UV-82
PROFESSIONAL FM TRANSCEIVER

Dual Band Dual Watch   Double Launch Key

Call Tone (1750Hz)   DTMF Encoded / DTMF

General

Frequency Range	UHF 400-520MHz VHF 136-174MHz(dual band)
Channel Capacity	128
Channel Spacing	2.5/5/6.25/10/12.5/20/25KHz
Operated Voltage	7.4V
Battery Life(5-5-90 duty cycle)	About 10 hours
Frequency Stability	±2.5ppm
Operated Temperature	- 20℃- + 50℃
Antenna Impedance	50 Ω

Transmitter

RF Power Output	5W/1W
Modulation	16K¢F3E/11 K¢F3E
Spurious power	≤7.5uW
FM Noise	≥-45dB/≥-40dB
Modulation sensitivity	8-12mV
Transmitting Current	≤1.5A

Receiver

Sensitivity	-122dBm (12dB SINAD)
Selectivity	65dB/60dB
Intermodulation	≥65dB/≥60dB
Adjacent Channel Selectivity	≥65dB/≥60dB
Spurious Response	≥65dB
Receive current	≤380mA
Audio Power Output	1W
Audio Distortion	<10%

CONTENT

SAFETY INFORMATION

The following safety precautions shall always be observed during operation, service and repair of this equipment.

▶ This equipment shall be serviced by qualified technicians only.
▶ Do not modify the radio for any reason.
▶ Use only BAOFENG supplied or approved batteries and chargers.
▶ Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.
▶ Turn off your radio prior to entering any area with explosive and flammable materials.
▶ Do not charge your battery in a location with explosive and flammable materials.
▶ To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any area where posted notices instruct you to do so.
▶ Turn off your radio before boarding an aircraft. Any use of a radio must be in accordance with airline regulations or crew instructions.
▶ Turn off your radio before entering a blasting area.
▶ For vehicles with an air bag, do not place a 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 heating source.
▶ When transmitting with a portable radio, hold the radio in a vertical position with the microphone 3 to 4 centimeters away from your lips. Keep antenna at least 2.5 centimeters away from your body when transmitting.

⚠ **WARNING: If you wear a radio on your body, ensure the radio and its antenna are at least 2.5 centimeters away from your body when transmitting.**

UNPACKING AND CHECKING EQUIPMENTS

Carefully unpack the transceiver. We recommend that you identify the items listed in the following before discarding the packing material. If any items are missing or have been damaged during shipment, please contact your dealers immediately.

ITEM	QUANTITY
Transceiver Unit	1
Battery Pack	1
Antenna	1
Adapter	1
Drop-in Charging Tray	1
Belt Clip	1
Handstrap	1

Transceiver Unit   Battery Pack   Antenna   Adapter   Drop-in Charging Tray

Belt Clip   Handstrap

Note:
- Items included in the package, may differ from those listed in the table above depending on the country of purchase. For more information, consult your dealer or vendor.
- Consult the dealer or retailer for information about options available.

FEATURES AND FUNCTIONS

- Dual-band handheld transceiver with display function menu on the display "LCD".
- Commercial FM radio receiver (65 MHz ~ 108 MHz).
- Frequency Mode/Channel Mode
- DTMF encoded.
- Incorporates 105 codes "DCS" and 50 privacy codes "CTCSS" programmable.
- CTCSS & DCS Scanning
- CTCSS & DCS Direct input
- Function "VOX" (voice operated transmission).
- Alarm function.
- Up to 128 memory channels.
- Broadband (Wide) / Narrowband (Narrow), selectable.
- High power / low (5 W/1 W) selectable.
- Display illumination and programmable keyboard.
- Function "beep" on the keyboard.
- Dual Standby/dual reception .
- Crossband reception/transmission
- Selectable Frequency Step 2.5/5/6.25/10/12.5/20/25 kHz.
- Function "OFFSET" (frequency offset for repeater access).
- Frequency reverse
- Battery saving function "SAVE".
- Timer transmission "TOT" programmable.
- Selecting the Scan Mode.
- Function Busy Channel Lock "BCLO".
- Built-in RX CTCSS/DCS scan
- Built-in LED flashlight.
- Programmable by PC.
- Level Threshold "Squelch" adjustable from 0 to 9.
- Tone end of transmission
- Built-in key lock

OPTIONAL ACCESSORIES

Note: Consult the dealer or retailer for information about options available

INSTALLATION OF ACCESSORIES

INSTALLING THE ANTENNA

Install the antenna as shown in the figure below and turn it clockwise until it stops.

Note:
- When installing the antenna, don't rotate it by its top, holding it by its base and turn.
- If you use an external antenna, make sure the 'SWR' is about 1.5:1 or less, to avoid damage to the transceiver's final transistors.
- Do not hold the antenna with your hand or wrap the outside of it to avoid bad operation of the transceiver.
- Never transmit without an antenna.

INSTALLING THE BELT CLIP

If necessary, install the belt clip at the rear of the battery compartment cover as shown in the figure below.

Note:
- Do not use any kind of glue to fix the screw on the belt clip. The solvents Glue may damage the battery casing.

MICRO-HEADSET INSTALLATION OF EXTERNAL

Plug the external micro-headset connector into the jack of 'SP. & MIC'of the transceiver as shown in the figure below.
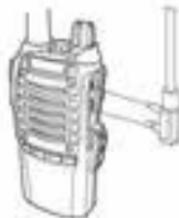
INSTALLATION OF ACCESSORIES

BATTERY INSTALLATION

-When attaching the battery, make sure the battery is in parallel and in good contact with the aluminum chassis. The battery bottom is about 1 to 2 centimeters below the bottom of the radio's body.

-Align the battery with the guide rails on the aluminum chassis and slide it upwards until a 'click' is heard.

-The battery latch at the bottom locks the battery.

-Turn off the radio before removing the battery.

-Slide the battery latch, at the bottom of the radio's body, in the direction indicated by the arrow.

-Slide down the battery for about 1 to 2 centimeters,and then remove the battery from the radio's body.
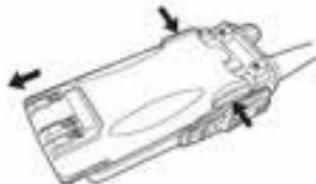
BATTERY CHARGING

Use only the charger specified by the manufacturer. The charger's LED indicates the charging progress.

CHARGING STATUS	LED INDICATION
Standby (no-load)	Red LED flashes,while Green LED glows
Charging	Red LED solidly glows
Fully Charged	Green LED solidly glows
Error	Red LED flashes,while Green LED glows

Please follow these steps:

1. Plug the AC connector of the adapter into the AC outlet socket.
2. Place the radio with the battery attached, or the battery alone, in the charger.
3. Make sure the battery is in good contact with the charging terminals. The charging process initiates when the red LED lights.
4. The green LED lights about 4 hours later indicating the battery is fully charged. Then remove the radio with the battery attached or the battery alone from the charger.

BATTERY INFORMATION

INITIAL USE

New batteries are shipped uncharged fully from the factory. Charge a new battery for 5 hours before initial use. The maximum battery capacity and performance is achieved after three full charge/discharge cycles. If you notice the battery power runs low, please recharge the battery.

WARNING:

-To reduce the risk of injury, charge only the battery specified by the manufacturer. Other batteries may burst, causing bodily injury and property damage.

-To avoid risk of personal injury, do not dispose of batteries in a fire!

-Dispose of batteries according to local regulations (e.g. recycling). Do not dispose as household waste.

-Never attempt to disassemble the battery.

BATTERY TIPS

1. When charging your battery, keep it at a temperature among 5℃ - 40℃. Temperature out of the limit may cause battery leakage or damage.
2. When charging a battery attached to a radio, turn the radio off to ensure a full charge.
3. Do not cut off the power supply or remove the battery when charging a battery.
4. Never charge a battery that is wet. Please dry it with a soft cloth prior to charge.
5. The battery will eventually wear out. When the operating time (talk-time and standby time) is noticeably shorter than normal performance, it is time to buy a new battery.

PROLONG BATTERY LIFE

1. Battery performance will be greatly decreased at a temperature below 0℃. A spare battery is necessary in cold weather. The cold battery unable to work in this situation may work under room temperature, so keep it for later use.
2. The dust on the battery contact may cause the battery cannot work or charge. Please use a clean dry cloth to wipe it before attaching the battery to the radio.

BATTERY INFORMATION

BATTERY STORAGE

1. Fully charge a battery before you store it for a long time, to avoid battery damage due to over-discharge.
2. Recharge a battery after several months' storage (Li-Ion batteries: 6 months), to avoid battery capacity reduction due to over-discharge.
3. Store your battery in a cool and dry place under room temperature, to reduce self-discharge.

PARTS, CONTROLS AND KEYS

RADIO OVERVIEW

1	Antenna	9	PTT-A
2	LCD	10	PTT-B
3	Keypad	11	SK-side key1/F
4	Knob (ON/OFF, volume)	12	SK-side key2/M
5	Flashlight	13	Strap buckle
6	Speaker	14	Accessory jack
7	Microphone	15	LED indicator
8	Battery latch		

PARTS, CONTROLS AND KEYS

COMMAND /KEY DEFINITION

[PTT-A]
Use for the Transmission of specified channel while dual standby is activated on.(If the dual standby is not activated on, it is not valid)

[PTT-B]:
Use for the Transmission of more specified channels which selected by pressing UP or DOWN key while standby.
-SK-SIDE KEY1/ [F]:
Press the [F] button, to activate the FM Radio on; Press it again to deactivate the FM Radio. Press and hold on the [F] button, to activate the alarm function; Press and hold it again, to deactivate the alarm function.

-SK-SIDE KEY2/ [M]:
Press the [M] button, to turn on the flashlight; Press it again to turn off. Press and hold on the [M] button, to monitor the signal.

-COPYING
Connecting the two radios with special data cable, press and hold SK-SIDE KEY2/ [M] (or numerical key 2 or 3), then power on, youwill see ' COPYING' on the LCD, that means data is being copied from one radio to another.

PARTS, CONTROLS AND KEYS

[FUNCTION KEYPAD]:
-[MENU]key:
To enter the menu of the radio and confirm the setting.
Press and hold 【MENU】 button, then power on, to switch the frequency mode and channel mode.
-[▲] [▼]key:
Press and hold 【▲】 or 【▼】 key for frequency up or down fast.
Press 【▲】 or 【▼】 key, the scanning will be opposite.

[EXIT/AB key]:
-To cancel /clear or exit.
-While standby, press 【EXIT/AB】 key to switch between Channel A and Channel B.
-Under FM radio mode, press 【EXIT/AB】 key to switch the FM radio band 65-75MHz/76-108MHz.

NUMERIC KEYPAD
-Used to enter information for programming the radio's lists and the non-standard CTCSS
-Under transmission mode, press the numeric key to send the signal code(the code should be set by PC software).

1	2	3
4	5	6
7	8	9
*	0	#

ACCESSORY JACK
The jack is used to connect audio accessories, or other accessories such as programming cable

'LCD' DISPLAY

The display icons appear when certain operations or specific features are activated.

ICON	DESCRIPTION
CT	'CTCSS' activated.
DCS	'DCS' activated.
+	Frequency Shift +
−	Frequency Shift -
+−	Frequency offset direction for accessing repeaters.
S	Dual Watch/Dual Reception functions activated.
VOX	Function 'VOX' enabled.
R	Reverse function activated.
N	Wide Band selected.
▭	Battery Level indicator

(keypad lock icon)	Keypad lock function activated.
L	Low transmit power.
▲ ▼	Operation frequency.
▼₁₁₁	Signal Strength Level.
¦88	Operating channel.
75 25	

1750 Hz TONE FOR ACCESS TO REPEATERS

The user needs to establish long distance communications through an amateur radio repeater which is activated after receiving a 1750 Hz tone. Press and hold on the 【PTT】 ,then press the 【F】 button to transmit a 1750Hz tone.

BASIC OPERATION

RADIO ON-OFF/VOLUME CONTROL

-Make sure the antenna and battery are installed correctly and the battery charged.
-Rotate the knob clockwise to turn the radio on, and rotate the knob fully counter-clockwise until a 'click' is heard to turn the radio off. Turn the knob clockwise to increase the volume, or counter-clockwise to decrease the volume.

SELECTING A FREQUENCY OR CHANNEL

-Press the key 【▲】 or 【▼】 to select the desired frequency/channel you want. The display shows the frequency / channel selected.
-Press and hold down the key 【▲】 or 【▼】 for frequency up or down fast.

Note: You can not select a channel if not previously stored.

You can program your transceiver operating in the setup menu to suit your needs or preferences.

SET MENU DESCRIPTION

Menu	Function/Description	Available settings
0	SQL (Squelch level)	0-9
1	STEP(Frequency step)	2.5/5/6.25/10/12.5/20/25kHz
2	TXP(Transmit power)	HIGH/LOW
3	SAVE(Battery save,1:1/1:2/1:3/1:4)	OFF/1/2/3/4
4	VOX(Voice operated transmission)	OFF/0-10
5	W/N(Wideband/narrowband)	WIDE/NARR
6	ABR(Display illumination)	OFF/1/2/3/4/5s
7	TDR(Dual watch/dual reception)	OFF/ON
8	BEEP(Keypad beep)	OFF/ON
9	TOT(Transmission timer)	15/30/45/60.../585/600seconds
10	R-DCS(Reception digital coded squelch)	OFF/D023N...D754I
11	R-CTS(Reception Continuous Tone Coded Squelch)	67.0Hz...254.1Hz
12	T-DCS(Transmission digital coded squelch)	OFF/D023N...D754I
13	T-CTS(Transmission Continuous Tone Coded Squelch)	67.0Hz...254.1Hz
14	VOICE(Voice prompt)	OFF/ON
15	ANI(Automatic number identification of the radio.only can be set by PC software.	
16	DTMFST(The DTMF tone of transmitting code.)	OFF/DT-ST/ANI-ST/DT+ANI
17	S-CODE(Signal code, only could be set by PC software.)	1,...15 groups
18	SC-REV(Scan resume method)	TO/CO/SE
19	PTT-ID(press or release the PTT button to transmit the signal code)	OFF/BOT/EOT/BOTH
20	PTT-LT(delay the signal code sending)	0,...30ms

ADVANCED OPERATION

21	MDF-A(under channel mode. A channel displays. Note:name display only can be set by PC software.	FREQ/CH/NAME
22	MDF-B(under channel mode. B channel displays. Note:name display only can be set by PC software.	FREQ/CH/NAME
23	BCL(busy channel lockout)	OFF/ON
24	AUTOLK(keypad locked automatically)	OFF/ON
25	SFT-D(direction of frequency shift)	OFF/+/-
26	OFFSET(frequency shift)	00.000...69.990
27	MEMCH(stored in memory channels)	000...127
28	DELCH(delete the memory channels)	000...127
29	WT-LED(illumination display color of standby)	OFF/BLUE/ORANGE/PURPLE
30	RX-LED(illumination display color of reception)	OFF/BLUE/ORANGE/PURPLE
31	TX-LED(illumination display color of transmitting)	OFF/BLUE/ORANGE/PURPLE
32	AL-MOD(alarm mode)	SITE/TONE/CODE
33	BAND(band selection)	VHF/UHF
34	TX-AB(transmitting selection while in dual watch/ reception)	OFF/A/B
35	STE(Tail Tone Elimination)	OFF/ON
36	RP_STE(Tail tone elimination in communication through repeater)	OFF/1,2,3...10
37	RPT_RL(Delay the tail tone of repeater)	OFF/1,2,3...10
38	PONMGS(Boot display)	FULL/MGS
39	ROGER(tone end of transmission)	ON/OFF
40	A/B-BP(Tone end of reception)	OFF/A/B
41	RESET (Restore to default setting)	VFO/ALL

ADVANCED OPERATION

SHORTCUT MENU OPERATION

1.-Press the key MENU,then press the key ▲ or ▼ to select the desired menu.

2.-Press the key MENU again, come to the parameter setting.

3.-Press the key ▲ or ▼ to select the desired parameter.

4.-Press the key MENU to confirm and save, press the key EXIT to cancel setting or clear the input.

```
          ▭
 ·MENU
```

```
          ▭
 ·MENU
```
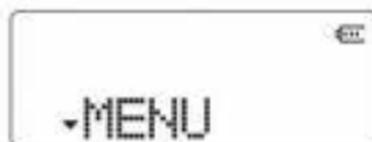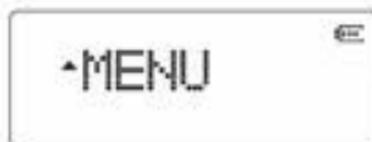
Note: Under channel mode, the following menu settings are invalid: CTCSS,DCS,W/N,PTT-ID,BCL,SCAN ADD TO,S-CODE,CHANNEL NAME. Only the H/L power could be changed by pressing '#'.

"SQL" (SQUELCH)

-The squelch mute the speaker of the transceiver in the absence of reception. With the squelch level correctly set, you will hear sound only while actually receiving signals and significantly reduces battery current consumption. It is recommended that you set Level 5.

```
 SQL
```
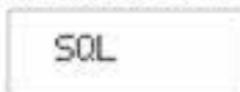
ADVANCED OPERATION

FUNCTION "VOX" (VOICE OPERATED TRANSMISSION)

This function is not necessary to push the [PTT] on the transceiver for a transmission. Transmission is activated automatically by detecting the radio voice. When finish speaking, the transmission automatically terminated and the transceiver will automatically receive signal. Be sure to adjust the VOX Gain level to an appropriate sensitivity to allow smooth transmission.

VOX

SELECT WIDEBAND OR NARROW BAND "W/N"

In areas where the RF signals are saturated, you must use the narrow band of transmission to avoid interference in adjacent channels.

W/N

TDR (DUAL WATCH/DUAL RECEPTION)

This feature allows you to operate between frequency A and frequency B. Periodically, the transceiver checks whether a signal is received on another frequency that we have scheduled. If you receive a signal, the unit will remain in the frequency until the received signal disappears.

TDR

TOT(TRANSMISSION TIMER)

This function can automatically control the time we transmit each time you press [PTT] on the transceiver. This feature is very useful to avoid overheating excessive power transistors of the transceiver. The transceiver will be off transmission automatically once the set time.

Note: The use of "CTCSS" or "DCS" in a communication, does not guarantee complete confidentiality communication.

```
TOT
```

CTCSS/DCS

In some cases only want to establish communications in a closed user group at a particular frequency or channel, for it will use "CTCSS" or code "DCS" for reception. The "squelch" opens only when receiving a frequency with "CTCSS" or codes "DCS" same as the programmed in your transceiver. If codes of the received signal differs from those programmed in your transceiver, the "squelch" will not open and the received signal can be heard.

```
CTCSS/
DCS
```

ANI

-ANI (Automatic Number Identification) is also known as PTT ID because an ID is transmitted when the PTT button of the radio is pressed and/or released. This ID tells the dispatcher which field radio was keyed. Only could be set by PC software.

```
ANI
```

DTMFST (DTMF TONE OF TRANSMITTING CODE)

First you should set the PTT-ID as BOT/EOT/BOTH

- "OFF"—Under transmitting mode, you can't hear the DTMF tone, while you press the key to transmit the code or code automatically transmitted.
- "DT-ST"—Under transmitting mode, you can hear the DTMF tone, while you press the key to transmit the code.
- "ANI-ST"—under transmitting mode, you can hear the DTMF tone, while the code automatically transmitted.
- "DT-ANI"—under transmitting mode, you can hear the DTMF tone, while you press the key to transmit the code or the code automatically transmitted.

ADVANCED OPERATION

```
DTMFST
```

SC-REV(SCAN RESUME METHOD)

This transceiver allows you to scan memory channels, all the bands or part of the bands.
When the transceiver detects a communication, the scan will stop automatically.

Note: - "TO" (Time Operation):
  Scanning will stop when it detects an active signal. The scanning will stop on each channel or active frequency for a predetermined time, after that time the scan will resume automatically
  - "CO" (Carrier Operation):
  The scanning will stop and remain in the frequency or channel, until the active signal disappears.
  - "SE"(Search Operation):
  The scanning will stop and remain in the frequency or channel after it detects an active signal.

```
SC-REV
```

PTT-ID(PTT OR RELEASE PTT TO TRANSMIT THE SIGNAL CODE)

-This feature allows you to know who call you.
-"OFF"—Don't transmit the code while push the PTT button.
-"BOT"-Transmit the code while push the PTT button.(the code only could be set by PC software.)
-"EOT"-Transmit the code while release the PTT button.
-"BOTH"-Transmit the code while push or release the PTT button.

```
PTT-ID
```

BCL(BUSY CHANNEL LOCKOUT)

The BCLO feature prevents the radio's transmitter from being activated if a signal strong enough to break through the "noise" squelch is present. On a frequency where stations using different CTCSS or DCS codes may be active, BCLO prevents you from disrupting their communications accidentally (because your radio may be muted by its own tone decoder).

```
BCL
```

SFT-D(DIRECTION OF FREQUENCY SHIFT)

The "OFFSET" is the difference or offset between the reception frequency and the frequency of transmission for access to amateur radio repeaters. Set the "OFFSET" according to the "OFFSET" amateur radio repeater through which want to communicate.

```
SFT-D
```

OFFSET(FREQUENCY SHIFT)

When communicating via a repeater, the direction of displacement of frequency should be timed to the displacement of the transmission frequency is higher or lower than the receiving frequency. example:

If we want to make a communication through amateur radio repeater whose frequency input is 145.000 MHz and 145.600 MHz is output, we select the "OFFSET" of the previous section in 0600 and the direction of travel "SHIFT" programmed to [-], so the transceiver will always 145.600 MHz in frequency and when you press [PTT] to transmit transceiver, the frequency will automatically move to 145.000 MHz.

```
OFFSET
```

ADVANCED OPERATION

When communicating via a repeater, the direction of displacement of frequency should be timed to the displacement of the transmission frequency is higher or lower than the receiving frequency. example:

If we want to make a communication through amateur radio repeater whose frequency input is 145,000 MHz and 145,600 MHz is output, we select the "OFFSET" of the previous section in 0600 and the direction of travel "SHIFT" programmed to [-], so the transceiver will always 145,600 MHz in frequency and when you press [PTT] to transmit transceiver, the frequency will automatically move to 145,000 MHz.

Note: - "TO" (Time Operation):

Scanning will stop when it detects an active signal. The scanning will stop on each channel or active frequency for a predetermined time, after that time the scan will resume automatically.

- "CO" (Carrier Operation):

The scanning will stop and remain in the frequency or channel, until the active signal disappears.

- "SE"(Search Operation):

The scanning will stop and remain in the frequency or channel after it detects an active signal.

STE (TAIL TONE ELIMATION)

This function is used to activate or deactivate the transmission end of the transceiver. this final tone transmission only be used in communications between transceivers and not in communications through a repeater, which must be deactivated.

STE

THE INSTRUCTIONS TO SAVE CHANNEL

A complete memory channel includes RX frequency, TX frequency, CTCSS, DCS, RF Power, Bandwidth, PTT-ID, BCL, ANI, Scan add to, Channel Name, etc. Except for the setting of Scan add to and Channel Name, other settings could be finished by keypad under VFO mode.
Example: We want programming all the data into CH106, please do as following:

RX Frequency	TX Frequency	RX CTCSS	TX DCS	RF Power	Bandwidth	PTT-ID
440.625MHz	430.625MHz	100.0Hz	250.3Hz	High	Wide	OFF

1. We have to check whether there are any data in CH106 or not. Come to MENU 28, if there is a 'CH' before '106', that means there are data. So please delete it and you will find there is not a 'CH' before '106', or else you can't have new data in this channel.
2. Press and hold 【MENU】 key, then power on, come to VFO mode. Press 【EXIT/AB】 key to select frequency A (UP).
3. Enter 440.625MHz
4. Now through the MENU, you can set other parameters. CTCSS,DCS, RF Power, Bandwidth, etc.
5. After you finish all the other settings, press 【MENU】 key, then come to MENU 27, press 【MENU】 key two times, you will know all the data have been stored into CH106, however now only RX frequency was stored. At the same time, you press 【MENU】 key another two times, you will store the TX frequency, of course the TX and RX frequency are same.

Note: If you want the TX frequency 430.625 stored into CH106, you should do the same steps after you store the RX frequency into CH106.

CTCSS/DCS SCANNING

Before setting the CTCSS/DCS scanning, you should have a RX frequency and cancel the Dual Standby function, ensure the radio is working under VFO mode.Come to MENU 11, press 【MENU】 one time, then press [*/SCAN] key, at the same time, you should press the PTT of another radio, then you will see the CTCSS scanning automatically. When the scanning stops, that means you find the same CTCSS as that of another radio, now press 【MENU】 to store the CTCSS.

CTCSS	DCS

ADVANCED OPERATION

REPEATER TAIL TONE

We all know that repeaters receive on one frequency and simultaneously retransmit that same information on a different frequency. We hear the courtesy tone almost every time we use the repeater. It's that innocuous beep that lets us know that the repeater is alive and, most importantly, that it has heard us. The MENU 35, 36.37 are very helpful settings while your radio work through repeater. MENU 35 and MENU 36 better be set OFF. The parameter of MENU 37 is from 1-10, better set 5.

CTCSS TABLE

N°	Tone (Hz)	N°	Tone (Hz)	N°	Tone (Hz)	N°	Tone (Hz)	N°	Tone (Hz)
1	67.0	11	94.8	21	131.8	31	171.3	41	203.5
2	69.3	12	97.4	22	136.5	32	173.8	42	206.5
3	71.9	13	100.0	23	141.3	33	177.3	43	210.7
4	74.4	14	103.5	24	146.2	34	179.9	44	218.1
5	77.0	15	107.2	25	151.4	35	183.5	45	225.7
6	79.7	16	110.9	26	156.7	36	186.2	46	229.1
7	82.5	17	114.8	27	159.8	37	189.9	47	233.6
8	85.4	18	118.8	28	162.2	38	192.8	48	241.8
9	88.5	19	123.0	29	165.5	39	196.6	49	250.3
10	91.5	20	127.3	30	167.9	40	199.5	50	254.1

DCS TABLE

N°	Code	N°	Code	N°	Code	N°	Code	N°	Code
1	D023N	22	D131N	43	D251N	64	D371N	85	D532N
2	D025N	23	D132N	44	D252N	65	D411N	86	D546N
3	D026N	24	D134N	45	D255N	66	D412N	87	D565N
4	D031N	25	D143N	46	D261N	67	D413N	88	D606N
5	D032N	26	D145N	47	D263N	68	D423N	89	D612N
6	D036N	27	D152N	48	D265N	69	D431N	90	D624N
7	D043N	28	D155N	49	D266N	70	D432N	91	D627N
8	D047N	29	D156N	50	D271N	71	D445N	92	D631N
9	D051N	30	D162N	51	D274N	72	D446N	93	D632N
10	D053N	31	D165N	52	D306N	73	D452N	94	D645N
11	D054N	32	D172N	53	D311N	74	D454N	95	D654N
12	D065N	33	D174N	54	D315N	75	D455N	96	D662N
13	D071N	34	D205N	55	D325N	76	D462N	97	D664N
14	D072N	35	D212N	56	D331N	77	D464N	98	D703N
15	D073N	36	D223N	57	D332N	78	D465N	99	D712N
16	D074N	37	D225N	58	D343N	79	D466N	100	D723N
17	D114N	38	D226N	59	D346N	80	D503N	101	D731N
18	D115N	39	D243N	60	D351N	81	D506N	102	D732N
19	D116N	40	D244N	61	D356N	82	D516N	103	D734N
20	D122N	41	D245N	62	D364N	83	D523N	104	D743N
21	D125N	42	D246N	63	D365N	84	D526N	105	D754N

TECHNICAL SPECIFICATION

GENERAL	
Frequency range	65MHz-108MHz(Only commercial FM radio reception) VHF:136MHz-174MHz (Rx/Tx) UHF:400MHz-520MHz (Rx/Tx)
Memory channels	Up to 128 channels
Frequency stability	2.5ppm
Frequency step	2.5kHz/5kHz/6.25kHz/10kHz/12.5kHz/20kHz/25kHz
Antenna impedance	50Ω
Operating temperature	-20 ° C to +60 ° C
Supply voltage	Rechargeable Lithium-Ion mAh 7.4V/1800
Consumption in standby	
Consumption in standby	380mA
Consumption in transmission	≤1.4 A
Mode of operation	Simplex or semi-duplex.
Duty cycle	03/03/54 min. (Rx / Tx / Standby).
Dimensions	58mm x 110mm x 32mm
Weight	130 g (approximate).

TECHNICAL SPECIFICATION

TRANSMITTER	
RF power	5W/1W
Type of modulation	FM
Emission class	16KФF3E/11KФF3E (W/N).
Maximum deviation	≤±5 kHz/≤±2.5 kHz (W/N).
Spurious emissions	<-60 dB.
RECEIVER	
Receiver sensitivity	0.2 µV(at 12 dB SINAD).
Intermodulation	60 dB.
Audio output	1W
Maximum deviation	≤±5 kHz/≤±2.5 kHz (W/N).
Spurious Radiation	⊠65dB

Note:All specifications shown are subject to change without notice.

TROUBLESHOOTING

Problem	Possible cause / solution
The radio does not start.	The battery is low, replace the battery with a charged battery.The battery is not installed correctly, remove the battery and reattach it.
The battery runs down quickly.	The battery life has come to an end, replace the battery with a new one.The battery is fully charged, make sure the battery is made in full.
The receiving indicator LED lights but do not hear the speaker.	Make sure the volume setting is too low.Make sure the undertones "CTCSS" or code "DCS" are the same as those programmed in the transceiver of the other members of your group.
When transmitting, the other members of his group do not receive the communication.	Make sure the undertones "CTCSS" or code "DCS" programmed in your transceiver are the same as those programmed in the transceiver of the other members of your group. Your partner or you, are too far. You or your partner are in a bad area of RF signal propagation.
In "standby" mode, the transceiver transmits without pressing the "PTT"	Check the level adjustment function "VOX" is not set too sensitive.
Receive communications from other user groups while communicating with your group.	Change frequency or channel.Change the undertones "CTCSS" or code "DCS" in your group.
Communication with other members of your group is poor or low quality.	You or your partner is too far away or in an area of poor radio signal propagation, such as inside a tunnel, inside an underground car park, in a mountainous area, including large metal structures, etc..
Once these checks, if you still have problems with the transceiver, check with your distributor, dealer or service center.	

WARRANTY CERTIFICATE

Brand:	Model no:	Serial no:
Name of purchaser:		
Address:		
City:	Zip code:	
Province/State:	Tel no:	Seal and name of the dealer:
Date of purchase:		
WARNING: Warranty is valid provided it is complete and properly filled in legibly and clearly present the seal and name of the dealer and have attached the bill proof of purchase of equipment.		

BaoFeng UV-82L User FAQs

Q: Which is the Newest version of the UV-82L?

A: The UV-82 is a recently released transceiver.

Although similar to the UV-5R, this was not simply a rebranding.

The size, design, options and software are unique to this radio.

As with all transceivers, the newest firmware determines the newest radio.

Q: How can I determine which firmware my UV-82L has?

A: Power the radio OFF.

Press and Hold the 5 key.

Power the radio ON.

The display will show BF - - - - This is the Firmware release.

Q: Can the UV-82L firmware be updated?

A: No. The firmware cannot be updated.

The microcontroller is an OTP (One Time Programmable)

Once 'flash' programmed at the factory, it cannot be changed.

FCC CERTIFICATION and TYPE ACCEPTANCE (U.S.)

Q: Is this radio FCC Part 90 certified? (Commercial)

A: At this time, its certification is pending.

Q: Is this radio approved for Ham Radio use? (Ham Radio)

A: Yes. It may be used legally by Licensed Hams on any Part 97 allocation or service in the U.S.

TRANSMITTER and RECEIVER

Q: I can't hear my signal through the repeater, but I hear the repeater tail.

A: The key here is that you can hear the repeater squelch tail.
You are too close to your receiver and over powering (de-sensing) it.
When this happens, you are blocking everything from your monitor.
1) Listen to your signal on simplex to verify your audio.
2) Call someone on the repeater to verify your signal quality.
If they can hear you, then all is fine.

Q: Can this radio listen to Aircraft frequencies?

A: No. They are out of the radio's frequency range.
Also, the Aircraft Band is AM while the UV-82L is FM only.

Q. Can this radio listen to NOAA / NWS frequencies?

A. Yes. However, it cannot be put in a standby mode and triggered by
their 1050Hz alert tone.

Q. Why does my FM Broadcast Radio keep cutting out?

A. The broadcast radio gives priority to an incoming VHF/UHF signal.
It returns to broadcast X seconds after the signal clears.
X is determined by the ABR setting.
To prevent the radio from switching, set VHF/UHF to an unused frequency.
Q. Why is my audio 'chopping' when listening to a station?

A. The bandwidth settings (Menu 5) should to be set to WIDE.

Q. What range can I expect from these radios?

A. There are many factors to consider. Power, antenna, antenna height,
HASL (height above sea level), terrain, obstruction, trees, horizon, etc.
A good starting point for simplex operation would be QSL.net/distance
Your Mileage may Vary.

PROGRAMMING

Q: I programmed a channel, but it won't save.

A: There are three steps to the process:
1) You must be in the VFO/Frequency mode
2) Display A (top display) must be selected.
3) Channel must be empty before programming frequency data.
(use menu 28 to delete a channel)

Q: How can I store a 7th digit of a frequency? xxx.xxx5

A: Change Step (Menu 1) to 2.5 kHz.
Enter the first 6 digits of the desired frequency, then use the
Up/Down arrow for the last .5 kHz.
Example: 462.7125 would be: 4 6 2 7 1 2 Up Arrow.
A tiny 5 will show to the right of the frequency display.

Q. Can I store different frequencies in A and B?

A. No. There is only a single bank of 128 channels (0-127)
The same frequencies show in both displays A and B.
You can however change the way they appear. (Menu 21 & 22)
The display options are Frequency, Channel Name or Channel Number.

Note: Manual programming of memory channels can Only be done while display A (top display) is selected.

Q: What is the purpose of A and B if they are both the same?

A: Dual Receive. You can set each to a different preprogrammed channel.
With TDR (Menu 7) turned on, your radio will sample between the
two frequencies and stop on whichever one has activity.

Q. Can displays be synchronized to show Name in A and Freq in B?

A. No. Display A and B operate independently.

Q: Can I disable the transmitter for Receive Only frequencies?

A: Yes. This can be done using the transmit inhibit function of your software.

Q. Can I store FM Radio 65-108MHz channels into memory?

A. No. This is controlled by a separate receive only chip in the radio.

You also cannot make this radio transmit on this band.

Q: How do I switch modes? (VFO/MR)

A: Press and Hold the [MENU] key when turning radio on.

SCANNING

Q: My receiver skips over some channels when scanning.

A: There is a known 'quirk' with the UV-82L receiver.
If a scanned channel has an R-CTCSS (PL) tone of 136.5 Hz or lower, the receiver will not stop on that channel.
R-CTCSS (PL) tones of 146.2 and higher work fine.
Note: It is recommended to Not use RX Tones unless absolutely necessary.

Q: My radio only scans my top group of frequencies, but not all.

A: Power cycle your radio ON/OFF and the issue should disappear.

TONE ACCESS (CTCSS, DCS, DTMF)

Q: Why can't I key or hear my local repeater, fire dept, etc. ?

A: Some Repeaters and Services require a CTCSS (PL) tone for access but DO NOT transmit one back. If your display indicates there is an incoming signal but you hear no audio, you may have an incorrect or unnecessary RX tone set.
This can be tested by pressing the [M] button. When in doubt, leave the RX tone OFF.

Q: What are these CTCSS (PL) tones I keep hearing about?

A: A CTCSS is an 'Tone' sent along with your voice when transmitting.
They are used to access a specific repeater and block interference.

Q: How do I transmit a 1750 Hz tone for repeater access?

A: Press the [PTT] button and then press the [F] button to transmit a 1750 Hz tone.

Q: What are the DTMF keypad positions for A, B, C & D?

A: [Menu] = A [Up] = B [Down] = C [Exit] = D

AFTERMARKET ACCESSORIES

Q: Are cables, antennas, spkr/mic, etc interchangeable?

A: Many accessories are, such as Kenwood / Wouxun.

Q: Is a radio case a good purchase?

A: It depends on your use. Refer to Radio Shut Down below.

Q: Is there a Battery Eliminator for the car?

A: At this time, there is no known Battery Eliminator.

MICROPHONE & AUDIO ISSUES

Q: Why is my microphone audio is low?

A: Here's are some suggestions:

1) Talk directly into the radio, within one inch.
2) Confirm the audio is set to Wide Band. 5 kHz (Menu 5 = W)
3) Try an external spkr/mic to confirm problem is the mic.
4) Blow compressed air into the spkr/mic jack.
5) If you have an external spkr/mic, plug it in and out a few times.
The issue might be a dirty connector.
Note: Some have reported the need to open up the microphone hole in the plastic case.
This can be done by CAREFULLY using a 3/64" drill bit and twisting it slowly by hand to clear out the opening, but avoid touching the microphone.
There is approx 1/16" clearance between the inside of the case and the microphone element.

Q: Why is the audio less sensitive than my Icom or Kenwood?

A: The UV-82L was designed as a commercial radio, not ham. It was designed to block out background noise in an industrial environment. Talking right into the face of the radio cures most audio weakness.

Q: Is the PTT switch disabled when a Spkr/Mic is plugged in?

A: When a Spkr/Mic plugged in, the [A] PTT button is disabled

ANTENNA QUESTIONS

Q: Which antenna is best?

A: It's all personal preference, but a good rule of thumb is:
The longer the radiator, the better the range, especially on transmit.
Short stubby antennas use a coil to match TX to 50 ohm, not radiate.
The closer to 1/4 or 3/4 wavelength in the air, the better the performance.
A very popular antenna for general use is the Nagoya NA-701, NA-771.
To mate with the UV-82L, the antenna's connector must be SMA Female.
Just remember, it's only 5 watts into a piece of wire.
There is no Magic Antenna out there.

Q: Can I use an antenna with an SMA RP connector?

A: No. The RP stands for Reverse Polarity. The outer shell looks the same
but the Male/Female pin sequence is reversed.

Q: My antenna doesn't screw in all the way.

A: This is not uncommon on some aftermarket antennas. Purchase a thin 5/8" OD
rubber O-Ring. Take your HT with you to the hardware store to assure the proper
fit. You may want to superglue it to the bottom of the antenna ONLY.

Q: Can I build my own antenna?

A: Absolutely. If you want to start small, try a simple ground plane.
Here are the instructions for a GP antenna with a radial length calculator.
The calculator covers all frequencies from DC to Light.

DISPLAY QUESTIONS
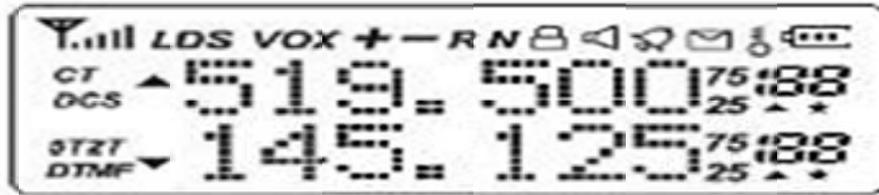
Q: Display goes dark if I talk too long on Hi power.

A: This is to be expected from a small radio.
5 watts creates a lot of heat in a small unvented area.
Give it time to cool down. The LCD will return to normal.
The same occurs if you leave the unit in the car on a hot day.
Run low power whenever possible. This will also extend battery life.

Q: Why does my display show + and - at the same time.
In Channel Mode this is normal when the TX / RX frequencies differ,
In Frequency Mode + or - is displayed based on Menu 25 (SFT-D)
If TX and RX are the same (simplex) the + - indicator does not display.
http://www.miklor.com/UV82/images/display.jpg
http://www.miklor.com/UV82/images/uv5r-key1.jpg

Q: How accurate is the S-Meter?

A: The What? There's a signal indicator in the upper left.
If there's a signal, it appears. If not, it's gone.

Q: How do I translate the Battery indicator in the upper right?

A: Tests have shown the following: (tests by Phil Souza)

Full charge (approx 8.32 volts) 3 bars
Battery drops to 7.09 volts, 2 bars
Battery drops to 6.73 volts, 1 bar
Battery drops to 6.29 volts, 0 bars
Battery drops to 5.91 volts,
the radio announces "low voltage" until the battery expires.
Note: Measurements can vary based on temperature and load.

Q: Why does my display disappear if I wear polarized sunglasses?

A: LCDs function by polarizing the liquid crystal elements in the display.
Polarized sunglasses will react to the polarized lens.

GENERAL QUESTIONS

Q: Why did my radio shut down when I took it out of my pocket.

A: If you carry your radio and keys in the same pocket, a case is recommended. If the charging contacts are shorted, the battery goes into the protection mode. There will be no damage to the battery or radio, but the radio will power off. To reset the protection mode, the battery must be removed and reinserted.

Q: Did I get a used radio? My UV-82L had frequencies pre-programmed.

A: No. Your radio is new. These are channels used for factory testing.
The easiest way to remove them is to:
Press Menu, 41 (Reset), Menu, ALL, Menu.

Q: My radio doesn't speak English?

A: Press Menu, 14, Menu, Make selection, Menu
Options are: CHI / ENG / OFF

Q: How do I lock/unlock my keypad?

A: Hold the # key in for 2 seconds.
Pressing it quickly alternates TX power level.

Baofeng UV-82

Menu Definitions

0   SQL   Squelch Level   0 > 9
- Squelch silences the receiver when there is no signal.

- UHF Sensitivity can be varied from .1 to .3 mV
- VHF Sensitivity is constant. 1 > 9 = .1 mV
- Level 0 = Open Squelch
- There is little difference between settings.
        Level 5 is recommended.

1   STEP   Frequency Step   2.5 / 5 / 6.25 / 10 /
- Amount of frequency change when using Up/Down arrows or   12.5 / 25 kHz
when scanning in VFO Mode.

2   TXP   Transmit Power   High / Low
- High = 4 watts   Low = 1 watt
- Use Low power unless necessary.
- Power can be toggled Hi/Lo by pressing the [#] key,
    however, Dual Standby (Menu 7) must be OFF.

3   SAVE   Battery Save   OFF / 1 / 2 / 3 / 4
- Sleep Ratio to acknowledge an RX signal.
- The higher number increases the RX sleep cycle, but you may
miss the first few syllables before the RX opens.
        1=1:1   2=1:2   3=1:3   4=1:4

4   VOX   Voice Operated Xmtr   OFF / 1, 2 > 10
- Allows transmitter activation by talking only.
- Adjust VOX gain to allow smooth operation.
- Level 10 requires the strongest voice.

5   WN   Wideband / Narrowband   WIDE / NARR
- Wide = 5 KHz   Narrow = 2.5 KHz
- For Ham use, start with selecting Wide.

6   ABR   Display Illumination Time   OFF / 1 > 10 secs
- Time the display stays illuminated.

7   TDR   Dual Watch / Dual Reception   OFF / ON
- Allows monitoring of 2 channels, toggling between Freq A and
Freq B.

- If a signal is received, the RX remains on that channel until the signal is gone.

8	BEEP	**Keypad Beep** - Allows audible confirmation of a key press.	OFF / ON
9	TOT	**Transmission Time Out Timer** - Transmit Times Out after pre-selected time. - Radio will alert you when the time is up. - This helps prevent overheating.	15 / 30 / 45 / 60 > 600 seconds
10	R-DCS	**Rec - Digital Coded Squelch** - Prevents interference from signals on the same frequency. - The squelch will open only if the incoming signal is coded with the same tone required by your receiver. - Note: Not all repeaters requiring a tone for access transmit a tone back to you. Leave this function turned OFF unless you are absolutely sure it is needed.	OFF / D023N > D754I
11	R-CTCS	**Rec - Continuous Tone Coded Squelch** - Prevents interference from signals on the same frequency. - The squelch will open only if the incoming signal is coded with the same tone required by your receiver. - Note: Not all repeaters requiring a tone for access transmit a tone back to you. Leave this function turned OFF unless you are absolutely sure it is needed.	OFF / 67.0 Hz > 254.1 Hz
12	T-DCS	**Trans - Digital Coded Squelch** - Required by some networks to limit access and interference.	OFF / D023N > D754I
13	T-CTCS	**Trans - Continuous Tone Coded Squelch** - Required by some networks to limit access and interference.	OFF / 67.0 Hz > 254.1 Hz
14	VOICE	**Voice Prompt** - Audible confirmation of a keypad entry.	OFF / ENG / CHI
15	ANI-ID	**Automatic Number ID of Radio (set with S/W)** - Sent when PTT is pressed and/or released. - Used to alert dispatcher which field radio was keyed. - Used primarily for commercial applications.	

16	DTMFST	**DTMF Tone of transmit**
		- Determines when DTMF codes are heard through speaker.
		   OFF No tones heard
		   DT-ST Only manually keyed DTMF codes are heard
		   ANI-ST Only automatically keyed DTMF codes are heard
		   DT+ANI * All DTMF codes are heard
			OFF /
			DT-ST /
			ANI-ST /
			DT+ANI

17 S-CODE   Signal Code   1 > 15 groups
              - PTT-ID DTMF Code Selection   (set with S/W)
              - Selects one of 15 DTMF codes.
              - Set with software and are up to 5 digits each.
              - Enabled by using Menu 19.

18 SC-REV   Scan Resume Method   TO / CO / SE
              TO (Time Operation) Scan stops when signal detected.
                Scan resumes after after 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.

19 PTT-ID   When to send the PTT ID signal code   OFF /
              OFF - No ID is sent.   BOT / EOT /
              BOT - An ID is sent at Beginning of Transmission   BOTH
              END - An ID is sent at the End of Transmission.
              BOTH - An ID is sent at BOT and EOT

              - This tells a dispatcher which field radio was keyed.
              - Not Applicable for Ham use.   Set to OFF.

20 PTT-LT   Signal Code sending delay   0 > 30 ms
              - Not Applicable for Ham use.   Set to 0 (zero)

21 MDF-A   Channel Mode A Display   (upper display)   FREQ / CHAN / NAME
              FREQ - Displays programmed Frequency
              CHAN - Displays Channel Number
              NAME - Displays Channel Name programmed via software.

              - If no name is programmed, CHAN will display.

22 MDF-B   Channel Mode B Display   (lower display)   FREQ / CHAN / NAME
              FREQ - Displays programmed Frequency
              CHAN - Displays Channel Number
              NAME - Displays Channel Name programmed via software.

              - If no name is programmed, CHAN will display.

23 BCL   Busy Channel Lockout   OFF / ON
              - Prevents transmitting on a busy frequency.
              - If another repeater or signal is present using a different
              CTCSS or DCS code, your transmitter will be 'locked out' to
              prevent interference. When PTT is keyed, radio will sound a
              Beep Tone.

24 AUTOLK Automatic Keypad Lock OFF / ON
- When ON, keypad will be locked if not used in 8 seconds.
- Pressing the [# ⁀] key for 2 seconds will Lock/Unlock the keys on the keypad.

25 SFT-D Frequency shift direction OFF / + / -
- Enables access of repeaters in VFO/FREQ mode.

OFF   TX = RX (simplex)
+ (plus)   TX shifted Higher in freq than RX
- (minus)   TX shifted Lower in freq than RX

26 OFFSET Frequency shift amount 00.000 > 69.990 MHz in 10 kHz steps
- Specifies frequency difference between TX and RX.
- Used with Menu 25 for repeater access in VFO/FREQ mode.
- Offset is not required when storing repeater frequencies into channels.

27 MEM-CH Store a memory channel 000 > 127
- Stores channel information in memory slot 0 > 127

- For a detailed examples of the programming process, please visit: Programming Memories

28 DEL-CH Delete a memory channel 000 > 127
- Deletes information stored in memory slot 0 > 127

29 WT-LED Illumination / Display Color - Standby OFF / BLUE / ORANGE / PURPLE
- Screen illumination color in Standby Mode

30 RX-LED Illumination / Display Color - Receive OFF / BLUE / ORANGE / PURPLE
- Screen illumination color in Receive Mode

31 TX-LED Illumination / Display Color - Transmit OFF / BLUE / ORANGE / PURPLE
- Screen illumination color in Transmit Mode

32 AL-MOD Alarm Mode SITE / TONE / CODE
SITE - Sounds alarm through your radio speaker only.
TONE - Transmits a cycling tone over the air.
CODE - Transmits '119' followed by ANI code over the air.

33 BAND Band Selection VHF / UHF
- In VFO/FREQ mode, sets VFO A or B to VHF or UHF band.

34 TDR-AB Transmit selection while in Dual Watch / Dual Reception OFF / A / B
- While in Dual Watch mode, this forces the selection of which transmit frequency is selected.

35	STE	**Squelch Tail Elimination** - Eliminates the squelch tail at the end of a transmission. - Only works when other radios turn on their Tail function. * For Ham use, set to OFF.	OFF / ON
36	RP-STE	**Repeater Squelch Tail Elimination** - Requires a repeater using this function. * For Ham use, set to OFF.	OFF / 1, 2, 3 > 10
37	RPT-RL	**Delay the squelch tail of repeater** * For Ham use, set to OFF.	OFF / 1, 2, 3 > 10

38	PONMSG	**Boot / Power On Display**
		   FULL - Displays the entire LCD screen.
		   MGS - Displays a 2 line Power On message.
			FULL / MGS

39	ROGER	**Tone at end of transmission** - Sends a Tone at the end of each transmission. * For Ham use, set to OFF.	OFF / ON
40	A/B-BP	**Tone at End of Reception** - Receiver tone prior to squelch closing. - An audible indication of which display was in use.	OFF / A / B

41	RESET	**Restore to default settings**
		- VFO - Resets all menus to factory default.
		   Resets VFO [A] and [B] frequencies to factory default.
		- ALL - Same as above.
		   Erases all channels.
		   Resets chan 0 to 136.025 MHz / chan 127 to 470.625 MHz
			VFO / ALL

PROGRAMMING MEMORIES BAOFENG UV 82

Frequency Mode vs. Channel Mode
These two modes have different functions and often confused.

Frequency Mode - Used for a temporary frequency assignment, such as a test frequency or quick field programming.

Channel Mode - Used for selecting preprogrammed channels.

All programming **MUST** be initially done in the **Frequency Mode** using the **Upper Display 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.

IMPORTANT: Programming done using the Lower display cannot be saved and will be lost.

PROGRAMMING A CHANNEL WITH STANDARD OFFSETS

Programming a Repeater Channel with Standard Offsets
This example is for: 146.700 MHz 600kHz minus offset into channel 99 CTCSS tone 123.0

1. Set radio to VFO Mode (Frequency Mode)
   - a.) **UV5R/GT3** - Press VFO/MR button
   - b.) **UV82** - Turn radio OFF, then Press/Hold MENU button during PowerON.
2. Select Display A **(this is a must)**
   - a.) **UV5R/GT3** – Press **[A/B]** and select the **Upper Display.**
   - b.) **UV82** - Press **[EXIT A/B]** and select the **Upper Display.**
3. Disable TDR (Dual Watch/Dual RX) which toggles between A and B.
   - Press **[Menu] 7 [Menu]**
     - Select **OFF**
   - Press **[Menu] [Exit]**
4. Delete Prior Data from the channel to be programmed.
   - Press **[Menu] 2 8 [Menu]**

Enter **9 9** (Memory Channel to clear)
   - Press **[Menu] [Exit]**
5. Enter the Repeater Offset.
   - Press **[Menu] 2 6 [Menu]**

Enter **0 0 6 0 0**
   - Press **[Menu] [Exit]**
6. Enter the Transmit Frequency Shift.
   - Press **[Menu] 2 5 [Menu]**

Enter **2** for Minus shift.
   - Press **[Menu] [Exit]**
7. Set CTCSS or DCS codes for Transmit.(example = CTCSS TX tone 123.0 Hz)
   - Press **[Menu] 1 3 [Menu]**

Enter **1 2 3 0 [Menu] [Exit]**

8. Enter the repeater output frequency, **1 4 6 . 7 0 0**

9. Store RX frequency

Press **[Menu] 2 7 [Menu]**

Enter **9 9** (Memory Channel) (000 to 127) This is the channel that was cleared in step 4.

Press **[Menu] [Exit]**

10. Press the **[* Scan]** button. This activates Reverse Mode and displays the TX frequency.

11. Press **[Menu] 2 7 [Menu]**

Enter the same **Memory Channel** entered above.

Press **[Menu]**

12. Press the **[* Scan]** again to exit the Reverse Mode.

13. Press **[Exit]** This will now appear it in the channel list when you switch to Channel Mode.(MR)

SUMMARY OF ABOVE 146.700, - .600 SPLIT, 123.0 TONE

1. Set radio to VFO Mode (Frequency Mode)
2. [EXIT A/B] must be set to Upper Display.
3. Turn TDR OFF
[Menu] 7 [Menu] OFF
[Menu] [Exit]
4. Delete Prior Data
[Menu] 2 8 [Menu] Ch
No. (99) [Menu] [Exit]
5. Repeater Offset.
[Menu] 2 6 [Menu]
0 0 6 0 0 [Menu] [Exit]
6. Enter the TX Frequency Shift.
[Menu] 2 5 [Menu] Shift
[Menu] [Exit]
7. Set TX CTCSS or DCS codes for Transmit.
[Menu] 1 3 [Menu] 1 2 3 0
[Menu] [Exit]
8. Enter RX frequency
1 4 6 . 7 0 0
9. Store RX frequency
[Menu] 2 7 [Menu] Ch No.
(99) [Menu] [Exit]
10. Reverse RX TX display
[* Scan]
11. [Menu] 2 7 [Menu] Ch No.
(99) [Menu] [* Scan] [Exit]
Switch to Channel Mode. (MR)

PROGRAMMING A CHANNEL WITH ANY OFFSET

Programming a Repeater Channel with any offset (Standard or Odd Split) This example is for: 146.700 MHz 600kHz minus offset into channel 99 CTCSS tone 123.0 (optional)

1. Set radio to VFO Mode (Frequency Mode)
   - a.) **UV5R/GT3** - Press VFO/MR button
   - b.) **UV82** - Turn radio OFF, then
     Press/Hold MENU button during
     PowerON.
2. Select Display A **(this is a must)**
   - a.) UV5R - Press **[A/B]** and select the **Upper Display.**
   - b.) UV82 - Press **[EXIT A/B]** and select the **Upper Display.**
3. Disable TDR (Dual Watch/Dual RX) which toggles between A and B.
     Press **[Menu] 7 [Menu]**
          Select **OFF**
     Press **[Menu] [Exit]**
4. Delete Prior Data from the channel to be programmed.
     Press **[Menu] 2 8 [Menu]**
     Enter **9 9** (Memory Channel to clear)
     Press **[Menu] [Exit]**
5. Store RX frequency
     Enter **1 4 6 7 0 0**
     Press **[Menu] 2 7 [Menu]**
     Enter **9 9** (Memory Channel)
     Press **[Menu] [Exit]**
6. Set CTCSS or DCS codes for
     Transmit. (if needed) (example = CTCSS TX tone 123.0 Hz)
     Press **[Menu] 1 3 [Menu]**
     Enter **1 2 3 0 [Menu] [Exit]**
7. Store TX frequency
     Enter **1 4 6 1 0 0**
     Press **[Menu] 2 7 [Menu]**
     Enter **9 9** (Memory Channel)
     Press **[Menu] [Exit]**
8. The split is now programmed.
This procedure can be used to program standard offsets as well cross band.
If you know the repeater's RX and TX, you can program them separately without using the repeater offset menus.

SUMMARY OF ABOVE RX 146.700, TX 146.100 TONE 123.0 (OPTIONAL)

1. Set radio to VFO Mode (Frequency Mode)
2. [EXIT A/B] must be set to Upper Display.
3. Turn TDR OFF [Menu] 7 [Menu] OFF
[Menu] [Exit]
4. Delete Prior Data
[Menu] 2 8 [Menu] Ch

No. (99) [Menu] [Exit]
5. Store RX frequency into channel
1 4 6 7 0 0 [Menu] 2 7
[Menu] Ch No. [Menu] [Exit]
6. Set TX CTCSS or DCS codes for
Transmit. (optional)
[Menu] 1 3 [Menu] 1 2 3 0
[Menu] [Exit]
7. Store TX frequency into channel
1 4 6 1 0 0 [Menu] 2 7
[Menu] Ch No. [Menu] [Exit]
Switch to Channel Mode. (MR)

PROGRAMMING A BASIC SIMPLEX CHANNEL

PROGRAMMING A BASIC SIMPLEX CHANNEL (NO TONE) INTO CHANNEL 99

The next example shows entering TX and RX frequencies without the Shift (25) or Offset (26) functions.

This may be more reliable, since only the "A" display works for programming memories, thus, the radio can only remember one offset value for programming purposes.

To demonstrate, here is how you would program **146.580** simplex into memory **99**. There is no CTCSS tone in this example.

1. Set radio to VFO Mode (Frequency Mode)
    a.) **UV5R/GT3** - Press VFO/MR button
    b.) **UV82** - Turn radio OFF, then Press/Hold MENU button during **PowerON.**
2. Select Display A **(this is a must)**
    a.) UV5R - Press **[A/B]** and select the **Upper Display.**
    b.) UV82 - Press **[EXIT A/B]** and select the **Upper Display.**
3. Disable TDR (Dual Watch/Dual RX) which toggles between A and B.
    Press **[Menu] 7 [Menu]**
    Select **OFF**
    Press **[Menu] [Exit]**
4. Delete Prior Data from the channel to be programmed.
    Press **[Menu] 2 8 [Menu]** Enter **9 9** (Memory Channel to clear)
    Press **[Menu] [Exit]**
5. Store RX frequency
        Enter **1 4 6 5 8 0**
    Press **[Menu] 2 7 [Menu]**
    Enter **9 9** (Memory Channel)
    Press **[Menu] [Exit]**
6. Store TX frequency

Enter **1 4 6 5 8 0** again
Press **[Menu] 2 7 [Menu]**
Enter **9 9** (Memory Channel)
Press **[Menu] [Exit]**
7. The simplex channel is now programmed.

SUMMARY OF ABOVE RX / TX 145.580, NO TONE INTO CHANNEL 99

1. Set radio to VFO Mode (Frequency Mode)
2. [EXIT A/B] must be set to Upper Display.
3. Turn TDR OFF
      [Menu] 7 [Menu] OFF
      [Menu] [Exit]
4. Delete Prior Data
      [Menu] 2 8 [Menu] Ch No. (99) [Menu] [Exit]
5. Store RX frequency into channel
      1 4 6 5 8 0 [Menu] 2 7
      [Menu] Ch No. (99) [Menu]
      [Exit]
6. Store TX frequency into channel
      1 4 6 5 8 0 [Menu] 2 7
      [Menu] Ch No. (99) [Menu]
      [Exit]
      Switch to Channel Mode. (MR)

Amateur Radio Procedural Signals

Signal	Meaning when used as a question	Meaning when used as a statement.
QRG	Will you tell me my exact frequency (or that of _____)?	Your exact frequency (or that of _____) is _____.
QRH	Does my frequency vary?	Your frequency varies.
QRI	How is the tone of my transmission?	The tone of your transmission is _____ (1=good 2=variable 3=bad).
QRK	What is the intelligibility of my signals (or those of _____)?	The intelligibility of your signals (or those of _____) is _____ (1=bad 2=poor 3=fair 4=good 5=excellent)
QRL *Voice usage*	Are you (or is the frequency) busy?	I am (or the frequency is) busy (with _____); please do not interfere.
QRM *Voice usage*	Is my transmission being interfered with?	Your transmission is being interfered with _____ (1=nil 2=slightly 3=moderately 4=severely 5=extremely)
QRN	Are you troubled by static?	I am troubled by static _____ (1-5 as in QRM)
QRO	Shall I increase output power?	Increase output power.
QRP *Voice usage*	Shall I decrease output power?	Decrease output power.
QRQ	Shall I send faster?	Send faster (_____ wpm)
QRS	Shall I send more slowly?	Send more slowly (_____ wpm)
QRT *Voice usage*	Shall I stop sending?	Stop sending / I am leaving the air.
QRU	Have you anything for me?	I have nothing for you.
QRV	Are you ready?	I am ready.
QRW	Shall I inform _____ that you are calling on _____ kHz?	Please inform _____ that I am calling on _____ kHz.
QRX	When will you call me again?	Stand by / I will call you again at _____ hrs (on _____ kHz).
QRY	What is my turn?	Your turn is number _____.
QRZ *Voice usage*	Who is calling me?	You are being called by _____ (on _____ kHz).
QSA	What is the strength of my signals (or those of _____)?	The strength of your signals (or those of _____) is _____ (1=barely perceptible 2=weak 3=okay 4=good 5=very good)
QSB *Voice usage*	Are my signals fading?	Your signals are fading.
QSD	Is my keying defective?	Your keying is defective.
QSG	Shall I send _____ messages at a time? How many messages should I send at a time?	Send _____ messages at a time.
QSK	Can you hear me between your signals and if so may I break in on your transmissions?	I can hear you between my signals; break in on my transmissions.
QSL *Voice usage*	Acknowledge receipt.	I acknowledge receipt.

QSM	Shall I repeat?	Repeat the last message you sent me (or message number _____).
QSN	Did you hear me (or _____) on _____ kHz?	I heard you (or _____) on _____ kHz.
QSO Voice usage	Can you communicate with _____ directly or by relay?	I can communicate with _____ directly (or via relay _____).
QSP	Will you relay to _____?	I will relay to _____.
QST Voice usage	-	Attention all radio amateurs:
QSU	Shall I send or reply on this frequency (or on _____)?	Send a series of V's on this frequency (or on _____).
QSX	Will you listen to _____ on _____ kHz?	I am listening to _____ on _____ kHz.
QSY Voice usage	Shall I (Will you) change frequency (to _____)?	I am changing frequency (to _____).
QSZ	Shall I send each word multiple times?	Send each word twice (or _____ times).
QTA	Shall I cancel message number _____?	Cancel message number _____.
QTB	Do you agree with my counting of words?	I disagree with your count of words. I will repeat the first letter of each word in the message.
QTC	How many messages do you have?	I have _____ messages. (use QRU if none)
QTH Voice usage	What is your location?	My location is _____.
QTR	What is the correct time?	The correct time is _____.

Voice Usage

The Q-signal procedurals are for use in Morse communications, but some have crept into voice usage as well, with similar meanings.

QRL is never spoken but it is customary to say "Is this frequency in use?" before making a call on an apparently-free frequency.

QRM is sometimes spoken as "you're getting QRMd" or "there's a lot of QRM" to indicate that the frequency is very congested.

QRP has a more absolute "low power operation" meaning rather than a relative "please lower your power" one. "Operating QRP" refers to the sport of trying to make contacts with a low a power as possible, usually 5 watts or less.

QRT is sometimes used to indicate that one is signing off. "I'm gonna go QRT now."

QRZ is always spoken "Q R Zed" and is used when one catches part of a call, particularly on an FM repeater, but can't tell which station is being called. If I hear a friend of mine call someone, and it might be me, but I'm not sure, I might say "QRZ for KF9FF?" Can be used this way whenever there is doubt about whom the calling station is calling or what they want.

QSL when spoken either as a question or a statement has much of the meaning of "okay" or "I understand" or "I will comply." "I'll meet you later on at the house, QSL?" When communication quality is poor, "QSL" is sometimes repeated three or more times to indicate that the message was indeed received.

QSO when spoken simply means "2-way contact." "Eyeball QSO" refers to a face-to-face meeting.

QST is usually used to introduce a broadcast message to all amateurs (the only type of one-way message allowed on amateur radio). "The following is a QST:".

QSY when spoken is either a suggestion or an announcement that one is changing frequencies. "QSY simplex?" is a suggestion that the two conversing parties leave the repeater to another non-repeater frequency in order to free up the repeater resource. Signing off using "this is KF9FF, QSY" conveys that I cannot be reached on the current frequency any longer (lest anyone try).

QTH has the identical meaning as in Morse. "What's your QTH?" "I'm nearly home."

International Telecommunications Union Standard

Letter	Phonetic	Letter	Phonetic
A	Alfa	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

Decoding the Secrets of CTCSS

While most rigs can *send* these low-frequency audio tones, *decoding* them is a handy trick, too!

By Ken Collier, KO6UX

If you're an FM operator, you'll encounter *CTCSS—Continuous Tone-Coded Squelch System*—early in your ham career. You may discover it while you're puzzling over the fact that a particular repeater seems deaf to your signals.

Like most hams, you'll probably check your *Repeater Directory* and determine that CTCSS is in use. No problem. Just program your FM transceiver to send (*encode*) the proper audio tone and the repeater opens its doors to you. In most cases you won't hear the tone because its frequency is quite low, near the bottom end of the range of human hearing. That's why you'll often hear CTCSS tones referred to as *subaudible*—literally "below audibility."

This subaudible tone-control system was originally developed by Motorola and marketed under the name *Private Line*, or just *PL* for short. To this day the tone frequencies established by *Private Line* remain the CTCSS standards (see **Table 1**). As a result, many hams refer to CTCSS as "PL"—often without knowing what the letters stand for! You'll even hear PL used as a verb, as in, "They PLed the repeater last month." (Translation: They installed CTCSS on the repeater last month.)

While many hams are familiar with the idea of sending a CTCSS tone to use a repeater, not everyone understands CTCSS *decoding*. Virtually all modern FM rigs can send CTCSS tones, but only a few offer the ability to receive and process (*decode*) such tones as standard equipment. CTCSS decoders are usually available as options.

If you're about to purchase an FM transceiver, should you shop for a rig that includes CTCSS decoding? If the radio you already own offers a CTCSS decoder as an option, should you install it?

Table 1—CTCSS Frequencies (Hz)

69.3
71.9
74.4
77.0
79.7
82.5
85.4
88.5
91.5
94.8
97.4
100.0
103.5
107.2
110.9
114.8
118.8
123.0
127.3
131.8
136.5
141.3
146.2
151.4
156.7
162.2
167.9
173.8
179.9
186.2
192.8
203.5
210.7

218.1
225.7
229.1
233.6
241.8
250.3
254.1

An Electronic Gate-Keeper

A CTCSS decoder allows you to choose which signals are heard in your transceiver's speaker. When you activate the decoder, your radio will fall silent. Only the signals that carry the CTCSS tone you've selected are passed through to your receiver's audio amplifiers and, ultimately, to the speaker. All other signals are ignored. They're still there, but you won't hear them.

By activating the CTCSS decoder you're making your transceiver behave like a tone-protected repeater. But why would anyone want to limit what they hear? There are three good reasons:

Limiting Access

In the beginning, amateur repeaters used CTCSS to restrict access to certain groups or individuals. (Only those who knew the correct CTCSS tone frequency could use the repeater.) Although some repeaters still use CTCSS in this fashion, they are the exception. After all, it's relatively easy these days to determine which CTCSS frequency is in use on a particular repeater. Some modern radios will even display the frequencies of received CTCSS tones. All you have to do is monitor the repeater input frequency and, when a user is within range so you can copy him direct, decode the tone from his transmission.

However, CTCSS is still a good way to limit access to other devices such as simplex autopatches, remote bases and so on. If you are going to use your mobile rig as a temporary cross-band repeater (another feature found in many radios today), it's a good idea to use a CTCSS decoder on the input. This will limit access to only you and those you've chosen to operate the system.

When used in conjunction with DTMF (*touchtone*) tones, CTCSS can be a more effective tool to limit access. In fact, many "closed" repeaters require users to send specific DTMF tones, in addition to a constant CTCSS tone.

Frequency Sharing

To some extent, CTCSS can make it easier for different groups to use the same frequencies without bothering each other. This application is seen most often in repeater networks.

In heavily populated areas it is not uncommon to find repeaters sharing the same frequency pairs. Coordination groups try to arrange it so that these systems are separated by a considerable distance, but coverage areas often overlap. This means that some stations are able to access two or more repeaters at the same time (see **Figure 1**). By installing CTCSS on both repeaters, stations are limited to accessing only one repeater at a time. They must send the correct subaudible tone to use the repeater they desire. (Modern FM transceivers make this easy by allowing you to specify particular CTCSS tones when you program repeater frequencies into memory.)

CTCSS can also be a big help on simplex. For example, one of the FM simplex nets that I frequent here in southern California shares the frequency with another group about 75 miles away. Many of us can hear them, and this can be more than a little annoying!

The solution? Everyone on our net uses CTCSS decoders set to 100 Hz and everyone sends 100-Hz tones whenever they transmit. As a result, we hear only each other! The only drawback is that it's difficult for newcomers to join the net unless they know our system. If they attempt to break in without sending a 100-Hz tone, we probably won't hear them.
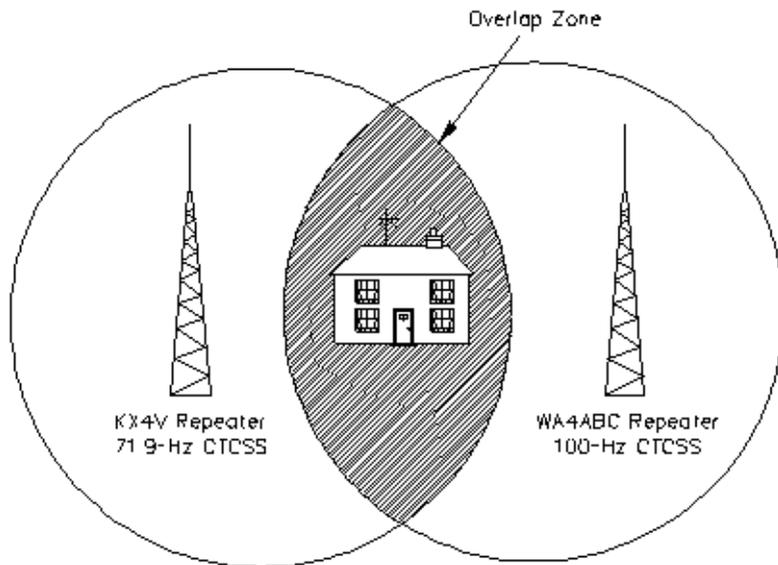
Figure 1—CTCSS offers an effective solution for repeater systems with overlapping coverage. In this example, the ham who lives in the overlapping zone can send a 71.9-Hz tone to use the KX4V repeater, or a 100-Hz tone to use the WA4ABC machine.

Selective Calling

Sometimes you want to be a little "selective" about the signals you receive. You want to be available when friends call, but you don't want to hear all the other noise and chatter on the frequency. CTCSS provides the solution!

If your rig is equipped with a CTCSS decoder, you can switch it on and hear nothing until someone transmits using the correct tone. This is handy when you're driving with your family (not everyone appreciates the sounds of Amateur Radio!), or when you're busy at home.

This technique often works better on simplex than through repeaters. Many repeater systems will not pass CTCSS tones. So, if you transmit using a CTCSS tone on the repeater input, it may not be present on the output. The easiest way to find out is to set up a test with a friend.

Be careful when using CTCSS for selective calling. Most amateur transceivers don't offer an easy way to disable the CTCSS decoder. Some H-Ts include a "monitor" button that opens the squelch even when the decoder is on, but most mobiles do not. Just because your radio is silent, that doesn't mean that the frequency isn't in use. Disable your decoder and check the frequency before you transmit.

CTCSS can also be used for a type of selective *paging*. For example, some hams live in areas where it is possible to hear more than two repeaters on the same frequency (although they can usually access only the local machine). To eliminate this irritating problem, the repeater trustee can set up the system to transmit a continuous CTCSS tone on the output frequency (see **Figure 2**). Everyone who owns a rig equipped with a CTCSS decoder can set their decoder to accept signals carrying that tone *only*. This automatically screens out transmissions from the distant machine—only the local repeater is heard!
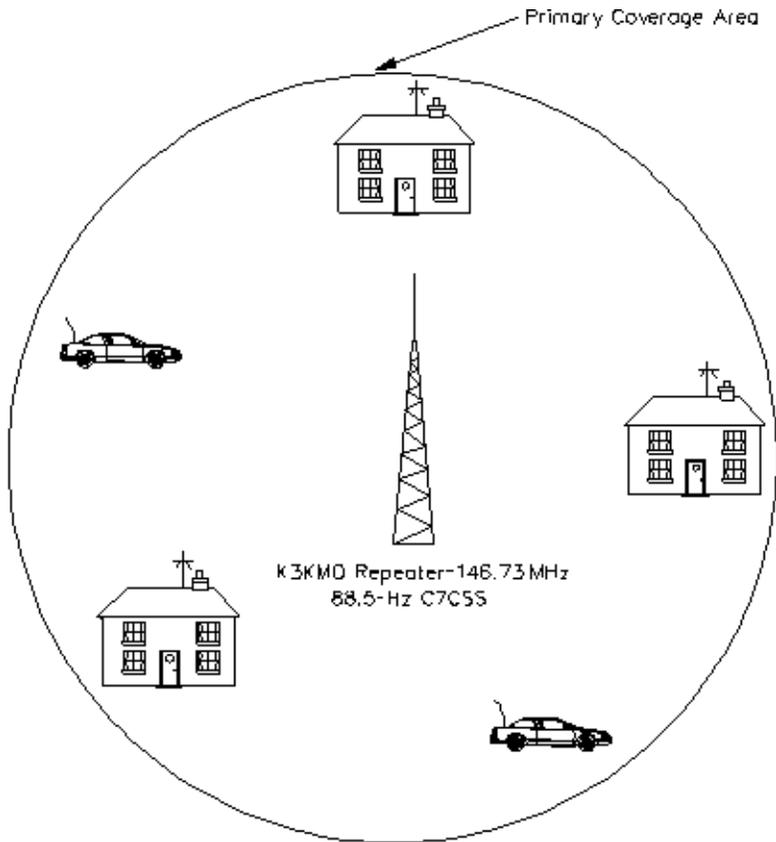
Figure 2—Hams in the coverage area of the K3KMO repeater also hear signals from distant machines. To cure the annoying problem, the trustee of K3KMO switches on a 88.5-Hz tone encoder on the output of the machine. Whenever the K3KMO repeater is up, the tone is transmitted as well. Anyone who owns a rig equipped with a CTCSS decoder can set it to respond to the 88.5-Hz tone. Now they only hear transmissions from the K3KMO repeater!

Have You Decided?

Is there a CTCSS decoder in your future? If your favorite repeater is having difficulty with another overlapping system, the repeater trustee may install a CTCSS system to help cure the problem. If your radio can't decode the tone, you won't share the benefit. As you've seen, a CTCSS decoder is also a valuable asset if you're a busy person who doesn't want to be bothered by random chitchat. A CTCSS decoder might allow you to keep the radio "noise" at a tolerable level, while still providing a way for your buddies to reach you.

Ken Collier, KO6UX, 7510 Rudell Rd, Corona, CA 91719, e-mail: kjcollier@juno.com

- 147.300 (+) 600 khz, pL 151.4 Can be linked with 224.500 and/or 443.000
- 224.500 (-) 1.6 mhz, pL 151.4 Can be linked with 147.300 and/or 443.000
- 443.000 (+) 5 mhz, pL 103.5 Can be linked with 147.300 and/or 224.500

Secondary voice repeaters.

- 147.210 (+) 600 khz, pL 151.4
- 147.330 (+) 600 khz, pL 151.4

W2LV APRS Digi and weather node - 144.390
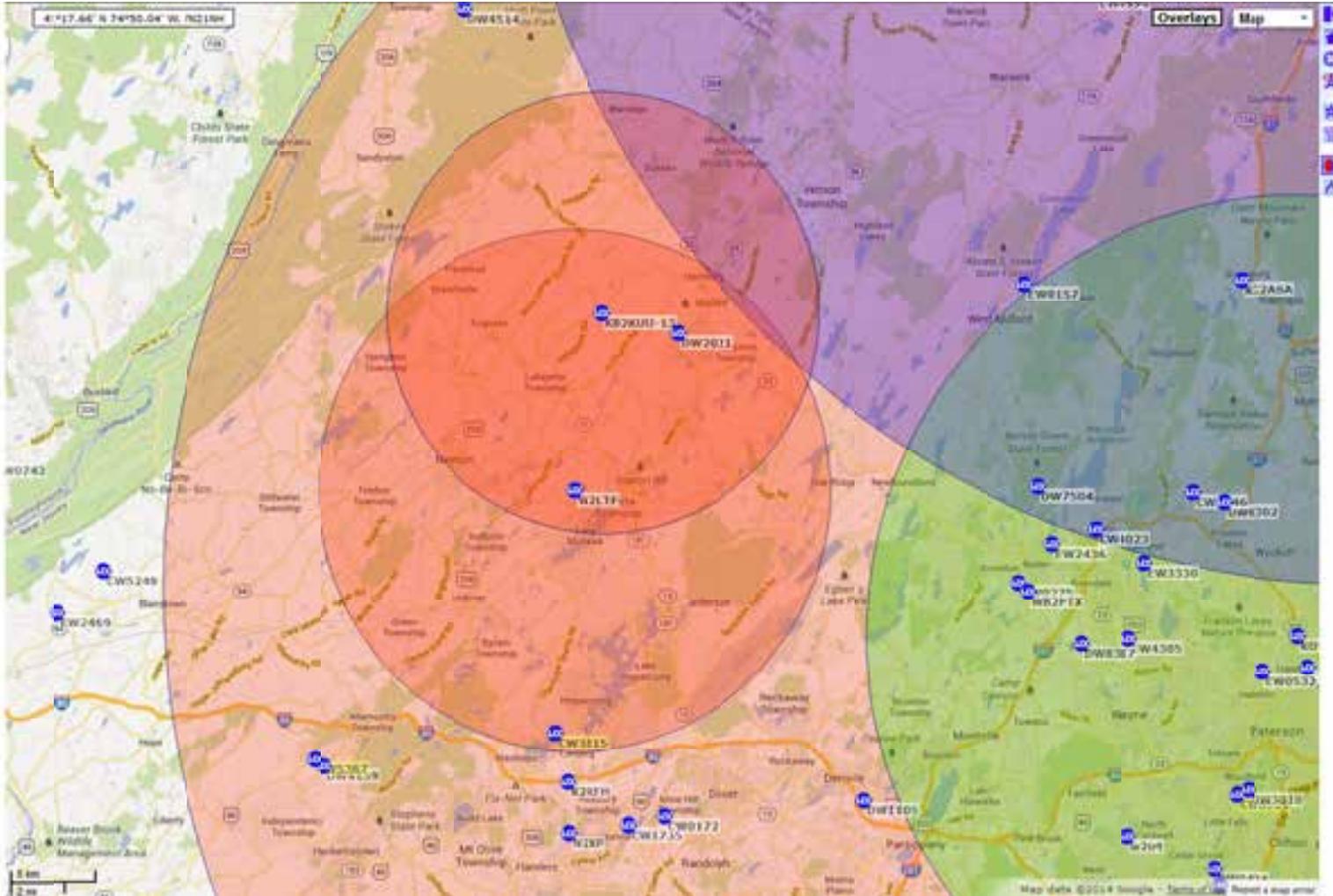
W2LV DX Cluster

- AX.25 Packet on 144.910
- C KB2SYD-5 V W2LV
- AX.25 Packet on 144.990
- C KB2SYD-5
- telnet dx.scarcnj.org 7300
- http://dx.scarcnj.org:7373/cgi-bin/spider.cgi

CHARACTER	MORSE CODE	TELEPHONY	PHONIC (PRONUNCIATION)
A	• —	Alfa	(AL-FAH)
B	— • • •	Bravo	(BRAH-VOH)
C	— • — •	Charlie	(CHAR-LEE) or (SHAR-LEE)
D	— • •	Delta	(DELL-TAH)
E	•	Echo	(ECK-OH)
F	• • — •	Foxtrot	(FOKS-TROT)
G	— — •	Golf	(GOLF)
H	• • • •	Hotel	(HOH-TEL)
I	• •	India	(IN-DEE-AH)
J	• — — —	Juliett	(JEW-LEE-ETT)
K	— • —	Kilo	(KEY-LOH)
L	• — • •	Lima	(LEE-MAH)
M	— —	Mike	(MIKE)
N	— •	November	(NO-VEM-BER)
O	— — —	Oscar	(OSS-CAH)
P	• — — •	Papa	(PAH-PAH)
Q	— — • —	Quebec	(KEH-BECK)
R	• — •	Romeo	(ROW-ME-OH)
S	• • •	Sierra	(SEE-AIR-RAH)
T	—	Tango	(TANG-GO)
U	• • —	Uniform	(YOU-NEE-FORM) or (OO-NEE-FORM)
V	• • • —	Victor	(VIK-TAH)
W	• — —	Whiskey	(WISS-KEY)
X	— • • —	Xray	(ECKS-RAY)
Y	— • — —	Yankee	(YANG-KEY)
Z	— — • •	Zulu	(ZOO-LOO)
1	• — — — —	One	(WUN)
2	• • — — —	Two	(TOO)
3	• • • — —	Three	(TREE)
4	• • • • —	Four	(FOW-ER)
5	• • • • •	Five	(FIFE)
6	— • • • •	Six	(SIX)
7	— — • • •	Seven	(SEV-EN)
8	— — — • •	Eight	(AIT)
9	— — — — •	Nine	(NIN-ER)
0	— — — — —	Zero	(ZEE-RO)

Baofeng UV-5R
Programming VIP Software Guide
John Leahy

Optional Features

Be advised that this is a work in progress and is intended for U.S.A. Ham operation. Any other use may require adjustments based on your needs and or restrictions. Use of this guide is of course at your own peril. If you find errors (entirely possible) or have additions, better explanations or comments please contact me at KK4ITX@arrl.net.

The Baofeng VIP Software Optional Features Screen as accessed through the EDIT dropdown menu .
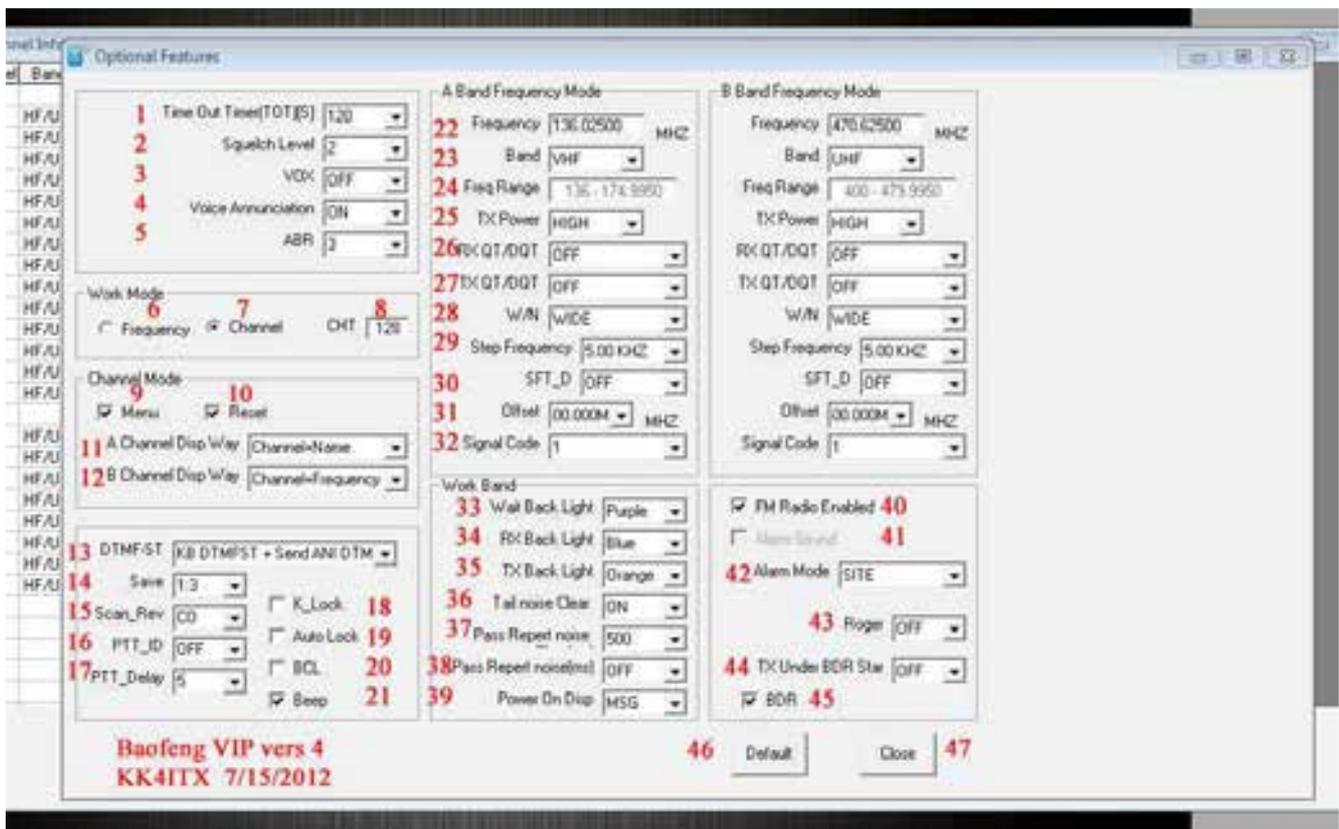
Ref#	Radio Menu or **Button**	Heading Above Picture	Range	Use	Notes
1	9 **TOT**	Time Out Timer	15 - 600	This feature shuts down the transmitter after the selected time (in seconds).	Prevents overheating and extended accidental transmitting
2	0 **SQL**	Squelch Level	0 - 9	Keeps weak signals from opening up the audio out.	Reports are that this feature does not work.
3	4	VOX	Off 1-10	Allows hands free	Use with care.

				operation. Off is off (1) Sensitive (10) Least Sensitive	Could cause embarrassing TX.
	VOX				
4	14 **VOICE**	Voice Annunciation	On or Off	China Girl tells you what key you have pressed. Newer units appear to have English voice.	Actually helps our blind Hams and gives us a chuckle.
5	6 **ABR**	ABR	Off 1-5	Sets the amount of time in seconds (?) that the screen remains lit after a key press, RX or TX.	It is a battery saving feature. Almost works.
Work Mode (sets the start up condition each time the unit is turned on.)					
6	**VFO/MR**	Frequency	Select/Not	Sets the unit so that it boots up in the Frequency Mode.	Matter of preference
7	**VFO/MR**	Channel	Select/Not	Sets the unit so that it boots up in the Channel Mode.	Matter of preference
8	None	CHT	1-128 (Ch# 0 = 1)	Sets the end number of the Channel List (-1) displayed in software.	Not much use.
Channel Mode (sets the start up condition each time the unit is turned on.)					
9	None	Menu	Select/Not Select=Enabled Unselect=Disable	Enable (x)/Disable ( ) Menu Button on radio is disabled. Keylock, Scan and # keys function.	Keeps folks away from settings as none of the Menus can be accessed.
10	40 **RESET**	Reset	Select/Not Select=Enabled Unselect=Disable	Enable (x)/Disable ( ) Resets some options to program at startup. Check Disable to prevent a Reset from the keyboard.	Not sure why you would not choose to Disable as doing so renders Menu#40 moot.
11	21 **MDF-A**	"A" Channel Display Way	Channel Channel_+_Name Channel_+_Freq	Select your preference	Handy to have Ch + Name in one and Ch + Freq in other.
12	22 **MDF-B**	"B" Channel Display Way	Channel Channel_+_Name Channel_+_Freq	Select your preference	Handy to have Ch + Name in one and Ch + Freq in other.
13	16 **DTMFST**	DTMF-ST	Off All KB DTMF Side Tone Send ANI DTMF ST	Sends DTMF side tones. Setting determines if/when tones are echoed to	Prefer = **KB DTMFST + Send ANI DTMFST**

				the speaker. Used to bring up an autopatch & dialing a phone#.	
14	3 **SAVE**	Save	Off 1:1, 1:2, 1:3,1:4	Intended to prolong battery charge by delaying wake-up.	You may miss first parts of a reception.
15	18 **SC-REV**	Scan_Rev	TO/SO/CE	Sets delay on scanning. (TO)=Preset Time, starts automatically (CO)=Carrier present auto startup (SE)=Stops on carrier, manual restart.	See Page 14 in manual. (TO) is not of much use. (CO) & (SE) most useful.
16	19 **PTT-ID**	PTT_ID	OFF/BOT/EOT/BOTH	Determines if and when to send the programmed ID of this radio.	No known Ham use. Receiving unit would have to be able to decode ID tones.
17	20 **PTT-LT**	PTT_Delay	0-30ms	Delays sending of ID to allow the receiving unit time to listen.	See Above Note in #16.
18	**# Key**	K_Lock	Selected or Not	Sets Key Lock to On when unit is first powered up.	Once the unit keypad has been unlocked it needs to be re-locked by the key pad.
19	**# Key**	Auto Lock	Selected or Not	After a short time the unit beeps and the Keypad locks. Requires an Unlock.	Keeps from hitting keys in error.
20	23 **BCL**	BCL	Selected or Not	When in use will prevent talking on a busy frequency.	May help to prevent "doubling"
21	8 **BEEP**	Beep	OFF/ON with Check Box	Key pad beeps on key press.	Great for confirmation, bad if you are going stealth.

Items 22-32 are used for Frequency modes on both A&B "bands" of VHF/UHF All settings can/will be overwritten by the Keypad, they will not be reset to these values until the next download from the software. ☹

22	None	Frequency	Enter the Start Frequency for Freq Mode only.	Must be between: 136 – 174.9950 VHF 400 – 479.9950 UHF	It's a place to start if you were going to just scan an area.
23	**33 BAND**	Band	Selects VHF/UHF	Can be changed using the Band key.	

24	None	Freq Range	No Options FYI Only	FYI only.	Can be changed using the "Other" menu in VIP version.
25	2 **TXP**	TX Power	High/Low	Fixes the power at desired levels.	Good practice to start on Low.
26	10 / 11 **R-DCS** **R-CTS**	RX/QT/DQT	OFF/D023N-D7541 OFF/60.0 -259.9	Sets the RX tones to open the receiver.	Usually left to OFF unless a noisy/busy area.
27	12 / 13 **T-DCS** **T-CTS**	TX/QT/DQT	OFF/D023N-D7541 OFF/60.0 -259.9	Sets the TX tones to open the receiver on the repeater.	Unless your area uses the same tones set to OFF
28	5 **W/N**	W/N	WIDE/NARROR (W)	Sets the bandwidth	Most Ham use is WIDE.
29	1 **STEP**	Step Frequency	2.5/5/6.25/10/12.5/25khz	Sets the space between frequencies scanned whether by Up/Dn arrows or the scan function (*).	5khz is the normal for US.
30	25 **SFT-D**	SFT_D	OFF/+/-	Sets the direction of any shift in TX vs RX	Repeater dependent
31	26 **OFFSET**	Offset	00.00 – 99.950 00.00 -69.990 (manual)	Sets the amount of offset. In the US: VHF=.600 UHF=5.00	Repeater dependent
32	None	Signal Code	1 -15	Special application to call certain radios only	Not Ham related.
Work Band					
33	29 **WT-LED**	Wait Back Lt	OFF/Blue/Orange/Purple	You get to choose your own colors !	See #5 above.
34	30 **RX-LED**	RX Back Lt	OFF/Blue/Orange/Purple	You get to choose your own colors !	See #5 above.
35	31 **TX-LED**	TX Back Lt	OFF/Blue/Orange/Purple	You get to choose your own colors !	See #5 above.
36	35 **STE**	Tail noise Clear	OFF/ON	Eliminates noise at end of transmission between units of the same breed using simplex.	Set to **OFF** when using repeaters, so leave it off.
37	36 **RP-STE**	Pass Repert Noise	OFF/100….1000 OFF/1..10 Manual	Eliminates noise at end of transmission between repeater & transceiver.	Set to **OFF** when using repeaters.
38	37 **RPT-RL**	Pass Repert Noise (ms)	OFF/100….1000 OFF/1..10 Manual	Delays the tone by the setting. See #37.	Set to **OFF** when using repeaters.
39	38 **PONMGS**	Power On Disp	Full/MSG	**Full** is a power-on LCD test. **MSG** allows for your custom sign on.	Gives a brief sense of accomplishment & checks LCD.

40	None	FM Radio Enabled	On/Off Check Box	Controls the ability to tune FM broadcast.	
41	None	Alarm Sound	Check box to hear. Leave unchecked to not hear it.	Allows local hearing of the alarm or not.	See #42 Note: The alarm can not be disabled.
42	32 **AL-MOD**	Alarm Mode	Site/Tone/Code	Sets method of alarm. **Site**= Only you hear it, nothing broadcast. Tone= Siren Code=ID Code +	Nothing will disable this "Feature" Choose Site and only you will hear it/
43	39 **ROGER**	Roger	OFF/ON	Roger Beep	Not often used.
44	34 **TX-AB**	TX Under BDR Star	OFF/A Band/B Band	When in Dual Watch Mode #45, determines freq. to transmit on.	Off= last active Channel. A or B selects the TX band
45	7 **TDR**	BDR	Check = On	Dual watch/receive of 2 channels.	Doubles your fun !
46	None	Default	Click On	Returns to Factory Settings	
47	None	Close	Click On	Returns to Freq. List	

Rev 2/25/2013

CHIRP Programming Reference
Jim Unroe - KC9HI
14-January-2013

Column	Values	Description/Comment	Requires
Loc	see comment	This cell contains a fixed value (0-127) in each row representing each of the UV-5R's 128 channels	
Frequency	see comment	Used for setting the receive (RX) frequency (MHz)	
		VHF: 136.000000 to 173.997500	
		UHF: 400.000000 to 519.997500	
Name	see comment	Used for setting an optional alpha tag up to 7-characters	
		Alpha characters: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	
		Numeric digits: 0 1 2 3 4 5 6 7 8 9	
		Special characters: ! @ # $ % ^ & * ( ) + - = [ ] < > ? , . /	
Tone Mode		Used for setting squelch using carrier squelch and/or CTCSS (aka PL) and/or DTS (aka DPL)	
	(none)	No tones or codes are transmitted or received (default)	
	Tone	The radio will use CTCSS for transmit. In this mode, the receiver is carrier squelch	Tone
	TSQL	The radio will use CTCSS for transmit. In this mode, the receiver is CTCSS with the same value as the transmitter	ToneSql
	DTCS	The radio will use DCS for transmit. In this mode, the receiver uses DCS with the same value as the transmitter	DTCS Code and DTCS Pol
	Cross	The radio will use an asymmetric squelch configuration according to the value of 'Cross Mode'	Cross Mode
Tone		Sets the transmit CTCSS frequency. Only used when enabled by other options	
ToneSql		Sets the receive (and sometimes transmit) CTCSS frequency. Only used when enabled by other options [UV-5R bug: receive tone frequencies of 136.5 Hz and lower will always be skipped when scanning regardless of the Skip setting]	
DTCS Code		Sets the transmit DCS code. Only used when enabled by other options	
DTCS Rx Code		Sets the receive (and sometimes transmit) DCS code. Only used when enabled by other options	
DTCS Pol		Sets the DCS code polarity. Only used when enabled by other options	
	NN	Transmit normal/Receive normal	
	RN	Transmit reversed/Receive normal	
	NR	Transmit normal/Receive reversed	
	RR	Transmit reversed/Receive reversed	

CHIRP Programming Reference
Jim Unroe - KC9HI
14-January-2013

(send comments, suggestions or corrections to UV-5R@KC9HI.net)

Column	Values	Description/Comment	Requires
Cross Mode		Used for setting squelch using carrier squelch and/or CTCSS (aka PL) and/or DTS (aka DPL). Only used when enabled by other options	Tone Mode=Cross
	Tone->Tone	The radio will use CTCSS for transmit and a different CTCSS for receive	Tone (TX) and ToneSql (RX)
	Tone->DTCS	The radio will use CTCSS for transmit and DCS for receive	Tone (TX), DTCS Rx Code (RX) and DTCS Pol
	DTCS->Tone	The radio will use DCS for transmit and CTCSS for receive	DTCS Code (TX), DTCS Pol and ToneSql (RX)
	->Tone	The radio will not transmit CTCSS or DCS but will enable CTCSS for receive	ToneSql (RX)
	->DTCS	The radio will not transmit CTCSS or DCS but will enable DCS for receive	DTCS Rx Code (RX) and DTCS Pol
	DTCS->	The radio will use DCS for transmit. In this mode, the receiver is carrier squelch	DTCS Code (TX) and DTCS Pol
	DTCS->DTCS	The radio will use DCS for transmit and a different DCS for receive	DTCS Code (TX), DTCS Rx Code (RX) and DTCS Pol

Duplex		Used for determining the transmit (TX) frequency	
	(none)	Simplex. Sets the transmit frequency to the same value as the receive frequency (aka simplex)	
	-	Sets the transmit frequency lower than the receive frequency by the Offset amount (aka - duplex)	Offset
	+	Sets the transmit frequency higher than the receive frequency by the Offset amount (aka + duplex)	Offset
	split	Sets the transmit frequency to the value in Offset (same value range as the receive frequency)	Offset (entered as transmit frequency)
	off	Receive only (transmit inhibited).	

Offset		Used for setting the transmit frequency difference (offset) from the receive frequency. When Duplex is set to 'split' this value is the actual transmit frequency	

Mode		Sets the transmitter deviation and receiver IF bandwidth	
	FM	5KHz deviation (for Part 97 - Amateur Radio Service)	
	NFM	2.5KHz deviation (for Part 90 - Private Land Mobile Radio Services)	

Power		Sets the transmit output power level	
	High	4 watts	
	Low	1 watt	

Skip		Sets the channel scan lockout	
		Scan channel in scanning mode	
	S	Skip (lockout) channel in scanning mode	

Reference for UV-82 Menus
by Jim Unroe - KC9HI
11-January-2014

(send comments, suggestions or corrections to UV-82@KC9HI.net)

Menu Number / Short Name	Long Name / Description / Settings / Notes		Global	MR/ Channel Mode	VFO/ Frequency Mode	Separate VFO A & B Settings	Stored on a Per Channel Basis
0 SQL	Carrier Squelch		✓				
	Mutes the speaker of the transceiver in the absence of a strong signal. VHF squelch is either OFF or ON. UHF squelch is either OFF or one of 9 levels. The higher the level, the stronger the signal must be to un-mute the speaker.						
	Settings: 0 - 9	Default: 5					
	Note: The CALL button (FM or ALARM) is not functional when menu 0 = 0						
1 STEP	Frequency Step (KHz)				✓	✓	
	Selects the amount of frequency change in VFO/Frequency mode when scanning or pressing the [▲] or [▼] keys.						
	Settings: 2.5K[0] | 5.0K[1] | 6.25K[2] | 10.0K[3] | 12.5K[4] | 20.0K[5] | 25.0K[6] | 50.0K[7]	Default: 2.5K					
2 TXP	Transmit Power		RO	✓	✓	✓	
	Selects between HIGH and LOW transmitter power when in VFO/Frequency mode. Use the minimum transmitter power necessary to carry out the desired communications.						
	Settings: HIGH[0] | LOW[1]	Default: HIGH					
	HIGH: ≈ 5 watts						
	LOW: ≈ 1 watt						
	Note: When TXP is set to LOW, an 'L' is indicated in the status display						
	Note: The power level can be toggled in MR/Channel mode by tapping the [#␡O] key						
3 SAVE	Battery Save		✓				
	Selects the ratio of sleep cycles to awake cycles (1:1, 2:1, 3:1, 4:1). The higher the number the longer the battery lasts. When enabled, a word or two might be missed when the frequency being monitored becomes active.						
	Settings: OFF[0] | 1 | 2 | 3 | 4	Default: 3					
4 VOX	Voice Operated Transmission		✓				
	When enabled it is not necessary to push the [PTT] button on the transceiver. Adjust the gain level to an appropriate sensitivity to allow smooth transmission.						
	Settings: OFF[0] | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10	Default: OFF					
	Note: When VOX is not set to OFF, 'VOX' is indicated in the status display						
5 WN	Wideband / Narrowband		RO	✓	✓	✓	
	Wideband (25 kHz bandwidth) or narrowband (12.5 kHz bandwidth).						
	Settings: WIDE[0] | NARR[1]	Default: WIDE					
	Emission: 16K0F3E / 11K0F3E (W/N)						
	Deviation: ≤ ±5 kHz / ≤ ±2.5 kHz (W/N)						
	Note: When WN is set to NAR, an 'N' is indicated in the status display						
6 ABR	Backlight Timeout (seconds)		✓				
	Settings: OFF[0] | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10	Default: 5					
	Note: The ABR setting also sets the delay before the radio returns to FM broadcast reception after being interrupted						
	Note: ABR can be set to 24 using CHIRP						
7 TDR	Dual Watch / Dual Reception		✓				
	Monitor [A] and [B] at the same time. The display with the most recent activity ([A] or [B]) becomes the selected display.						
	Settings: OFF[0] | ON[1]	Default: ON					
	Note: When TDR is set to ON, an 'S' is indicated in the status display						
	Note: The selected display can be forced back to [A] or [B] using menu 34						
	Note: TDR should be set to OFF when manually programming						
	Note: TDR is inhibited while scanning is in operation						

Menu Number / Short Name	Long Name / Description / Settings / Notes			Global	MR/ Channel Mode	VFO/ Frequency Mode	Separate VFO A & B Settings	Stored on a Per Channel Basis
8 BEEP	Keypad Beep			✓				
	Allows audible confirmation of a key press							
	Settings:	OFF[0] | ON[1]	Default: ON					
9 TOT	Transmission Timer (seconds)			✓				
	This feature provides a safety switch which limits transmission time to a programmed value. This will promote battery conservation by not allowing you to make excessively-long transmissions, and in the event of a stuck PTT switch (perhaps if the radio or a Speaker/Mic is wedged between car seats) it can prevent interference to other users as well as battery depletion.							
	Settings:	15[0] - 600[39] in 15 second steps (set TOT Table)	Default: 60					
	Note:	(TIMEOUT-15)/15=[n]						
	Note:	The red TX LED begins to flash 10 seconds before the timeout limit is reached						
10 R-DCS	Digital Coded Squelch (DCS) - Receive/Decode			RO	✓	✓	✓	
	Mutes the speaker of the transceiver in the absence of a specific low level digital signal. If the station you are listening to does not transmit this specific signal, you will not hear anything.							
	Settings:	OFF[0] | see DCS Table	Default: OFF					
	Note:	When R-DCS is not set to OFF, 'DCS' is indicated to the left of the upper channel display						
	Note:	Setting R-DCS sets menu 11 to OFF						
	Note:	Recommended setting is OFF						
11 R-CTCS	Continuous Tone Coded Squelch System (CTCSS) - Receive/Decode			RO	✓	✓	✓	
	Mutes the speaker of the transceiver in the absence of a specific and continuous sub-audible signal. If the station you are listening to does not transmit this specific and continuous signal, you will not hear anything.							
	Settings:	OFF[0] | see CTCSS Table	Default: OFF					
	Note:	When R-CTCS is not set to OFF, 'CT' is indicated to the left of the upper channel display						
	Note:	(R-CTCS ≤ 131.8 Hz) Scanning never stops regardless of the correct CTCSS tone being received						
	Note:	(R-CTCS ≥ 141.3 Hz) Scanning stops regardless of the actual CTCSS tone being received						
	Note:	R-CTCS works properly (selectively) while not scanning						
	Note:	Setting R-CTCS sets menu 10 to OFF						
	Note:	Recommended setting is OFF						
12 T-DCS	Digital Coded Squelch (DCS) - Transmit/Encode			RO	✓	✓	✓	
	Transmits a specific low level digital signal to unlock the squelch of a distant receiver (usually a repeater).							
	Settings:	OFF[0] | see DCS Table	Default: OFF					
	Note:	Setting T-DCS sets menu 13 to OFF						
	Note:	When T-DCS is not set to OFF, 'DCS' is indicated to the left of the upper channel display (requires TX or 'reverse' mode)						
13 T-CTCS	Continuous Tone Coded Squelch System (CTCSS) - Transmit/Encode			RO	✓	✓	✓	
	Transmits a specific and continuous sub-audible signal to unlock the squelch of a distant receiver (usually a repeater).							
	Settings:	OFF[0] | see CTCSS Table	Default: OFF					
	Note:	Setting T-CTCS sets menu 12 to OFF						
	Note:	When T-CTCS is not set to OFF, 'CT' is indicated to the left of the upper channel display (requires TX or 'reverse' mode)						

Menu Number / Short Name	Long Name / Description / Settings / Notes		Global	MR/ Channel Mode	VFO/ Frequency Mode	Separate VFO A & B Settings	Stored on a Per Channel Basis
14 VOICE	**Voice Prompt**		✓				
	Allows audible voice confirmation of a key press						
	Settings:	OFF[0] | ENG[1] | CHI[2] Default: CHI					
	Note:	Not all voice prompts are easily understandable. Not all key presses have a voice prompt.					
15 ANI-ID	**Automatic Number Identification**		RO				
	Displays the ANI code that has been set by software. This menu can not be used to change it. The ANI-ID is sent when the alarm is activated and menu 32 = CODE						
16 DTMFST	**DTMF Side Tones**		✓				
	Determines when DTMF Side Tones can be heard from the transceiver speaker.						
	Settings:	OFF[0] | DT-ST[1] | ANI-ST[2] | DT+ANI[3] Default: DT+ANI					
	OFF:	No DTMF Side Tones are heard					
	DT-ST:	Side Tones are heard only from manually keyed DTMF codes					
	ANI-ST:	Side Tones are heard only from automatically keyed DTMF codes					
	DT+ANI:	All DTMF Side Tones are heard					
	Note:	Requires the transceiver to be in transmit mode.					
	Note:	Recommended setting is DT+ANI					
	Note:	[MENU]=A, [▲]=B, [▼]=C, [EXIT/AB]=D (†)					
		(†) The Side Tone heard for 'D' is '0' (zero) but 'D' is sent over-the-air					
17 S-CODE	**PTT-ID DTMF Code Selection**		RO	✓	✓	✓	
	Selects 1 of 15 DTMF codes. The DTMF codes are programmed with software and are up to 5 digits each.						
	Settings:	1[0] | 2[1] | 3[2] | 4[3] | 5[4] | 6[5] | 7[6] | 8[9] | 9[8] | 10[9] | 11[10] | 12[11] | 13[12] | 14[13] | 15[14] Default: 1					
	Note:	Menu 19 must be enabled for an S-CODE to be transmitted.					
18 SC-REV	**Scanning Resume Method**		✓				
	Settings:	TO[0] | CO[1] | SE[2] Default: TO					
	TO:	Time Operation - scanning will resume after a fixed time has passed					
	CO:	Carrier Operation - scanning will resume after the active signal disappears					
	SE:	Search Operation - scanning will not resume					
19 PTT-ID	**When to Send PTT-ID**		RO	✓			✓
	Settings:	OFF[0] | BOT[1] | EOT[2] | BOTH[3] Default: OFF					
	OFF:	No ID is sent					
	BOT:	The selected S-CODE is sent at the Beginning of Transmission					
	EOT:	The selected S-CODE is sent at the End of Transmission					
	BOTH:	The selected S-CODE is sent at the BOT and the EOT					
	Note:	Select S-CODE using menu 17					
	Note:	Recommended setting is OFF					
20 PTT-LT	**PTT-ID Delay (milliseconds)**		✓				
	Settings:	0 - 50 Default: 5					
	Note:	Requires menu 19 to be enabled					

Menu Number / Short Name	Long Name / Description / Settings / Notes		Global	MR/ Channel Mode	VFO/ Frequency Mode	Separate VFO A & B Settings	Stored on a Per Channel Basis
21 **MDF-A**	[A] MR/Channel Mode Display Format			✓			
	Settings:	CH[0] | NAME[1] | FREQ[2] Default: NAME					
	CH:	Displays the channel number					
	NAME:	Displays the channel name. Names must be entered using software. A channel without an assigned name with have the channel number displayed					
	FREQ:	Displays programmed Frequency					
22 **MDF-B**	[B] MR/Channel Mode Display Format			✓			
	Settings:	CH[0] | NAME[1] | FREQ[2] Default: FREQ					
	CH:	Displays the channel number					
	NAME:	Displays the channel name. Names must be entered using software. A channel without an assigned name with have the channel number displayed					
	FREQ:	Displays programmed Frequency					
23 **BCL**	Busy Channel Lock-Out		RO	✓			✓
	Disables the [PTT] button on a channel that is already in use. The transceiver will sound a beep tone and will not transmit if the [PTT] button is pressed when a channel is already in use.						
	Settings:	OFF[0] | ON[1] Default: OFF					
24 **AUTOLK**	Automatic Keypad Lock		✓				
	When ON, the keypad will be locked if not used in 8 secs. Pressing the [# ⌷O] key for 2 seconds will unlock the keypad.						
	Settings:	OFF[0] | ON[1] Default: OFF					
	Note:	When the keypad is locked, a ' ⌷O' is indicated in the status display					
	Note:	The keypad lock only locks the buttons on the front face of the UV-82. It does not lock the [CALL] button, the [PTT] button or the [MONI] button.					
25 **SFT-D**	Direction of Frequency Shift		⊘	✓	✓		
	Enables access of repeaters in VFO/Frequency Mode						
	Settings:	OFF[0] | +[1] | -[2] Default: OFF					
	OFF:	TX = RX (simplex)					
	+:	TX will be shifted higher in frequency than RX					
	-:	TX will be shifted lower in frequency than RX					
	Note:	When SFT-D is set to +, a '+' is indicated in the status display (VFO/Frequency mode only)					
	Note:	When SFT-D is set to -, a '-' is indicated in the status display (VFO/Frequency mode only)					
	Note:	Used with menu 26 to access repeaters in VFO/Frequency mode (+ and - only)					
	Note:	SFT-D is not required when storing repeater frequencies into channels					
26 **OFFSET**	Frequency Shift (MHz)		⊘	✓	✓		
	Specifies the difference between the TX and RX frequencies						
	Settings:	00.000 - 69.990 in 10 kHz steps Default: 00.600					
	Note:	Used with menu 25 to access repeaters in VFO/Frequency mode					
	Note:	Typical ham offsets are: VHF = 00.600 UHF = 05.000					
	Note:	OFFSET is not required when storing repeater frequencies into channels					

Menu Number / Short Name	Long Name / Description / Settings / Notes		Global	MR/ Channel Mode	VFO/ Frequency Mode	Separate VFO A & B Settings	Stored on a Per Channel Basis
27 MEM-CH	**Memory Channel Programming**				✓		
	This menu is used to either create new or modify existing channels (0 through 127) so that they can be accessed from MR/Channel Mode. The behavior of menu 27 changes depending on whether the target channel is empty or has been previously programmed (see below).						
	Note:	Programming must be done in [A] VFO					
	Empty Target Channel: The RX and TX frequencies of the target channel are set to the [A] VFO frequency. The settings of the following menus are also saved into the target channel. This essentially creates a fully operational simplex channel.						
	Menu 2 - TXP	Transmit Power					
	Menu 5 - WN	Wideband / Narrowband					
	Menu 10 - R-DCS	Digital Coded Squelch (DCS) - Receive/Decode					
	Menu 11 - R-CTCS	Continuous Tone Coded Squelch System (CTCSS) - Receive/Decode					
	Menu 12 - T-DCS	Digital Coded Squelch (DCS) - Transmit/Encode					
	Menu 13 - T-CTCS	Continuous Tone Coded Squelch System (CTCSS) - Transmit/Encode					
	Menu 17 - S-CODE	PTT-ID DTMF Code Selection					
	Menu 19 - PTT-ID	When to Send PTT-ID					
	Menu 23 - BCL	Busy Channel Lockout					
	Previously Programmed Target Channel: The TX frequency of the target channel is set to the [A] VFO frequency. The settings of the following menus are also saved into the target channel. Uses for this can be to update a newly created 'simplex' channel into a 'repeater' channel or a 'cross-band' channel. Another use would be to add, change or remove a TX DCS code or TX CTCSS tone.						
	Menu 12 - T-DCS	Digital Coded Squelch (DCS) - Transmit/Encode					
	Menu 13 - T-CTCS	Continuous Tone Coded Squelch System (CTCSS) - Transmit/Encode					
	Note:	When the TX frequency differs from RX frequency, a '+-' is indicated in the status display					
	Note:	TDR should be set to OFF when manually programming					
	Note:	It is a good idea to check the above menus prior to using menu 27 to make sure none of them have an unwanted setting that was left over from a previous programming session.					
28 DEL-CH	**Delete a Memory Channel**		✓				
	This menu is used to delete the programmed information from the specified channel (0 through 127) so that it can either be programmed again or be left empty.						
29 WT-LED	**Back Light Color - Standby**		✓				
	Settings:	OFF[0] | BLUE[1] | ORANGE[2] | PURPLE[3] Default: PURPLE					
30 RX-LED	**Back Light Color - Receive**		✓				
	Settings:	OFF[0] | BLUE[1] | ORANGE[2] | PURPLE[3] Default: BLUE					
31 TX-LED	**Back Light Color - Transmit**		✓				
	Settings:	OFF[0] | BLUE[1] | ORANGE[2] | PURPLE[3] Default: ORANGE					
32 AL-MOD	**Alarm Mode**		✓				
	Settings:	SITE[0] | TONE[1] | CODE[2] Default: TONE					
	SITE:	Sounds alarm through your radio speaker only					
	TONE:	Transmits a cycling tone over-the-air					
	CODE:	Transmits '119' (911 in reverse?) followed by the ANI code over-the-air					
	Note:	Recommended setting is OFF... but since that isn't a choice use SITE					

Menu Number / Short Name	Long Name / Description / Settings / Notes		Global	MR/ Channel Mode	VFO/ Frequency Mode	Separate VFO A & B Settings	Stored on a Per Channel Basis
33 BAND	**Band Selection** In VFO/Frequency mode, sets [A] or [B] to the VHF or UHF band.		RO	✓	✓	✓
	Settings: VHF[0] | UHF[1]	Default: VHF					
	Note:	When transitioning from VHF to UHF or from UHF to VHF, the selected band's low frequency limit becomes the displayed frequency (the original 'scratch' frequency is lost)					
34 TDR-AB	**Dual Watch / Dual Reception Display Priority** When enabled, priority is returned to selected display once the signal in the other display disappears.		✓				
	Settings: OFF[0] | A[1] | B[2]	Default: OFF					
	Note: Requires menu 7 to be enabled						
35 STE	**Squelch Tail Elimination - Transceiver** This function is used eliminate squelch tail noise between UV-5Rs that are communicating directly (no repeater). A short duration 50Hz tone is transmitted when the PTT key is released.		✓				
	Settings: OFF[0] | ON[1]	Default: ON					
	Note: Set to OFF before communicating through a repeater.						
	Note: Recommended setting is OFF						
36 RP-STE	**Squelch Tail Elimination - Repeater** This function is used eliminate squelch tail noise when communicating through a repeater.		✓				
	Settings: OFF[0] | 1 - 10	Default: 5					
	Note: Requires use of a repeater utilizing this feature.						
	Note: Used with menu 37						
	Note: Recommended setting is OFF						
37 RPT-RL	**Delay the Tail Tone of Repeater (X100 milliseconds)**		✓				
	Settings: OFF[0] | 1 - 10	Default: OFF					
	Note: Used with menu 36						
	Note: Recommended setting is OFF						
38 PONMSG	**Boot Display** Controls the behavior of the display when the transceiver is turned on.		✓				
	Settings: FULL[0] | MSG[1]	Default: FULL					
	FULL: Performs an LCD screen test at power-on						
	MSG: Displays a 2-line power-on message						
	Note: The power-on message must be edited with software						
39 ROGER	**Roger Beep** Sends an end-of-transmission tone to indicate to other stations that the transmission has ended.		✓				
	Settings: OFF[0] | ON[1]	Default: OFF					
	Note: Recommended setting is OFF						
40 A/B-BP	**Roger Beep – End of Reception** Emits an end-of-reception tone in the speaker when squelch closes on the selected display.		✓				
	Settings: OFF[0] | A[1] | B[2]	Default: OFF					
	Note: Useful when menu 7 is set to ON						
41 RESET	**Restore to Default Settings**		✓				
	Settings: VFO[0] | ALL[1]	Default: ALL					
	VFO:	Resets all menus to firmware default and sets the [A] and [B] VFO frequencies to firmware default.					
	ALL:	Resets all menus to firmware default, sets the [A] VFO frequency to the VHF band low limit and the [B] VFO frequency to the UHF band low limit, erases all channels and programs channel 0 to 136.025 MHz and channel 127 to 470.625 MHz					

Menu Number / Short Name	Long Name / Description / Settings / Notes	Global	MR/ Channel Mode	VFO/ Frequency Mode	Separate VFO A & B Settings	Stored on a Per Channel Basis

Legend & Definitions

[A]	The top/upper VFO/Channel Display
[B]	The bottom/lower VFO/Channel Display
RX	Receive
TX	Transmit
PTT	Push-to-talk
RO	Read Only
✓	Valid
⊙	Inhibited
[n]	Numbers in brackets are shortcuts
YMMV	Your Mileage May Vary

Time Out Timer Table (Menu 9)

Nº	Seconds	Nº	Seconds	Nº	Seconds	Nº	Seconds
0	15	10	165	20	315	30	465
1	30	11	180	21	330	31	480
2	45	12	195	22	345	32	495
3	60	13	210	23	360	33	510
4	75	14	225	24	375	34	525
5	90	15	240	25	390	35	540
6	105	16	255	26	405	36	555
7	120	17	270	27	420	37	570
8	135	18	285	28	435	38	585
9	150	19	300	29	450	39	600

Note: digits in the 'Nº' column are shortcuts

CTCSS Table (Menu 11 & Menu 13)

Nº	Tone(Hz)	Nº	Tone(Hz)	Nº	Tone(Hz)	Nº	Tone(Hz)	Nº	Tone(Hz)
	67.0		94.8		131.8		171.3		203.5
	69.3		97.4		136.5		173.8		206.5
	71.9		100.0		141.3		177.3		210.7
	74.4		103.5		146.2		179.9		218.1
	77.0		107.2		151.4		183.5		225.7
	79.7		110.9		156.7		186.2		229.1
	82.5		114.8		159.8		189.9		233.6
	85.4		118.8		162.2		192.8		241.8
	88.5		123.0		165.5		196.6		250.3
	91.5		127.3		167.9		199.5		254.1

DCS Table (Menu 10 & Menu 12)

Nº	Code	Nº	Code	Nº	Code	Nº	Code	Nº	Code
1	D023N	22	D131N	43	D251N	64	D371N	85	D532N
2	D025N	23	D132N	44	D252N	65	D411N	86	D546N
3	D026N	24	D134N	45	D255N	66	D412N	87	D565N
4	D031N	25	D143N	46	D261N	67	D413N	88	D606N
5	D032N	26	D145N	47	D263N	68	D423N	89	D612N
6	D036N	27	D152N	48	D265N	69	D431N	90	D624N
7	D043N	28	D155N	49	D266N	70	D432N	91	D627N
8	D047N	29	D156N	50	D271N	71	D445N	92	D631N
9	D051N	30	D162N	51	D274N	72	D446N	93	D632N
10	D053N	31	D165N	52	D306N	73	D452N	94	D645N
11	D054N	32	D172N	53	D311N	74	D454N	95	D654N
12	D065N	33	D174N	54	D315N	75	D455N	96	D662N
13	D071N	34	D205N	55	D325N	76	D462N	97	D664N
14	D072N	35	D212N	56	D331N	77	D464N	98	D703N
15	D073N	36	D223N	57	D332N	78	D465N	99	D712N
16	D074N	37	D225N	58	D343N	79	D466N	100	D723N
17	D114N	38	D226N	59	D346N	80	D503N	101	D731N
18	D115N	39	D243N	60	D351N	81	D506N	102	D732N
19	D116N	40	D244N	61	D356N	82	D516N	103	D734N
20	D122N	41	D245N	62	D364N	83	D523N	104	D743N
21	D125N	42	D246N	63	D365N	84	D526N	105	D754N

Nº	Code	Nº	Code	Nº	Code	Nº	Code	Nº	Code
106	D023I	127	D131I		D251I		D371I		D532I
107	D025I	128	D132I		D252I		D411I		D546I
108	D026I	129	D134I		D255I		D412I		D565I
109	D031I	130	D143I		D261I		D413I		D606I
110	D032I	131	D145I		D263I		D423I		D612I
111	D036I	132	D152I		D265I		D431I		D624I
112	D043I	133	D155I		D266I		D432I		D627I
113	D047I	134	D156I		D271I		D445I		D631I
114	D051I	135	D162I		D274I		D446I		D632I
115	D053I	136	D165I		D306I		D452I		D645I
116	D054I	137	D172I		D311I		D454I		D654I
117	D065I		D174I		D315I		D455I		D662I
118	D071I		D205I		D325I		D462I		D664I
119	D072I		D212I		D331I		D464I		D703I
120	D073I		D223I		D332I		D465I		D712I
121	D074I		D225I		D343I		D466I		D723I
122	D114I		D226I		D346I		D503I		D731I
123	D115I		D243I		D351I		D506I		D732I
124	D116I		D244I		D356I		D516I		D734I
125	D122I		D245I		D364I		D523I		D743I
126	D125I		D246I		D365I		D526I		D754I

Note: digits in the 'Nº' column are shortcuts