2) Choosing a way forward

Since I wasn’t clear what I was getting into with DMR, initially the operative words for me when choosing my DMR hardware were “inexpensive” and as “easy to use” as possible.

2a) Choosing a DMR radio

Since I already had a nice D-STAR radio for all-around, multi-mode use, I decided to just barely stick my toe in the DMR soup to begin with. So initially to get up and running with DMR, I chose a cheap, single-mode radio, the CS580 UHF.

After I had explored DMR for a while, I decided I wanted a bit higher quality radio. I tried a couple different radios over the course of the next couple of years, the Connect Systems CS760 (a good concept, but ultimately a bust, soon discontinued), and the Hytera AR-685 (a quite nice radio, but unfortunately with a dead-end development path).

Then, I picked up an AnyTone AT-D878UV. It’s a nice, solid unit with a good screen (a black screen like my Kenwood TH-D74A, which I prefer), a large memory capacity (it easily holds the entire worldwide
CCS7 ID contact list), and extra capacity for future feature expansion. It also comes with a decent CPS software package. For me, this one's a keeper.

AnyTone is proving itself to be a leader in DMR radios for the amateur radio community. Their AT-D878UV catapulted them to the front of the pack. Their mobile unit, the AnyTone AT-D578UV, which they released late 2019, shows that they are taking the lead in both listening to hams and innovating; there's nothing else quite like it in the mobile space (especially with its cross-band and cross-mode flexibility). And they have a quite interesting accessory planned for the 578: a remote control Bluetooth microphone with color LCD, a handheld device the size of a small cellphone.

Hint: A good source for AnyTone radios is Lets Get Ready, which has an online store on eBay and provides good, friendly support: Lets Get Ready.

More info about the 878/868

- AnyTone Firmware Update process

- There are some helpful downloads made available by Andy Taylor, MW0MWZ, on his Pi-Star site: AnyTone DMR Downloads. Includes the following full lists: DMR User, BrandMeister TalkGroup, DMR+ TalkGroup, TGIF TalkGroup, and UK Repeater. The files are generated when you download them, so they're always up to date. See also the Pi-Star note DMRGateway rewrite rules.

- Modifications, hints, tips and technical information for the AnyTone AT-D868UV and AnyTone AT-D878UV by Jason, VK7ZJA.
AnyTone AT-D868UV/AT-D878UV DMR Users Group (Facebook)

From what I’ve been told by people who know more than I do, the AnyTone radios work well with the Talker Alias feature. In that case, you actually don’t need to load a contact list. If you do want to load a contact list, a decent download tool you can use is made available by the DMR Team: DMR Database. Another source is the ContactLists Telegram group: https://t.me/contactlists

Hint: If you ever need to pick up another USB cable for your 878/868 (or a TYT MD-380, Retevis RT3, or Radioddity GD-77), you can use a "dumb" cable, as all of these radios have the UART built into them. Thanks to Jeff, N4CLR, for this info.

Some helpful info about the 578

- Modifications, hints, tips and technical information for the AnyTone AT-D578UV by Jason, VK7ZJA.

Some good videos about the 878/868

The AnyTone approach to its CPS software is a bit different than others I’ve tried. Here are some good videos that provide an overview of how all the pieces fit together; while there is some overlap, I learned different things from each of them:

- Anytone D868 Tutorial by WoodburyMan.
- Anytone 868 from New to First DMR Contact by Chris, 2E0UKH.
- AnyTone D868 D878 New User StartupVideo by Duane, N6DMR.

A good video about the digital monitor feature: Anytone 868 878 dig monitor features by Chris, 2E0UKH.

AnyTone AT-D878UV icons & symbols

For some reason, the user manual doesn’t include an explanation of the icons and symbols used on the display. Here’s what I’ve figured out so far:

- Reception bars – Signal strength
- L/M/H/T (in frame) – Tx power level: Low, Medium, High, Turbo
- Speaker icon – Digital Monitor (promiscuous mode) enabled for 1 or 2 slots
- Microphone icon – Recording on
- GPS icon gray – No signal received; red = signal received
- A – Automatic Power Off enabled
- CC# – Color Code (primary digital channel)
- DCS/CTC – Tone Signal Squelch (analog channel)
- DIG/ANA CH-# – Digital or Analog Channel and #
- T1/T2 A/B – Time Slot for A or B channel
- R – Repeater with offset RX/TX frequencies; Red = Reversed

**AnyTone AT-D878UV Tx power levels**

- Super high = UHF: 6 Watts / VHF: 7 watts
- High = 5 Watts
- Middle = 2.5 Watts
- Low = 1 Watt

**Velcro miracle cure for poor memory**

I’ve got so many different radios with so many different programmable hotkeys that when I added the AT-D578UV, it simply pushed me to the edge of insanity! In order to help me learn this new blizzard of hotkeys, I made a little wooden stand that I can velcro to the top of the radio, to which I can attach a little cheat sheet.
The cheat sheet is easy to change (attached with two-sided tape) so that I can update it if and when I decide on different key combinations as I learn to better use the features of this radio.

<table>
<thead>
<tr>
<th>P1 Pwr Lvl</th>
<th>P4 VFO/MR</th>
<th>Main Ch</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2 Ch Type</td>
<td>P5 Scan</td>
<td>A Ch Mute</td>
</tr>
<tr>
<td>P3 Zone -</td>
<td></td>
<td>B Ch Mute</td>
</tr>
<tr>
<td>Manual Dial</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Channel Knob: Sub Ch On/Off | Pri Zone
Menu 24 - Analog Squelch Level

2b) Choosing a hotspot

Over the past few years I’ve used a bunch of different hotspots, each of which has its own strengths, and new ones are released regularly.

This is such a big topic that I’ve spun off an entire article describing how hotspots work and discussing the many available choices: Hanging out with hotspots.

Have fun choosing!
BrandMeister repeater usage stats

In late May 2017, I took a look at the repeater/hotspot usage stats on the BrandMeister dashboard. At the time I looked, the top six were:

1. 33% – openSPOT hotspot
2. 23% – DVMEGA – about 83% of that is the DVMEGA running MMDVM, while the remaining is the DVMEGA running BlueDV for Windows, Android, and Linux
3. 15% – MMDVM – about 80% of that is MMDVM running as a repeater, while the remaining 20% is MMDVM running as a hotspot
4. 11% – Motorola repeaters
5. 11% – Hytera repeaters
6. 5% – DV4mini hotspot

By Nov 2017 (BrandMeister’s 2nd birthday), things were changing:

1. 38% – openSPOT hotspot
2. 22% – DVMEGA – about 85% of that is the DVMEGA running MMDVM, while the remaining is the DVMEGA running BlueDV for Windows, Android, and Linux; Pi-Star is 43% of the firmware [Note: “firmware” is the term used on the BrandMeister dashboard website, even though I’d call it the software or app.]
3. 17% – MMDVM (about 66% of that is MMDVM running as a repeater, while the remaining is MMDVM running as a hotspot; Pi-Star is 35% of the firmware
4. 9% – Motorola repeaters
5. 8% – Hytera repeaters
By Nov 2018 (BrandMeister’s 3rd birthday), MMDVM and Pi-Star had become the undisputed champs:

1. 52% – **MMDVM** – about 27% of that is MMDVM running as a repeater, while the remaining is MMDVM running as a hotspot; Pi-Star is more than 84% of the firmware

2. 24% – **openSPOT v1 and v2**

3. 13% – **DVMEGA** – about 89% of that is the DVMEGA running MMDVM; Pi-Star is more than 68% of the firmware

4. 5% – **Motorola** repeaters

5. 5% – **Hytera** repeaters

6. 1% – **DV4mini hotspot**

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**2. Choosing a way forward**

a. **Choosing a DMR radio**

b. **Choosing a hotspot**
3) Putting it all together

DMR notes [ Nets ]

Full DMR TOC

Questions or comments?

Please let me know

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