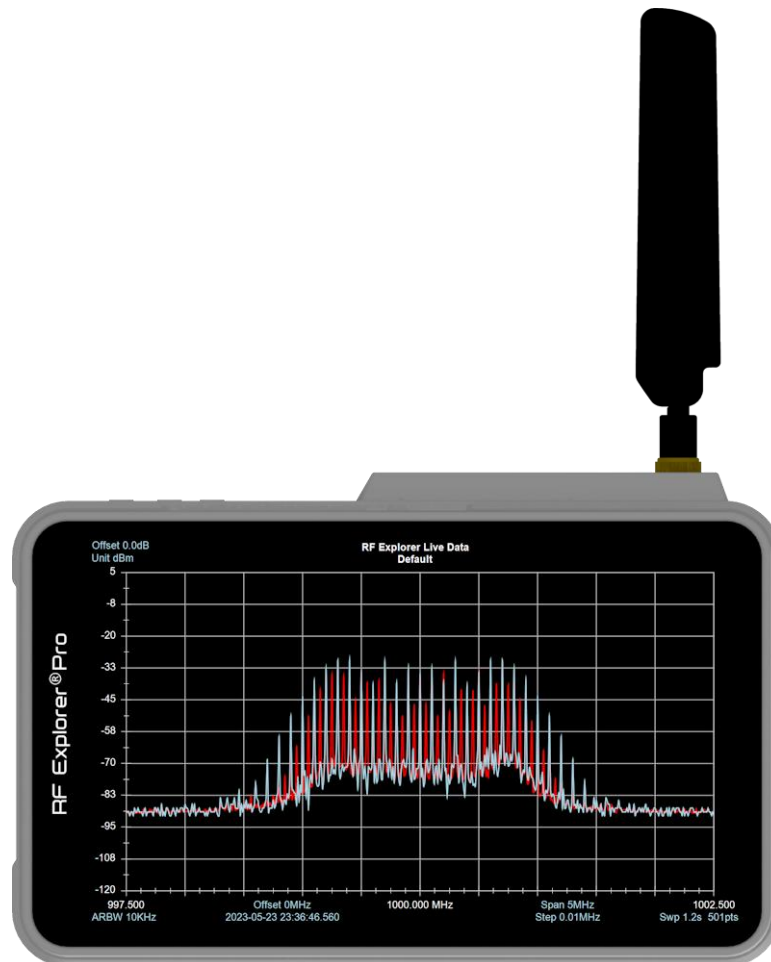


RF Explorer® Pro

RF Explorer Pro is an advanced, 3rd generation, high-performance multi-purpose RF instrument



Cumulative Release Notes

Firmware Version 1.20

This Release Notes document complements the [RF Explorer Pro User Manual](#)



Please consider the environment before printing this document.

Firmware Upgrade Instructions

Here are the simple steps to upgrade documented in this link: [RF Explorer Pro Update Page](#)

Should you encounter any issues or need further assistance, please don't hesitate to open a [support ticket](#).

Version 1.20

Release date: CEST Dec 20, 2024

Enhancements:

- **Embedded TV Station Database**

- Introduced a new embedded TV Station database covering the US and 20 other countries, for a total of 2 million post codes worldwide with 40,000 TV stations indexed.

The screenshot displays the 'Project TV Channels' application interface. At the top, there are input fields for 'Country' (United States), 'State' (New Jersey), 'City' (Newark), and 'Postal Code' (19717). Below these is a search bar with the text 'Enter Postal Code or Latitude,Longitude' and a 'Search' button. The search results are displayed as 'Location results: Newark 19717, Delaware, United States (19 TV Channels found)'. A table lists the results with columns: CH, Range (MHz), Call Sign, Type, Distance, Power (kW), Country, and Active. The table shows 6 rows of data.

CH	Range (MHz)	Call Sign	Type	Distance	Power (kW)	Country	Active
17	488.000 - 494.000	WUVP-DT	DTV	34.9 mi	645.0	US	No
22	518.000 - 524.000	WTVE	DTV	35.0 mi	15.0	US	Yes
23	524.000 - 530.000	WNJT	DTV	47.6 mi	197.0	US	Yes
24	530.000 - 536.000	WWDD-LD	LPD	30.0 mi	6.5	US	Yes
25	536.000 - 542.000	W25FG-D	LPD	35.0 mi	2.5	US	Yes
28	554.000 - 560.000	WWSI	DTV	35.0 mi	700.0	US	Yes

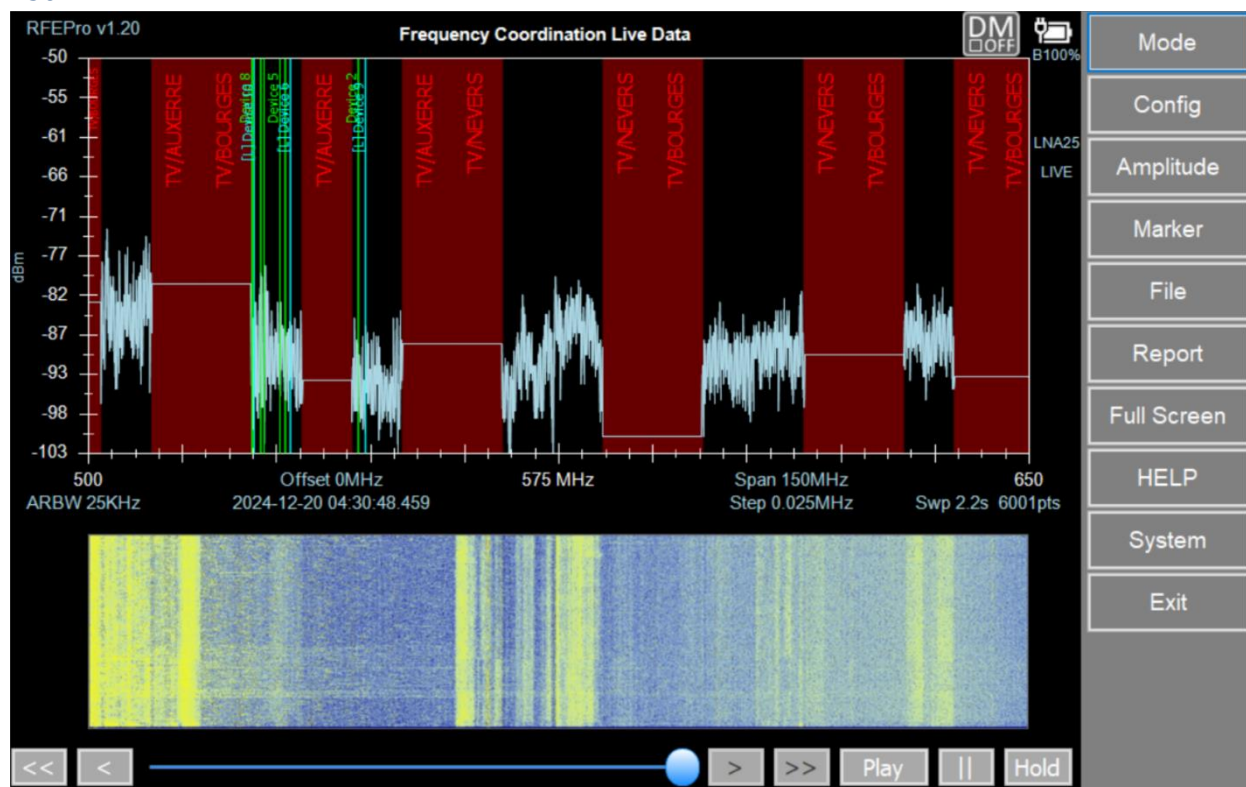
- The US database has been updated to reflect the latest FCC data, ensuring accuracy and reliability.
- Users can now seamlessly include all exclusion channels for a specific location, simplifying frequency coordination tasks.

- **Updated Device Support**

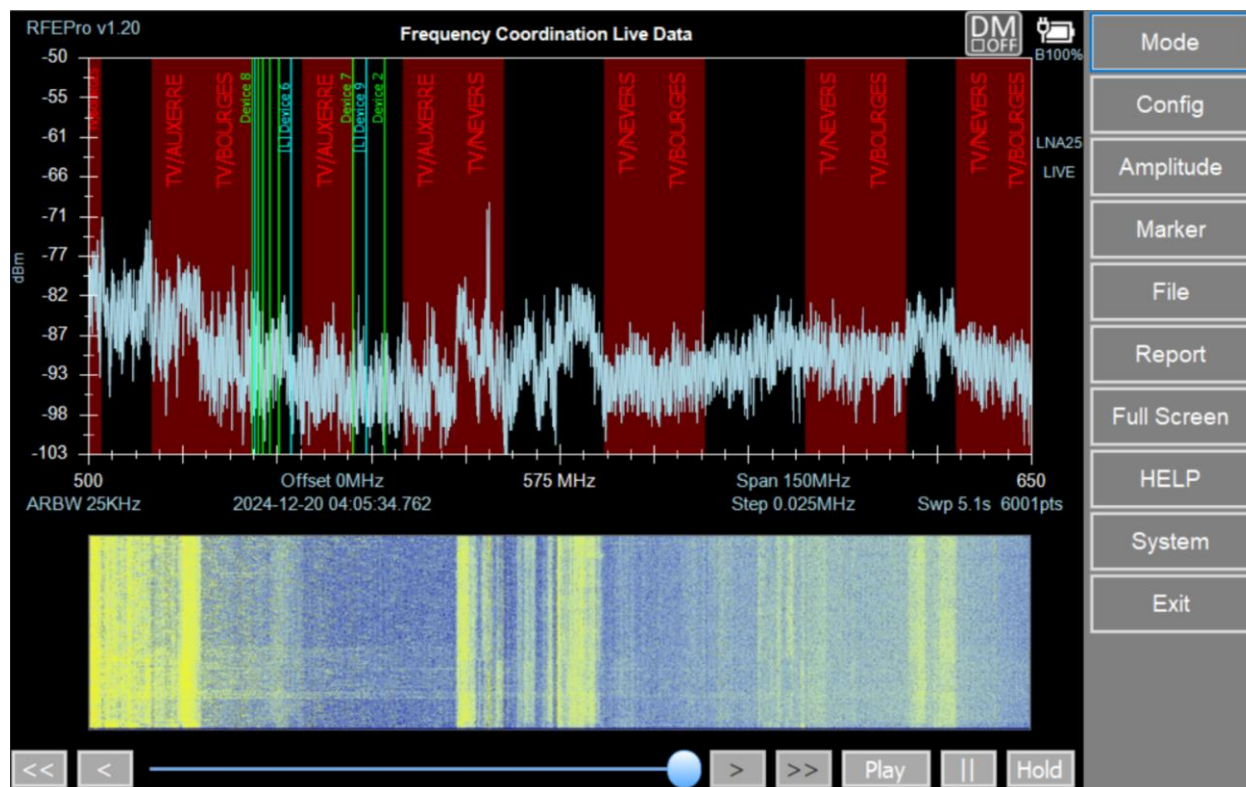
- Expanded the inventory of supported devices from multiple manufacturers to enhance compatibility with more than 200 new devices
- Newly added devices include:
 - **Sennheiser:** G4, EW-Digital, EW-DX EM 2, XSW IEM, and more.
 - **Wisycor:** MTB40S, MTH400, MTH410, MTK952 and more.
 - **Audio-Technica:** ATW-R3210, ATW-R5220, ATW-T3205

- **Beyerdynamic:** OPUS 911, OPUS 912, TG 1000, TG 500, TG 500DR
 - **Deity Microphones:** D2RX-Global, D2RX-US
 - **Lectrosonics:** SMB/E01, SMWB/E01, DBSM and many more.
 - **LMR:** NXDN and more
 - **MIPRO:** ACT-515, ACT-525, ACT-848, and others.
 - **Radio Active Designs:** UV-1G
 - **Sound Devices:** A20-Nexus (US), A20-Nexus Go (UK), A20-RX (CA), and others.
 - **Zaxcom:** MRX214, RX200, TRXCL5, and more.
 - **See next page table for a full list**
- **Enhanced Exclusion Range Controls**
 - Introduced new controls to simplify the process of removing exclusion ranges.
 - Exclusion ranges can now be removed directly from the analyzer sweep, significantly improving sweep efficiency and usability
 - **Performance Upgrades**
 - **Sweep and Waterfall Refresh Speed:**
 - Implemented a massive multithreading upgrade to provide a more responsive experience in all workflows.
 - Users will notice faster and smoother performance when performing complex analysis or visualizations.
 - **Frequency Coordination Efficiency:**
 - Improved performance for managing exclusion ranges and inventory during frequency coordination tasks, reducing processing times and enhancing workflow fluidity.

Example below ignoring sweep in exclusion ranges, sweep time is 2.2s for 6001 sweep points on 150MHz



Same configuration below with standard sweep inside exclusion ranges is 5.1s



Comprehensive list of new devices added to the firmware v1.20 database

Audio-Technica

ATW-R3210
ATW-R5220
ATW-T3205

Beyerdynamic

OPUS 911
OPUS 912
OPUS 914
TG 1000
TG 500
TG 500DR

Deity Microphones

D2RX-Global
D2RX-US

Lectrosonics

DBSM, DBSM/E01
DBSMD, DBSMD/E01
Dbu, DBu/E01
DCHT, DCHT/E01
Dhu, DHu/E01
DPR, DPR/E01
DPR-A, DPR-A/E01
HHa (100 kHz), HHa (25 kHz)
HHa/E01 (100 kHz), HHa/E01 (25 kHz)
HHa/E02 (100 kHz), HHa/E02 (25 kHz)
HHa/E06 (100 kHz), HHa/E06 (25 kHz)
HHa/E07 (100 kHz), HHa/E07 (25 kHz), HHa/E07-941 (100 kHz), HHa/E07-941 (25 kHz)
HHa/X (100 kHz), HHa/X (25 kHz)
HHa-941 (100 kHz), HHa-941 (25 kHz)
HMa (100 kHz), HMa (25 kHz)
HMa/E01 (100 kHz), HMa/E01 (25 kHz)
HMa/E02 (100 kHz), HMa/E02 (25 kHz)
HMa/E06 (100 kHz), HMa/E06 (25 kHz)
HMa/E07-941 (100 kHz), HMa/E07-941 (25 kHz)
HMa/X (100 kHz), HMa/X (25 kHz)
HMa-941 (100 kHz), HMa-941 (25 kHz)
IFBT4, IFBT4/E01, IFBT4/E01-VHF, IFBT4/X, IFBT4-VHF
LMb (100 kHz), LMb (25 kHz)
LMb/E01 (100 kHz), LMb/E01 (25 kHz)

LMb/E06 (100 kHz), Lmb/E06 (25 kHz)
LMb/X (100 kHz), Lmb/X (25 kHz)
LT (100 kHz), LT (25 kHz)
LT/E01 (100 kHz), LT/E01 (25 kHz)
LT/E06 (100 kHz), LT/E06 (25 kHz)
LT/X (25 kHz)
M2T, M2T/E01, M2T/E02, M2T/E06
SMB/E01, SMB/E02
SMDB/E01, SMDB/E02
SMDWB (100 kHz), SMDWB (25 kHz)
SMDWB/E01 (100 kHz), SMDWB/E01 (25 kHz)
SMDWB/E06 (100 kHz), SMDWB/E06 (25 kHz)
SMQV (100 kHz), SMQV (25 kHz)
SMQV-X (100 kHz), SMQV-X (25kHz)
SMV (100 kHz), SMV (25 kHz)
SMV-941 (100 kHz), SMV-941 (25 kHz)
SMVQ-941 (100 kHz), SMVQ-941 (25 kHz)
SMV-X (100 kHz), SMV-X (25kHz)
SMWB (100 kHz), SMWB (25 kHz)
SMWB/E01 (100kHz), SMWB/E01 (25 kHz)
SMWB/E06 (100 kHz), SMWB/E06 (25 kHz)
SSM (100 kHz), SSM (25 kHz)
SSM/E01 (100 kHz), SSM/E01 (25 kHz)
SSM/E01-B2 (100 kHz), SSM/E01-B2 (25 kHz)
SSM/E02 (100 kHz), SSM/E02 (25 kHz)
SSM/E06 (100 kHz), SSM/E06 (25 kHz)
SSM/X (100 kHz), SSM/X (25 kHz)
UM400a
WM (100 kHz), WM (25 kHz)
WM/E01, WM/E02
WM/X (100 kHz), WM/X (25 kHz)

LMR

Analog

DMR

NXDN 12.5kHz, NXDN 6.25kHz

MIPRO

ACT-311, ACT-312, ACT-323, ACT-343

ACT-515, ACT-525, ACT-545

ACT-727, ACT-747

ACT-818, ACT-828, ACT-848

Radio Active Designs

UV-1G Base Station

UV-1G Belt Pack

Sennheiser

EW 100 G4
EW 300 G4
EW 500 G4
EW IEM G4
EW-Digital
EW-DX EM 2
EW-DX EM 2 Dante
EW-DX EM 4 Dante
XSW 1 DUAL
XSW IEM

Sound Devices

A20-Nexus (BR), A20-Nexus (CA), A20-Nexus (UK), A20-Nexus (US), A20-Nexus Go (BR), A20-Nexus Go (CA), A20-Nexus Go (UK), A20-Nexus Go (US)
A20-RX (BR), A20-RX (CA), A20-RX (UK), A20-RX (US)
A20-SuperNexus (BR), A20-SuperNexus (CA), A20-SuperNexus (UK), A20-SuperNexus (US)

Wisyscom

MTB40S
MTH400, MTH410
MTK952-0W2 [25k], MTK952-0W2 [5k], MTK952-2W0 [25k], MTK952-2W0 [5k]
MTP40S
MTP41S
MTP51-JP
MTP60
MTP61

Zaxcom

MRX214
MRX414
QRX200
QRX235
RX200
TRXCL5

Version 1.19

Release date: CEST Oct 04, 2024

Enhancements:

- **WiFi 6GHz Analyzer**
 - Added support for all 5.9-7.1GHz channels, enabling comprehensive analysis across the entire 6GHz WiFi spectrum. This provides users with enhanced capabilities for troubleshooting and monitoring the latest WiFi 6E devices.
 - *Note: This feature requires the installation of license RFEPLIC51, available for purchase at <https://register.rf-explorer.com/?rl51>.*
- **WiFi Analyzer Channel Configuration**
 - Users can now select visualization for individual channel bandwidths: 20MHz, 40MHz, 80MHz, and 160MHz. This allows for more precise monitoring of WiFi channels, giving greater control over the specific bandwidth configurations to analyze.
- **New Device Support**
 - We are working to implement additional devices from multiple brands that are currently not available in the predefined inventory in RF Explorer Pro. Upcoming releases will include more devices to ensure compatibility with the latest models. In this release, Shure and Wisycom devices have been added.
 - **Shure Devices:** Added support for ADX3 and SLXD5. These devices are popular in professional audio setups, and their inclusion ensures compatibility for use in live event and broadcasting environments. The Shure ADX3 was introduced in 2019 as part of the Axient Digital wireless system, while the SLXD5 was launched in 2021, providing a cost-effective solution for high-quality wireless audio.
 - **Wisycom Devices:** Added support for MTK952 and MTK982. These models are widely used in wireless audio transmission, providing more options for reliable frequency analysis. The Wisycom MTK952 was first introduced in 2020, targeting professional broadcasters, while the MTK982 was launched in 2022, offering enhanced transmission capabilities for large-scale events.
- **Frequency Coordination Inventory Performance**
 - Improved performance when loading Frequency Coordination devices inventory, resulting in faster access times and smoother handling of large inventories. This enhancement helps manage complex setups more efficiently, especially when dealing with numerous devices.
- **Waterfall 2D Refresh Performance**
 - Enhanced refresh performance for Waterfall 2D, reducing delays experienced in certain conditions in previous versions. This ensures a smoother and more responsive display, allowing real-time tracking of spectrum changes without unnecessary lag.
- **System Button Enhancements**
 - When upgrading from version 1.18 or later, the firmware upgrade and license activation process can now be started directly by clicking the [System] button, eliminating the need to navigate through the USB file folder. This streamlines the upgrade process, making it more user-friendly and efficient.

Version 1.18

Release date: CEST Aug 30, 2024

Enhancements:

- **7.5GHz Support in SA and ZS Modes**

Added support for frequency range extension up to 7.5GHz in Spectrum Analyzer (SA) and Zero Span (ZS) modes. This feature requires the installation of license RFEPLIC51, available for purchase at <https://register.rf-explorer.com/?rl51>

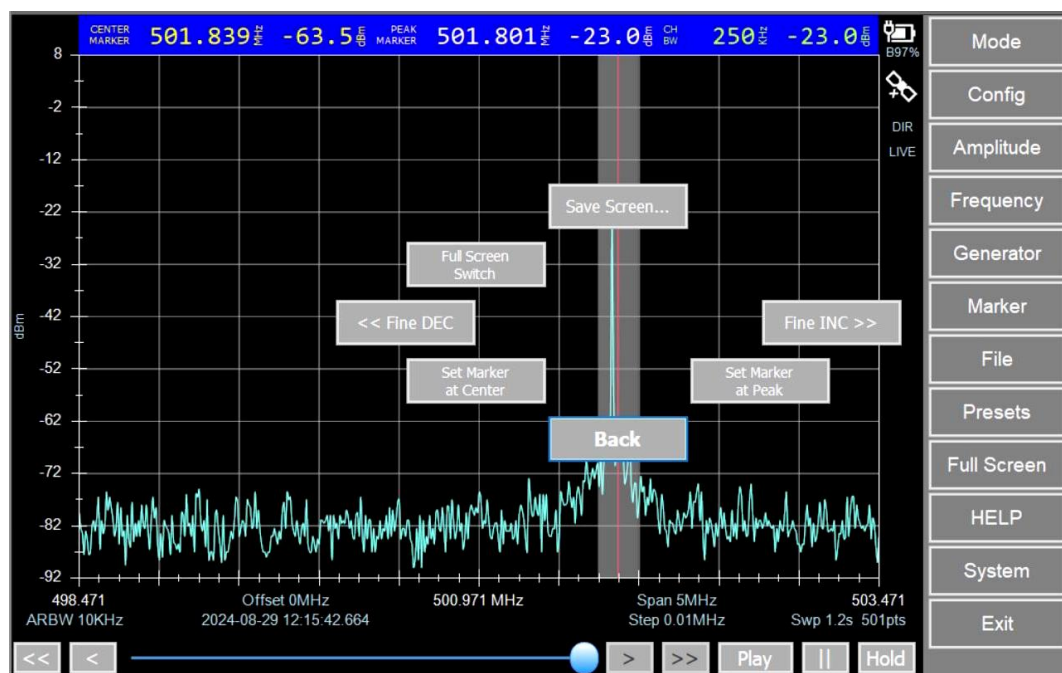
Upcoming: Native support for WiFi 6 standards across the extended frequency range is under development and will be included in a future release.

- **Dynamic Marker**

Introduced an advanced marker system with gesture-based interaction for precise amplitude and frequency analysis, including the ability to set permanent markers at center or peak positions.

For more information, refer to the online documentation for markers, which includes a dedicated section on the new Dynamic Marker feature: [Online Manual](#).

Upcoming: Future releases will include additional enhanced capabilities for advanced markers, such as extended visualization modes and support for up to 100 simultaneous markers.



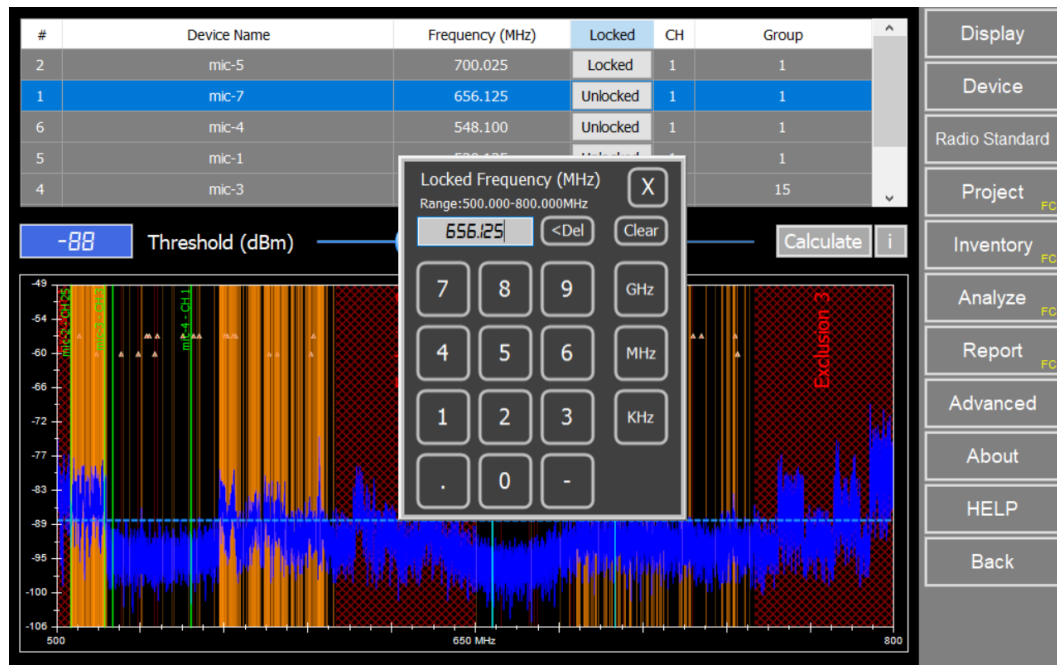
- **Faster Return from Configuration Changes**

The time required to restore sweep scans after making configuration changes has been significantly reduced. The system now optimizes response times by improving the persistence of configuration settings, minimizing disruption.

- **Frequency Coordination Device Frequency Lock**

A new feature allows users to set a fixed frequency on any device, making it permanent and preventing the coordination algorithm from changing the frequency while it is locked. This ensures that specific devices can maintain a fixed frequency, while others may be dynamically adjusted based on coordination parameters.

For more information refer to [Online Manual](#)



- **Waterfall Markers**

A new vertical line now indicates marker positions on the waterfall display, enhancing visibility and event tracking during spectrum analysis.

- **Improved Sleep/Resume Behavior**

The sleep/resume functionality has been enhanced to allow faster and more reliable transitions. A short press of the power button puts the device to sleep, with a subsequent short press resuming operation, same as previous versions. The internal RF status is improved and managed consistently during these transitions.

- **System Button License and Firmware Detection**

The [System] button now automatically scans connected USB drives for firmware upgrades and license files. This eliminates the need for manual navigation through File Explorer during future upgrades.

- **Installer Check on Boot**

The device now checks for available firmware upgrades on USB drives during the boot process. If an upgrade is detected, the system will automatically prompt the user to confirm installation.

Version 1.16

Release date: CEST July 02, 2024

Fixes:

- Improved handling of device configuration settings. Prior to this improvement, some configuration settings may have incorrectly alerted of invalid values.

Version 1.15

Release date: CEST June 25, 2024

Fixes:

- Improved Spectrum Analyzer mode scanning. This version enhances sweep scanning in certain configurations where the original scanning may not correctly adapt to the noise floor. With this version, all frequencies and ranges, regardless of the configuration, will properly handle the noise floor.

Version 1.14

Release date: CEST June 08, 2024

Fixes:

- Improved handling of Presets and Configuration settings. Prior to this fix, the default Preset might not be properly handled and could produce unexpected results.
- Corrected WiFi mode clickable labels. Before this fix, sometimes the WiFi mode might not correctly layout labels on the screen, leading to incorrect actions when clicked.
- Defaulting to Factory Reset now correctly resets temporary data related to Frequency Coordination and Cable Test modes. Prior to this fix, some temporary data might not have been eliminated and remained as valid data.

Version 1.13

Release date: CEST May 29, 2024

New Features:

- **Configuration backend data updated.** This new code uses a robust, compact, and efficient embedded database to store all configuration settings. In earlier releases, the software used a collection of XML files, which sometimes led to some settings corruption when the device went to power sleep or powered down due to critically low battery. This risk is eliminated with the new database system.
- **Improved Waterfall 2D refresh time.** A new and improved algorithm now enables faster and more efficient refreshes, reducing CPU usage and increasing battery life.
- **Enhanced sweep refresh time,** including better calculations to present the real-time span between consecutive refreshes.
- **RF Explorer Windows software compatibility.** The new RF Explorer Suite for Windows can now use and display *.RFE data files created by RF Explorer Pro. In previous versions, the PC software could not display files created by RF Explorer Pro. Please make sure to download the latest Windows software from www.rf-explorer.com/downloads.

Fixes:

- **Fixed Signal Generator mode.** In previous versions, the button layout might not display correctly.
- **Fixed Step Frequency calculation when loading a Preset.** In previous versions, the system might incorrectly set an invalid step frequency.
- **Fixed clickable labels layout for WiFi and Tracking SNA modes.** In previous versions, some of the clickable labels might not display correctly on the screen.

Version 1.12

This is internal release only, used for factory production.

Version 1.11

Release date: CEST February 15, 2024

New Features:

- Frequency Coordination mode has the following improvements:
 - Radio Standard now displayed in FC mode, a useful feature to show the device channel width in special cases.
 - The full device range (currently up to 6.1GHz) can be used to define custom devices, required for high band audio and video devices in some cases.
- A Factory Default setting is now available in the Config -> Advanced menu to reset the device configuration to factory settings.
- Improved configuration settings consistency checks. Previously, some units with low battery could suddenly power off and partially save the configuration settings. This has been improved to automatically restore from the last internal backup.
- Autodelete old files will now only delete files from the internal device folder; it will no longer delete files from the USB drive.
- Cable Tester mode now provides additional tolerance for small cables, accounting for potential loss in connectors.

Fixes:

- Fixed incorrect preset frequency configuration calculations when RBW changed. Prior to this change, a restored preset might not always display the expected frequency configuration.

Version 1.10

Release date: CEST January 05, 2024

New Features:

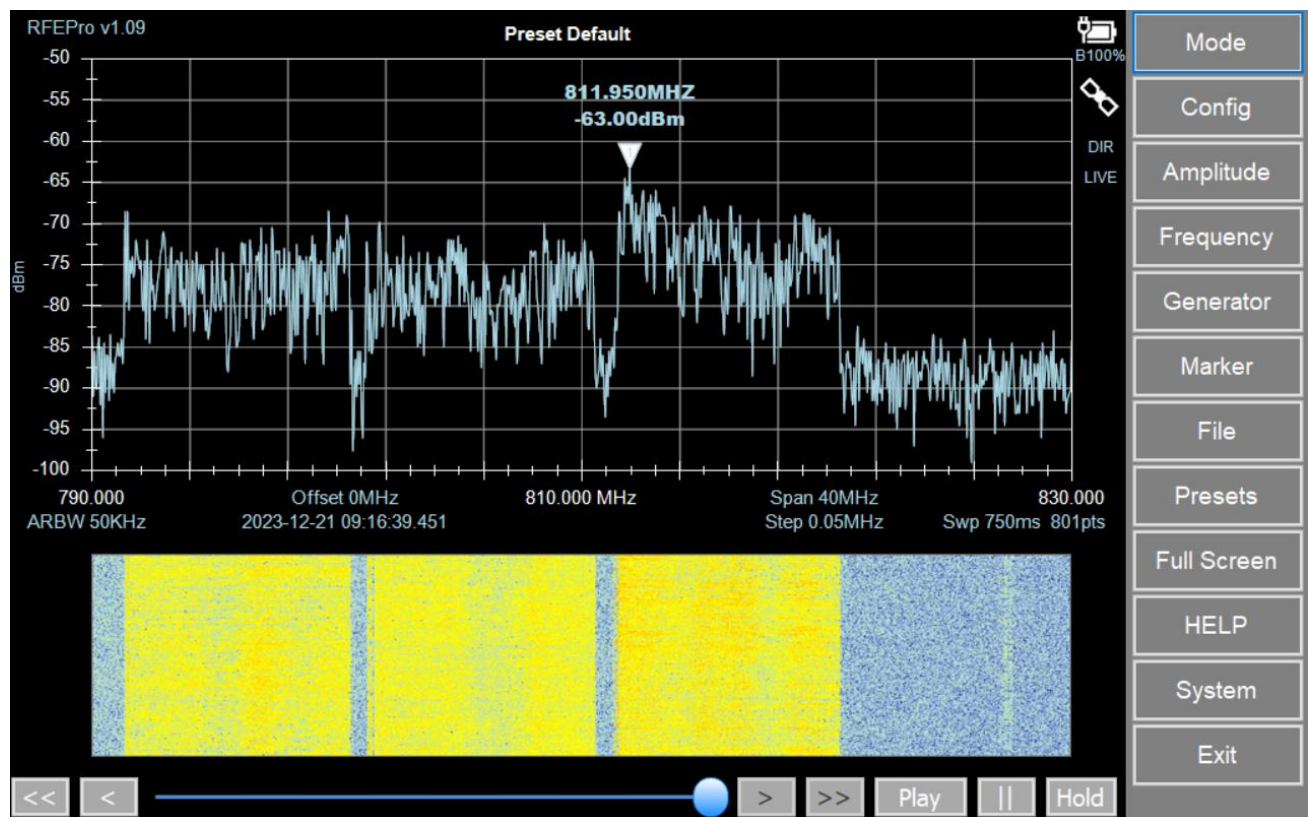
- The Frequency Coordination mode now includes an information button [i] that shows the current coordination summary in the "Analyze" menu.

Fixes:

- Manual RBW (Resolution Bandwidth) mode can now function in any configuration. In the previous version, selecting a manual RBW could introduce an incorrect frequency setting when the device was powered off, leading to an incorrect status upon being powered back on.

Version 1.09

Release date: CEST December 20, 2023



New Features:

- A new waterfall spectrometer has been added to the main screen. It can be enabled/disabled, and various options can be selected to change its size, appearance, and detection mode.
- A new simplified, yet powerful Cable Tester mode has been introduced. This mode performs a quick tracking over a cable with a predefined known loss and rapidly reports the cable status without the need for a normalization step or manual consultation of the cable datasheet.
- The new Cable Tester mode requires a license to operate. However, this mode is included in the Frequency Coordination license, so all users with this license can already use the Cable Tester mode free of charge.

Version 1.08

Release date: CEST October 20, 2023

New Features:

- Licenses that have been installed are now displayed in the Config -> About screen.
- A confirmation message will appear on the screen after a license file is installed.
- CSV files now use a comma as the default delimiter. This change addresses issues in previous versions where a different default configuration could cause problems when files were exported to other applications.
- QR codes for help now directly link to the relevant manual section.
- A [System] button has been added to the main screen menu, allowing users to access the Windows File Explorer and interact with the OS. This feature is also accessible via the on-screen touch button on the right side.
- Some users reported issues due to sensitive touch buttons. This version offers an option to disable it, although it's not recommended by default. Please check with our Support Team before disabling your touch button with this option.

Fixes:

- The Frequency Coordination mode now accurately loads and updates frequencies for each restored project. Previous versions might not have restored the frequency range correctly.
- Fixed a problem where Tracking SNA may accept steps > 95MHz. The interface now correctly restrict invalid steps.
- WiFi mode screen now correctly update Top / Bottom amplitude settings, a previous version may ignore this setting.

Version 1.07

Release date: CEST October 01, 2023

New Features and enhancements:

- WiFi Analyzer mode for bands 2.4GHz and 5.8GHz released
- In Frequency Coordination mode, users now can add multiple devices to the project inventory configuration screen by first selecting the number of devices they wish to add.

Version 1.06

Release date: CEST September 01, 2023

New Features:

- Frequency Coordination mode released

Version 1.05

Release date: CEST August 11, 2022

New Features:

- Request user confirmation for Shutdown device on [Exit]

Fixes:

- Tracking SNA
- Waterfall real time representation

Version 1.04

Release date: CEST July 07, 2023

First version for RF Explorer Pro public release, general acceptance tests completed.

Disclaimer

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For more information on RF Explorer, please visit www.rf-explorer.com

Some of the new features documented may not be available in the user manual until a final release is published.

Certain notes may refer to *beta versions*. While these have undergone extensive testing, they may not have passed the complete formal review and regression tests characteristic of a final version. If you are not comfortable with the potential for occasional bugs or data loss, you should refrain from installing a beta firmware.

Final release versions undergo a comprehensive set of test cases and a formal review process to minimize any potential issues.

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