

**Important Notice:** After update the firmware, you need to do the reset to the radio first, power off the radio first. Then power it on while holding the PTT and the PF1 button below the PTT at the same time. The radio will start up with a note on the display stating MCU Reset, Please Wait – and do not turn the radio off while it restarts. \*\*\*\*\* See the Separate FW Update Instructions for Details \*\*\*\*\*

- Install the Customer Program Software (CPS) by running the **D878UVII CPS Setup x.xx.exe** setup program in the CPS Program Folder
- After installing a new D878UVII CPS version go to the top Menu -> Tool-> Options in the CPS to set GPS, BT, 500 Hour Record and APRS options as needed

**Please make sure the codeplug is saved to PC before your do the update and reset.**

\*\*\* **USB Drivers** - Many users have found the D878 radio USB will connect in Windows 10 without loading the AnyTone virtual drivers. The PC found Windows the driver that worked just by plugging in and turning on the radio. If you get a new radio and your PC is Windows10 system, do not install the GD32 virtual driver. \*\*\* Just plug the radio USB cable in to the USB port on your PC and let windows find the driver. \*\*\* If Windows 10 fails to load a USB driver please see the separate Virtual USB Driver Installation Instructions.

**D878UV** --- Please use the firmware D878UV\_Vx.xx for updating the radio.

**D878UVII** --- Please use the firmware D878UVII\_Vx.xx for updating the radio.

### **D878UVII firmware update V3.03 (dated 2023-12-18)**

#### Change List

1. Improve the scan speed, ignore some burst signal.
2. Modify the SMS to support the Text Capture on BM.
3. Modify the CPS to prohibit the CPS read the AES / ARC4 encryption from the radio, and prohibit the CPS read the AES / ARC4 encryption from the codeplug.

To avoid the mistake, we suggest you do the process as below.

1. Save the codeplug in 3.02 CPS in .rdt file.
2. Do the firmware upgrade on the radio, and after firmware upgrade, the reset is a must.
3. Run the 3.03 CPS and open the saved .rdt file, the AES keys only display xxxx now, but it still works when write the code plug into radio. To be safe, engineer suggests you re-input the AES keys in the CPS before loading to radio, then it must work.
4. CPS->Optional setting->Key function, add the “dim shut” function which allow set a key to shut off the radio backlight and LED completely.
5. Modify the firmware to make the AES encryption have a variable Vector(IV) instead of fixed “12345678”.

Firmware version: V3.03

CPS version: V3.03

SCT 3258 version: V2.01.07 BA (same, no need update)

BT Version: 10036 or 10043 or 19043 (no need update)

APRS ver: 1.06 or 2.00 (no need update)

## **D878UVII firmware update V3.02 (dated 2023-4-21)**

### **Change List**

1. CPS->Digital->ARC4 encryption, add the ARC4 encryption which is compatible with Motorola radio.  
When use AES/ARC4 encryption with 878, it is better to turn off the sub band to increase the percentage of successful.
2. CPS->Optional Setting ->Digital -> Voice Header Repetitions, allows you set the voice header transmit times to sync the receive radio, it will improve the communication success rate with RX radio.
3. CPS->Optional Setting ->Digital -> TX preamble to define the preamble time of the data transfer function (not needed for audio calls), and improve synchronization
4. SMS confirmation mode improvements with better compatibility with other devices
5. Call Alert fully compliant with ETSI recommendation

Firmware version: V3.02

CPS version: V3.02

SCT 3258 version: V2.01.07 BA (same, no need update)

BT Version: 10036 or 10043 or 19043 (no need update)

## **D878UVII firmware update V3.01 (dated 2022-11-4)**

### **Change List**

1. Channel -> Analog -> 5Tone ID, make the decode standard in current channel to be same as the 5Tone ID encode standard.
2. AES256 encryption code only allows to write into radio, not allow to read from the radio.

Firmware version: V3.01

CPS version: V3.01

SCT 3258 version: V2.01.07 BA (same, no need update)

BT Version: 10033 or 10036 (no need update)

APRS ver: 1.04 (shall be updated from V1.03 to V1.04)

## **D878UVII firmware update V3.00 (dated 2022-10-14)**

### **Change List**

1. RX Group List (Settings > Chan Set > Rx Group List), add "none" selection
2. Introduce the choice of selecting On line alert also to each Talk Group (one by one), so that every time any contact talks using that specific Talk Group, you will hear a beep at the beginning of speaking, regardless of the contact.
3. Introduce a Global parameters for setting when the Idle state of digital channel will be played:  
0 -> Beep off  
1-> Beep on led transition from blue to off (end of slot digital communication)  
2-> Beep on led transtion from green to off  
3-> Beep on led transition from blue or green to off.

Firmware version: V3.00

CPS version: V3.00

SCT 3258 version: V2.01.07 BA (same, no need update)

BT Version: 10033 (same, no need update)  
APRS ver: 1.04 (shall be updated from V1.03 to V1.04)

### **D878UVII firmware update V2.05 (dated 2022-4-11)**

#### **Change List**

1. Set the sub band default OFF when GPS roaming is turned On, to avoid the issue that sub band VFO channel jumps to random channel.
2. Add new function in CPS->APRS-> Analog -> PASS ALL. Set On PASSALL will receive more APRS message, but some are with corrupted data.  
Default OFF.  
This command enables the attempt to display corrupted packets when PASSALL is ON.  
When PASSALL is OFF, packets will be displayed only if the CRC (error checking) is correct.
3. Improve the analog APRS receive, with upgrading the APRS firmware to V1.04 for the APRS+BT board.
4. Resolve the issue that export .dcf file doesn't work with Contact Manager V270.

Firmware version: V2.05  
CPS version: V2.05  
SCT 3258 version: V2.01.07 BA (same, no need update)  
BT Version: 10033 (same, no need update)  
APRS ver: 1.03 (shall be updated from V1.02 to V1.03)

### **D878UVII firmware update V2.04 (dated 2021-12-10)**

#### **Change List**

1. Resolve the issue in V2.03 that radio can't make contact with Repeater.
2. Resolve the issue that Talker Alias setting is not saved in export CSV file.
3. CPS->Tool-> Channel Talker Alias Operation, allows you check or uncheck all Talker Alias in channel.
4. Resolve the issue that CPS->Channel -> Analog APRS Report Freq. is not saved with the selected number.
5. Resolve the issue that CPS-> GPS Roaming data is not saved.

Firmware version: V2.04  
CPS version: V2.04  
SCT 3258 version: V2.01.07 BA (same, no need update)  
BT Version: 10033 (same, no need update)

### **D878UVII firmware update V2.03 (dated 2021-11-30)**

#### **Change List**

1. Allow to select TG and RX group list for the new channel created in radio menu.
2. Improve the Single Frequency Repeater unstable problem.
3. Add APRS SMS function in the radio menu, allows the radio to receive and transmit APRS message.  
Sending APRS Text from one AnyTone radio to another that has the APRS Rx feature.

Go to the radio Menu -> APRS -> APRS SMS where you can add a text message using the microphone keys, use the # key to switch from alpha to numbers, etc.

After entering your text, confirm it with the Menu button to get to the next Call Sign / SSID entry screen. Enter the Call Sign and SSID dash number for the user you want to send the message to; use the # key to switch from alpha to numbers, etc. When you confirm the Call Sign the APRS test message will send.

NOTE: APRS SMS TX setting is using the CPS->APRS-> Analog setting, so the received channel should have the matched frequency setting/CTCSS setting/band width to the TX radio's APRS setting, and have the APRS RX turned on.

4. Radio Menu ->Settings ->Device Info, add the APRS board version display
5. CPS->APRS->Analog, add 8 groups analog TX frequency. In CPS->Channel->Analog APRS Report Freq, allows select a TX frequency to transmit the analog APRS.
6. CPS->Common Setting->Channel ->DMR Mode, add "DCDM TS Split" mode. In this mode, the radio receives on the selected slot in channel, but in transmission it will use the other slot. This configuration is only in use when the radio talk through a D578UV in repeater mode with fixed slot.
7. CPS->Common Setting ->GPS Roaming, allow user set a list of GPS locations, when GPS positioning is within the preset radiation radius of coordinates, the radio will switch to the corresponding zone. CPS->Common Setting-> Optional Setting ->GPS/Ranging -> GPS Roaming should be set ON to enable this function(make sure the GPS should be ON first).
8. CPS->Common Setting ->Zone -> Zone hide, add Zone Hide function in the Zone menu, it allows user hide some zone when they don't need it on display. Since the Zone Hide is new inserted item, it may be checked automatically when open an existing codeplug. CPS->Tool-> Zone Hide Operation, allows you check or uncheck all Zone Hide.
9. Add APRS SMS function in the radio menu, allows the radio to receive and transmit APRS message.
10. CPS->Common Setting ->Optional Setting->Key Function, add "Ana APRS Info", for fast accessing the received APRS information.
11. CPS->Common Setting ->Channel -> Send Talker Alias, make the Talker Alias to be private setting for each channel, instead of public setting for all channels.
12. CPS->Tool -> APRS information Manager, allows the CPS to read the received APRS message from radio and export.
13. Add "Draft" in the Messages menu, unsuccessful SMS is saved in draft and can be resent.
14. Add timezone GMT+5:30(India), GMT+5:45 (Nepal), GMT+4:30(Afganistan), GMT+3:30(Iran) GMT-3:30 (Newfoundland, Canada), GMT+8:30 (Eucla)
15. Change the APRS message to be a lower priority than menu, the radio will not be kicked out of radio menu when receive the APRS message.
16. Correct the analog APRS sending inaccurate altitude (height) issue.
17. Correct the reverb/echo sound issue when transmit analog in the A+D channel.
18. Radio menu -> APRS -> Ana APRS Info ->APRS Verify, allows you set the function on or off. The Anytone firmware has error code verification when receive analog APRS information, it helps to display the data correctly. Turn off the error code verification may improve the analog APRS receive.

Firmware version: V2.03

CPS version: V2.03

SCT 3258 version: V2.01.07 BA (same, no need update)

BT Version: 10033 (same, no need update)

## **D878UVII firmware update V2.02N (dated 2021-05-31)**

### **Change List**

1. Correct the issue that FM radio is unable to off in menu.
2. Correct the issue that CPS->APRS -> APRS set APRS auto TX intervals(s) doesn't match to radio setting.

Firmware version: V2.01N

CPS version: V2.01N

SCT 3258 version: V2.01.07 BA (same, no need update)

BT Version: 10033 (same, no need update)

### **D878UVII firmware update V2.02 (dated 2021-05-26)**

#### **Change List**

3. CPS->Optional setting ->Display->Date Display Format, allows the user set the date format on display.
4. CPS->Optional setting ->Display->Display Channel type, allows the user turn off the channel type on display
5. CPS->Optional setting ->Display->Display time slot, allows the user turn off the time slot on display
6. CPS->Optional setting ->Display->Display color code, allows the user turn off the color code on display
7. CPS-> Optional setting ->Alert Tone, add Ana idle channel tone, the digital channel and analog channel have separated idle channel tone setting.
8. CPS->Channel -> Auto scan, tick on the box to allow the radio start scan automatically.
9. CPS-> Optional setting ->Volume/Audio, separate mic gain setting for digital channel and analog channel
10. CPS-> APRS ->Ana AprsTX, allows to set wide band or narrow band for analog APRS transmit.
11. Add the alert tone setting in radio menu.
12. CPS->Analog -> 2Tone Setting-> Auto Reset Time changes to maximum 250S. If you set Auto Reset Time to 25s, it keeps the squelch on carrier until there is 25 secs of silence, then it switches back to waiting for tones. If there is a transmission before the end of that 25 secs, the timer restarts. It is useful for the 2Tone Paging System.
13. CPS->Analog -> 5Tone Setting-> Auto Reset Time changes to maximum 250S
14. CPS->Analog -> DTMF-> Auto Reset Time changes to maximum 250S
15. CPS->Channel-> Ana aprs mute, allows to mute the analog APRS audio.
16. Digital APRS add Coarse and Speed information.
17. Optional Setting ->Other-> Priority Zone A, Priority Zone B change to display the zone name instead of zone number.
18. CPS-> APRS-> APRS alt data add "Meters" unit for optional.

Firmware version: V2.02

CPS version: V2.02

SCT 3258 version: V2.01.07 BA

BT Version: 10033

### **D878UVII firmware update V2.01b (dated 2021-04-10)**

#### **Change List**

19. CPS->Digital -> Contact List, allows to load 500,000 digital contacts.
20. Add Analog APRS Receive function (for AT-D878UVII PLUS).  
Turn on this function to enable the radio receiving the analog APRS information in current channel. Make sure your channel setting Frequency, CTCSS/DCS match to the transmit radio's setting.  
The radio will display the callsign, coordinates, direction, distance, digipeater paths, etc., when receive the analog APRS from the other radios.  
Radio Menu-> APRS -> Ana APRS Info, allows to check the receive analog APRS logs.  
CPS -> Public->APRS ->Analog APRS -> Receive Allow set to "On", and input the Callsign and SSID you

want to receive. The radio will only receive and display the analog APRS information of the filter callsign, instead of display all analog APRS.

21. We will keep upgrading the firmware to add more Analog APRS function in future.

Firmware version: V2.01b

CPS version: V2.00

SCT 3258 version: V2.01.07 BA

BT Version: 10033