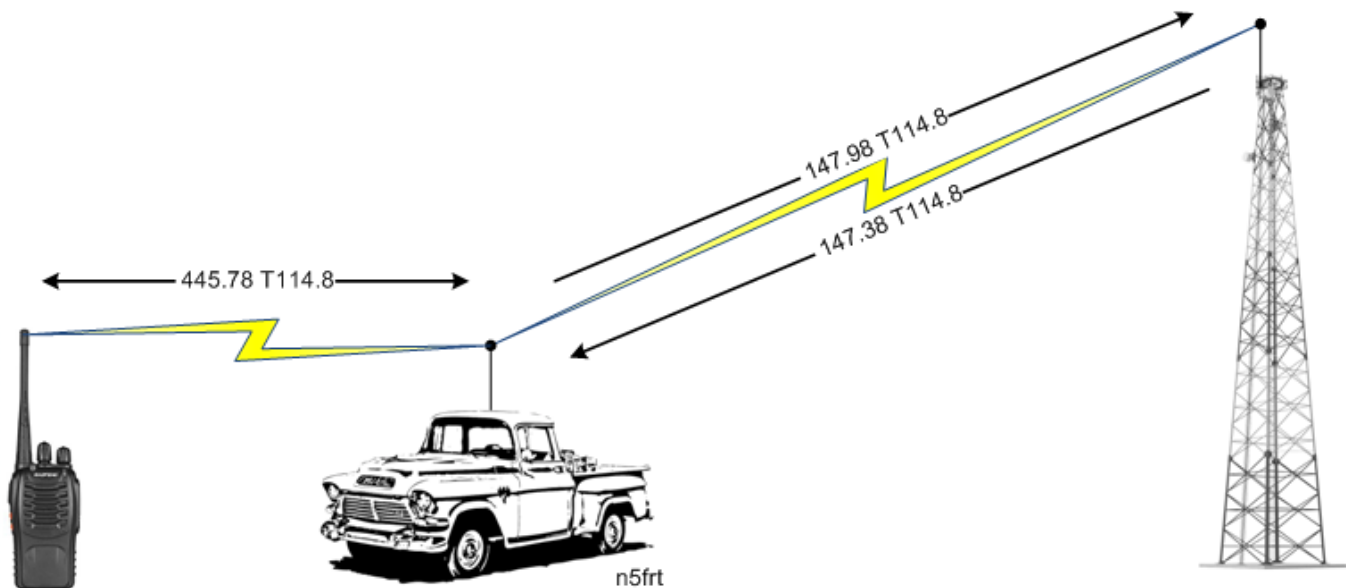


Many Amateur Radio Operators own a cross-band (x-band) repeater and either don't know it, don't understand it. or don't realize the power they wield. First a definition - "Cross-band Repeating is a process where a Ham transmits one signal on one band (typically UHF), and it is received by another radio with a better antenna/power installation and re-transmitted (typically on VHF) to another radio system, or a repeater."<sup>1</sup>

Many "dual-band" radios are capable of this x-band repeat function. The usefulness of this functionality is best implemented with a mobile type radio installed in your vehicle or at your home - a good antenna is important. An example is in order.

Assume you like to monitor a VHF repeater at home with a portable radio, but the radio can barely receive the repeater and, much less, access the repeater. You can however easily 'hit' the VHF repeater from your mobile rig parked in the driveway. On your mobile rig, set VHF to the repeater frequency and set UHF to a proper UHF simplex frequency.<sup>2</sup> Turn on the x-band repeat function. This varies from rig to rig so RTDM. On your portable radio simply use the UHF simplex frequency with the tone you set in the mobile. When you key your portable, your mobile transmits on the VHF repeater's input frequency. When the VHF repeater transmits, your mobile transmits on your portable's UHF frequency.



Shown in this sketch is an inexpensive UHF handheld operating on an acceptable x-band standard frequency. The repeater VHF frequencies are for the Fayette County repeater, but any repeater could be used. In summary, this short-range, inexpensive UHF radio now can access any mobile or base station in range of the VHF repeater and do so with the connectivity of the mobile radio in the truck.

The value of this functionality in emergency situations should be readily apparent. Assume an emergency operations center, EOC, in a remote part of the County that needs to communicate with the County Judge at the courthouse. County communications is based on a shared trunked radio system that is congested and has poor coverage in the affected area. An Amateur Operator could park his x-band repeat capable vehicle at the EOC and hand a UHF portable to the site Emergency Manager. Another Amateur Operator could do the same at the courthouse handing a UHF portable to the County Judge. A non-amateur may use these UHF portable radios in the presence of an Amateur who can control the operation of the x-band repeater if required.

For local ARES members, and any Ham for that matter, a BaoFeng 888 UHF portable is a wise choice for a go-bag. In addition to the chosen x-band repeat frequency, UHF repeater frequencies and even FRS/GMRS frequencies can be programmed. A standard Fayette County area code plug for the 888 is available from the author. Local area coordination and standardization is important. Any UHF frequency in the band plan may be used (see footnote 2), and any Tone may be used. 445.78 is the ARES District 7 standard x-band UHF frequency. Fayette County will use Tone 114.8.

<sup>1</sup> Definition courtesy of <http://www.513repeater.org/elmering/crossband-repeating/>

<sup>2</sup> The Texas band plan calls out 445.75 to 445.975 for mobile x-band repeat. Also, it is important to set up CTCSS or DCS on the simplex UHF frequency for both transmit and receive.