

Using the ORARC RT73/CDR300UV Codeplug

June 2021

INTRODUCTION

The ORARC Retevis RT73/CD300UV Codeplug is based on an original codeplug published by Dave VK4ICE. It has been modified to reflect the recent Talkgroup changes (May 2021) and customised to suit the local Port Macquarie region.

The original version from VK4ICE is available at <https://github.com/vk4ice/Retevis-RT84-RT3S-VK-Codeplug>. Many thanks to Dave for his hard work in creating such a complete database.

The ORARC codeplug is provided as a JSON file which can be edited in the MM7DBT Codeplug Editor available from <https://www.rt73editor.com/>. This editor is more reliable than the Kydera and Retevis editors for this radio which are known to corrupt codeplugs when editing zones and channels.

To install the codeplug:

1. Run the MM7DBT editor.
2. Download from your radio into the editor (IMPORTANT). This reads the radio's hardware info.
3. Open the ORARC codeplug.
4. Add your Callsign and DMR ID in the 'Radio Info' tab.
5. Upload the codeplug to your radio.

If you wish to edit the contact list or add/delete/edit channels,

1. Use the Export option to save them to a CSV file.
2. Edit them in Excel or LibreOffice.
3. Save them back to a CSV file.
4. Import them back into your codeplug.
5. Save the file with a new filename and upload it to the radio

If you get an error importing a CSV file back into the editor you have probably made an error in the format of your CSV file. Check your changes for errors.

ZONES

All the channels in the codeplug are grouped into zones. Each zone contains a group of channels associated with the zone name and each channel within that zone supports a specific talkgroup. Simply select the desired zone then rotate the channel switch to choose a talkgroup. More details further below.

The Zones listed below are included.

#	ZONE NAME	USAGE
1	DuplexSpot	Duplex Hotspot
2	BMeisterSpot	Brandmeister Hotspot
3	FM Local	Local FM Repeaters in the Port Macquarie region
4	1RBM Canberra	1RBM Canberra DMR Repeater

5	2RAG Somersby	2RAG Somersby DMR Repeater
6	2RAG WicenU	2RAG Wicen UHF DMR Repeater
7	2RAG WicenV	2RAG Wicen VHF DMR Repeater
8	2RAG BM Somersby	2RAG Somersby Brandmeister Repeater
9	2RAO Orange	2RAO Orange DMR Repeater
10	2RBA Bombala	2RBA Bombala DMR Repeater
11	2RCG Sydney	2RCG Sydney DMR Repeater
12	2RCN Pt Macquari	2RCN Port Macquarie DMR Repeater
13	2RCV Grafton	2RCV Grafton DMR Repeater
14	2RFI DoraCreek	2RFI Dora Creek DMR Repeater
15	2RGL Upp/Myall	2RGL Upper Myall DMR Repeater
16	2RGN Goulburn	2RGN Goulburn DMR Repeater
17	2RGP BM Newcastl	2RGP Newcastle Brandmeister Repeater
18	2RHK Wyee NSW	2RHK Wyee DMR Repeater
19	2RHK BM Wyee NSW	2RHK Wyee Brandmeister Repeater
20	2RHR HighRange	2RHR High Range DMR Repeater
21	2RHT Chatswood	2RHT Chatswood DMR Repeater
22	2RHX Newcastle	2RHX Newcastle DMR Repeater
23	2RLE Engadine	2RLE Engadine DMR Repeater
24	2RMB TerryHill	2RMB Terry Hills DMR Repeater
25	2RNC Newcastle	2RNC Newcastle DMR Repeater
26	2ROJ NelsonBay	2ROJ Nelson Bay DMR Repeater
27	2RPH Balranald	2RPH Balranald DMR Repeater
28	2RUM Lwr/Hunter	2RUM Lower Hunter DMR Repeater
29	2RWI Dural	2RWI Dural DMR Repeater
30	2RYS Yass	2RYS Yass DMR Repeater
31	2RZL Upp Hunter	2RZL Upper Hunter DMR Repeater
32	3RAG RennieHill	3RAG Rennie Hill DMR Repeater
33	3RAH Knoxfield	3RAH Knoxfield DMR Repeater
34	3RAJ Upwey	3RAJ Upwey DMR Repeater
35	3RAY BM Wodonga	3RAY Wodonga Brandmeister Repeater
36	3RBA BM Ballarat	3RBA Ballarat Brandmeister Repeater
37	3RBQ BM Dimboola	3RBQ Dimboola Brandmeister Repeater
38	3RDR Cranbourn	3RDR Cranbourn DMR Repeater
39	3RDS Shepparton	3RDS Shepparton DMR Repeater
40	3RGL Mt Anakie	3RGL Mt Anakie DMR Repeater
41	3RGV Mt Wombat	3RGV Mt Wombat DMR Repeater

42	3RHD Horsham	3RHD Horsham DMR Repeater
43	3RHD BM Horsham	3RHD Horsham DMR Repeater
44	3RMC NarreWarren	3RMC NarreWarren DMR Repeater
45	3RPS Mt Cotterel	3RPS Mt Cotterel DMR Repeater
46	3RSA Emerald	3RSA Emerald DMR Repeater
47	3RSV BM Dandenon	3RSV Dandenong Brandmeister Repeater
48	3RTA Beulah	3RTA Beulah DMR Repeater
49	3RTE Karingal	3RTE Karingal DMR Repeater
50	3RUT BM Warrnamb	3RUT Warrnambool Brandmeister Repeater
51	3RWV Warrnambo	3RWV Warrnambool DMR Repeater
52	3RYN Yallourn N	3RYN Yallourn North DMR Repeater
53	4RBK Atherton	4RBK Atherton DMR Repeater
54	4RBT GldCstNth	4RBT Gold Coast North DMR Repeater
55	4RBU Bundaberg	4RBU Bundaberg DMR Repeater
56	4RDB Mt Cotton	4RDB Mt Cotton DMR Repeater
57	4REG Bunya Mt	4REG Bunya Mt DMR Repeater
58	4RLU MtDunsinane	4RLU Mt Dunsinane DMR Repeater
59	4RMC Brisbane	4RMC Brisbane DMR Repeater
60	4RNX Sunshine	4RNX Sunshine Coast DMR Repeater
61	4RSB Trinity Bch	4RSB Trinity Beach DMR Repeater
62	4RSL Noosa	4RSL Noosa DMR Repeater
63	4RTQ Toowoomba	4RTQ Toowoomba DMR Repeater
64	4RVR Ipswich	4RVR Ipswich DMR Repeater
65	5RDM BM MurrayBr	5RDM Murray Br Brandmeister Repeater
66	5RSF Adelaide	5RSF Adelaide DMR Repeater
67	6RDN BM Perth	6RDN Perth Brandmeister Repeater
68	7RAD Hobart	7RAD Hobart DMR Repeater
69	7RAK Gagebrook	7RAK Gagebrook DMR Repeater
70	7RCR Hobart	7RCR Hobart DMR Repeater
71	7RCR BM Hobart	7RCR Hobart Brandmeister Repeater
72	7RJG Launceston	7RJG Launceston DMR Repeater
73	Satellites	AMSAT Satellites
74	VK1 Analog	VK1 FM Analog Repeaters
75	VK2 Analog	VK2 FM Analog Repeaters
76	VK3 Analog	VK3 FM Analog Repeaters
77	VK4 Analog	VK4 FM Analog Repeaters
78	VK5 Analog	VK5 FM Analog Repeaters

79	VK6 Analog	VK6 FM Analog Repeaters
80	VK7 Analog	VK7 FM Analog Repeaters
81	VK8 Analog	VK8 FM Analog Repeaters

Hotspot Zones

The first two zones are for your hotspots (if you have any). One is for DMR+ and the other is for Brandmeister. Each hotspot zone is preprogrammed with all the available talkgroups for the appropriate DMR system. If you don't have any hotspots you can ignore these two zones.

- If you have received a DEFAULT ORARC Codeplug, the hotspot zones will have default frequencies installed and you will need to **EDIT** these to include your own hotspot frequencies. Simply use the MM7DBT Codeplug Editor available from <https://www.rt73editor.com/> to export the channels to a CSV file then edit the RX and TX frequencies using Excel or LibreOffice. Re-save the file under a new name and upload it to your radio.
- If the codeplug has already been customised for you then your own hotspot frequencies may already be installed.

If you don't use a hotspot, simply ignore these Zones when making your zone selections in the radio.

VK DMR and Brandmeister Repeaters

A complete list of all VK DMR and Brandmeister repeaters. Simply select the desired repeater from the Zone list, then use the channel switch to select your desired talkgroup on that repeater.

Satellites

The 'Satellites' zone contains frequencies for the ISS, SO50 and AO92 satellites. Each satellite has a series of channels programmed to reflect the frequency change caused by Doppler shift as the satellite passes overhead. Start with the AOS (Acquisition Of Signal) channel for when the satellite first appears at the horizon, then advance step by step through the channels as the satellite rises, reaches its zenith and descends back towards the horizon, finishing with the LOS (Loss Of Signal) channel near the end of the satellite pass.

VK1 to VK8 Analog

All VK FM repeaters grouped by state

USING THE RADIO WITH THE ORARC CODEPLUG INSTALLED

CHANNEL DISPLAY GROUPS [A]/[B]

When the radio is first switched on after programming, it will default to the first Zone in the zone list and the first channel in that zone. Once you start using the radio it will remember your last settings for all your preferred channels and zones.

The radio will display two channel groups, one above the other. Channel group [A] is displayed at the top while channel group [B] appears directly below it. The radio can monitor both channels for QSOs. The currently selected channel group is identified by a Red Arrow. You can switch back and

forth between channel group [A] to channel group [B] by pressing the 'B' key. The Red arrow symbol will move to follow your selection.

Rotate the channel switch to choose a talkgroup on the selected channel group [A] or [B]. Press the PTT to transmit.

SELECTING ZONES

Your radio can display separate zones in channel groups [A] and [B]. The name of the Zone for the selected channel group is not displayed so the channels/talkgroups have been labelled to help identify the zone they are in.

Before selecting a zone you should first ensure the desired channel group is selected by pressing the 'B' key.

To switch between zones Press the P1 key. The Zone list is displayed. Rotate the channel switch to select the desired zone, then press the channel knob to select. The radio will switch to the chosen Zone and will then return to the normal display.

SELECTING TALK GROUPS

The two channel locations [A] and [B] will display the selected talkgroup for that Zone. To select a talkgroup, rotate the channel switch.

SELECTING TRANSMIT POWER

Press the 'P2' key to toggle the TX power. The RH end of the bar-meter (between the two channel groups) will change from short to long (long represents high power).

PROMISCUOUS MODE

Press the 'P3' key to toggle 'Promiscuous Mode'. Promiscuous Mode opens up the channel to allow you to hear all actively broadcasting talkgroups. This is a handy feature for general monitoring but it should be switched off during QSOs as it can cause your radio to switch channels mid QSO.

VOLUME/SQUELCH

To adjust the Volume, briefly press the VOL key. VOL will appear along with the present volume setting. Rotate the channel switch to adjust the volume. After a few seconds the display will return to normal.

To adjust the Squelch (FM mode only) HOLD the SQL key. SQL will appear along with the present squelch setting. Rotate the channel switch to adjust the squelch. After a few seconds the display will return to normal.

Note: The volume and squelch settings will return to their default values when the radio is switched off. To save the new volume or squelch setting as the default, press the 'B' key while the volume or squelch level is displayed to save it.

STATIC AND DYNAMIC TALK GROUPS

Each repeater has Static and Dynamic talkgroups. These are preprogrammed into the repeater by the administrator and may be different on each repeater. In simple terms;

- A Static talkgroup is one that always broadcasts when it is active. To listen to a Static talkgroup all you need to do is select that talkgroup on your radio and you will automatically hear any traffic.
- A Dynamic talkgroup doesn't automatically broadcast when it is active. If you select a Dynamic talkgroup on your radio, you won't automatically hear anything even if there is an active QSO. To enable a Dynamic talkgroup, select that talkgroup and press the PTT (known as a 'Kerchuck'). This will temporarily enable that talkgroup on your repeater and you should then hear any QSOs for the next 15 minutes, after which the talkgroup will reset to its Dynamic state. Pressing the PTT resets the timer so having a QSO on that talkgroup extends the reset time.

You may sometimes notice that the LED on your radio is Green but you aren't hearing anything. This means there is traffic on the channel but the user is on a different talkgroup to the one you have selected (a green speaker symbol appears adjacent to the active channel). If you want to know which talkgroups are active you can monitor all the DMR repeater traffic across all DMR repeaters in real time on the Repeater Dashboard. You can also try pressing 'P3' to activate Promiscuous Mode which may allow you to hear the active talkgroup.

To view the repeater dashboard go to <http://rpt.vkdmr.com/ipsc/>.

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The repeater dashboard shows a list of all active repeaters. In the image shown above you will notice columns listed **TS1**, **TS1-INFO** and **TS2**, **TS2-INFO**. These are used to show individual repeater information for time-slot 1 (TS1) and time-slot 2 (TS2). Under **TS1** and **TS2** you will see lists of talkgroups. These are the talkgroups that have been set to Static on each repeater. If you look at VK2RCN (#7 in the list), TS1 lists talkgroups 5, 8/8 and 1910 as Static while TS2 lists 505 and 3802 as Static. This means that these talkgroups will broadcast automatically and you should be

able to hear them simply by selecting that talkgroup on your radio. All other talkgroups are set to Dynamic and you will need to activate them (with a kerchunk) to hear them.

Note the orange bands under **TS2-INFO** along with the green band adjacent to VK2RCN. These bands indicate an active talkgroup. The orange bands show alongside every repeater that is currently broadcasting the talkgroup. Included in the orange band is the talkgroup and callsign of the caller. The green band shows alongside the repeater the caller is using to access the DMR network (in this case VK2RCN).

Also note that there is no orange band alongside VK2RAG. This is because VK2RAG does not have 505 set as Static and is therefore not broadcasting the activity.

If someone is having a QSO on any talkgroup it will show on this dashboard. If the talkgroup is listed as Static under the TS1 or TS2 headings and is showing as an orange band against your repeater simply select that talkgroup on your radio and you should hear them. If the talkgroup is not listed and is not showing against your repeater, it is set to Dynamic. To join in simply select that talkgroup on your radio and kerchunk your repeater to activate that talkgroup.

TRANSMITTING

When you transmit to a repeater, the repeater acknowledges by sending a response back to your radio. If your radio receives the response it knows that the communications path is successful and displays the Green telephone symbol to let you know it is OK to talk. If the return response is not heard, your radio displays BS Failed (Band Split Failed) to let you know it cannot reach the repeater.

FINALLY . . .

For general radio operation you should refer to the supplied Instruction Manual.

To obtain a Radio ID to access the DMR system go to <https://www.radioid.net/> . Click the **Login/Signup** link on the left of the page to register for your DMR ID.

For more information on using the VK DMR system and the latest talkgroup information, go to <https://vkdmr.com/using-dmr/>

For the MM7DBT Codeplug Editor go to <https://www.rt73editor.com/> .