

Digital Voice Modes on the FLEX-6000 Signature Series

Interoperability platform of choice for digital and analog voice modes

One of the tremendous advantages of Software Defined Radio (SDR) is the ability to add new capabilities. The FLEX-6000 Signature Series radios and companion SmartSDR™ software are designed to leverage new technologies as they are created. Nowhere is this more evident than in the world of digital communications. Each year, new digital voice and digital data modes are added. As an amateur you are faced with the choice of investing in a radio platform that becomes stagnant over time, or investing in an expandable platform. The flexibility of FlexRadio's SmartSDR provides an ideal platform for adding new technology.

The Waveform API in SmartSDR allows the addition of new modes to your FLEX-6000 Signature Series radio. CODEC2/FreeDV, a digital voice mode developed by a talented team of amateurs including David Rowe, VK5DGR, was recently added as a free software upgrade to the FLEX-6000 Signature Series radios. Now, with the addition of the ThumbDV™ product from NW Digital Radio, any FLEX-6000 operator can add D-STAR capability to their radio. This makes the FLEX-6000 the first transceiver to support both CODEC2 and D-STAR in the same transceiver.

CODEC 2

CODEC 2 is an open source speech codec designed for communications quality speech between 700 and 3200 bit/s. CODEC 2 is gaining popularity on many different HF radios through the use of a sound card interface and the FreeDV software for Windows™. FlexRadio Systems support for CODEC 2 is provided with an installable Waveform Module. By installing the software module, the radio will gain a new mode which is natively supported in SmartSDR and other third-party interfaces to the FLEX-6000. This module is provided free of charge and also includes software source code for individuals that are interested in expanding the modulation scheme or working on their own voice mode.

D-STAR

D-STAR (Digital Smart Technology for Amateur Radio) is an open protocol developed by the Japanese Amateur Radio League (JARL) that includes both digital voice and data communications protocols. Support for D-STAR digital voice mode has been integrated into a number of both HF and VHF radios and now includes the FLEX-6000 Signature Series transceivers. Digital voice modes can provide clearer audio under good signal conditions than traditional sideband or FM communications with less bandwidth consumed while providing additional features such as automatic identification, the ability to specify the callsign of the station you would like to reach and an additional slow-speed data channel.

Because D-STAR requires a proprietary codec designed by DVSI, a hardware device is required which integrates the codec. In cooperation with NW Digital Radio, FlexRadio Systems has added support for the ThumbDV which is designed to plug into an unused USB port on the rear of any FLEX-6000 transceiver. This device, along with the ThumbDV Waveform Module, adds D-STAR as a native mode in the FLEX-6000. Now you can simply select D-STAR mode and begin operating.



Waveform API

No supporting your favorite digital speech mode yet? FlexRadio Systems offers the SmartSDR Waveform API for those wanting to expand the list of supported modes in the FLEX-6000. The Waveform API allows developers to create their own digital modes and integrate directly into SmartSDR. When a waveform module is loaded, the module registers with SmartSDR and delineates the modes it supports. These modes are then available in the standard mode selection interface inside SmartSDR. The operator simply selects the mode and begins operating. The Waveform API exchanges commands and status with the developer-written waveform module as well as streaming samples. Completed modes may be run both outside and inside the radio with virtually no changes!

The Future

With the Waveform API, both FlexRadio Systems and third-party developers can continue to add new modes, including digital voice modes, to the FLEX-6000 Signature Series transceivers. With each new mode, FlexRadio Systems establishes itself as the interoperability platform of choice for digital and analog voice modes. For example, today a FLEX-6000 operator can participate in many combinations of D-STAR, sideband and CODEC 2 nets simultaneously. While others work to find a common modulation scheme that works across all their radios, as a FLEX-6000 operator, you just select the chosen mode.

For more information on the FlexRadio Application Developer Partner Program visit:

www.flexradio.com/amateur-products/flex-6000-signature-series/smartsdr-api

www.flexradio.com

CONTACT:

FlexRadio Systems

4616 W. Howard Lane

Ste. 1-150

Austin, TX 78728

Phone: 512-535-4713

Fax: 512-233-5143

Email: sales@flexradio.com