

Ham 10B - First radio duplex

Dr. Marc & Rosemary Durham, Theway Labs, Bixby, OK © 241214

Duplex allows a radio to talk via a repeater. A repeater is a remote base radio, which can hear your radio, boost the signal, then retransmit to another radio. A repeater may work up to 30-mile or so radius from the station. In our area, most do not do that well, because of terrain and older equipment.

Repeater links can expand from Kansas to North Texas, using Tulsa Amateur Radio Club (TARC) network.

AllStar uses the Internet to extend radio range even further around the world.

Analog radios use traditional electronics and are more reliable in an emergency.

Digital offers more features and can link around the world.

Your radio must be programmed to talk on the correct frequencies in the proper way.

What do I need before programming?

Go on the web to find frequencies for the repeater you want, such as Tulsa Amateur Radio Club.

RepeaterBook.com is a common source.

Evergreen repeater is 145.250, negative offset, tone 141.3. The values are defined.

- Receive, RX, downlink, repeater output: *The receive frequency displays on your radio screen.*
- Transmit, TX, uplink, repeater input: *The transmit frequency is what the repeater hears.*
- Offset, sometimes used instead of Transmit: *Offset is the difference between the receive and transmit.*
- CTCSS, Continuous tone-coded squelch system: *Sub-audible tone allows multiple groups on freq*

Offset. That is separation the transmitter must be from receiver to stay in the band.

+ means add the offset to the RX frequency to get the TX frequency.

VHF offset is normally 0.6 MHz, UHF is normally 5.0 MHz.

Program a channel with your first frequency. I use channel 2, so I have channels 0 and 1 for simplex.

Repeater example:	RX, +offset, CTCSS	RX, TX, CTCSS
Evergreen	145.250, -0.6, 141.3	145.250, 144.650, 141.3
Tulsa Amateur RC:	443.85, +5 MHz, 88.5	443.850, 448.850, 88.5

To operate duplex, switch your radio to Channel Mode (Memory Recall, MR).

CTCSS also called PL
for Private Line

A word about VHF & UHF. In our region, you want and need both.

Most local communications and Nets operate on VHF.

However, the TARC SuperLink of repeaters from Kansas to Oklahoma, Arkansas, and Texas uses UHF.

The National Weather Service operates emergency weather Nets on the SuperLink UHF gateway. Without UHF, you cannot talk or listen.

Cross-band. My Icom 2730, and some others, has two separate receivers. This allows cross band operations when one is set for VHF and one for UHF. Not frequently used, it does occasionally come in beneficial in remote situations. A handi-talkie can communicate with the radio, while the radio relays to a repeater. So the short range handi- is essentially talking long range through the radio to the repeater. How cool is that?

Remote programming. Obviously entering more than one or two frequencies with tones would be pain in laticibles.

Obtain a programming cable for your radio.

Obtain CHIRP software for your computer.

Program the channels you want to use on the computer, or download the local file from the website.

Download the files to your radio.

It is still beneficial to know how to manually do a channel, when something different arises in the field.

We have a complete article on how to do Chirp.

Life is good. Enjoy!

