

**MOONRAKER HT-500D
TYT MD-9600
ANYTONE AT-D868UV
TYT MD-UV380**

DUAL BAND DMR RADIOS

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**CODE PLUG V7.02 WRITE UP
RELEASED ON 2018-07-27**

This document covers the following:

1. NOTES
2. FIRMWARE AND CPS
3. EDITING THE DMR ID AND UPLOADING THE CODE PLUG
4. CHANGE LOG
5. RADIO BUTTON SETTINGS
6. CHANNELS
7. SCAN LIST LAYOUT
8. ZONE LAYOUT

NOTES

Due to doing various code plugs, I am simplifying the write up on the radios – overall, this is to advise users how the code plug is setup and not how to operate the radio. There are a number of forums and Facebook pages to provide operational support, tips, advise etc. Please also check this basic guide for more information on DMR in the UK, the networks and links to various helpful sites - <http://www.dmr-uk.net/index.php/about-dmr/>

It's near impossible to create a code plug that suites everyone – this code plug includes a lot from analogue to DMR simplex and repeaters, it's meant to get users operational upon purchase of a radio. For those that don't travel far, it may be easier to delete the zones that are not required (make a backup of the code plug first) and if required, check how the code plug works then create your own personalised version which is how I started. Others may find they wish to add stuff such as Gateways and Nodes.

Please do take note of the Firmware / CPS versions being used for this code plug – this is in the next section

The data for this code plug was captured on **2018-07-09** however as it takes several days to compile and test before publishing, there may be some changes during that period which should be captured in the next update.

The sources used include www.dmr-uk.net, <http://www.bm-dmr.uk/dash/ukrepeater.html> and www.ukrepeater.net however all sources rely on input from various people and therefore errors can happen. Errors that are noted or reported will be corrected in the next update.

There are limitations to most radios – the HT-500D, MD-9600 and UV380 have less capacity in terms of channels, zones and scan lists than the Anytone and therefore there will be some differences. The zone/scan lists may not hold an entire region's repeaters due to a low capacity (64 channels/zone and 31 channels/scan list) however they are in the channel information section so you can modify your zones/scan lists to suite.

A few abbreviations are used – AV (Analogue Voice) and DV (Digital Voice). In regards to the marine frequencies, V (Vessel) and B (Base) – this is mainly for the duplex frequencies. The rest for marine are IS (Inter Ship), PO (Port Operations) and PC (Port Correspondence). Refer to www.offshoreblue.com/communications/vhf-uk.php

Any repeaters that don't have any information advising what network they are linking to are placed into the "Standalone" zone either permanently or until the situation changes.

For the Phoenix channels, there's a TS1 and TS2 channel (both are linked to TG9 local) – these link to Rx Groups lists containing the talk groups relevant for each Time Slot (TS). When on TS1 or TS2, you will hear any traffic on a talk group that's on that time slot. If you move to a specific talk group channel, you will not hear any traffic unless it's on that talk group as they don't link to Rx Group Lists. Many users prefer to monitor a certain talk group without hearing other traffic on the time slot thus the code plug has been setup this way.

The HT-500D, MD-9600 & UV380 code plugs include a CSV and REC version. The CSV version does not contain contacts and is for those people using the CSV firmware and will upload a contacts file. The REC version is for those using the REC firmware and contains UK and Irish call signs. Contact files can be obtained via the following website - <http://www.amateurradio.digital/wizard.php?radio=md2017> – just remember the CSV version is limited to 100 000 contacts and there are around 102 000 contacts as at the time of generating these code plugs.

Read more on DMR, programming and other information via - <https://dmrguideuk.wordpress.com/> and also download the code plug and have a look at the layout of the zones/scan lists so you know how it's setup in the radio.

Feedback on the code plug content and layout (comments, suggestions or reporting of errors)

can be done via e-mail to ht-500d@outlook.com

Questions regarding operating the radios will not be answered

All radio related issues are to be reported back to Moonraker (or your relevant dealer).

FIRMWARE AND CPS

The Firmware and CPS versions are important as there are different features between each release and to prevent the possibility of any issues (which won't be too serious), I'd suggest updating to the versions used for this code plug.

Note that there will be 4 Firmware files for the HT-500D and MD-9600 – Use the GPS ones for the HT-500D and those without GPS for the MD-9600. Then if you wish to make use of the record function the file name will include REC otherwise if you prefer to be able to upload the user ID CSV database file, choose the CSV version.

Also note that TYT advertise the UV380 firmware as Non GPS and UV390 firmware as GPS however the UV380's from Moonraker contain GPS (check the labelling on the box) so please use the UV390 CSV-GPS firmware file.

The downloads usually contain both the latest Firmware and CPS in a zip file format which you need to extract to your Windows computer. Included is usually the program for doing the Firmware update as well as some information / instruction files which you need to read.

HT-500D

Download from <http://tyt888.com/?mod=download>

Firmware : 4.05

CPS Version : 1.22

Released : January 2018

MD-9600

Download from <http://tyt888.com/?mod=download>

Firmware : 5.05

CPS Version : 1.22

Released : January 2018

MD-UV380

Download from <http://tyt888.com/?mod=download>

Firmware : P16.06

CPS Version : 1.03

Released : May 2018

Note : CPS 1.03 is in the GPS software file released April 2018 (v1.07 is in the May files but does not seem to work)

Anytone

Download from <http://www.connectsystems.com/software/software%20D868UV.htm>

Firmware : 2.29

CPS Version : 1.29

Released : May 2018

It's very hard to brick one of these radios

**Most issues are due to the radio not being in DFU mode and result in unreadable displays
The solution is to try again as a successful Firmware update will rectify most known issues**

DMR ID

The first step is stop register for a DMR ID via this site - <https://www.radioid.net/cgi-bin/trbo-database/userreg.cgi>
It can take 24 hours or so for the ID to be issued (please also check your spam mail) as it's run by volunteers outside of the UK. Once you have the ID, then you can load it into the radio but first off, connect the radio to the computer, download the code plug (read the radio) add the ID as per the instructions below, save the code plug then write the code plug back to the radio.

If you obtain a code plug from anyone or buy a DMR radio, you should check the ID in the code plug and change it to your own else you will be transmitting an incorrect ID and a different users details will appear on other radios and the live monitors.

HT-500D / MD-9600 / MD-UV380

On the left-hand menu tree select "General Settings" then at the top in the middle you will see "Radio Name" and "Radio ID" – enter your ID in the "Radio ID" box.

Anytone

On the left-hand menu tree – look for "Digital" and under there is "Radio ID List" – add your ID number and call sign

CHANGE LOG

General repeater updates are done with every release – the log highlights other/specific changes

V1 : Initial Release

V2 : Added DMPR (Rx), Marine (RX), Zone/Scan Amendments

V3 : Added NATS (Rx), Updated 2m simplex inline with the band plan

V4 : Removed DPMR446, Updated PMR446, Added regional scan, layout change due to FW update

V5 : (01) Added TG2351 (02) Moved GB7BJ from SALOP to Phoenix 870 Wales (03) Moved GB7BJ Phoenix 810 SE

V6 : New zone layout (please read the zone section for more information) and removal of marine frequencies

V7 : Updated the SALOP channels, added gateways and revised this document layout

RADIO BUTTON SETTINGS

Here's the settings for the buttons on the radio – they differ between the handheld and mobile radio. These can be changed under the "Button Definitions" menu in the CPS.

The Anytone buttons can be reprogrammed from the radio using the "Settings" then "Radio Settings" menu from where you can program most items without needing a computer/tablet.

HT-500D BUTTONS (SHORT PRESS AND LONG PRESS)

ORANGE	POWER SELECT	POWER SELECT
TOP BUTTON	SCAN	SCAN
MIDDLE BUTTON	ZONE +	ZONE -
BOTTOM BUTTON	SWITCH UP/DOWN SCREEN	SWITCH UP/DOWN SCREEN
P1 BUTTON	LEFT KEY	LEFT KEY
P2 BUTTON	RIGHT KEY	RIGHT KEY

MD-9600 BUTTONS (SHORT PRESS AND LONG PRESS)

P1 BUTTON	ALL ALERT TONES ON/OFF	ALL ALERT TONES ON/OFF
P2 BUTTON	SCAN ON/OFF	SCAN ON/OFF
P3 BUTTON	POWER SELECT	POWER SELECT
P4 BUTTON	ZONE +	ZONE -

MD-UV380 BUTTONS (SHORT PRESS AND LONG PRESS)

TOP BUTTON	SCAN ON / OFF	POWER SELECT
BOTTOM BUTTON	ZONE +	ZONE -

ANYTONE BUTTONS (SHORT PRESS AND LONG PRESS)

PF3 ORANGE	POWER	VOLTAGE
PF1 TOP SIDE	DIAL	DIAL
PF2 BOTTOM SIDE	V/M	V/M
P1 LEFT FRONT	SCAN	NUISANCE DELETE
P2 RIGHT FRONT	MAIN CHANNEL SWITCH	MAIN CHANNEL SWITCH

NUMBER KEY QUICK CONTACT LIST

KEY 0	TG801 – SOUTH EAST ENGLAND
KEY 1	TG810 – SOUTH WEST ENGLAND
KEY 2	TG820 – NORTH WEST ENGLAND
KEY 3	TG830 – MIDLANDS
KEY 4	TG840 – EAST ENGLAND
KEY 5	TG850 – SCOTLAND
KEY 6	TG860 – NORTH EAST ENGLAND
KEY 7	TG870 – WALES
KEY 8	TG880 – NORTHERN IRELAND
KEY 9	TG235 – UK WIDE

CHANNELS

The regional layout of Analogue and DMR differ as DMR has split the North into North West / North East and Midlands into Midlands / East England however I have attempted to split the AV Midlands and Northern regions as noted in the Zones section. Also note that the AV zones won't contain 2m then 70cm repeaters – they shall be in their regions alphabetically not taking band into account.

NATS (Heathrow Air traffic), PMR446 and Marine have been added as Rx only set in the channel entries as these are for listening purposes only. If the HT-500D and MD-9600 reach the memory capacity, it will be these that are removed first to free up space (marine would be the first option).

2m analogue and digital simplex use the same frequencies as per the band plan (confirmed by the RSBG) with the exception of the calling channels. S20 is only for analogue use whereas DMR has a different calling frequency allocated.

Another change is the hotspot zone – there are now two entries – one for TG8 and one for TG9. The majority of users will require TG9 however for those using DMR Gateway via Pi-Star, TG8 is for DMR Plus and TG9 is for Brandmeister.

The channels in the radio are as follows (not in this order – they follow the zone layout)

- Hotspot (Set at 436.000MHz , Colour Code 1 , Time Slot 1)
- NATS Heathrow (Rx Only)
- Marine (Rx Only)
- PMR446 (Rx Only)
- 2m analogue Simplex (Prefix A-)
- 2m digital simplex (Prefix D-)
- 70cm analogue simplex
- 70cm digital simplex
- Standalone repeaters
- SALOP Cluster
- South West Cluster
- Brandmeister UK
- Phoenix UK
- Analogue Repeaters
- Gateways

SCAN LIST

Please see the notes at the start of this document in regard to information relating to scan lists. As the TYT/Retevis radios can only hold 31 channels compared to a zone which holds 64 channels, there will be some channels from a zone that are not in the scan list – there is no other option unless a lot more zones and scan lists are created which will make the code plug difficult to operate.

The regional scan lists act like a “roam” list – they contain the regional talk group for every repeater that has that region as “always on” – refer to www.dmr-uk.net/index.php/regional/ for the layout noting that some repeaters have more than one region as “always on” due to coverage and request from the Keeper. This is not a true roam system but it’s the route that many operators used a few years ago on radios that didn’t have a roam function.

The number of scan lists has been reduced – for instance there not a separate scan list for 2m analogue and 70cm analogue repeaters – there will be one scan list for the regions analogue repeaters comprising of a mixture of 2m and 70cm repeaters.

1. NATS
2. MARINE
3. PMR446
4. 2M AV SIMPLEX
5. 2M DV SIMPLEX
6. 70CM AV & DV SIMPLEX
7. STANDALONE
8. SALOP
9. SW CLUSTER
10. M62 MOTORWAY
11. AV SE
12. BM SE
13. PUK SE
14. PUK 801
15. AV SW
16. BM SW
17. PUK SW
18. PUK 810
19. AV NW
20. BM NW
21. PUK NW
22. PUK 820
23. AV MIDL
24. BM MIDL
25. PUK MIDL
26. PUK 830
27. AV EE
28. BM EE
29. PUK EE
30. PUK 840
31. AV SCOT
32. BM SCOT
33. PUK SCOT
34. PUK 850
35. AV NE
36. BM NE
37. PUK NE
38. PUK 860
39. AV WALES
40. BM WALES
41. PUK WALES
42. PUK 870
43. AV NI
44. BM NI
45. PUK NI
46. PUK 880
47. GW – MIDLANDS
48. GW – N IRELAND
49. GW – NORTH ENG
50. GW – SCOTLAND
51. GW – SE ENG
52. GW – SW ENG
53. GW – WALES
54. 804 RAYNET

ZONES

The first zone is empty so you can add your own channels or favourites. This code plug may seem busy but it's ideal to add everything into a full UK code plug as some operators do travel. However, you can delete unwanted zones should you wish – the actual channels will still remain should you wish to add any back to a zone at a later stage – it would be ideal to make a backup of the original code plug before deleting any content.

In v6 of the code plug, I decided to try a slightly different format for the zones, putting Analogue, Brandmeister and Phoenix repeater zones into regional groups – I will continue to use this format as its more favourable and easier to use rather than scattering the channels by mode.

As Analogue is not split like DMR where the Midlands and North have an East / West divide, I have used a longitude co-ordinate for each of the two regions analogue regions based on the current divide of DMR repeaters. Also, the SE region seems to spread into the East England region so I have moved some repeaters from the South East to East England region using Luton as the N/S divide and Bradford as the W/E divide.

The start of each region is the Analogue entry so you know when you have moved from one region to the next. Following from this, I have added the Gateways – they are in ETCC regional groups due to lack of long/lat co-ordinates in order to easily place them into the DMR based regional groups.

Please refer to the network section to see what Brandmeister and Phoenix repeaters are in each zone.

Here's a map of the repeater layout in the UK - <http://www.dmr-uk.net/index.php/uk-dmr-map/>

Zone layout example (The red zone is empty):

801 SE ENG

ANALOGUE

BRANDMEISTER (Contains all Brandmeister repeaters)

GB7AK BARKING (Phoenix repeater with the zone containing all talk groups)

GB7AS ASHFORD (Phoenix repeater with the zone containing all talk groups)

I've also followed the Phoenix UK regional system using 801 to 880.

801	SOUTH EAST ENGLAND
810	SOUTH WEST ENGLAND
820	NORTH WEST ENGLAND
830	MIDLANDS
840	EAST ENGLAND
850	SCOTLAND
860	NORTH EAST ENGLAND
870	WALES
880	NORTHERN IRELAND

Zones are setup in the following order – text in brackets are comments only:

(General Zones)

- EMPTY ZONE
- HOTSPOT
- NATS (RX)
- MARINE (RX)
- PMR446 (RX)

(Simplex)

- 2M ANALOGUE AND DIGITAL
- 70CM ANALOGUE AND DIGITAL

(Other DMR)

- SALOP CLUSTER
- SOUTH WEST CLUSTER
- STANDALONE

(Regional for Analogue/Digital Repeaters)

- 801 SOUTH WEST
 - ANALOGUE
 - BRANDMEISTER
 - PHOENIX
- 810 SOUTH EAST
 - ANALOGUE
 - BRANDMEISTER
 - PHOENIX
- 820 NORTH WEST
 - ANALOGUE
 - BRANDMEISTER
 - PHOENIX
- 830 MIDLANDS
 - ANALOGUE
 - BRANDMEISTER
 - PHOENIX
- 840 EAST ENGLAND
 - ANALOGUE
 - BRANDMEISTER
 - PHOENIX
- 850 SCOTLAND
 - ANALOGUE
 - BRANDMEISTER
 - PHOENIX
- 870 WALES
 - ANALOGUE
 - BRANDMEISTER
 - PHOENIX
- 880 NORTHERN IRELAND
 - ANALOGUE
 - BRANDMEISTER
 - PHOENIX
- GATEWAYS
 - MIDLANDS
 - NORTHERN IRELAND
 - NORTH ENGLAND
 - SCOTLAND
 - SOUTH EAST ENGLAND
 - SOUTH WEST ENGLAND
 - WALES