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**THANK YOU FOR YOUR PURCHASE OF THE UV-2501 / UV-5001.  
THIS DUAL BAND RADIO WILL DELIVER TO YOU SECURE  
INSTANT RELIABLE COMMUNICATION.**

**PLEASE READ THIS MANUAL CAREFULLY BEFORE USE**

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# Part I. Getting started

*Part one covers the basic setup and use of your mobile two-way transceiver.*

CHAPTER 1 GETTING STARTED

CHAPTER 2 BASIC USE

# Chapter 1. – Getting Started

## BEFORE PROCEEDING INSURE:

- Qualified technicians shall service this equipment only. Do not modify the radio for any reason.
- Use only BTECH supplied or approved accessories.
- **Turn off your radio prior to entering any area with explosive and flammable materials. Do NOT USE your transceiver at a gas/fuel station**
- For vehicles with an air bag, do not mount your radio in the area over an air bag or in the air bag deployment area.
- Do not expose the radio to direct sunlight over a long time, nor place it close to a heating source.
- If the unit emits smoke or an odor, you should immediately cut off the power supply. Then send the radio to the nearest service center or dealer
- Do not operate the mobile transceiver on high power unless it is necessary. Do not transmit for long periods of time, as it may overheat the transceiver.
- Keep the unit away from dusty, damp and wet environments
- Use the correct power supply (~13.8V); do not use incorrect or higher voltage (e.g. 24V)

# Unpacking and Inspecting

- Please check the packaging of your radio for any signs of damage.
- Carefully open the box, and confirm you received the items listed below.
- If you find the radio or the included accessories are damaged or lost, immediately contact your dealer.

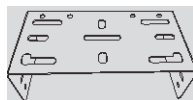
## What's in the Box



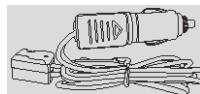
UV-2501 Pictured  
Mobile Radio



Microphone



Mounting Bracket



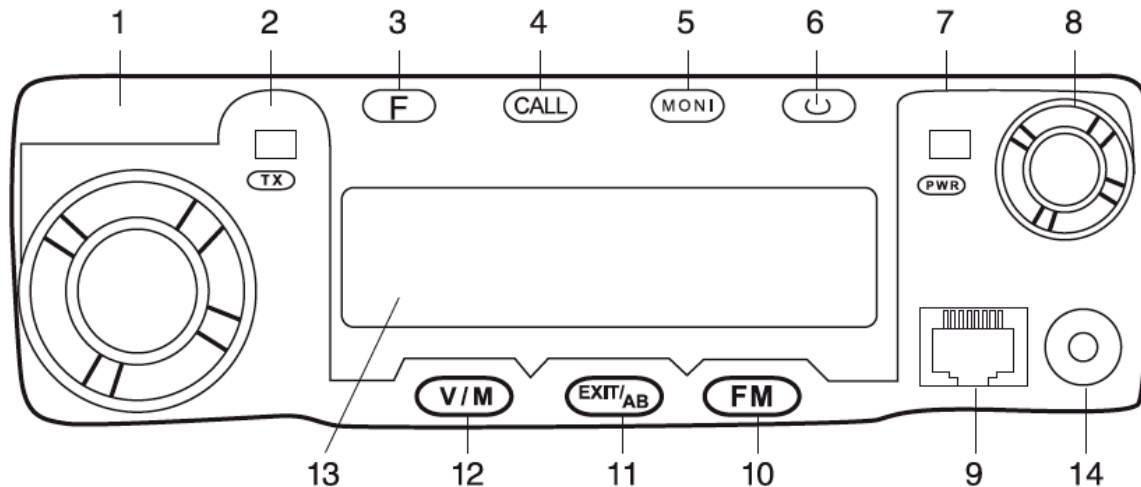
Power Cable



Mounting Screws and Fuse

## Overview of the Transceiver

*UV-5001 Pictured*



1. Selector, Main Knob
2. Transmit indicator
3. Function key
4. Call key
5. Monitor function
6. Power key
7. Power Indicator
8. Volume Knob
9. Microphone Connector
10. FM radio function key
11. Exit the AB signal switching, alarm function
12. Channel switching
13. Display screen
14. PC port \*\*\*


**\*\*\*NOTE:** *The USB Programming slot is above the power cord on the back of the radio on the UV-2501*

**\*\*\*An audio out Jack is above the power cord on the UV-5001**

**F**: click to enter the function menu

**CALL**: when in standby, press to send caller ID (ANI) in the selected signaling mode; while transmitting, press to send activate signaling.

**MONI**: press to turn on the squelch, repeat to turn off the squelch.

: hold the key to turn radio power On or Off.

**V/M**: press to switch between channel mode and frequency mode.

**EXIT/AB**: press to choose between A and B frequencies --- Or exit function mode.

**FM**: press to enter and exit FM radio



## Chapter 2. - Basic Use

### Menu Function Settings

*Can be set by microphone keypad.  
After selecting the desired option below,  
pressing the (F Key) will save the setting.*

0. **[F Key] + [0]** : TDR – ON enables to monitor both A/B frequencies at the same time.  
When off, only the selected A or B frequency is selected.
1. **[F Key] + [1]** : STEP – set step increment in frequency mode. 2.5kHz, 5kHz, 6.25kHz, 10kHz, 12.5kHz, 25kHz available.
2. **[F Key] + [2]** : SQL – Sets receiver squelch level. 0=OFF, 1=Lowest setting. 9=highest.
3. **[F Key] + [3]** : TXP - Transmit output power setting. HIGH/LOW.
4. **[F Key] + [4]** : SCR - Scrambler setting. Activating voice scrambling avoids the user's speech from being overheard by others no using the scrambler function.
5. **[F Key] + [5]** : TOT - transmission time-out timer. Sets maximum transmit time from 15 to 600 seconds (15 second steps).
6. **[F Key] + [6]** : APO – Auto Power Off powers off the radio after a predetermined time

with no receiver activity. (30 > 300 minutes)

7. **[F Key] + [7]** : WN - WIDE / NARR band width setting.
8. **[F Key] + [8]** : ABR - LCD backlight time setting. OFF / 1-50 seconds.
9. **[F Key] + [9]** : BEEP - turns key beep OFF/ON.
10. **[F Key] + [1] + [0]** : R-DCS - DCS receive setting. D023N-D754N positive sequence, D023I-D754I reversed sequence.
11. **[F Key] + [1] + [1]** : R-CTCS - CTCS receive setting. 67.0HZ-254.1HZ or can use keypad to enter your target CTCS.
12. **[F Key] + [1] + [2]** : T-DCS - transmit DCS setting. D023N-D754N positive sequence. D023I- D754I reversed sequence.
13. **[F Key] + [1] + [3]** : T-CTCS transmit CTCS setting. 67.0HZ-254.1HZ or can use keypad to enter your target CTCS.
14. **[F Key] + [1] + [4]** : DTMFST - DTMF side tone setting.  
**OFF**: No tones heard through the speaker when transmitted. **KEY**: Only manually keyed DTMF codes are heard. **ANI**: Only automatically keyed DTMF codes are heard. **BOTH**: All DTMF codes are heard.
15. **[F Key] + [1] + [5]** : BCL - busy channel lock- out. When ON, transmitter is locked out if receiver is active.
16. **[F Key] + [1] + [6]** : SC-ADD - scan add setting. OFF: removes channel from scan list. ON: adds channel to scan channel list.

17. **[F Key] + [1] + [7]** : PRI-SC - priority scan setting. ON/OFF turn on/off the function.
18. **[F Key] + [1] + [8]** : PRI-CH - priority channel scan setting. Select 000 -199 channels mark with CH at front to priority scan.
19. **[F Key] + [1] + [9]** : SC-REV - Scan recovery setting. TO: time scan, after receive carrier signal will stop scan and rescan after a while. CO: after receive carrier signal will stop scan. SE: Search scan mode. Scan will stop after receive according signal with radio.
20. **[F Key] + [2] + [0]** : OPTSIG - Signal option setting. OFF turn off the function. DTMF: dual channel signal selected mode. 2TONE: 2 tone signal mode. 5TONE: 5 tone signal mode.
21. **[F Key] + [2] + [1]** : SPMUTE - speaker mute setting. QT: turns on the speaker when receive setting is DCS. If no setting DCS, then will turn on the speaker when receive carrier signal. AND: speaker turns on only DCS and option signaling both meet radio setting. OR: speaker turn on either DCS or option signaling meet with radio setting.
22. **[F Key] + [2] + [2]** : PTT-ID - PTT-ID transmit setting. OFF: no ID code sent when transmitting. BOT: send ID code at Beginning of Transmit. EOT: send ID code at End of Transmit. BOTH: send ID code at both beginning and end of transmit. (ID code information is set by PC software setting, from menu 24 to select ID code)
23. **[F Key] + [2] + [3]** : PTT-LT - PTT-ID transmit delay setting. (Delay Time range is 0-30 seconds.)
24. **[F Key] + [2] + [4]** : S-INFO - Signal information and automatic dialing memory. 1-15

group signal code/decode memory. Only set by PC software.

25. **[F Key] + [2] + [5]** : EMC-TP - alarm mode setting. ALARM: turn on the alarm sound. ANI: send alarm code and ID code. BOTH: both above.
26. **[F Key] + [2] + [6]** : EMC-CH - alarm channel setting. CH will appear in front of the designated channel.
27. **[F Key] + [2] + [7]** : RING-T - Ring time setting. OFF: close function. Choose 1-10 seconds to set ring time when radio Signal Code is received.
28. **[F Key] + [2] + [8]** : CHNAME - channel name edit.
29. **[F Key] + [2] + [9]** : CA-MDF - Display Mode (upper) - FREQ: displays Frequency. CH: displays channel number. NAME: displays assigned channel name.
30. **[F Key] + [3] + [0]** : CB-MDF - Display Mode (lower) - FREQ: displays Frequency. CH: displays channel number. NAME: displays assigned channel name.
31. **[F Key] + [3] + [1]** : SYNC – When ON, upper and lower display are synced to the same channel.
32. **[F Key] + [3] + [2]** : PONMSG - PowerOn message. Display mode setting. FULL: Full display when turn on the radio. MSG: displays assigned PowerOn message. BATT-V displays battery voltage at PowerOn.
33. **[F Key] + [3] + [3]** : WT-LED - standby backlight setting. OFF: no backlight. Color options are BLUE, ORANGE and PURPLE.
34. **[F Key] + [3] + [4]** : RX-LED - receive backlight setting. OFF: no backlight. Color options

are BLUE, ORANGE and PURPLE.

- 35. **[F Key] + [3] + [5]** : TX-LED - transmit backlight setting. OFF: no backlight. Color options are BLUE, ORANGE and PURPLE.
- 36. **[F Key] + [3] + [6]** : MEM-CH - saves the selected channel.
- 37. **[F Key] + [3] + [7]** : DEL-CH - deletes the channel selected.
- 38. **[F Key] + [3] + [8]** : SFT-D - Frequency difference direction setting. OFF: no frequency difference. (+): Transmit offset amount will higher than the receive frequency. (-): Transmit offset amount will lower than the receive frequency.
- 39. **[F Key] + [3] + [9]** : OFFSET - difference between the transmit and receive frequency. (00.000 - 69.990 MHz)
- 40. **[F Key] + [4] + [0]** : ANI - radio ID code. Code only can set by PC software.
- 41. **[F Key] + [4] + [1]** : ANI-L - ID code length. Length = 3, 4, 5.
- 42. **[F Key] + [4] + [2]** : REP-S - repeater activate setting. Pressing CALL will send a predetermined tone. Options are 1000 Hz, 1450 Hz, 1750 Hz, 2100 Hz.
- 43. **[F Key] + [4] + [3]** : REP-M - repeater forwarding mode setting. **OFF**: close function. **CARRI**: forwarding after receive carrier. **CTDCS**: forwarding after receive correct CTDCS. **STONE**: forwarding after receive correct mono audio. **DTMF**: forwarding after receive assigned DTMF code.
- 44. **[F Key] + [4] + [4]** : TDR-AB - TDR return time. Delay time before returning to the primary channel after secondary signal is clear.

- 45. **[F Key] + [4] + [5]** : STE - Squelch Tail Elimination at the end of a received signal.  
Requires both radios to have the option ON.
- 46. **[F Key] + [4] + [6]** : RP-STE - Repeater STE requires a repeater with this function ON.
- 47. **[F Key] + [4] + [7]** : RPT-DL - RP-STE Delay time.
- 48. **[F Key] + [4] + [8]** : RESET – VFO or ALL

# Frequency Mode vs. Channel Mode

*These two modes have different functions and often confused.*

**Frequency Mode (VFO)** - Used for a temporary frequency assignment, such as a test frequency or quick field programming if permitted.

**Channel Mode (MR)** - Used for selecting preprogrammed channels.

*All programming **MUST** be initially done in the Frequency Mode only. From there you have the option of assigning the entered data to a specific channel for later access in the Channel Mode if desired.*

# Programming Repeater with Offset

EXAMPLE New memory in Channel 99:

RX = 146.850 MHz

TX = 146.250 MHz

CTCSS tone 123.0

1. Change from Menu to Menu by pressing the [EXIT/AB] button.
2. Set radio to VFO Mode by pressing [V/M]  
*Channel number at the right will disappear.*
3. Menu 37 [M] 9 9 [M] **Delete Prior Data in channel (Ex. 99)**
4. Menu 13 [M] 123.0 [M] **Select desired TX encode tone (Ex 123 CTCSS)**
  - a. Use [A/B] to select Upper display -> **Enter RX frequency (Ex. 146850)**
  - b. Use [A/B] to select Lower display -> **Enter TX frequency (Ex. 146250)**
5. **Select Upper Display** Use [A/B] key
6. Menu 36 [M] 9 9 [M] **Enter the desired channel (Ex 99)**
  - a. [EXIT] **RX has been added**
7. **Select Lower Display** Use [A/B] key
8. Menu 36 [M] 9 9 **Enter the same channel (Ex 99)**
  - a. [EXIT] **TX has been added**



9. [V/M] Return to MR Mode. **Channel number will re-appear.**

## Programming a Simplex Channel

**EXAMPLE** New memory in Channel 99:

**RX = 446.000 MHz**

**CTCSS tone 123.0**

1. Change from Menu to Menu by pressing the [EXIT/AB] button.
2. Set radio to VFO Mode by pressing [V/M]  
*Channel number at the right will disappear.*
3. Menu 37 [M] 99 [M] **Delete Prior Data in channel (Ex. 99)**
4. Menu 13 [M] 123.0 [M] **Select desired TX encode tone (Ex 123 CTCSS)**
  - a. Use [A/B] to select Upper display -> **Enter RX frequency (Ex. 446000)**
5. Menu 36 [M] 99 [M] **Enter the desired channel (Ex 99)**
  - a. [EXIT] **Channel has been added**
6. [V/M] Return to MR Mode. **Channel number will re-appear.**

## Other Basic Features

### Storing an FM Radio Station and Scanning

Use PC software to edit FM radio channels. (*software* FM option) Press microphone [\*] Key to search FM channels under FM mode.

### Keypad Lock-out

Hold the microphone [# key] for 2 seconds at standby to turn on/off the keypad lock-out function.

### PTT ID Setting

1. Use PC software to edit PTT-ID code.
2. See manual 20, select signal, Press [F] Key + [2] Key + [0] Key + [F] Key + [UP] (DOWN) select signal+ [F] Key save the setting.
3. See manual 22, setting PTT launch. Press [F] Key + [2] Key + [2] Key + [F] Key + [UP] (DOWN) select PTT-ID transmit time + [F] Key save setting.
4. See manual 23 setting PTT transmit delay time. Press [F] Key + [2] Key + [3] Key + [F] Key + [UP] (DOWN) select delay time + [F] Key save setting.
5. Press [PTT] to send setting ID code.

Optional signal setting





## DTMF signal

This radio has DTMF coding/decode function. Use PC software to input code information DTMF signal setting receive DTMF signal first. After receiving the same code as your setting, radio will show the code by display and ring. Then can speak during effective time. (ID code setting by PC software)

## DTMF

In two-way radio systems, DTMF is most commonly used for automation systems and remote control. A common example would be in amateur radio repeaters where some repeaters are activated by sending out a DTMF sequence (usually a simple single-digit sequence).

**Table 7.1. DTMF frequencies and corresponding codes**

	1209 Hz	1336 Hz	1477 Hz	1633 Hz
697 Hz	1	2	3	A - 
770 Hz	4	5	6	B - 
852 Hz	7	8	9	C - 
941 Hz	*	0	#	D - 

The BTECH UV-2501 / UV-5001 have a full implementation of DTMF, including the A, B, C and D

codes.

The numerical keys, as well as the **[\*SCAN]**, and **[#r●]**, keys correspond to the matching DTMF codes as you would expect. The A, B, C and D codes are located in the **[MENU]**, **[▲]**, **[▼]** and **[EXIT]** keys respectively (†).

To send DTMF codes, press the key(s) corresponding to the message you want to send while holding down the PTT key.

## Inspect function

When the receive DTMF code is the same as the setting inspect code, the receiver will send an ID code. The screen can display this code. This function's settings are controlled by the master ID, and not the receiving station. (inspect code is set by PC software)

## Monitor function

When receive DTMF signal is the same as the setting code, receiver will turn on the monitor function for nearby signal. This function's settings are controlled by the master ID, and not the receiving station. (monitor code is set by PC software)

## Remote stun

When receive DTMF signal is same as pre-set remote stun code, the receiver will turn off

transmit function, only the receiver (LCD will display remote stun information). Only after receiving the ON code will the transmit function return. This function's settings are controlled by the master ID, and not the receiving station. (remote stun code is set by PC software)

## **Remote Kill**

When receive DTMF signal is same as pre-set remote kill code, receiver will turn off all functions, and LCD will display remote kill information. Only after receiving the ON code will the radio's function return. This function's settings are controlled by the master ID, and not the receiving station. (remote kill code is set by PC software)

## **Turn on function**

When receive DTMF signal matches the pre-set turn on code, the remote stun or remote kill will be cancelled. This function's settings are controlled by the master ID, and not the receiving station. (remote kill code is set by PC software)

## **Alarm function**

When receive DTMF signal matched the pre-set alarm code, the receiver's alarm function will be turned on. Alarm mode and alarm channel are set by PC software. This function is controlled by the master ID and not the receiving station. (Alarm code is set by PC software). Signal control by

master ID means the function only works by signal code and master ID both confirm. No control by master ID coding format: signal code + #(patch code) + information code. Control by master ID coding format: signal+#(patch code)+ master ID code+#(patch code)+information code

## **DTMF Transmit by Call Key Setting:**

1. Select DTMF signal, press [F] Key + [2] Key + [O] Key + [F] Key + UP(DOWN) select DTMF signal + [F] Key save setting.
2. Select signal Information code. Press [F] Key + [2] Key + [4] Key + [F] Key + UP(DOWN) select decode signal information code group (1-15) + [F] Key save the setting.(Can use PC software set DTMF code).
3. Press [Call] Key transmit selected DTMF code group at standby.

## **2TONE Transmit by Call Key Setting**

1. Press [MENU] Key select 20 OPTSIG, press [F] Key select 2TONE function.
2. Press [MENU] Key select 24 S-INFO, press [F] Key select pre-code signal group (1-16). (Can use PC software setting 2TONE)
3. Corresponding function will turn on when receive 2TONE signal is same as pre-set 2TONE code
4. Press [Call] Key to send 2TONE group code at standby.

## 5TONE Signal Setting

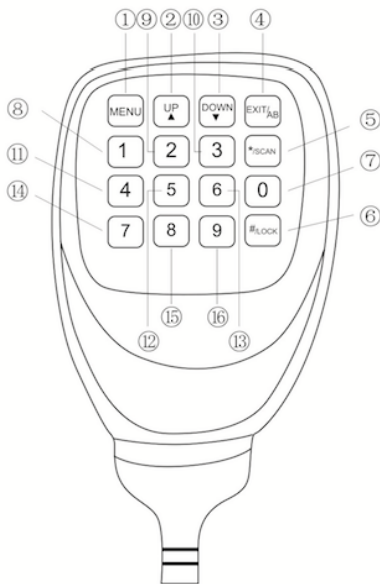
This radio has a 5TONE coding/decode function. You can use PC software to input signal information code. Set 5TONE signal, then after receive same 5TONE signal code receive and turn on the ring function and display the information code. Speech at effective time is available. (ID code can use PC software to setting)

Press [CALL] Key to transmit 5TONE

1. Press [MENU] Key, select 20 OPTSIG press [F] Key select 5TONE function.
2. Press [MENU] Key, select 24 S-INFO press [F] Key select pre-code signal group 1-16. (Can use PC software setting 5TONE information code, each group can transmit 3 group 5TONE code for optional).
3. Press [CALL] Key transmit pre-set 5TONE code group at standby.

## Hand Held Mic Function Keys and Description

- 1 "MENU": Function key
- 2 "UP": Higher frequency
- 3 "DOWN": Lower frequency
- 4 "EXIT": Exit the AB channel switch, alarm function
- 5 "\* /SCAN": Scanning function
- 6 "#/LOCK": Keyboard lock function
- 7 "0": Number 0
- 8 "1": Number 1
- 9 "2": Number 2
- 10 "3": Number 3
- 11 "4": Number 4
- 12 "5": Number 5
- 13 "6": Number 6
- 14 "7": Number 7
- 15 "8": Number 8
- 16 "9": Number 9



### Scanning Receiver Mode

Press "\*" /SCAN" key shortly. then press it for a long time to enter the scanning receiver mode.



## Appendix A. - Menu definitions

0	TDR	Transmit Dual Receive	ON	Allows monitoring of 2 channels. Toggles between Freq A and B. If signal received, RX stays on Freq.
			OFF	Receives on selected channel
1	STEP	Frequency Step Size Setup	5.0 to 25. kHz	5, 6.25, 10, 12.5, 15, 25 kHz
2	SQL	Squelch Level	00 > 09	10 squelch levels 00 = minimum / normally open
3	TXP	Transmit Power	High	Full Power
			Low	Reduced Power
4	SCR	Voice Scrambler	ON	Activate Scrambler Function
			OFF	Deactivate Scrambler Function
5	TOT	Time Out Timer	15 > 600 secs	15 second steps
			OFF	Turn of Time out Timer
6	APO	Auto Power Off	30, 60 > 300 Minutes	Time set that radio will power off after the last signal has been received.
			OFF	Turn off APO
7	WN	Bandwidth	Wideband	25.0 kHz
			Narrowband	12.5 kHz

8	ABR	LCD Backlight Timer	1 > 50 secs	Backlight duration = 1 > 50
			OFF	Backlight remains ON.
9	BEEP	Keypad Voice Prompt	ON / OFF	Turn ON / OFF keypad voice prompt
10	R-DCS	Receive - Digital Coded Squelch	D023N > D754I	Squelch opens when proper DCS code is detected
			OFF	No DCS code required
11	R-CTCS	Receive - Analog Tone Squelch	67.0 > 254.1 Hz	Squelch opens when proper CTCSS tone detected
			OFF	No CTCSS tone required
12	T-DCS	Transmit - DCS Code	D023N > D754I	Transmits specified code
			OFF	No DCS code transmitted
13	T-CTCS	Transmit - CTCSS Code	67.0 > 254.1 Hz	Transmits specified tone
			OFF	No CTCSS tone transmitted
14	DTMFST	DTMF Side Tone	OFF	No tones are heard through the speaker when transmitted
			KEY	Only manually keyed DTMF codes are heard
			ANI	Only automatically keyed DTMF codes are heard
			BOTH	All DTMF codes are heard
15	BCL	Busy Channel Lockout	ON	Prevents transmit if active signal on the channel
			OFF	No lockout
16	SC-ADD	Add Scan Channel	ON	Add channel to scan list
			OFF	Remove channel from scan list
17	PRI-SC	Priority Scan	ON	Activate Priority Scan
			OFF	Deactivate Priority Scan

18	PRI-CH	Priority Channel	000 > 199	Channel selected for Priority Scan
19	SC-REV	Scan Resume Method	TO	(Time Operation) Scan stops when signal detected. Scan resumes after a predetermined time.
			CO	(Carrier Operation) Scan stops when signal detected. Scan resumes when signal disappears.
			SE	(Search Operation) Scan stops when signal detected. Scanning will not resume.
20	OPTSIG	Optional Signaling	OFF	No optional signaling
			DTMF	DTMF signaling selected
			2TONE	2TONE signaling selected
			5TONE	5TONE signaling selected
21	SPMUTE	Speaker Mute Settings	QT	Squelch opens when any non-OptSig activity is present.
			AND	Squelch opens when CTCSS/DCS tone is recognized along with the optional signaling.
			OR	Squelch opens when either the CTCSS/DCS tone OR the optional signaling is recognized.
22	PTT-ID	PTT ID - When to send	OFF	Do not send
			BOT	Send at Beginning of Transmission
			EOT	Send at the End of Transmission
			BOTH	Send at both Beginning and End
23	PTT-LT	PTT ID - Transmit Delay	0 > 30	Set Delay Time

24	S-INFO	Auto Group Dialing	Group Signal Code Memory	1 > 15 Can only be set with software
25	EMC-TP	Alarm Mode	ALARM	Turn on Alarm sound
			ANI	Send Alarm code and ID code
			BOTH	Both of the above
26	EMC-CH	Alarm Channel	000 > 199	Specified Alarm Channel
27	RING-T	Ring Time	OFF, 1 > 10	OFF - No Ring Time
				1 > 10 seconds ring time when signal code received
28	CHNAME	Channel Name	Channel Name Edit	In Channel Mode, edit the Current Name
29	CA-MDF	A Channel	FREQ	In Channel Mode, display the selected format in display A
		Display Mode	CH	
			NAME	
30	CB-MDF	B Channel Display Mode	FREQ	In Channel Mode, display the selected format in display B
			CH	
			NAME	
31	SYNC	Sync Displays	OFF	Separate A/B channel display.
			ON	Display A and B are synced. This allows the upper display to show channel Name while the lower shows the Frequency.
32	PONMSG	Power On Message	FULL	Full Screen Display
			MSG	Show Power On Message
			BATT-V	Display Battery Voltage

33	WT-LED	Standby - Backlight Color Selection	OFF	Select desired color
			BLUE	
			ORANGE	
			PURPLE	
34	RX-LED	Receive - Backlight Color Selection	OFF	Select desired color
			BLUE	
			ORANGE	
			PURPLE	
35	TX-LED	Transmit - Backlight Color Selection	OFF	Select desired color
			Blue	
			ORANGE	
			PURPLE	
36	MEMCH	Memory Channel	000 > 199	Indicates channel number to be stored. "CH" will appear after channel is stored.
37	DELCH	Delete Channel	000 > 199	Indicates channel number to be deleted. "CH" will disappear after channel is deleted.
38	SFT-D	Frequency Shift Direction	OFF	No Offset (simplex)
			+	Plus frequency shift
			-	Minus frequency shift
39	OFFSET	Frequency Shift Offset Amount	00.00 > 69.99	Frequency shift in MHz
40	ANI		ANI ID Code	Can only be set with software

41	ANI-L	ANI Length	3, 4, 5	Length of ANI ID code
42	REP-S	Repeater Activation Tone	1000Hz 1450Hz 1750Hz 2100Hz	Audible tone for repeater activation
43	REP-M	Repeater Forwarding Mode	OFF	Function OFF
			CARRI	Forward after receiving Carrier
			CTDCS	Forward after receiving correct CTDCS
			TONE	Forward after receiving correct mono audio (Menu 42)
			DTMF	Forward after receiving assigned DTMF code. (ANI)
44	TDR-AB	TDR Return Time Delay	OFF	Function OFF
			1 > 50 seconds	This is the delay time before returning to the primary channel after secondary signal is clear.
45	STE	Squelch Tail Elimination Requires both radios have function ON.	OFF	Function OFF
			ON	Eliminates squelch tail at end of transmission.
46	RP-STE	Repeater Squelch Tail Elimination Requires a repeater using this function.	OFF	Function OFF
			1 > 10	Delay Time
47	RPT-DL	Repeater squelch tail delay.	OFF	Function OFF
			1 > 10	Delay Time
48	RESET	Initialize to Factory Defaults	VFO	Menu Initialization
			ALL	Menu and Channel Initialization

## Appendix B. - Technical specifications

### General

#### General specifications

Specification	Value
Frequency Range (MHz)	65-108 (FM radio Rx only ) 136-174 (Rx) 210-230 (Rx) 400-520 (Rx)
TX (amateur radio bands)	222-225MHz
Memory channels	200
Frequency stability	2.5ppm
Frequency step (kHz)	5.0K/6.25K/10.0K/12.5K/15k/25.0K
Squelch Setup	CARRIER / CTCSS / DCS / 5Tone / 2TONE / DTMF
Antenna impedance	50 Ohm
Operating temperature	-20°C to +60°C
Supply voltage	13.8V DC±15%
Dimension	UV-2501+220: 98(w) x 35 (H) x 118 (D) mm; 408g
Operating Temperature	-5°F - +140°F

## Receiver

### *Receiver specifications*

	Broadband	Narrow band
Sensitivity	$\leq 0.25\mu\text{V}$	$\leq 0.35\mu\text{V}$
Channel choice	$\geq 70\text{dB}$	$\geq 60\text{dB}$
Intermodulation	$\geq 65\text{dB}$	$\geq 60\text{dB}$
Spurious Rejection	$\geq 70\text{dB}$	$\geq 70\text{dB}$
Audio response	+1~-3dB (0.3-3KHz)	+1~-3dB (0.3~2.55KHz)
Signal to noise ratio	$\geq 45\text{dB}$	$\geq 40\text{dB}$
Audio Distortion	$\leq 5\%$	
Audio output power	$\geq 2\text{W}@10\text{''Yo}$	

## Transmit

	Broadband	Narrow band
Output power	25W / 10W (VHF/UHF) UV-2501 50W / 10W (VHF/UHF) UV-5001	
Modulation Mode	16K $\Phi$ F3E	11K $\Phi$ F3E
Channel Power	$\geq 70\text{dB}$	$\geq 60\text{B}$
Signal to noise ratio	$\geq 40\text{dB}$	$\geq 36\text{dB}$
Parasitic harmonic	$\geq 60\text{dB}$	$\geq 60\text{dB}$
Audio response	+1~-3dB(0.3-3KHz)	+1~-3dB (0.3-2.55KHz)
Audio distortion	$\leq 5\%$	