adjusted for different reference levels to ensure optimal use of display, but it can be manually changed at the SCALE menu.

To exit the REF submenu and return to the LEVEL menu, tap BACK.



2.7.2 ATT*

The ATT submenu allows selecting the internal attenuators. Current internal attenuation is displayed at this menu and on the right side under the graph. Any additional attenuation raises the noise floor but allows to input stronger signals (i.e. raises the reference level).

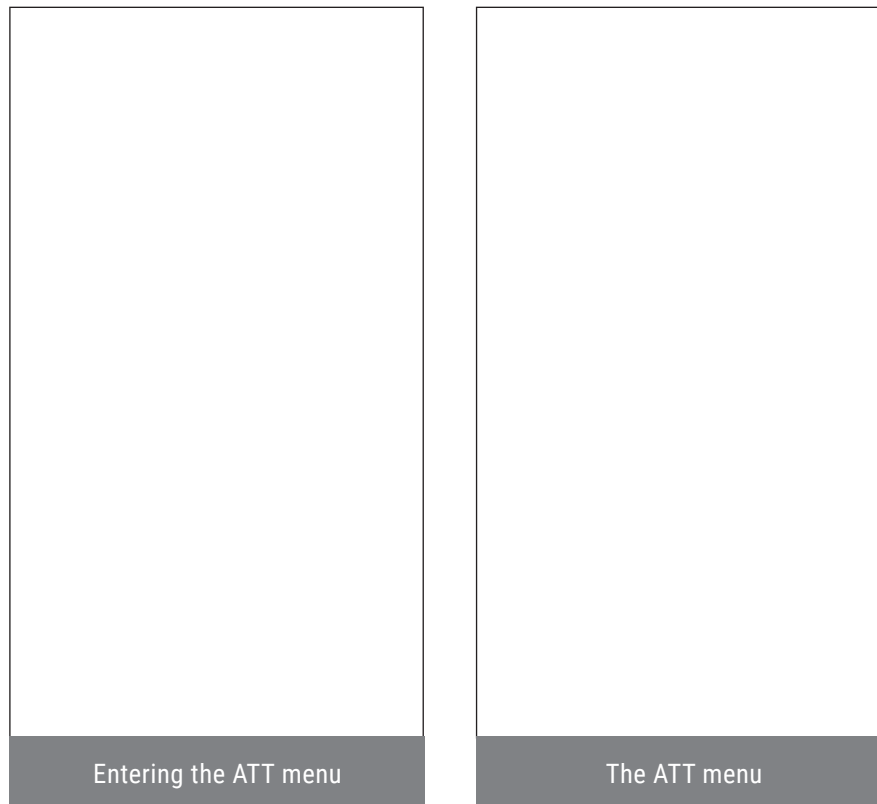
To exit the ATT submenu and return to the LEVEL menu, tap BACK.

The internal attenuation is 0 by default.

Internal attenuation steps *Table4*

0.3-3 GHz						
0 dB	5 dB	10 dB	15 dB	20 dB	25 dB	30 dB
2-8 GHz						
0 dB	6 dB 1	0 dB	16 dB	20 dB	26 dB 3	0 dB

* Only Airscout Spectrum 0.3-3 GHz, 2-8 GHz



2.7.1 LNA*

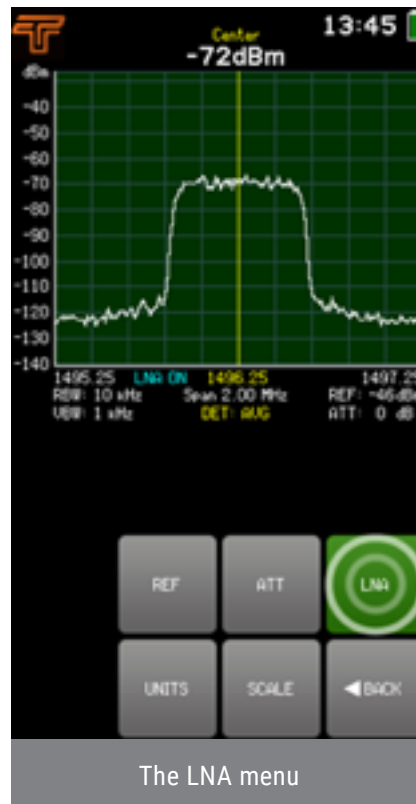
Tapping the LNA button turns on and off the “Low Noise Amplification”. LNA lowers the noise floor and allows viewing very weak signals but the reference (overload) level is considerably lowered.

* Only Airscout Spectrum 0.3-3 GHz, 2-8 GHz

When LNA is enabled, the LNA button is **green** and an indication is displayed under the graph. LNA is disabled by default.



To get the best results with the LNA, set internal attenuation ATT to zero and lower reference level at the REF menu.



The LNA menu

2.7.4 Units

The UNITS submenu allows changing the displayed units of the spectrum analyzer. There are 6 logarithmic units available.

Power units:

- **dBm (the default units) – decibels referenced to one milliwatt**
- **dBuW – decibels referenced to one microwatt**

Voltage units:

- **dBmV – decibels referenced to one millivolt**
- **dBuV – decibels referenced to one microvolt**

Current units:

- **dBmA – decibels referenced to one milliampere**
- **dBuA – decibels referenced to one microampere**

The input power values are converted for the vertical axis, reference level REF indication, and for Center, MARKER, and POWER IN BAND readouts.



Only the displayed units on the Airscout Spectrum are changed, the power values are still detected and stored in dBm.

• dBuV/m

The “dBuV/m” submenu allows placing a special marker, which shows the electric field strength at the specified frequency in decibels referenced to one microvolt per meter. The electric field strength is calculated from the detected input power level value at the specified frequency.



“dBuV/m” marker is not compatible with the regular MARKER and POWER IN BAND and with non-default units – the input power values for the vertical axis and reference level REF indication will be displayed in dBm.

The parameters required for the calculation are:

- **gain of the receiver antenna GAIN, in dBi;**
- **the MARKER frequency;**
- **(optional) LOSSES value to account for any known additional losses e.g. cables, rain, obstacles, in dB.**

The currently selected parameter (GAIN/ MARKER/ LOSSES) is displayed in white. To select a different parameter, tap on it once. The color of the keypad buttons shows which numbers can be entered at the current digit position to obtain a valid parameter value – the numbers on the **green** buttons can be entered, the numbers on the **red** buttons cannot be entered. If the currently entered value is valid, it is displayed in **green** (also OK button is **green**). If the value is not valid, it is displayed in **red** (also OK button is **red**). To confirm a valid value, tap the OK button or tap the selected parameter's box.

The frequency value can be entered with a precision of 0.01 MHz (10 kHz) by using the “.” on the keypad. To input a value with decimal digits, first enter the full MHz's, then tap the “.” button and enter the rest of the digits. Until the value is confirmed, the digits after the point are displayed larger. If there are no digits displayed after the point, it means that they are zeroes.



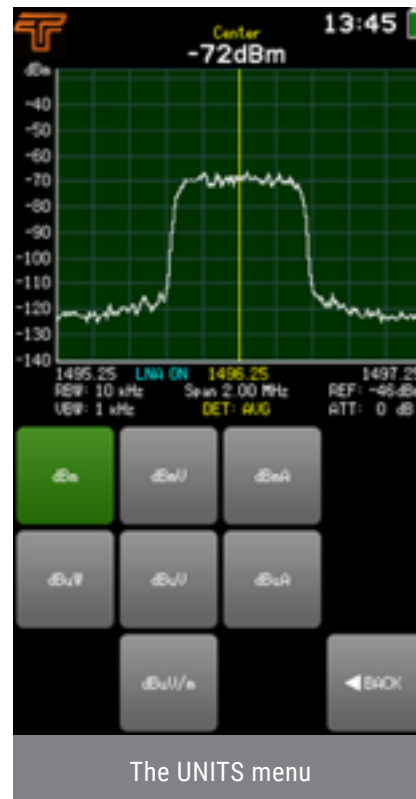
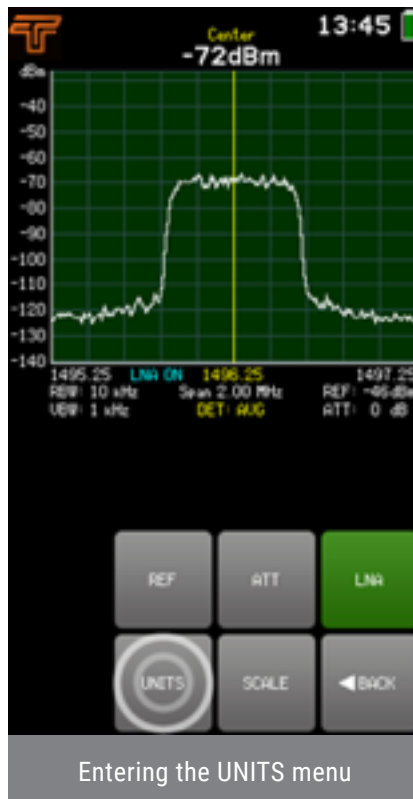
While in the dBuV/m menu, tapping the graph will place the dBuV/m marker there. dBuV/m marker can be moved also by dragging it.

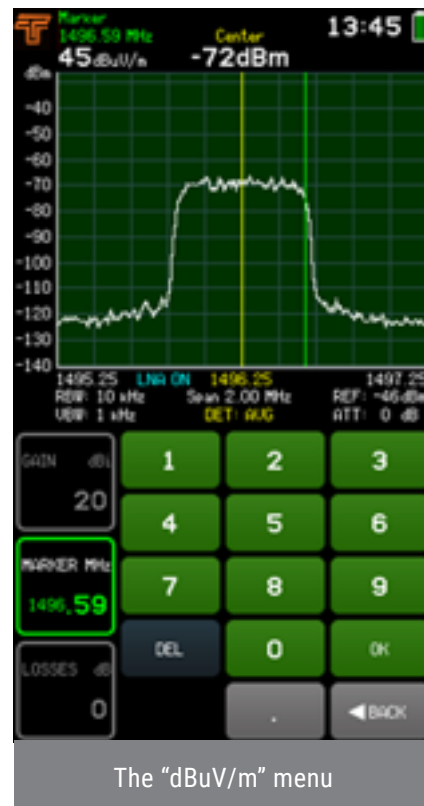
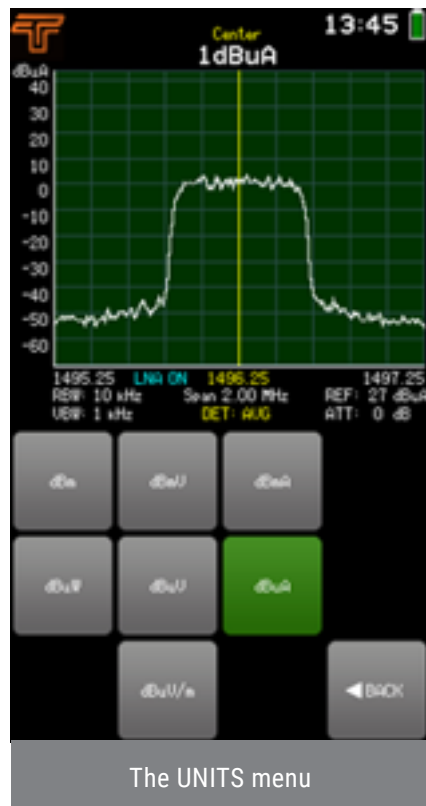


If the dBuV/m marker frequency is outside of the currently displayed frequency range, arrows on the graph will indicate beyond which side of the graph the marker is positioned.

To exit the “dBuV/m” submenu, tap BACK. When “dBuV/m” is enabled, the button is **green** at the UNITS submenu. Tapping the “dBuV/m” button when it is active, disables the “dBuV/m” marker.

To exit the UNITS submenu and return to the LEVEL menu, tap BACK.





SCALE menu is available only for default units "dBm". Adjust the scale before selecting non-default

2.7.5 Scale

The SCALE menu allows selecting the MAX (highest limit of the vertical axis) and MIN (lowest limit of the vertical axis) values of the displayed input power range in dBm, and an input power level OFFSET value (e.g. if an external attenuator is being used) in decibels dB.



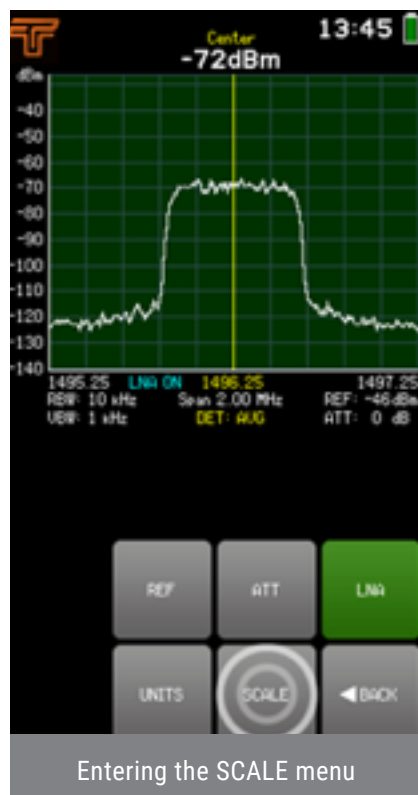
SCALE menu is only available for default units “dBm”. See [UNITS](#).



While at the SCALE menu, tapping the upper part of the graph decreases the displayed input power range (zooms in), and tapping the lower part of the graph increases the displayed input power range (zooms out). If the input power range allows it, sliding the graph up or down modifies the MAX and MIN values by equal amounts.

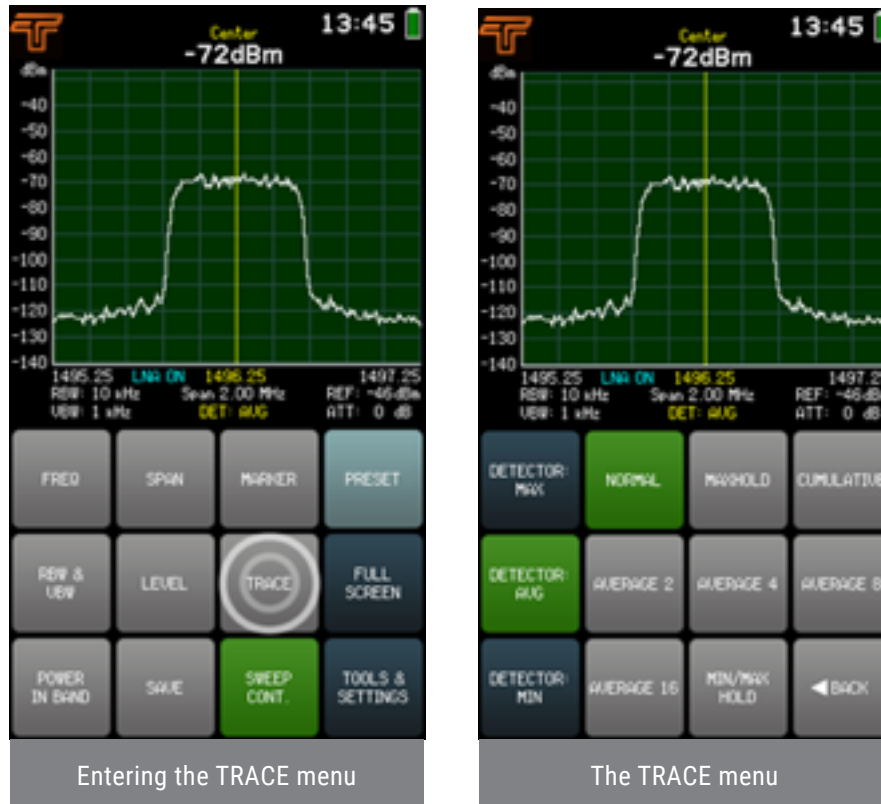
The currently selected parameter (MAX/ MIN/ OFFSET) is displayed in white. To select a different parameter, tap on it once. The color of the keypad buttons shows which numbers can be entered at the current digit position to obtain a valid parameter value – the numbers on the **green** buttons can be entered, the numbers on the **red** buttons cannot be entered. If the currently entered value is valid, it is displayed in **green** (also OK button is **green**). If the value is not valid, it is displayed in **red** (also OK button is **red**). To confirm a valid value, tap the OK button or tap the selected parameter’ box.

To exit SCALE menu and return to the LEVEL menu, tap BACK.



2.8 Trace

The TRACE menu allows adjusting the swept spectrum curve by selecting the most suitable DETECTOR and trace type.



Entering the TRACE menu

The TRACE menu

The DETECTOR determines which of the detected input power levels are displayed on the screen since the Airscout Spectrum does several measurements of the same frequency range during each sweep. The available detectors are:

- **DETECTOR: AVG**
Displays the averaged value over the values detected (the default detector).
- **DETECTOR: MAX**
Displays the highest detected input power level values.
- **DETECTOR: MIN**
Displays the lowest detected input power level values.



For most accurate power measurements AVG detector is recommended. If utilizing the MAX or MIN detector, please note that a narrower VBW must be used (see [RBW & VBW](#)). In case the manually selected VBW is too wide for the current RBW, there is a warning displayed on the screen, VBW indication under the graph is **red** and the indication "UNCAL" is put under the battery symbol.

The currently used detector is indicated in **yellow** under the graph.



The available trace types are:

- **NORMAL**

Normal trace mode (the default trace mode). The power level values after the detector are displayed on the screen in real-time without additional processing.

- **MAXHOLD**

Shows in blue the highest power levels registered since the sweeping with this trace mode commenced, additional to the NORMAL (actual real-time) trace. The number in blue under the graph shows how many sweeps the MAXHOLD trace has been plotted. The input power value on center frequency is displayed for the blue MAXHOLD trace. If MARKER is activated with MAXHOLD trace mode, the input power value is shown with larger digits for the NORMAL trace and with smaller digits for the blue MAXHOLD trace. If POWER IN BAND is activated with MAXHOLD trace mode, the input power value is shown with larger digits for the NORMAL trace and with smaller digits for the blue MAXHOLD trace.



When a spectrum curve is saved with MAXHOLD trace mode, only the MAXHOLD trace is preserved.



Use MAXHOLD trace mode for antenna adjustments. It can also be used to detect intermittent signals or to measure the maximum power of fluctuating signals.

• CUMULATIVE

Shows in green all detected input power levels in range since the sweeping with this trace mode began. The number in green under the graph shows how many sweeps the CUMULATIVE trace has been plotted.



CUMULATIVE trace shows how the signal energy is divided within the spectrum.



MARKER, POWER IN BAND, FULL SCREEN, RECORD, and MASK MODE are not available for CUMULATIVE trace mode. CUMULATIVE traces cannot be set as masks.

• AVERAGE 2/4/8/16

The displayed trace is an average over the last two, four, eight, or sixteen sweeps. The number in cyan below the graph indicates how many sweeps the trace is averaged.



AVERAGE trace mode is used to smooth out the noise effects which helps to stabilize the input power level reading.

• MIN/MAXHOLD

Shows in blue the highest and in green the lowest power levels registered since the sweeping with this trace mode commenced, additional to the NORMAL (actual real-time) trace. The number in blue under the graph shows how many sweeps the MIN/MAXHOLD trace has been plotted. When a spectrum curve is saved, all three traces are preserved. The input power value on center frequency is displayed for the green MINHOLD trace. If MARKER is activated with MAXHOLD trace mode, the input power value is shown with larger digits for the NORMAL trace and with smaller digits for the blue MAXHOLD and green MINHOLD traces. If POWER IN BAND is activated with MAXHOLD trace mode, the input power value is shown with larger digits for the NORMAL trace and with smaller digits for the blue MAXHOLD and green MINHOLD traces.



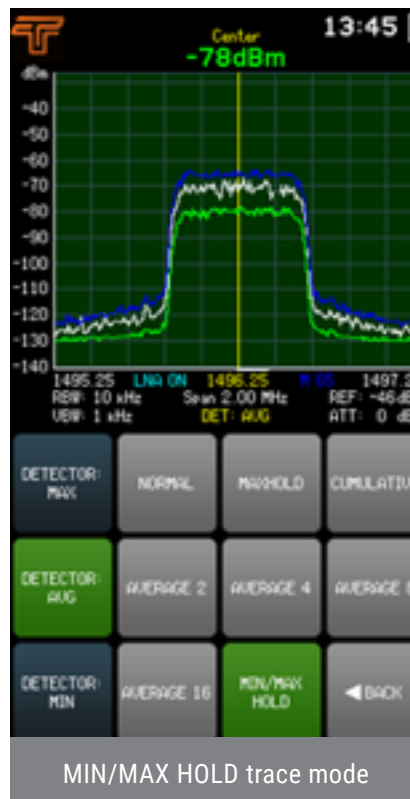
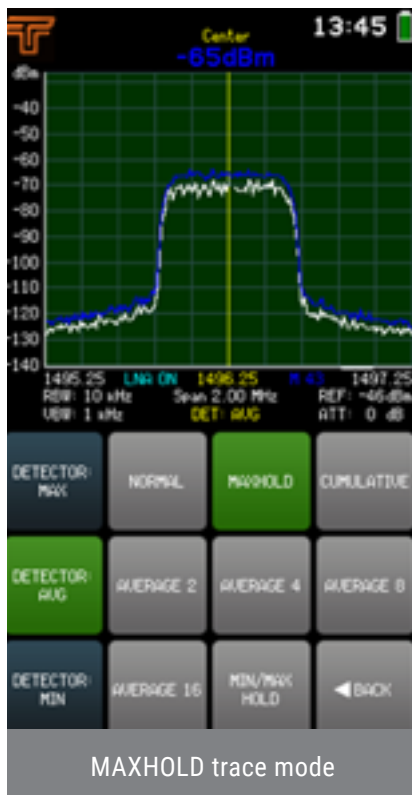
MIN/MAXHOLD trace mode shows which signals are intermittent and what their maximum and minimum input power levels are.



MASK MODE and RECORD are not available for MIN/MAXHOLD trace mode. Record using NORMAL or AVERAGE trace mode and use SHOW MIN/MAX (see RECORD). If a MIN/MAXHOLD trace is set as a mask, the MAXHOLD trace is used.

For the maximum allowed SPAN for MIN/MAXHOLD trace please see Table3

To exit the TRACE menu and return to the main screen, tap BACK.



2.9 Power In Band

The POWER IN BAND menu allows measuring the input power in a specified bandwidth BW i.e. over a range of frequencies, with a center frequency CENTER specified at this menu.



POWER IN BAND feature also can be used to measure the channel width or channel separation by adjusting the BW to fit.



MARKER and POWER IN BAND cannot be activated both at the same time.

Tapping the SET TO CENTER button centers POWER IN BAND on the CENTER frequency of the currently selected SPAN.



To increase the accuracy of input power level measurements, select DETECTOR: AVG and one of the AVERAGE traces at the TRACE menu.

The currently selected parameter (BW/ CENTER) is displayed in white. The color of the keypad buttons shows which numbers can be entered at the current digit position to obtain a valid parameter value – the numbers on the green buttons can be entered, the numbers on the red buttons cannot be entered. If the currently entered value is valid, it is displayed in green (also OK button is green). If the value is not valid, it is displayed in red (also OK button is red). To confirm a valid value, tap the OK button or tap the selected parameter's box.



The BW of POWER IN BAND cannot be narrower than the currently selected RBW (see RBW & VBW).

The frequency value can be entered with a precision of 0.01 MHz (10 kHz) by using the "." on the keypad. To input a value with decimal digits, first enter the full MHz's, then tap the "." button and enter the rest of the digits. Until the value is confirmed, the digits after the point are displayed larger. If there are no digits displayed after the point, it means that they are zeroes.

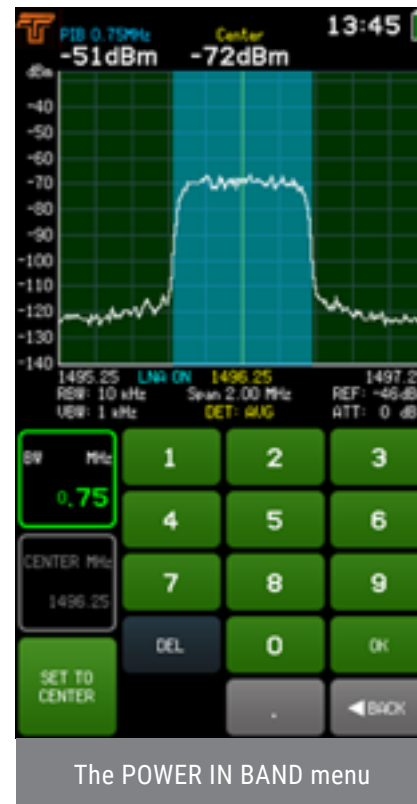
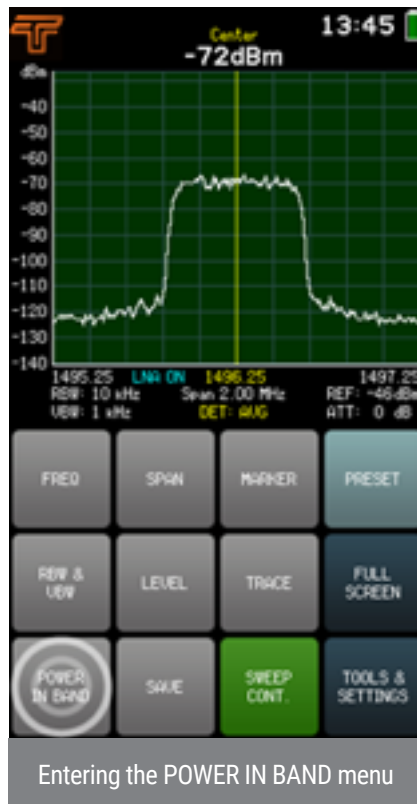


While in the POWER IN BAND menu, tapping the graph will place the POWER IN BAND area there. POWER IN BAND area can be moved also by dragging it.



If the POWER IN BAND area frequency is outside of the currently displayed frequency range, arrows on the graph will indicate beyond which side of the graph the POWER IN BAND area is positioned.

To exit the POWER IN BAND menu and return to the main screen, tap BACK. When POWER IN BAND is enabled, the POWER IN BAND button is green on the main screen. Tapping the POWER IN BAND button when it is active, disables the POWER IN BAND. POWER IN BAND is disabled by default.



2.10 Save

Tapping the SAVE button instantly saves the spectrum curve with an automatically generated file name: the first letter indicates the trace mode ("C" corresponds to NORMAL, "M" to MAXHOLD, "W" to CUMULATIVE, "A" to AVERAGE 2/4/8/16 and "N" to MIN/MAXHOLD) and the remaining digits are the file order number.



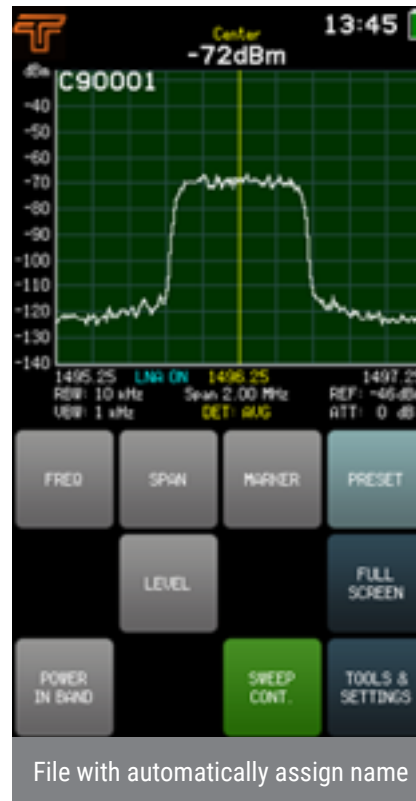
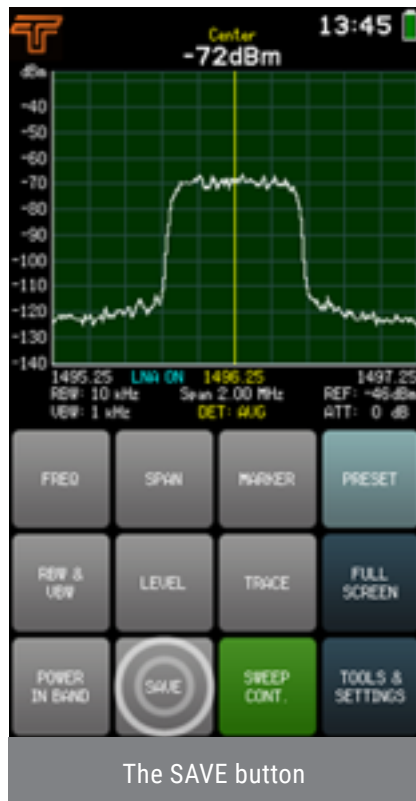
SAVE button is not available if at least one full sweep has not been done with the current sweep settings.

Holding the SAVE button for a few seconds allows saving the current spectrum curve with a custom file name. The name can be up to 8 characters long.



To increWhen assigning a custom file name, it is checked whether the name does not match with an already existing one. In that case, it is not possible to confirm.

When saving, the continuous sweep is stopped and the saved curve is displayed on the graph, with the assigned filename in the upper left corner. To close the file and resume real-time sweep, tap SWEEP CONT. If no buttons are pressed, the real-time sweep is automatically resumed after 3 seconds. The saved spectrum curves can be reviewed at any time at [TOOLS & SETTINGS](#) → [FILES](#).



2.11 Preset

The PRESET menu allows resetting the Airscout Spectrum to the factory defaults.

To confirm tap the PRESET button once more. Reboot the Airscout Spectrum.



Use PRESET to quickly default settings and clear enabled features.
Use PROFILES to save a configuration before using PRESET and to restore it afterwards.

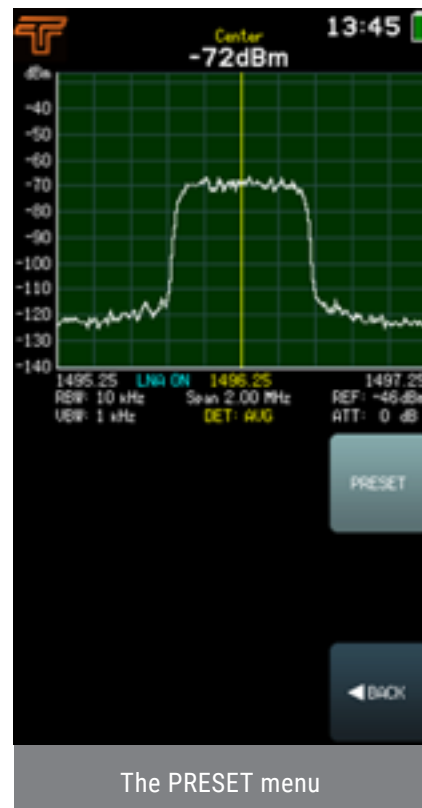
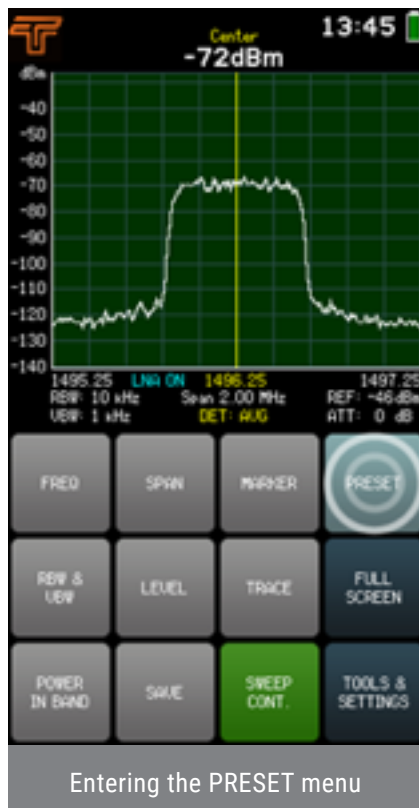


PRESET will not format the internal storage disk of the Airscout Spectrum.



PRESET and a reboot is mandatory after a firmware upgrade.

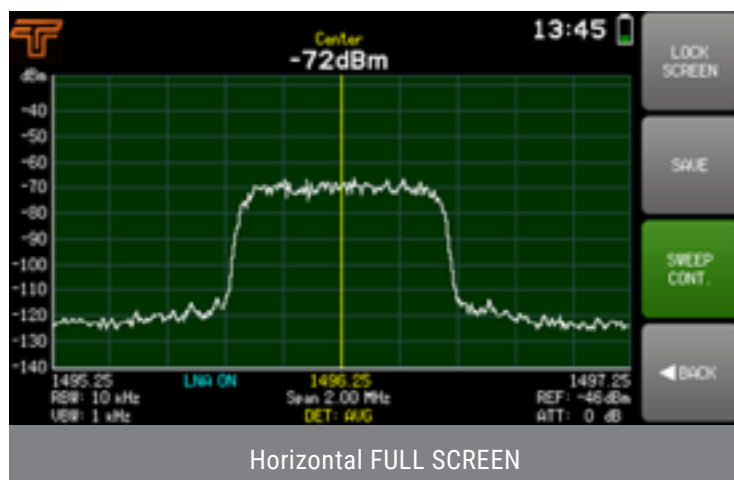
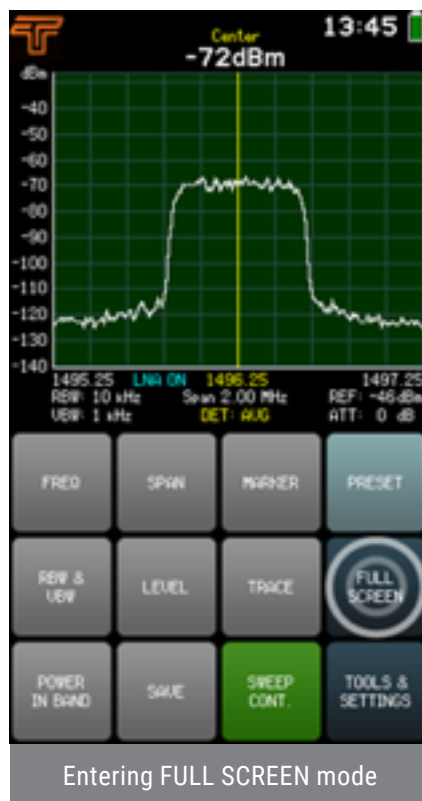
To exit the PRESET menu and return to the TOOLS menu tap BACK.



2.12 Full Screen

Tapping the FULL SCREEN button expands the graph. In FULL SCREEN mode, there are only buttons LOCK SCREEN, SAVE, and SWEEP CONT. accessible.

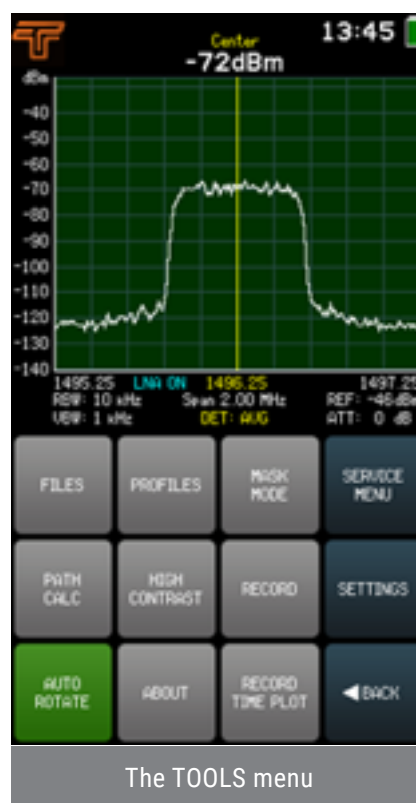
The LOCK SCREEN button allows locking the screen of the Airscout Spectrum so that no button on the screen can be accidentally pressed and the graph stays as it is configured. The screen is unlocked by shortly pressing the power button. To exit the FULL SCREEN mode and return to the main screen, tap BACK.



2.13 Tools

Additional functions of the spectrum analyzer are accessible at the TOOLS menu. To access the TOOLS menu, tap the TOOLS & SETTINGS button from the main screen.

To exit the TOOLS menu and return to the main screen, tap BACK.



2.13.1 Files

The FILES menu allows operating with previously saved spectrum curves.

Files are sorted by the time they were created and the latest file is on top of the list. The time when the spectrum curve was saved and its trace mode is given under the filename. Navigate the files using the arrows or the slider. Tap on the file to select it – the selected spectrum curve will be previewed at once. To get more options, tap OPEN. Then the main screen with the selected file on screen is opened. From the main screen, the displayed input power range and frequency range can be adjusted (zooming in on the frequency axis could be done, if the file was saved with SPAN greater than MIN SPAN for the file's RBW), and the MARKER or POWER IN BAND can be enabled or adjusted. Also, a mask can be enabled from the TOOLS & SETTINGS menu (see [MASK MODE](#)).

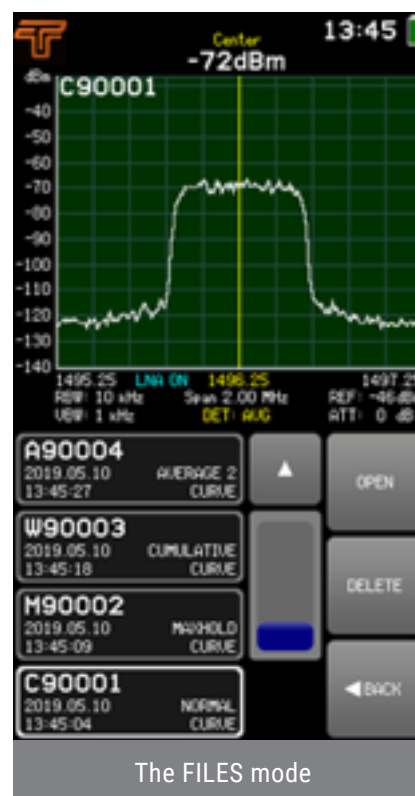


SPAN, LEVEL, MARKER, and POWER IN BAND menus are not available for spectrum curves saved with CUMULATIVE trace mode.

To close the file and resume the real-time sweep, tap SWEEP CONT. To view a different file go to FILES menu again.

A saved spectrum curve can be deleted with DELETE from the FILES menu or from the folder "CURVES" when Airscout Spectrum is connected to a computer.

To exit the FILES menu and return to the TOOLS menu, tap BACK.



2.13.2 Profiles

The PROFILES menu allows saving and afterwards restoring Airscout Spectrum's configuration – frequency, level, trace and screen settings, a mask, etc.

To save the current configuration as a profile, tap SAVE PROFILE. The profile name can be up to 8 characters long.

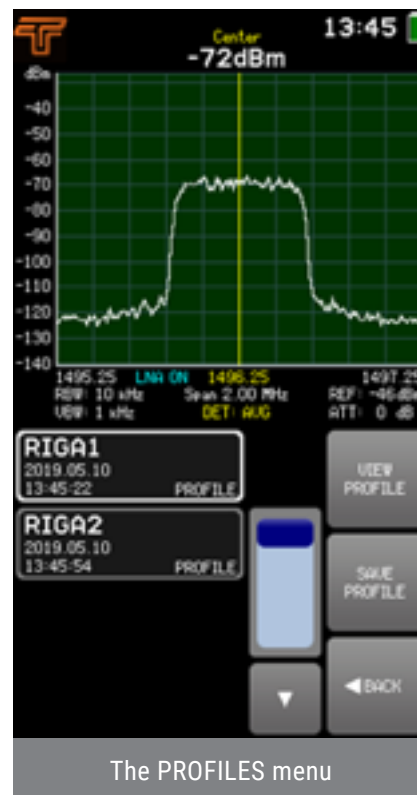


When assigning a custom file name, it is checked whether the name does not match with an already existing one. In that case, it is not possible to confirm it.

Profiles are sorted alphabetically. The time when the profile was created is given under the filename. Navigate the saved profiles list using the arrows or the slider. To preview a saved profile, tap on it to select it, then tap VIEW PROFILE. Restore a profile by tapping the SET PROFILE button.



To see how the current spectrum looks with a selected profile, make sure the SWEEP CONT. button is active on the main screen.



2.13.3 Mask Mode

The MASK MODE menu allows setting a file as a spectrum mask and thus visually comparing the currently displayed spectrum curve with another one.

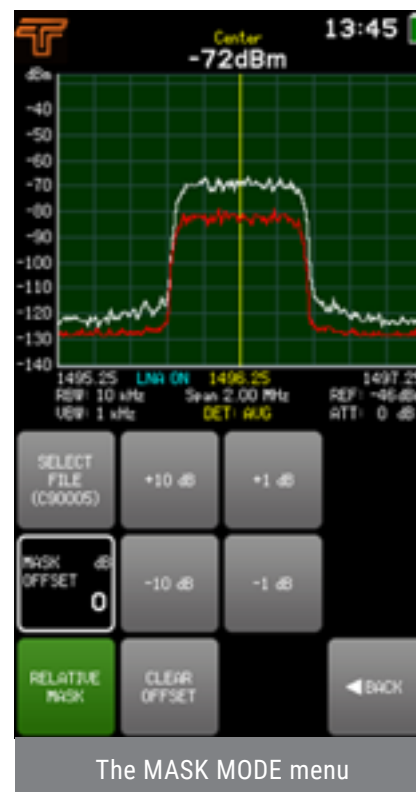
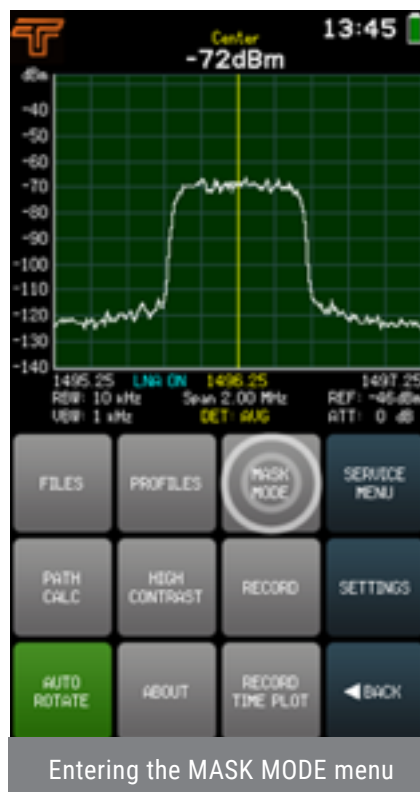


MASK MODE is not available for CUMULATIVE and MIN/MAXHOLD trace modes. CUMULATIVE traces cannot be used as masks.

The MAXHOLD trace is set as a mask from a MIN/MAXHOLD file.

To enter the file system, tap SELECT FILE. Navigate the files using arrows or the slider, tap on the file to select it, and then tap the SET AS MASK button (to exit the SELECT FILE submenu without selecting a mask, tap BACK). This selected mask curve is put on the graph and it is displayed in red. Tapping the RELATIVE MASK button turns on and off centering of the mask. If the RELATIVE MASK button is active (green), the mask is centered on the current CENTER frequency. If the RELATIVE MASK button is inactive, the spectrum curve used as the mask is positioned in its actual frequency range with which it was saved. The vertical position of the mask – the MASK OFFSET – can be adjusted upwards or downwards in 1 dB steps by using the buttons. To quickly set the MASK OFFSET to 0, tap CLEAR OFFSET. MASK OFFSET is 0 by default i.e. the vertical position of the curve used for the mask is as it was when the file was saved.

To exit the MASK MODE menu and return to the TOOLS menu, tap BACK. When MASK MODE is activated, the MASK MODE button is green at the TOOLS menu. Tapping the MASK MODE button when it is active disables the MASK MODE. MASK MODE is disabled by default.



2.13.4 Path Calc

The PATH CALC menu allows evaluating received signal level (RSL) in dBm. The calculator is adapted for the 300 – 3000 MHz frequency range in the Airscout Spectrum 0.3-3 GHz, for the 2000 – 8000 MHz in the Airscout Spectrum 2-8 GHz, for the 24000 – 40000 MHz in the Airscout Spectrum 24-40 GHz.



The calculated value is an estimation. For more credible results, use a professional link planning tool.

The parameters required for the calculation are:

- **transmitter frequency** **FREQ**, in MHz;
- **transmitter power** **TX PWR**, in dBm;
- **distance between the transmitter and receiver** **DIST**, either in kilometers or miles;
- **gain of the transmitter antenna** **GAIN 1**, in dBi;
- **gain of the receiver antenna** **GAIN 2**, in dBi;
- **(optional) LOSSES** value to account for any known additional losses e.g. cables, rain, obstacles, in dB.

The RX LEVEL is recalculated instantly when a parameter's value is modified.

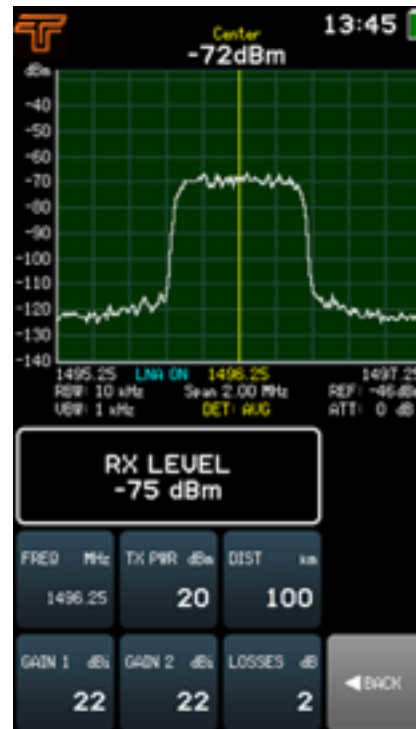
To select a parameter, tap on it once. The color of the keypad buttons shows which numbers can be entered at the current digit position to obtain a valid parameter value – the numbers on the **green** buttons can be entered, the numbers on the **red** buttons cannot be entered. If the currently entered value is valid, it is displayed in **green** (also OK button is **green**). If the value is not valid, it is displayed in **red** (also OK button is **red**). To confirm a valid value, tap the OK button or tap the selected parameter's box. If the currently selected parameter is already correct, next/previous parameter can be selected by using the arrow buttons.

The frequency value can be entered with a precision of 0.01 MHz (10 kHz) by using the "." on the keypad. To input a value with decimal digits, first enter the full MHz's, then tap the "." button and enter the rest of the digits. Until the value is confirmed, the digits after the point are displayed larger. If there are no digits displayed after the point, it means that they are zeroes.

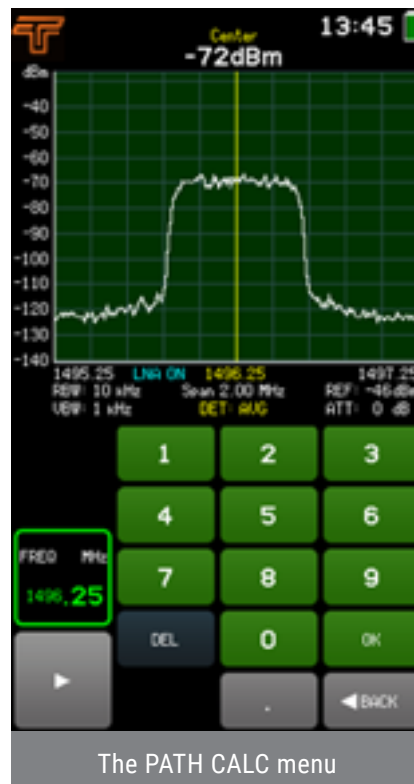
To exit the parameter submenus, tap BACK. To exit the PATH CALC menu and return to the TOOLS menu, tap BACK.



Entering the PATH CALC menu



The PATH CALC menu

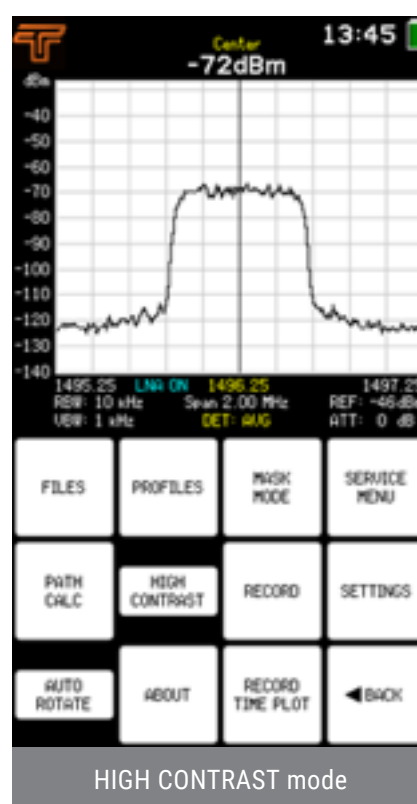
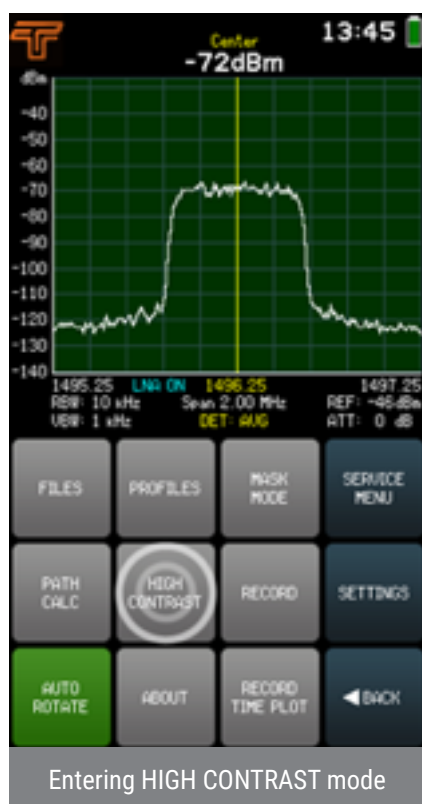


The PATH CALC menu

2.13.5 High Contrast

Tapping the HIGH CONTRAST button swaps the interface color scheme and sets screen background brightness to maximum. HIGH CONTRAST mode is designed to improve visibility in direct sunlight. In HIGH CONTRAST mode, the active buttons are indicated by a narrower shape instead of green color.

To exit the HIGH CONTRAST mode, tap the HIGH CONTRAST button again.



2.13.6 Record

The RECORD menu allows creating a record of a continuous spectrum sweep.

To start a new record with the currently selected sweep settings, tap NEW RECORD (NEW RECORD button turns on continuous sweep). The filename is assigned automatically, but it can be changed afterwards when the file is open with the button RENAME RECORD. The maximum length of a record is 30 minutes. If the recording is not manually stopped earlier either by tapping the NEW RECORD button again (thus disabling it) or by tapping the OPEN RECORD or BACK buttons, a new consequent record will be started automatically.



Airscout Spectrum can be left at a site with NEW RECORD button active and the created records can be examined later. While charging with the supplied power source, Airscout Spectrum can record files continuously.



NEW RECORD is not available for CUMULATIVE trace mode.

NEW RECORD is not available for MAXHOLD and MIN/MAXHOLD trace modes (use button SHOW MIN/MAX LEVELS to see the final maximum and minimum input power values for a NORMAL or AVERAGE 2/4/8/16 trace modes instead).

Records are sorted by the time they were created and the latest record is on top of the list. The start time of the record and the number of frames (sweeps) recorded is given under the filename. Navigate the records list by using the slider and the arrows. To view a record, tap on it to select it, then tap OPEN RECORD. The displayed frame's number and the number of frames recorded altogether are indicated under the slider. Also, the time how long before the end of the recording the displayed frame was captured is indicated in brackets under the slider. By tapping PLAY the playback is started from the currently displayed frame. The frame can be selected using the slider and the arrows. The record can be played back also in FULL SCREEN mode. The MIN/MAX LEVELS button allows seeing the highest and lowest input power levels detected during the recording. The trace in the currently displayed frame can be saved as a separate spectrum curve with the button SAVE CURVE.



If the SHOW MIN/MAX LEVELS button is active (green), the curve saved from the record will be a MIN/MAXHOLD curve with all 3 traces.

From the submenu MORE OPTIONS the displayed input power range and frequency range can be adjusted (zooming in on the frequency axis could be done, if the record was done with SPAN greater than MIN SPAN for file's RBW), and the MARKER or POWER IN BAND can be enabled or adjusted. Also, a mask can be enabled. To exit the MORE OPTIONS submenu, tap BACK.

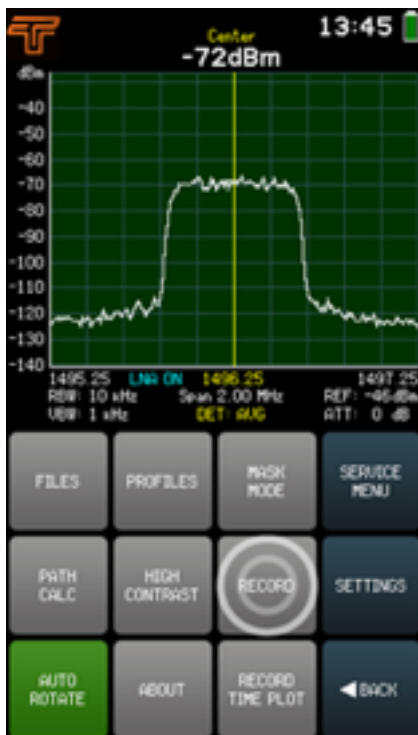
A record can be deleted with DELETE RECORD or from the folder "RECORDS", when Airscout Spectrum is connected to a computer.

Tapping the OPEN TIME PLOT button opens the record with a different visualization, see [RECORD TIME PLOT](#). To then return back to regular visualization, tap the button RECORD OPTIONS.

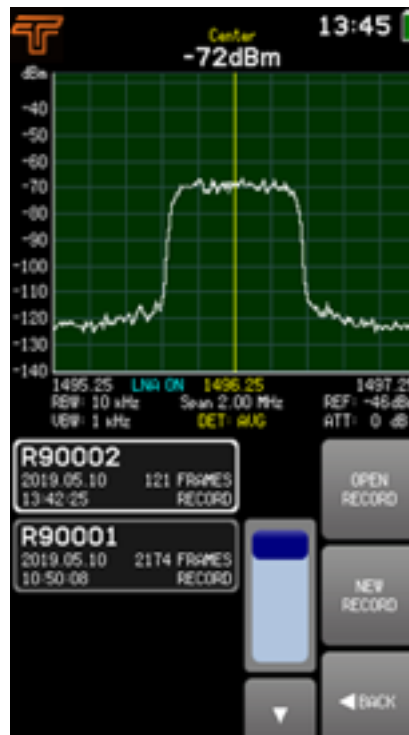


If deleting a record manually from the "RECORDS" folder (when Airscout Spectrum is connected to a computer), delete also the time plot file – it has the same filename as the record file that has the extension ".RSC".

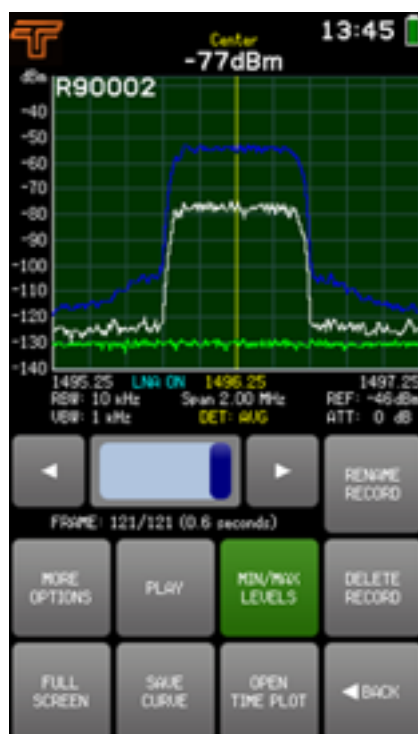
To close the record and exit the OPEN RECORD submenu, tap BACK. To exit the RECORD menu and return to the TOOLS menu tap BACK.



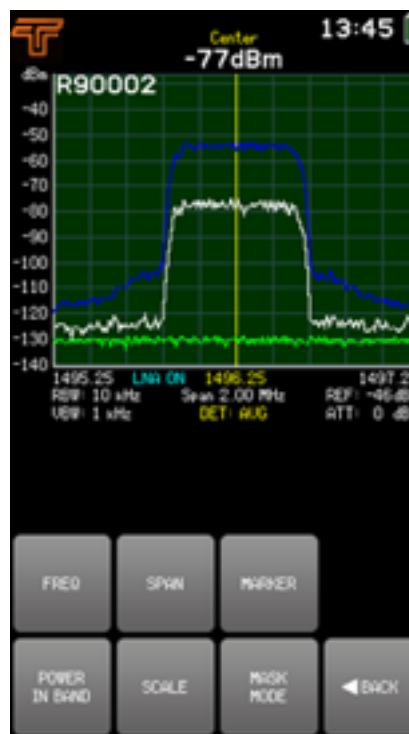
Entering the RECORD menu



The RECORD menu



The OPEN RECORD submenu



The MORE OPTIONS submenu

2.13.7 Record Time Plot

The RECORD TIME PLOT menu allows visualizing the detected power values over time during a record. The vertical axis is transformed into a time axis – the bottommost row of a time plot corresponds to the newest sweep and the uppermost row corresponds to the first recorded sweep. Input power levels are indicated with different colors. The color legend is displayed above the graph.



The color legend is generated based on the currently selected MAX (highest limit of the vertical axis) and MIN (lowest limit of the vertical axis) values of the displayed input power range. Adjust them at the SCALE menu before starting a new record.



TIME PLOT is not applicable for MAXHOLD, MIN/MAXHOLD and CUMULATIVE trace modes, thus NEW RECORD button is not available when these trace modes are selected.

To start a new record with the currently selected sweep settings, tap NEW RECORD (NEW RECORD button turns on continuous sweep). The filename is assigned automatically, but it can be changed afterwards when the file is open with the button RENAME RECORD. The maximum length of a record is 30 minutes. If the recording is not manually stopped earlier either by tapping the NEW RECORD button again (thus disabling it) or by tapping the OPEN TIME PLOT or BACK buttons, a new consequent record will be started automatically.



Airscout Spectrum can be left at a site with NEW RECORD button active and the created records can be examined later. While charging with the supplied power source, Airscout Spectrum can record files continuously.

Records are sorted by the time they were created and the latest record is on top of the list. The start time of the record and the number of frames (sweeps) recorded is given under the filename. Navigate the records list by using the slider and the arrows. To view a record using the time plot visualization, tap on it to select it, then tap OPEN TIME PLOT. Tap on the upper part of the graph to view older sweeps that go beyond the currently displayed plot. Tap on the bottom part of the graph to get back to newer sweeps.

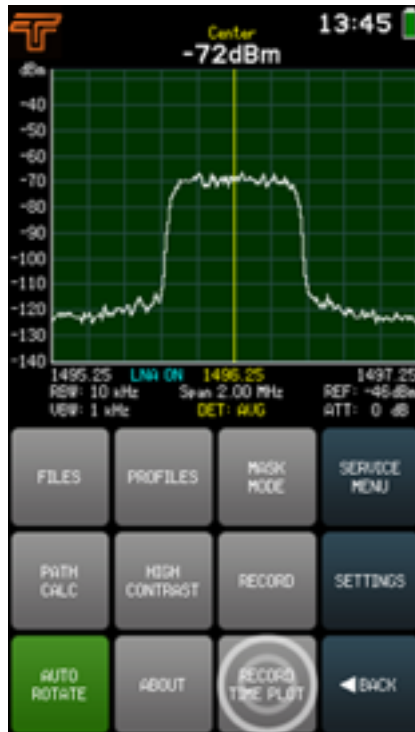
Tapping the RECORD OPTIONS button opens the record with the regular visualization, see [RECORD](#). To then return to the time plot visualization, tap the button OPEN TIME PLOT.

A record can be deleted with DELETE RECORD or from the folder "RECORDS", when Airscout Spectrum is connected to a computer.



If deleting a record manually from the "RECORDS" folder (when Airscout Spectrum is connected to a computer), delete also the time plot file – it has the same filename as the record file that has the extension ".RSC".

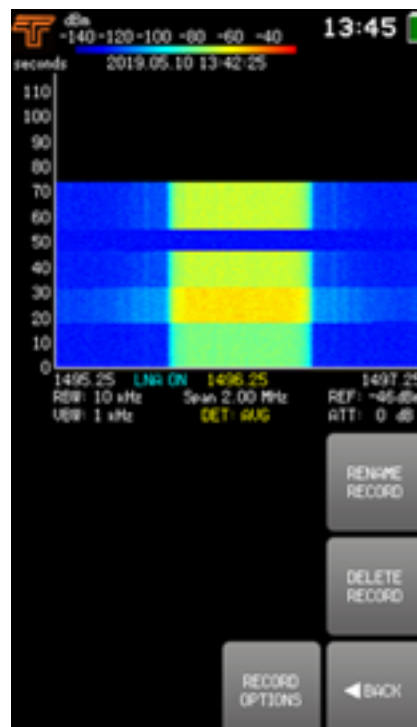
To exit the OPEN TIME PLOT submenu, tap BACK. To exit the RECORD TIME PLOT menu and return to the TOOLS menu, tap BACK.



Entering RECORD TIME PLOT menu



The RECORD TIME PLOT menu

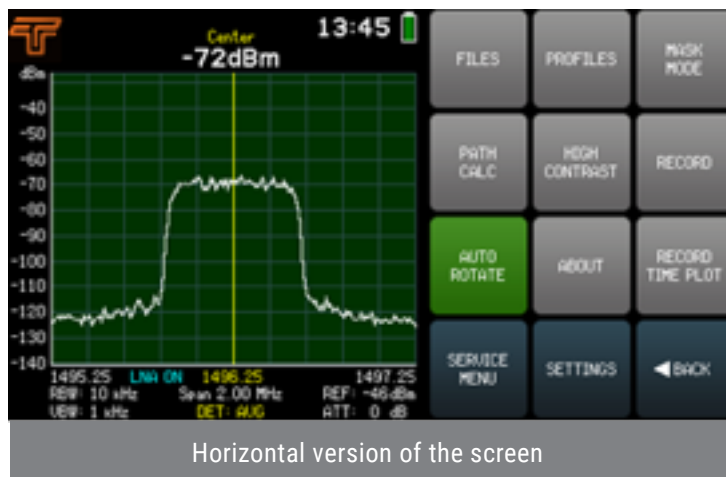
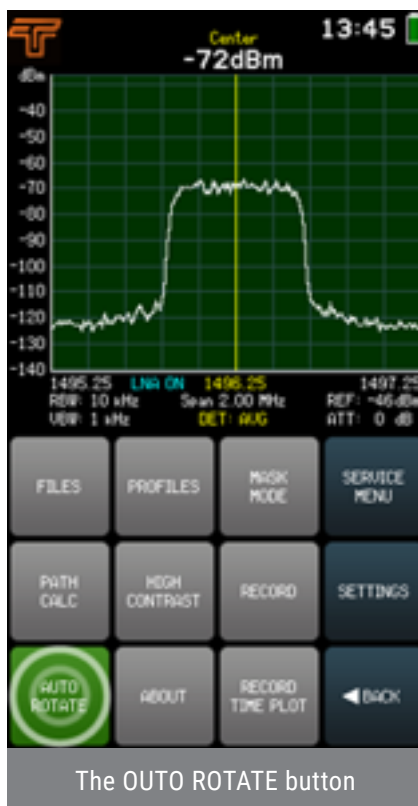


The OPEN TIME PLOT submenu

2.13.8 Auto Rotate

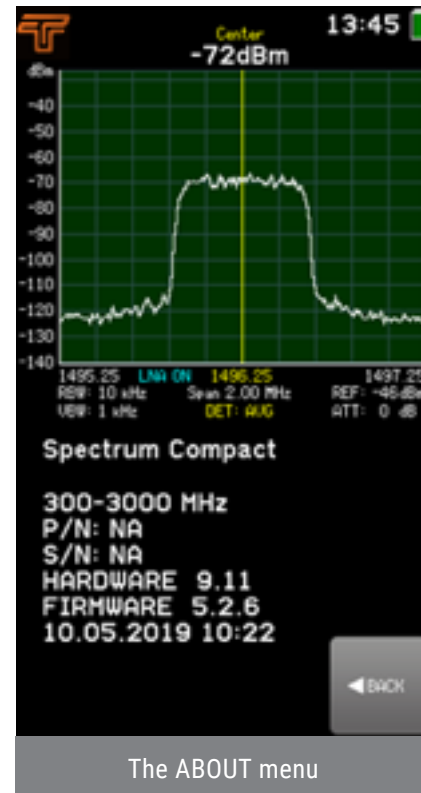
Tapping the AUTO ROTATE button turns on and off the automatic rotation of the screen if the device is turned by 90, 180, or 270 degrees.

When AUTO ROTATE is enabled, the button is green. Disabling the AUTO ROTATE locks the screen position as it is at that moment. AUTO ROTATE is enabled by default.



2.13.9 About

The ABOUT menu contains information about the Airscout Spectrum unit: supported frequency range, product number, serial number, hardware version, and firmware version with its date. To exit the ABOUT menu and return to the TOOLS menu, tap BACK.



2.13.10 Service Menu

SERVICE MENU allows determining how the Airscout Spectrum behaves when connected to a computer.

• DISABLE CHARGING

Tapping the DISABLE CHARGING button disables the current draw from a power source, e.g., a laptop computer. It is still possible to sweep the spectrum or work with files but only the Airscout Spectrum's battery power is used.

When DISABLE CHARGING is enabled, the button is green. To allow charging the device, disable the button by tapping it again. DISABLE CHARGING is automatically deactivated when the device is turned off.

• USB MODE

The submenu USB MODE allows setting the Airscout Spectrum to either Mass Storage Device (MSD) mode or to Virtual COM Port (VCP) mode. The MSD mode allows obtaining files saved on the Airscout Spectrum.



When Airscout Spectrum is connected to a computer in MSD mode, it is not possible to save, rename or delete spectrum curves, records, and profiles, or to take screenshots on the device.

The VCP mode allows opening a serial connection with the computer and accessing CLI.

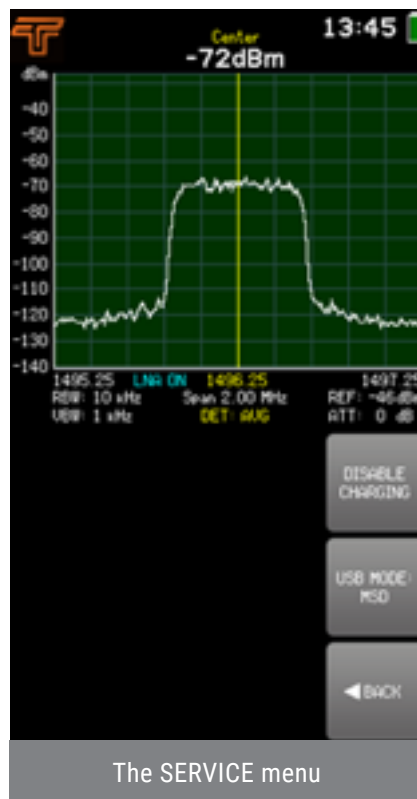


Before changing the USB mode from MSD to VCP, stop any ongoing file transfer to or from Airscout Spectrum and close files opened directly from Airscout Spectrum's drive.

To exit the SERVICE MENU tap BACK.



Entering the SERVICE menu



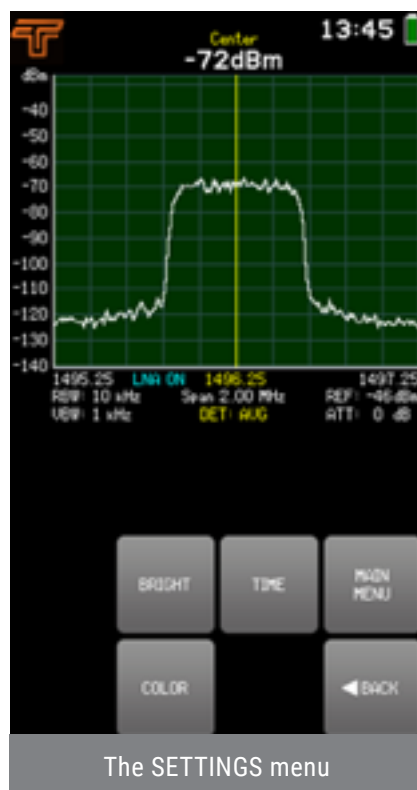
The SERVICE menu

2.14 Settings

All the other settings of the spectrum analyzer are accessible from the SETTINGS menu. To access the SETTING menu, from the main screen go to TOOLS & SETTINGS → SETTINGS. To exit the SETTINGS menu and return to the TOOLS menu, tap BACK. To return to the main screen, tap MAIN MENU.



Entering the SETTINGS menu



The SETTINGS menu

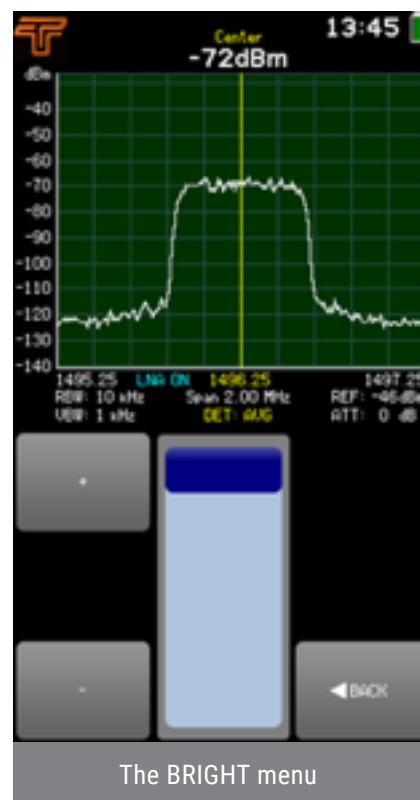
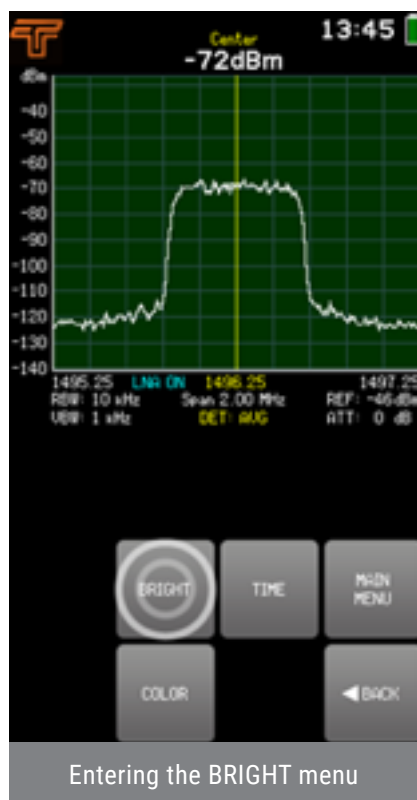
2.14.1 Bright

The BRIGHT menu allows setting the background brightness of the screen.

Tapping the "+" button or moving the slider up, increases the brightness, tapping the "-" button or moving the slider down, decreases the brightness. To exit the BRIGHT menu and return to the SETTINGS menu, tap BACK.



Enabling HIGH CONTRAST mode automatically sets the brightness to maximum.



2.14.2 Time

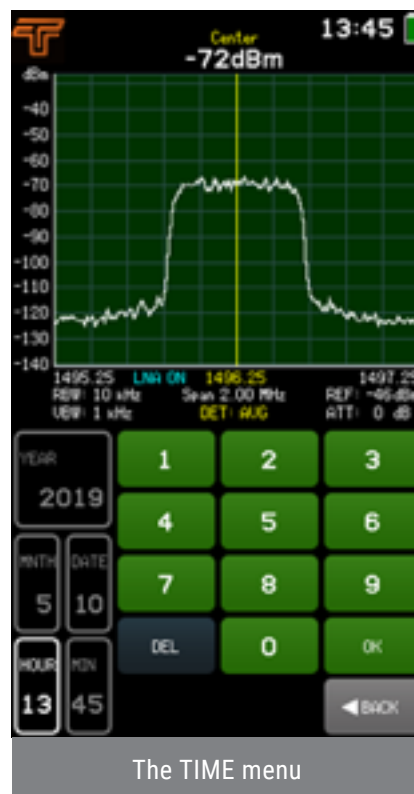
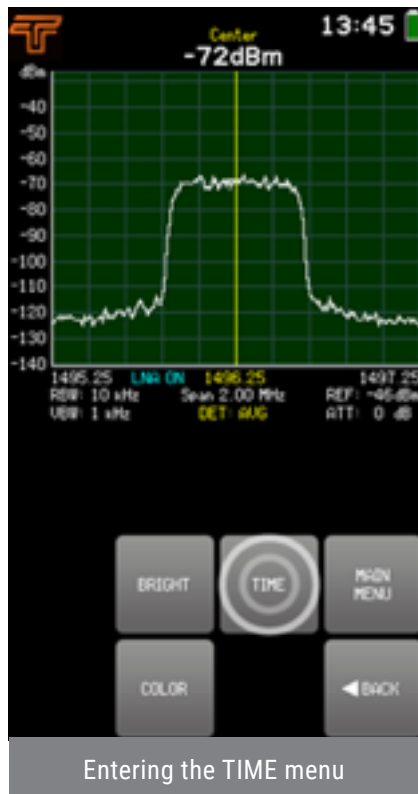
The TIME menu allows setting the time/date format of the Airscout Spectrum.

The currently selected parameter (YEAR/ MONTH/ DATE/ HOUR/ MIN) is displayed in white. To select a different parameter, tap on it once. The color of the keypad buttons shows which numbers can be entered at the current digit position to obtain a valid value – the numbers on the **green** buttons can be entered, the numbers on the **red** buttons cannot be entered. If the currently entered value is valid, it is displayed in **green** (also OK button is **green**). If the value is not valid, it is displayed in **red** (also OK button is **red**). To confirm a valid value, tap the OK button or tap the selected parameter's box.



If the battery of Airscout Spectrum was fully discharged or removed and the clock was stopped, before using the analyzer there is a prompt to set time to ensure the correct timestamp for files.

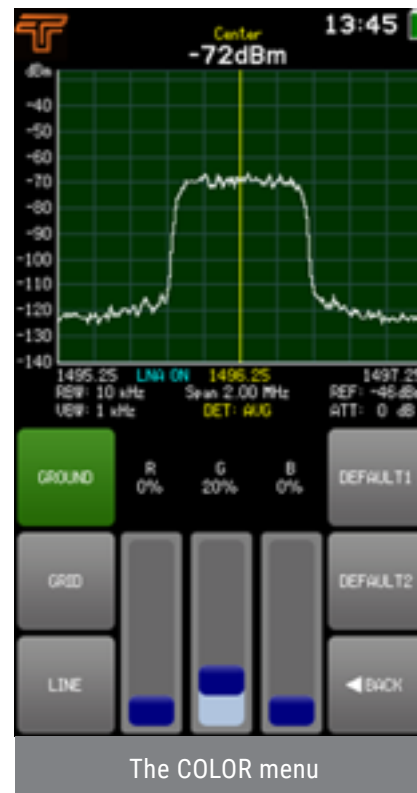
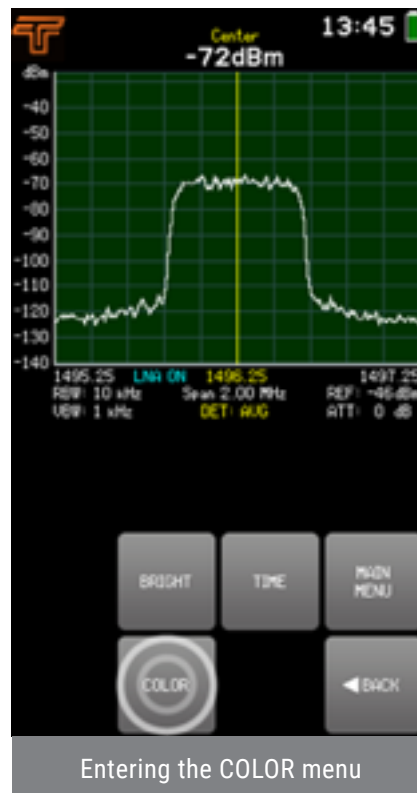
To exit the TIME menu and return to the SETTINGS menu, tap BACK.



2.14.3 Color

The COLOR menu allows setting a custom color scheme for the graph.

Tap the button GROUND, GRID, or LINE to set the color for the background, the grid, or the spectrum curve (NORMAL and AVERAGE traces), respectively. The color is defined by moving the sliders for red (R), green (G), and blue (B) channels. To restore the default color scheme, tap DEFAULT. To exit the COLOR menu and return to the SETTINGS menu, tap BACK.



2.14.4 Signal ID

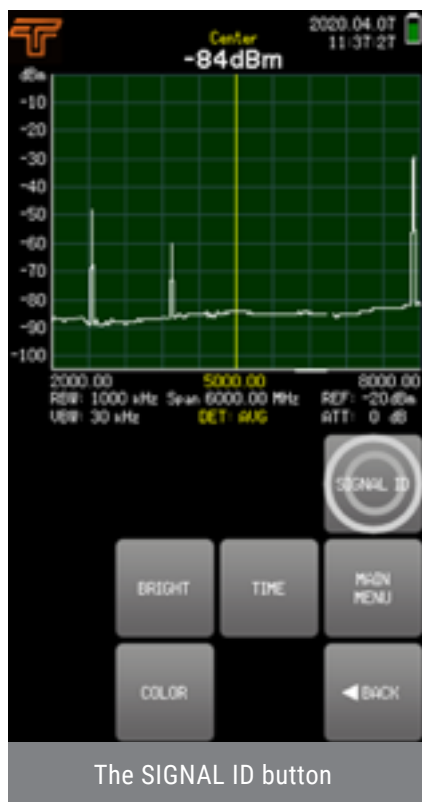


SIGNAL ID is available for all Airscout Spectrum models on which is possible to set-up 1 MHz RBW. These Airscout Spectrum models are: 2-8 GHz, 24-40 GHz

Tapping the SIGNAL ID button turns on and off a filter algorithm that reduces the power levels of the harmonic signals. These artificial signals may become visible on screen if the input power is high and the span is comparatively large.

Enabling the SIGNAL ID slows down the sweeping. To observe the operation of SIGNAL ID, enable and disable it repeatedly and compare the displayed power levels.

When SIGNAL ID is enabled, the SIGNAL ID button is green in the SETTINGS menu and an indication "ID" is shown under the graph slightly to the right of the center. SIGNAL ID is disabled by default.



2.15 Firmware Upgrade



Make sure that the firmware file is for the correct Airscout Spectrum product! Also please avoid downgrading to older firmware versions!

1. Turn Airscout Spectrum on.
2. From the main screen tap **TOOLS & SETTINGS**, then tap **SERVICE MENU**. Tap **USB MODE**.
3. If the USB mode is already set to **MASS STORAGE DEVICE**, do nothing. If the USB mode is set to **VIRTUAL COM PORT**, set it to **MASS STORAGE DEVICE** by tapping **OK**. (Alternatively, from the main menu tap **PRESET** once and then again.)
4. Connect the device to a computer.
5. Copy both – the firmware file (with extension “.fw”) and the initialization file (with the extension “.ini”).
6. Open the Airscout Spectrum drive and paste the two files into the **FIRMWARE** folder.
7. Turn Airscout Spectrum off and back on. The text “**FIRMWARE UPGRADE**” should be shown.
8. From the main screen tap **TOOLS & SETTINGS**, then tap the **PRESET** button. Confirm by tapping once more.
9. Turn Airscout Spectrum off and back on.
10. Check the firmware version by tapping **TOOLS & SETTINGS** and then **ABOUT**.



PRESET restores Airscout Spectrum’s configuration to factory defaults. To preserve the current configuration, before tapping **PRESET**, save it as a **PROFILE**, and after the firmware upgrade process restore it.

2.16 Realtime Mode with AirScout Spectrum Manager

To use Airscout Spectrum with AirScout Spectrum Manager in Realtime mode, follow these steps:

1. Turn Airscout Spectrum on.
2. From the main screen tap **TOOLS & SETTINGS**, then tap **SERVICE MENU**. Tap **USB MODE**.
3. If the USB mode is already set to **VIRTUAL COM PORT**, do nothing. If the USB mode is set to **MASS STORAGE DEVICE**, set it to **VIRTUAL COM PORT** by tapping **OK**.
4. Connect the device to a PC with installed AirScout Spectrum Manager software.
5. Launch AirScout Spectrum Manager.
6. Either select "Start Realtime" (if there is only one Airscout Spectrum device connected to the PC) or wait for the AirScout Spectrum Manager to detect all connected devices and then choose the desired one from a drop-down list. The real-time sweep should be now shown on the graph. See AirScout Spectrum Manager user manual for further details.

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