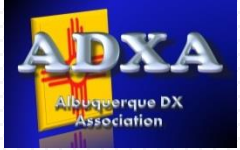


High Frequency University
the Senior Year 4.0

5-Digital Modes

A pdf of this presentation will be posted on www.dukecityhamfest.org
shortly after the Hamfest is over.



W5UR

RADIO COMMUNICATIONS



ARRL The national association for
AMATEUR RADIO[®]
www.arrl.org

SKILL • SERVICE • DISCOVERY



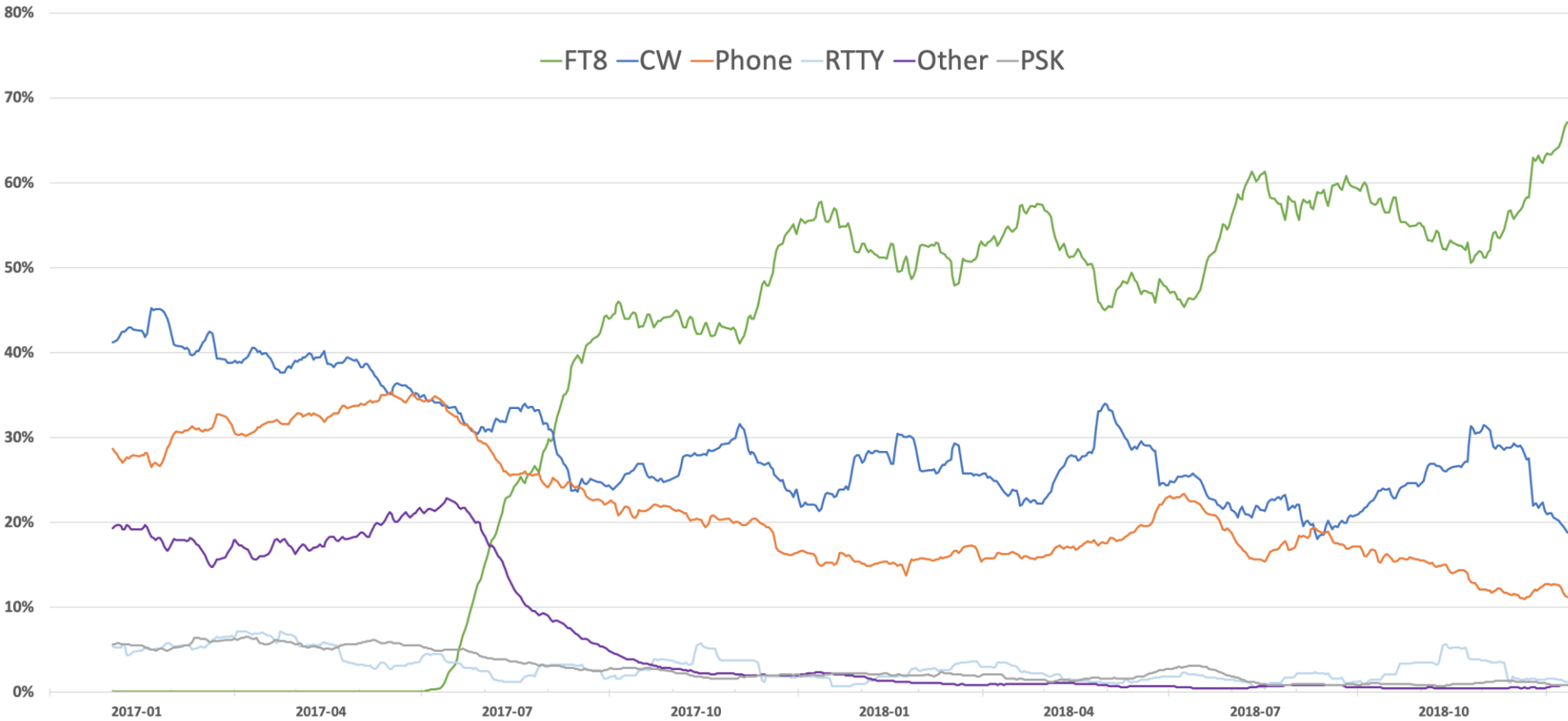
HF Digital Modes

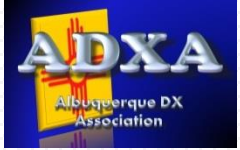
- Why (Not) Use Them?
- Get Connected
- Extra Value
- Integrate Into Your Station

FT8 Growth in 16 Months

CLUBLOG

% Share of Modes Stored in Club Log from 2017 to 2019





Week Ending 17 Sep 24

W5UR

Mode	% Use	QSOs	Graph
FT8	68.11	609,485	
SSB	13.29	118,943	
CW	8.93	79,919	
FT4	8.87	79,378	
MFSK	0.23	2,096	
FM	0.17	1,551	
RTTY	0.15	1,317	
PSK	0.10	855	
DIGITALVOICE	0.02	202	
MSK144	0.01	134	

Why (Not) Go Digital?

- For Some, Only Means to Make QSO's
- Local Noise & Poor Antennas
- Huge $(S+N)/N$ Improvement
- Where We Find the Action
- Path of Least Resistance

Get Connected

- Interfacing WSJT-X & Rig
- Current Models via USB—a Snap
- Older Rigs w/o USB Require an Interface of Some Sort
- Initial Setup Most Difficult Aspect

Get Connected

- RTFM On-Line Manual
- The Details Matter
- Follow the Steps
- Save Rig's Settings First
- Document Computer's Settings
- Now Start the Process

Get Connected

- Regardless of Rig or Ancillary Device, Follow the Steps in Order
- Windows USB Can Be Finicky
- CAT & Audio Usually on One Port
- Plenty of YouTube Video Available

Get Connected

- Get to Know Device Manager
- Get to Know Windows Privacy
- Give Permission to Access Mic
- DON'T Make Radio Audio Default
- DISABLE All Windows Sounds

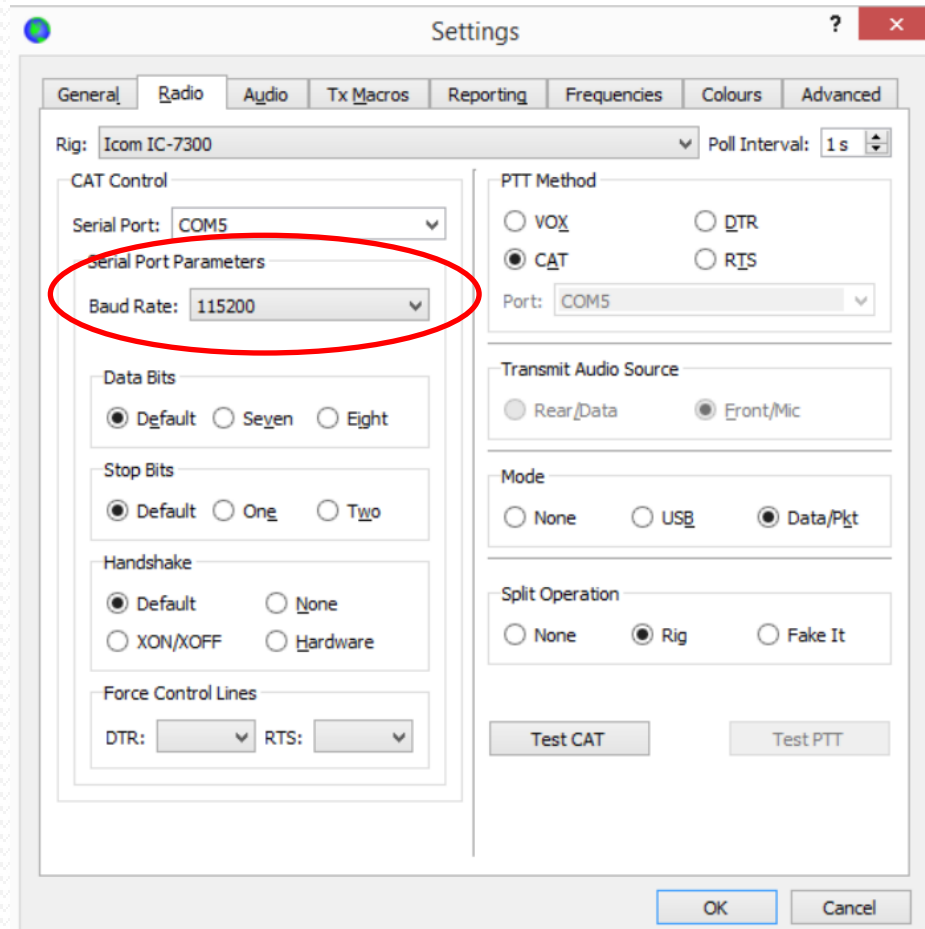
Get Connected

- USB is Your Friend or Enemy
- Always Reconnect at Same Port
- DOCUMENT What and Where
- Beware of “Hidden” Devices
- Review N6TV USB Presentation

Get Connected



Get Connected



Get Connected

- Keep PC Clock Accurate
- TX Audio With No Increase Power
- Widen Receive Bandwidth
- Look for a Clear Spot to Transmit
- Don't Call On His/Her Frequency
- Pick a Spot High in the Bandpass

Get Connected

- Use “Hold TX Freq”
- Change if Necessary (No Response)
- Watch CPU Usage
- Deep Decode is Best, but...
- Take Advantage of Colors
- Weak Signal but not QRP Mode

Get Connected

Decode Highlighting

<input checked="" type="checkbox"/> My Call in message [f/g unset]	▲
<input type="checkbox"/> New Continent [f/g unset]	
<input type="checkbox"/> New Continent on Band [f/g unset]	
<input type="checkbox"/> New CQ Zone [f/g unset]	
<input type="checkbox"/> New CQ Zone on Band [f/g unset]	
<input type="checkbox"/> New ITU Zone [f/g unset]	
<input type="checkbox"/> New ITU Zone on Band [f/g unset]	
<input type="checkbox"/> New DXCC [f/g unset]	
<input type="checkbox"/> New DXCC on Band [f/g unset]	
<input type="checkbox"/> New Grid [f/g unset]	
<input type="checkbox"/> New Grid on Band [f/g unset]	▼

Reset Highlighting

- Highlight by Mode
- Only grid Fields sought
- Include extra WAE entities
- Highlight also messages with 73 or RR73

Rescan ADIF Log

Extra Value

- Say What?
- From The Radio Amateur's Code

PROGRESSIVE...

He/[She] keeps his/[her] station up to date.

It is well-built and efficient.

His/[Her] operating practice is above reproach.

Extra Value

- Become a Propagation Wizz
- Know When Bands Open
- Know When Bands Close
- Work DX Others Can't
- Have More Fun!

PSK Reporter

Monitoring K8TE (last heard 1 mins ago).
Automatic refresh in 4 minutes.
Small markers are the 221
transmitters heard at K8TE
(3757 reports, 70 countries last 24 hours;
9672 reports, 88 countries last week).

PSK Reporter

- REAL Antenna Comparisons
- Operate Both Simultaneously
- Use Same Power Level
- Use Multiple Time Periods
- Compare Signal Strengths

WSPR.rocks

- More Automated
- Typically 200mW

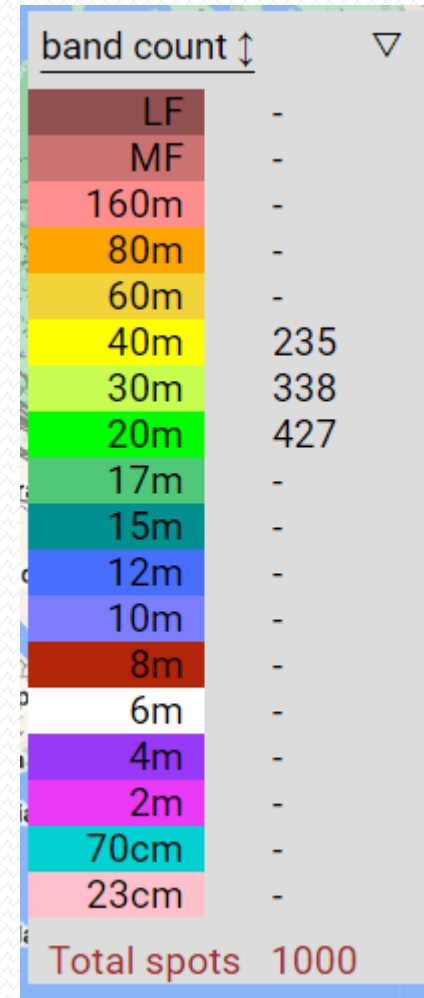
[785 spots] 784 to 0
wsprr.live search time was 0.022420857 secs

Table options

help SQL charts map table search

▲ status -> [785 spots] Round trip 0.28 secs.
** Click table cells for more info ** Right-click rows for Search options.

utc	y-m-d	txCall	txGrid	rxCall	rxGrid	MHz	W	SNR	drift	k	txAz°	mode	k/W	spotQ	version
2023-12-15 20:00	W5UR	DM65	ACOG	EM38ww	14.097047	0.2	-17	0	1374	69	WSPR2	6870	3533	WD_3.1.3	
2023-12-15 20:00	W5UR	DM65	WA2ZKD	FN13ed	14.097047	0.2	-27	0	2654	62	WSPR2	13270	3033	WD_3.0.8	
2023-12-15 20:00	W5UR	DM65	ND7M	DM16xf	14.097047	0.2	6	0	815	278	WSPR2	4075	4774	WD_3.0.6	
2023-12-15 20:00	W5UR	DM65	KPH/Q	CM88mc	14.097047	0.2	0	0	1445	286	WSPR2	7225	7225	WD_3.1.3	
2023-12-15 20:00	W5UR	DM65	N15F	EM70fu	14.097056	0.2	-22	0	2062	98	WSPR2	10310	3829	v1.1.0	
2023-12-15 20:00	W5UR	DM65	KD9NVE	EN50er	14.096955	0.2	-19	0	1628	64	WSPR2	8140	3721	DS_0.35.1	
2023-12-15 20:00	W5UR	DM65	WF7U	CN87xm	14.09704	0.2	-12	0	1825	322	WSPR2	9125	5996	WD_3.0.5	
2023-12-15 20:00	W5UR	DM65	W3ENR	FM28jh	14.097047	0.2	-23	0	2834	74	WSPR2	14170	4858	WD_3.1.2	
2023-12-15 20:00	W5UR	DM65	KPH	CM88mc	14.097047	0.2	-2	0	1445	286	WSPR2	7225	6812	WD_3.1.3	
2023-12-15 20:00	W5UR	DM65	KA7OEI	DN40ao	14.097042	0.2	-5	0	714	324	WSPR2	3570	3060	WD_3.0.6	
2023-12-15 20:00	W5UR	DM65	WA2TP	FN30lu	14.097047	0.2	-12	0	3012	68	WSPR2	15060	9897	WD_3.1.3	
2023-12-15 20:00	W5UR	DM65	VE7IRN	CO90ob	14.097035	0.2	-22	0	1965	330	WSPR2	9825	3649	1.4A Kiwi	
2023-12-15 20:00	W5UR	DM65	VE6ARS	DO30	14.097002	0.2	-12	0	1736	346	WSPR2	8680	5704	1.4A Kiwi	
2023-12-15 20:00	W5UR	DM65	KP4MD	CM98iq	14.097047	0.2	-17	0	1312	290	WSPR2	6560	3374	WD_3.0.9	
2023-12-15 20:00	W5UR	DM65	KA7OEI-1	DN31uo	14.097047	0.2	4	0	820	328	WSPR2	4100	4569	WD_3.0.9	
2023-12-15 20:00	W5UR	DM65	KFS	CM87tj	14.097047	0.2	5	0	1387	283	WSPR2	6935	7926	WD_3.1.3	
2023-12-15 20:00	W5UR	DM65	WA2TP/Q	FN30lu	14.097048	0.2	-20	0	3012	68	WSPR2	15060	6454	WD_3.1.3	
2023-12-15 20:00	W5UR	DM65	KN6NK	CM95pn	14.097048	0.2	-4	0	1236	274	WSPR2	6180	5474	1.4A Kiwi	
2023-12-15 20:00	W5UR	DM65	AE6RQ	CM97	14.097047	0.2	-18	0	1270	284	WSPR2	6350	3084	1.3 Kiwi	
2023-12-15 20:00	W5UR	DM65	VA3DP	FN24et	14.096992	0.2	-15	0	2843	59	WSPR2	14215	8123	1.4A Kiwi	
2023-12-15 20:00	W5UR	DM65	WB6JHI	CM97af	14.097041	0.2	-16	1	1348	283	WSPR2	6740	3659	2.2.0-rc15	
2023-12-15 20:00	W5UR	DM65	K6PZB	CM88nk	14.097047	0.2	-27	0	1443	288	WSPR2	7215	1649	WD_3.0.8	
2023-12-15 20:00	W5UR	DM65	NQ6B	DM12qu	14.097076	0.2	-14	0	928	254	WSPR2	4640	2784	2.6.1	



Station Integration

- Run Independently
- Run Simultaneously
- Confirm VOACAP Predictions
- KNOW What Bands to Use
- Have at Least 2 Antennas



Station Integration

- May Require Bandpass Filters
- Learn if Your Rig is Rock Solid
- Learn if Your Rig is Noisy
- Dispel the False Narratives
“The Bands are Dead”
- Make More Contacts

References

- Videos
- <https://kopir.us/icom-7300-receiver-settings/>
- <https://www.meinbergglobal.com/english/sw/ntp.htm>
- <https://kopir.us/transmitter-settings-digital-operation/>
- Text: <https://pc5e.nl/downloads/ic7300/Mods/icom-7300-setup-with-wsjt-x.pdf>
- <https://wsjt.sourceforge.io/wsjtx-doc/wsjtx-main-2.6.1.html>
- <https://www.contestuniversity.com/wp-content/uploads/2020/05/N6TV-Everything-You-Need-to-Know-About-USB-and-Serial-Interfaces.pdf>
- <https://www.zachtek.com/>
- <http://wspr.rocks/>
- <https://www.wsprnet.org/drupal/wsprnet/map>
- <https://www.sotabeams.co.uk/wsprlite-classic>