NEW HAM CLASS

OR EVERYTHING YOU WANTED TO KNOW BUT WERE AFRAID TO ASK
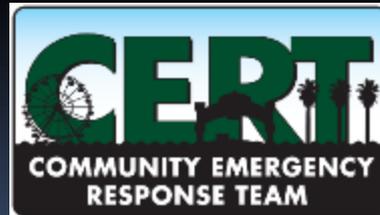
Using Repeaters
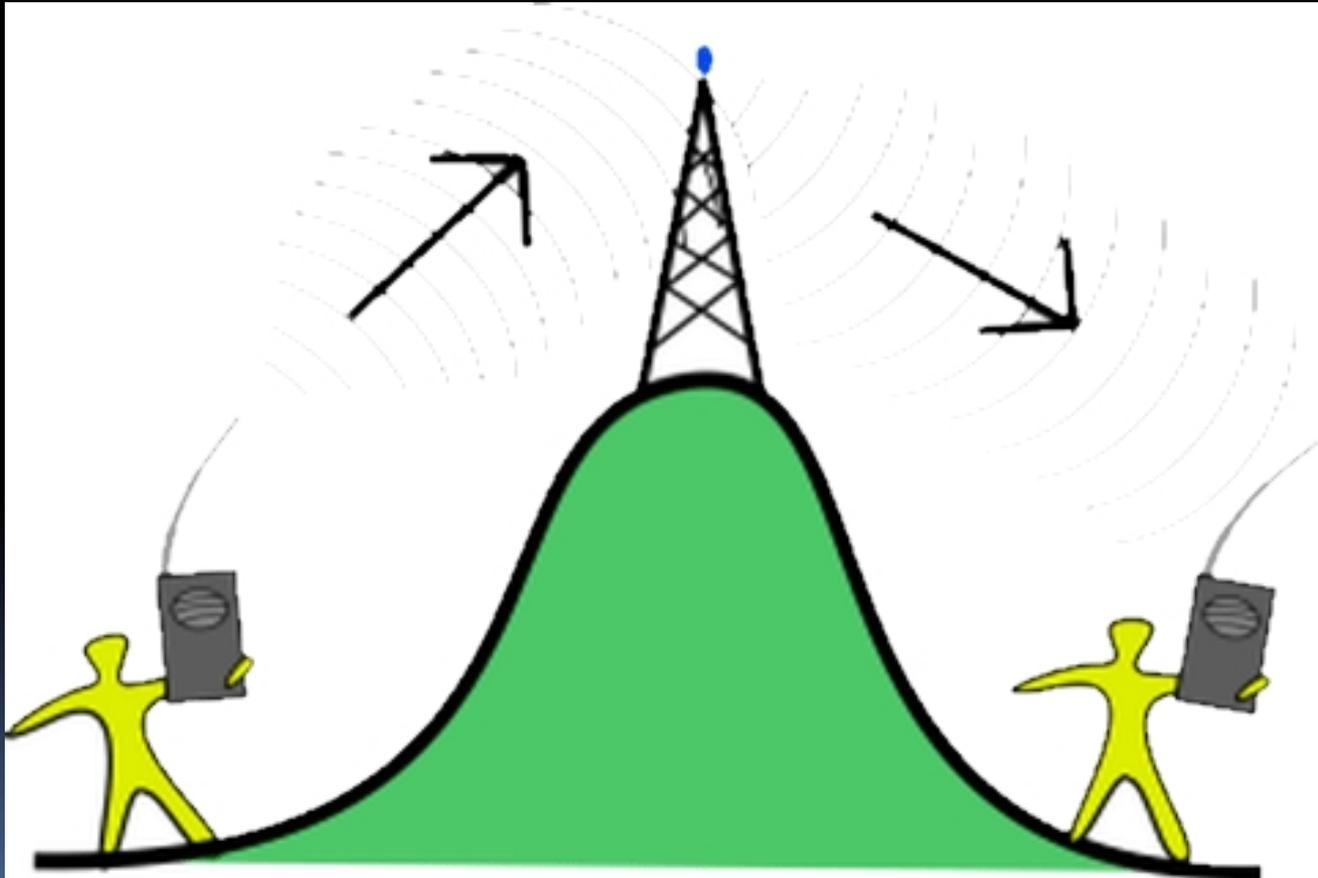
What is a repeater anyway?
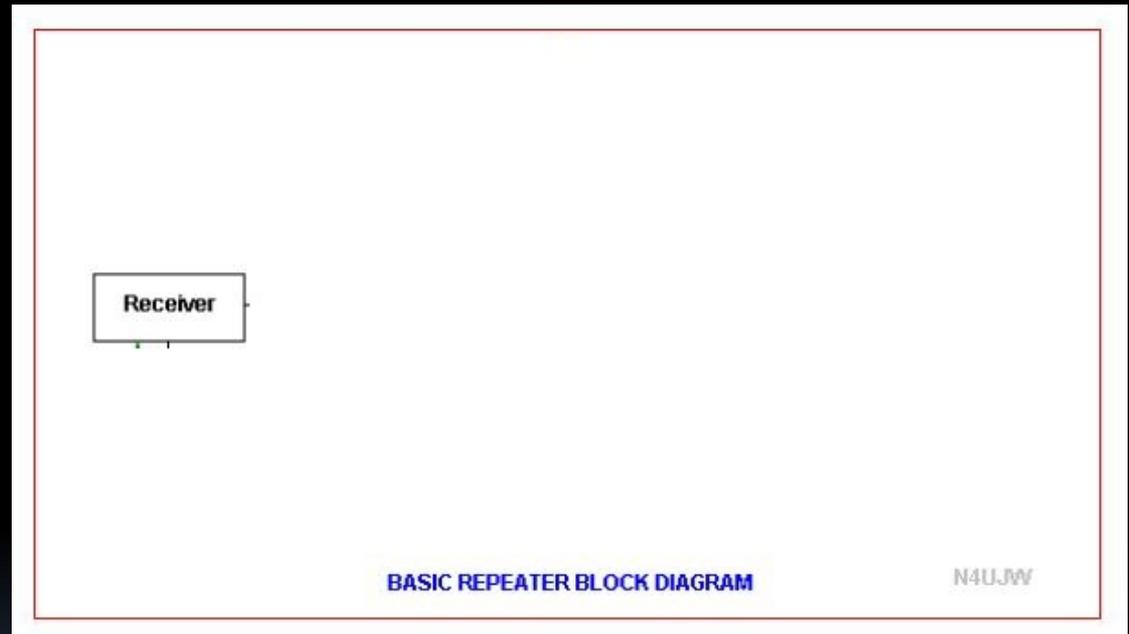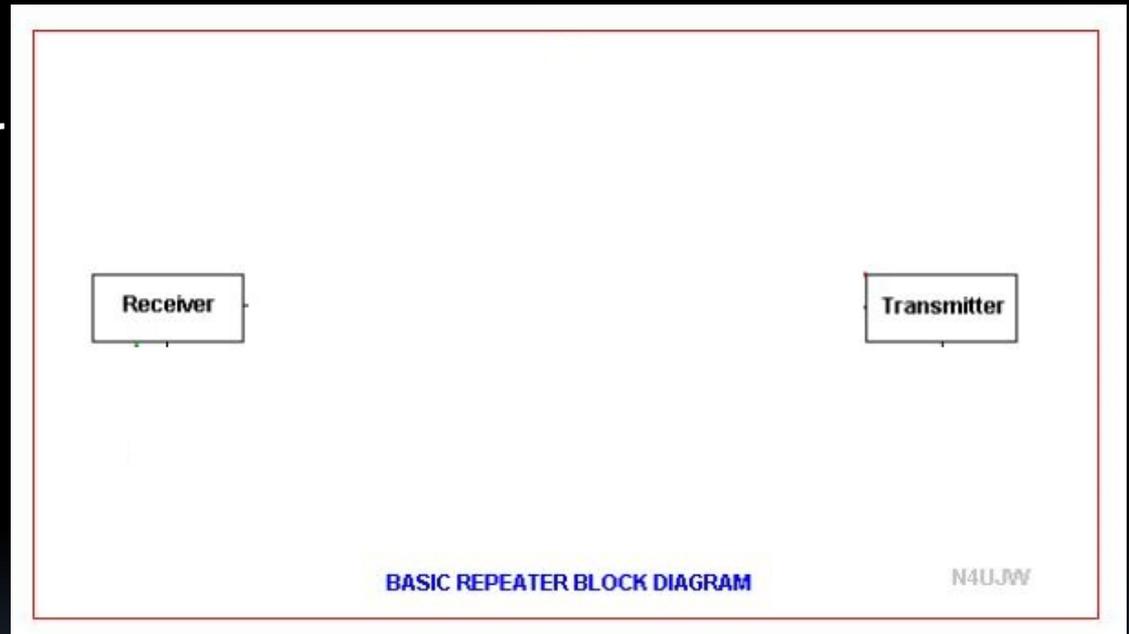
- A Receiver

Receiver

BASIC REPEATER BLOCK DIAGRAM

N4UJW

What is a repeater anyway?

- A Receiver
- A Transmitter

| Receiver | | Transmitter |

BASIC REPEATER BLOCK DIAGRAM

N4UJW

What is a repeater anyway?

- A Receiver
- A Transmitter
- An Antenna

BASIC REPEATER BLOCK DIAGRAM

N4UJW

What is a repeater anyway?

- A Receiver
- A Transmitter
- An Antenna
- A Duplexer

BASIC REPEATER BLOCK DIAGRAM

N4UJW
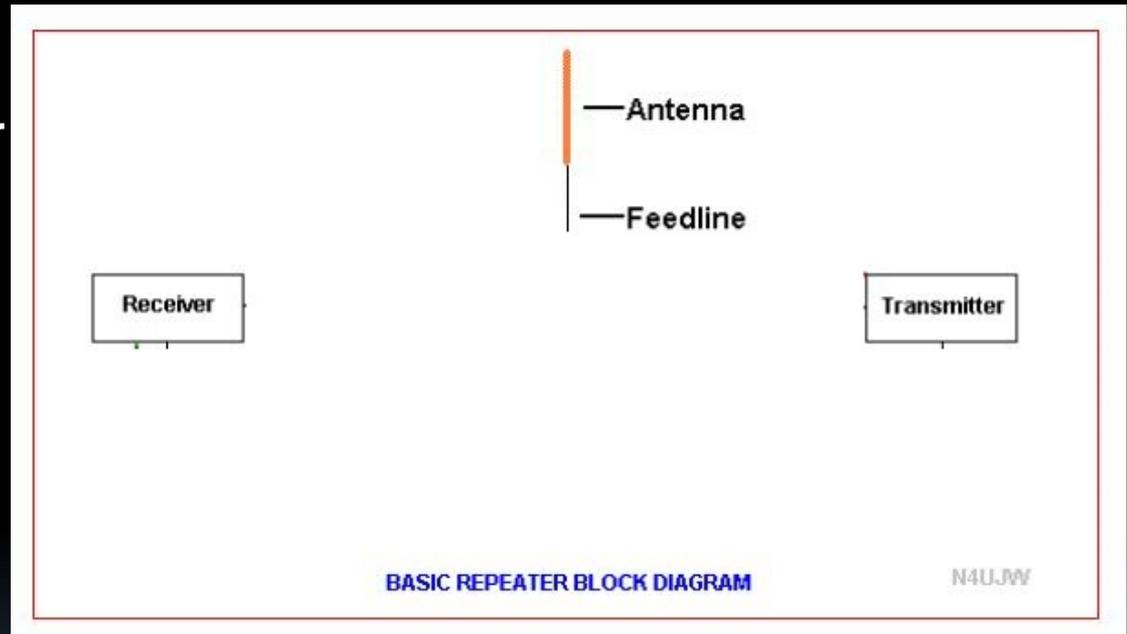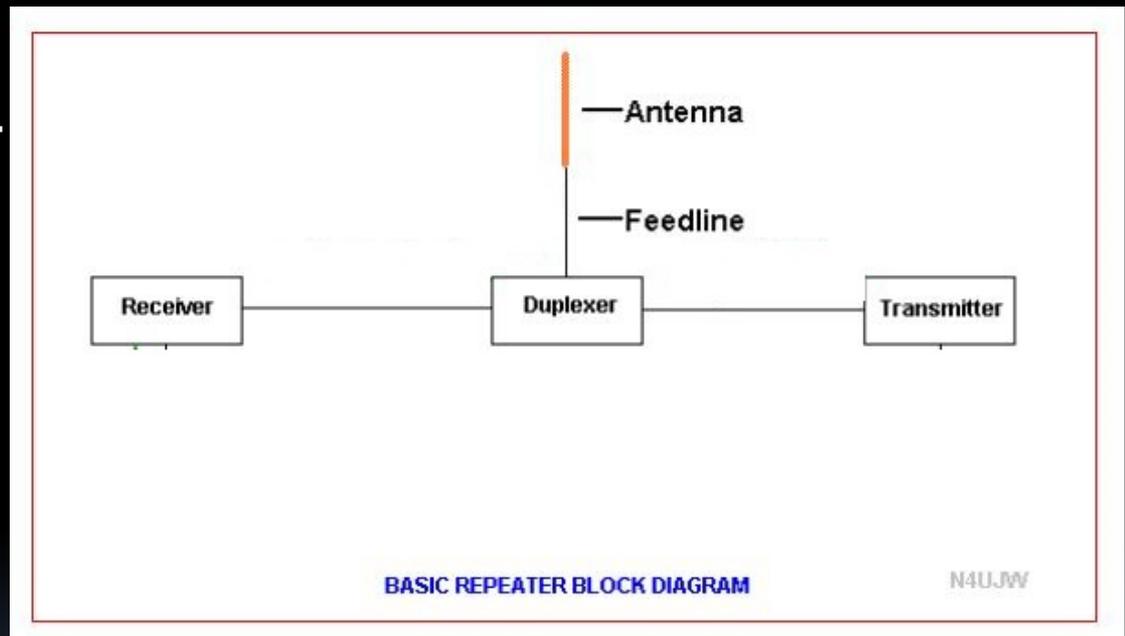
What is a repeater anyway?

- A Receiver
- A Transmitter
- An Antenna
- A Duplexer
- A Controller

BASIC REPEATER BLOCK DIAGRAM   N4UJW
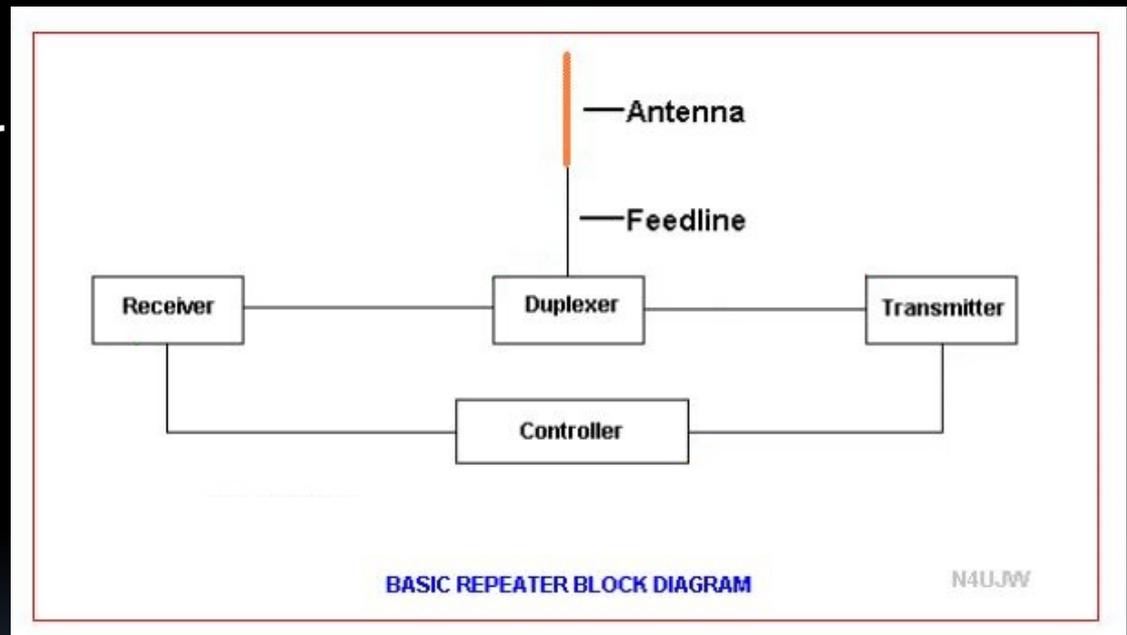
What is a repeater anyway?

What happens when you transmit?

BASIC REPEATER BLOCK DIAGRAM
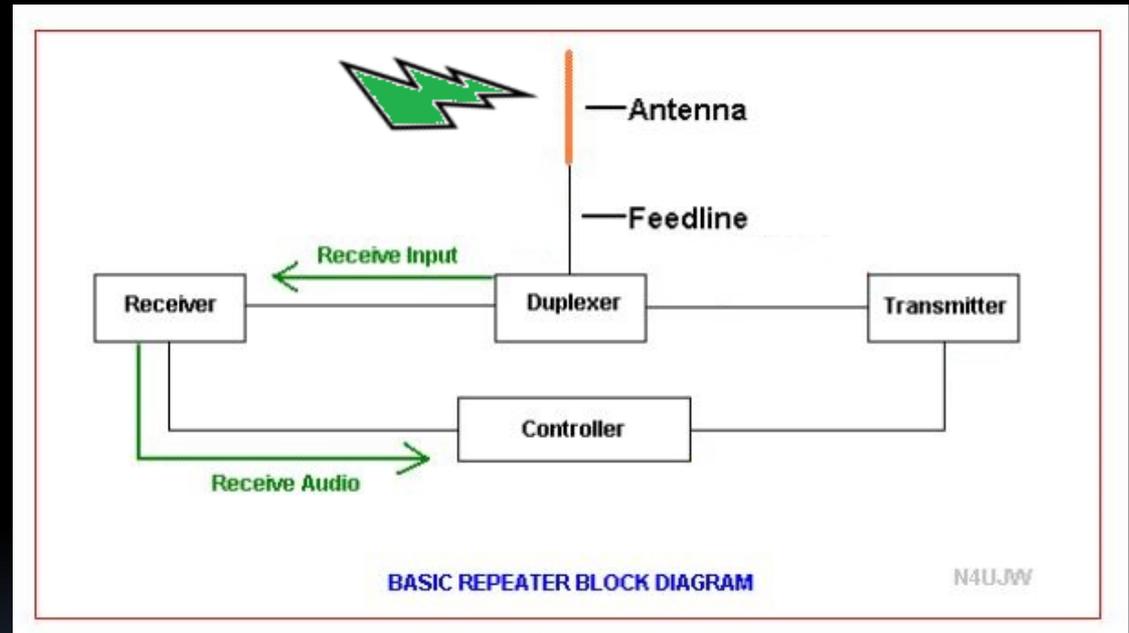
What is a repeater anyway?

What happens when the repeater hears you?

BASIC REPEATER BLOCK DIAGRAM
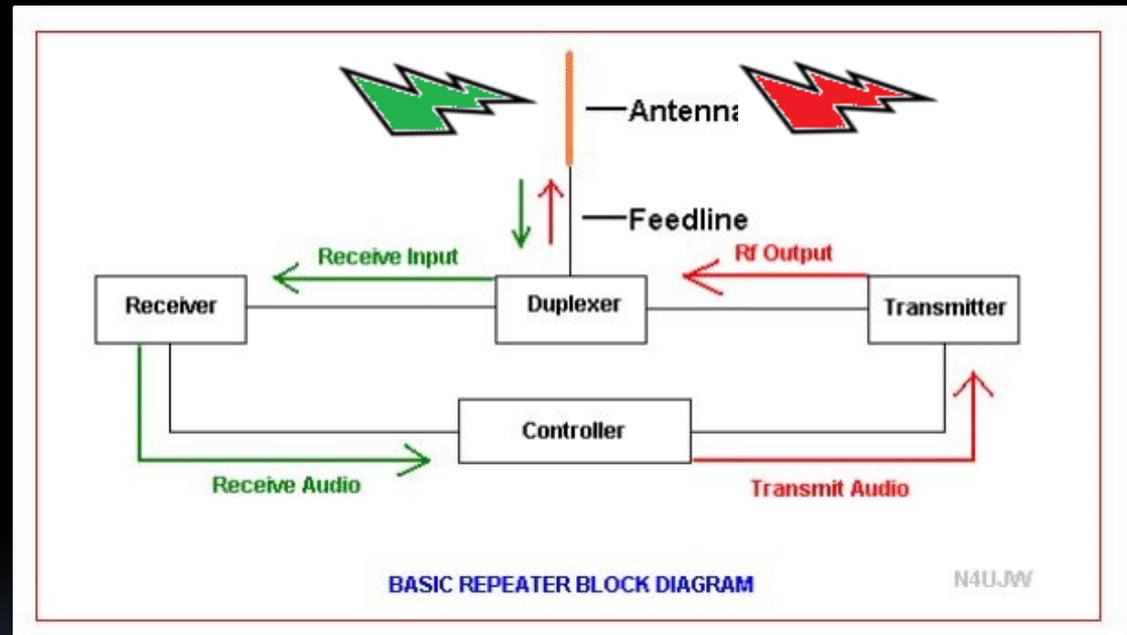
Repeaters and Frequencies

- Each Band has a range reserved for Repeaters
  - 2M – 144.600 to 144.900 (Input)
  - 220 MHz – 222.250 to 223.380 (Input)
  - 70 cm – 442.000 to 445.000 and 447.000 to 450.000 (Inputs and Outputs)
- Coordinating Groups in SoCal:
  - TASMA – 2M
  - SMA – 220 MHz
  - SCRRBA – 70 cm

Repeaters and Frequencies

- You transmit on one frequency, the repeater transmits on a different frequency.

- The difference is called: Offset

- Standard Offsets are:

  - 2M = - or + 0.600 MHz

  - 220 MHz = - 1.600 MHz

  - 70 cm = - or + 5.000 MHz

- For example: When you are listening to a repeater on 145.280 MHz, you would transmit on 144.680 MHz.

Repeaters and Frequencies

- Some Repeaters do not follow the standard offset guidelines:
  - Within the same band
  - On a different band (Cross-Band)

Connecting to Repeaters

- Subaudible tones - **CT**CSS
  - They really are not sub-audible; you can hear them
  - Your radio won't pass them through, but <u>it</u> will hear them and it will transmit them
- Sample – 67.0 to 100 Hz, 2 seconds each
- **PL = T**one and
  CTCSS = Tone Squelch
- **D**igital **C**oded **S**quelch

Connecting to Repeaters

- Most Repeaters listen for a tone on the input (your transmission) to know that you want it to respond to you and not someone else (**PL** or **T**one). Also called Tone Encode.

- Some Repeaters use tone on their transmission to you (**CT**CSS or Squelch Tone). That way you only hear the repeater, not other radios on the same frequency. Also called Tone Decode.

Wrap-up

- Questions
- Dennis – KJ6UVQ@arrl.net
- This presentation is available as a pdf at: Laemcomm.org