Manual Robzyl **V5.1**

Firmware for Quansheng UV-K5 radio

Introduction

This firmware, a fork of NTOIVOLA's NUNU, is characterized by its multiple reception functions using the spectrum analyzer capable of processing up to 160 channels per second.

The main functions are listed briefly on the GitHub homepage, this doc is a little more detailed.

Robby69's Youtube channel hosts videos presenting the features of the firmware (link at the end of the doc).

Disclaimers and Responsibilities

The field of radio is regulated, everyone is responsible for the use they make of their radio.

New Features in V5.1

- Spectrum configuration menu (key 5) with 3 parameters (RSSI Delay, Spectrum Delay, and Ninja Experimental Mode).

- PTT can be used from the reception history.

- Scanlist selection screen (key *) to view the memories associated with the list.

- Spectrum scanning on Scanlists is now launched with F+4.

- History scanning on memories has been removed, but "close call" modes are retained to capture the frequencies and CTCSS of a very close transmission (* or F+*).

Firmware Installation:

- Use the chrome Flasher or download the latest version on GitHub (link at the end of the doc).

- Have the USB programming cable compatible with the set.

- Connect the computer to the computer and then start the K5 while pressing the PTT button

- Then, with the LED on steady, transfer the firmware to the K5 via the online Flasher or K5prog-win (link at the end of the document).

Quick start:

- Hidden menus: the less-used menus have been hidden for the sake of simplification. To display the full menu, simply start the talkie by pressing PTT + SIDE KEY 1

- Programming with Chirp: the driver to use to communicate with the talkie under Robzyl is to be downloaded (link at the end of the doc).

Be careful not to be in spectrum mode to be able to communicate with the PC.

Spectrum Mode features:

Common features of Spectrum Mode:

- 1st line display:
    - AM/FM/USB modulation
    - Max graph level (db)
    - listening bandwidth
    - Number of channels scanned
    - Mem number or bandwidth
    - RSSI delay (ms)
    - Spectrum delay countdown (s)

- Keys 3 and 9, high level adjustment of the spectrum in db

- Key 5, access settings (M to save after exiting the menu):

✓ RSSI Delay (2-12ms): Allows you to speed up the scan speed, but this reduces the signal-to-noise ratio. A setting of 12ms will provide normal detection, while a setting of 6ms will be much faster, but signals may be missed.

✓ SpectrumDelay (0-60s or ∞): Allows you to set the waiting time for a signal that is being listened to and has fallen below the squelch. If the value is infinite, press the Exit key to exit the listening screen. This parameter is not saved

✓ Ninja Mode: **Experimental** communication mode by changing the frequency at each PTT between two

K5s using the spectrum in Ninja mode on a shared Scanlist. See the video on YouTube.

- The horizontal Squelch [L] (speaker opening) or History [H] (frequency logging) levels:

  o By default, these levels are equal on the display.

  o The SIDE KEY 2 key allows you to select the levels to be set (H or W or HL) with the * (up) and F (down) buttons.

 o The HL/H/L display at the bottom indicates how the current levels are being selected.


```
AM -30db 6.25k 184x M121    10 ▬
Scan Lists
1:Lim ATIS(1)
........................................
  .   .  .     .        .   .  .      .
H:1          L   BL            H:200
```

Separate level adjustment:
Squelch: .... History: . . . . . .
Display: HB / B / L

- The frequency blacklist: The SIDE KEY 1 key allows you to exclude frequencies from the spectrum (e.g. beacon, digital communication, etc.). The BL display indicates that a blacklist is in progress until the device is switched off.

- The PTT button is available in spectrum, it triggers a broadcast on the frequency in VFO A or B depending on the current selection. If the PTT Toggle is active, it

is temporarily disabled. After the emission, it returns to the spectrum. Use the EXIT key to go out of the spectrum.

- The history logs the frequencies that have exceeded the [H] level and a number of occurrences is incremented each time the [L] level is exceeded, provided that there has been a change in frequency.

o 8 key for quick history display or long 0 key for list display (1). Navigate with the Up/Down keys. And press M to listen to a Frequency (2).

o Short press 8 to hide the quick history. Long press 8 to purge the history.

1

2
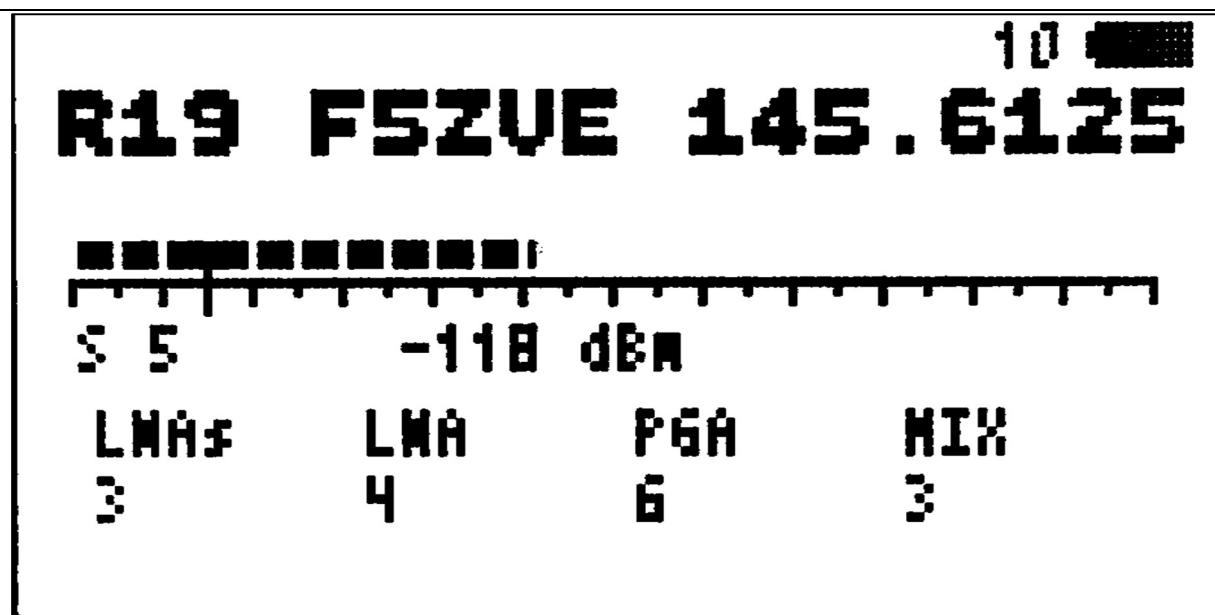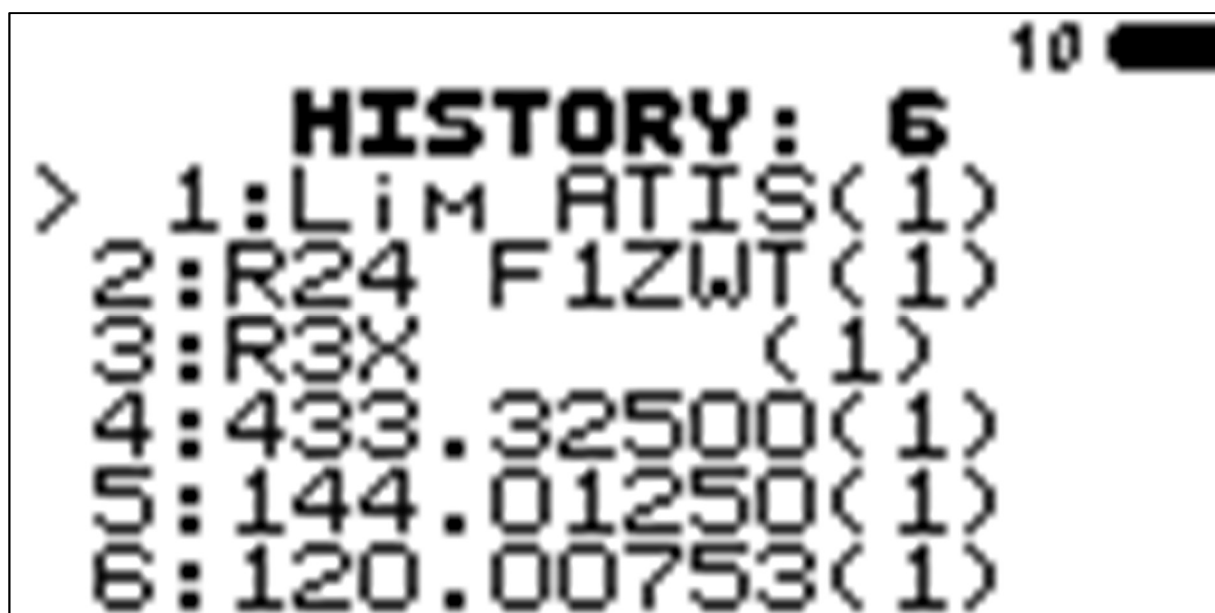
- Button 1 for self-adjusting the Squelch on the highest signal of the spectrum and alignment of the H and L bars.

- If a CTCSS or DCS code is detected then it is displayed on the screen.

- Signal normalization: Across the entire spectrum, the signal level is recalculated in order to compensate for the noise level that varies in frequency. All channels become equally sensitive to the detection of traffic. Press 2 and the top display becomes M(...). This feature is not available in band mode unless only one is active.
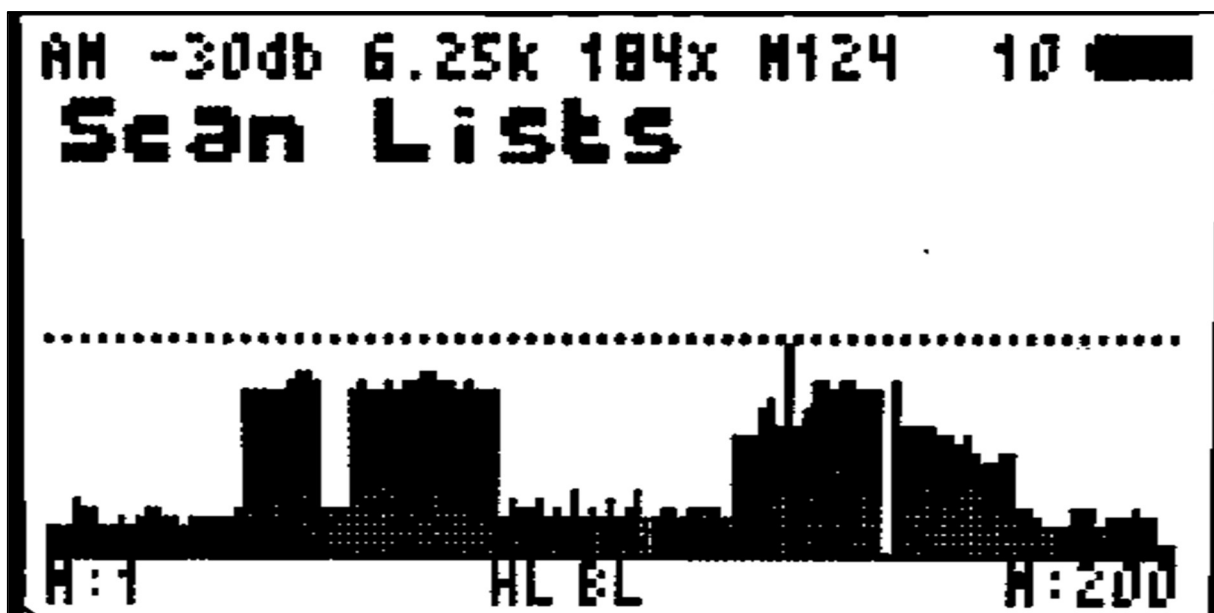
Spectre non normalisé

Spectre normalisé

✓ M allows the parameters of the spectrum to be stored (short lower display SA).

Restoration of the last state: following the shutdown of the K5, it restarts in the mode it was in when it was turned off and according to the parameters saved by pressing M. Initially, you have to initialize the saved data, or there may be erroneous information displayed, this is normal. Perform a first backup by pressing M to initialize the data

Spectrum on scan range VFO:

- In VFO mode, enter a frequency range with VFO 1 and 2 (1).
- Press long 5 to switch to ScnRng (2), then F+5 to launch the spectrum (3)

2

3
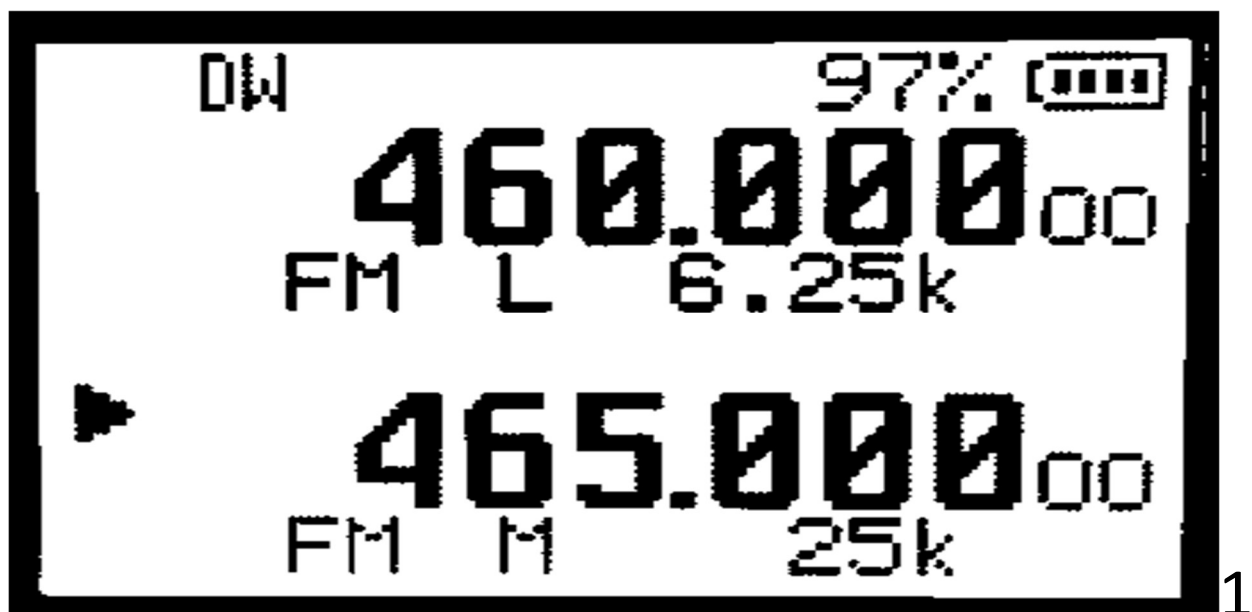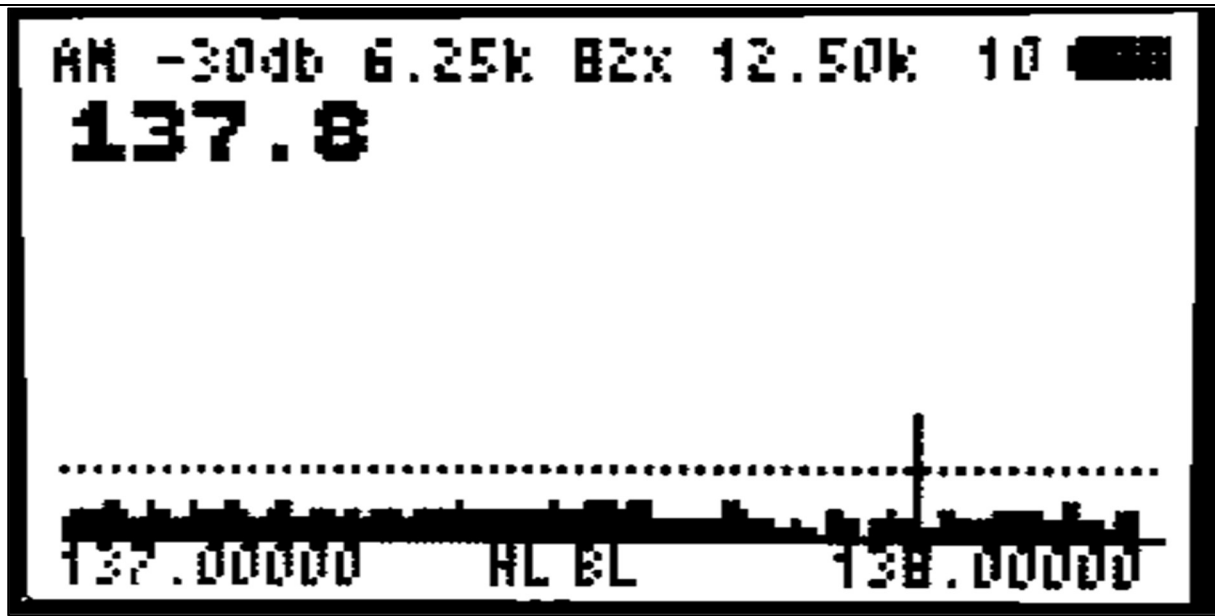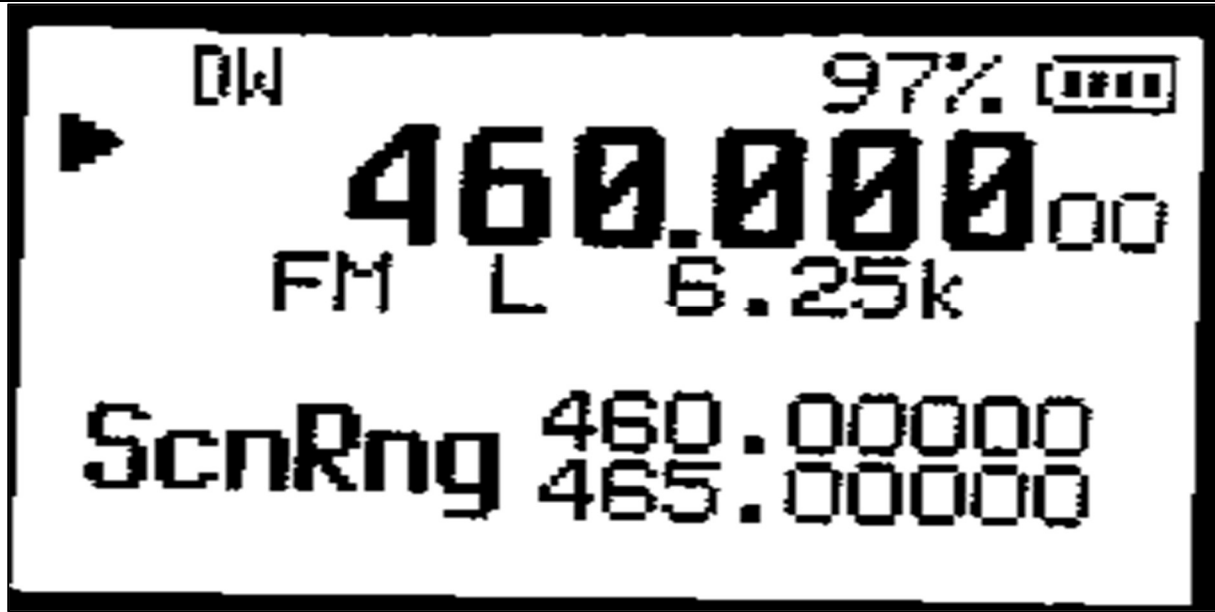
Spectrum on scan memory range at offset:

- In Chirp, program a memory with an offset equal to the upper bound of the scan range, as well as a step and a desired modulation:
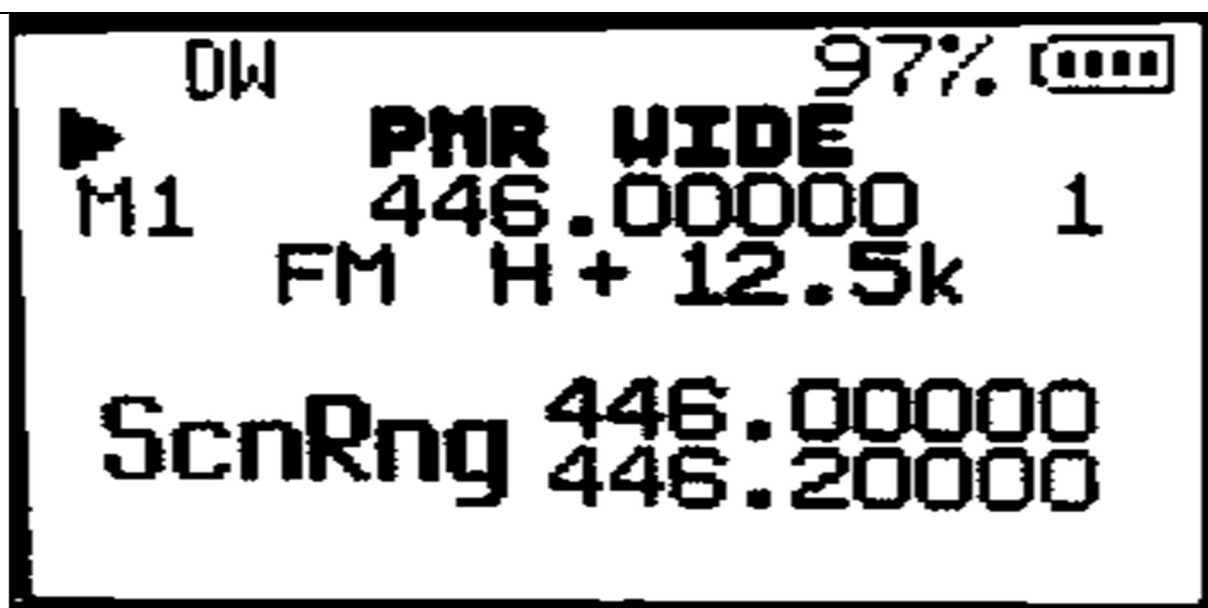
Fréquence	Nom	Duplex	Décalage	Mode	Pas de réglage
446.000000	PMR WIDE	+	446.200000	NFM	6.25

- In memory mode, select offset memory (1)

- Press long 5 to switch to ScnRng (2), then F+5 to launch the spectrum (3)

WARNING, these memories have a high OFFSET, if they are used in VFO, the offset will be used for transmission.
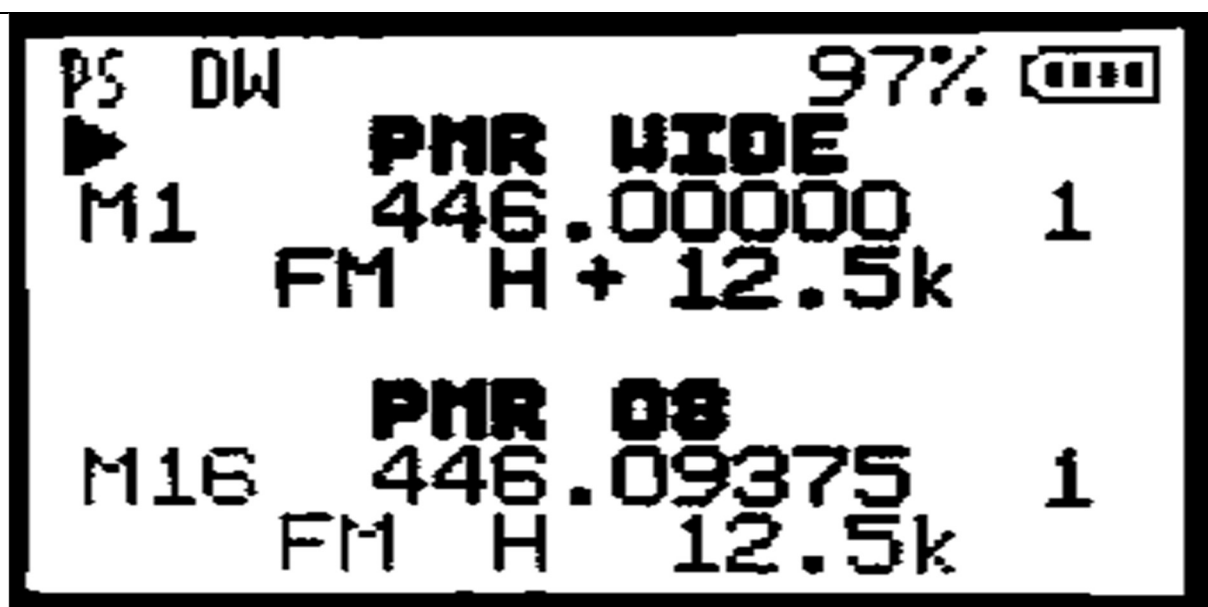
3

Spectrum on the memory bank:

- In Memory Mode (1)

- Press F+5 to launch the spectrum in channel mode (2)

- Press 4 to display the list of ScanLists to scan (3). In the list, press 4 to add/remove or 5 to select a single scanlist. The upper part of the screen lists the current Scan lists.

- Press * to show scanlist details

- Press EXIT to launch spectrum

- Press M to launch directly a single band.

3
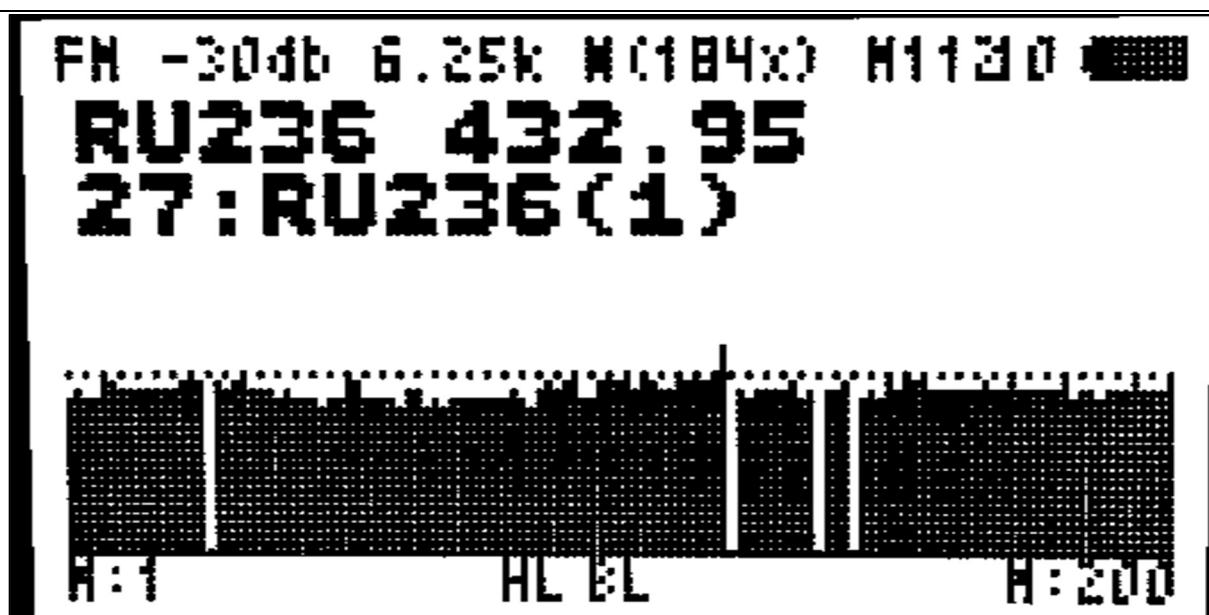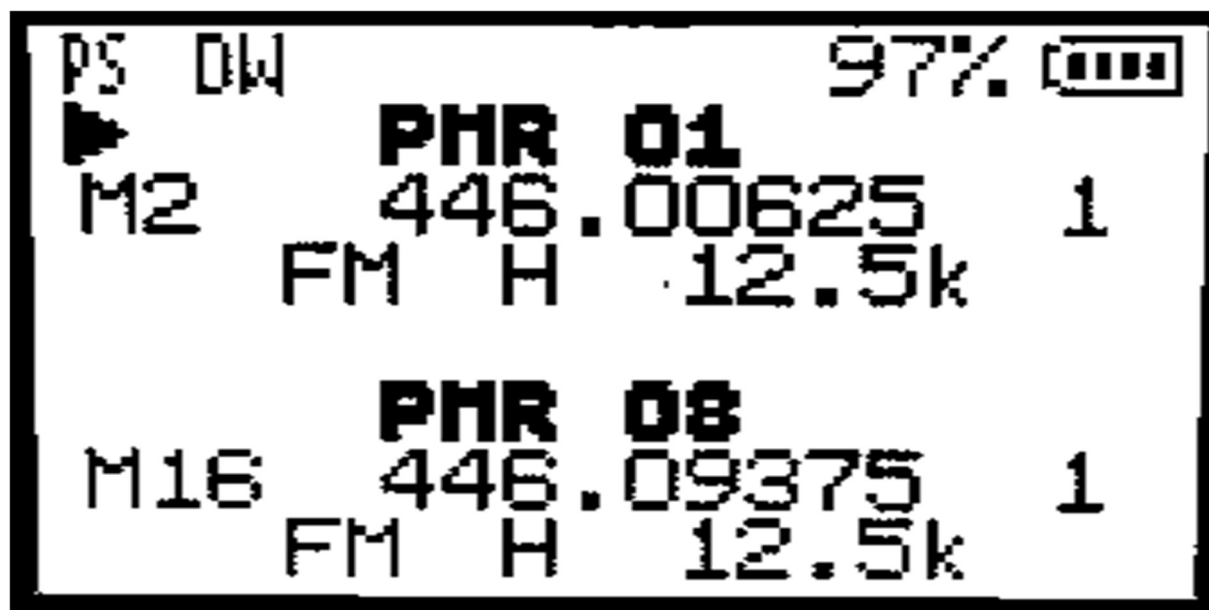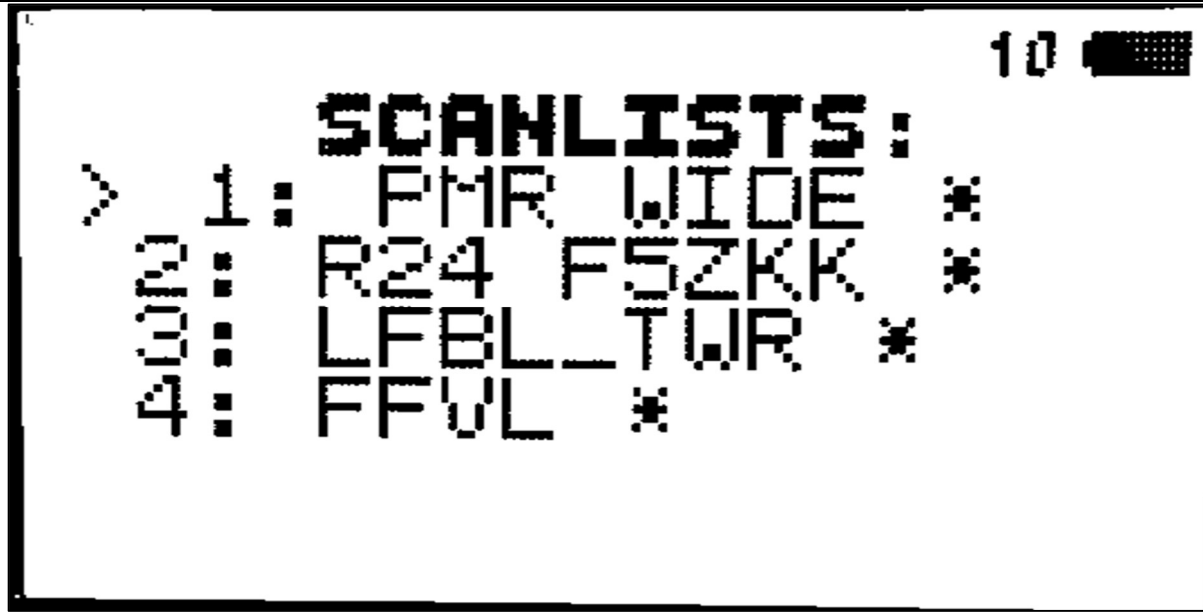
15 Scanlists possible, the easiest being to assign them beforehand in Chirp

Take care to assign scanlists in the numerical order and no hole.

Predefined band spectrum:

- The bands are stored in a customizable bands.h file with firmware recompilation (procedure linked at the end of the doc).

- It is possible to set up 32 bands.

- Example configuration file:

```
#ifdef ENABLE_FR_BAND
bandparameters BParams[32] = {
    // BandName          Startfrequency    Stopfrequency    scanStep          modulationType
    {"AIR 25k",          11800000,         13600000,        S_STEP_25_0kHz,   MODULATION_AM},
    {"AIR 8.33k",        11800000,         13600000,        S_STEP_8_33kHz,   MODULATION_AM},
    {"AIR MIL1",         22500000,         24107500,        S_STEP_25_0kHz,   MODULATION_AM},
    {"AIR MIL2",         33540000,         33970000,        S_STEP_25_0kHz,   MODULATION_AM},
    {"PMR 446",          44600625,         44619375,        S_STEP_12_5kHz,   MODULATION_FM},
    {"PMR 446b",         44600000,         44620000,        S_STEP_6_25kHz,   MODULATION_FM},
```
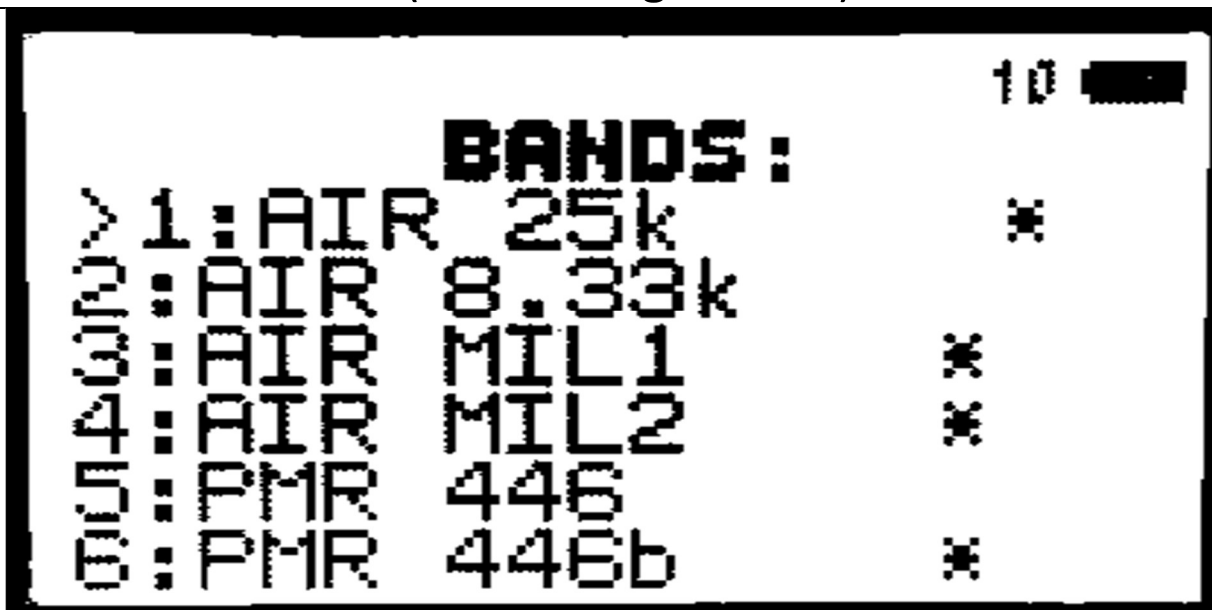
- In Memory or VFO mode (1)

- Press Fn+6 to launch the spectrum in band mode (2)

- Press 4 to display the list of bands to be scanned (3). From the list, press 4 to add/remove or 5 to select a single band.

- Press EXIT to launch spectrum

- Press M to launch directly a single band.
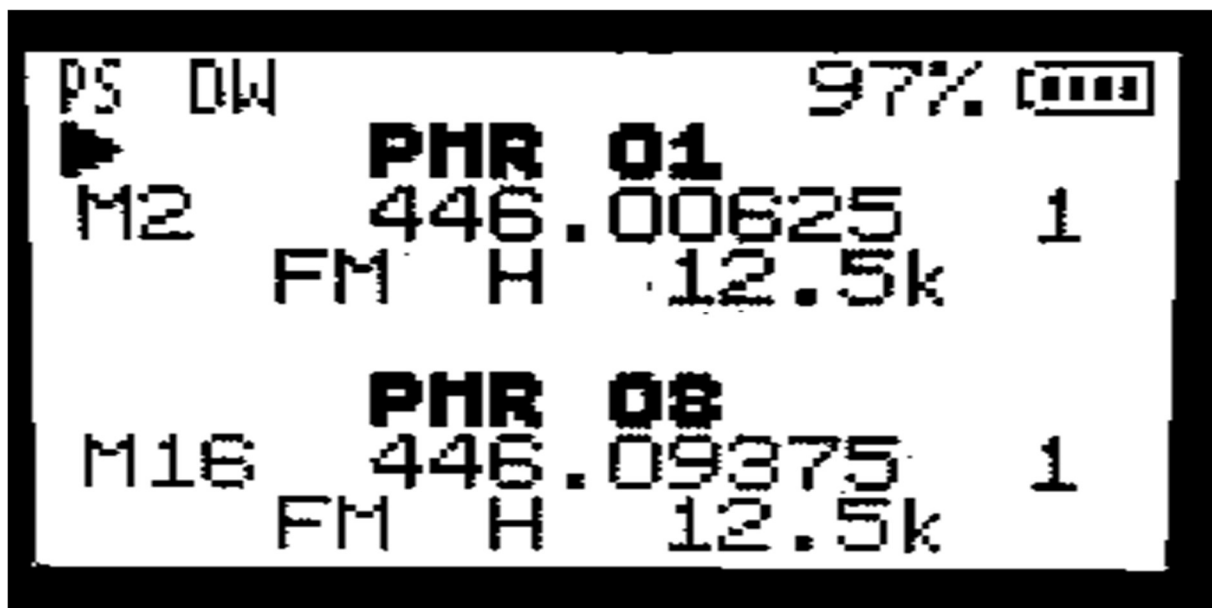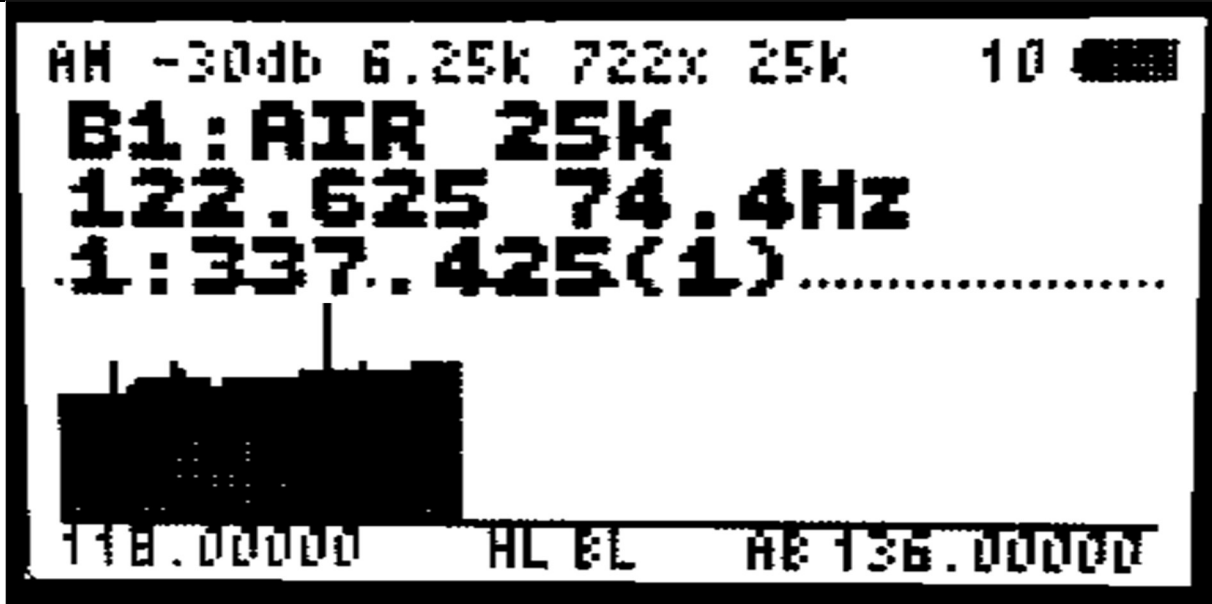
(ex. affichage CTCSS)

- Specific to this mode:

  o In single-band, you can choose AM/FM/USB modulation (0 key), otherwise it is carried by the configuration file.

  o Self-adjusting the Squelch in a loop is possible with a long press of 2 (lower display AB)

  o Signal standardization is possible in single-band.

Compilation method with Github Codespace to customize SCAN BANDS:

You don't need to install anything on your computer. All you need is a Github account.

1. Go to https://github.com/Robby69400/UV-K5-Firmware-Robby69
2. Click the green button Code
3. Change the tab from Local to Codespace
4. Click the green button Create codespace on main
5. Open bands.h, change the band options at the beginning of the file (32 max) and save the changes (This will only affect your copy)
6. From now on, keep your bands.h file, this will allow you to use it even if the rest of the code evolves.
7. In the terminal window, run:
   - ./Linux_compile-with-docker.sh all to compile all versions
8. Open the folder compiled-firmware
9. Right click on robzyl.fr.packed.bin OR robzyl.pl.packed.bin
10. Click on Download, you should now have the firmware on your computer which you can then flash to your radio. You can use the online flasher

To add it permanently to this GIT, use ENABLE_XXX_BAND (XXX your country) and send me your band. This will preserve your band for future versions.

FAQ

Is it possible to lock your K5 in the PMR strip only? :

Yes: Hidden menu display, menu No 48, value PMR446 ONLY.

Is the firmware compatible with SI4732 mods? :

No, but it may be possible.

Is the firmware compatible with EEPROM mods? :

No, but it is a possible evolution.

Helpful Resources and Links

Youtube : https://www.youtube.com/@robby_69400.

Github with Chrome flasher:
https://github.com/Robby69400/UV-K5-Firmware-Robby69

Telegram UV_K5 Dev : https://t.me/k5robby69

driver chirp : https://github.com/Robby69400/UV-K5-Firmware-Robby69/releases/tag/DriverChirp