A BRIEF OVERVIEW OF SOME POPULAR DIGITAL MODES

D-STAR

D-STAR (Digital Smart Technologies for Amateur Radio) is a ham radio system which offering digital voice and data communication. It connects repeater sites over microwave links and the Internet and forms a wide area ham radio network. The D-STAR system provides not only digital voice (DV mode) communication but also digital data transmission (DD mode). It can exchange various data files such as graphics, images, etc, at 128kbps. Multiple repeater links by radio and the Internet provide long distance communication to virtually anywhere. The D-STAR system uses the TCP/IP protocol, so when connected with a PC, web, e-mail and other Internet applications are available. In DD mode, ID-1 can transfer data directly with another ID-1 without the use of a repeater. This is useful for establishing a simple network where a D-STAR repeater does not exist or D-STAR services are not required. D-STAR radios will access a regular analog repeater, but you must have a D-STAR radio to access a D-STAR repeater. Users must register with a Gateway to transmit outside the local calling area using the network. D-STAR is often the communication mode of choice for Amateur's responding to an emergency.

APRS: AUTOMATIC POSITION REPORTING SYSTEM

Also known as Automatic Packet Reporting System, APRS is an amateur radio based digital communications system for local, tactical, real-time exchange of information among all members of a net, including map based displays for situational awareness. It was developed by Bob Bruninga, WB4APR. It mainly operates on 2 meters and requires a TNC. APRS is used to transmit real-time information such as messages, bulletins, announcements and the locations of any stations or objects via amateur packet radio protocols. Real-time reporting of station position for mobiles is facilitated using the Global Positioning System. APRS is capable of transmitting a wide variety of data including weather reports, short text messages, radio direction finding bearings, telemetry data, and storm forecasts. These reports can be combined with a computer and mapping software to show the transmitted data superimposed on a variety of map displays.

DIGITAL HF RADIO OPERATING MODES

TOR is an acronym for Teleprinting Over Radio and includes AMTOR and PACTOR. These modes share the same method of transmission (FSK – frequency-shift keying) and require a Terminal Node Controller (TNC) radio modem. For the new and less complex digital modes, the TNC is replaced by an on-board sound card in the personal computer. CLOVER is a PSK (phase-shift keying) mode. RTTY or "Radio Teletype" is a FSK mode that has been in use longer than any other digital mode (except for morse

code). PSK31 enjoys great popularity on the HF bands today and is presently the standard for live keyboard communications. Since PSK31 was one of the first new digital sound card modes to be developed and introduced, there are numerous programs available that support this mode – most of the programs available as "freeware". HF PACKET radio is an FSK mode that is an adaption of the very popular Packet radio used on VHF FM amateur radio.

HELLSCHREIBER is a method of sending and receiving text using facsimile technology. This mode was actually developed by Germany prior to World War II! The single-tone version (Feld-Hell) is the method of choice for HF operation. Text characters are "painted" on the screen, as apposed to being decoded and printed. A new "designer" flavor of this mode called PSK HELL has some advantage for weak signal conditions.

THROB is yet another new DSP sound card mode that attempts to use Fast Fourier Transform technology (as used by waterfall displays). The author (G3PPT) has been improving his MFSK (Multiple Frequency Shift Keying) program. Check his web site for the latest developments. MFSK16 is an advancement to the THROB mode. A second version is called MFSK8. Both versions are available in a nice freeware Windows program created by IZ8BLY.

AMATEUR TELEVISION (ATV)

Amateur Television (ATV) is the hobby of transmitting broadcast-quality video and audio over radio waves allocated for Amateur Radio using the broadcast standards of NTSC in North America and Japan, and PAL or SECAM in Europe and elsewhere, using the full refresh rates of those standards. It also includes the study of building of such transmitters and receivers and the propagation between these two. ATV is an extension of amateur radio. It is also called HAM TV or Fast Scan TV (FSTV). Ham operators are also allowed to transmit Slow Scan TV (SSTV) which is similar to video facsimile. SSTV may be transmitted within the voice segments of all ham radio frequency bands except 30 meters (28 - 29.7 MHz), though it is used primarily below 28 MHz. In North America, transmissions are typically sent from repeaters on four UHF channels below the UHF TV broadcast band (air channels 14 to 69) (between channels 13 and 14, in the 70 cm ham band). These can be received on a cable-ready NTSC-format TV or set-top box tuned to cable channels 57 to 60 (420-444 MHz). HAM TV - as it is also called - provides video co-ordination of many public service events and, along with traditional amateur radio, provides much needed "eyes" in natural disasters.

Source: Wikipedia contributors, "Amateur television," *Wikipedia, The Free Encyclopedia*, http://en.wikipedia.org/w/index.php?title=Amateur_television&oldid=186092383 (accessed February 4, 2008).