VK & ZL DMR Network Newsletter September 2015

Welcome to our First VK DMR Newsletter, as we are moving forward we would like to explain a few things about the DMR Network for VK & ZL
We have a Network in place to connect the DMR Network world wide, and also to allow a connection for VK & ZL uses to chat all the time, and this is called the VK/ZL Talk Group.
To make things simple to understand we will use TG as the meaning of Talk Groups & TS as the Meaning of Time Slot.

Talk Groups are as they are named as Groups, and we have a few already in place, So I will use our VK / ZL TG 5 & TS 2 as an Example as follows, with Time Slots.
TG 5 and using the Time Slot 2 as this is our Regions connection for us.

As you already know in DMR Mode you can have 2 Conversations talking on the same Repeater Frequency at the same time, and I know some of you are thinking that this will cause interference when 2 people are talking as in Analogue Mode, please understand we are in Digital now and we share TIME(Please see picture on Page 2 & 3 of this news letter), the radios are turning On/Off the Transmitter very quickly to allow 2 Groups to talk on the same frequency at the same time and not causing a HUM, like in Analogue.

In VK Currently we have the following Repeaters in operations
VK2RCG in Sydney, VK3RSU in Melbourne, VK3RAD in Melbourne not on-line yet, VK3RZU in Mt Buller, VK3TE in Mornington Peninsula, VK4RXX in Gold Coast, VK4RMC in Brisbane, VK3DU in Cairns, VK6RRR in Perth.
These are all on UHF 70CM Band, we do not currently have any on VHF, as there is a request from WIA to have all digital Repeaters on UHF only.

We will be having a Sunday Evening Group call in on TG 5 / TS2
Time will be **19:30** Local NSW/ACT/VIC +10 **(09:30 UTC)**

Also the DMR Mobiles and Portables on the network are from different manufacture's as well, We have Motorola, Vertex Standard Hytera, CS, Simoco, Tait.
So you are not locked into 1 brand of radio to purchase, as DMR is a Truly OPEN Standard.

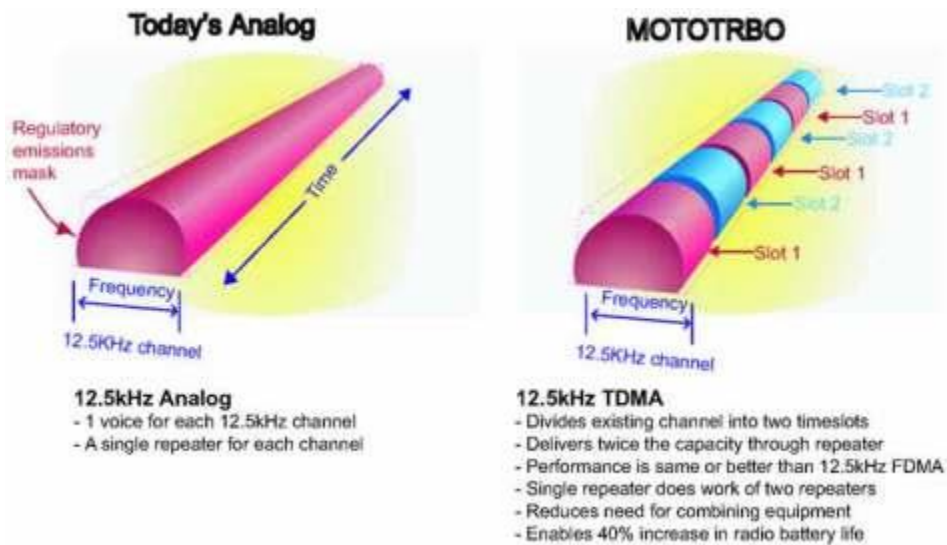All of the Repeaters currently in VK are all Motorola type.

See more of the news letter about our DMR Network with Links and our Yahoo Group information, we are all here to help.

Delivering Increased Capacity

MOTOTRBO uses a two-slot TDMA architecture. This architecture divides the channel into two alternating time slots, thereby creating two logical channels on one physical 12.5kHz channel. Each voice call utilizes only one of these logical channels, and each user accesses a time slot as if it is an independent channel. A transmitting radio transmits information only during its selected slot, and will be idle during the alternate slot. The receiving radio observes the transmissions in either time slot, and relies on the signalling information included in each time slot to determine which call it was meant to receive.

By comparison, analogue radios operate on the concept of Frequency Division Multiple Access (FDMA). In FDMA, each transmitting radio transmits continuously on a designated channel, and the receiving radio receives the relevant transmission by tuning to the desired carrier frequency.

Today's Analog

Regulatory emissions mask

Time

Frequency

12.5KHz channel

12.5kHz Analog
- 1 voice for each 12.5kHz channel
- A single repeater for each channel

MOTOTRBO

Slot 2
Slot 1
Slot 2
Slot 1
Slot 2
Slot 1

Frequency

12.5KHz channel

12.5kHz TDMA
- Divides existing channel into two timeslots
- Delivers twice the capacity through repeater
- Performance is same or better than 12.5kHz FDMA
- Single repeater does work of two repeaters
- Reduces need for combining equipment
- Enables 40% increase in radio battery life

TDMA thereby offers a straightforward method for achieving 6.25kHz equivalency in 12.5kHz
repeater channels – a major benefit for users of increasingly crowded licensed bands. Instead of dividing channels into smaller slices of decreased bandwidth – which is what would be required to increase spectrum efficiency with FDMA methods, TDMA uses the full 12.5kHz channel bandwidth, but increases efficiency by dividing it into two alternating time slots.

Additionally, this method preserves the well-known radio frequency (RF) performance characteristics of the 12.5kHz signal. From the perspective of RF physics – that is, actual transmitted power and radiated emissions – the 12.5kHz signal of two-slot TDMA occupies the channel, propagates, and performs essentially in the same way as today's 12.5kHz analogue signals.

With the added advantages of digital technology, TDMA-based radios can work within a single repeater channel to provide roughly twice the traffic capacity, while offering RF coverage performance equivalent to, or better than, today's analogue radio.

Two-Slot TDMA Reduces Infrastructure Equipment

As we have seen, two-slot TDMA essentially doubles repeater capacity. This means that one MOTOTRBO repeater does the work of two analogue repeaters (a MOTOTRBO repeater supports two calls simultaneously).

This saves costs of repeater hardware and maintenance, and also saves on the cost and complexity of RF combining equipment necessary in multichannel configurations.

Just as importantly, there is no need to obtain new licenses for the increase in repeater capacity, and compared to alternative technologies that may operate on different bandwidths, there is no comparative increase in the risk of interference with or from adjacent channels.
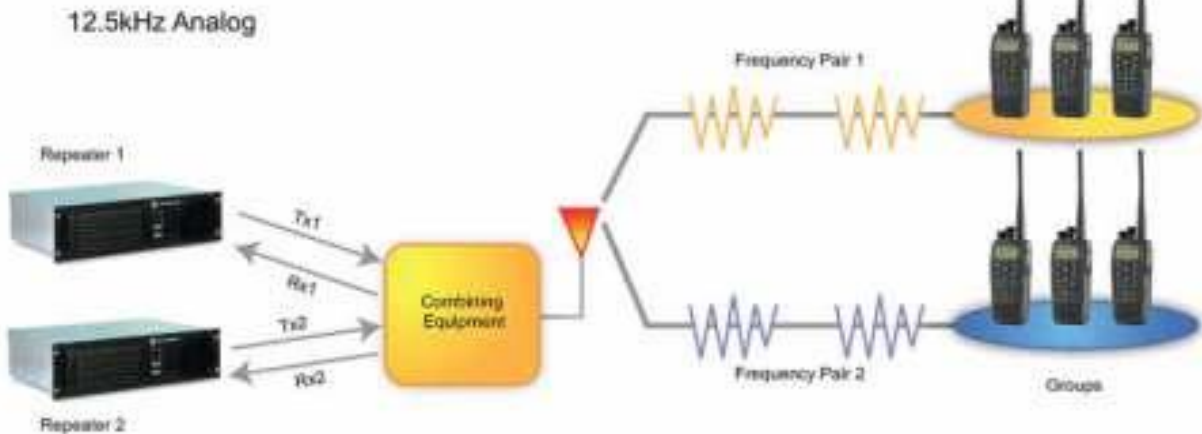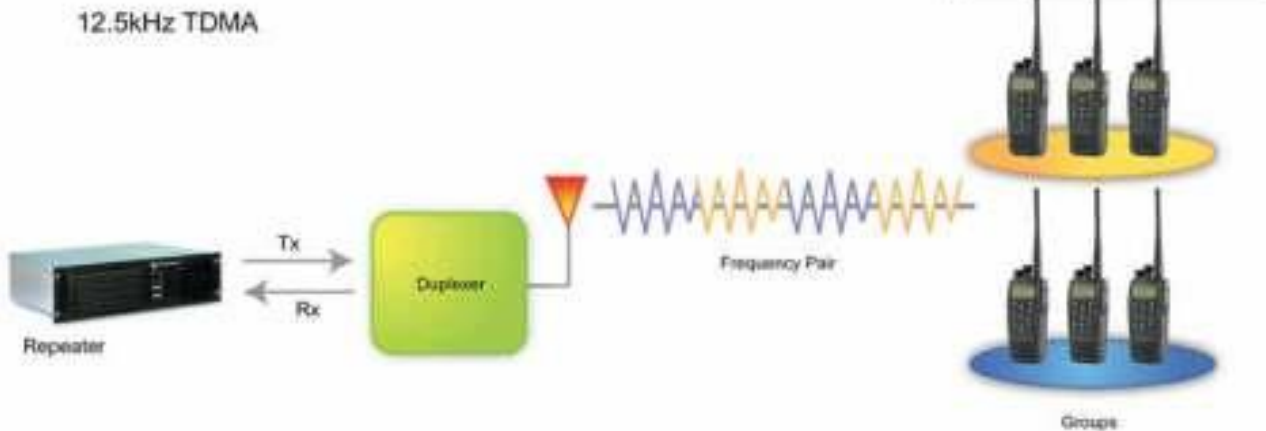
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Now for our current TG for VK below.

Please only use these configurations only, and do not make up any other TG, as we have just added TG 100 Tech Group, and this linked to the TG 100 Group from the USA, for you who want to know more about DMR and the rest of Technical people on DMR.

Name	Time Slot	Talk Group	Description
WW	1	1	World Wide calling channel.
VK/ZL	2	5	All regional repeaters - only Australia & NZ are currently active.
			This is the main talk group for local contacts
Local	1	9	Local traffic, **VK Only currently**
WWE	1	13	World Wide English language talk group
			This is the main talk group for worldwide contacts
Tech	1	100	Tech talk group
UAE1	1	113	World Wide English language user activated talk group
UAE2	1	123	World Wide English language user activated talk group
VK	2	505	VK-wide Network

Contact People in Australia below.

Peter Brennan	VK3TE	vk3te@bigpond.com
Joe Nevin	VK6ZTN	joe.nevin@gmail.com
Danny Ainsworth	VK4ZUK	vk4zuk@gmail.com

Yahoo Group:

https://groups.yahoo.com/neo/groups/VK-DMR/info

If you have any Code Plugs (Program files to share upload to here please.)

Various Links:

http://vkdmr.net/ - VK cBridge status

http://vk6rrr.blogspot.com.au/

http://dmr.darc.de/

http://dmr-bridge.digital-hamradio.net:42420/MinimalNetwatch

http://www.foxhollow.ca/DMR/Contacts/MD380/DMR-Contacts-CS700-MD380%20AUSTRALIA.TXT

http://www.trbolnk.com/dmr/

http://arec.info/downloads/

http://dmrtechtalk.org/index.php/repeaters/

http://dmrtechtalk.org/