

Digital Mode Operation and Ham Radio Deluxe

A low tech presentation on a high tech topic by
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Outline

- A Brief History
- Why Digital?
- Limited Bragging
- Digital for Dummies
- Gearing Up
- Being A Lid
- Tips

Why Digital?

- Efficiency – power concentrated in narrower bandwidth
- Less power needed
- Excellent DX ability
- Higher SNR
- More QSOs possible
- Lots of no/low cost software available
- Minimal equipment required to start
- Advantages of digital signals without having to learn code
- Loads of fun

History of Digital

- Morse Code in 1840s
- Good for humans, hard for machines
- RTTY in 1870
- Equal length characters
- Hellschreiber 1929
- Other Modes?



Limited Bragging

- Started Nov 2007
- 326 PSK31 QSOs
- 683 RTTY QSOs
- 76 Countries Confirmed in ~1yr
- QSOs on numerous exotic modes



Digital For Dummies: RTTY

- FSK
- Usually 60WPM
- No Error Correction
- Most Popular “Automated” mode
- AGN? AGN?
- Warbly sound

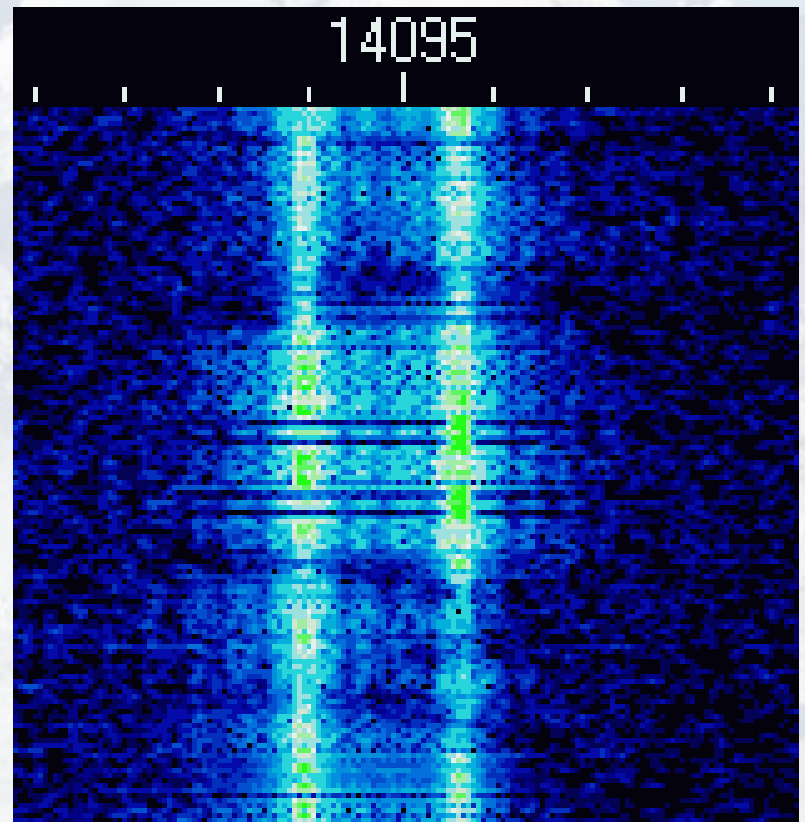


Image Courtesy dh3mf.de

Digital For Dummies: PSK-31

- AFSK / Soundcard
- 31 Baud- average ham's typing speed
- Error Correction possible in QFSK
- Most Popular “Soundcard” mode
- Irregular whistle sound

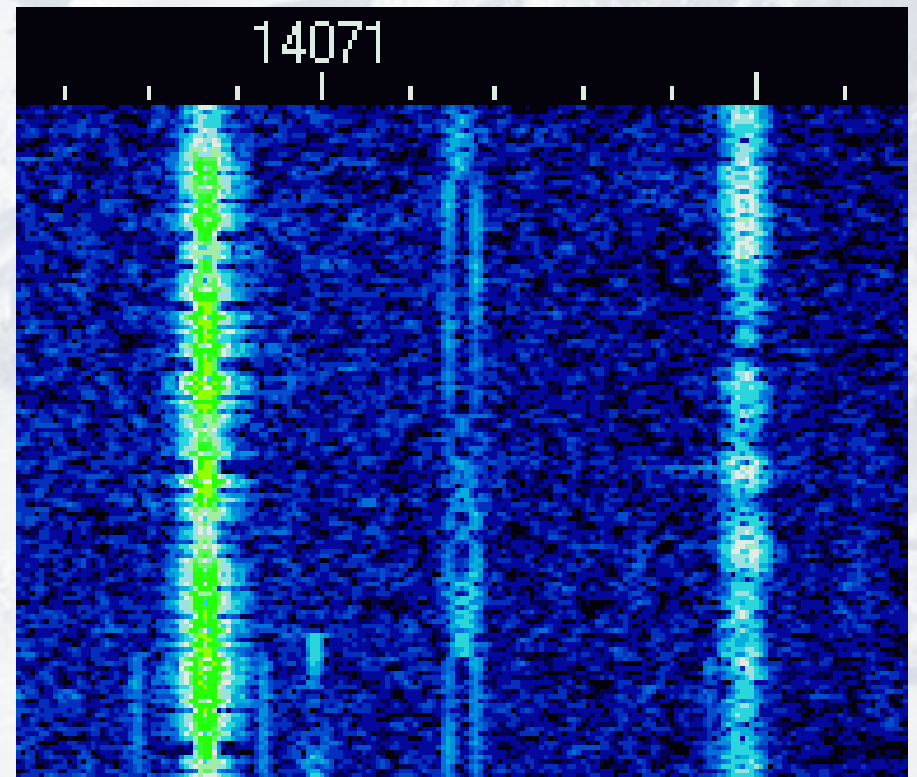


Image Courtesy dh3mf.de

Digital For Dummies: MFSK-16

- AFSK – 16 tones
- 42WPM, faster typing
- Error Correction, sends data twice, interleaving
- Wide bandwidth 316hz
- Much more reliable
- Almost musical sound

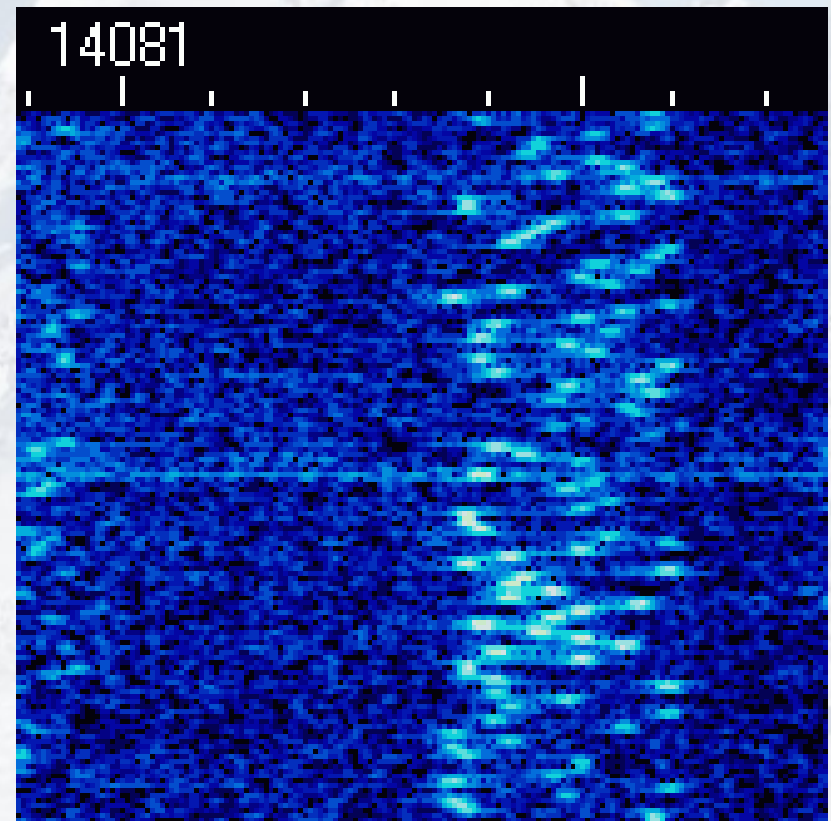


Image Courtesy dh3mf.de

Digital For Dummies: Hellschreiber

- Fax-like Display
- About 35WPM
- 75hz bandwidth
- Use fonts etc
- Error correction by eyeball
- Squeaky wheel sound

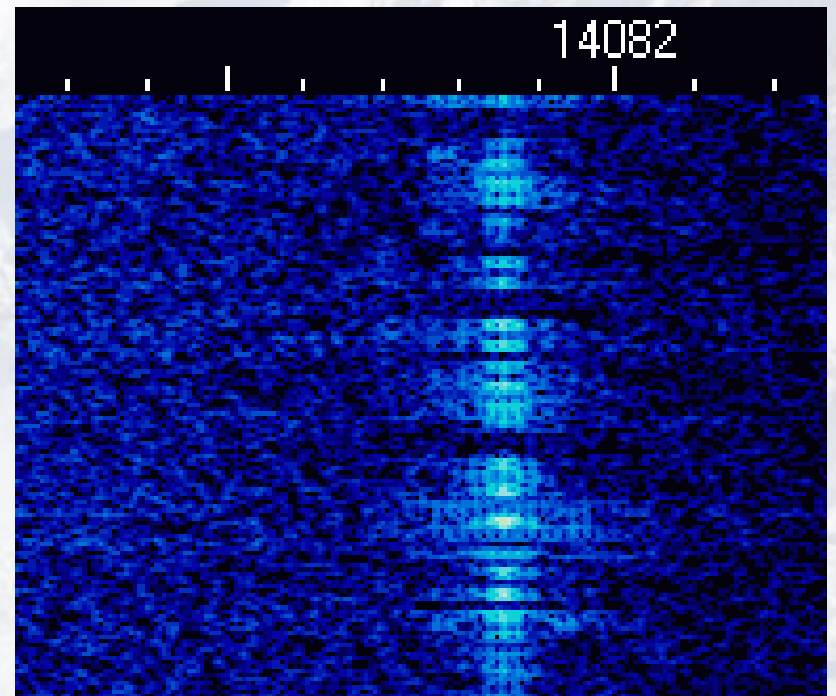


Image Courtesy dh3mf.de

Equipment

- Computer with sound card and serial port
- Rig with PTT control
- Interface to attenuate audio
- Device to control PTT from computer
- Rig Blaster
- Signalink
- MFJ-1279
- MicroHAM
- RigExpert
- Expect to pay around \$120-200 for these

So Many Excellent Programs

- MixW- multimode, \$50 registration
- Digipan- PSK favorite, free
- Hamscope- versatile multimode, free
- MM(tty/vari/sstv) various, free
- Fldigi – All platforms including Linux, multimode, free
- PSK31 Deluxe- deprecated but still popular, free
- Digital Master 780- multimode, free

Operating 101

- Use minimal power – usually 5-20 watts
- **Tune up properly**
 - Test your output into a dummy load first
 - Use volume level to adjust output power
 - Only turn up until 80% of rig's current RF out
- Customize your macros before starting
- Learn to use your radio's filters. 100Hz for psk.

Demonstration

- My Portable Shack Overview:
- Ancient P3 Laptop
- Ham Radio Deluxe / Digital Master
- Rigblaster P&P
- Yaesu FT-857D



www.rigpix.com

Where To Listen

The best thing to do is to Google the mode you are interested in to find the commonly used frequencies. Here are a few very frequently used ones.

- PSK31: 14.070mhz
- MFSK: 14.109mhz
- Hell: 14.074mhz
- Misc: 7.030-5mhz
- Misc: 3.580-5mhz

See <http://n1su.com/digital.html>

How To Be A Lid

- Always run full power
- Overdrive (splatter) your signal by turning your sound card output up all the way
- Call CQ before listening to the frequency

Further Resources

K7AGE videos on You-Tube

The DMC (sponsors of many contests)
<http://www.digital-modes-club.org>

Get your feet wet!