

*How do I?*

*An occasional series*

*This week: FM Digital Modes. System Fusion*

Another installment in the series **Fun With VHF**

For more information, please visit the Yaesu website

<https://www.yaesu.com/?cmd=DisplayProducts&DivisionID=65&ProdCatID=249>

Some of the material shown below is explained in greater detail on their website.

**System Fusion** is a proprietary platform created by Yaesu, a leading Japanese radio manufacturer. System Fusion began life about 15 years ago as **WIRES**, which evolved to become **WIRES-II**, then **WIRES-X**. WIRES, at its heart, is an easy way to connect an analog FM radio to the Internet using Voice Over Internet Protocol or VoIP. WIRES made this easy by having a **WIRES Button** on the radio. The user programmed the settings and when the button is pressed the radio transmits a series of DTMF tones to activate the WIRES repeater. Your simple analog signal then travels, via the Internet, to the recipient who uses WIRES to hear you and reply.

System Fusion is more like **D-Star** and **NXDN**. Like those modes it can transmit voice, data, photos and other information and requires special radios to do so. At this time only Yaesu makes System Fusion equipment. Some may see this as a drawback, but a casual glance at the ARRL Repeater Directory shows there are many System Fusion repeaters in the US. Unfortunately they are widely scattered and there may be none in your area.

How is System Fusion different from D-Star? It's all in the software. They share the same concepts, just using different ways of doing it.

One thing I believe has held back Yaesu is that while WIRES-II and then WIRES-X were upgrades of WIRES, the radio equipment was not always compatible. An analog HT has a long life. No one really wants to buy one then find it has become virtually useless because the software is no longer supported. My WIRES equipped HTs work just fine, and the WIRES button can be used to setup the radio for **Echolink** as well (information on Echolink can be found elsewhere in this **How Do I...** series).. I suspect a lot of people are confused by Yaesu's terminology. The Yellow River Digital Group has prepared an excellent guide that you can find on their website --

<https://yrdg.org/the-beginners-corner-for-wires-x-and-system-fusion/>

System Fusion vs. D-Star? It's your choice. Both seem to be well-established and have a large user base. Your best bet is to check the ARRL Repeater Directory and determine what technology is in use in your area. Contact your local club and see what support it can offer.

Catch ~~ya~~ on the air!