



User manual

Spectrum Compact

VER 1.7 (FW V3.31)

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.

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

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To get up to date information about accessories and their availability, please contact sales representative.

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1 OVERVIEW

1.1 Front view



Spectrum Compact is an ultra-light and easy to use measurement solution. It operates in a frequency range of 2 - 40 GHz. Designed specifically for comfortable outdoor use, this battery-powered device is a must-have tool for any microwave radio engineer performing actual installation of the link or gathering data for site planning purposes. Built-in LCD touchscreen ensures smooth and intuitive on-site use of the spectrum analyser, which can be connected directly to any antenna via SMA connector. The industry leading sensitivity of Spectrum Compact makes it possible to detect existing interference paths and available radio channels with extra high precision, which also helps to avoid accidental side-lobe alignment of an antenna. Data logging is used for enhanced data processing and analysis via SAF designed PC software.

1.2 Technical specifications

P/N	JOSSAP10	JOSSAP11	JOSSAP12	JOSSAP13
Frequency bands	2.4/2.5/3.6/4.9/ 5/6/7/8 GHz	6/7/8/10/11 GHz	10/11/13/15/17 GHz	17/18/23/24 GHz
Frequency range	2.000-8.000 GHz	5.925-12.000 GHz	10.000-18.000 GHz	17.000-24.300 GHz
Input power range	-105 dBm to -40 dBm			
Max input power	0 dBm			
RBW (Resolution bandwidth)	1 MHz			
Span	100 MHz to full bandwidth			
Sweep speed	0.5 s @ 100 MHz span			
Guaranteed accuracy	+/- 3 dB			
Input	50 ohm SMA (f)			
Interface	mini USB 2.0 (1.1)			
LED indication	when charging			
Battery	2380 mAh Polymer Lithium-ion			
Battery life	up to 4 h			
Operating temperature	-15°C to +55°C/ 5°F to 131°F			
Dimensions	128x81x24 mm/ 5.04x3.2x0.94 in			
Weight	0.3 kg/ 10.6 oz			

P/N	JOSSAP14
Frequency bands	24/26/30/32/38 GHz
Frequency range	24.000-40.000 GHz
Input power range	-100 dBm to -40 dBm
Max input power	0 dBm
RBW (Resolution bandwidth)	1 MHz
Span	100 MHz to full bandwidth
Sweep speed	0.5 s @ 100 MHz span
Guaranteed accuracy	+/- 3 dB
Input	50 ohm 2.92 mm (f)
Interface	mini USB 2.0 (1.1)
LED indication	when charging
Battery	2 x 2380 mAh Polymer Lithium-ion
Battery life	up to 3 h
Operating temperature	-15°C to +55°C/ 5°F to 131°F
Dimensions	130x81x28 mm/ 5.11x3.2x1.1 in
Weight	0.4 kg/ 14.11 oz

1.3 Unpacking

Before opening, please inspect the package for any visible damage.

The following accessories are available:



- 1 – AC/DC USB charger with USB cable (P/N J0AB4505i1);
- 2 – Leather bag for Spectrum Compact (P/N J0APAC11);
- 3 – Attenuators 20/40dB or 60dB kit;
- 4 – Watertight, crush and dust proof case for Spectrum Compact (P/N J0SPAC03);
- 5 – Rugged RF cable, SMA-SMA/2.92mm-2.92mm, 0.3 m (J0ACRF02);
- 6 – Waveguide adapter UBR to SMA:
 - P/N J0S07WA004: UBR84 to SMA, 5.9–10.0 GHz, WR112;
 - P/N J0S10WA003: UBR100 to SMA, 8.2–12 GHz, WR90;
 - P/N J0S15WA003: UBR140 to SMA, 12–17 GHz, WR62;
 - P/N J0S22WA003: UBR220 to SMA, 17–24.3 GHz, WR42;
 - P/N J0S26WA001: UBR260 to 2.92, 22–33 GHz, WR34;
 - P/N J0S38WA001: UBR320 to 2.92, 26–40 GHz, WR28.
- 7 – Riflescope, tripod and case for sniffer antennas (P/N J0AASA01, J0AASA02, J0AASA03);
- 8 – Horn antennas:
 - P/N J0AA0610HG02: SMA connector, 6.0–11.0 GHz, Gain: 14.5–18.0dBi;
 - P/N J0AA1115HG01: UBR120 flange; 10.7–15.35 GHz, Gain: 19.5–20.5dBi;
 - P/N J0AA1724HG01: UBR220 flange; 17.0–24.5 GHz, Gain: 21.0–21.5dBi;
 - P/N J0AA2640HG03: 2.92mm connector; 26.5–40.5 GHz, Gain: 20.5–21.5dBi.
- 9 – Lanyard (P/N J0APAC21).

1.4 Initial power-up

Slide power switch towards the red dot (●) to power on your Spectrum Compact. If the battery meter is indicating **LOW BATTERY**, connect USB charger via USB connector and charge the Spectrum Compact. Full charging cycle (with 1A power source) is approximately 5 hours for P/N J0SSAP11/J0SSAP12/J0SSAP13 and 8-10 hours for P/N J0SSAP14.

Operation time with a fully charged battery is up to 4 hours for P/N J0SSAP11/J0SSAP12/J0SSAP13 and up to 3 hours for P/N J0SSAP14. Using a Spectrum Compact while charging it via USB will prolong its operation time by approximately 1 hour, but it can't ensure continuous operation.

1.5 Connecting to antenna

- 1) Connect an appropriate 50 Ω coaxial cable to SMA or 2.92mm connector (antenna port).
- 2) Attach waveguide-to-coaxial converter to an antenna or radio flange.
- 3) Attach the coaxial cable to the waveguide-to coaxial converter.



If Spectrum Compact is attached directly to a radio, add a 60dB attenuator to the coaxial cable (if measurements will be done with an input signal above -20dBm) and enter the correct offset value in *TOOLS*→*LEVEL*→*OFFSET*.

Exceeding the critical input signal level (0dBm) may cause irreversible damage to the equipment.



Initially perform scan at maximum (default) span to detect overload presence. Apply appropriate attenuation if detected.



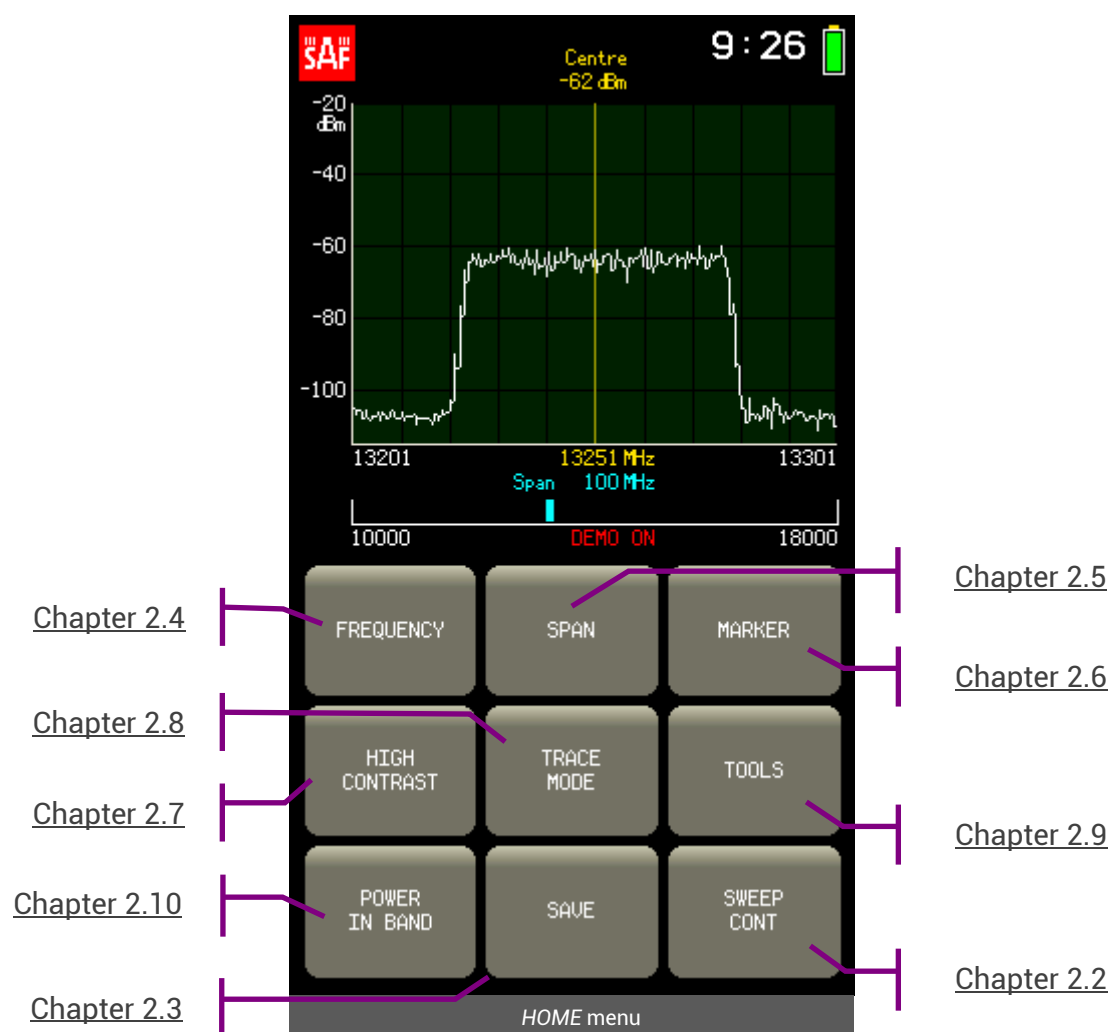
In order not to affect operation of scannable equipment do not scan operating frequencies when directly connected to a coupling port.



2 USING SPECTRUM COMPACT

2.1 Main display

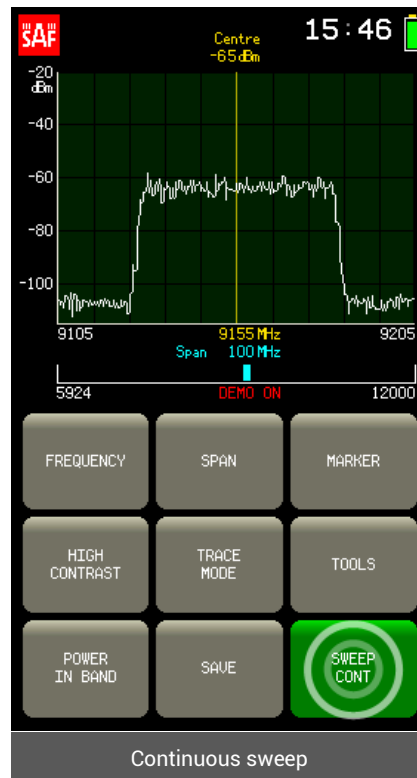
The display is mapped on a grid, where the horizontal axis has 10 divisions and the vertical – 4 ½ divisions. The horizontal axis represents a linear frequency scale that increases from left to right. The vertical axis represents a logarithmic power scale that increases from bottom to top.



2.2 SWEEP CONT button

SWEEP CONT state determines whether Spectrum Compact measures continuously (*SWEEP CONT* button is displayed in **green**) or once (*SWEEP CONT* button is displayed in **dark yellow**). Tapping the *SWEEP CONT* button will switch between continuous and single sweep modes.

Continuous sweep mode is active by default.



Use single sweep mode to conserve battery power or if you plan to save or analyse a specific measurement.

2.3 SAVE button

Pressing the *SAVE* button instantly saves the visible spectrum in a separate spectrum curve file. The list of saved spectrum curve files can be reviewed in the *TOOLS* → *FILES* submenu.

Saving the spectrum stops an ongoing continuous sweep. In order to resume the continuous sweep, tap the *SWEEP CONT* button.

2.4 FREQUENCY menu

The frequency selection menu allows setting a *CENTRE* frequency (centre of X axis), *START* frequency (left limit of X axis) and *STOP* frequency (right limit of X axis) in megahertz (MHz).

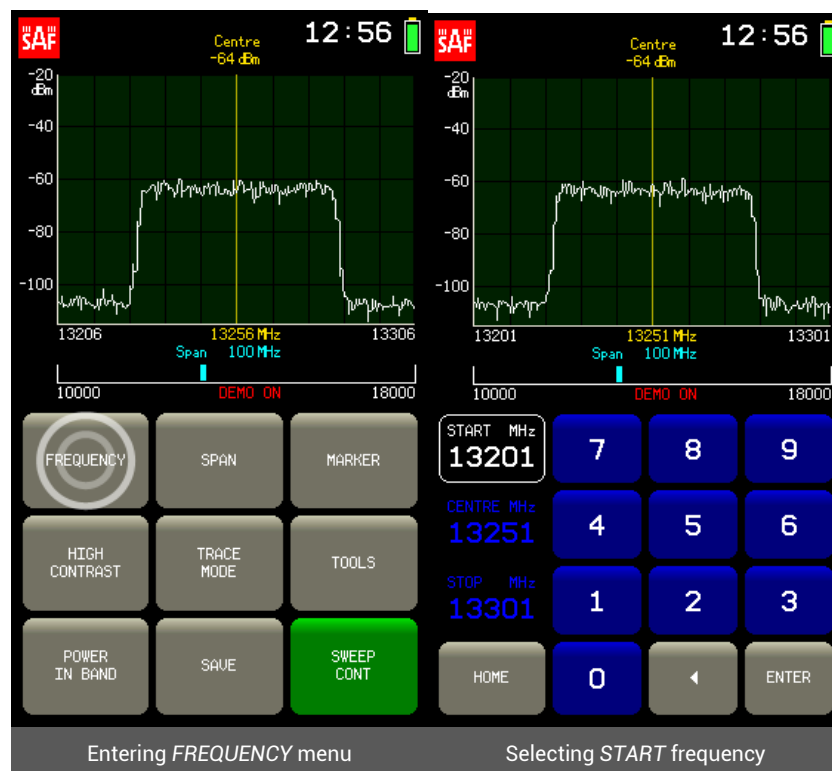
Modifying any of the *START/CENTRE/STOP* frequencies preserves the current frequency *SPAN* if possible. Therefore any frequency change will alter all three frequencies (*START/CENTRE/STOP*).

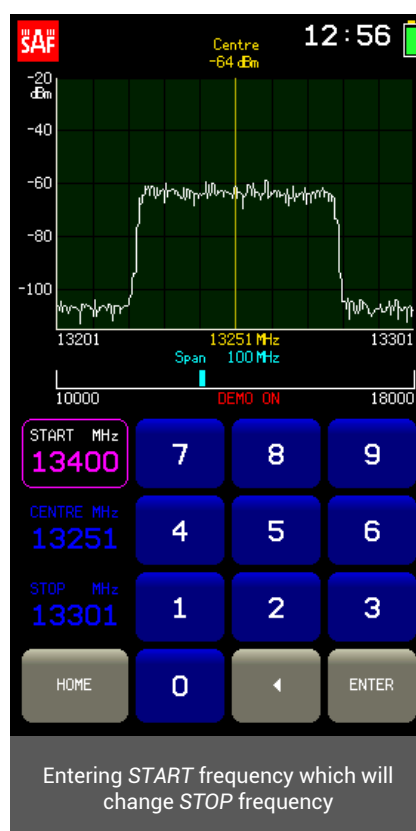
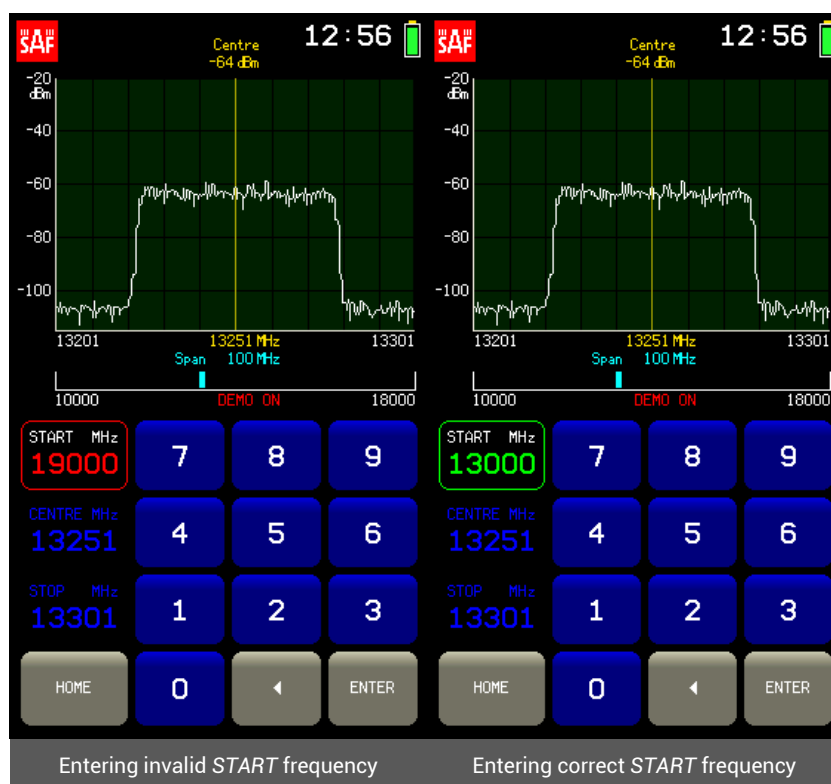
If it is not possible to preserve the frequency *SPAN* due to the limits of the supported frequency range (depending on Spectrum Compact model – 2000...8000, 5925...12000, 10000...18000, 17000...24300 or 24000...40000 MHz), frequency *SPAN* is changed in accordance with the modified frequencies.

The selected frequency is displayed in white. Unselected frequencies are displayed in blue. An incorrectly entered value is displayed in red. If an entered *START* frequency would change the *STOP* frequency and vice versa, and if an entered *CENTRE* frequency would affect the current frequency *SPAN*, its value is displayed in pink. See screenshots below.

You can confirm an entered value by tapping the *ENTER* button or by tapping the entered value.

RF input level of a *CENTRE* frequency is displayed in yellow above the grid.





In *FREQUENCY* or *HOME* screens you can tap left or right on the spectrum graph to move the frequency left or right.

2.5 SPAN menu

SPAN menu allows defining a frequency *SPAN* (range of X axis - difference between *STOP* and *START* frequencies) in megahertz (MHz).

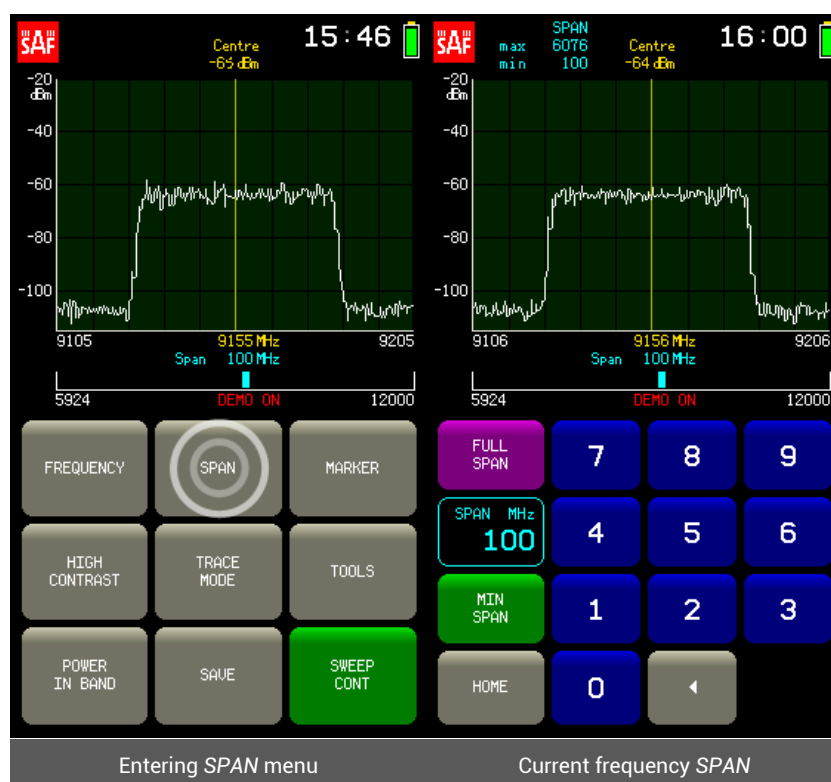
Modifying a frequency *SPAN* preserves the chosen *CENTRE* frequency if possible, but alters *START* and *STOP* frequencies.

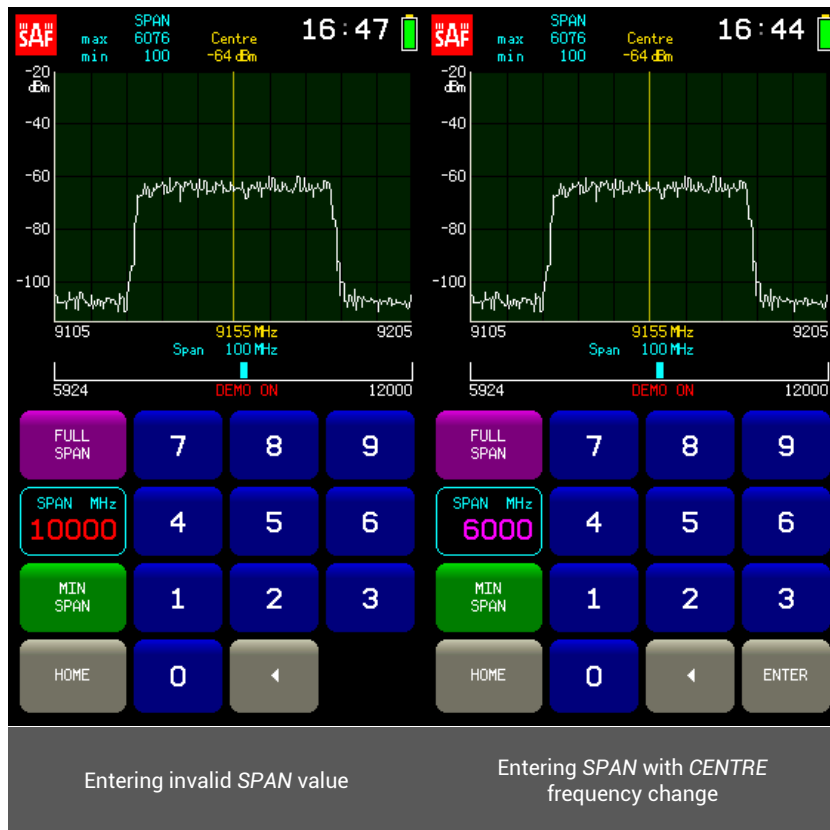
FULL SPAN and *MIN SPAN* buttons allow you to change a frequency *SPAN* instantly to the maximum or minimum supported value. If maximum or minimum frequency *SPAN* is already applied, the appropriate button will be displayed in **green**. If applying *FULL SPAN* would change the *CENTRE* frequency, it will be displayed in **purple**, otherwise – in grey.

Maximum frequency *SPAN* (*FULL SPAN*) depends on Spectrum Compact model – 6000, 6075, 8000, 7300 or 16000 MHz. Minimum frequency *SPAN* (*MIN SPAN*) is 100 MHz for all models. *FULL SPAN* is enabled by default.

Current frequency *SPAN* is displayed in **cyan**. If changing the frequency *SPAN* would not affect the *CENTRE* frequency, the entered value is displayed in **bright green**, otherwise in **pink**. Valid frequency *SPAN* range (minimum and maximum values) is displayed above the grid. Invalid entered values are displayed in **red**. See screenshots below.

You can confirm an entered value using the *ENTER* button or by tapping on the entered value.





In the *SPAN* screen you can tap left or right on the spectrum graph to increase or decrease the frequency span.

2.6 MARKER menu

MARKER menu allows setting markers for input level measurements of a specific frequency or in automatic mode (*PEAK*) for the highest input level in a configured frequency *SPAN* (visible spectrum). *CENTRE TO MARKER* allows centring spectrum at the marker's current position. If executing *CENTRE TO MARKER* won't change the frequency *SPAN*, it is coloured in grey, otherwise – in purple.

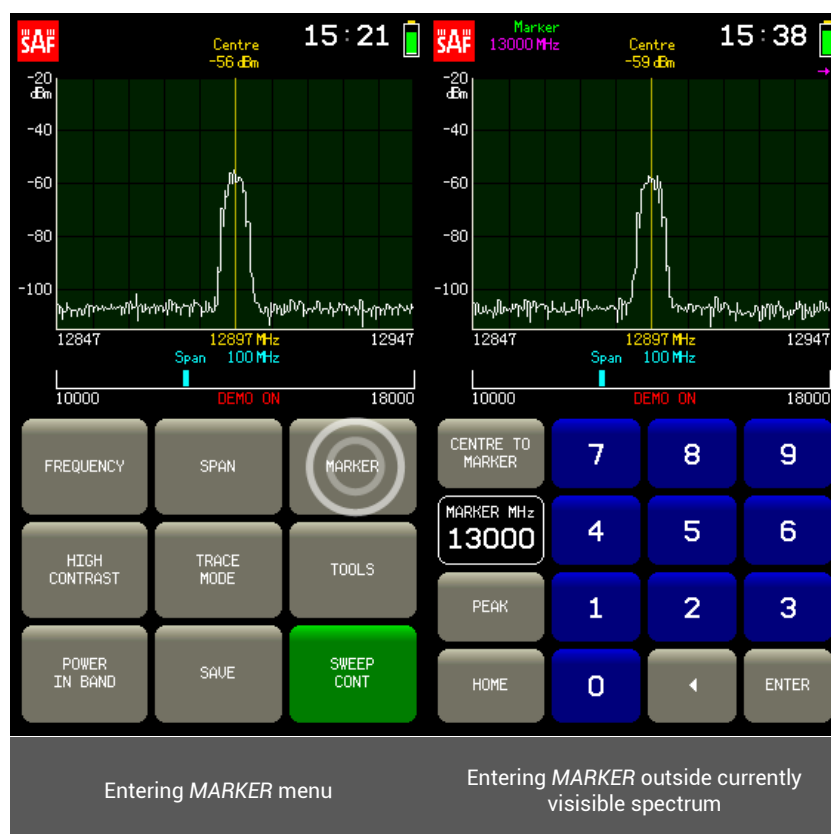
Current *MARKER* frequency is displayed in white. If an entered *MARKER* frequency fits inside the currently visible spectrum, it will be displayed in bright green, otherwise – in pink. Invalid entered values are displayed in red. If an entered *MARKER* frequency is outside the current frequency *SPAN*, a pink arrow located above the grid will indicate if the *MARKER* frequency is to the left or right of the current frequency *SPAN*. See screenshots below.

You can confirm an entered value and activate a *MARKER* using the *ENTER* button or by tapping on the entered value.

You can set a *PEAK* marker by tapping on the *PEAK* button.

When a *MARKER* is active, the *MARKER* menu button is coloured green in the *HOME* screen and an indication is shown in the top left corner of the screen.

MARKER and *POWER IN BAND* cannot be active simultaneously. If *POWER IN BAND* is activated, *MARKER* will be automatically deactivated.



Tap on the Marker indication in the top left corner of the screen to display bigger digits.



While in the MARKER screen, tap left or right on the spectrum grid to move the Marker left or right. To move the MARKER faster, tap and hold.

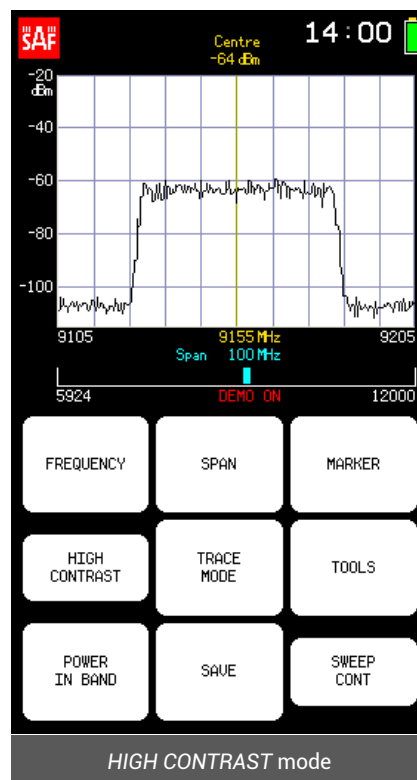
2.7 HIGH CONTRAST button

HIGH CONTR button switches the high contrast mode on and off. High contrast mode is off by default.

High contrast mode changes the colour of the spectrum graph and the controls to black and white for maximum visibility in direct sunlight.

Tap the *HIGH CONTR* button in the *HOME* screen to activate high contrast mode. Another tap will deactivate it.

In high contrast mode the active buttons are vertically narrowed (see the screenshot below).



2.8 TRACE MODE menu

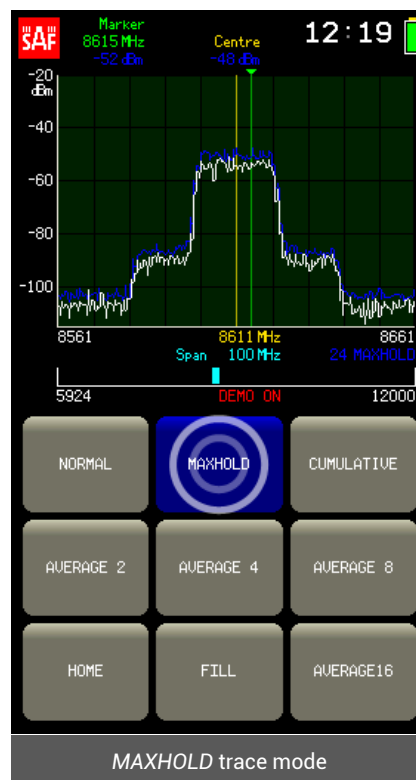
TRACE menu allows setting the following trace modes:

- *NORMAL*

Normal trace mode (default mode)

- *MAXHOLD*

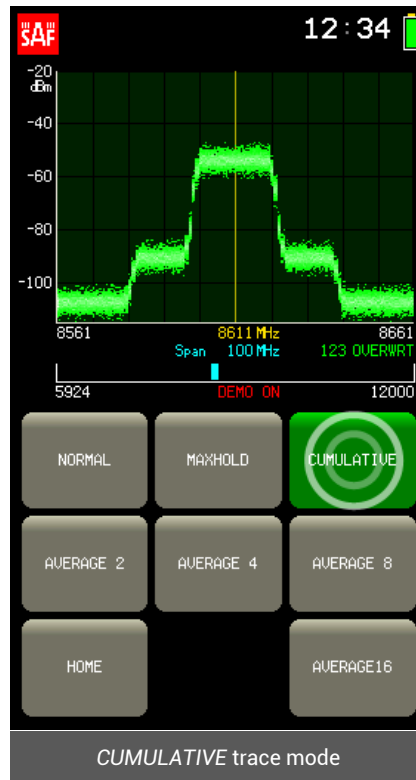
A **blue** trace shows the highest level detected since sweeping commenced. During each sweep, only the frequency points with higher power levels are updated. Tapping the *MAXHOLD* button repeatedly resets the *MAXHOLD* trace. A counter below the grid shows in **blue** the number of sweeps since the beginning of the latest *MAXHOLD* mode. Above the grid there's an indication in **blue** of the *CENTRE* and *MARKER* (if activated) frequencies' power levels.



MAXHOLD mode is useful for identifying intermittent signals in the spectrum or the maximum power of fluctuating signals.

- *CUMULATIVE*

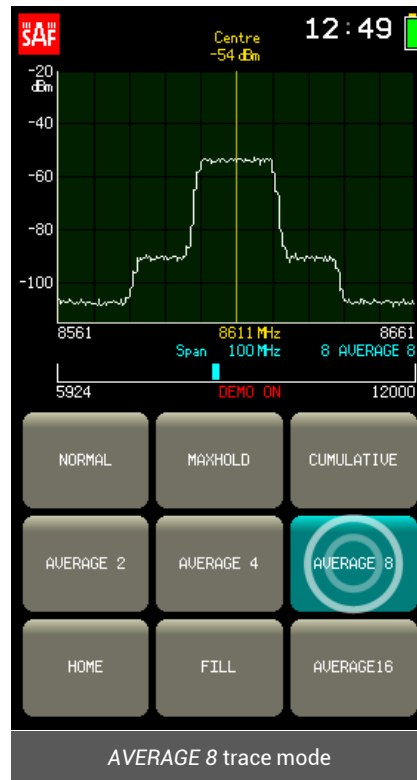
Shows in **green** the power levels of each frequency for all previous sweeps since sweeping commenced. During each sweep, only the frequency points with previously unsaved levels are updated.



CUMULATIVE trace mode allows seeing how the signal energy is divided within the spectrum.

- *AVERAGE 2/4/8/16*

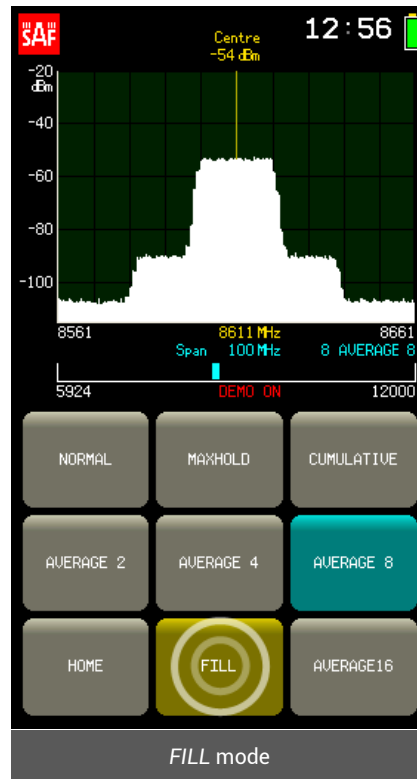
AVERAGE 2/4/8/16 sets a sweep averaging mode whereby the trace shows the average values of the two, four, eight or sixteen most recent sweeps. Tapping the *AVERAGE 2/4/8/16* button repeatedly restarts averaging.



AVERAGE mode is useful for reducing noise effects.

- *FILL*

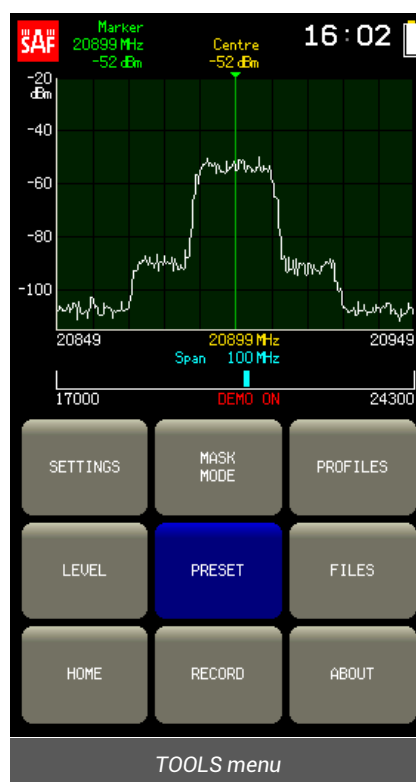
Tapping the *FILL* button will paint the area below the spectrum curve. This mode can be enabled only for the following trace modes: *NORMAL*, *MAXHOLD*, *AVERAGE 2*, *AVERAGE 4*, *AVERAGE 8* and *AVERAGE 16*. Repeatedly tapping *FILL* will revert to the default spectrum curve representation.



Tap the *HOME* button to exit *TRACE MODE* menu and return to the *HOME* menu.

2.9 TOOLS menu

TOOLS menu allows accessing *SETTINGS*, *MASK MODE* (reference mask), *PROFILES* (create and set profiles), *LEVEL* (Y axis adjustment), *PRESET* (reset to factory defaults), *FILES* (view saved spectrum curves), *RECORD* (create and view recordings) and *ABOUT* (information about Spectrum Compact) submenus.



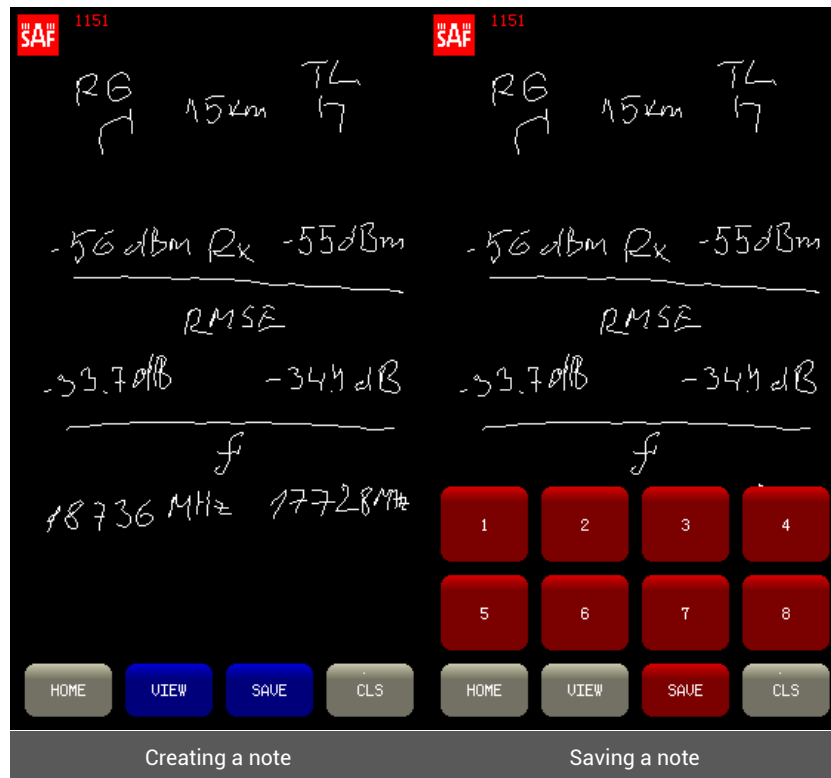
2.9.1 SETTINGS submenu

- *SIGNAL ID* (By default on for 2-8GHz unit)

Filters out signals visible on the screen, which are on different harmonic frequencies ($F/2$ $F*2$ $F/3*2$ etc.). Such signals can appear if input signal strength exceeds -60dBm and they will be filtered up to -80...-90 dBm on the screen. *SIGNAL ID* has no effect if visible signals are below -80 dBm.

- *DRAW*

DRAW submenu allows taking and saving field notes, as well as testing touchscreen functionality. You can save a note using the *SAVE* button and any of the eight available memory slots. Saving a note in an occupied slot will overwrite its contents. The screen can be cleared using the *CLS* button. A saved note can be reviewed using the *VIEW* button.



- **AUTO ROTATE**

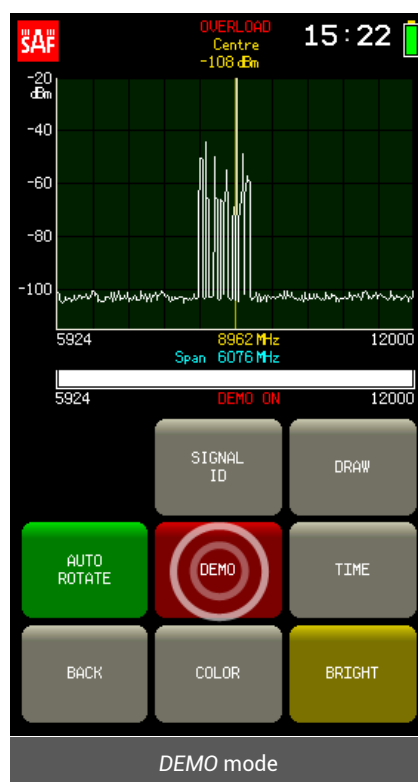
Automatically rotates the screen when Spectrum Compact is turned by 90 degrees. By default *AUTO ROTATE* is active. When disabled, Spectrum Compact fixes its current orientation and doesn't change it when the device is turned. When active, the *AUTO ROTATE* button is green; when deactivated – gray.

- **DEMO**

Demo mode is a signal pattern imitation and allows you to fully test Spectrum Compact functionality without the presence of an actual input signal. When active, "DEMO ON" will appear below the spectrum grid and frequency span bar. Available demo patterns are:

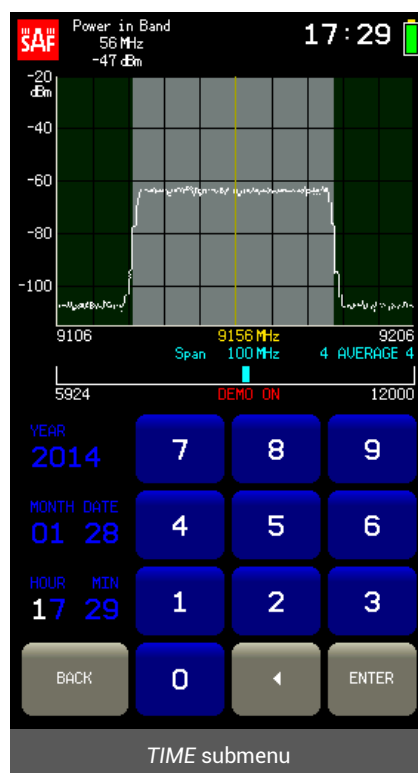
- 1) Adjacent channel interference;
- 2) In band interference;
- 3) Out of band interference;
- 4) Co-channel interference;
- 5) Multipath;
- 6) Damaged Tx;
- 7) 7 MHz channel;
- 8) 56 MHz channel

Demo mode conserves battery power as the radio part is not active.



- *TIME*

You can set the date (year, month, and day) and time (hours and minutes) by tapping on the appropriate parameter. Note that the time is set in a 24H format. When Spectrum Compact is connected to a PC and the Spectrum Manager software is running, it will offer to synchronize clocks in case of mutual mismatch.

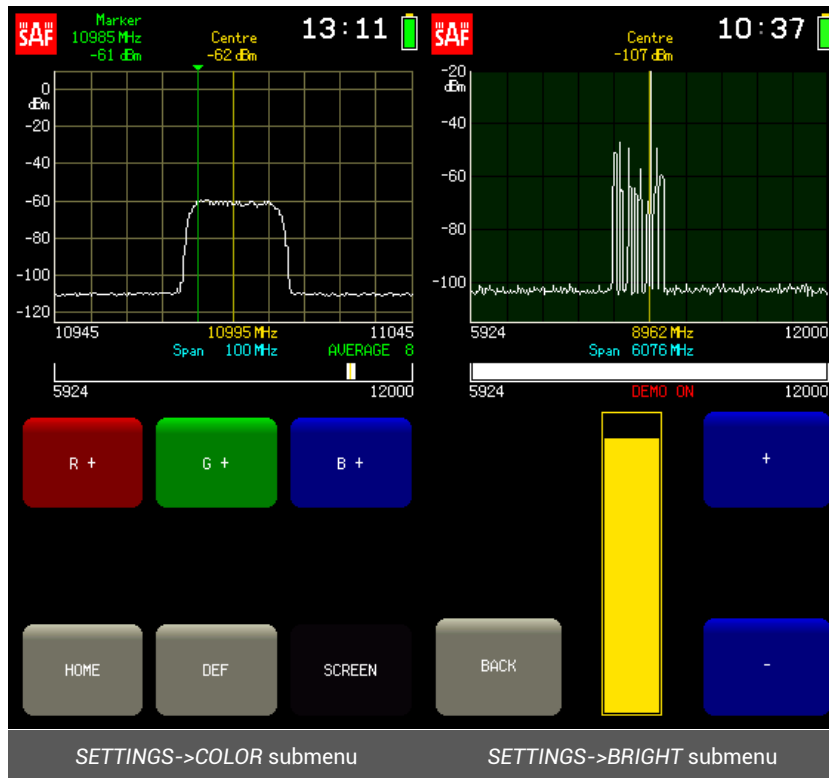


- **COLOR**

Allows setting the colour of the screen, grid and main curve. You can swap between these elements by tapping the *SCREEN/GRID/DIAGR* button in the bottom right corner. Colour is changed by modifying red (R), green (G) and blue (B) channels (see screenshot below).

- **BRIGHT**

Allows setting background brightness with "+" and "-" by tapping the appropriate buttons. "-" decreases the brightness, while "+" – increases.



You can exit the *SETTINGS* submenu by tapping the *BACK* button.

2.9.2 MASK MODE submenu

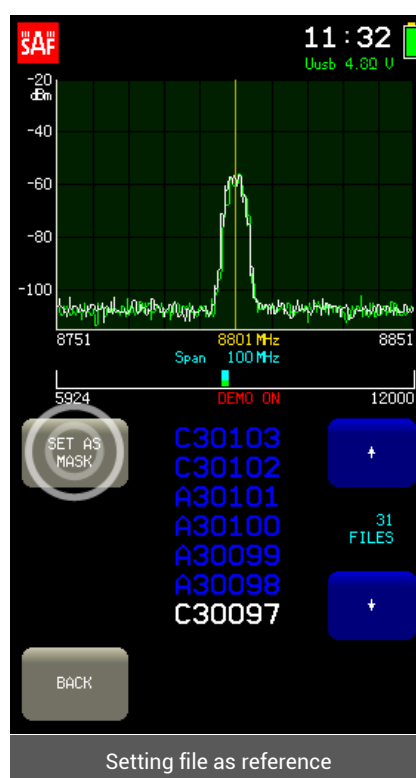
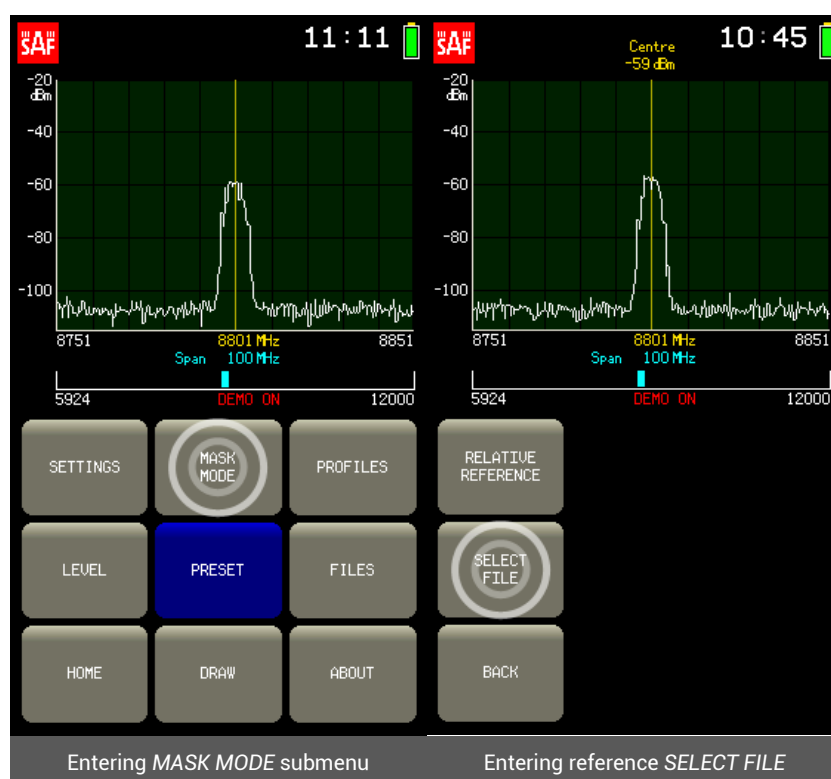
MASK MODE submenu allows setting a saved spectrum curve as a reference mask curve and comparing it with the current spectrum.

When browsing through saved spectrum curves, mask will be previewed on the current spectrum in **bright green**. Tap the *SET AS MASK* button to activate the selected reference mask curve. The activated spectrum curve file, as well as the reference mask curve, will be displayed in **red** on the spectrum grid (the spectrum curve file will be displayed in **pink** while selected).

By default the mask curve is set to the *RELATIVE MASK* mode meaning that the applied curve is centred to the current *CENTRE* frequency, and frequency *SPAN* is scaled accordingly. If *CENTRE* frequency is changed, the mask curve will be re-centred to the modified *CENTRE* frequency. In *RELATIVE MASK* mode it is possible to change the power level offset of the curve using buttons +1; -1; +10; -10. The *C* button clears the applied offset. You can disable *RELATIVE MASK* mode by tapping the *RELATIVE MASK* button. As a result it will place the mask curve in its actual

(absolute) *CENTRE* frequency. Actual (absolute) position of a mask curve is displayed in **red** on the frequency span bar.

When active, the *MASK MODE* submenu will be displayed in **red** in the *TOOLS* menu. Repeatedly tapping the *MASK MODE* submenu button will deactivate the mask curve.



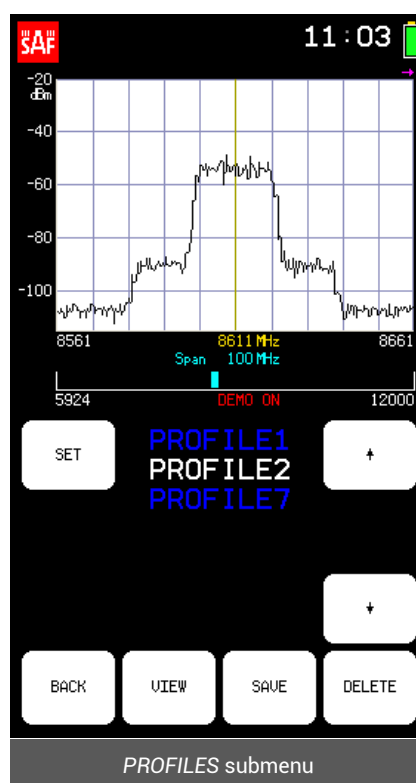
MASK MODE is useful for checking antenna cross-polar discrimination.

2.9.3 PROFILES submenu

PROFILES menu allows you to save and restore up to 7 sets of settings including frequency, span, colours etc.

Tapping the *SAVE* button saves the current set of settings with a filename *PROFILEX*, where X corresponds to the lowest available number between 1...7.

When there are two or more saved profiles, it is possible to scroll through the list of profiles using the up and down arrow buttons. A selected profile can be previewed by tapping the *VIEW* button, and restored by tapping the *SET* button.

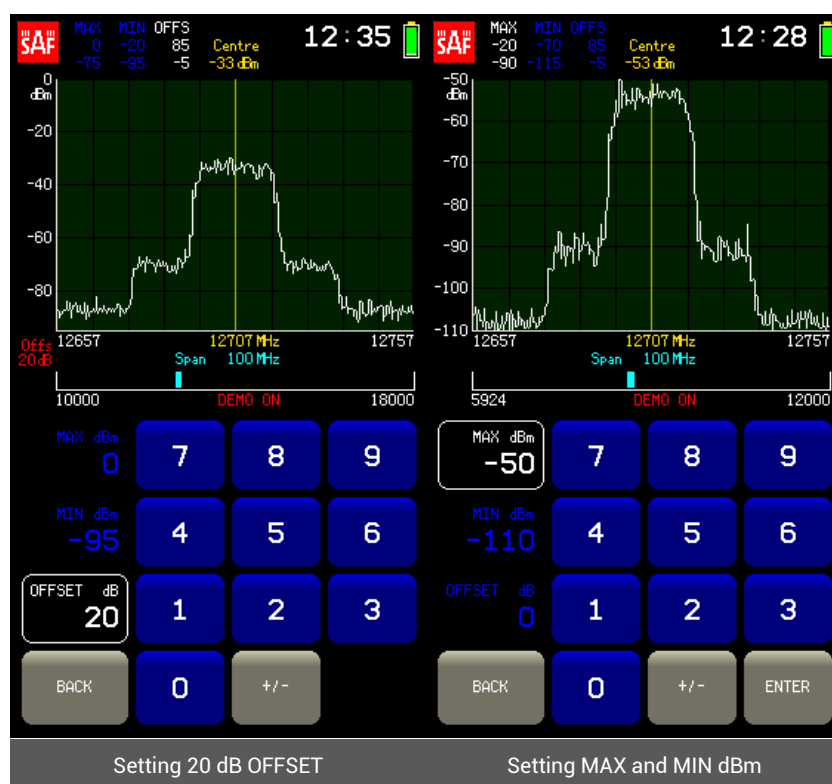
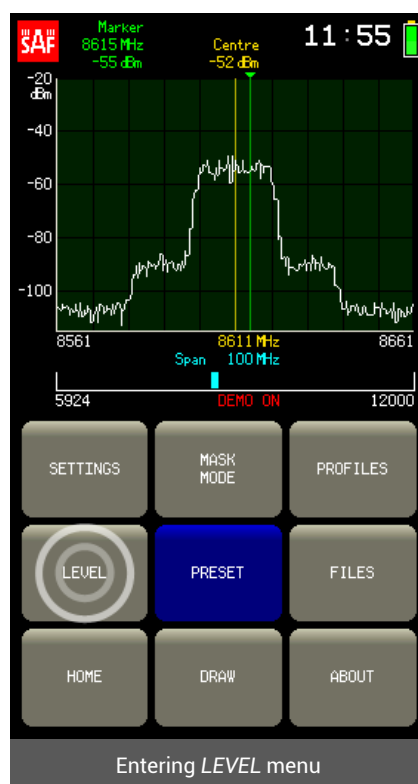


2.9.4 LEVEL submenu

LEVEL allows defining input power level range (Y axis) in decibels referred to milliwatts (dBm) and input power level offset (e.g. if an attenuator is being used) in decibels (dB).

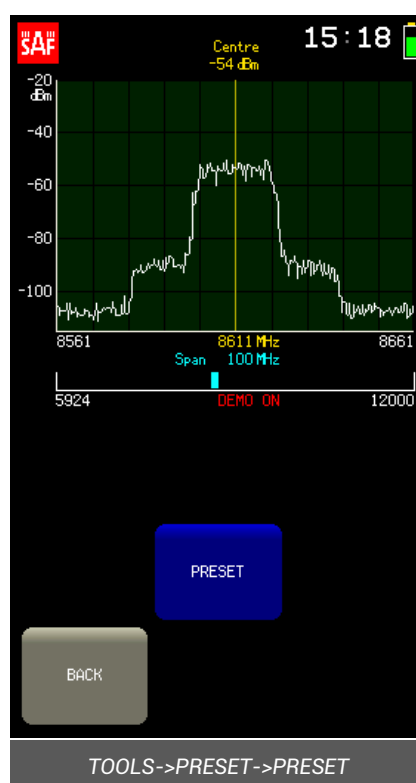
Currently selected *MAX* or *MIN* input power levels or *OFFSET* are displayed in white, unselected items – in blue. If an entered value is valid, it will be displayed in bright green, otherwise – in red. Value ranges are displayed above the grid.

You can confirm an entered value and activate *MAX* or *MIN* input power levels or *OFFSET* using the *ENTER* button or by tapping on the entered value.



2.9.5 PRESET submenu

PRESET submenu allows resetting Spectrum Compact settings to factory defaults.



PRESET will not format the internal storage disk.

2.9.6 FILES submenu

FILES submenu allows saving the current curve and viewing previously saved spectrum curves.

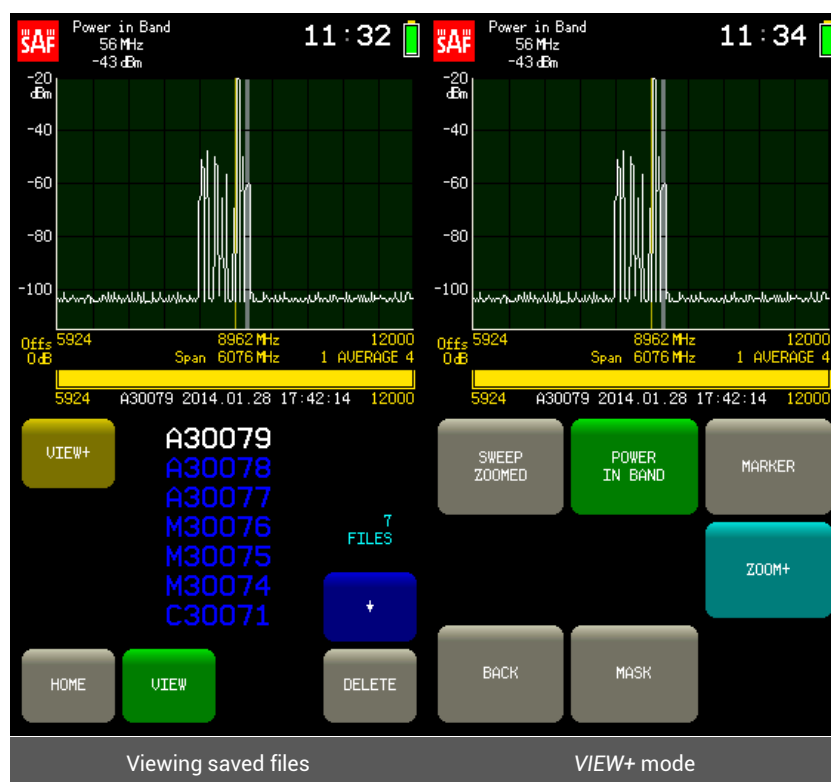
Opening the *FILES* submenu stops the current spectrum sweep.

You can either save the current spectrum curve by tapping the *SAVE* button, or view previously saved spectrum curves by tapping the *VIEW* button and scrolling through the list of files using the up and down arrow buttons. After entering *VIEW* mode the current spectrum is lost and therefore the *SAVE* button disappears.

Filenames are formed according to the trace mode used. "Cxxxxx" corresponds to normal trace, "Mxxxxx" – to *MAXHOLD* trace, "Wxxxxx" – to *CUMULATIVE* trace and "Axxxxx" – to *AVERAGE 2/4/8/16* trace, where "xxxxx" – spectrum curve file order number.

In *VIEW* mode it is possible to enter the advanced submenu by tapping the *VIEW+* button. *VIEW+* submenu is not available for spectrum curves saved in *CUMULATIVE* trace mode (filename *Wxxxxx*). Advanced *VIEW+* menu allows switching to continuous sweep mode with the currently zoomed span and appropriate frequencies (*SWEEP ZOOMED*), measuring *POWER IN BAND* (not available for spectrum curves

saved in *MAXHOLD* trace mode (filename *Mxxxxx*)), setting *MARKER*, setting spectrum curve as a *MASK*, zooming in or out using *ZOOM+* or *ZOOM-* buttons, and shifting the spectrum using right/left arrow buttons or tapping and dragging the grid to the left or right. Zooming and moving the spectrum curve is possible only if the frequency span of the saved spectrum curve is wider than 100 MHz.



2.9.7 RECORD submenu

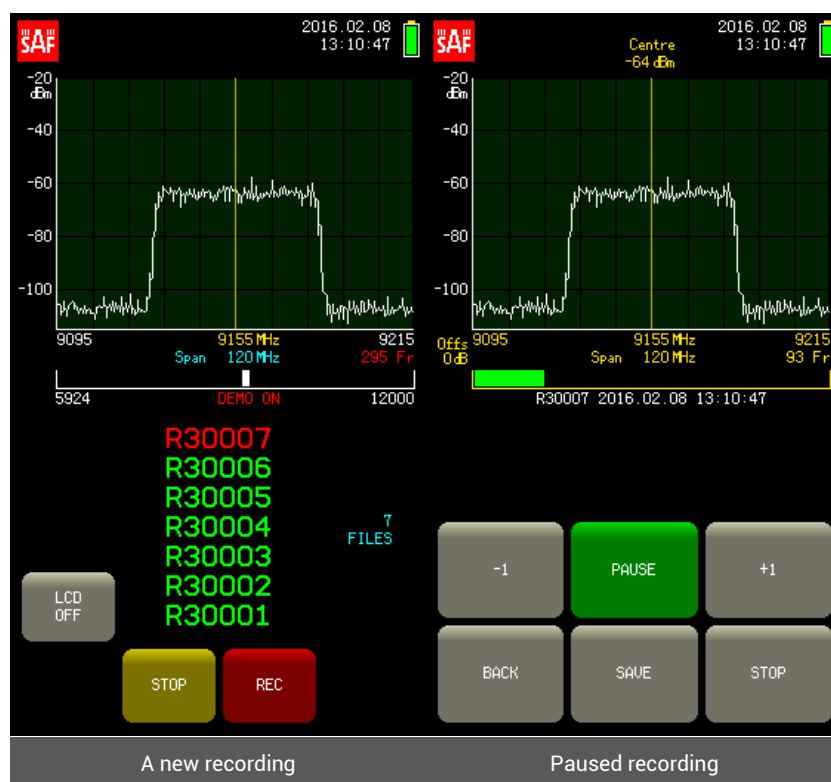
RECORD submenu allows creating and viewing records.

Tapping the *REC* button starts a new recording. While recording, the frame count is shown on the right side of spectrum. One frame corresponds to one sweep – how many frames are captured during a time period thus depends on the selected span. Tapping the *STOP* button stops the recording and saves it. The maximum length of a recording is 30 minutes. If the recording is not manually stopped earlier, then after this time the next recording is started automatically.

If you are recording for a longer period of time, it is recommended to turn the brightness to minimum by tapping the *LCD OFF* button which will save battery. Tapping the screen will turn back up the brightness.

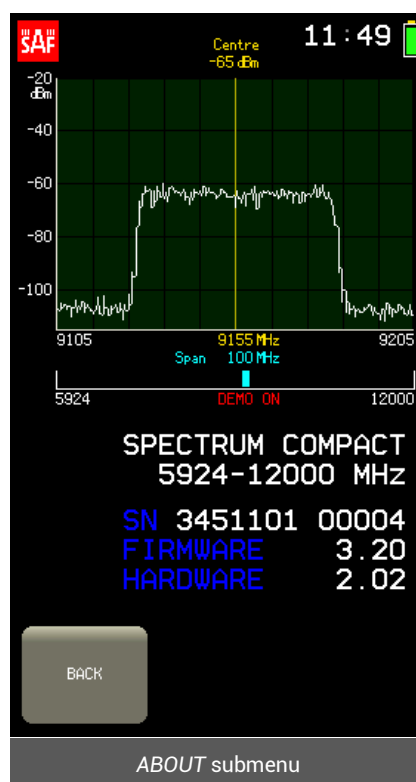
Tapping the *PLAY* button plays the selected file. The replay is accelerated. It can be paused with *PAUSE*. After tapping the *PAUSE* button, it is possible to go through the recording by frames. Tap *+1* for one frame forward and *-1* for one frame backward. The currently displayed frame can be saved as a separate curve by tapping *SAVE*. The file then can be found under *TOOLS* → *FILES*. Tapping the *STOP* button brings back the *PLAY* option. Tap *BACK* to exit the *PLAY* menu.

Use the *DELETE* button to delete a recording.



2.9.8 ABOUT submenu

This submenu displays information about the Spectrum Compact: frequency range, serial number, firmware and hardware versions.



2.10 POWER IN BAND menu

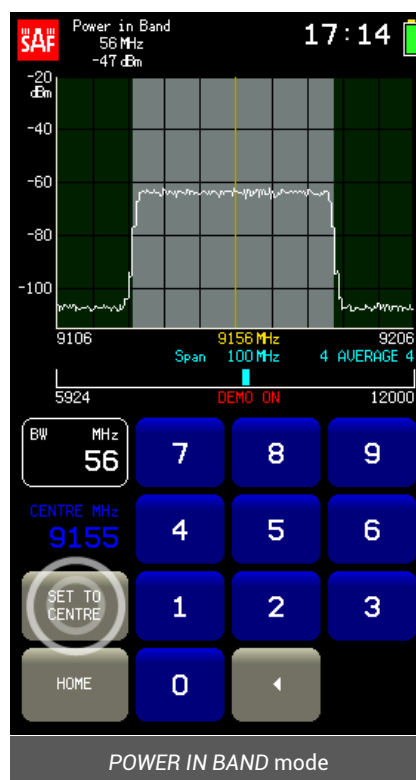
POWER IN BAND menu allows measuring input power for the desired bandwidth (BW). Prior to enabling *POWER IN BAND* it is required to specify bandwidth in MHz by entering a value via numpad. The default value is 56 MHz.

When bandwidth is defined, *POWER IN BAND* can be activated in the following ways:

- by tapping the *SET TO CENTRE* button (power in band area will be centred to the current *CENTRE* frequency);
- by tapping *CENTRE MHz*, and entering the required frequency manually via numpad and tapping the *ENTER* or *CENTRE MHz* buttons;
- by tapping anywhere on the spectrum grid.

When *POWER IN BAND* is active, the *POWER IN BAND* menu button is coloured green in the *HOME* screen and an indication is shown in the top left corner of the screen.

POWER IN BAND cannot be active together with *MARKER*. If *MARKER* is activated, *POWER IN BAND* will be automatically deactivated

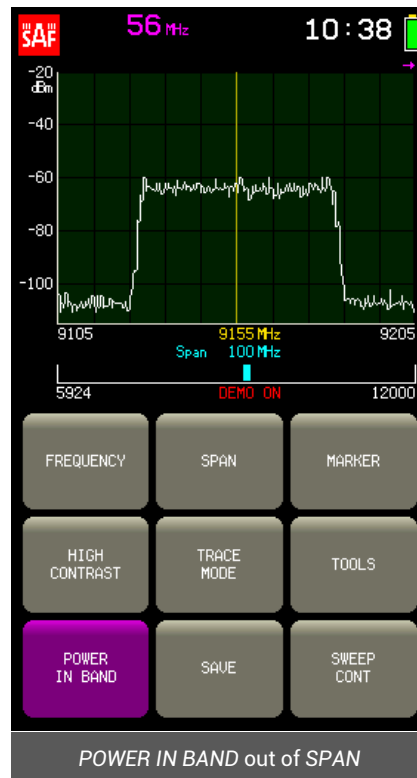


Tap the Power in Band indication in the top left corner of the screen to display larger digits.



Tap left or right on the grid to move the centre frequency of Power in Band left or right.

Both the current *BW* and *CENTRE* values are displayed in white (when selected). If the entered *BW* value is equal or smaller than the current frequency *SPAN*, and *CENTRE* frequency is inside of the current frequency *SPAN*, it will be displayed in **bright green**. Invalid entered values are displayed in **red**. If a *CENTRE* frequency is outside of the current frequency *SPAN*, a **pink** arrow above the grid will indicate its position in relation to the current frequency *SPAN*. Also both the *POWER IN BAND* status indication and the *POWER IN BAND* button in the *HOME* screen will be shown in **purple** in this situation. See screenshot below.



3 FIRMWARE UPGRADE

- 1) Open the local copy of the "Spectrum Manager" software.
- 2) Plug your Spectrum Compact unit into the PC via USB, and wait for the software to connect to your Spectrum Compact.
- 3) Click on the "Start Real Time" button.
- 4) On the right of the screen, you'll see a box with two gears. Click on that.
- 5) Select "Update Firmware".

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