20+ Years After PSK-31

A look at PSK-31

How to get on

Radio Interfaces

And many other digital modes

Randy Hall

K7AGE

A little bit about me

I was first licensed as a Novice in 1968

I've been around video since high school

- **Built a TV camera as high school electronics project**
- **Worked on remote TV broadcast as cameraman and engineer**
- **Worked at college TV studio, Rochester Institute of Technology**

Work for broadcast equipment manufacturers

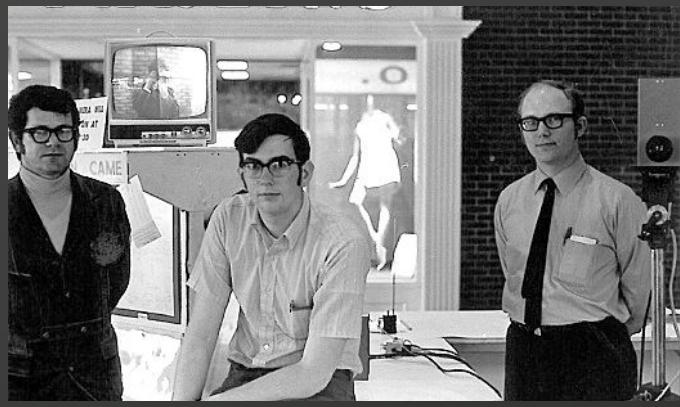
- **Grass Valley/Belden/Miranda/NVISION and Grass Valley Group**
- **Retired in 2015, moved to Gold Beach Or, built a house. Now building a new shack.**

First YouTube video in August 2006, now over 13 years

150+ videos

Millions of views

Tens of thousands of subscribers



PSK31: A New Radio-Teletype Mode

By Peter Martinez, G3PLX

I have been active on RTTY since the 1960s, and was instrumental in introducing AmTOR to amateur radio at the end of the '70s. This improved the reliability of the HF radio link and paved the way to further developments which have taken this side of the hobby more into data transfer, message handling, and computer linking, but further away from the rest of amateur radio which is based on two-way contacts between operators.

There is now a gap opening up between the data transfer enthusiasts using the latest techniques and the two-way contact fans who are still using the traditional RTTY mode of the '60s, although of course using keyboard and screen rather than teleprinter. There is scope for applying the new techniques now available to bring RTTY into the 21st century.

This article discusses the specific needs of 'live QSO' operating, as opposed to just transferring chunks of error-free data, and describes the PSK31 mode which I have developed specifically for live contacts, which is now becoming popular using low-cost DSP kits, and which could become even cheaper as the art of using PC sound cards is developed by amateur radio enthusiasts.

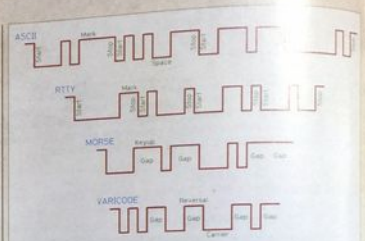


FIGURE 1: Showing the word 'ten' keyed in ASCII, RTTY, Morse and Varicode.

WHAT IS NEEDED?

I believe that it is the error-correcting process used in modern data modes which make them unsuitable for live contacts. I have identified several factors; the first revolves around the fact that all error-correcting systems introduce a time-delay into the link. In the case of an ARQ link like AmTOR or PacTOR, there is a fixed transmission cycle of 450ms or 1.25sec or more, which will delay any keypress by as much as one cycle-period, and by more if there are errors. With forward-error correction systems there is also an inevitable delay, because the information is spread out over a period of time. In a live two-way contact, the delay is doubled at the point where the transmission is handed over. I believe that these delays make such systems unpleasant to use in a two way conversation.

This is not so much a technical problem as a human one. Another factor in this category is concerned with the way that the quality of the information content varies as the quality of the radio link varies. In an analogue transmission system such as SSB or CW, there is a linear relationship between the two. The operators are aware of this all the time and take account of it subconsciously: they change the speed and tone of voice instinctively, and even choose the topic of conversation to suit the conditions.

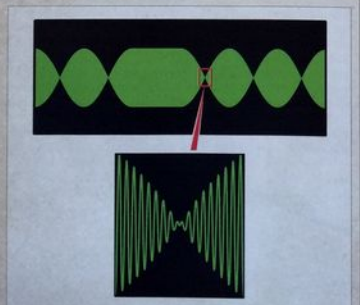


FIGURE 2: Showing the waveform of BPSK sending the Varicode 'space' symbol.

In a digital mode the relationship between the signal-to-noise ratio on the air and the error rate on the screen is not so smooth. The modern error-correcting digital modes are particularly bad at this, with copy being almost perfect while the SNR is above a certain level and stopping completely when the SNR drops below this level. The effect is of no consequence in an automatic mailbox forwarding link, but can badly inhibit the flow of a conversation.

A third factor is a social one; with error correcting modes you only get good copy when you are linked to one other station. The copy is decidedly worse when not linked, such as when calling CQ or listening to others. This makes it difficult "getting to know' other people on the air, and there is a tendency to limit contacts to a few close friends or just mailboxes.

These factors lead me to suggest that there is a case for a transmission system that is *not* based on the use of error-correcting codes, when the specific application is that of live contacts. The continued popularity of traditional RTTY, using the start-stop system, is proof of this hypothesis: there is minimal delay (150ms), the flow of conversation is continuous, the error-rate is tolerable, and it is easy to listen-in and join-in.

IMPROVING ON RTTY

How, then, do we go about using modern techniques that were not available in the '60s, to improve on traditional RTTY? First of all, since we are talking about live contacts, there is no need to discuss any system that transmits text any faster than can be typed by hand.

Secondly, modern transceivers are far more stable in frequency than they were in the '60s, so we should be able to use much narrower bandwidths than in those days. Thirdly digital processors are much more powerful than the rotating cams and levers of the mechanical teleprinter, so we could use better coding. The drift-tolerant technique of frequency-shift keying, and the fixed-length five-unit start-stop code still used today for RTTY are a legacy of the limitations of technology 30 years ago. We can do better now.

December 1998

PSK31: A New Ra

By Peter Martinez, G3PLX

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What is PSK-31?

What was new:

- **Less bandwidth, more stations**
- **Works great with low power**
- **Used PC's sound card for interface to radio**
- **Software, $$$ & free**

PSK-31 Started the digital revolution

Early days you built an interface

Understanding

Soundcard Interfacing

by Ernie Mills, WM2U. http://www.qsl.net/wm2u

Please print this article and use it as a hand out at Club talks and lectures

Interface (Russian) tnx to Andrey Otroshenko, RA3DOA

This page is an attempt to correlate the interfacing schemes for various ***Radio models***, and ***Sound Card*** configurations. Since 26th December 1998, when the sound card version of ***PSK31*** was first introduced to the Ham community, and after much dialog, experimentation and confusion, an interfacing pattern slowly emerged. I feel that an ***understanding*** of this pattern is valuable and can save you a lot of time and grief. Please note that each circuit references various letters which will correlate with the Radio pin-outs on the various popup tables available. Just click the manufactures button below, pick your radio and read off the hook-up points.

Kenwood | Yaesu | ICOM | Alinco | ...more

I Urgently need other Radio hook-up info. and corrections. Please submit this Form for it's inclusion onto this page.

- Great Hookup Site
- Hook-it-up
- W5BBR Bill
- RIGblaster
- SignaLink
- KC7DH Chuck
- K4ABT Buck
- IMD Meter
- PSK Meter
- Navigator Interface

You have a ***Kenwood Radio*** and your hookup information is not here! Don't panic! Goto the ***Kenwood.*** Amateur Radio site, then to the "Jump To" pull down menu and... hey presto! If it is not on this list, it was never made.

If you can't find it here try this great ***TNC to Radio page; Hook-Up Magic***

Ok! Ok! so you prefer to buy (that's a dirty three letter word) a ready made Computer to Radio Interface. Check out this nice package by N1ZZ and K1UHF. They call it the ***RIGblaster***

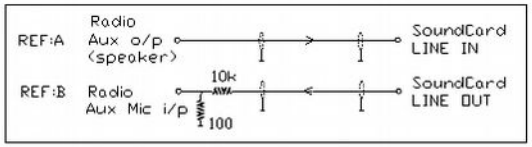
Wait!!! are you hooking up a fully computer controlled Radio? One with a virtual consol? The ***Kachina***, ***Pegasus*** or whatever? Hey! first read ***George's Notes***

STOP!!! If you are a ***FT1000MP*** owner, look no further. ***Doug McCann, VA3CR*** has a web page dedicated solely to that fine machine. This great site is a one stop information authority and missing it will be your loss. You are warned :) Check out **http://www.va3cr.net/.**

Thomas Giella, KN4LF, has also a great web site showing hookup information for the ***FT1000MP Mk5***. Check it out at ~ **http://www.kn4lf.com/kn4lf10.htm**

Ok, Almost there, but before we get into it, please read this email I received off ***Jack, K8PET*** if you are thinking of interfacing to a ***LapTop*** computer.

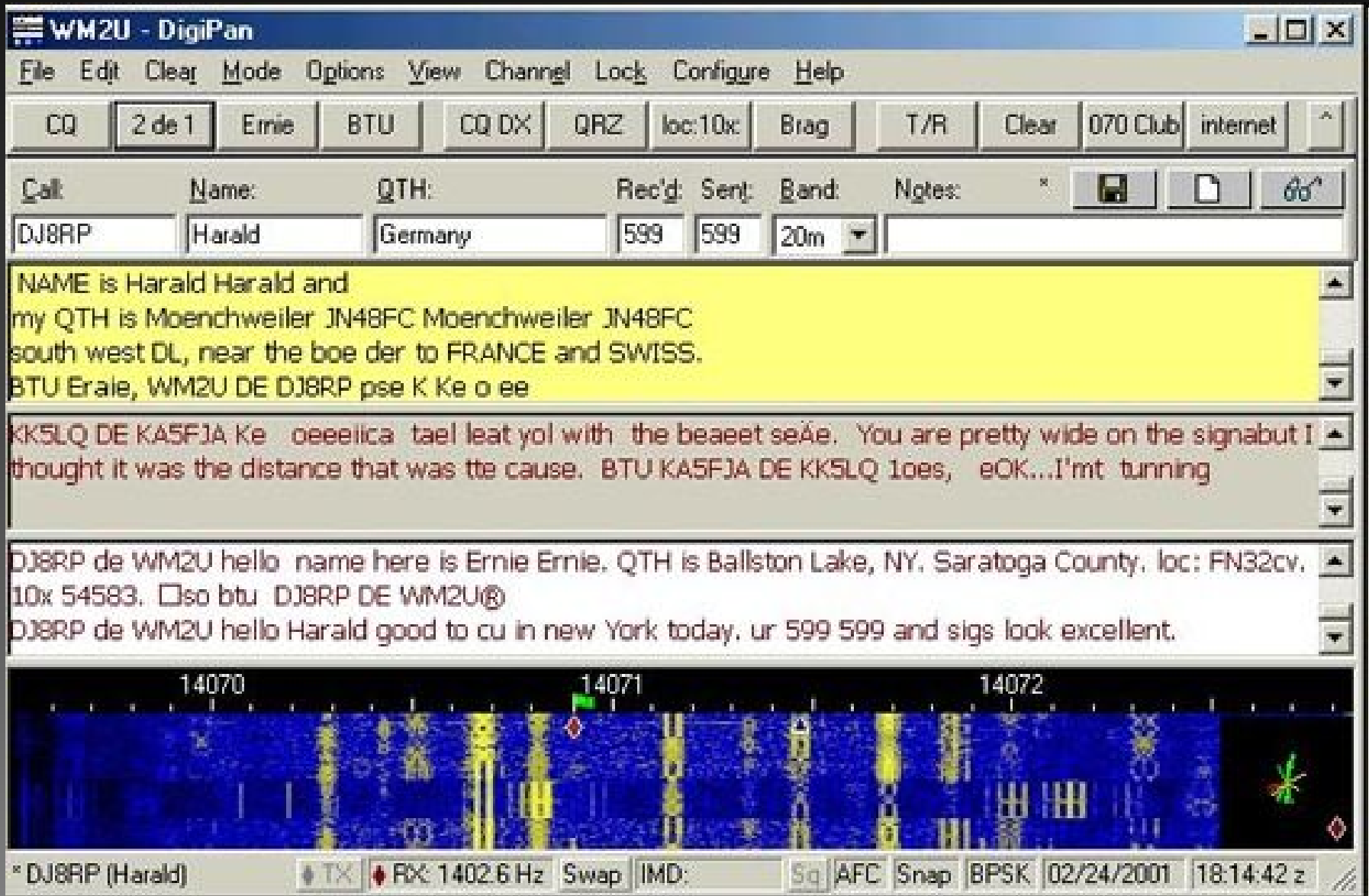
First off, ***keep it as simple*** as you can. This circuit shows a single connection between the Radio Audio Output and The Sound card LINE IN, and a simple 100:1 attenuated connection between the Radio Aux. Mic IN and the Sound Card LINE OUT.



For SWL the fastest way to Rx is to simply let your Computer ***listen*** to the Radio. If you have a microphone connected to your pc, load your PSK software, and tune your rig to a PSK signal and tah-dah, PSK print on you pc screen. :)

Oh! before we start a little word on the ***component abbreviation*** used on these diagrams. Since the decimal point was not

Early days you used Digipan software



No tuning knob needed

Tune by clicking on the waterfall

- 14.070 MHz Dial Display USB carrier
- 1 KHz tone = 14.071 MHz frequency
- 2 KHz tone = 14.072 MHz frequency

I made a few PSK-31 Videos

How to get started with PSK-31 Ham Radio

7 videos • 16,657 views • Last updated on Jul 18, 2016

PSK-31 is the most popular digital mode for amateur radio. This series of videos introduce PSK31 and how to get yourself on the air.

K7AGE

EDIT

1.

How to receive PSK-31, Introduction
K7AGE

2.

How to interface a sound card for Ham Radio
K7AGE

3.

How to adjust transmitter level for PSK-31 Ham Radio
K7AGE

4.

How to operate PSK-31 Ham Radio
K7AGE

5.

Sample of 20 Meter Activity for PSK31 Introduction Video
K7AGE

6.

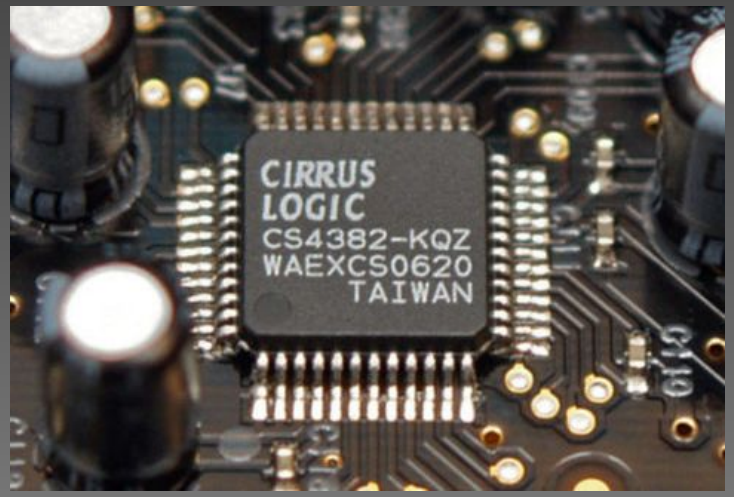
How to Receive Ham Radio PSK-31 on an iPad
K7AGE

7.

Ham Radio PSK-31 Presentation at SEA-PAC
K7AGE

Computer sound card interfaces

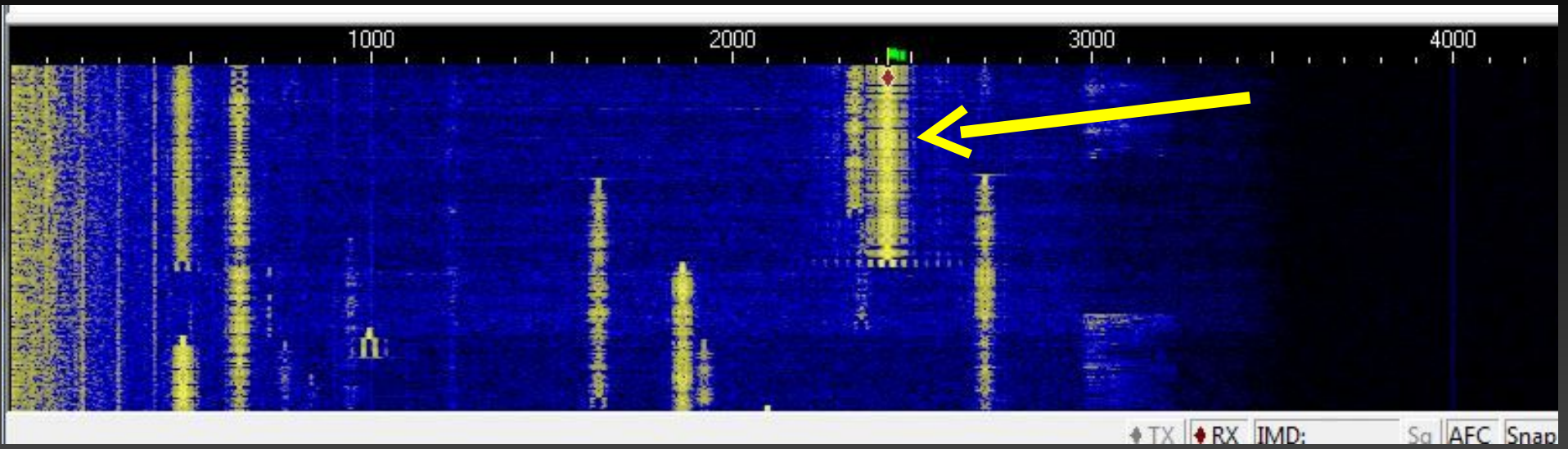
Then, interfaces with USB sound chip

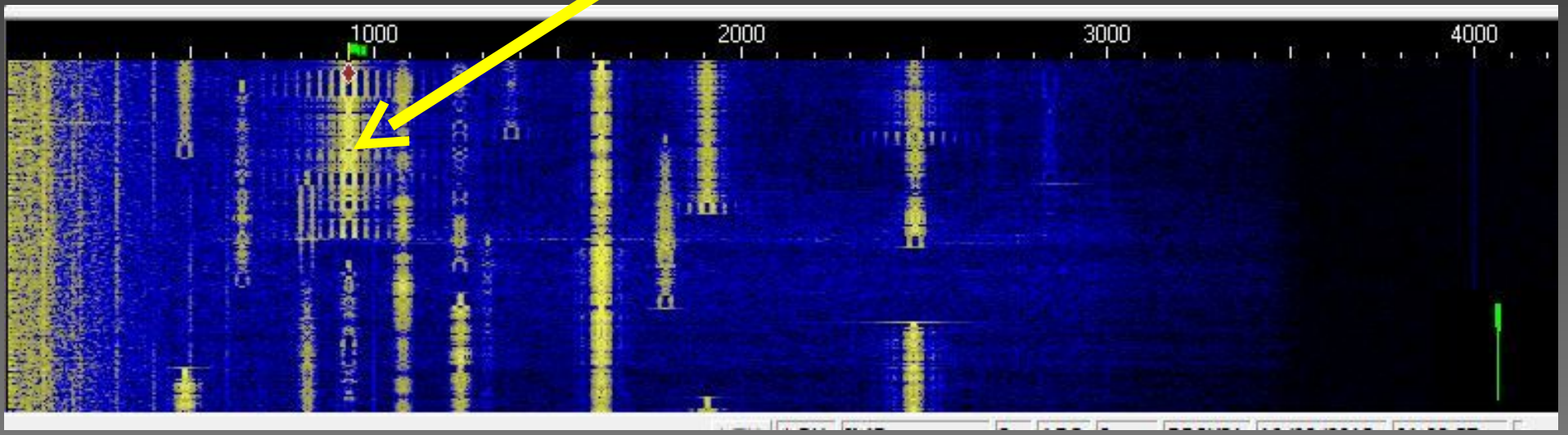


And now, Radios with DSP sound function

	USB Connection		
	Control	Sound	
Yaesu			
FT-818	N	N	
FT-450D	N	N	
FT-857	N	N	
FT-891	Y	N	
FT-991A	Y	Y	
FT-DX1200	N	N	SCU-17
FT-2000	N	N	
FT-DX3000	Y	Y	
FT-DX5000MP	N	N	
FTDX101D	Y	Y	
Kenwood			
TS-480HX/SAT	N	N	
TS-590SG	Y	N	
TS-890S	Y	Y	
TS-990S	Y	Y	
Icom			
IC-718	N	N	
IC-7100	Y	Y	
IC-7200	N	Y	
IC-7300	Y	Y	
IC-7600	N	Y	
IC-7610	Y	Y	2 cables
IC-7700	N	N	
IC-7851	Y	Y	
Elecraft			
K3S KIO3B	Y	Y	
K4	Y	Y	
05/01/19			

This is what over driving looks like





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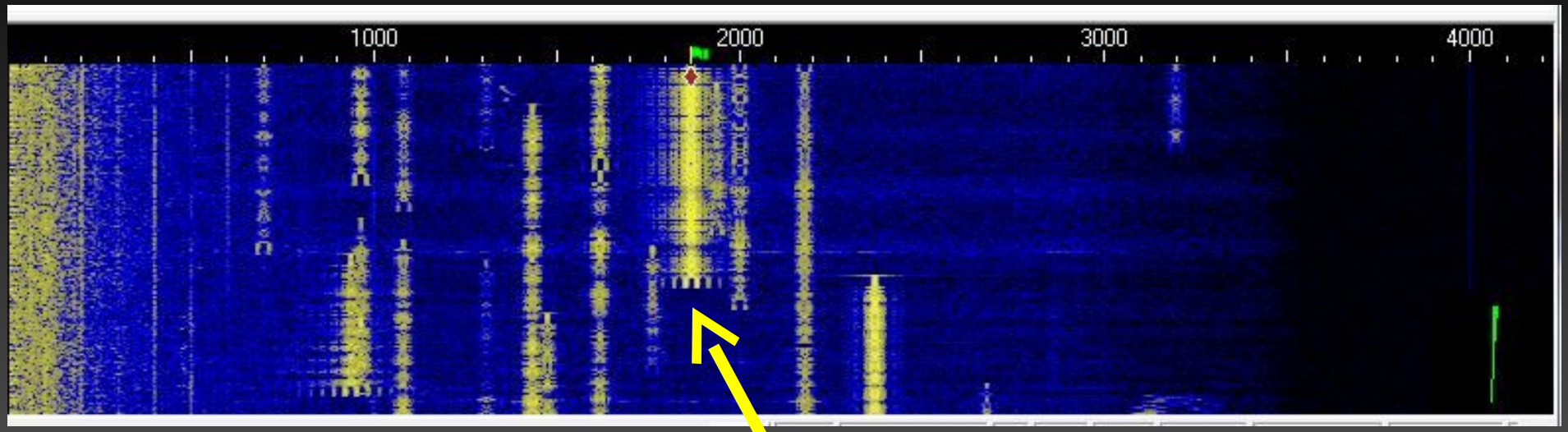
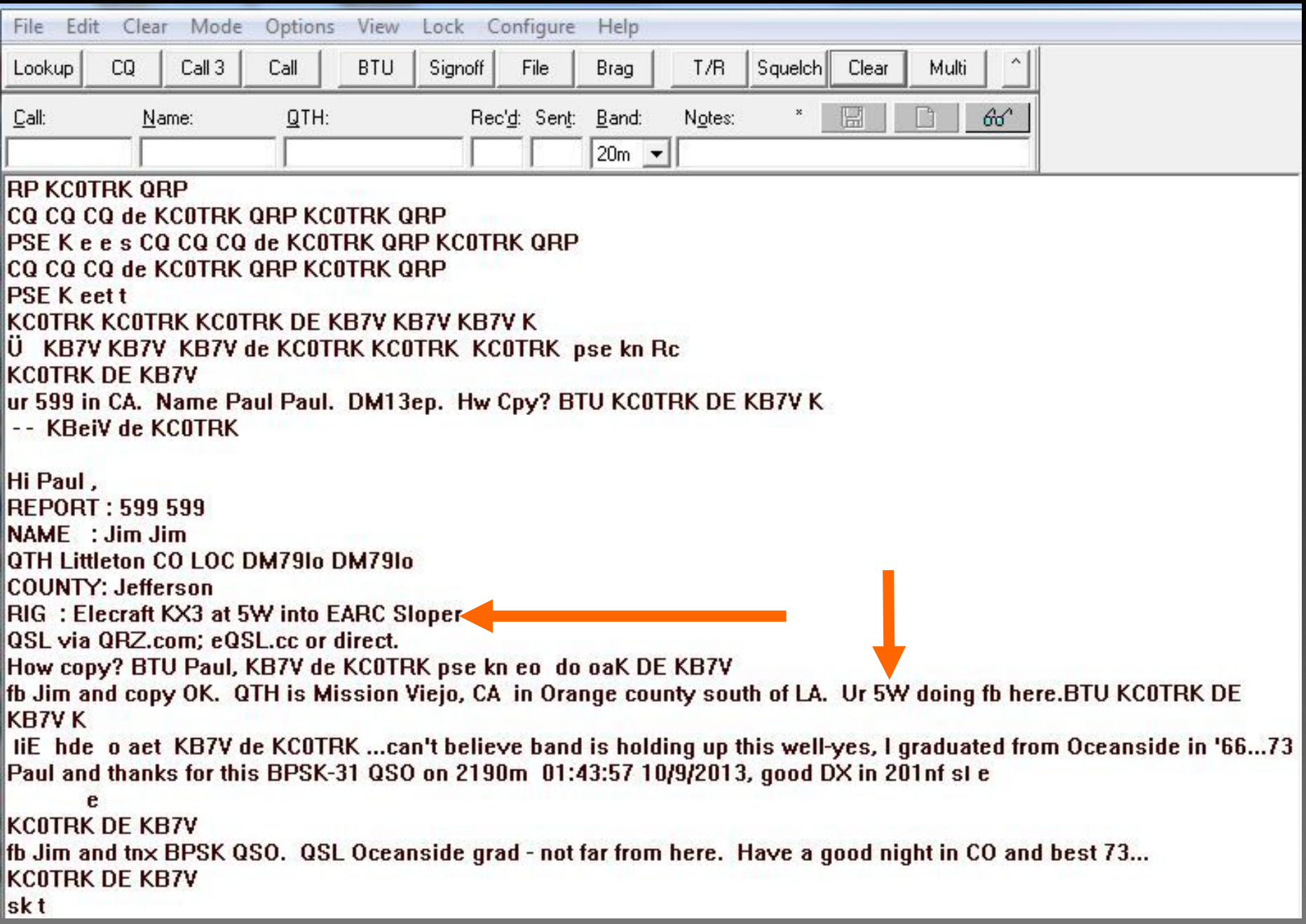


Even QRP can be wide
5 watts from a KX3 station


File Edit Clear Mode Options View Lock Configure Help
Lookup CQ Call 3 Call BTU Signoff File Brag T/R Squelch Clear Multi
Call: Name: QTH: Rec'd: Sent: Band: Notes:
20m
RP KC0TRK QRP
CQ CQ CQ de KC0TRK QRP KC0TRK QRP
PSE K e e s CQ CQ CQ de KC0TRK QRP KC0TRK QRP
CQ CQ CQ de KC0TRK QRP KC0TRK QRP
PSE K eet t
KC0TRK KC0TRK KC0TRK DE KB7V KB7V KB7V K
Ü KB7V KB7V KB7V de KC0TRK KC0TRK KC0TRK pse kn Rc
KC0TRK DE KB7V
ur 599 in CA. Name Paul Paul. DM13ep. Hw Cpy? BTU KC0TRK DE KB7V K
-- KBeiV de KC0TRK
Hi Paul ,
REPORT : 599 599
NAME : Jim Jim
QTH Littleton CO LOC DM79lo DM79lo
COUNTY: Jefferson
RIG : Elecraft KX3 at 5W into EARC Sloper
QSL via QRZ.com; eQSL.cc or direct.
How copy? BTU Paul, KB7V de KC0TRK pse kn eo do oaK DE KB7V
fb Jim and copy OK. QTH is Mission Viejo, CA in Orange county south of LA. Ur 5W doing fb here.BTU KC0TRK DE
KB7V K
IiE hde o aet KB7V de KC0TRK ...can't believe band is holding up this well-yes, I graduated from Oceanside in '66...73
Paul and thanks for this BPSK-31 QSO on 2190m 01:43:57 10/9/2013, good DX in 201nf sI e
e
KC0TRK DE KB7V
fb Jim and tnx BPSK QSO. QSL Oceanside grad - not far from here. Have a good night in CO and best 73...
KC0TRK DE KB7V
sk t

Where to hear PSK-31?

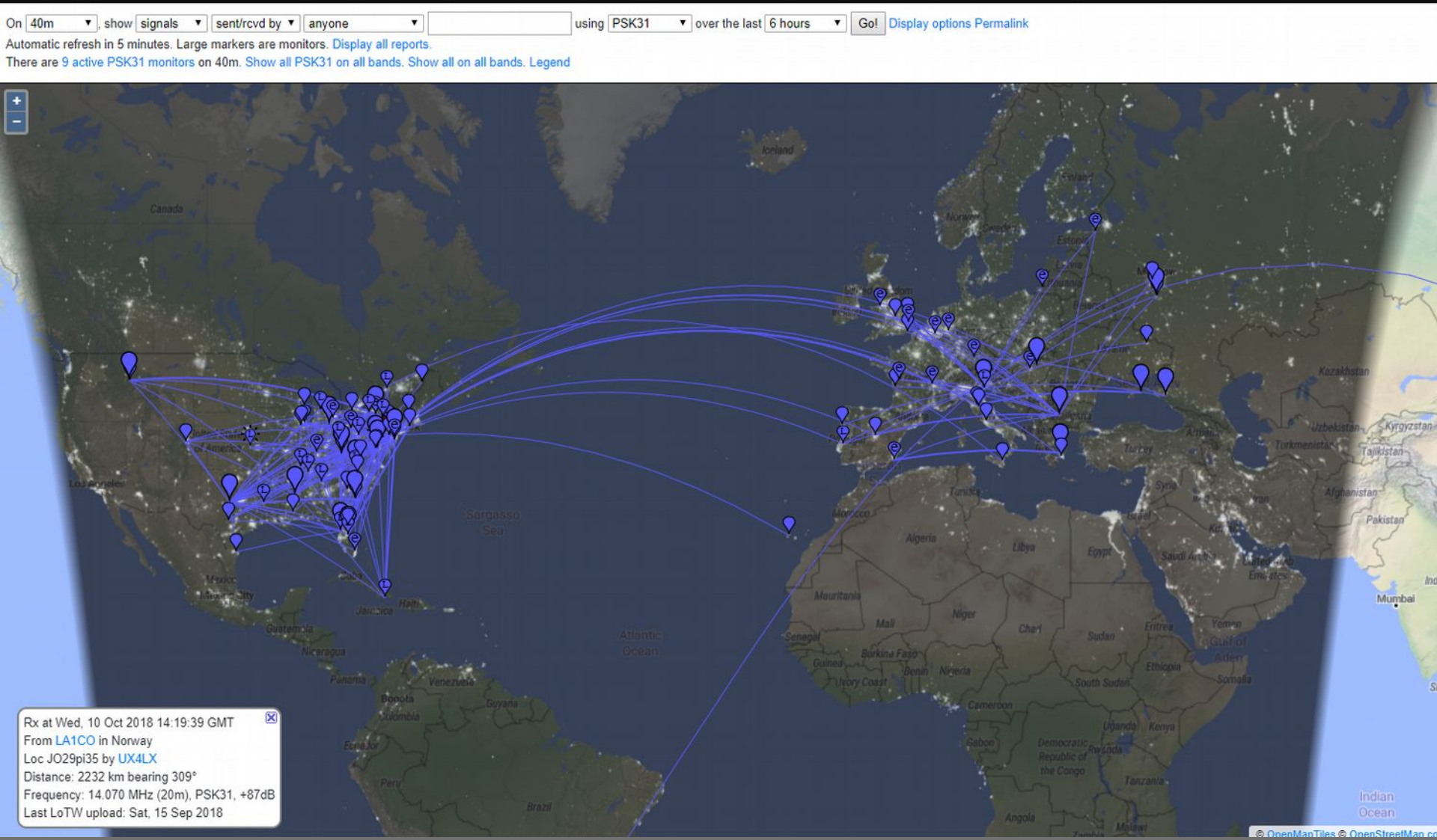
PSK-31 activity is concentrated around the following frequencies:

DIAL Display

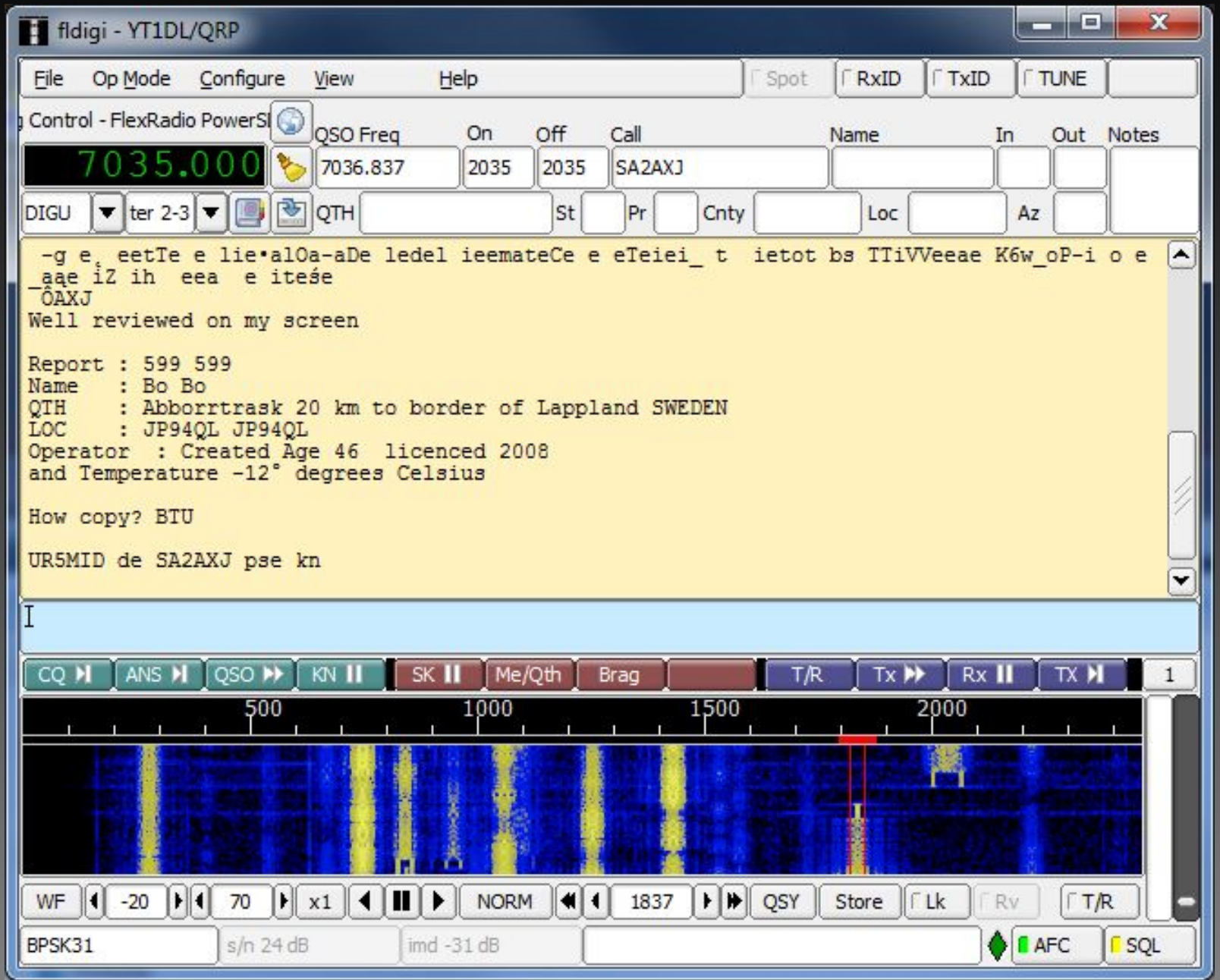
USB Mode

- **1.83815 MHz**
- **3.580 MHz**
- **7.035 MHz**
- **14.070 MHz, most popular**
- **18.100 MHz**
- **21.070 MHz**
- **24.920 MHz**
- **28.120 MHz**
- **50.290 MHz**

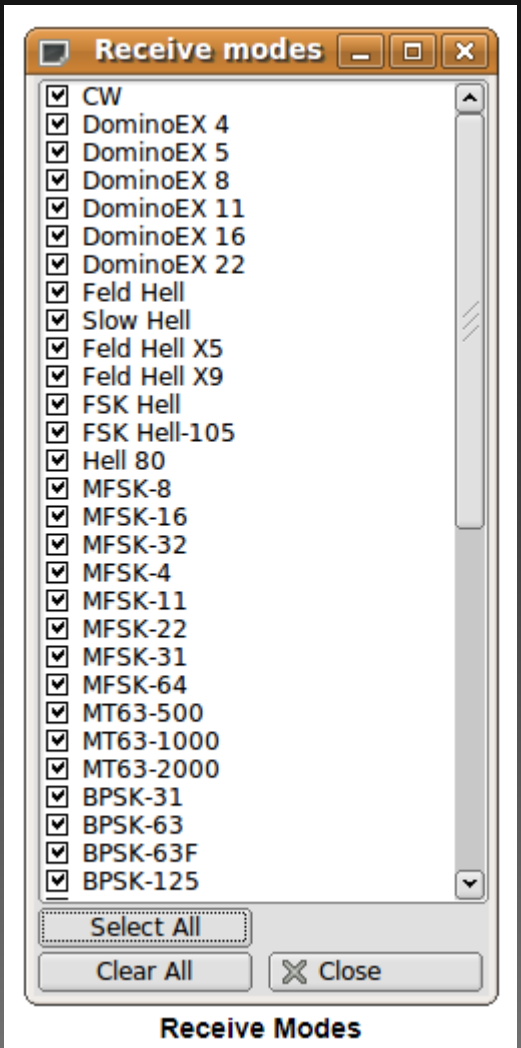
Use PSK Reporter, PSK 31, 40M, 6 Hours



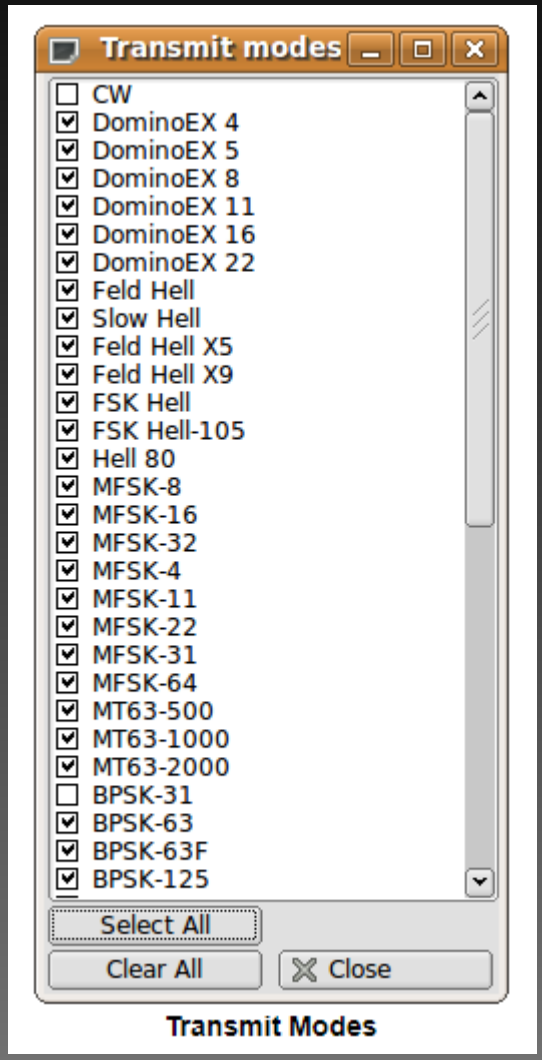
FLDigi is now the GO-TO digital software, free



FLDigi, lots of modes, here are few



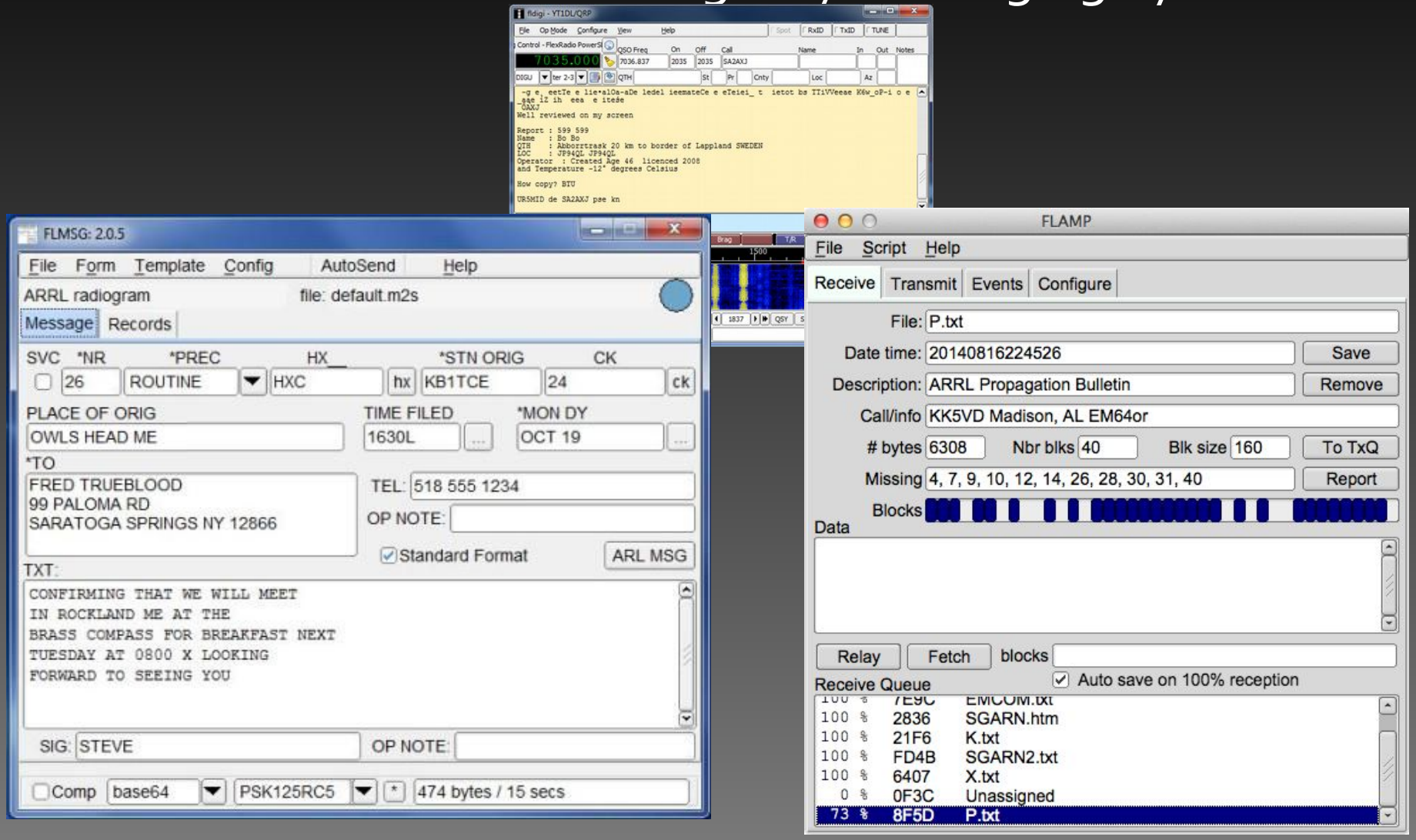
Receive Modes



Transmit Modes

Fldigi NBEMS

Narrow Band Emergency Messaging System



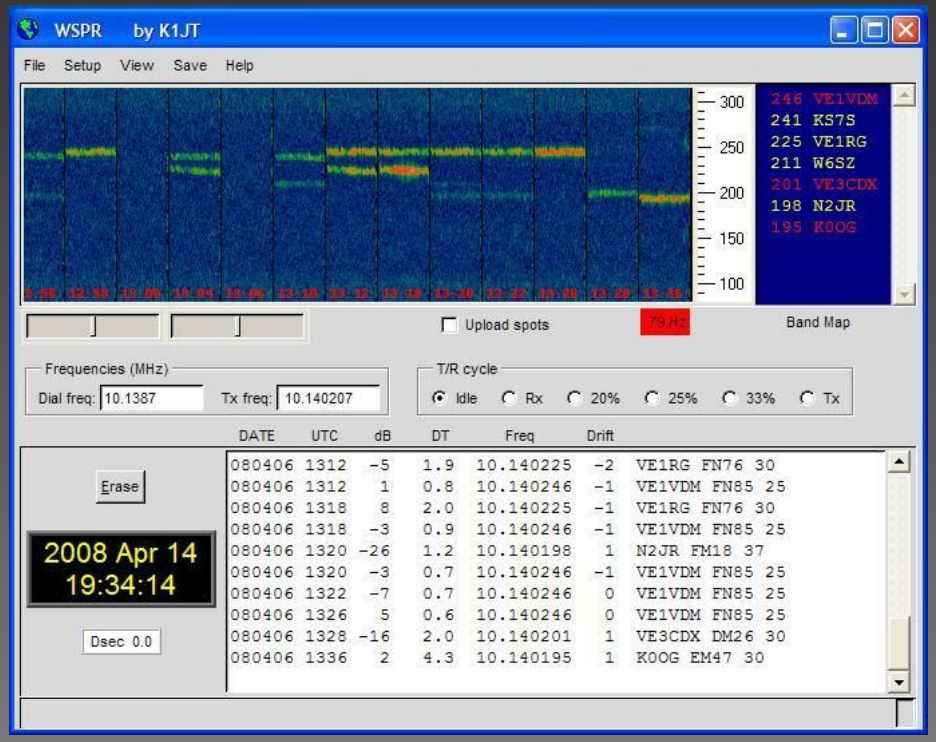
Other Sound Card Modes

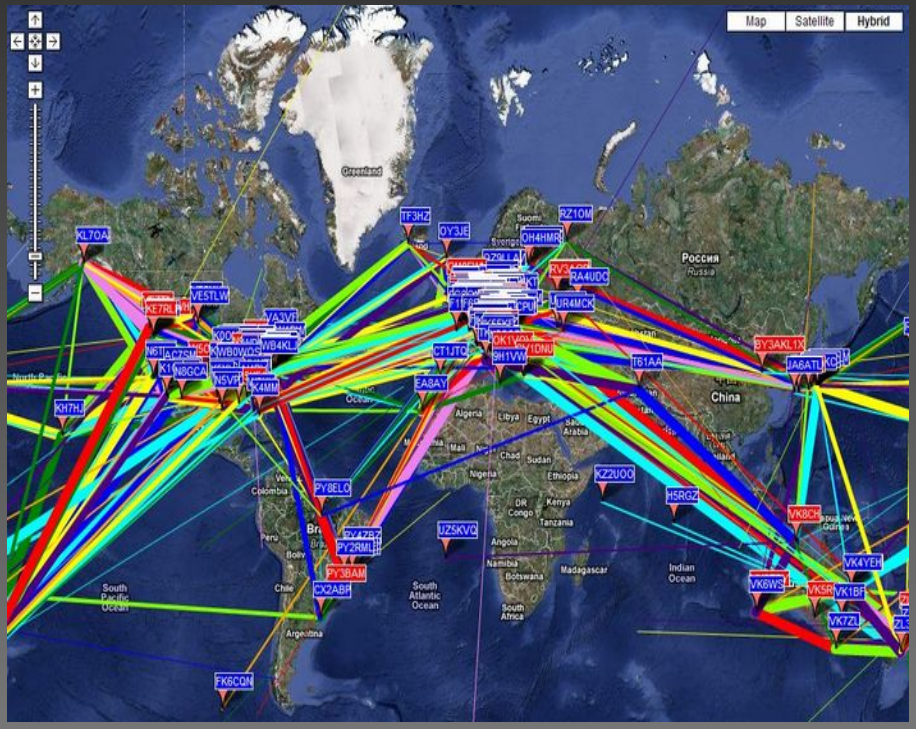
- *WSPR*
- *JT9/65*
- *SSTV*
- *Digital SSTV*
- *Free DV*
- *Hellschreiber*
- *FT8*
- *SC8Call*

WSPR, WSJT-X

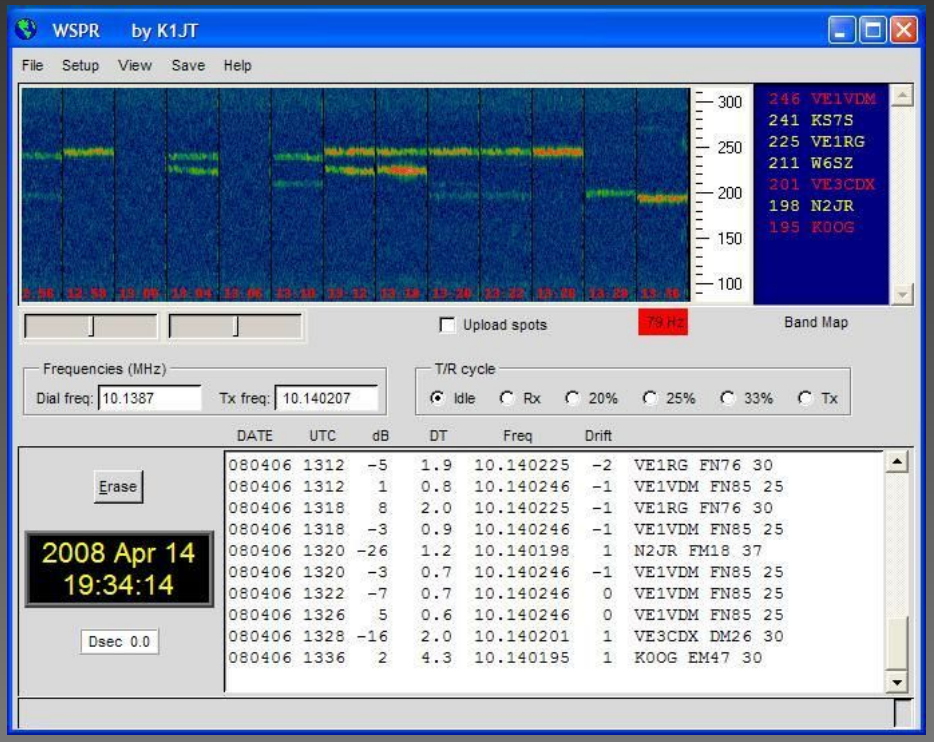
- *Weak Signal Propagation Reporter, beacon only*

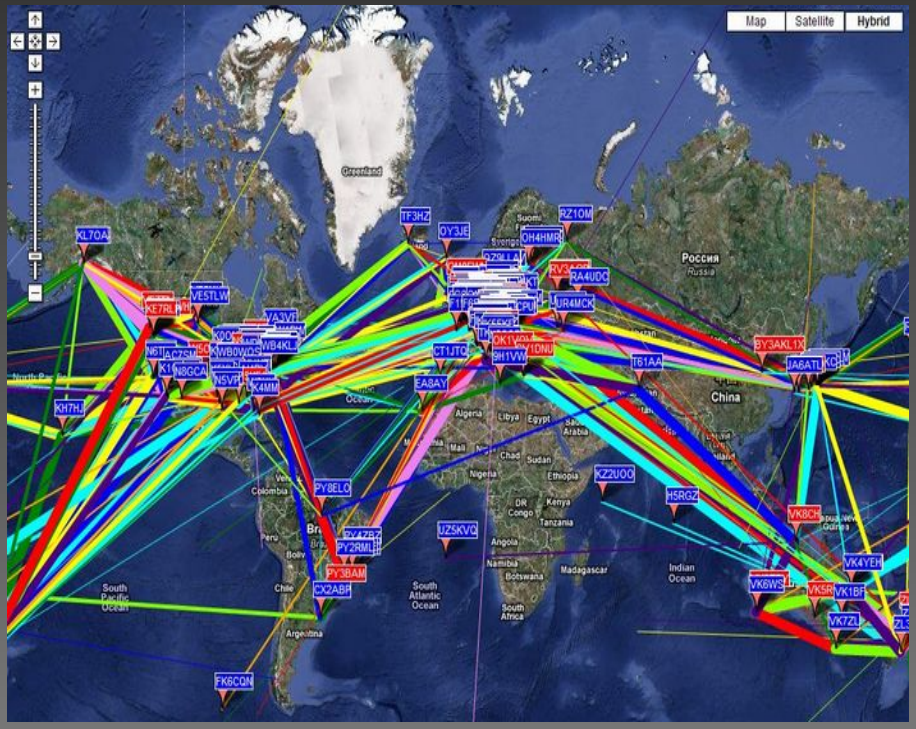
WSPR implements a protocol designed for probing potential propagation paths with low-power transmissions. Normal transmissions carry a station's callsign, Maidenhead grid locator, and transmitter power in dBm. The program can decode signals with S/N as low as -28 dB in a 2500 Hz bandwidth. Stations with internet access can automatically upload their reception reports to a central database called WSPRnet, which includes a mapping facility. 20 Meters 14.0956



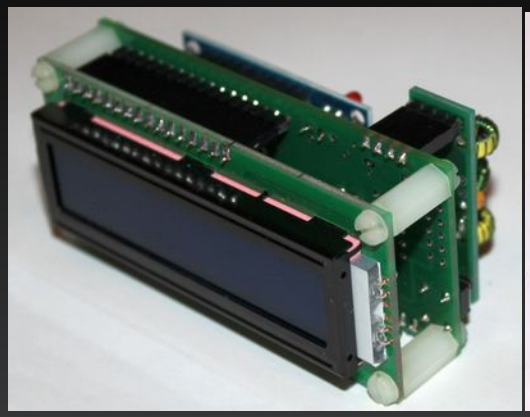


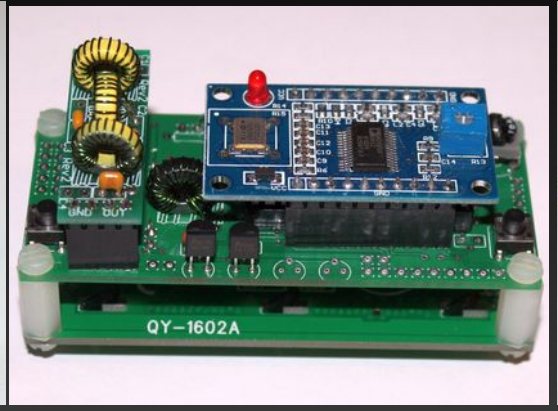
WSPR

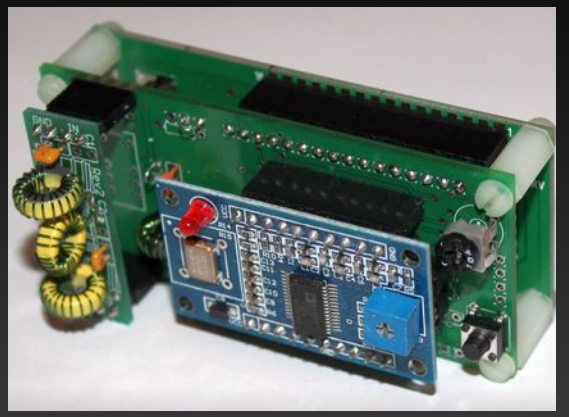

WSPR by K1JT
File Setup View Save Help
300
250
200
150
100
246 VE1VDM
241 KS7S
225 VE1RG
211 W6SZ
201 VE3CDX
198 N2JR
195 K0OG
Upload spots
79 Hz
Band Map
Frequencies (MHz)
Dial freq: 10.1387
Tx freq: 10.140207
T/R cycle
Idle Rx 20% 25% 33% Tx
DATE UTC dB DT Freq Drift
080406 1312 -5 1.9 10.140225 -2 VE1RG FN76 30
080406 1312 1 0.8 10.140246 -1 VE1VDM FN85 25
080406 1318 8 2.0 10.140225 -1 VE1RG FN76 30
080406 1318 -3 0.9 10.140246 -1 VE1VDM FN85 25
080406 1320 -26 1.2 10.140198 1 N2JR FM18 37
080406 1320 -3 0.7 10.140246 -1 VE1VDM FN85 25
080406 1322 -7 0.7 10.140246 0 VE1VDM FN85 25
080406 1326 5 0.6 10.140246 0 VE1VDM FN85 25
080406 1328 -16 2.0 10.140201 1 VE3CDX DM26 30
080406 1336 2 4.3 10.140195 1 K0OG EM47 30
Erase
2008 Apr 14
19:34:14
Dsec 0.0


Map
Satellite
Hybrid
Greenland
Россия
China
Indian Ocean
South Atlantic Ocean
South Pacific Ocean

- *QRP-LABs Ultimate3S kit, $33*





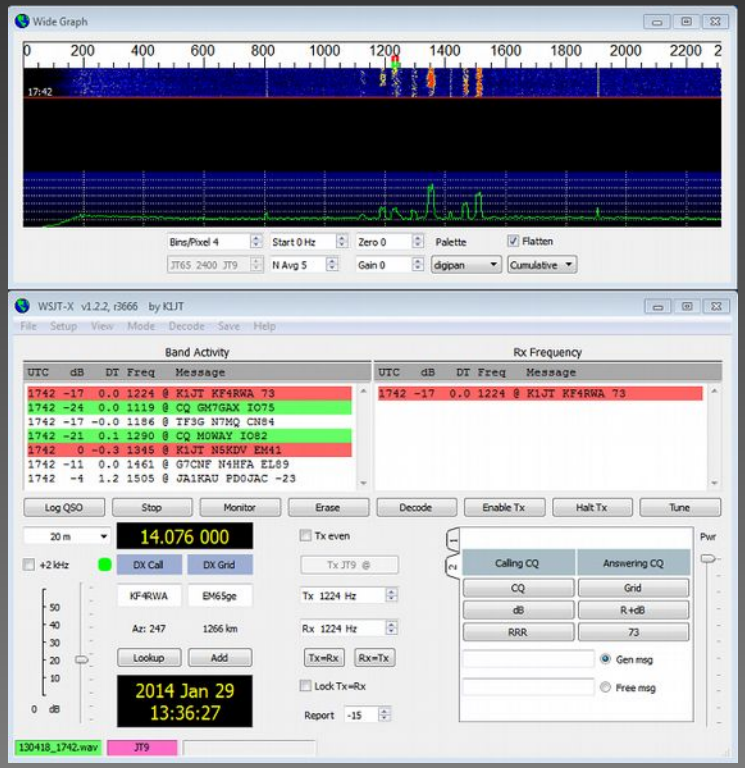


- *SOTABEAMS WSPRlite, $80*

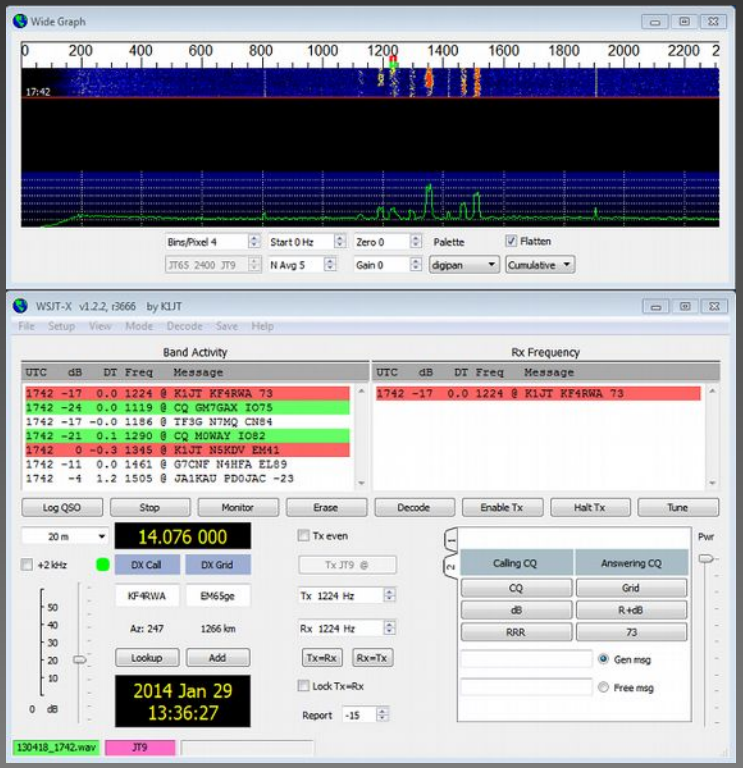
JT-65/9HF WSJT-X

Weak Signal Communication, by K1JT

WSJT offers specific digital protocols optimized for EME (moonbounce), meteor scatter, and ionospheric scatter, at VHF/UHF, as well as for HF skywave propagation. The program can decode fraction-of-a-second signals reflected from ionized meteor trails and steady signals 10 dB below the audible threshold. Check the WSJT page and links therein for details about modes JTMS, FSK441, ISCAT, JT6M, JT65, and JT4. 20 Meters: 14.076



JT-65HF


Wide Graph
WSJT-X v1.2.2, r3666 by K1JT
Band Activity
Rx Frequency
1742 -17 0.0 1224 @ K1JT KF4RWA 73
1742 -24 0.0 1119 @ CQ GM7GAX IO75
1742 -17 -0.0 1186 @ TF3G N7MQ CN84
1742 -21 0.1 1290 @ CQ M0WAY IO82
1742 0 -0.3 1345 @ K1JT N5KDV EM41
1742 -11 0.0 1461 @ G7CNF N4HFA EL89
1742 -4 1.2 1505 @ JA1KAU PD0JAC -23
Log QSO
Stop
Monitor
Erase
Decode
Enable Tx
Halt Tx
Tune
14.076 000
DX Call
DX Grid
KF4RWA
EM65ge
Az: 247
1266 km
Lookup
Add
2014 Jan 29
13:36:27
Calling CQ
Answering CQ
CQ
Grid
dB
R+dB
RRR
73
Gen msg
Free msg
Report
130418_1742.wav
JT9

On 20m , show signals rcvd by the callsign K7AGE using JT65 over the last 1 hour
No recent reception reports. Automatic refresh in 5 minutes. Large markers are monitors.
There are 256 active JT65 monitors on 20m. Show all JT65 on all bands. Show all on all bands. Legend
Monitor: ER1LG Loc KN46jx
in Moldova
Receiving: JT65 on 14.079 MHz (20m)
Using: WSJT-X v1.6.0-devel r5210
Show all seen by ER1LG
PSK Reporter

SSTV

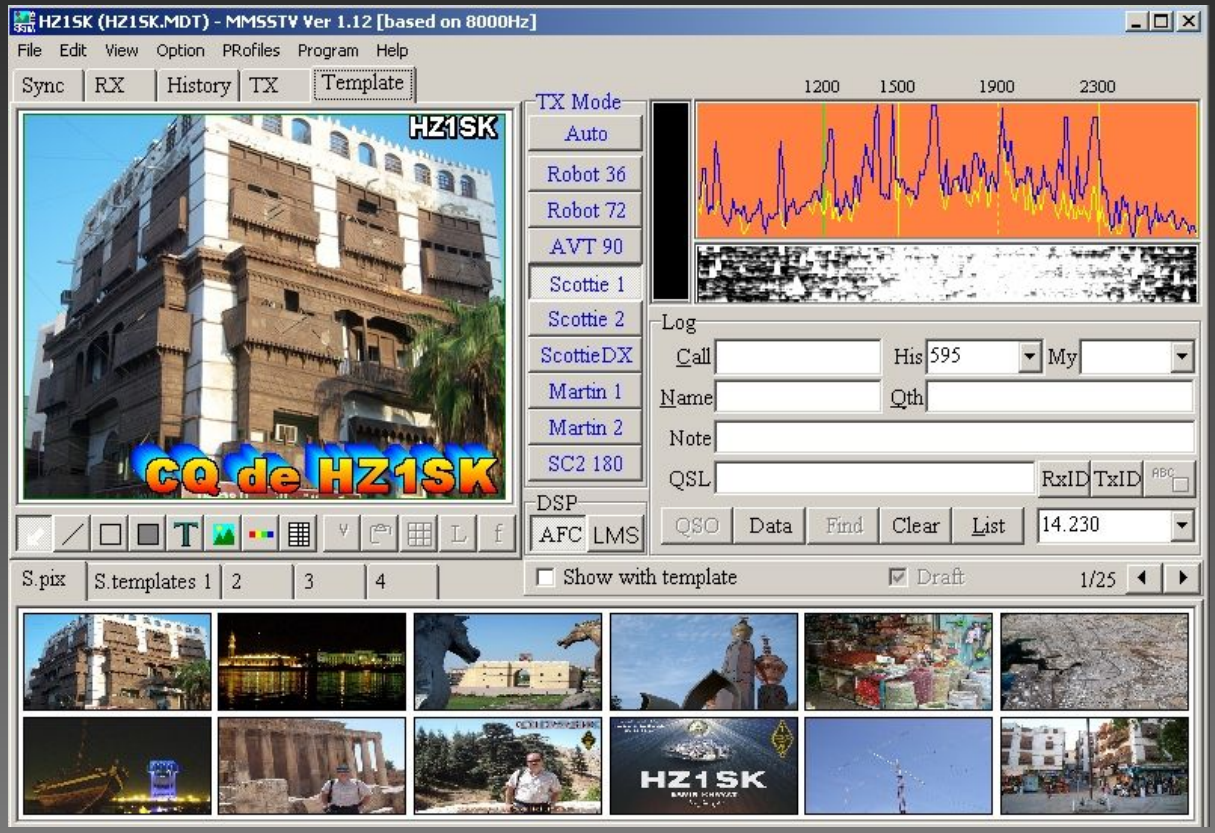
Slow Scan TV

Developed back in the 50s, provides sending and receiving still picture over a voice circuit.

MMSSTV, free and popular, 20 Meters 14.230

SSTV from the ISS, 145.800 MHz

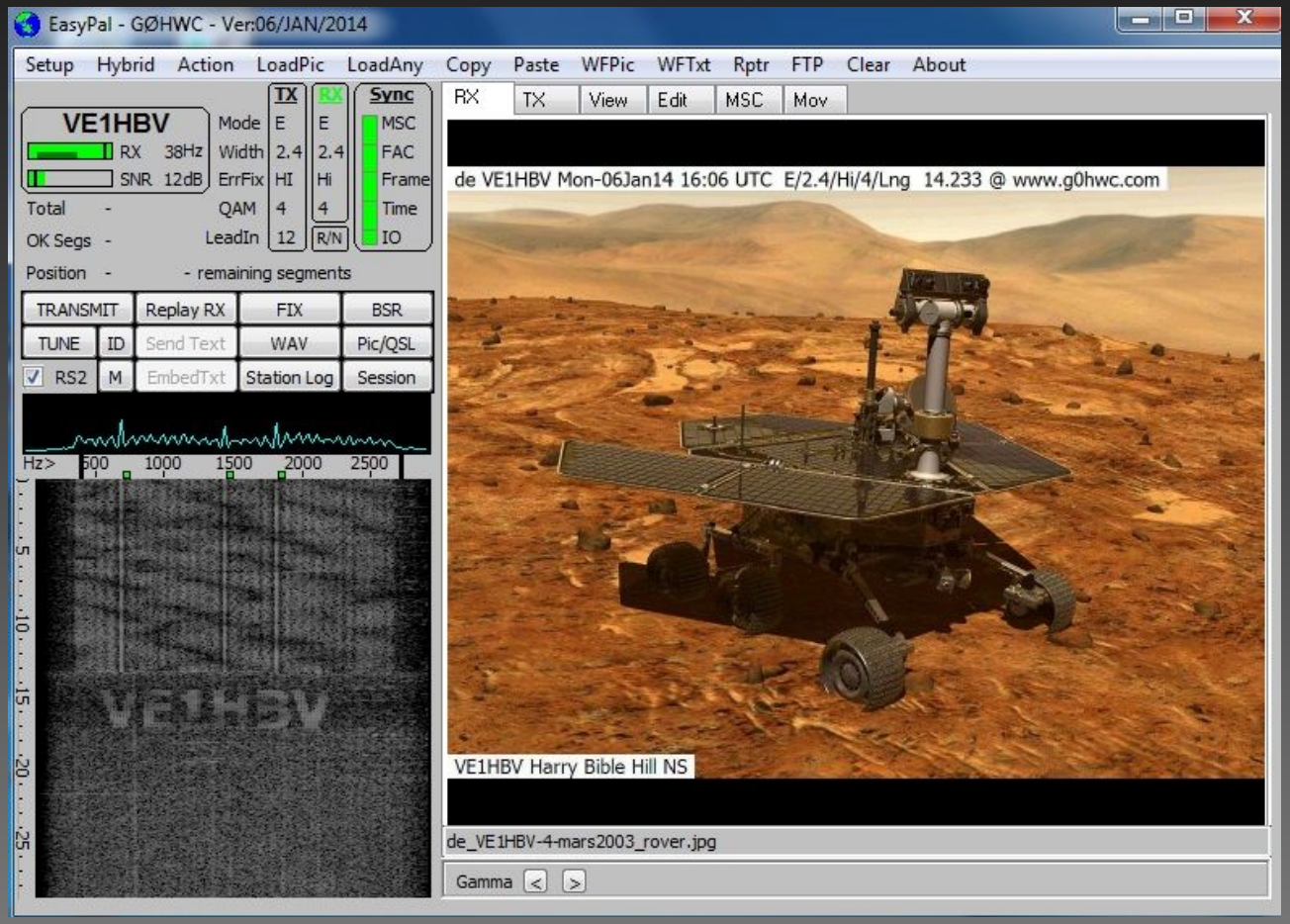
SSTV


HZ1SK (HZ1SK.MDT) - MMSSTV Ver 1.12 [based on 8000Hz]
File Edit View Option PRofiles Program Help
Sync RX History TX Template
HZ1SK
CQ de HZ1SK
TX Mode
Auto
Robot 36
Robot 72
AVT 90
Scottie 1
Scottie 2
ScottieDX
Martin 1
Martin 2
SC2 180
DSP
AFC LMS
1200 1500 1900 2300
Log
Call His 595 My
Name Qth
Note
QSL RxID TxID
QSO Data Find Clear List 14.230
S.pix S.templates 1 2 3 4
Show with template Draft 1/25
HZ1SK

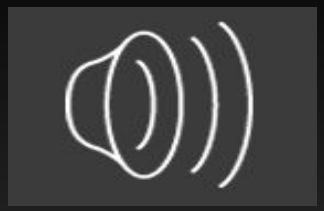
Digital SSTV

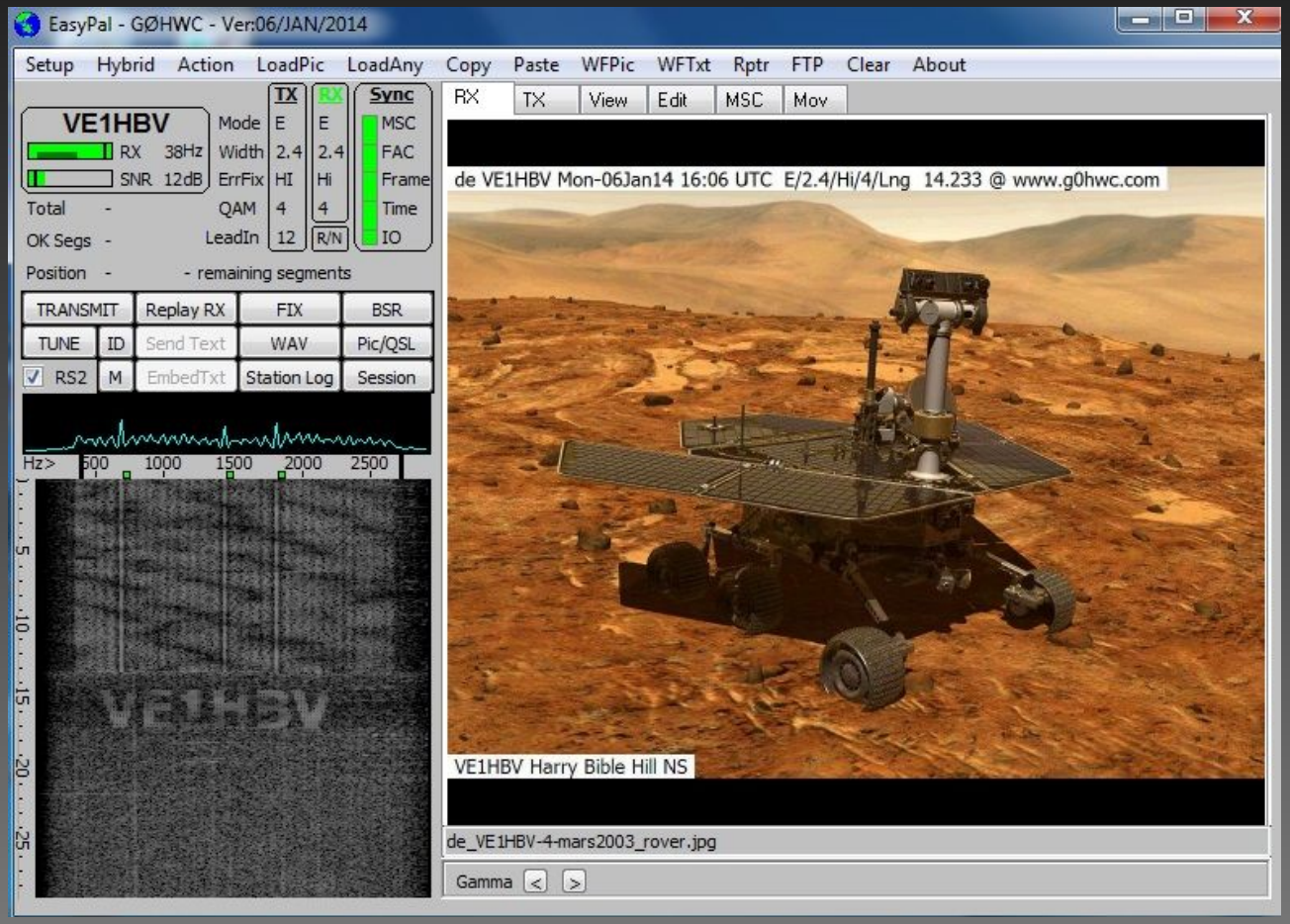
Digital picture file transfer

EasyPal, free and popular, 20 Meters 14.233



Digital SSTV

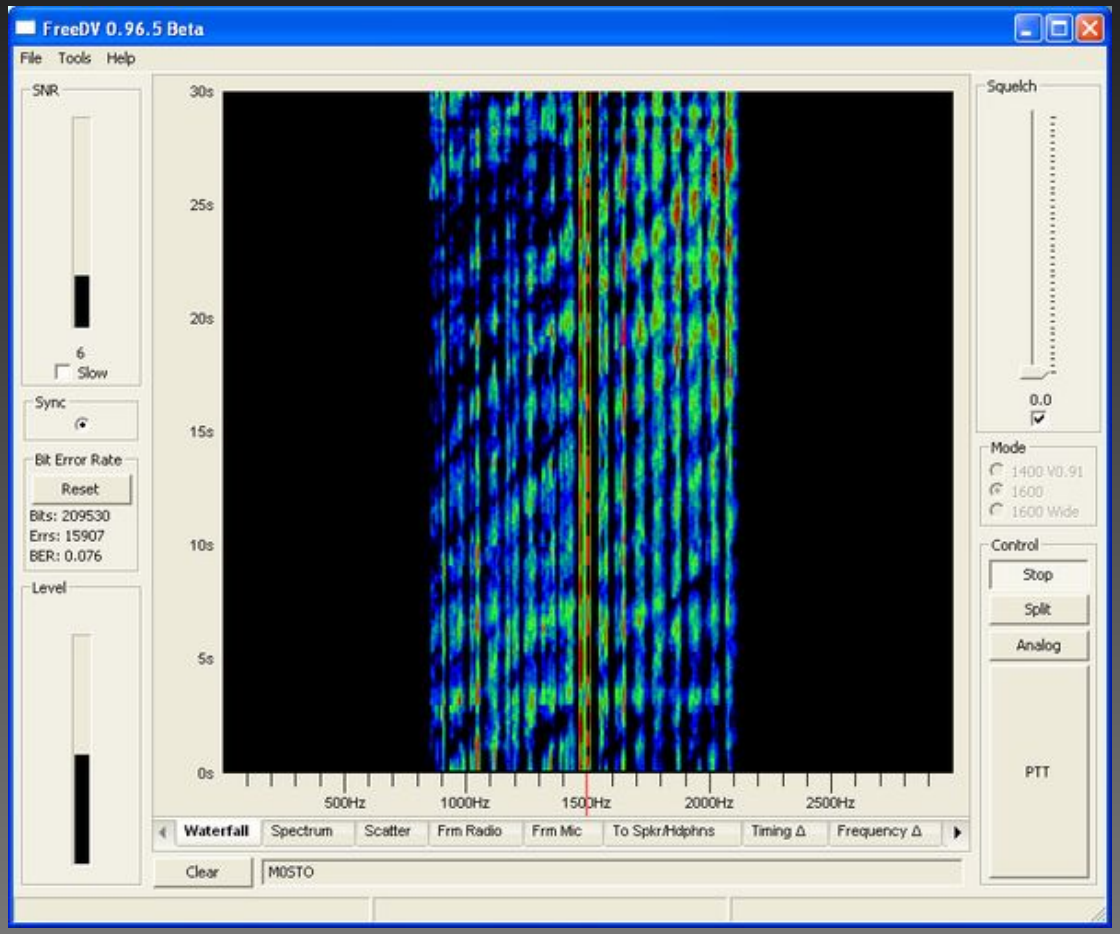




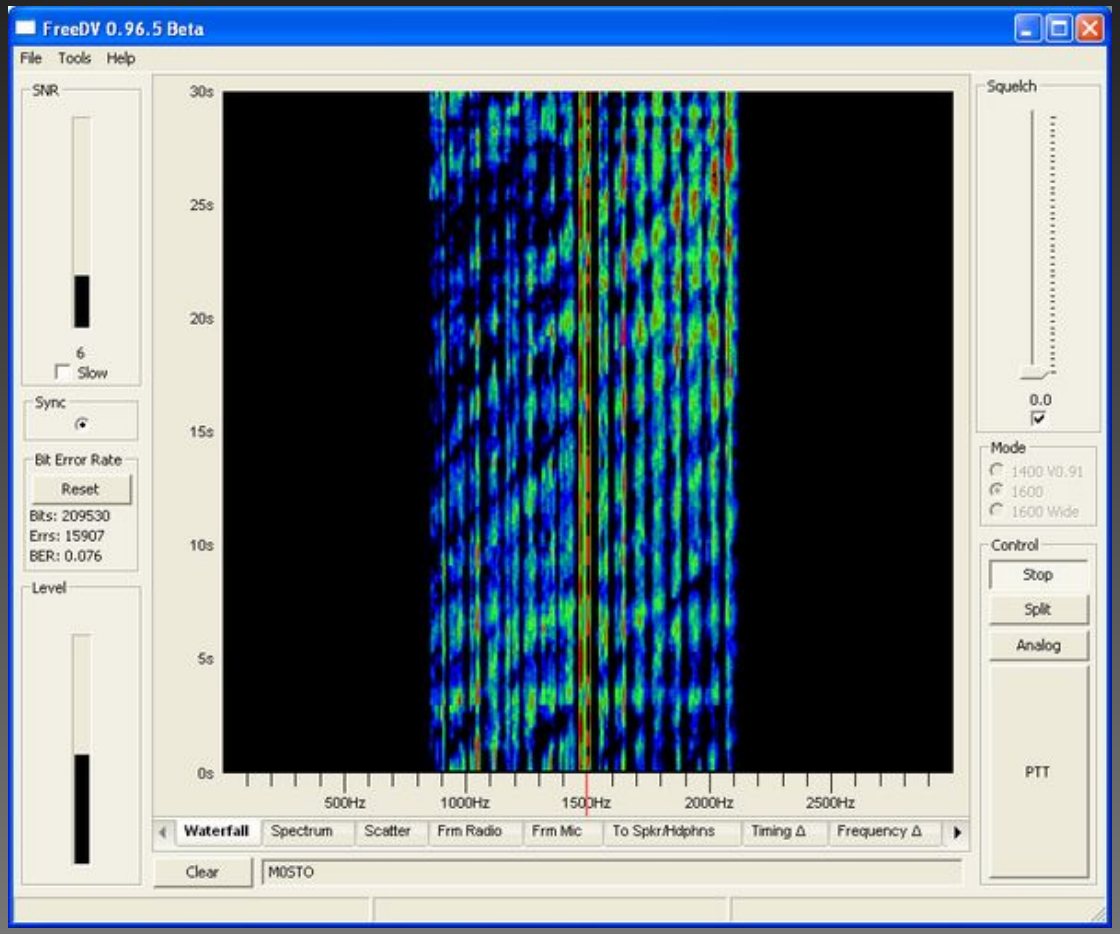
Free DV

Digital voice on HF

Free DV, free and popular, needs two sound cards, 20 Meters 14.236



Free DV

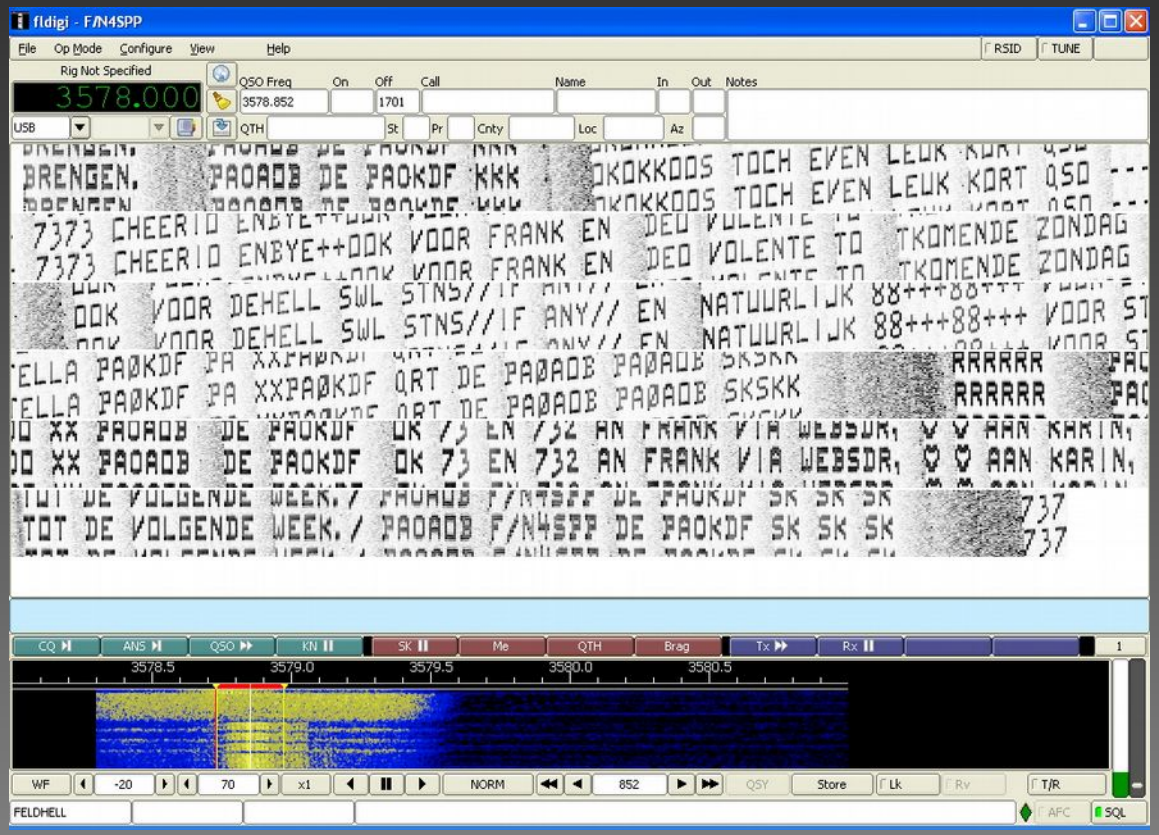

FreeDV 0.96.5 Beta
File Tools Help
SNR
6
Slow
Sync
Bit Error Rate
Reset
Bits: 209530
Errs: 15907
BER: 0.076
Level
30s
25s
20s
15s
10s
5s
0s
500Hz
1000Hz
1500Hz
2000Hz
2500Hz
Waterfall
Spectrum
Scatter
Frm Radio
Frm Mic
To Spkr/Hdphns
Timing Δ
Frequency Δ
Clear
M0STO
Squelch
0.0
Mode
1400 V0.91
1600
1600 Wide
Control
Stop
Split
Analog
PTT

Hellschreiber

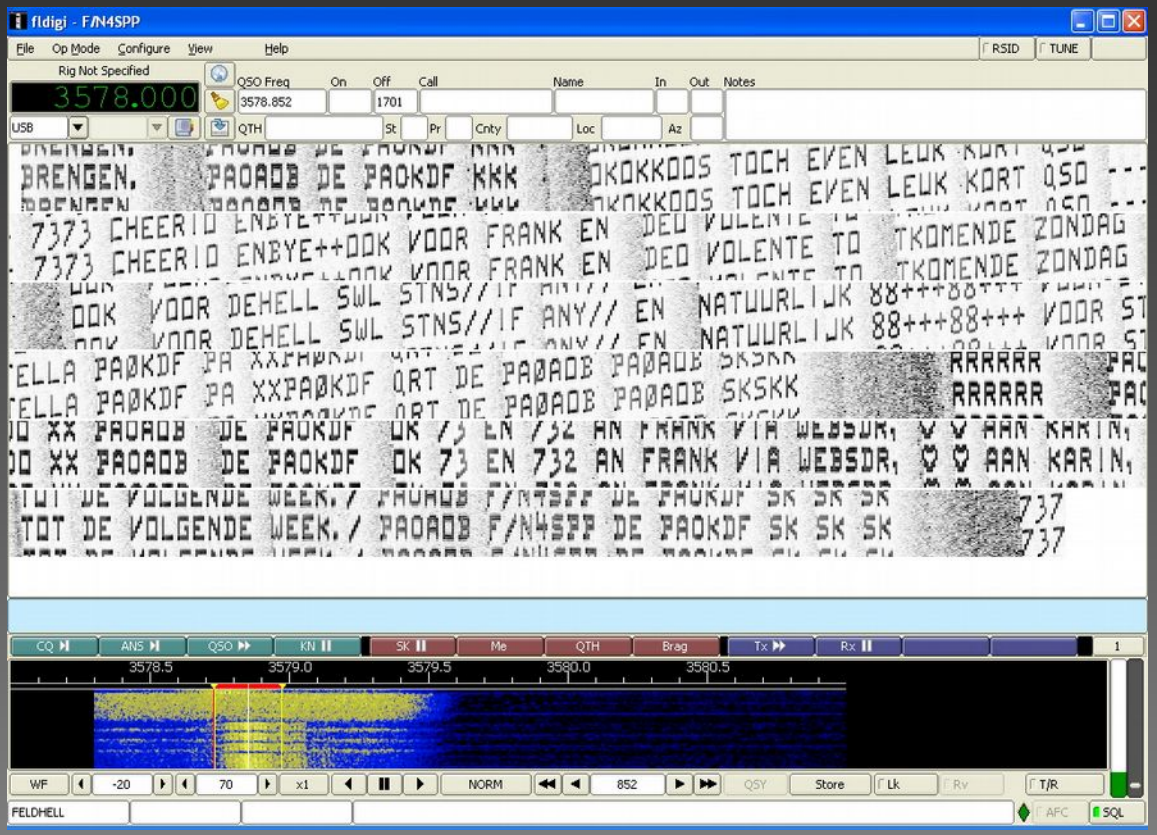
Fax mode from back in the 20s

Feld Hell Club, monthly sprint contests

FLDigi , 20 Meters 14.063



Hellschreiber

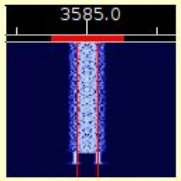


Digital Sample Files

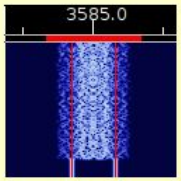
Digital Modes - Sight & Sound

BPSK/QPSK
BPSK - Overdriven
Contestia
CW
DominoEX
Feld Hell
MFSK
MT-63
Olivia
RTTY
Thor
Throb

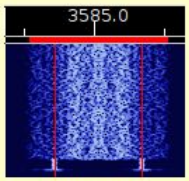
Mode Comparison



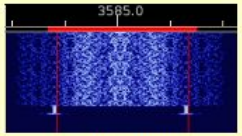
BPSK-31
Spectrum
Sound



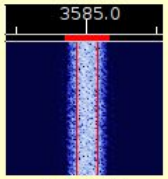
BPSK-63
Spectrum
Sound



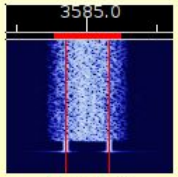
BPSK-125
Spectrum
Sound



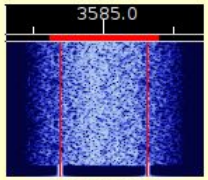
BPSK-250
Spectrum
Sound



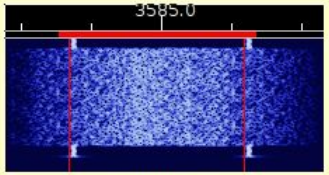
QPSK-31
Spectrum
Sound



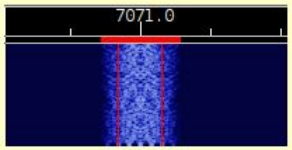
QPSK-63
Spectrum
Sound



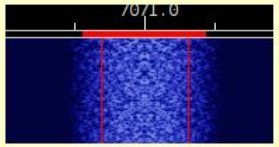
QPSK-125
Spectrum
Sound



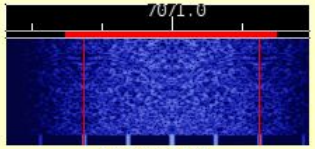
QPSK-250
Spectrum
Sound



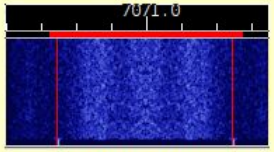
PSK-63F
Spectrum
Sound



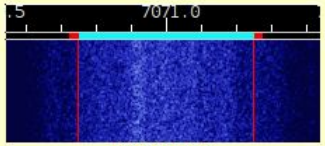
PSK-125R
Spectrum
Sound



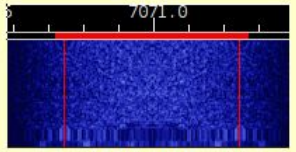
PSK-250R
Spectrum
Sound



BPSK-500
Spectrum
Sound



QPSK-500
Spectrum
Sound



PSK-500R
Spectrum
Sound

www.w1hkj.com/FldigiHelp-3.21/Modes/

Digital Sample Files

Digital Modes

G4UCJ's Radio Website

LAST UPDATED: 1st January 2018

SOME DIGITAL MODES USED IN HAM RADIO

Home
Classic Gear
My Shack
Logbook Stats
Digital Modes
HF DXing
VHF DXing
Contesting
NDB & Beacons
Morse Code
SW Radio
My Articles etc.
ADS-B
Clubs
Links
My Family
Thanks!!
Cookie Info

Digital modes are becoming more and more popular on the amateur bands. This is mainly due to the following reason: Affordable home PC's with built in soundcards. This has brought forth a multitude of decoding software, some free, others not. There are new modes being invented all the time and keeping track of these is turning into a full time job! One of the main problems encountered by the newcomer to digital modes (or digimodes as they are known) is how to identify what they are seeing/hearing. Most of the decoding software uses a visual 'waterfall' display to facilitate easy tuning.

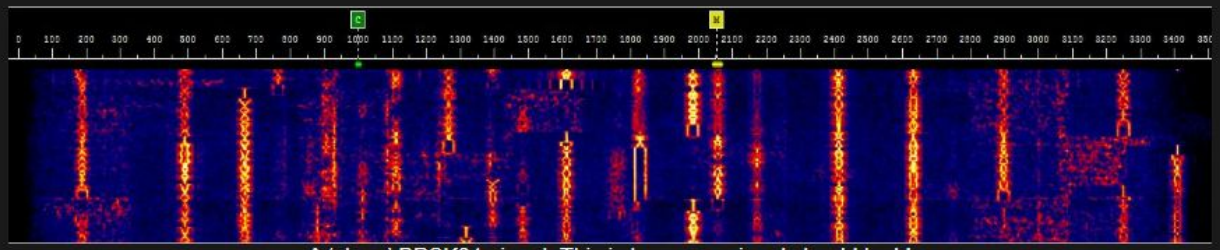
With that in mind I went on the bands and captured images of the most common digital modes in use at the moment. Below you will see images of each mode together with some brief notes on the mode. The images show the most common variant(s) of the mode, although some have many different 'flavours'! I will add to this list as and when I hear/identify a new mode that is being used on a regular basis (last popular 'new' one is Olivia which wasn't around when I did this page on my original site)

Click on the name of the mode (where the name is underlined) to hear an mp3 of how the mode sounds on air (these are to give you an idea of how that mode sounds, not for analysis purposes) I have included some sound files of mode variants - more to come as I find them).

PSK31

PSK, or Phase Shift Keying has become the most popular of the newer digital modes. There is a wealth of information on the web regarding BPSK (Binary PSK) and QPSK (Quadrature PSK)

Because PSK31 has a bandwidth of only 31Hz, many signals can fit into the same bandwidth that would be occupied by an SSB signal (2.4kHz approx.). It is quite common to see 15 or more signals on a 2.5kHz waterfall display.



A 'clean' BPSK31 signal. This is how your signal should look!

www.hfradio.org.uk/html/digital_modes.html

And now the 800 pound digital gorilla

FT8
Ham Radio
Without The Jibber-Jabber

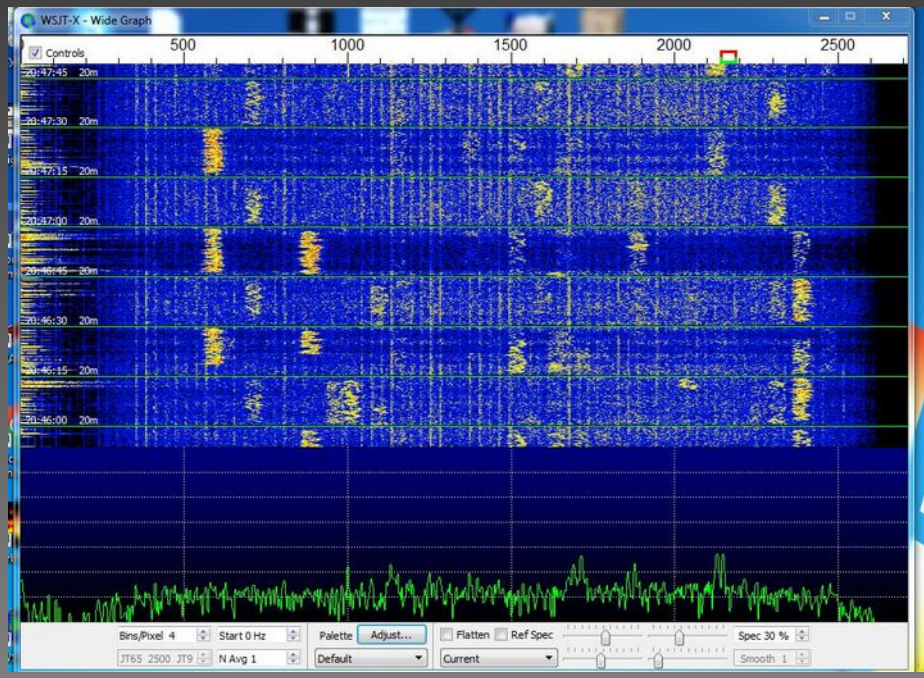
FT8 WSJT-X

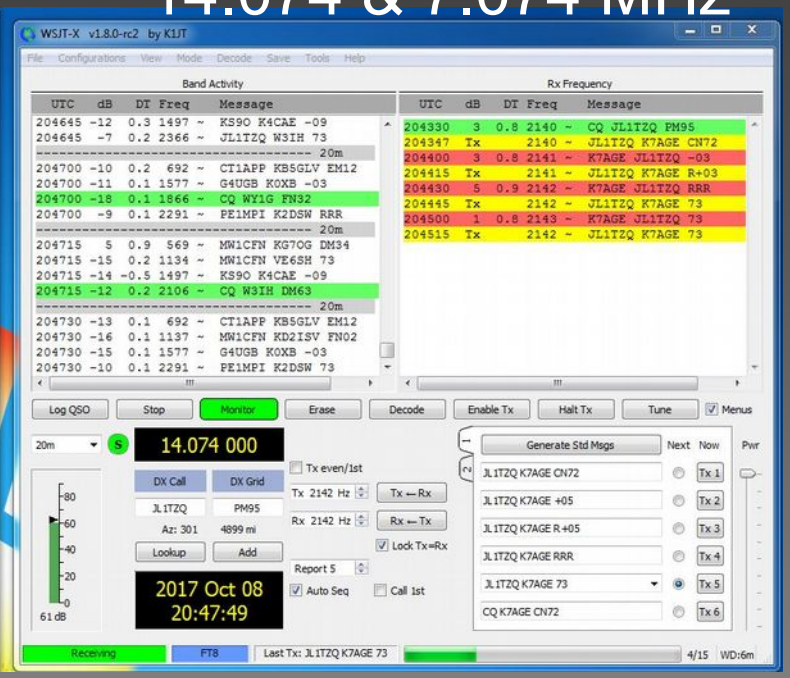
Faster, 15 second version JT65, Steven Franke, K9AN, and Joe Taylor, K1JT

The numeral designates the mode's 8-frequency shift keying format. Tones are spaced at 6.25 Hz, and an FT8 signal occupies just 50 Hz. Unlike JT65 or JT9, transmit and receive cycles in FT8 each last about 15 seconds. Like JT65, FT8 requires accurate time synchronization. An auto-sequencing feature offers the option to respond automatically to the first decoded reply to your CQ.

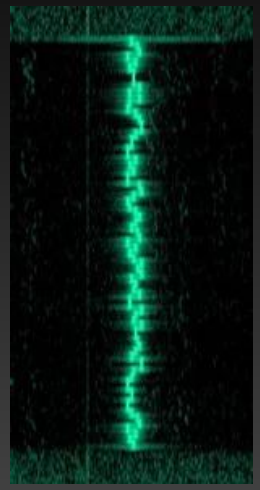
"FT8 is an excellent mode for HF DXing and for situations like multi-hop Es on 6 meters, where deep QSB may make fast and reliable completion of QSOs desirable," Taylor's release notes assert.

14.074 & 7.074 MHz

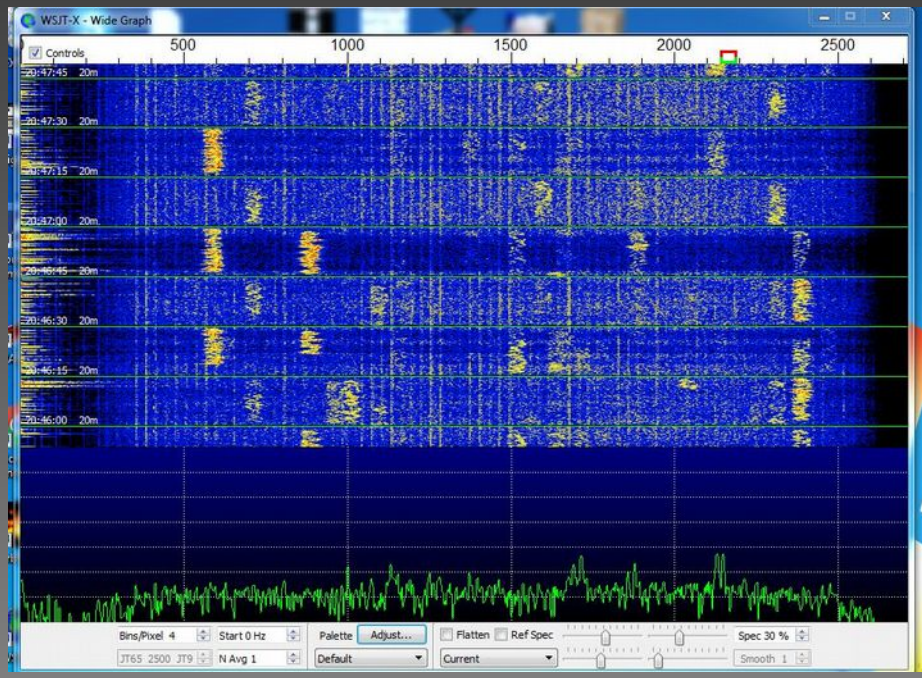


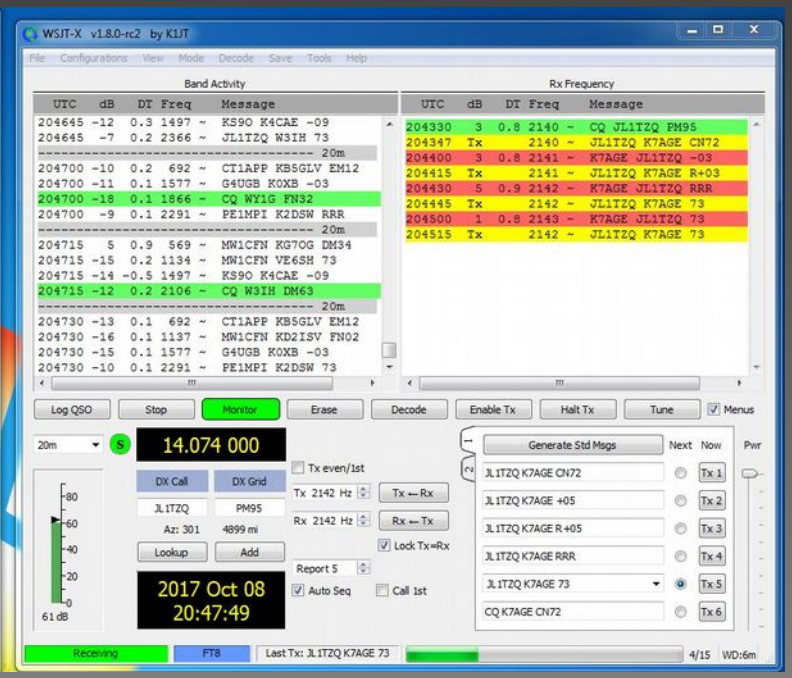


FT8 WSJT-X

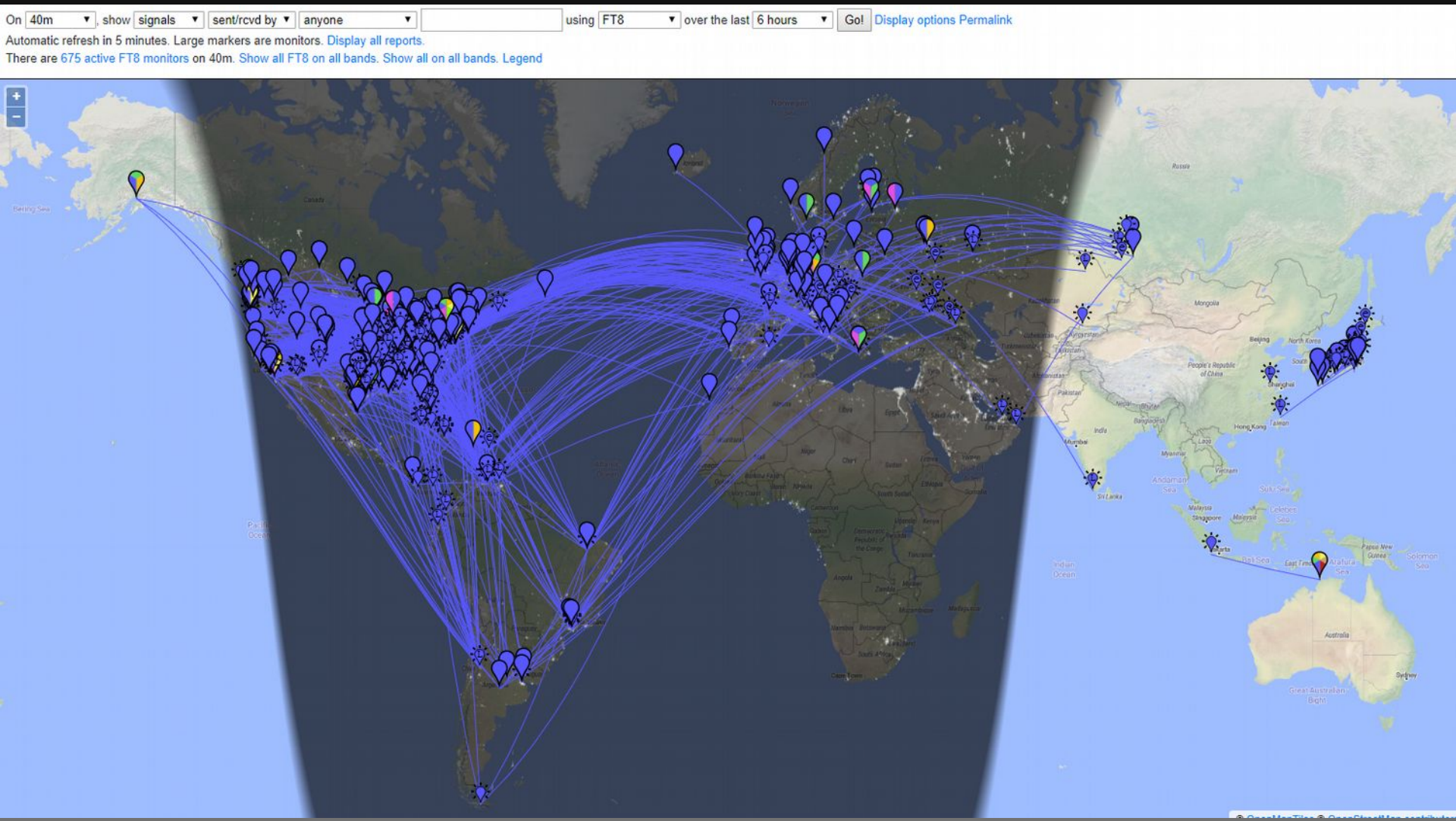


14.074 & 7.074 MHz





FT-8 Activity 40 M, 6 hours



FT8 – Tipping Point for Ham Radio?

Gerald, K5SDR CEO, FlexRadio

FT8 counters the current dearth of sunspots

FT8 opens "dead bands"

FT8 is addictive – see em, click em, work em… Boom!

FT8 lets little pistols work DXCC like a big gun

FT8 lets you work the world from small or deed restricted lots

FT8 is a weak signal – not a low power mode (power works the really weak ones)

FT8 lets you work DX on 6m when there would be none

FT8 is suddenly dominating VHF/UHF contesting

FT8 lets you work weak signal DX without proficient CW skills

FT8 decoding to -20 dB SNR is like turning 100W into 10kW

FT8 is like having constant DX beacons on every band

FT8 puts the DX, WAS, WAZ, etc. on the air when they might not be

FT8 let's you work DXCC on 160m without a big station

FT8 let's you call CQ and become the DX

FT8 is amazing literally space age technology

FT8 is probably other things I haven't realized yet but some of you have

"OLD HAM"
What in your opinion is the best mode
CW
USB
FT8
73 de 9A3VIS

JS8Call

JS8Call by KN4CRD
Home
Download
Contact
FAQ
Guides
News
JS8Call
"The idea with JS8Call is to take the robustness of FT8 mode and layer on a messaging and network protocol for weak signal *communication* on HF with a keyboard-to-keyboard interface. JS8Call is heavily inspired by WSJT-X, Fldigi, and FSQCall and would not exist without the hard work and dedication of the many developers in the amateur radio community."

JS8Call

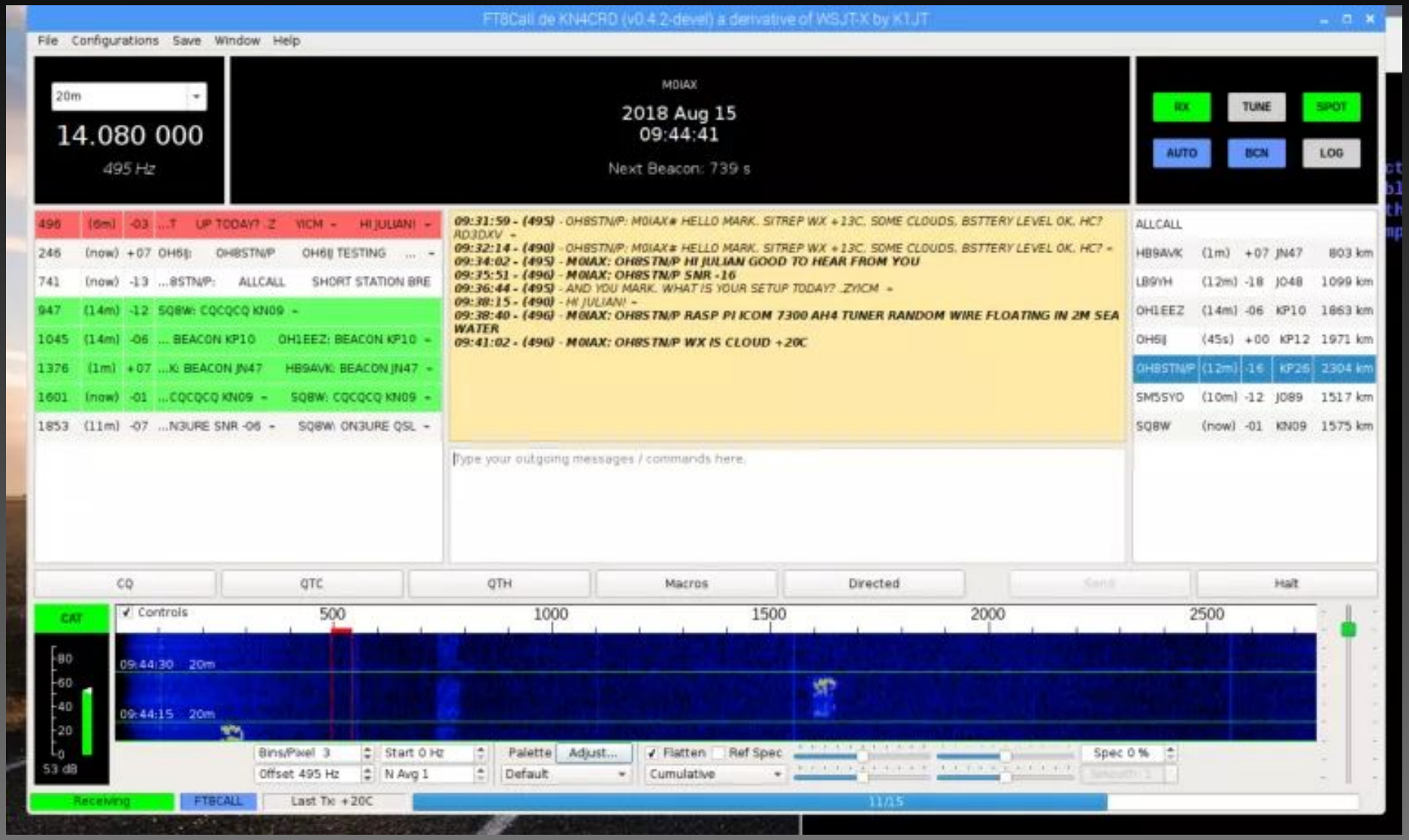
JS8Call Frequencies

From version . 0.5.x the default calling frequencies set up in JS8Call are listed below, but please note these are not set in stone and can easily be changed in your settings, or you can simply manually retune your radio to another frequency.

1.842Mhz	3.578Mhz	7.078Mhz
10.130Mhz	14.078Mhz	18.104Mhz
21.078Mhz	24.922Mhz	28.078Mhz
	50.318Mhz	

JS8Call

JS8Call


FT8Call de KN4CRD (v0.4 2-devel) a derivative of WSJT-X by K1JT
File Configurations Save Window Help
20m
14.080 000
495 Hz
M0IAX
2018 Aug 15
09:44:41
Next Beacon: 739 s
RX
TUNE
SPOT
AUTO
BCN
LOG
09:31:59 - (495) - OH8STN/P: M0IAX# HELLO MARK. SITREP WX +13C. SOME CLOUDS. BSTTERY LEVEL OK. HC? RD3DXV -
09:32:14 - (490) - OH8STN/P: M0IAX# HELLO MARK. SITREP WX +13C. SOME CLOUDS. BSTTERY LEVEL OK. HC? -
09:34:02 - (495) - M0IAX: OH8STN/P HI JULIAN GOOD TO HEAR FROM YOU
09:35:51 - (496) - M0IAX: OH8STN/P SNR -16
09:36:44 - (495) - AND YOU MARK. WHAT IS YOUR SETUP TODAY? .ZYICM -
09:38:15 - (490) - HI JULIAN! -
09:38:40 - (496) - M0IAX: OH8STN/P RASP PI ICOM 7300 AH4 TUNER RANDOM WIRE FLOATING IN 2M SEA WATER
09:41:02 - (496) - M0IAX: OH8STN/P WX IS CLOUD +20C
Type your outgoing messages / commands here.
ALLCALL
HB9AVK (1m) +07 JN47 803 km
LB9YH (12m) -18 JO48 1099 km
OH1EEZ (14m) -06 KP10 1863 km
OH6IJ (45s) +00 KP12 1971 km
OH8STN/P (12m) -16 KP26 2304 km
SM5SYO (10m) -12 JO89 1517 km
SQ8W (now) -01 KN09 1575 km
CQ
QTC
QTH
Macros
Directed
Halt
CAT
Controls
500
1000
1500
2000
2500
09:44:30 20m
09:44:15 20m
53 dB
Bins/Pixel 3
Start 0 Hz
Offset 495 Hz
N Avg 1
Palette
Adjust...
Default
Flatten
Ref Spec
Cumulative
Spec 0 %
Receiving
FT8CALL
Last Tx: +20C
11/15

Hans Summer G0UPL QRP-LABs kits

QRP Labs

QRP Labs Shop

Click here for Shop!

News

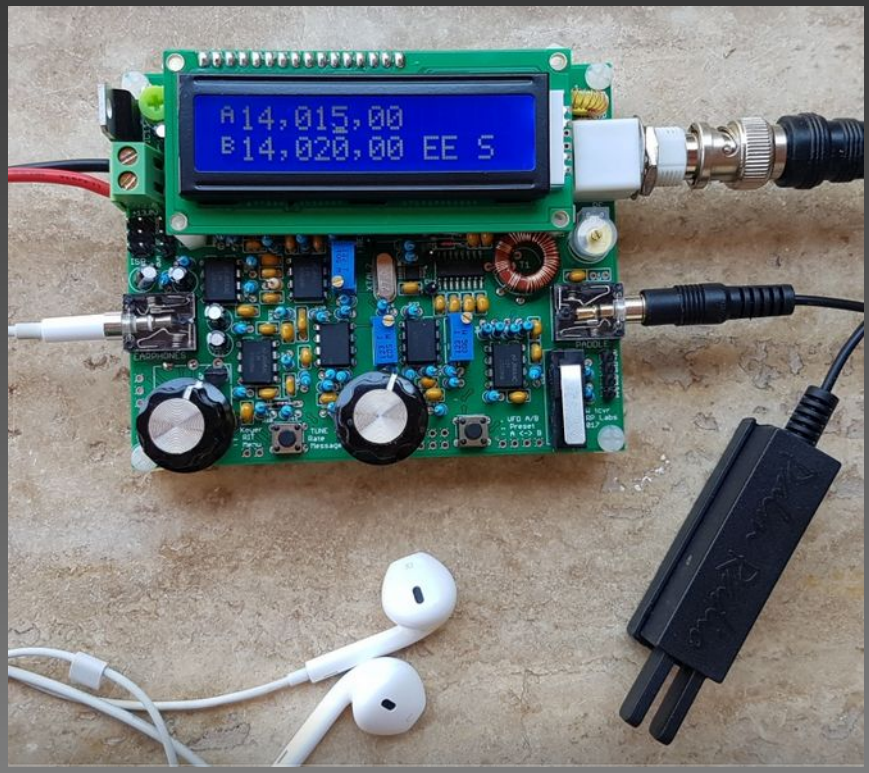
July 2018 newsletter
Dayton FDIM/hamvention 2018
May 2018 newsletter
March 2018 newsletter
February 2018 newsletter
2017 archive
2016 archive

5W CW transceiver kit

> 7,300 Shipped

QCX: a feature-packed, high performance, single-band 5W CW transceiver kit, with WSPR beacon and built-in alignment/test equipment. Available for 80, 60, 40, 30, 20 or 17m bands. It has rotary encoder synthesised tuning, VFO A/B/Split, Iambic keyer, CW decoder, and more...

Click!
Shop order
$49



Hans Summer G0UPL QSX Kit

QSX all-band all-mode transceiver

QSX (**Q**RP Labs **S**SB **X**cvr) is a 40m SSB transceiver. It will have an optional 10-band (160m-10m) filter module, and an optional extruded aluminium enclosure. This will make an all-band HF all-mode 10W High performance transceiver.

The kit inherits all the functionality of the famous QCX single-band CW transceiver kit but adds SSB, AM, FM, PSK31 and RTTY. This will be the lowest cost all-HF radio available but also high performance and packed with features. These are the planned features of QSX:

- Software Defined Radio (SDR) technology with standalone Digital Signal Processing (DSP), no PC required
- Very high performance 24-bit Analog to Digital Converter (ADC) and 24-bit Digital to Analog Converter (DAC)
- 40m (single band); or with optional extra board, 160-10m (10-band, including 60m)
- Modes: SSB, CW, AM, FM, PSK31, RTTY, WSPR beacon
- Power output: 10W from 13.8V supply (power output is adjustable by the firmware)
- Single power supply needed, 12V to 14V
- USB host interface and connector, for USB keyboard to allow PC-less operation on PSK31 and RTTY
- USB device interface and connector, for PC CAT Control
- QSX can appear to a PC as a high performance 24-bit USB sound card and radio - for digital modes from a PC e.g. FT8, either demodulated or as I-Q for PC SDR programs
- Built-in CW IAMBIC keyer (or straight keying also possible) with raised-cosine key-envelope shaping
- DSP features (selectable sharp filters, AGC, Speech Compression, Noise Reduction etc.)
- Dual microphone inputs (mobile phone headset with VOX, or RJ45 connector for Kenwood/Yaesu mics)
- Dual VFO (A/B/Split), frequency and message memories
- Through-hole assembly only
- Built-in test equipment features for alignment, debugging and general purpose use
- Detailed assembly manual
- Macro facility for user defined sequences of operations, or redefinition of controls
- Front panel: 16 x 2 LCD (yellow/green backlight), 2 rotary encoders, 4 buttons, mic/earphones socket
- Soft-power on/off switch, the radio saves its state automatically on switch off, so that it starts up in the same state next time
- Free firmware updates for life, very simple firmware update procedure via a USB memory stic

QSX is still in development! The above list is subject to change. The following is a FAQ with information about QSX.

QSX

Single Band ~ $75

10 Band with enclosure ~$150

Thanks for listening
Randy, K7AGE

Twitter @k7age

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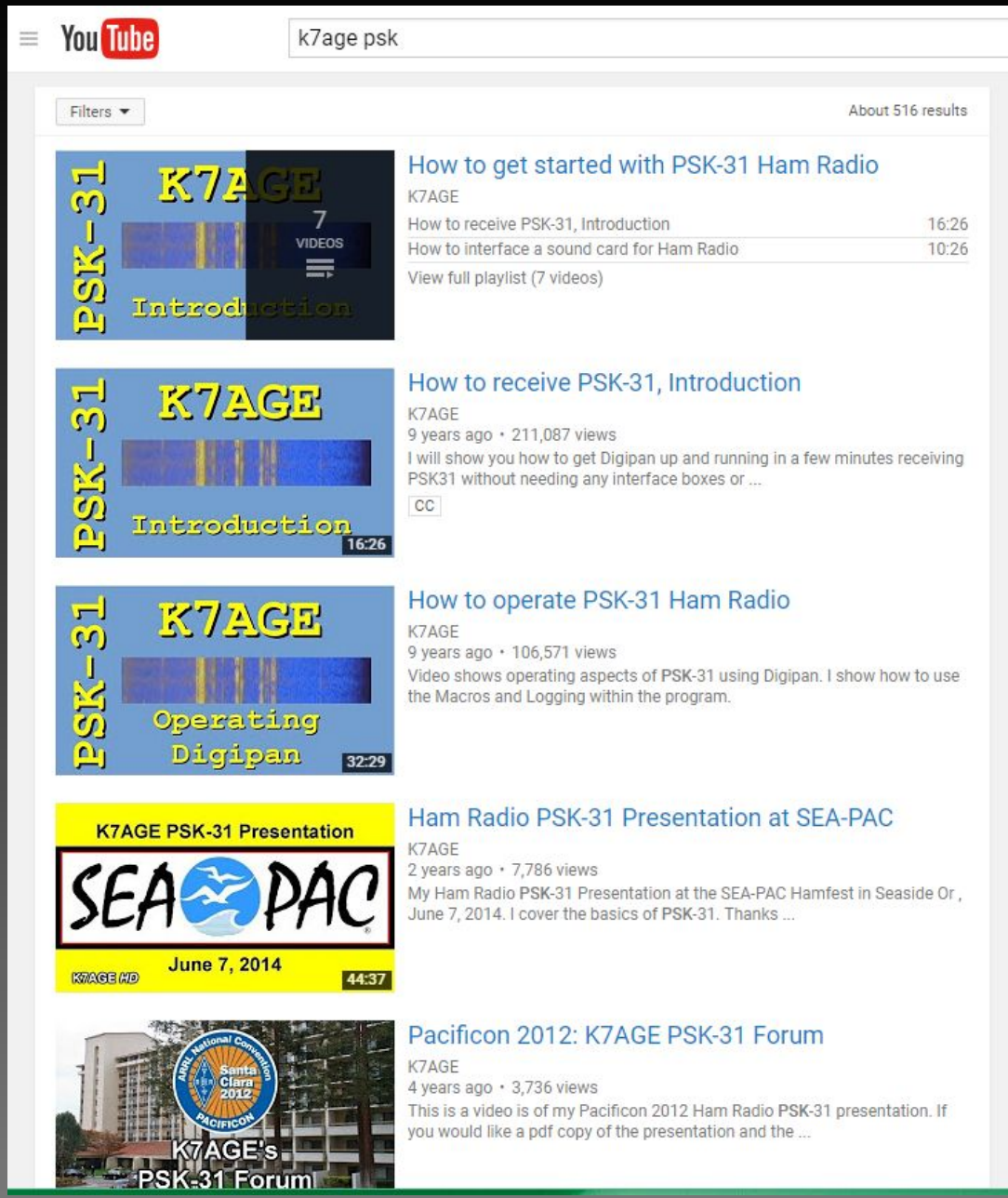
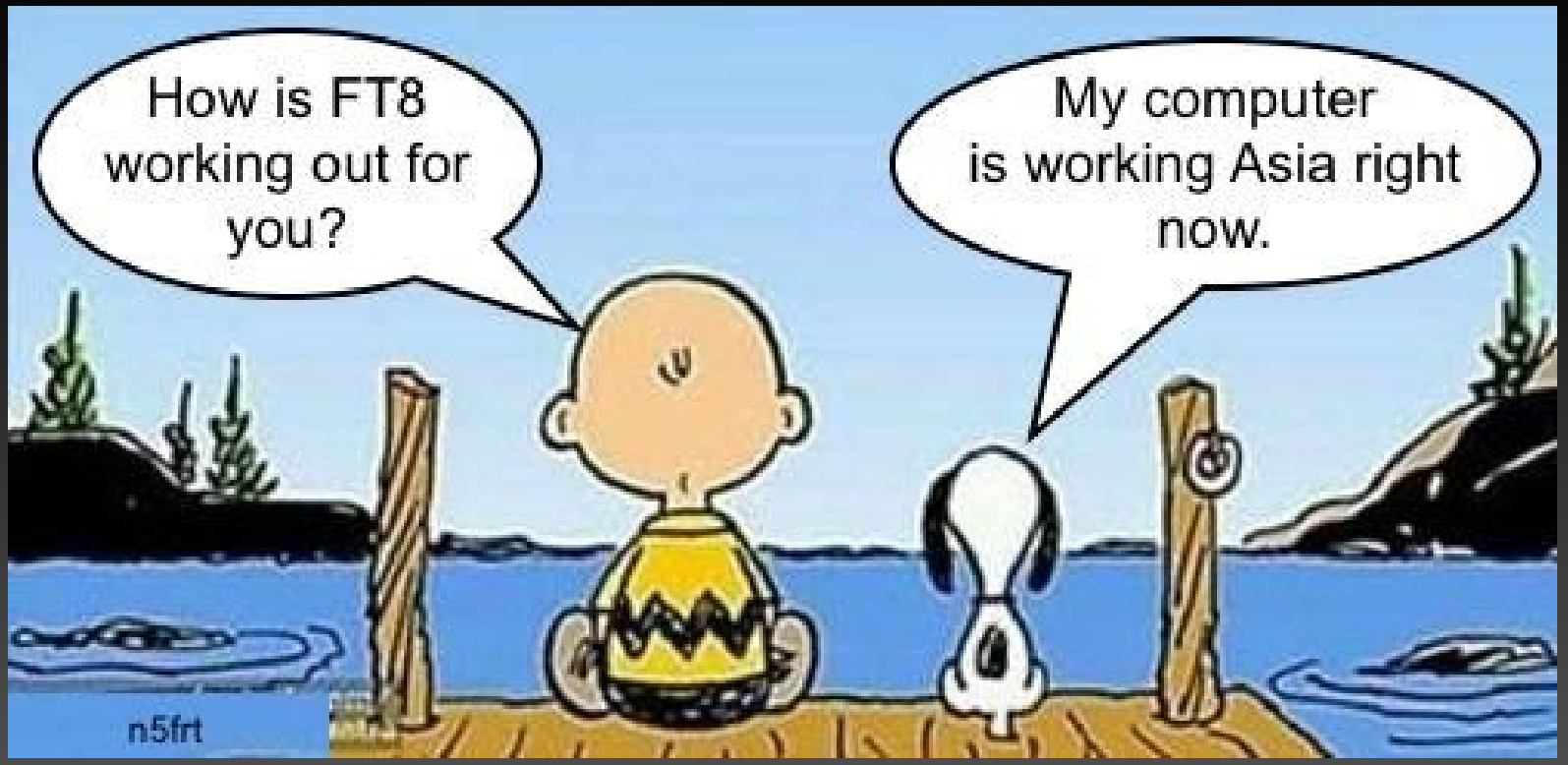
Get on the air

Be Radio Active




How is FT8 working out for you?
My computer is working Asia right now.
n5frt

JUST WHEN I GOT UP TO SPEED ON JT65 AND THEN ON JT9, THEY CAME OUT WITH FT8!
NOW EVERYBODY'S TALKING ABOUT FT4.