




Ham 58 – Cross-band Magic
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1. *Simplex* communications is one radio talking directly to another. Duplex is radio 1 talking on a frequency, the repeater hears, then retransmits the communications to radio 2 on a separate frequency. The range can extend, if the repeater can ‘see’ both radios. A repeater is tricky since it must receive and transmit at the same time. If the frequencies are unisolated the transmit will overload the receiver.
2. Repeaters are not always where a group wants to communicate. Many modern radios allow cross-band communications. There are many variations of this use. Suppose a small group is searching for lost campers. A mobile 50-W radio can be set for cross-band. The field searchers can use a low-powered handi-talkie to communicate on UHF to the mobile. The mobile transmits on VHF. The mobile can be operating on a remote repeater. This system effectively allows a hand-talkie to talk on the repeater. Use a decent quality hand-talkie. The el-cheapo has such poor receive capabilities that it can lock up the cross-band. Someone will help you, but not do it all for you. Serious. That is ham radio.
3. Both Icoms are 50 Watt on VHF & UHF. So simplex selection is not important. The TYT radio is 50W on VHF but only 40W on UHF. So set repeater side as VHF and simplex as UHF. 446.025 is common UHF, adjacent to national calling frequency.
4. We will discuss how to set-up the most common radios in the group. This is incredibly simple.
5. *Icom 2730A, First Time:* The capability is built-in, but the software must be loaded once. This is a dexterity test.
 - a. Press and hold both MAIN keys, MONI, and then press POWER. Now RPT will show up in menu.
6. *Icom 2730A: Activate.* Memory Write (MW) with return symbol is ENTER key.
 - a. Before you activate cross-band, set the frequencies to use.
 - b. Press MENU.
 - c. Rotate a tuning knob. Select EXMENU. 
 - d. Rotate, select OTHERS. 
 - e. Rotate, select M RPT. 
 - f. Rotate, select START. 
 - g. Rotate, select YES. 
 - h. The display will show both bands with rPt listed under the frequencies.
 - i. To Exit: Press MENU. Rotate, select YES. 
7. *Icom 5100:* This is a digital radio with touch screens, making the process more intuitive.
 - a. Before activate, set the frequencies. Select option F1, tap. Select Variable/Memory V/M, tap.
 - b. Select button MENU, tap
 - c. Scroll to OTHER, tap.
 - d. Scroll to REPEATER MODE, tap
 - e. <<Repeater mode>>, tap.
 - f. Enter mode? YES, tap
 - g. RPT flashes in lower left corner.
 - h. To Exit: flashing RPT, tap. Exit mode, tap
8. *TYT 7800:* Process is simple, but far from intuitive.
 - a. Push channel select as enter. Push channel select to switch between Left and Right screens.
 - b. Press MENU (dot in middle of bottom row of buttons)
 - c. Rotate channel knob to Menu 35. Push knob.
 - d. Start? Push knob.
 - e. Icon for Left and Right screen disappears to show in RPT Mode.
 - f. Awaiting hand-held signal.
 - g. To Exit: MENU (dot) button and Left or Right icon reappears.
9. Handi-talkie must be set to simplex mode. Typically it is UHF 446.025.
 - a. The base radio Mic no longer works. Communications is with the handi-talkie.
10. Life is good. Enjoy!

