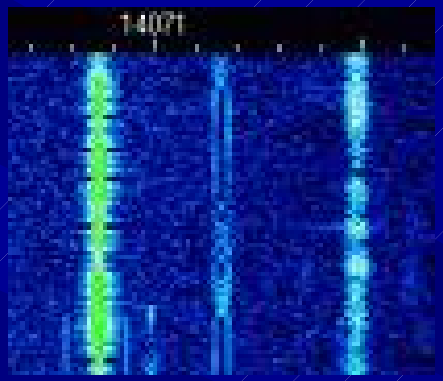


Digital Modes with a Soundcard

Tim, WK4U

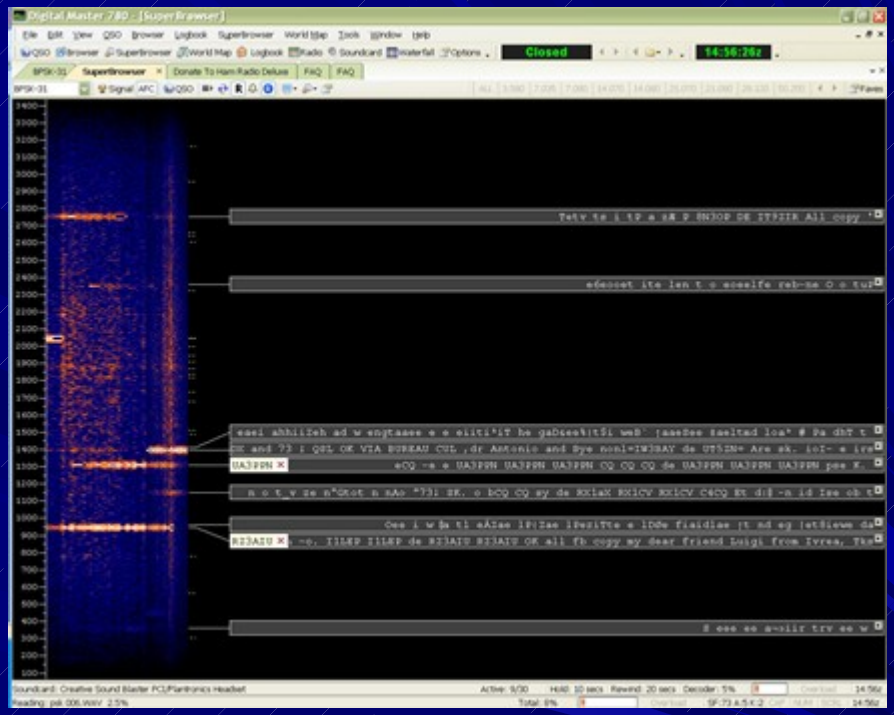
Ernie, W2FMU

Max, N5ZZ

Mack, WB4MAK

PSK-31

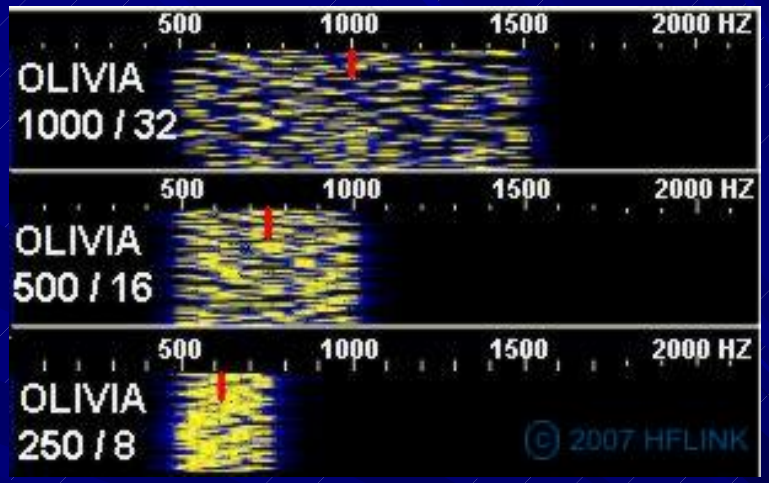
- Phase Shift Keying, with only 31 Hz bandwidth
- *OLD* computer and couple wires all you need to get on-the-air!
- Great DX mode when you have a poor antenna or can't run high power
- Most activity on 14070 USB
  Also 7070 (North America)
  7035 (Europe) & 3580
- Most common computer digital mode on HF radio today



Super Browser mode in DM780

Olivia MFSK

- An Amateur Radio Teletype protocol, developed in 2003 by Pawel Jalocha. SP9VRC
- Multi Frequency Shift Keying, default is 32 tones in 1000 Hz. bandwidth, 150 cpm (about 30 wpm)
- 7.039, 7.073,14.075 all USB
- Advantages:
  - Excellent performance in poor conditions such as fading or multipath
  - Can decode even when the human ear cannot hear the signal
  - Error correcting
  - Sounds really cool!



Olivia signals as they appear on the waterfall display

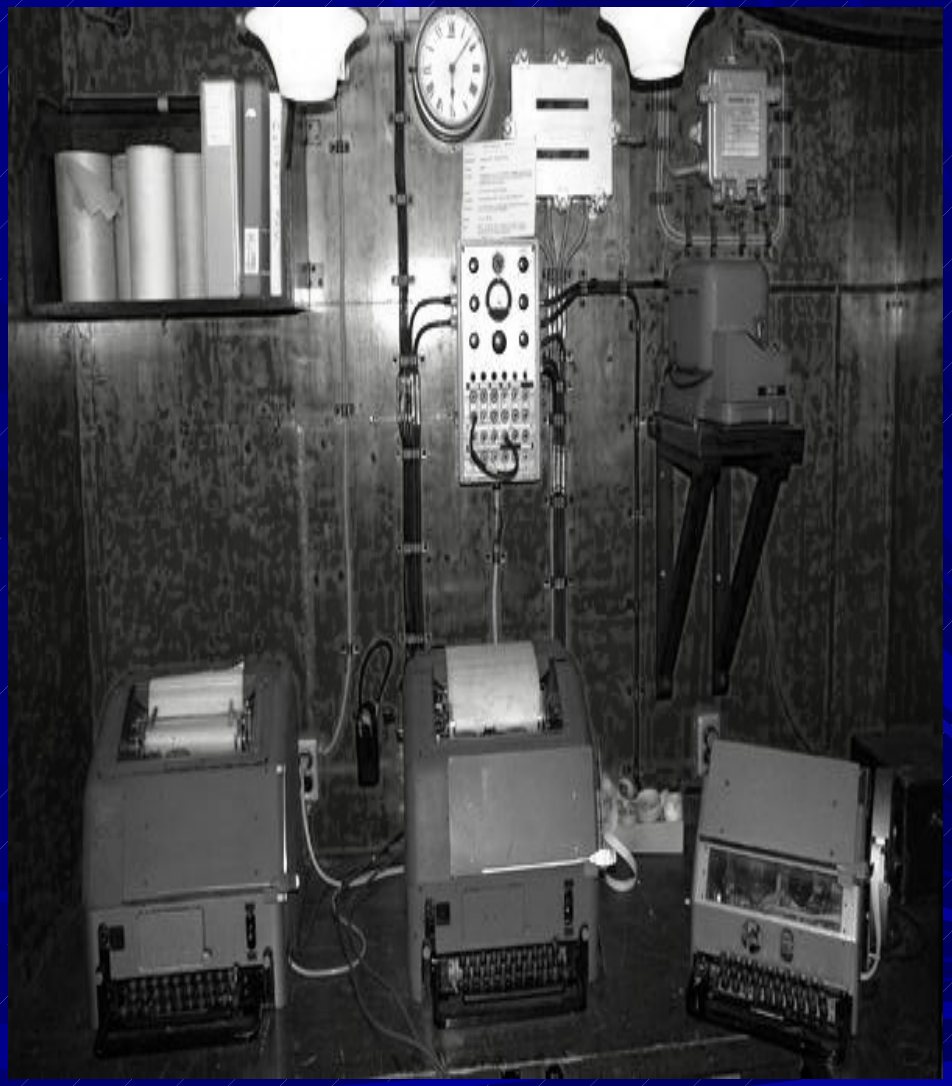
Continuous Wave (CW)

- Replaced Spark Gap circa 1920 and is oldest mode still utilized by hams.
- First Trans-Atlantic two-way QSO occurred in 1923.
- Advantages:
  - Gets thru when other modes cannot.
  - Effective at low power
  - Easier & less expensive to build CW equipment
  - Morse Code learned for CW can be communicated via other sources, including light, tools. etc.
- Disadvantages:
  - Not efficient for sending large amounts of information
  - Historically, required dedication to learn the code.

November 15, 1921 - Fred Schnell, 1MO, and Hiram Percy Maxim, W1A, listening for Europe.

Radio Teletype (RTTY)

- One of the oldest digital modes
- Evolved in the 1930's
- Still very popular today
- Advantages: data could be sent via typing or tape
- Typical rate for operation is 45.45 baud = approximately 60 words per minute.
  - Sweet Sounding! ☺
- Disadvantages:
  - No error correction – conditions must be good for solid copy
  - Cannot back space as you type. Most operators X out mistakes



Slow Scan TV (SSTV)

- Picture transmission method.
- Evolved in 1957-58
- Several modes, Martin & Scottie are most popular
- Narrowband, 3 kHz., uses tones to send scan lines of image
- Popular on 20 meters, 14,230 USB
- Disadvantages:
  - Sound card must be calibrated to avoid skewed images
  - Sensitive to interference
- EasyPAL can send images digitally for better quality

Feldhell (Hellschreiber)

- Invented by German named Rudolph Hell in late 1920's
- Facsimile-based teleprinter on-off keyed, similar to Morse
- Sometimes used by German military with the Enigma encryption device
- All Hellschreiber modes are based on character scanning, reproducing characters in a manner similar to a dot-matrix printer. There is no coding. Each character is scanned and transmitted as sequential pixels.