Introduction to DMR

Presented by
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DMR = Digital Mobile Radio

- Very popular commercial radio in Europe
- Brought to the US by Motorola
- Growing number of vendors of radios
  - $$$ Motorola
  - $$ Connect Systems
  - $ Chinese vendors
- DMR Repeaters are linked over the internet
- By Selecting a Talk Group you can talk all over the world with a Handheld Radio

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- Over 4000 DMR repeaters worldwide
  - Connected via the internet to network servers
  - Cbridge/BrandMeister
  - Currently about 45 Servers in operation
- Hotspots are now available to allow you to access the DMR network from your home station
  - Over 6000 hotspots are now listed on Brandmeister alone!

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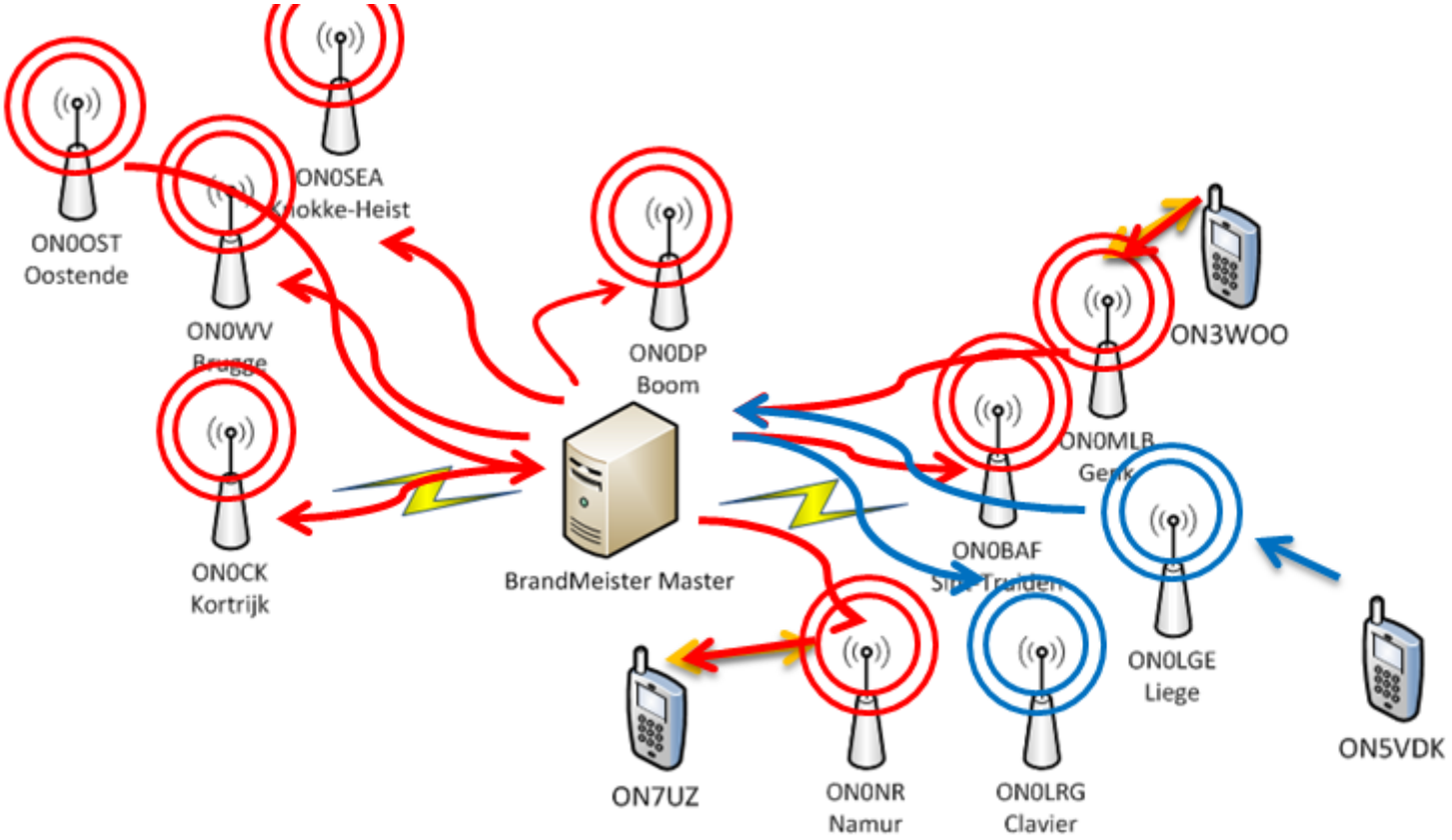

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- Each repeater can handle 2 conversations simultaneously via TDMA
- TDMA – Time Division Multiple Access
  - Two digital signals on a single channel
  - Each conversation gets ½ of the bandwidth on the channel via time division multiplexing
  - Data packets re-assembled at the receiver into a continuous analog audio stream
- Each Talk Group is assigned to a specific Time Slice (TS1 or TS2)

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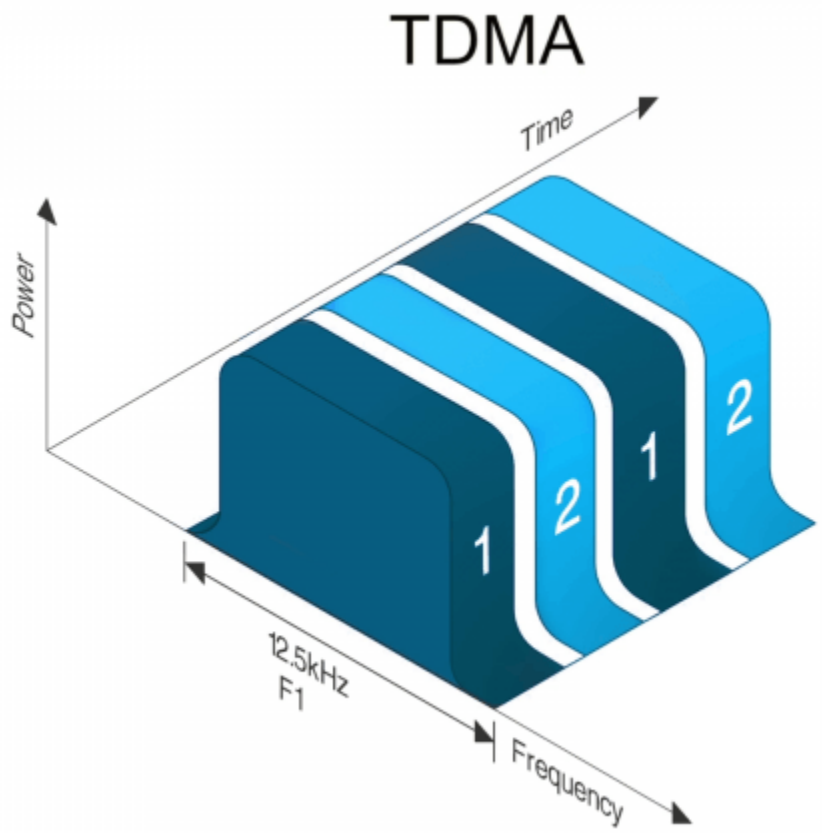

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- Talk Groups
  - Talk Groups are a way for groups of users to talk among themselves.
  - You only send and receive on one Talk Group at a time.
  - Popular Talk Groups are:
    - World Wide TG1
    - North America TG3
    - Regional Talk Groups (SE, NW, NE, etc)
    - Statewide Talk Groups
    - And many, many more!

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- Zones – Grouping of individual channels
  - You can program zones for local DRM (or analog) channels.
  - A Zone could be grouped by channels on a specific repeater
  - A Zone could be for a particular non-amateur services
  - A Zone could be for an area you operate in with a selection of Talk Groups and Repeaters.
  - However you would like to organize the radio

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- Color Codes – Repeaters are assigned a Color Code much like analog repeaters use PL tones to reduce co-channel interference
- You must program the correct Color Code for the repeater you are using!

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- Code Plugs – A Code Plug is a file that contains the programming information for a radio, i.e.
  - TX and RX frequencies
  - Color Codes (CC)
  - Time Slice (TS)
  - Talk Groups
  - Contact Lists
  - Other radio parameters

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- DMR Networks Info
  - http://www.trbo.org/
  - http://www.dmr-marc.net/
  - https://brandmeister.network/
  - http://www.k4usd.org/
- Information on repeaters and networks is changing almost daily.
- You may have to dig for information on a specific repeater.
- BE ADVISED – Some information you come across may out of date!

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- Using DMR
  - Listening to DMR transmissions
  - Talk groups are not enabled on the repeater 100% of the time. You must select the repeater/talk group and “chur-chuck” it up.
  - Listen for quiet channel, press you PTT momentarily and listen for the “Ack” tone on your radio. That talk group will now be enabled on the repeater you are using. Now, listen again to make sure the talk group is not in use. Remember, these talk groups can cover huge amounts of territory!

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- Transmitting on DMR
  - Once on a talk group, transmitting is similar to using an analog repeater. Talk and listen like you would on an analog repeater.
  - TX/RX delays are longer on DMR due to the fact that all the transmissions go to the repeater, to the server and then to all the repeaters that are active on that Talk Group. If there are 100 repeaters active on a Talk Group the data has to be sent to all the repeaters via the internet.

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- Programming your Radio
  - Chris to take over here.