The “Other” Digital Modes

Things to do on HF when the sun or your HOA is not on your side

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No need to stress about links & tech heavy content. This PowerPoint is on my website

Please Visit:

WWW.W6AER.COM

Click on Downloads

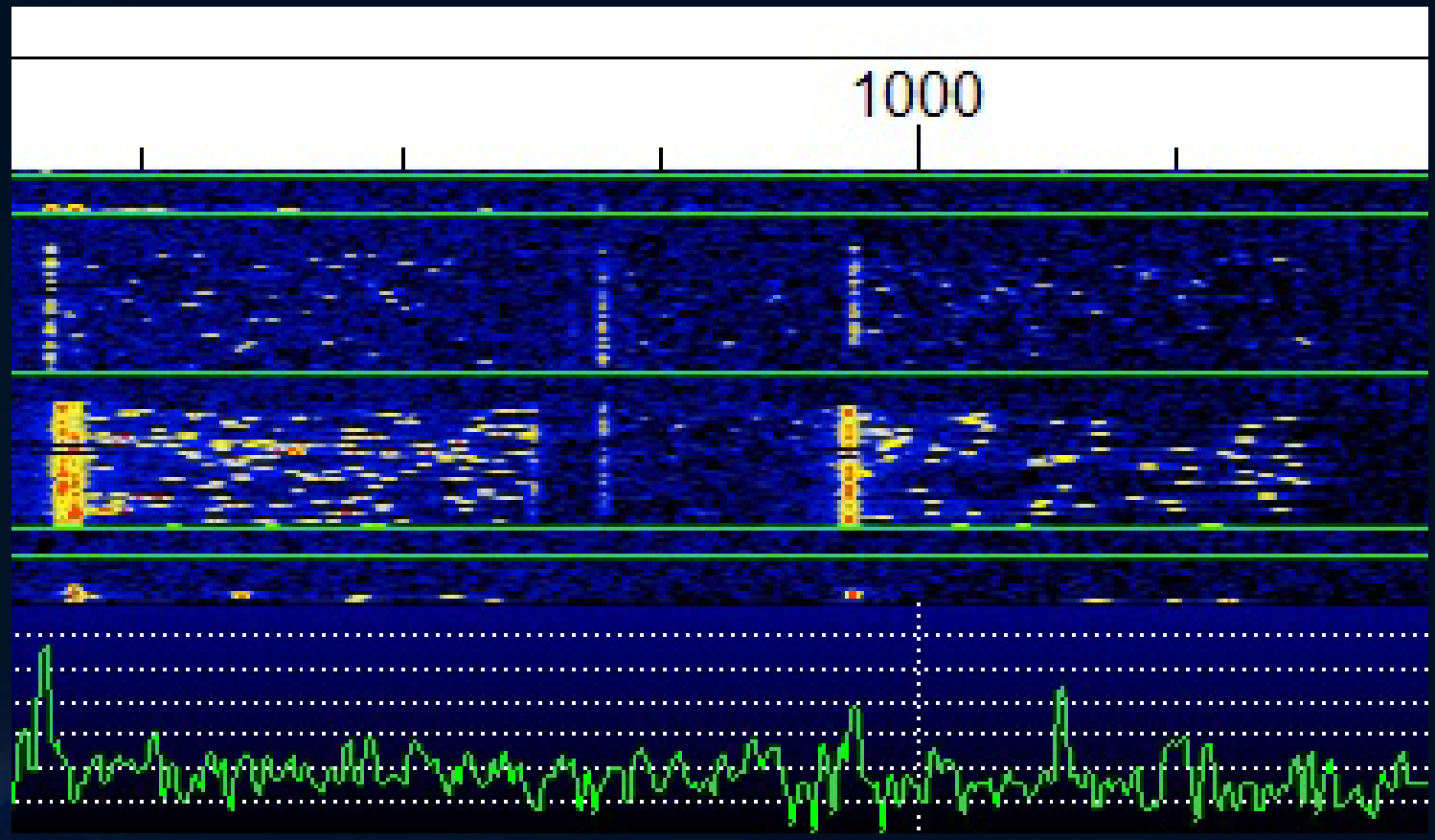
I am always trying to improve content so if something is not clear and/or you have a question please let me know!

IF IT IS COVERED LATER, I WILL LET YOU KNOW

What will be covered Today:

- Why use these digital modes & What is meant by "*other modes*"
  - Not to be confused with VOICE digital modes like D-star, Fusion, etc.
- Very Brief overview for getting started (Part 1)
  - Software / Hardware & My findings from years of experimenting
- Overview of the most common "other modes" in 2 parts
  - Why I like them and use them
  - Learn from my/others mistakes as well as Tips
  - DX-ing / Weak Signal Tips for both modes
  - Not my radio on the right (Just liked the picture)

PART 1: HF Digital Overview



What digital modes are out there?

Question of the Day: What is "Other" Digital

- Most common mode is RTTY (Besides CW if you want to get technical) although some would argue this is changing
- RTTY, at least for *decent* DX, often needs an amp & larger antennas
- Not very forgiving when conditions are poor or sun is not co-operating (I will Prove it on the next slide)
- Used by DX Expeditions (Also Changing) and many RTTY contests out there
- BUT: Not the only game in town as you saw!

Why Go Digital in General?
Let's look at the numbers!

Source: "How Much 'Punch' Can You Get from Different Modes?" by Siwiak and Pontius, December, 2013 QST

Using CW as the Baseline - ZERO

Original Article:
http://www.qsl.net/k4fk/presentations/Mode-sensitivity-2013-Dec-QST-Siwiak-Pontius-1.pdf

So….Why Go "Other" Digital?

- Conditions get worse (Lack of Sun Spots), ***some modes*** will be still widely available as seen in previous slide.
- Can work from Apartments & HOA Restricted locations
  - Most modes don't require much power
  - Smaller or even indoor Antennas are plenty
  - Vertical loops work very well (AOR LA-800 RX Pictured)
  - If you have a full sized antenna, you will be in heaven!

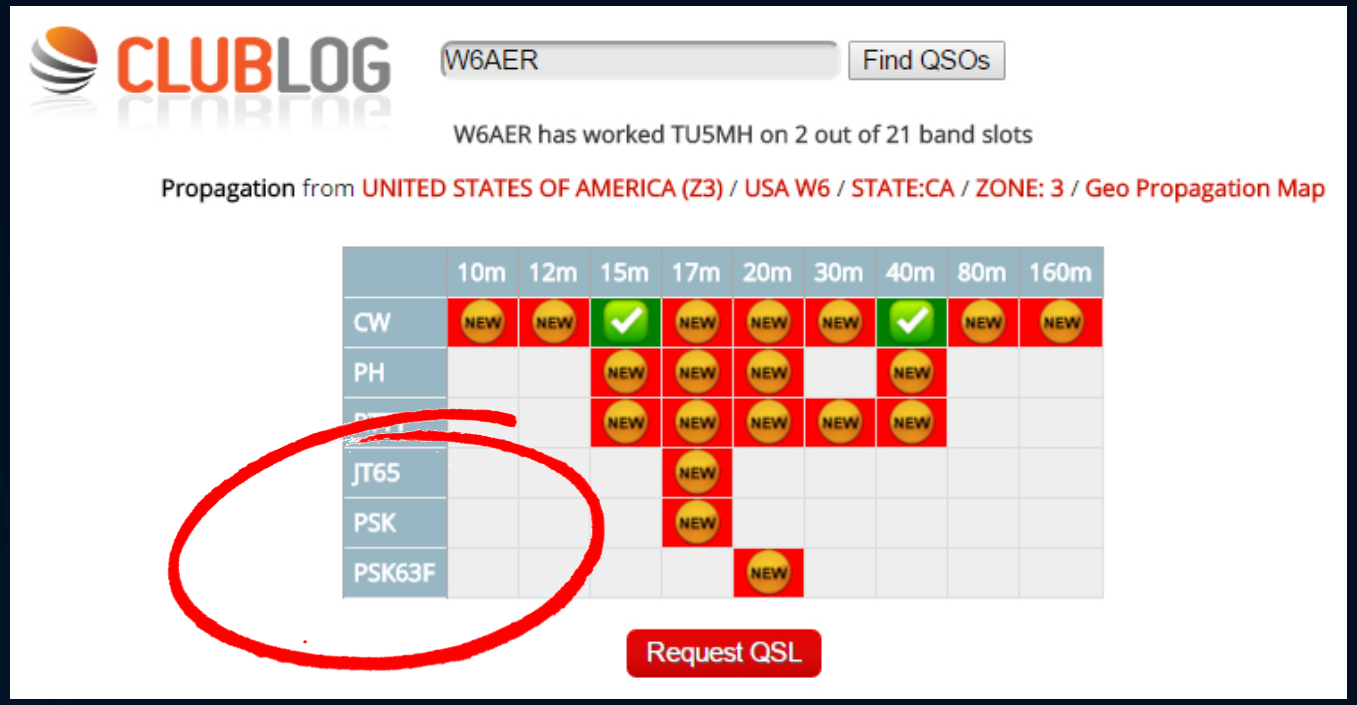
Yet more reasons…

As with CW, easier to work the lower bands (160,80,40 & 30) with JT65/9

Many seem to think 30m is CW only – WRONG! - JT65/9, PSK31, WSPR, etc.

Let's not forget the 6om band – Digital is also OK here, JT65 is very active at times!

Always someone to work, 24/7!



- Some DX Expeditions are branching out with the modes they use. I was very happy to see the above JT65 and PSK used in the Ivory Coast DX expedition, even if I did not get a chance to use it. This opens doors for many "little guns"
- SIDE NOTE: PSK63F is a faster version of PSK31 with Forward error correction. More on PSK later!

Do I practice what I preach?

QSOs by Year

Year	Number of DXCCs	Number of QSOs	QSOs as Percent	
2017	61	1045	CW: 13.88% Phone: 6.03% Data: 80.10%	 In Progress
2016	156	3465	CW: 11.37% Phone: 13.94% Data: 74.69%	
2015	191	2772	CW: 19.19% Phone: 30.70% Data: 50.11%	
2014	194	3335	CW: 7.23% Phone: 54.54% Data: 38.23%	
2013	85	1095	CW: 0.82% Phone: 33.88% Data: 65.30%	
Total	255	11712	CW: 11.28% Phone: 30.63% Data: 58.09%	

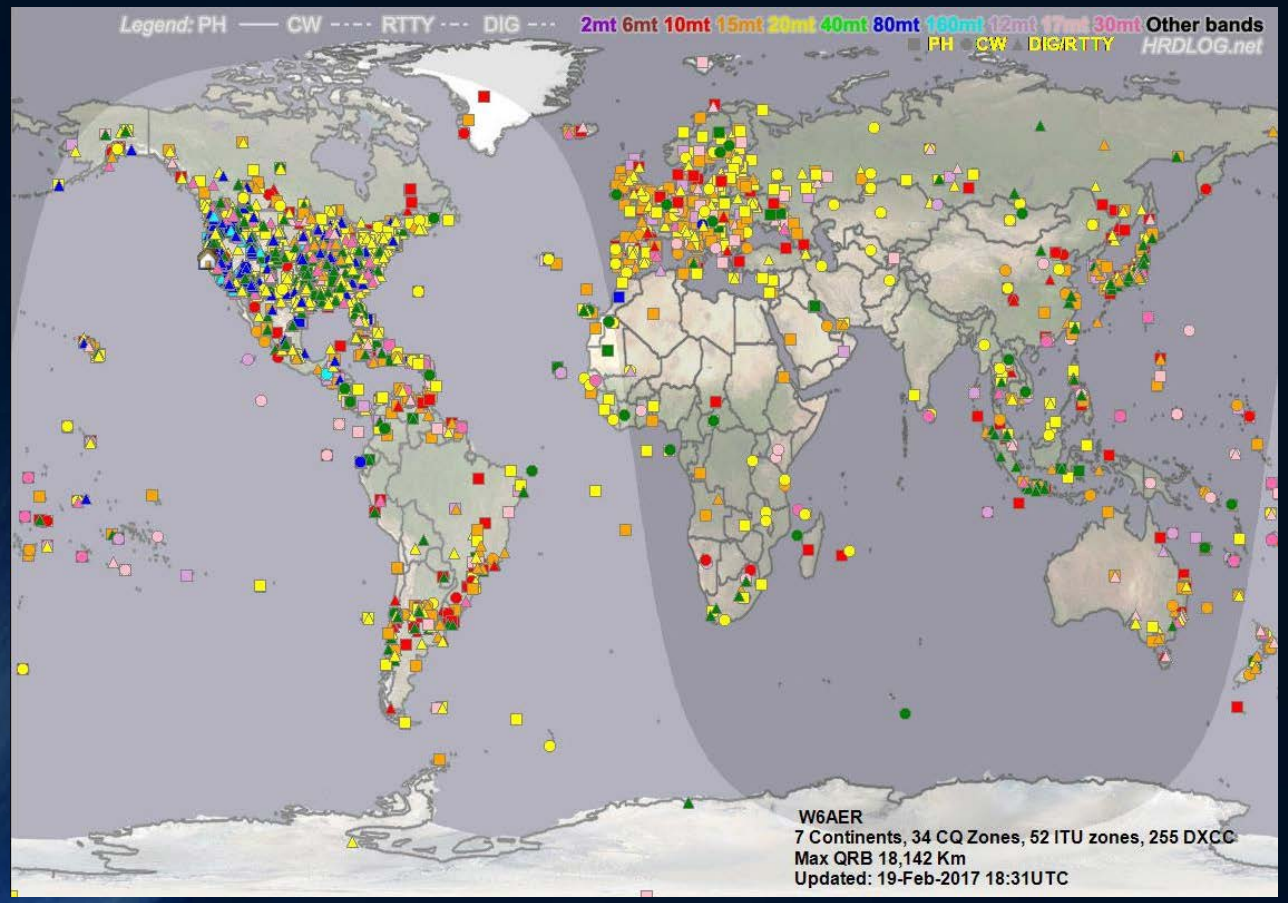
Clublog.org seems to think so even based just on my current call sign!

Over ½ of my QSOs are Digital, of these only 5-10% RTTY

Note how conditions get worse more CW and Digital!

Many band fillers I would not have worked if not for the "other" digital modes. Mainly JT65!

My Disproportionate Numbers



- Triangle (digital) and Circle (CW) have better reach
- Especially true for the LOW bands (40-160m)
- Best example ZS (South Africa) regular digital QSOs on 40m

Quick Review of what is Required for Digital

- Running Appropriate Software
- Decent CPU to Decode JT Modes, PSK is easier.
- Your PC Clock needs to be **very accurate**!

Computer

Interface *

- Keep it simple
- Use good wiring
- Ground if possible
- Don't overdrive
- Avoid Ground Loops
- PTT or VOX trigger

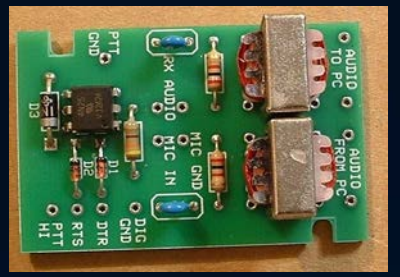
- Digital or SSB mode
- Disable DSP, filters that may distort the digital signal.
- **Use Something from This Century** (Frequency Drift, etc. can be very frustrating on both ends)

Radio

* Not Required if Built Into Radio

Selected Interface Comparison

Model	Ease of Use	Cost + Extras	Performance	Build Quality	Added Features	Designed For
Tigertronics SignaLink	10	$110+cable	8	8	No	Causal User
Timewave Navigator	6	$300+cable	10	10	Yes	Casual/Advanced
Homebrew	8-10	With box under $20	Varies, shielding, etc	Varies	Varies	DYI & Budget Users
Radio Integrated	Varies	Possible higher cost	Varies but usually good	Varies	Varies	Casual/Advance



Selected Software Comparison

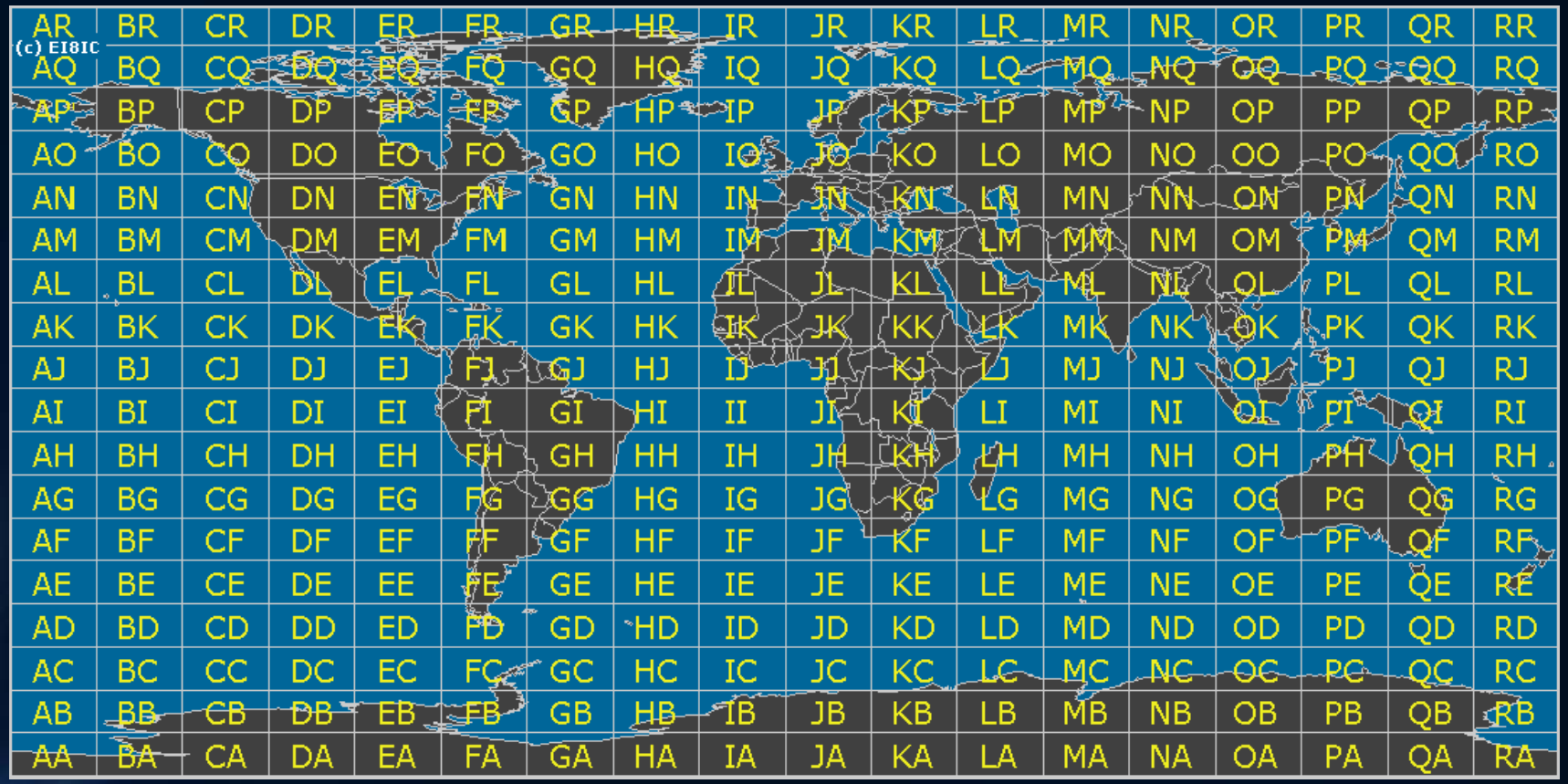
Package	My Rating	Cost + Extras	Performance	Ease of Use	Ease of Setup	Modes
WSJT-X	10	FREE	10	9	6	JT65/9 Modes (Also JT4, Echo and WSPR)
FLDigi	6	FREE	10	10	8	Many modes but no JT Modes
Ham Radio Deluxe DM780	8	V.5 Free V.6 Paid	8 9	Varies	6 6	Most but no JT modes or WSPR
JT65-HF	8	FREE	6	10	10	JT65 ONLY (no JT9) No longer Developed
JTDX	10	FREE	10	8	6	Based on WSJT-X 1.7 Beta currently, Good

Additional Software:

- **MixW** - $70, from the Ukraine
- **MultiPSK** – FREE, from France
- **CocoaModem** – FREE, Mac OSX, from USA

Not a heavy user of the above other then trying them, so can't comment much but these are all alternatives! None of these do JT65/9 but all do PSK and many other modes. Many other options out there, new ones coming out all the time.

Oh…"GRID SQUARES" Anyone?



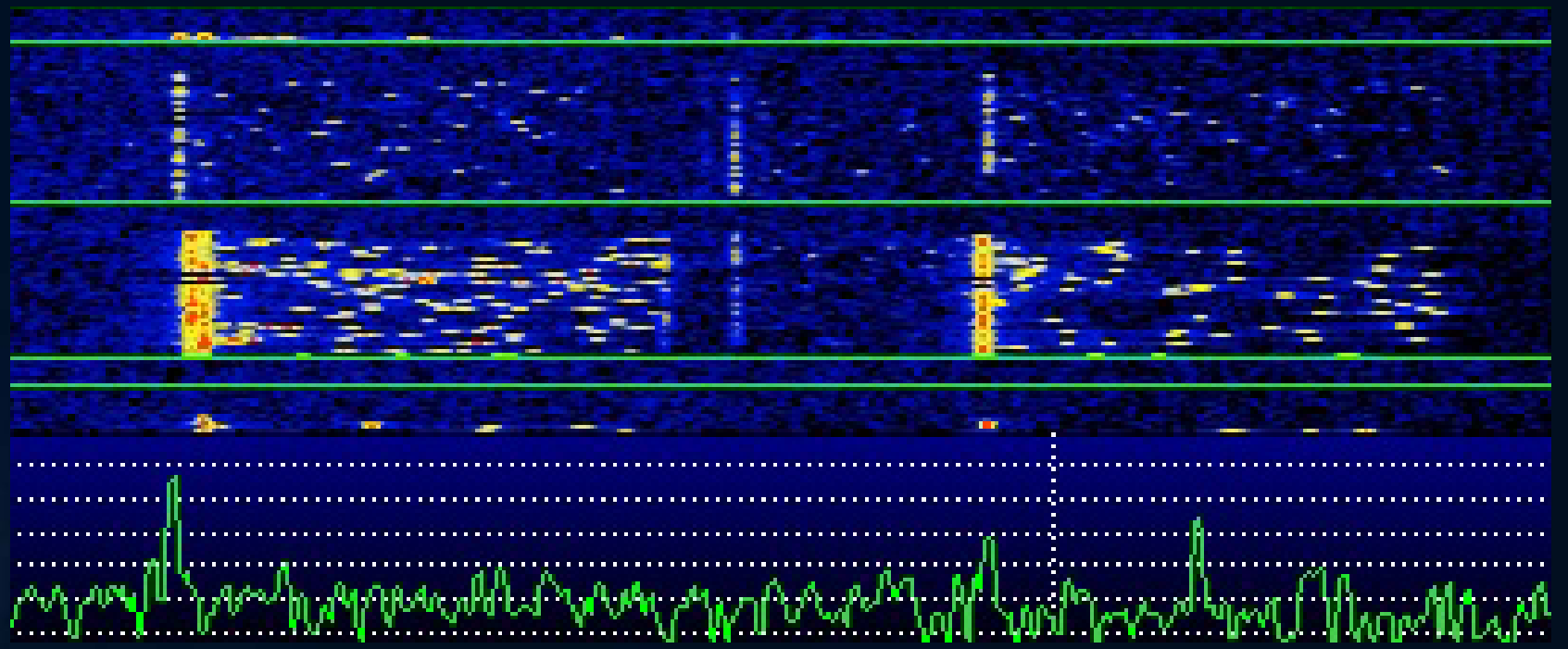
What are "GRID SQUARES" ?

- A grid square measures 1° latitude by 2° longitude and measures approximately 70 × 100 miles in the continental US.
- A grid square is indicated by two capital letters (the field) and two numbers (the square), followed by an optional lower case letter for more precise location.
- Pacifica, CA (My QTH) is CM87sp
- For JT65/9 I just need CM87 General area
- Also used in weak signal modes on VHF/UHF
- Always used in Satellite Communication
- You can look up yours here: http://www.levinecentral.com/ham/grid_square.php

PART 2: So….Let's talk JT

No, not the singer….modes!

PART 2: So….Let's talk JT



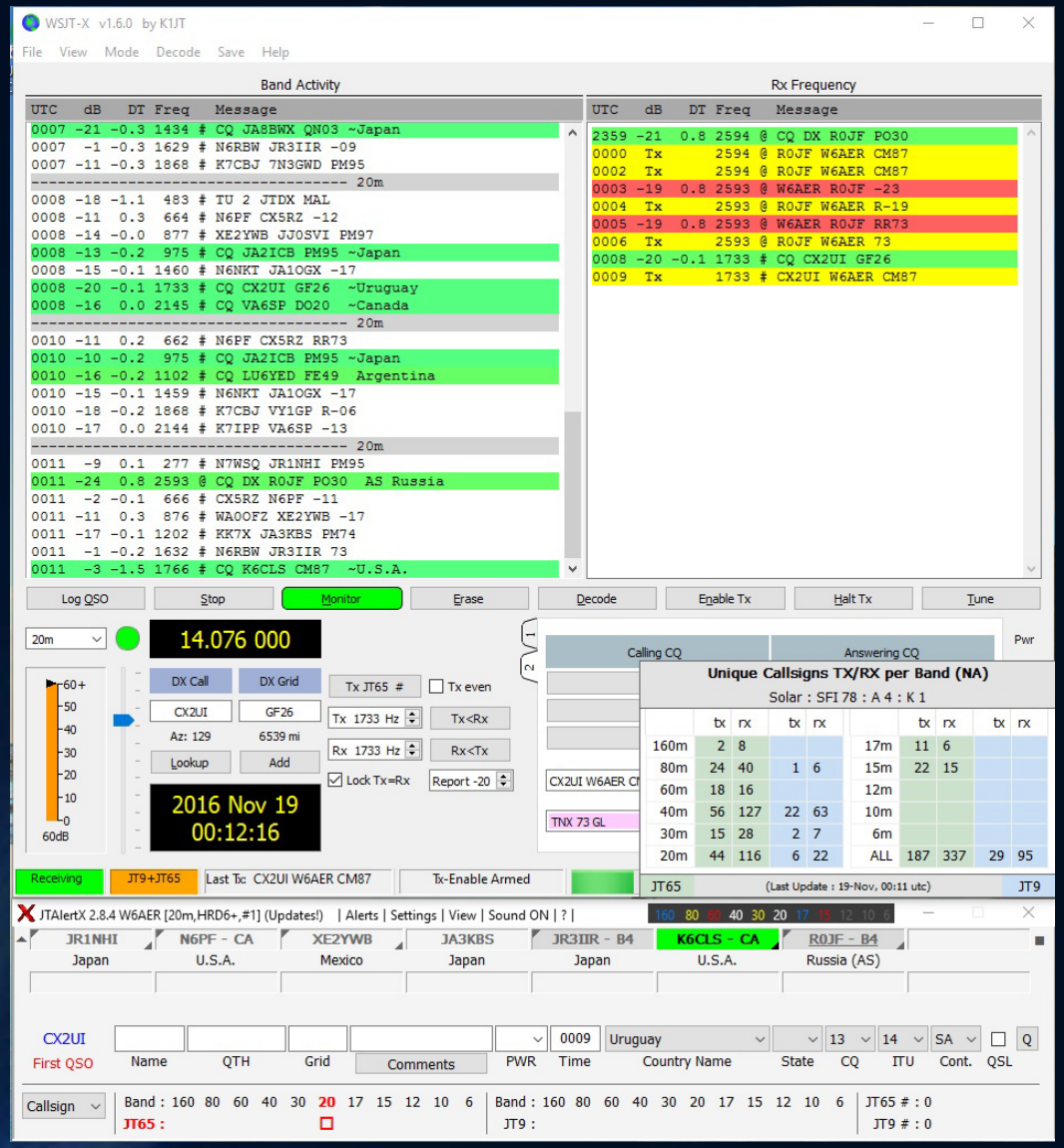
JT65 & JT9 Together

Comparing The "JT" digital modes for HF:

Mode	Sensitivity	Band width	CPU Usage
JT65 (a)	Great	Under 300hz	High
JT9	Excellent 2-3 dB Better then JT65(a)	Under 50hz	Higher
There are other JT modes as well as WSPR but not going to cover these at this time. All very low power modes – No AMP! No more then 30-40W			

Both of them have been compared to *watching grass grow*…but they WORK! Each exchange is 47 seconds, starts on the minute.

QSO Length is about the same for both modes, typical length is about 6 minutes is all goes well



WSJT-X 1.6 with JTAlertX Running

(*Now 1.7 is out as of 2017*)

- Shows basic QSO, running JT Alert Under it with pop-up.
- Allows to color code, Shows worked "B4" (add-on)
- Writes directly to my HRD log
- Now…What does all this mean?

Typical JT9 QSO (Same as JT65)

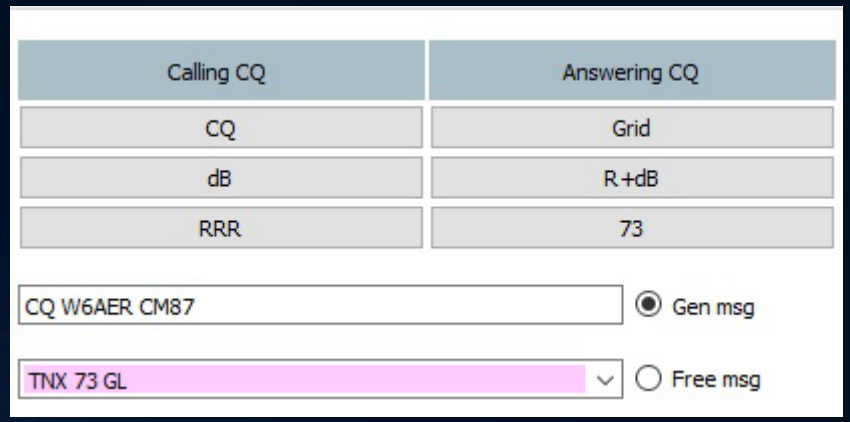
UTC	dB	DT	Freq	Message
2359	-21	0.8	2594	@ CQ DX R0JF PO30
0000	Tx		2594	@ R0JF W6AER CM87
0002	Tx		2594	@ R0JF W6AER CM87
0003	-19	0.8	2593	@ W6AER R0JF -23
0004	Tx		2593	@ R0JF W6AER R-19
0005	-19	0.8	2593	@ W6AER R0JF RR73
0006	Tx		2593	@ R0JF W6AER 73

- @ = JT9
- # = JT65
- Same Process for BOTH

1. Station Calls CQ with HIS GRID
2. I respond with MY GRID
3. He Sends his repot *(-23, I was very weak, can decode to -26)*
4. I send his with an R (Roger) and he is at -19 (Better then me)
5. RR73 and my 73
6. In the log! 6 Min. if all goes well

Each cycle is 47 seconds, starts automatically at the top of the minute via macros. Check your Clock!

Did you say Macros?



You will need to enter your call sign and your grid square (*remember those*) when you setup your software and your macros are ready to go!

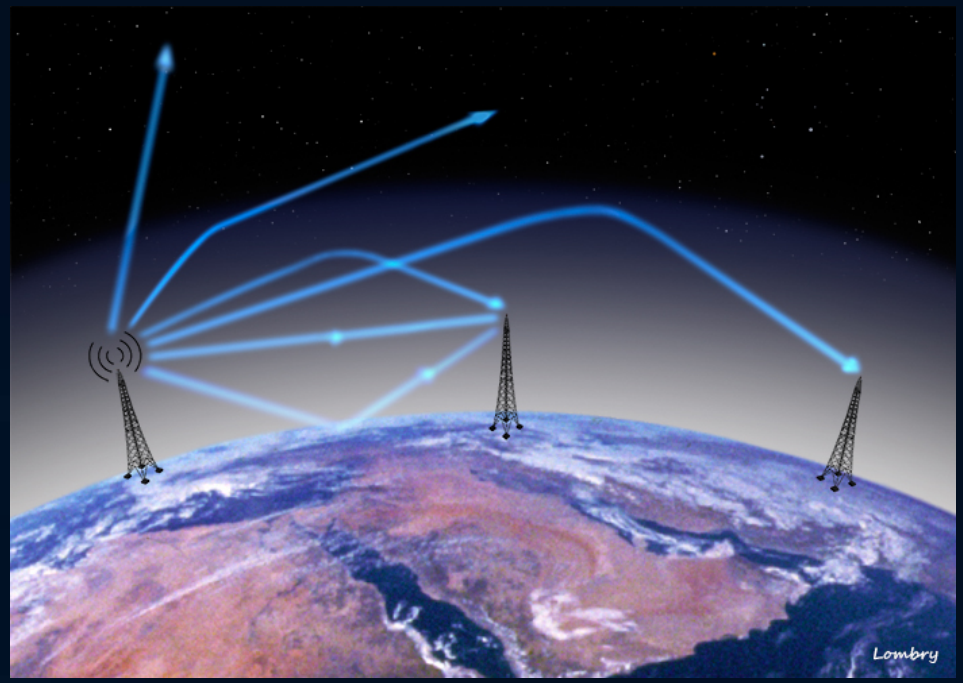
- Yes, I did….Here is all you need to know!
- If YOU are calling CQ left side
- If you are ANSWERING a CQ use right side
- **DONE!** No, really that is it!
- PS: You can generate your own very short text in "Free msg" but keep if short

But if you are Hunting DX like Antarctica!

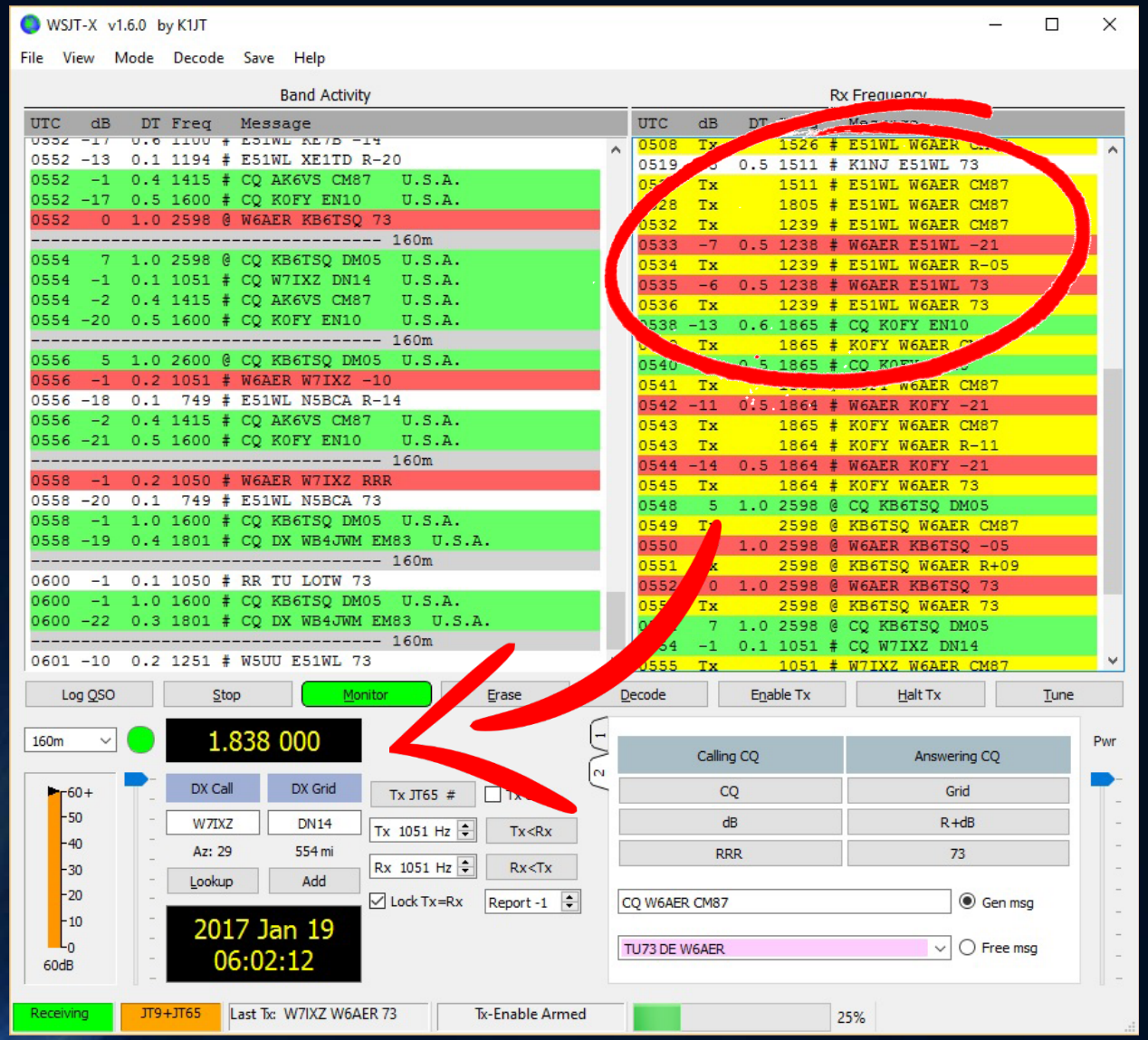
UTC	dB	DT	Freq		Message
0442	-19	-2.9	1526	#	XE2JS RI1AND RR73
0443	Tx		1527	#	RI1AND W6AER CM87
0444	-18	-2.9	1525	#	W6AER RI1AND -20
0445	Tx		1528	#	RI1AND W6AER R-18
0446	-20	-2.9	1525	#	W6AER RI1AND RR73
0447	Tx		1528	#	RI1AND W6AER 73
0448	-20	-2.9	1525	#	NT2A RI1AND -12

- THE RULES CAN BE BENT!
- Don't wait for a CQ, likely will not see one! Everyone, their neighbor and dog (likely unlicensed) will want to work him!
- See how I followed the XE (Mexican) Station and NT2A (New York) followed me
- Can work split, but not needed on this one.
- All 3 of us got Antarctica in the log on 40m JT65 mode

Remember how I said JT65/9 is great on the lower bands?

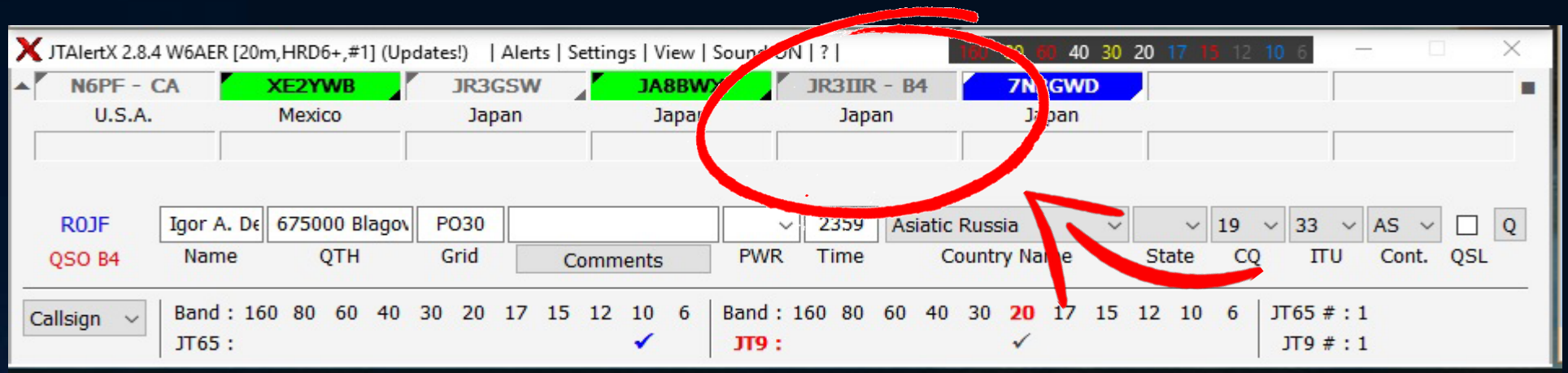


160m QSO

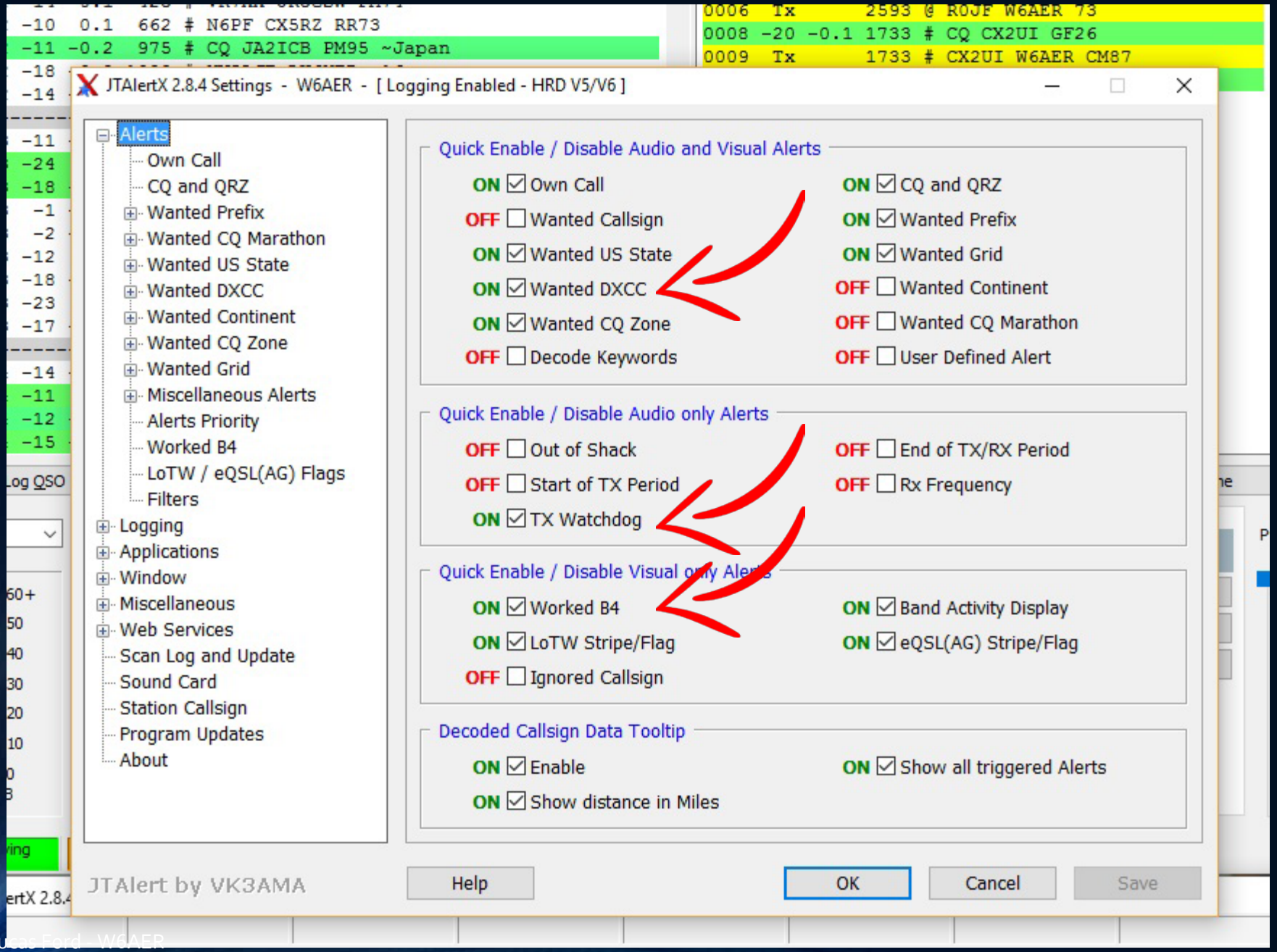


- E51WL (North Cook Island) using 25W and a Butternut Vertical Antenna & 140 feet of coax!
- Got report of -05 he was -21
- I like to keep things around -10 or so but personal preference
- Will go over QSO Flow in a bit…

OPTIONAL ADD-ON:
JTAlertX Helping me see what I need

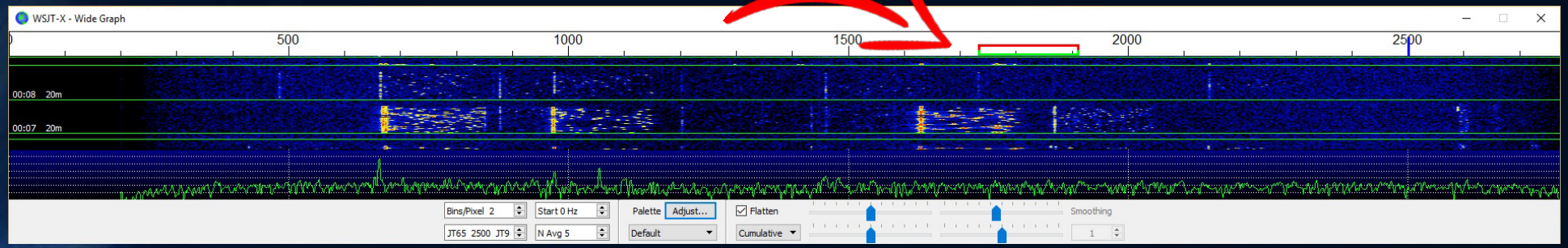


B4 – Means I have worked it before
GREEN – Station not worked and calling CQ
YELLOW (Not Pictured) – Needed Entity (State/Country/Etc. as you defined)
BLUE – Needed Prefix (if you are a prefix hunter for CQ award)
These can be all setup based on YOUR Preference


-10 0.1 662 # N6PF CX5RZ RR73
-11 -0.2 975 # CQ JA2ICB PM95 ~Japan
0006 Tx 2593 @ R0JF W6AER 73
0008 -20 -0.1 1733 # CQ CX2UI GF26
0009 Tx 1733 # CX2UI W6AER CM87
JTAlertX 2.8.4 Settings - W6AER - [Logging Enabled - HRD V5/V6]
Alerts
Own Call
CQ and QRZ
Wanted Prefix
Wanted CQ Marathon
Wanted US State
Wanted DXCC
Wanted Continent
Wanted CQ Zone
Wanted Grid
Miscellaneous Alerts
Alerts Priority
Worked B4
LoTW / eQSL(AG) Flags
Filters
Logging
Applications
Window
Miscellaneous
Web Services
Scan Log and Update
Sound Card
Station Callsign
Program Updates
About
Quick Enable / Disable Audio and Visual Alerts
ON Own Call
OFF Wanted Callsign
ON Wanted US State
ON Wanted DXCC
ON Wanted CQ Zone
OFF Decode Keywords
ON CQ and QRZ
ON Wanted Prefix
ON Wanted Grid
OFF Wanted Continent
OFF Wanted CQ Marathon
OFF User Defined Alert
Quick Enable / Disable Audio only Alerts
OFF Out of Shack
OFF Start of TX Period
ON TX Watchdog
OFF End of TX/RX Period
OFF Rx Frequency
Quick Enable / Disable Visual only Alerts
ON Worked B4
ON LoTW Stripe/Flag
OFF Ignored Callsign
ON Band Activity Display
ON eQSL(AG) Stripe/Flag
Decoded Callsign Data Tooltip
ON Enable
ON Show distance in Miles
ON Show all triggered Alerts
JTAlert by VK3AMA
Help
OK
Cancel
Save

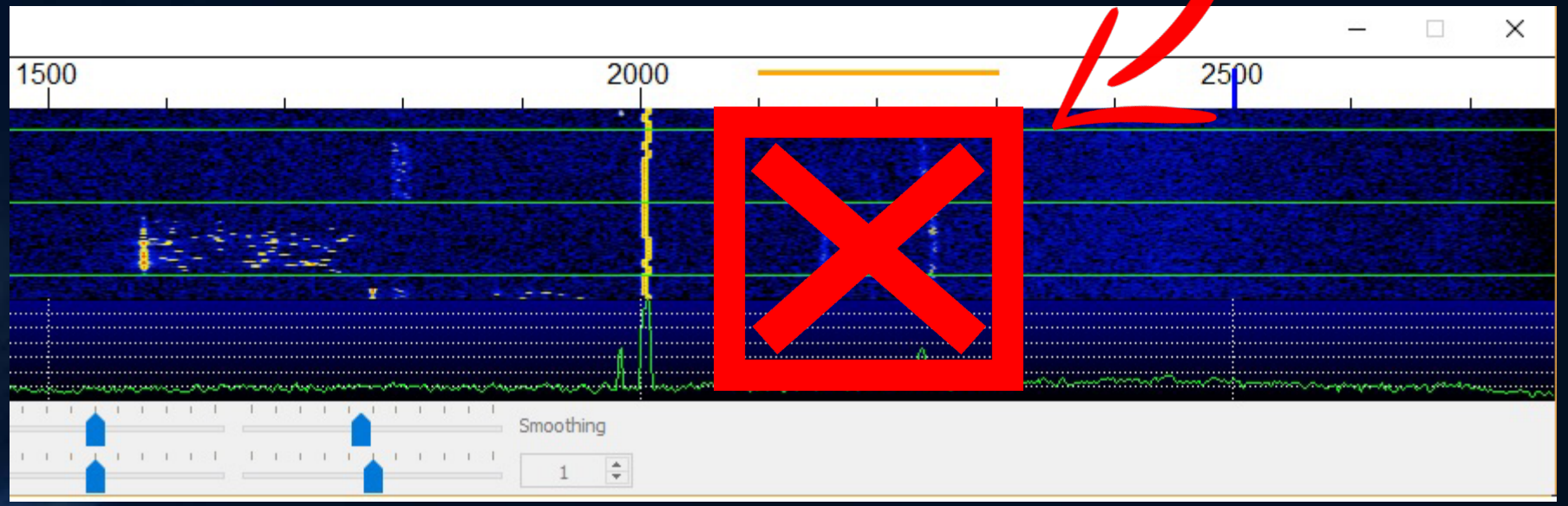
Quick word about the Waterfall

- You may not hear it but it's there! Stick around for 2 minutes…Always listen first as you would on CW or SSB to avoid QRM-ing
- Above 2500 Mark is JT9 / Below is JT65 – Stay in your area!
- Each Cycle is 1 Minute with close to 50 seconds of activity.
- Bars Indicate where you are (Green is RX / Red is TX)



Things to know about 30m

- Brown Bar is WSPR "Whisper" – NEVER Transmit JT65/9 or anything other then WSPR here…ever!



JT Alert Plugin showing Activity

- Note the conditions and the active bands! These were supposedly "Bad Conditions"…Not on Digital!
- This was in December 2016, since I have seen a growth in 80/160m
- Keep in mind, this does not mean you hear it all from your QTH but gives you a good general idea

Unique Callsigns TX/RX per Band (NA)

Solar : SFI 78 : A 4 : K 1

	tx	rx	tx	rx		tx	rx	tx	rx
160m	2	8			17m	11	6		
80m	24	40	1	6	15m	22	15		
60m	18	16			12m				
40m	56	127	22	63	10m				
30m	15	28	2	7	6m				
20m	44	116	6	22	ALL	187	337	29	95

JT65 (Last Update : 19-Nov, 00:11 utc) JT9

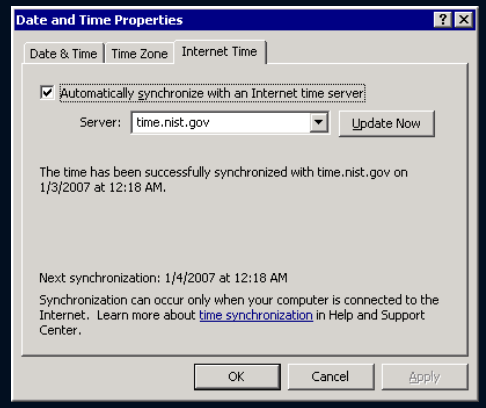
Frequencies and tips for JT65/9

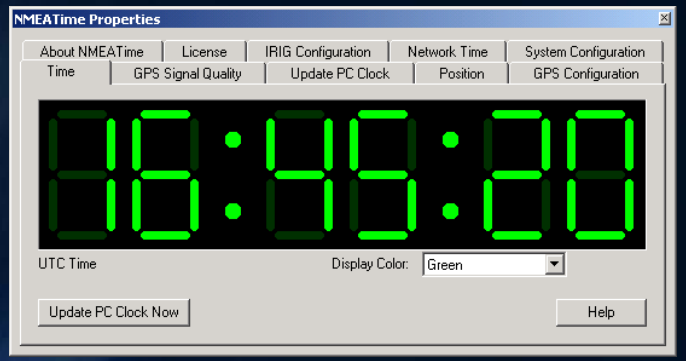
- 160m - 1836-1838
- 80m – 3576
- 40m – 7076
- 30m – 10138-10141
- 20m – 14076-14078
- 17m – 18102
- 15m – 21076
- 12m – 24917
- 10m – 28076
- 6m - 50276

- WSJT-X software has there preprogrammed
- For 6om Use the *CENTER CHANEL* of the 5 **after** selecting 6om on your software.
- 6m openings you can work out of state and even DX with few watts!
- 40/60/80/160 come alive after dark as it does with other modes, local QSO only daytime
- 10/12/15 are mainly when sun spot counts are high but worth checking as they DO open.
- 30/20/17 are your money bands for this mode and activity round the clock at times.
- The JT65 mode used for moon bounce is a different version, NOT JT65(a)

Quick word about TIME…

- JT 65/9 send on the top of the minute…**EXACTLY**. For successful QSO PC time needs to be spot on or no decodes.
- Aftermarket Software: Atomic Clock Sync, NetTime, Time-Sync and of course Dimension4 (I used this before)





Another option is to use GPS to set Time via NMEATime, I use this NOW but is overkill for most. Requires a USB or Serial GPS.

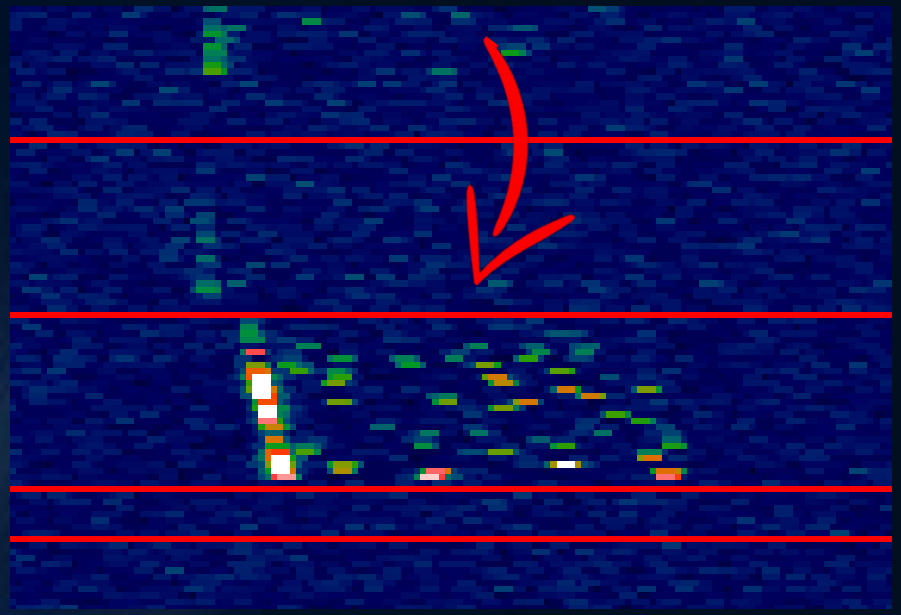
Decoding JT65/9 Signal Reports

- NOT using 59 (SSB), 599 (PSK, RTTY), 5NN (cw)
- **JT65** always **NEGATIVE** numbers like -18
- **JT9** can be **BOTH** (-23 or +02, etc.)
- If you are getting a +10, YOU ARE TOO LOUD!
- Lower number is always weaker
- Decoder Ring Optional (Joke)

Before we move on...

Can you Identify this JT65 Issue?

AS SEEN ON WATERFALL:

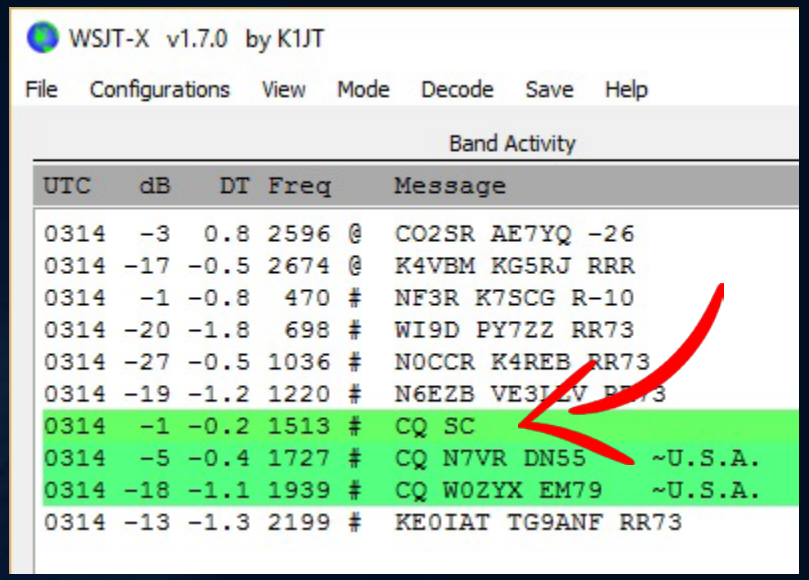


ANSWER:

- Frequency drift. Possible older radio warming up, or soundcard is drifting. I see this a lot with CO (Cuban) Stations lately.
- Very hard to decode, although I have seen it done & have done it.
- NOTE: If everything looks like this on your waterfall…Then it's YOU!

Can you Identify the problems here?

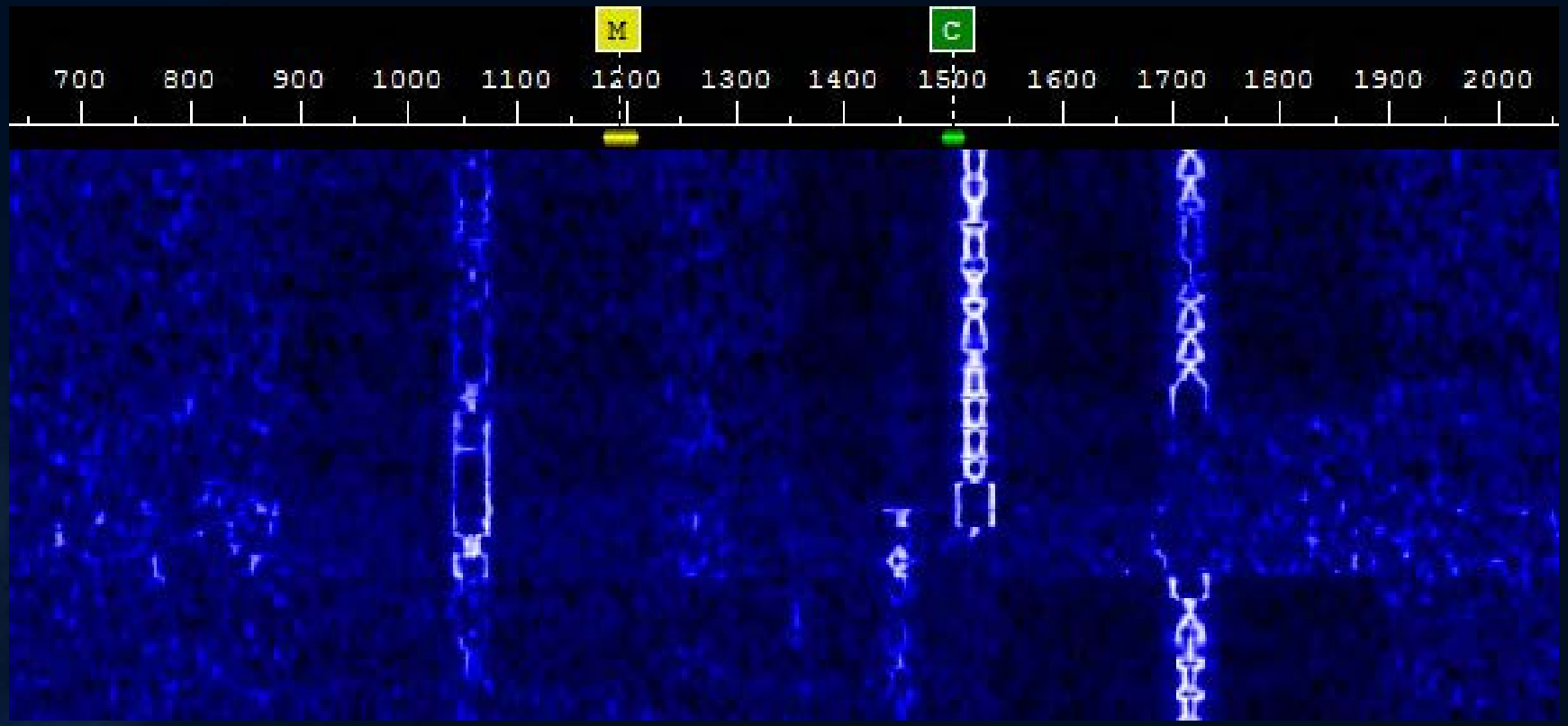
SEE FIRST GREEN CQ LINE:



ANSWER:

- No call sign of ham looking for South Carolina
- We are required to ID
- Not possible to Respond due to JT65 QSO Structure.
- Likely STILL looking for SC!
- Proper form is CQ W6AER SC instead of CQ W6AER CM87 if SC hunting…CQ DX (Call) or CQ (Call) DX is also ok.

PART 3: The world of PSK



Comparing the Phase-Shift Keying (PSK) Modes

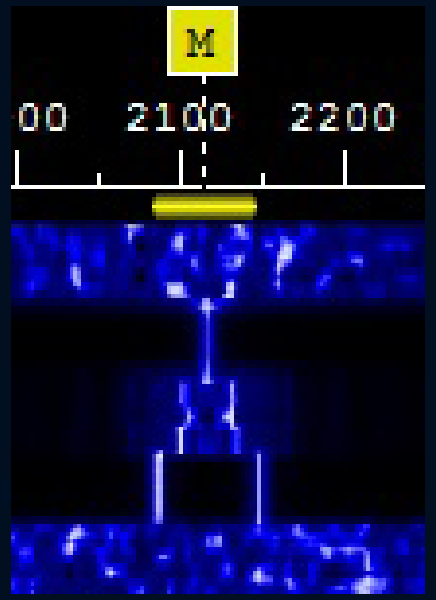
- Easy to use
- Low power – No AMP!
- As conditions improve, speed used tends to go up.
- QPSK - Quadrature phase shift, slower, more accurate but rarely used sadly! (Ex. QPSK31)
- Recommend Macros, especially with faster speeds! PSK 125 is faster then I can read.
- The "F" After mode is forward error correction (Ex. PSK31F)

Mode	Data Rate	Conditions for use	Bandwidth
PSK31	Typing Speed	Average	31hz
PSK63	Fast	Good	63hz
PSK125	Yikes!	Great	125hz

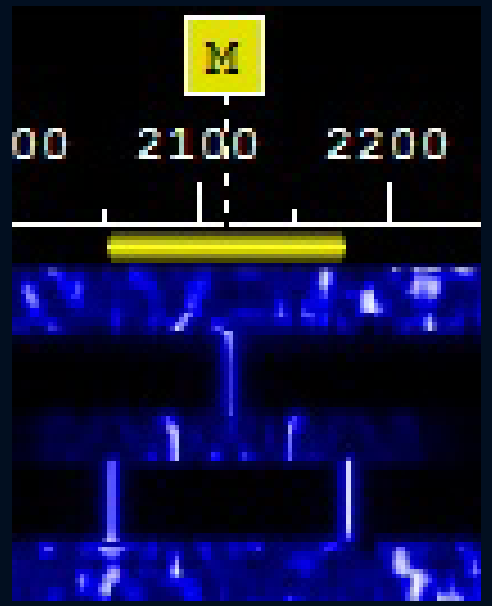
As Seen on the Waterfall:

PSK 31

PSK 63



PSK 125

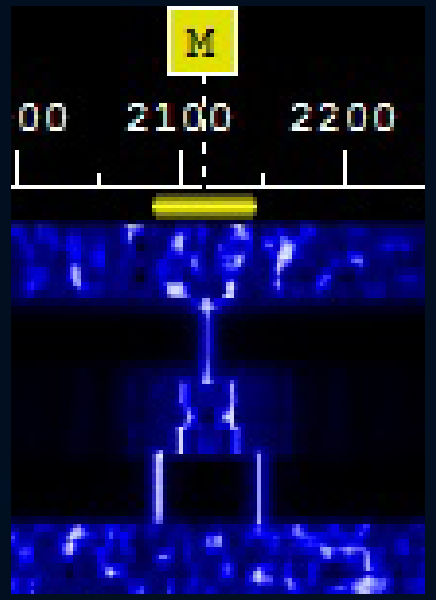


- As speed goes up, so does bandwidth, Only “mid portion” is data!
- When bandwidth goes up, can be harder to decoded. Errors tend to go up unless conditions are good.

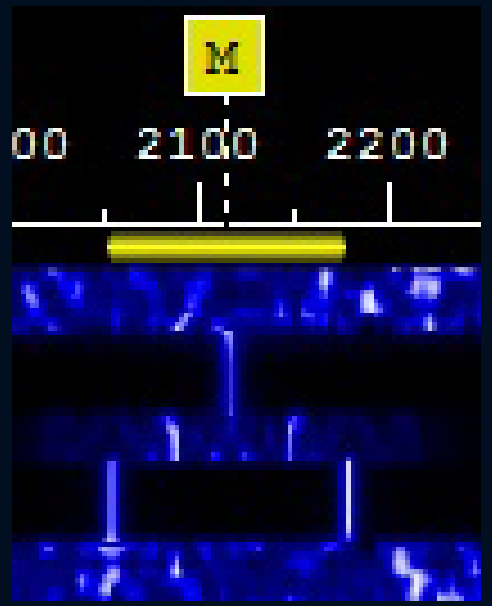
….And now, what they sound like:

PSK 31

PSK 63



PSK 125




Digital Master 780 - [BPSK-31]
File Edit View QSO Browser Logbook SSTV DataController SuperSweeper World Map Tools Window Help
QSO SuperSweeper Radio Soundcard Data Controller Waterfall Satellite Rig Control Logbook Rotator Program Options
14.070.000
Full Screen
BPSK-31 SuperSweeper SSTV
Squelch
Add Log Entry
(F2) Start: 17:20
(F3) End: 17:22
(F5) Call: KE9CK
Name: Robert L Robinson
QTH: Lafayette State/prov:
Locator: EN60ni IN
Country: United States
Frequency: 14.070.000
Band: 20m
Mode: PSK31
Sent: 599
Rcvd: 599
Remark:
Contest Mode
Add (F7) Reset (F4)
Not worked
Add More My Station QSL Help
17:20:44> Main
KE9CK KE9CK de W6AER W6AER pse kn
K6AER de KE9CK
Hi OM
Report : 599 599
Name : Bob Bob
QTH : Lafayette, Indiana. loc : EN6ØNI [73.2° 1,909.0mi] Tippecanoe County.
How copy? BTU OM, W6AER deE9CK kn
17:21:39> Main
KE9CK de W6AER
Hello Bob, name here is Lucas Lucas
RST is 599 599 into (QTH) Pacifica Pacifica
6mi (1Økm) South of San Francisco, (LOC) CM87sp CM87sp
Web: www.w6aer.com
BTU Bob, KE9CK de W6AER pse kn
QSO Window
CONTROLS
Send (F4) Auto (F2) Pause (F3) Abort
Call CQ Reply Closing General Macros
KE9CK de W6AER
Hello Bob, name here is Lucas Lucas
RST is 599 599 into (QTH) Pacifica Pacifica
6mi (10km) South of San Francisco, (LOC) CM87sp CM87sp
Web: www.w6aer.com
BTU Bob, KE9CK de W6AER pse kn <stop>
Responses
Stopping
1194 Hz IMD: -29dB S/N: 31dB
Waterfall: Timewave (2- USB Audio CODEC)
Zoom: x1 Main: 1194 Signal: AFC Decode Options 160m 80m 40m 30m 20m 17m 15m 12m 10m 6m Faves Modes
Waterfall
(Showing Transmit here)
Ready
CPU: 0%
Audio: 2%
Overload
HRD Logbook: My SQL Logbook
RSID OVR CAP NUM SCRL 17:22

Typical PSK QSO Start: (I responded to CQ)

```
17:20:44> Main
   KE9CK KE9CK de W6AER W6AER pse kn
   K6AER de KE9CK <- Note the Errors, NO Error Correction!
   Hi  OM
   Report : 599 599
   Name   : Bob    Bob
   QTH    : Lafayette, Indiana    loc : EN60NI [73.2° 1,909.0mi]  Tippecanoe County.
    How copy? BTU OM, W6AER deE9CK kn
17:21:39> Main
   KE9CK de W6AER

   Hello Bob, name here is Lucas Lucas
   RST is 599 599 Info (QTH) Pacifica Pacifica
   6mi (10km) South of San Francisco, (LOC) CM87sp CM87sp
   Web: www.w6aer.com

   BTU Bob, KE9CK de W6AER pse kn
```

REPORT

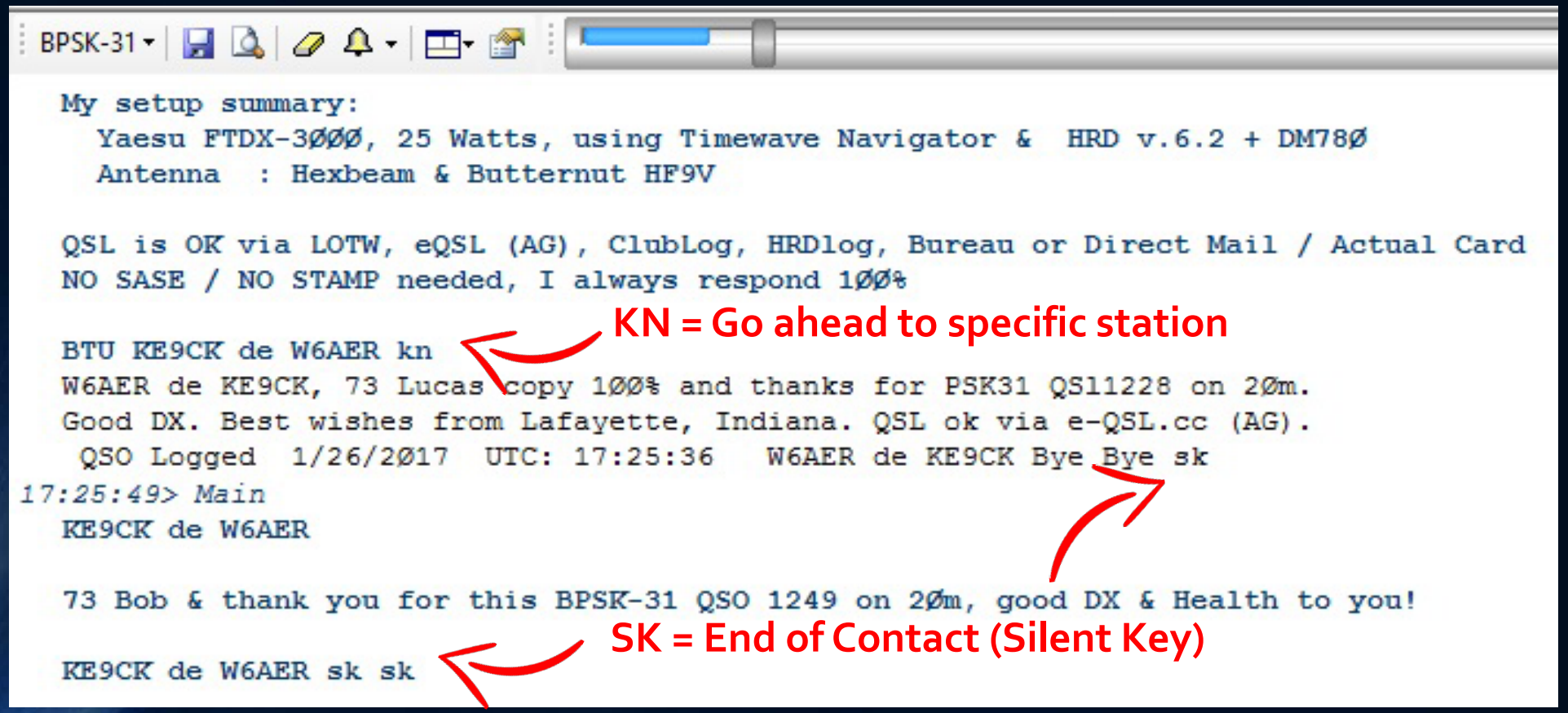
GRID

REPORT

GRID

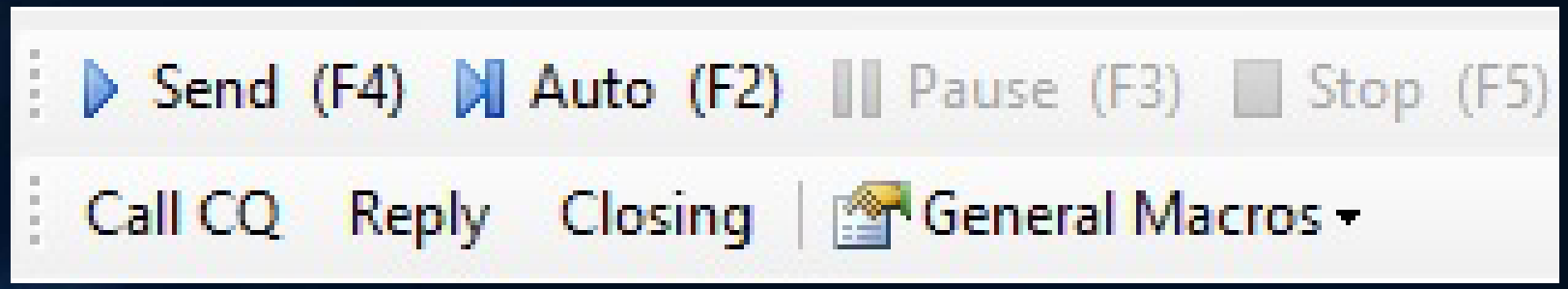
I REPEAT REPEAT to reduce errors

Typical PSK QSO End:

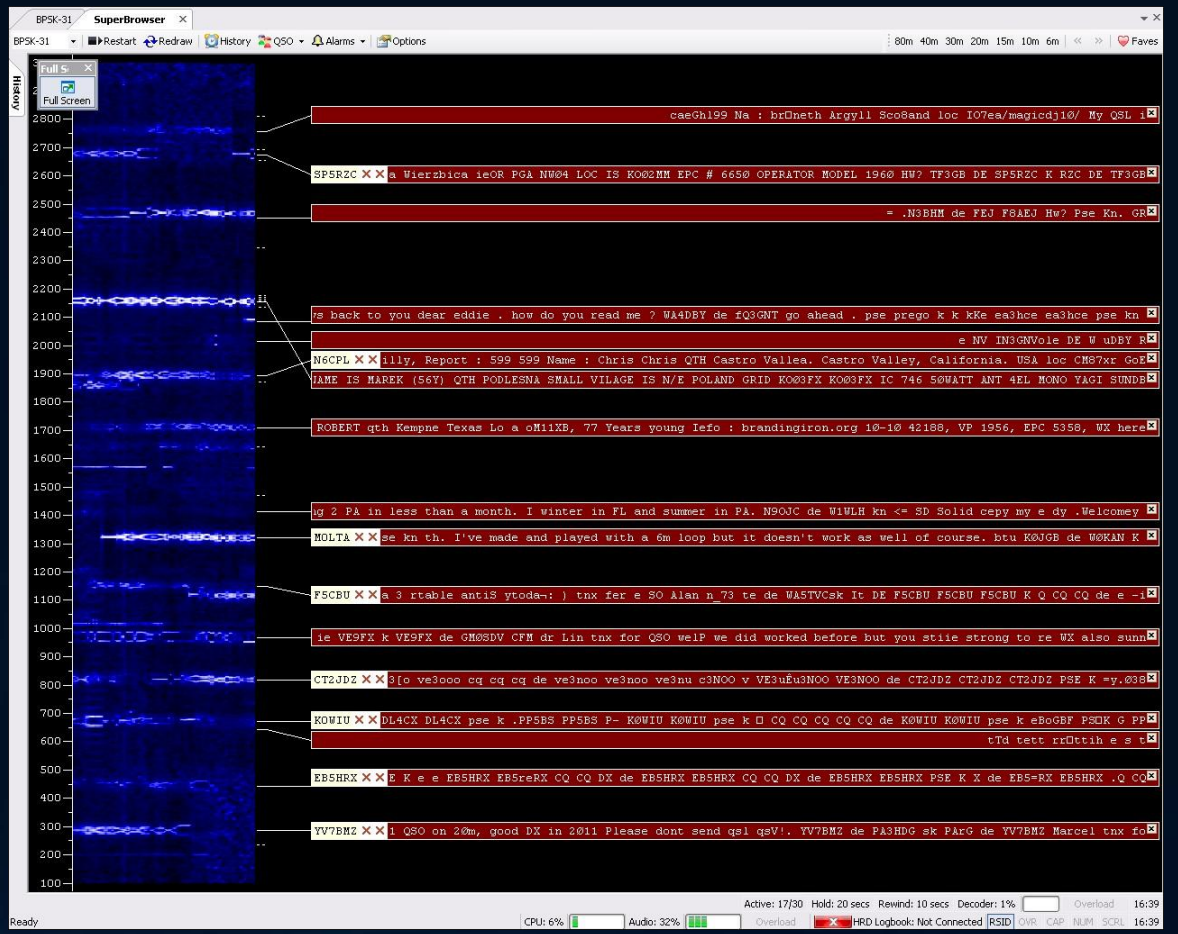


Controls to know:

- Exchange is much like JT65/9 but FASTER and you CAN ragchew. Drawback, does not decode as well but does decode better then RTTY and in some cases yes it even beats CW!
- Call CQ, Reply, Closing can all have multiple "Macros" (Pre Written text…I do not like to type too much)! Handy if running your system remote from a tablet, etc.



Use “SuperBrowser” to view all QSOs Live



The Lingo

- K = Over / KN = Turn Over to a specific station
- SK = End of QSO (Silent Key)
- BTU = Back to You
- TU = Thanks, sometimes TNX
- PSE = Please, can be used with PSE K or KN
- OM = Old Man / YL = Young Lady / XYL – Wife (Used instead of names at times)
- FB = Fine Business (in other words, good or all received)
- GM = Good Morning / GA = Good Afternoon / CUL = See You Later
- Arigato/Sayonara (Japanese), Gracias/Adios (Spanish) = Thank you/Good Bye
- 73 = Best Regards / 88 = Love and Kisses

Frequencies and tips for PSK Modes

- 160 m – 1.838 MHz
- 80 m – 3.580 MHz
- 40 m – 7.040 MHz
- 30 m – 10.142 MHz
- 20 m – 14.070 MHz
- 17 m – 18.100 MHz
- 15 m – 21.070 MHz
- 12 m – 24.920 MHz
- 10 m – 28.120 MHz
- 6 m – 50.290 Mhz

ALWAYS use USB (Upper Side Band) even below 10Mhz Unlike you would on Phone. **Also True for JT65/9 and most HF digital modes.**

You will find 20m to be the most active on average

10/12m are hopping when sun spots are good!

40m is good at night but traffic varies

Many Software packages have these preset

Do not type EVERYTHING IN CAPS, Slower on PSK!

Check out pskreporter.info to see where you are heard

Tips for DX and getting these modes to perform even better!

HARDWARE END:

- Use your roofing filters! If you have a 300hz, center the waterfall on it. I worked stations that I could not decode otherwise!
- Narrow the bandwidth to just want you want to work! No need to see 2.4-2.8Khz at the time IF something weak catches your eyes.

SOFTWARE END:

- On WSJT-X set decode to DEEP (There are 3 settings)
- Also you can have it do multi-pass. 2-3 is great but will use more CPU so don't go to crazy
- Call SPLIT if needed on PSK or JT modes, yes like in Phone/CW… WORKS on DX!

Things I learned and for you to remember:

Turn off Radio DSP used for CW/Voice

Turn off **ALL** compression

Keep your eye on the ALC, Don't overdrive! Stay below blue line.

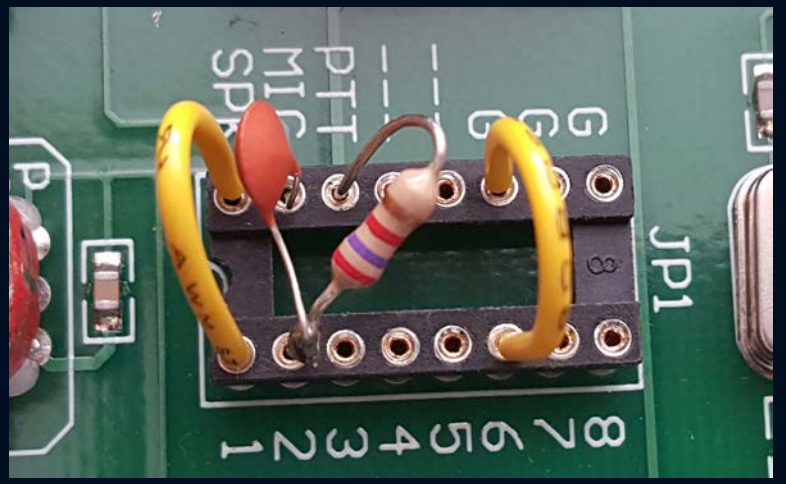
AGC OFF or FAST

Additional Hardware Tips :

USE FERRITES TO CUT NOISE TYPE #31 IS USUALLY RECOMMENDED FOR HAMS

You can make your OWN cables using Cat5 Ethernet cables

SOME RADIOS NEED SPECIAL "JUMPERS" OR CABLES. THIS I HAD TO DO FOR THE FT-847 ON THE SIGNALINK



Speaker and Ground and straight through, In needs a capacitor, resistor stops false trigger

The Law and Digital Modes

ACCORDING TO THE FCC:

- Modes must have technical characteristics which are documented publicly for the purpose of facilitating communications. (97.309 (a)(4)
- Below 28 Mhz can not exceed 1 kHz in width. (97.305 notes 3 and 4)
- Station ID may be done in the mode or with CW. (97.119 (b)(3))
- Can not be encrypted to hide meaning

WHICH IS WHY:

- Has to be well documented. New modes are introduced regularly!
- SSTV is technically a voice mode and is close to 3khz, Hellschriber similarly so.
- There is no FM below 28Mhz – Too wide!
- CW id can be set on WSJT-X and recommended, required at the end of QSO
- There are in fact ways to encrypt both data and voice.

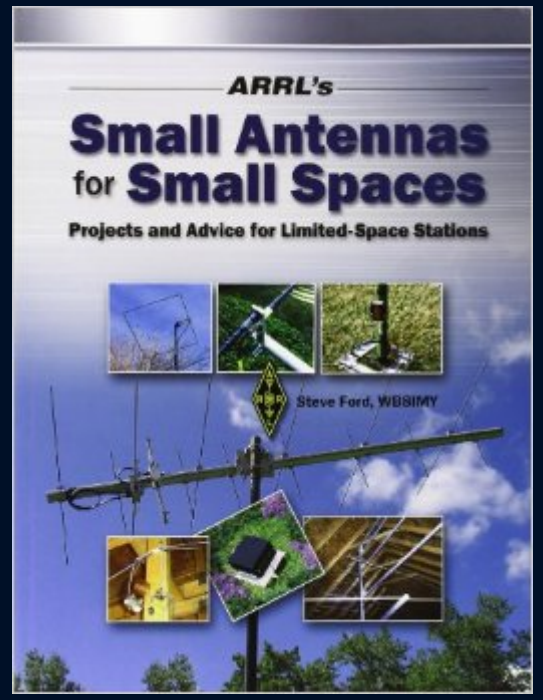
  Please never do this: It's ILLEGAL!

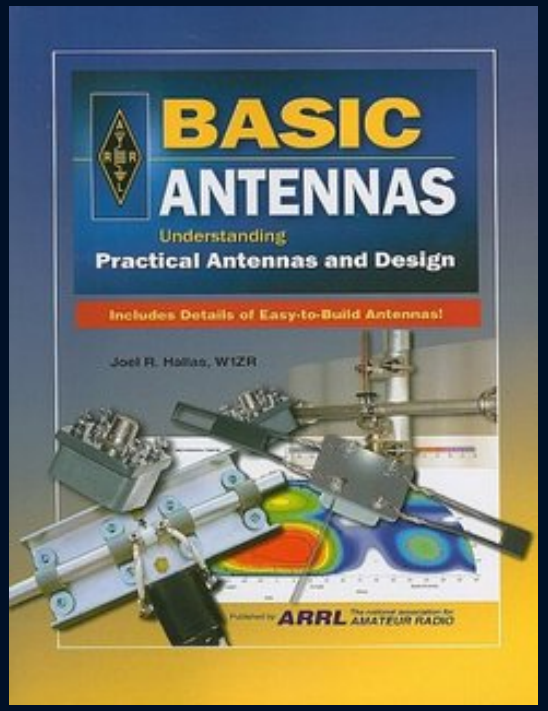
Where to Obtain the Software:

- WSJT-X: http://physics.princeton.edu/pulsar/K1JT/wsjtx.html
- JT-Alert: http://hamapps.com
- Fldigi: http://www.w1hkj.com
- Ham Radio Deluxe: http://www.hrdsoftwarellc.com

Additional Recommend Reading on these two digital modes covered

And even more to get you going even if you have limited space

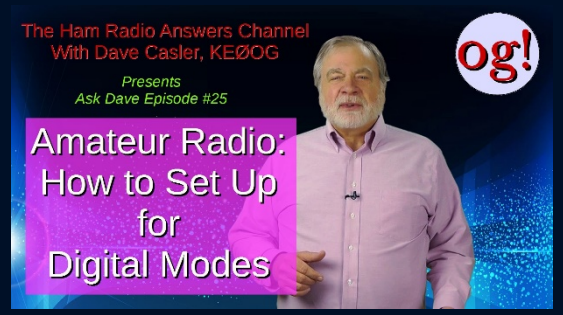




Recommend Video Viewing:

Dave, KE0OG has a great Intro do Digital Setup as well as other resources on his website, Including PSK31 Demo

http://dcasler.com



Randy, K7AGE has great video tutorials on PSK31 and SSTV he also presents at Pacificon and SeaPac if you get a chance to catch him

https://www.youtube.com/user/K7AGE/videos

Alternatively another PSK31 Tutorial

https://www.youtube.com/watch?v=wbmXFzmXFoo

Additional Recommend Video Viewing:

If you rather attempt fldigi check out these:

https://coastalhamradio.wordpress.com/2017/02/26/wondering-how-fldigi-works/

https://www.youtube.com/user/K4REF/videos

Additonal Info on the Web:

- WB8NUT has a very detailed website: http://wb8nut.com/digital
- The ARRL Overview: http://www.arrl.org/digital-data-modes

Any Questions for me?

My Question for you: What would you like to see next?