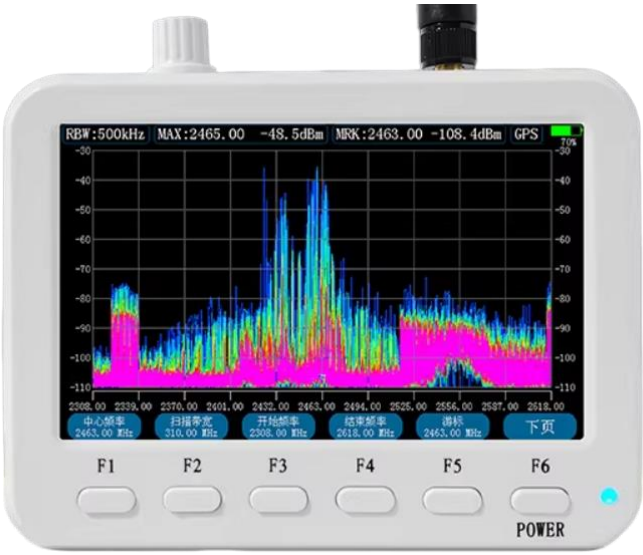
XT-129 Portable Spectrum Analyzer

User Manual —V1.2



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Catalogue

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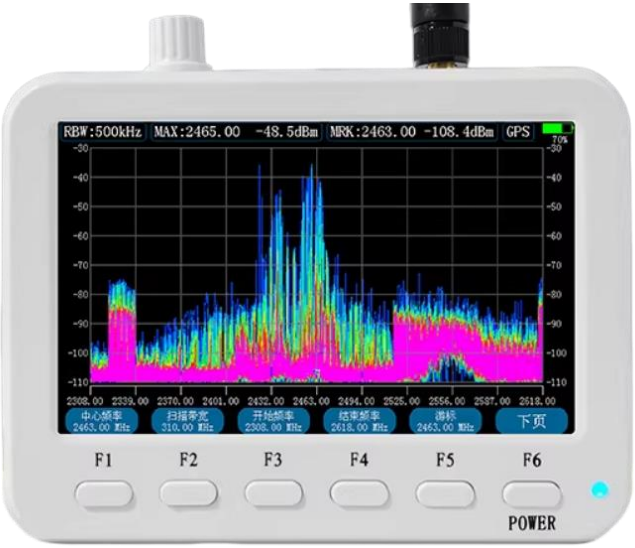
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1. Introduction to portable spectrum analyzer



In the application processes of radio frequency testing, wireless optimization, on-site network deployment, interference inquiry, etc., it is often necessary to test the spectrum distribution of signals. On-site measurements require portability, but even the portable spectrum analyzers in Europe and America weigh around 3kg, making them inconvenient for field testing。The XT-129 portable spectrum analyzer, equipped with a built-in lithium battery and featuring compact and lightweight design, can be charged using a standard 5V charger for

mobile phones, providing around 9 hours of use on a full charge. With a detection frequency range of 240-960MHz, it can display real-time spectrum maps, frequency chromatograms, and spectrum heatmaps within the detectable frequency band, making it convenient and easy to use.

1.1 Product Features

- Real-time spectrum analysis function: real-time spectrum scanning, SPAN/RBW/CENT/MARKER functions, MAXHLOD function, automatic detection of maximum power.
- Frequency chromatogram function: Displays the overall time and spectrum characteristics over a period of time, and can record all spectrum distributions within a 5-minute cycle, facilitating the inspection of issues such as frequency interference or emission leakage
- Spectrum Thermogram Function: Displays the overlap density of spectrum contours over a period of time, with more overlaps displaying in a more reddish hue, facilitating the analysis of spectral statistical characteristics over time.



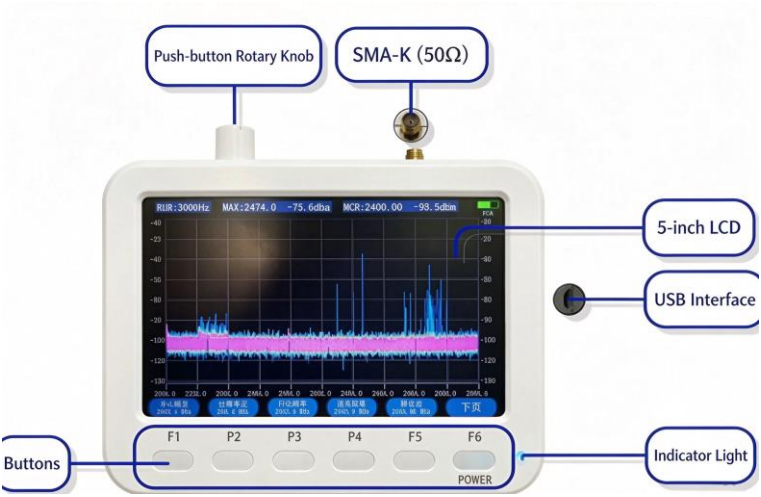
1.1 S11 test chart

1.2 Specifications of portable spectrum analyzer

Item	Specification
Model	XT-129
S11 (Typical)	-20dB
Frequency Range	240~960MHz
In-Band Flatness	0.5dB (After Calibration)
RBW	3, 5, 10, 20, 30, 50, 100, 200, 300 and 500kHz
DANL (Average Noise Floor)	-120dBm (Typical)
Amplitude Accuracy	+-0.5dBm
Sweep Time	200ms
MAXHOLD Function	Supported
Adjustable Reference Level	Supported

Display Refresh Rate	5Hz (5 Screens per Second)
LCD Resolution	TFT 800×480
LCD Size	5-inch
RF Connector	SMA-K
Chromatogram	Supported
Heatmap	Supported
Built-in RTC Clock	Supported
Battery Capacity	3300mAh (Typical)
Battery Type	Panasonic 18650 Lithium-Ion Battery
Charging Time	4–5 hours
Charging Interface	Micro USB Interface
Battery Life	9 hours
Dimensions	135mm*101mm*30mm (Excluding Knob and Antenna Height)
Operating Temperature	-20–45°C
Storage Temperature	-20–70°C
Signal Measurement Range	-100 ~ -10dBm (Use an Attenuator for High-Level Signals)

2. Introduction to buttons, ports, and functions



2.1 Port Introduction

2.1 Introduction to ports and indicator lights

1. The indicator light is blue when the device is turned on normally, red when charging, and green when charging is complete.
2. The USB interface is Micro USB, and the power supply used is 5V/1A.
3. Antenna Interface. This instrument uses a standard SMA female connector (SMA-K outer thread and inner hole) and should be used in conjunction with a standard male connector (SMA-J inner thread and inner pin). Note that the normal

service life of the SMA interface is approximately 1,000 cycles (after exceeding this lifespan, signal contact loss increases or contact becomes unstable). If the antenna is frequently replaced or RF cables are used, an SMA adapter should be used to extend the lifespan of the interface。

2.2 Function and Usage

General introduction to button functions:

1. The function buttons (F1-F6) correspond one-to-one with the LCD menu labels. Selecting and pressing each button will take you to the corresponding function;

2. The POWER (F6) button serves as the power on/off switch. Long-pressing the POWER (F6) button will shut down the device (Note: The shutdown operation is only effective when returning to the main interface; for other interfaces, it is an operation to return to the main interface).

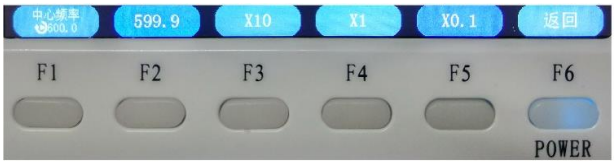
2.2.1 Real-time spectrum function



2.2 Real-time spectrum diagram settings (previous page)

For the rotary encoder on the top of the instrument, rotating it left or right adjusts the corresponding numerical value, while pressing the knob down confirms the function.

1. The F1 button corresponds to the function of setting the center frequency (Note: frequency setting range 240~960MHz):

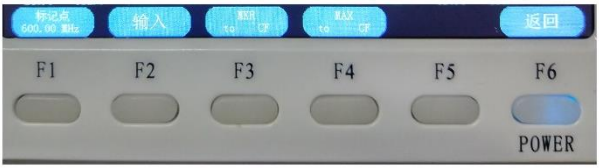


2.3 Center frequency setting submenu

1) Set the adjustment step accuracy for F3 to 10 ;
2) Set the adjustment step accuracy to 1 for F4;
3) Set the adjustment step accuracy to 0.1 for F5;

4) Pressing F6 returns to the previous interface.

2. The F2 button corresponds to the function of setting scanning bandwidth (Note: The bandwidth range can be set from 0 to 720MHz, and the specific operation is the same as that for setting the center frequency).
3. The F3 button corresponds to the function of setting the starting frequency (Note: The setting range for the starting frequency is 240MHz to the ending frequency. The specific operation is the same as that for setting the center frequency).
4. The F4 button corresponds to the function of setting the end frequency (Note: The range for setting the start frequency is from the start frequency to 960MHz, and the specific operation is the same as that for setting the center frequency).
5. The F5 key corresponds to the function of setting marker points (Note: frequency measurement range: starting frequency to ending frequency):



2.4 Marker Point Settings Submenu

1) Set the test frequency for input marker points corresponding to

F2 (Note: The specific operation is the same as setting the center frequency);

2) Set the marker frequency of F3 to the center frequency;

3) Set the maximum frequency to the center frequency for F4;

4) F6 corresponds to returning to the previous interface



2.5 Real-time spectrum diagram settings (next page)

6. F1 corresponds to the resolution setting function (Note: The resolution setting range is 3, 5, 10, 20, 30, 50, 100, 200, 300, 500KHz):



2.6 Resolution setting sub-interface

F1 corresponds to setting the resolution manually (Note: After

manual setting, it will become manual mode):



2.7 Resolution input interface

1) It can be directly switched between 3, 5, 10, 20, 30, 50, 100, 200, 300, and 500KHz via the rotary knob.

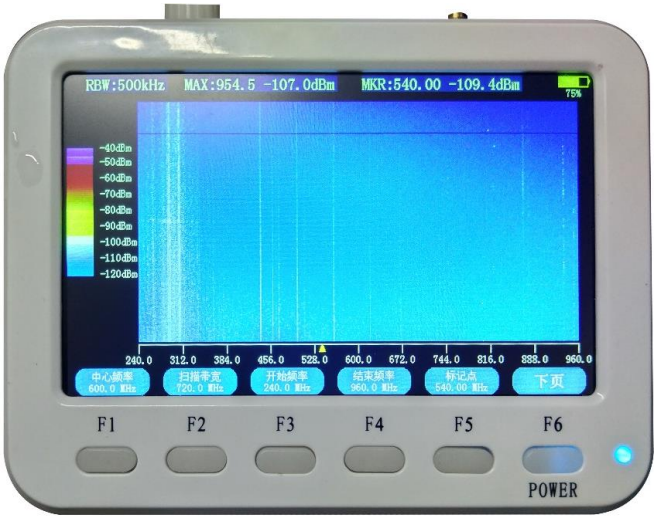
2) F3 corresponds to the automatic resolution setting mode.

3) F6 corresponds to the function of returning to the previous interface.

7. The F2 button corresponds to the reference level setting function (Note: The reference level range is -120~0dBm, and the specific operation is the same as that for center frequency setting).

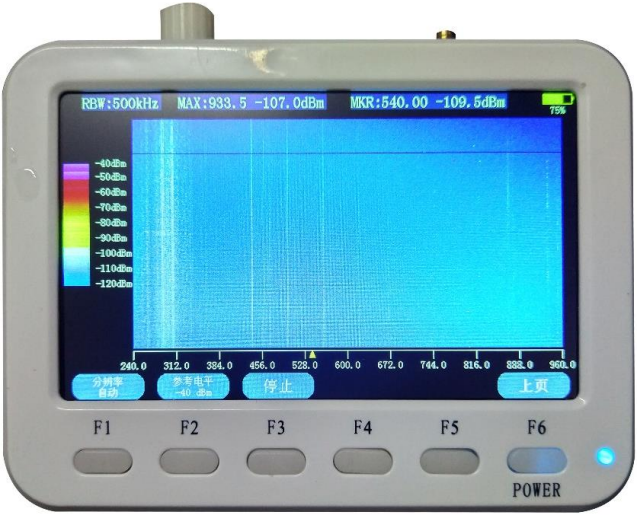
8. The F3 key corresponds to setting the maximum hold function to be turned on or off.

2.2.2 Chromatogram function



2.8 Chromatogram settings (previous page)

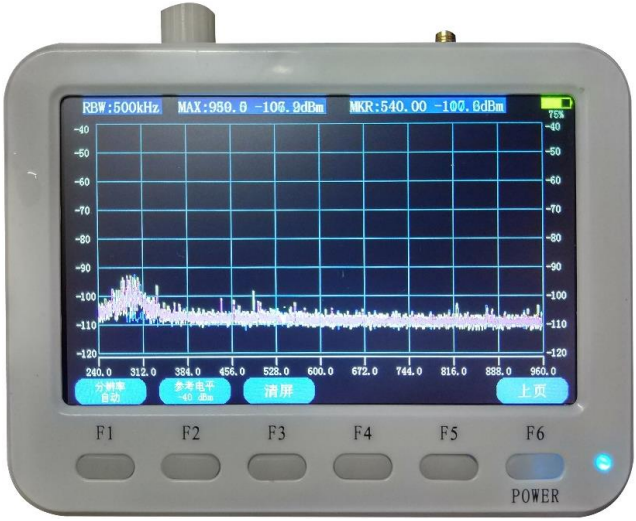
The operation and functions of center frequency, scanning bandwidth, starting frequency, ending frequency, marker point, resolution, and reference level are the same as above (operation on the real-time spectrum interface).



2.9 Chromatogram settings (next page)

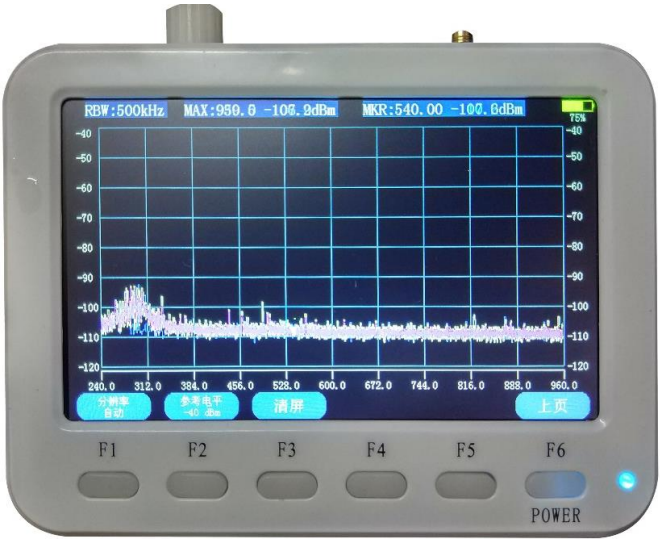
The F3 key is used to set the update of the chromatogram to stop or start. It allows the chromatogram to be paused at any given moment for a detailed analysis of the overall distribution (Note: In this mode, only the marker point and the stop/start functions are available)

. 2.2.3Heatmapfunction



2.10 Thermal map settings (previous page)

The operation and function of center frequency, scanning bandwidth, start frequency, end frequency, marker point, resolution, and reference level are the same as above (operation on real-time spectrum interface).



2.11 Heatmap Settings (Next Page)

The F3 key corresponds to the setting of manual screen clearing function.

2.2.4 Settings interface



2.12 Settings

1. The F1, F2, F3, and F4 buttons are uniformly displayed and correspond to specific settings. Pressing the knob down corresponds to confirming the function, and rotating it left or right adjusts the corresponding value. Long-pressing the F6 button corresponds to returning to the previous interface function.
2. Sleep setting: After selecting, you can adjust the time via the knob, and confirm the setting with the OK button. (Note: The range is 1-60 minutes, and the setting can be set to never automatically shut down.)

3. Time setting: F1~F6 correspond to year, month, day, hour, minute, and second respectively. After setting, press the OK button to confirm.
4. Brightness setting: After selecting, you can adjust the brightness via the knob, and confirm the adjustment by pressing the OK button. (Note: The relative brightness range is 0~100%.
5. Language setting: After selecting, you can choose the language via the rotary knob. Once the language is selected, you can confirm it by pressing the OK button. (Note: Language options include English and Chinese)

3. User Instructions and Maintenance

3.1 Precautions for normal use

- Be careful not to exceed the maximum signal range to avoid damaging the instrument's receiving front-end.
- When installing antennas or RF cables, tighten the threads, but do not apply excessive force to avoid slipping the threads.
- Keep sufficient battery power to avoid shutdown due to lack of power;
- The USB interface is fragile, so excessive force should be avoided during insertion and removal, and lateral force should also be

avoided.

- Pay attention to the storage temperature and usage temperature range, such as not exposing it to direct sunlight in a car.
- Long-distance transportation should be carried out in packaging boxes or carry-on cases to avoid scratches on the LCD screen caused by mixed loading of hard objects.
- It is recommended to use an adapter to extend the lifespan of the original interface
- The RF connector should be cleaned every three months, using a cotton swab dipped in anhydrous alcohol.

3.2 Precautions for application environment

- Do not use the instrument if water enters, there is abnormal noise when shaking, or other obvious abnormalities occur.
- Do not test outdoor equipment during thunderstorms, including outdoor equipment with lightning arresters installed.
- The normal warranty period is one year. Damage caused by falls, contact with water, and unauthorized disassembly are not covered by the warranty.
    - When entering a heated room from the outside in winter, avoid condensation inside the instrument. If condensation occurs, dry it before turning it on.

3.3 Battery precautions

- When the instrument is turned on or being charged, it should be kept away from flammable and explosive materials, and proper ventilation should be ensured. The instrument and charger must not be covered with any other items
- To protect the battery, please charge the instrument regularly and try not to wait until the battery warning appears before charging.
- Prolonged float charging is prohibited. If the instrument is to be used for an extended period, avoid continuous charging. Instead, use the battery intermittently to extend its lifespan.
    - If the instrument is not to be used for an extended period, it should be fully charged before storage. During storage, it should be fully charged at least once every three months.