

# PROJECT: DTMF REMOTE COMMANDS ON THE UV-5X3

## (REQUIRES CHIRP SOFTWARE & A PROGRAMMING CABLE)

### INTRODUCTION: BRIEF DTMF COMMANDS EXPLANATION

Any Radio with DTMF Ability can be used to send Remote Commands to a UV-5X3. For illustration purposes, and as an introduction to the function, we will explain this feature by using 2 UV-5X3s.

The UV-5X3 is capable to listening for Over-the-Air (OTA) DTMF tones and responding with a variety of remote commands.

### BASIC DESCRIPTIONS: REMOTE COMMANDS

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#### **Inspection Code:**

When this command is received the radio will respond with its ANI (Automatic Number Identification). By using inspection, you can confirm that a unit is within receiving range. This can be used for remotely testing range and reception by confirming when a UV-5X3 is within receiving range.

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#### **Monitor Code:**

When this command is received the radio will remotely open up its microphone and transmit for 15 seconds. By using Monitor, you can remotely monitor a UV-5X3's environment, along with the transmitted audio quality.

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#### **Alarm Code:**

When this command is received, it will enable the strobe and siren on the UV-5X3.

This can be used in conjunction with most BaoFeng and BTECH handhelds with the built-in alarm feature (which service as a remote 'man down call').

The default ALARM Code is '119'. To enable BaoFeng/BTECH handhelds to be automatically compatible – set your "Alarm Mode (Menu 32)" on any BaoFeng or BTECH handheld to 'Code'. They will now transmit the default '119' command when the alarm side key is pressed

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#### **Stun Code:**

When this command is received the radio will be disabled from transmitting until it is revived by the "Revive Command". The user will have limited abilities to change channels and menu options; but will not be able to transmit.

*\* Since the user is able to access menus, it would be advised to disable the reset menu in software. With the reset menu still accessible in the \*Stunned mode\*, the user would be able to manually allow transmitting with a forced menu reset (but this would also clear programmed channel information and DTMF information)*

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### Kill Code:

When this command is received the radio will be disabled from transmitting or receiving until it is revived by the “Revive Command”. The user will have limited abilities to change channels and menu options; but will not be able to transmit or receive.

*\* Since the user is able to have limited access to edit menus, it would be advised to disable the reset menu in software. With the reset menu still accessible in the \*Killed mode\*, the user would be able to manually allow transmitting and receiving with a forced menu reset (but this would also clear programmed channel information and DTMF information)*

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**Revive Code:** When this command is received, the UV-5X3 will be revived from the “Killed mode” or “Stunned Mode”. This will reinstate abilities to transmit and receive.

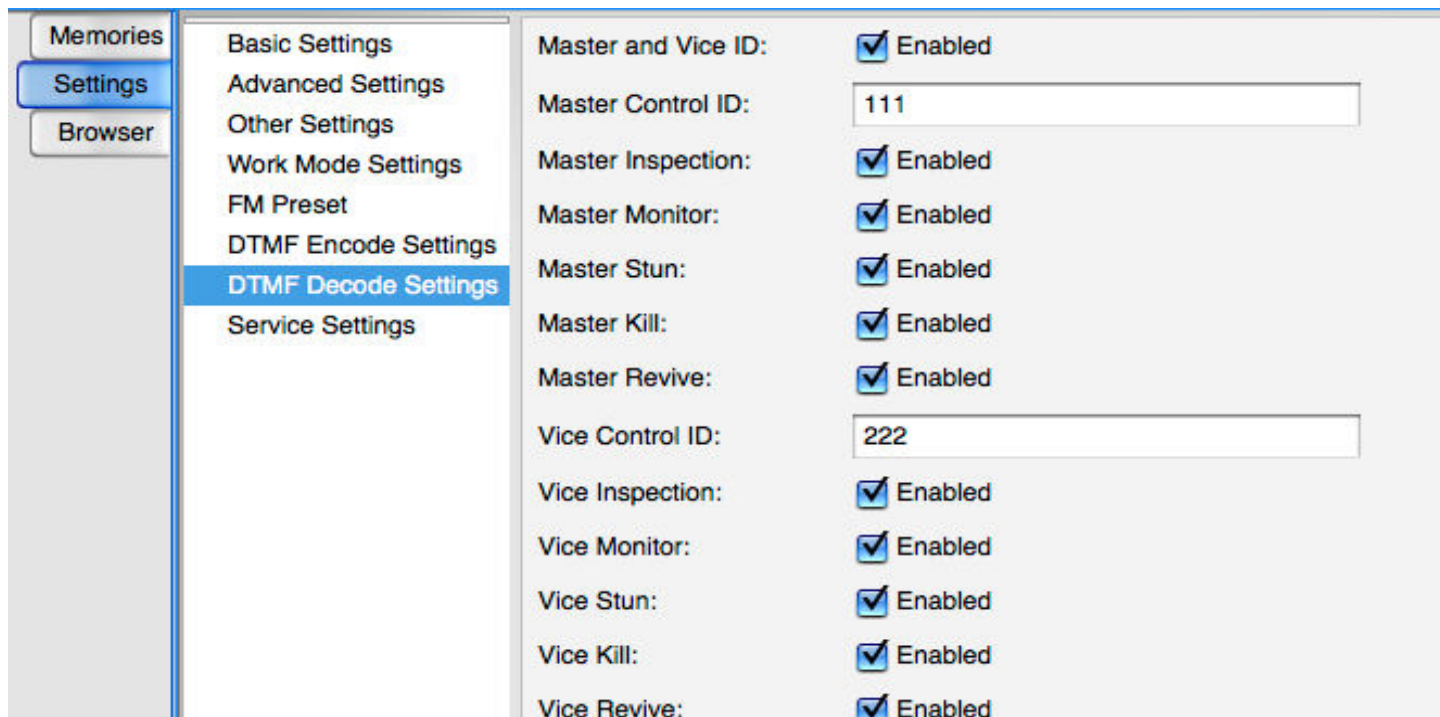
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## USER LEVELS, DETAILS AND PROGRAMMING

There are two user levels that can be assigned unique DTMF IDs: Master and Vice

You can assign each user level to have permission for all, or just some of the remote commands (Inspection, Monitor, Stun, Kill, and Revive).

*This CHIRP screenshot is below:*



# PROGRAMMING THE DECODE (RECEIVING) REMOTE COMMANDS (CHIRP):

This illustration uses the below Decode (receiving) settings, in CHIRP, for our demonstration

Setting	Value
Master and Vice ID:	<input checked="" type="checkbox"/> Enabled
Master Control ID:	111
Master Inspection:	<input checked="" type="checkbox"/> Enabled
Master Monitor:	<input checked="" type="checkbox"/> Enabled
Master Stun:	<input checked="" type="checkbox"/> Enabled
Master Kill:	<input checked="" type="checkbox"/> Enabled
Master Revive:	<input checked="" type="checkbox"/> Enabled
Vice Control ID:	222
Vice Inspection:	<input checked="" type="checkbox"/> Enabled
Vice Monitor:	<input checked="" type="checkbox"/> Enabled
Vice Stun:	<input checked="" type="checkbox"/> Enabled
Vice Kill:	<input checked="" type="checkbox"/> Enabled
Vice Revive:	<input checked="" type="checkbox"/> Enabled
Inspection Code:	101
Monitor Code:	202
Alarm Code:	303
Stun Code:	404
Kill Code:	505
Revive Code:	606
Group Code:	#
Space Code:	*
Reset Time:	8100 ms
Delay Processing Time:	500 ms

[0] Completed Setting radio settings (idle)

Inspection, Monitor, Stun, Kill, and Revive require a User Level Permission with the remote command.

Alarm is the only remote command without a User Level Permission required.

## To Send a Remote Command:

Transmit the DTMF Sequence: 'Command Code' + 'Space Code' + 'User ID'

The default space code is '\*'; you may have it set differently in software.

## Using the above settings - to send the Inspection Command you would transmit:

Using Master ID: '101' (Inspection Code) '\*' (Space Code) '111' (User Level) = '101\*111'

Using Vice ID: '101' (Inspection Code) '\*' (Space Code) '222' (User Level) = '101\*222'

## PROGRAMMING THE ENCODE (TRANSMITTING) REMOTE COMMANDS (CHIRP):

The UV-5X3 has the ability to store 15 DTMF remote commands. In this section we will reference the previous settings we just stored in our last section. The encode commands we will be storing are:

The screenshot shows the 'Settings' menu of the BaoFeng UV-5X3 radio. The 'DTMF Encode Settings' option is selected in the left sidebar. The main area displays 15 signal codes and their corresponding DTMF tones. Signal Codes 1 through 6 are pre-filled with the sequence 101\*111, 202\*111, 303\*111, 404\*111, 505\*111, and 606\*111 respectively. Signal Codes 7 through 15 are pre-filled with 77777, 88888, 99999, 12121, 34343, 56565, 78787, and 3 3 3. Below the signal codes, there are settings for DTMF Speed (on) and DTMF Speed (off), both set to 70 ms. The ANI Code is set to 333\* and the 'When to send ANI ID' is set to Off.

Signal Code	DTMF Tone
Signal Code 1:	101*111
Signal Code 2:	202*111
Signal Code 3:	303*111
Signal Code 4:	404*111
Signal Code 5:	505*111
Signal Code 6:	606*111
Signal Code 7:	
Signal Code 8:	77777
Signal Code 9:	88888
Signal Code 10:	99999
Signal Code 11:	12121
Signal Code 12:	34343
Signal Code 13:	56565
Signal Code 14:	78787
Signal Code 15:	3 3 3

DTMF Speed (on): 70 ms  
DTMF Speed (off): 70 ms  
ANI Code: 333\*  
When to send ANI ID: Off

[0] Completed Setting radio settings (idle)

In Signal Codes 1-6, we have stored the 6 commands in the same order that they appeared in the previous example. We are using the Master ID as the user ID for sending these commands.

## SENDING AND RECEIVING A COMMAND:

In this example, we will be sending a command from a UV-5X3 to another UV-5X3 (which are programmed according to the previous sections). This example also assumes that you already have the radio channels programmed and the radios are on the same frequency

First we will enable our sending radio to transmit DTMF tones from the S-CODE Storage bank. This is done from 'Menu 19' on the UV-5X3 (PTT ID).

You can set the S-Code to transmit at either: BOT, EOT, BOTH, or OFF (beginning of transmission, ending of transmission, both, or off). In this example we will set our S-Code to Transmit at 'EOT' (at the end of transmission, (after releasing the PTT)).

Menu 19 (PTT-ID) is a shared DTMF dialing menu used by both ANI (Automatic Number Identification) and S-CODE (Signal Code). In CHIRP, you will set when ANI dialing will be used (if at all). You can select ANI to be used with PTT-ID on: BOT, EOT, Both, or Off.

S-CODE dialing will be enabled on the PTT-ID settings that ANI dialing is not enabled for. In this example we had previously set ANI dialing to 'off'. This allowed S-CODE dialing to work on all items in Menu 19 (PTT-ID).



Memories	Basic Settings	Signal Code 1:	101*111
Settings	Advanced Settings	Signal Code 2:	202*111
Browser	Other Settings	Signal Code 3:	303*111
	Work Mode Settings	Signal Code 4:	404*111
	FM Preset	Signal Code 5:	505*111
	DTMF Encode Settings	Signal Code 6:	606*111
	DTMF Decode Settings	Signal Code 7:	101*##1
	Service Settings	Signal Code 8:	77777
		Signal Code 9:	88888
		Signal Code 10:	99999
		Signal Code 11:	12121
		Signal Code 12:	34343
		Signal Code 13:	56565
		Signal Code 14:	78787
		Signal Code 15:	30303
		DTMF Speed (on):	70 ms
		DTMF Speed (off):	70 ms
		ANI Code:	333*
		When to send ANI ID:	Off

Now that we have enabled S-CODE to be transmitted at the end of transmission (via Menu 19); we can now select the S-CODE we want to transmit. We will do this from the Menu 17 (S-CODE).

In this example we will transmit S-CODE 1, which was the 'Inspection code' with the Master ID user level: '101\*111'

By confirming S-CODE 1 is selected in Menu 17, exit the menu and simply momentarily press the PTT button on the same channel that the receiving UV-5X3 is on. Once you have released the PTT, the DTMF command for Inspection will be transmitted over the air. Depending on how you have Menu 16 set, you may or may not hear your DTMF tones being sent.



You should have successfully enabled the Inspection command on the receiving UV-5X3. This is confirmed by the UV-5X3 that was 'inspected' replying with its ANI (automatic number identification).

***You can also send Commands by simply dialing them on a DTMF keypad over-the-air***

## OTHER SETTINGS TO MENTION:

**In CHIRP DTMF Decode Settings you can set a couple other items:**

**Reset Time:** This is the time that a DTMF command has to be sent once the first DTMF tone is received. In our examples we were allowing 8100ms (8.1 seconds) from the first to the last tone.

**Delay Processing Time:** This is the time that it takes before the radio will respond to the command it was given. We set our examples to 500ms (half a second)

**In CHIRP DTMF Encode Settings you can set a couple other items:**

**DTMF Speed (on):** This is the time that a DTMF tone is played over the air, in our example we used 70ms.

**DTMF Speed (off):** This is the time in between DTMF tones being sent over the air, in our example we used 70ms.

## Conclusion:

Once you have the encode (receiving) commands set and the decode (storage/transmitting) commands set, it should only take a matter of seconds to send remote commands from one UV-5X3 to another UV-5X3

Several radios can store and send DTMF commands. Consult with that radio's user guide for the procedure for storing and sending DTMF commands.