Baofeng UV-5R File Modification for 2.5 KHz PLL Steps

I have had my UV-5R for two weeks now and I am totally satisfied with its performance for analog FM communications. The radio does have some very minor quirks which are of no consequence for my purposes. As a matter of interest, the UV-5R will not transmit or receive in the 222-225 MHz band. I have witnessed attempts to do so on a service monitor. Don't waste your time in this regard. I have also succeeded in receiving in the 480-487 MHz range. I have not/will not attempt to transmit there. I have not looked above 487 MHz.

The biggest problem in my estimation is that the PC programming software provided by the manufacturer does not allow data entry of frequencies that require a 2.5 KHz PLL step size. This doesn't matter for the US ham bands, but is consequential for some public service requirements now and in the future. My attempts to enter data to four decimal places results in a rounding up or down to the nearest 5 KHz in the third decimal place.

Similarly, frequency data entry from the radio's keypad is limited to three decimal places.

To get the radio to transmit or receive a frequency that requires the 2.5 KHz PLL step size, it is necessary to modify a saved *.dat file. This can be done and when uploaded to the radio, the radio will transmit/receive as programmed. I have verified this.

TWEAKING THE CODE

By modifying a saved *.dat file, frequencies such as 151.1525 and 154.3025 MHz can be stored in the radio's memory and *.dat file successfully.

To start, I recommend that you use the PC program to create a *.dat file which can be modified later. This initial file should include all frequencies that you want to modify in the final file even if the data at this point is "rounded" in the third decimal place. Name and save this file where you know where it can be retrieved later for viewing with a text editor.

Before modifying the saved file, be aware of some important information about the radio and its saved file!

The UV-5R has a maximum of 128 Memory Channels; they are numbered 0 through 127, inclusive, in the radio's display.

A saved file has a file extension of <file name>.**dat**.

The .dat file can be viewed using a text reader such as Microsoft's NOTEPAD or WORDPAD, or my favorite, Notepad++, a freeware program (http://notepad-plus-plus.org/. In viewing the .dat file, you do not have to have the actual PC programming software open.

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The first 128 lines of the .dat file represent the coding for Memory Channels Number 0 through 127, inclusive, but not their ALPHA TAGS.

Each line in the code contains 16 Blocks. Each Block can contain one, two or three numerals. For purposes of this discussion, I refer to the Blocks as Block 1, Block 2, Block 3, etc., through Block 16, as read from left to right.

Blocks 1 – 4, inclusive, contain the code for the receive frequency in MHz.

Blocks 5 – 8, inclusive, contain the code for the transmit frequency in MHz.

Block 9 and 10, the RX PL tone code.

Block 11 and 12, the TX PL tone code.

Blocks 13 – 16, inclusive, contains codes for other parameters such as W/N, SCAN ON/OFF, BCLO, TX POWER, etc.

For **SIMPLEX**, Blocks 1 – 4, inclusive, and Blocks 5 – 8, inclusive, are coded identically.

For **Repeater Operation**, Blocks 1 – 4, inclusive, contain the code for the receive frequency in MHz and Blocks 5 – 8, inclusive, contain the code for the transmit frequency in MHz.

It is **not important** to know the code for Blocks 9 through 16, inclusive, since these parameters can be entered and changed directly in the PC program regardless of a three-decimal or four-decimal frequency.

We shall concentrate on Blocks 1 through 4, inclusive, only, as the process for Blocks 5 through 8, inclusive, is similar.

On a piece of paper, write the frequency to be modified to eight (8) significant digits. For example, write 151.15250. Now segment this number as follows:

15 / 11 / 52 / 50. Forget the decimal place.

Using a Base-16 to Base-10 Converter which can be found on line, 15 / 11 / 52 / 50 (in Base-16) becomes 21 / 17 / 82 / 80 (in Base-10). The next paragraph explains how to enter this latter set of numbers into the data file.

Type 80 into Block 1 (or 5) of the saved file, 82 into Block 2 (or 6), 17 into Block 3 (or 7) and type 15 into Block 4 (or 8). Follow this procedure and sequence for all frequencies to be modified.

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SAVE this file and then **OPEN** it in the programming software and load it to the radio.

Remember that for simplex, Blocks 1-4 and 5-8 will have identical code.
For a repeater, Blocks 1-4 and 5-8 will be different but each is constructed as described above. For receive only, enter data into Blocks 1 through 4, inclusive, only, and enter 255 255 255 255 into Blocks 5 through 8, inclusive, respectively.

Follow the same procedure for the 480-487 MHz range.

The Base-16 to Base-10 conversion can be performed manually, but the process is longer than I wish to convey at this time.

As a final comment, never program a transmit frequency into your radio that you are not authorized to transmit on.

Respectfully,

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