

The Signal Report

A Publication of the Greenwood Amateur Radio Society (GARS)

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[HTTP://WWW.W4GWD.ORG](http://www.w4gwd.org)

[W4GWD@ARLL.NET](mailto:w4gwd@arll.net)

2017 CLUB

OFFICERS

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The W4GWD Repeater Network

147.165+ t107.2

Echolink: 584003

443.900+ t107.2

W4GWM/R

145.420- DV

W4DEW/R

146.910- t123.0

WJ4X/R

442.600+ t107.2 / DV

Infrastructure Update

Analog Repeaters are up.

DMR and D-Star is up.

Fusion is up.

Echolink is up.

APRS iGate is up.

Packet Node is up connected to the Carolinas Packet System. 145.010

Downtown Digi is up and operational

Repeater Linking Project coming soon! (undergoing testing)

Merry Christmas

This month's club meeting is being replaced with our annual Christmas Dinner. It will be held on Tuesday, December 12, at 6:30p.m. Our Host will be Smokehouse Barbeque located at 1352 Bypass 72 (behind Arbys) here in Greenwood.

See you there!



Greenwood Amateur Society Events:



Like Us on Facebook

facebook.com/
GreenwoodARS

If you have any ideas for books you'd like to see in the GARS Library, Contact Mitch KJ4JGP

Chat 'N' Chew

Every Friday at 11:30am the members of the Greenwood Amateur Radio society meet at a local restaurant. Please check in to our Thursday radio net weekly, as locations change. Everyone is welcome to have lunch or sip your favorite beverage and chat for a while. **Dutch treat.**

Weekly Nets

Each Thursday night at 9pm on the 147.165+ machine, The Greenwood Amateur Radio Society holds our weekly 2 meter net. Our UHF net on 443.900+ is held Mondays at 8pm

Help spread the word for everyone to check-in to our net. If you would like to fill in or be a backup net control please contact Tedd Davison AI4WN@arrl.net

VE Exam Session

The GARS ARRL Volunteer Examiners (VE) Team will have an exam session 7:00pm Tuesday, December 5, 2017 at the Westminster Presbyterian Church. The address is 2330 Cokesbury Rd Greenwood SC 29649-9515 We hope to see you there. Please contact Buddy Willis W4DEW w4dew@arrl.net

Congratulations!!

Happy Birthday!

Robert Gillian	Associate	Dec. 7
Fred Pinson	K4RM	Dec. 10
George Miller	WD4GGB	Dec. 15
Eldora Keck	KB4YON	Dec. 31
Jim Gresham	AK4EK	Dec. 31
Joe Suddeth	KK4RVC	Jan. 4
Buddy Willis	W4DEW	Jan. 7
Kin Maffett	KJ4BAK	Jan. 13
Chad Robinson	KN4CNK	Jan. 13
Gail Davison	Spouse	Jan. 21

Happy Anniversary!

George and Jennie Miller
Dec. 2
Darrell and Dena Manning
Dec. 3
Bert and Eldora Keck
Dec. 22
Tommy and Angela Owens
Jan. 8

Phil's Corner:

Hamisms #364

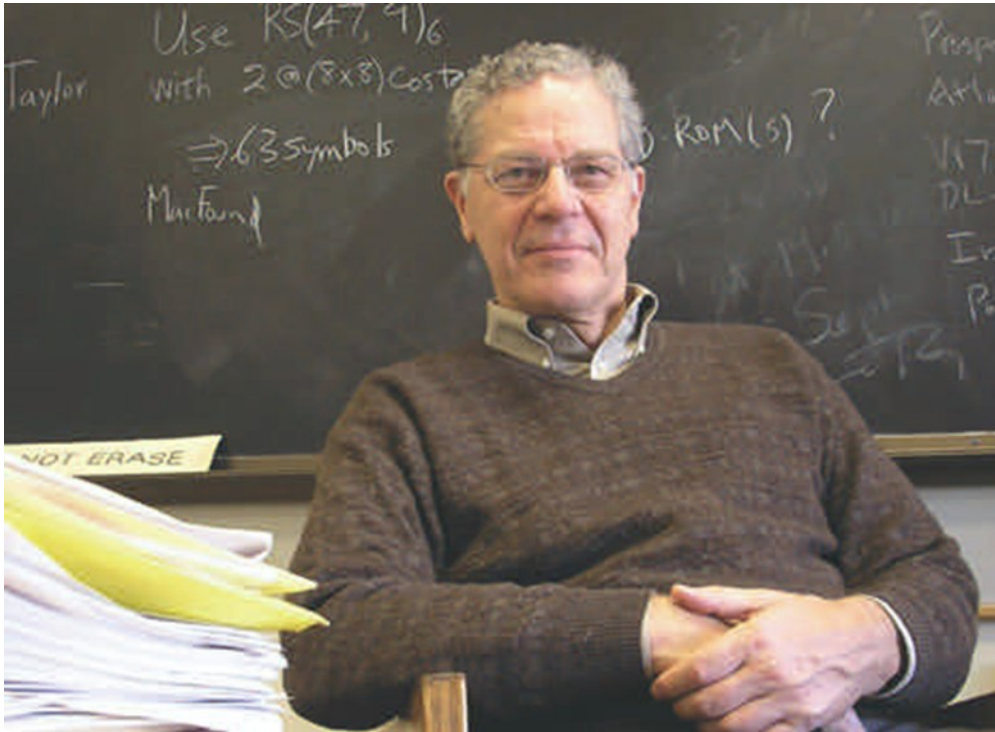
Elmers; A good teacher is better than a barrelful of books. They are also instrumental in growing a club.

Are you an ARRL Member? Joining ARRL helps protect our rights as Amateur Radio Operators as well as providing education, QSL Bureau, technical advise, and the ARRL VEC. <http://www.arrl.org>



The Genius of Joe Taylor

K1JT Keeps on Changing the Face of Ham Radio
 BY RICH MOSESON,* W2VU



We hams are incredibly fortunate to have Joe Taylor, K1JT, as "one of us." For those of you who aren't familiar with Joe, he is an astrophysicist who shared the 1993 Nobel Prize in physics with a former student of his (and former ham) for discovering binary pulsars and using data gleaned from studying those stars to prove Einstein's Law of General Relativity was correct. Joe was also one of the first recipients of the McArthur Award "genius grants" and the first recipient of the Dannie Heineman Prize for Astrophysics, presented jointly by the American Institute of Physics and the American Astronomical Society. In short, Dr. Taylor is a big deal in the world of science. On the ham bands, of course, he's just "Joe, K1JT." But his ham radio software has been changing the face of our hobby for nearly 20 years.

Ham radio is what got Joe interested in science and he told CQ back in 2009 that the two fields of interest have always overlapped to a certain extent, with his ham radio knowledge helping him professionally — especially when new equipment had to be designed and built for studying pulsars — and more recently, with his scientific knowledge helping to transform amateur radio

"I had always thought," Joe told us in that October 2009 interview, "that it would be fun to apply some of the techniques that we use in radio astronomy for detecting very weak signals (on the ham bands)." In 2001, Joe released the first version of WSJT (Weak Signal Joe Taylor), a suite of software which used sophisticated digital signal processing techniques to turn meteor scatter into an everyday mode and make EME (moon bounce)

The Genius of Joe Taylor (Cont'd)

FT8

communication feasible for stations running just 100 watts and a single Yagi aimed at the Moon.

In the decade and a half that has followed, Joe has continued to improve those original modes and add new ones. JT9 and JT65 have become staples on HF as well as VHF, and may become modes of choice on 630 and 2200 meters once those bands open for general use. WSPR (Weak-Signal Propagation Reporter), which was in its earliest days when we visited Joe back in 2009, has informed us of HF band openings that "common wisdom" tells us shouldn't be happening. And now, there's FT8.

FT8

While we hams like to believe that we are early adopters of new technologies, our history generally tells a different story. Since the earliest days of the hobby, the average ham has been very slow to adapt. The shift from spark to CW was long and contentious (I remember oldtimers back in the '70s who still longed for the "good ol days" of spark), as was the adoption of phone and then the transition from AM to single sideband on HF, and to FM on VHF. There's been a little more flexibility in the adoption of new digital modes, starting with packet back in the 1990s. But ... FT8 has created a phenomenon that I've never seen in my 47 years in this hobby.

FT8 stands for "Franke and Taylor 8-FSK" modulation. Joe had some help on this one from Steven Franke, K9AN. It is part of a Beta release of version 1.8 of WSJT-X. You can read more about it in this month's "VHF Plus" column (p. 74) as well as this month's Contesting column (p. 80), but essentially it has many of the benefits of JT65, such as being able to copy and decode signals that are inaudible to the ear, with much shorter transmit/receive sequences.

The really amazing thing about FT8, though, has little to do with the technology itself. The beta version of WSJT-X 1.8 was released on Tuesday, July 11. The CQ World Wide VHF Contest was the following weekend, on the 15th and 16th. As both K8ZR and K3ZJ report in their respective columns this month, preliminary results suggest that FT8 was the dominant mode for digital contacts in the contest, just four days after its release! That simply has to be some sort of record for speed of widespread adoption of a new mode by hams.

All of us, whether or not we use any of Joe's digital modes, owe K1JT a debt of gratitude for nearly singlehandedly advancing the state of the art in amateur radio, not just once but over and over again. Thank you, Joe! And keep it up!

Attracting Youth to Ham Radio

A posting to the Topband reflector on 10/27/2017 by K1NZ
Forwarded by Kevan Nason, N4XL

Hi all

I apologize if this is not the place for this, but the recent FT8 discussion has gotten me to thinking. I'm one of the younger hams in the hobby. I got my license and extra at 20 and am 26 now. I was semi-active on the phone bands up until late 2015 when I moved into my current apartment and put up a bunch of wire antennas. I have a G5RV, 30m dipole, and a 160m L. Now, I am one to admit that I'm not all that proficient at Morse, but I can fudge my way through a QSO. Because of this, I have almost exclusively (outside of contests) turned to digital operating. I, personally have that thrill of working a new one on whatever band regardless of mode, even if it's a JT/FT mode. I just worked my first Bahrain on 40m FT8 tonight and cracked a beer to celebrate.

My whole reason for writing this post is because of the "You can play in my sandbox only if you play my way" mentality. I am referring to the JT/FT modes if you want to be specific. I am lucky in that I rent from my uncle who doesn't care what wires I put up. On the other hand, most people my age are either living with their parents or are renting from people that will not let them participate in the hobby. In addition, I'm part of the vast minority of hams who got licensed before they were 40. I'll be blunt. It's going to be hard to retain teens in this hobby. Once they find girls/boys and go off to college, we might as well write them off for 20 years. This is an old (wo)man's hobby. It requires disposable income. I've barely cobbled together a station myself, but I'm limping along because of my love for this hobby.

I hate to say it, but this whole mindset is why the youth of today are turned off from ham radio. Why should I pump hundreds of dollars into a hobby if I'm going to be greeted with "You need to learn CW" "FT8 is ruining the hobby" "You're not a real ham because you didn't pass the code test." I realize that new things involve change and that change is scary, but can we please welcome people into the hobby, even though that future isn't what is comfortable? Isn't it better to be using the bands than for them to be sold off and forgotten? This hobby is extremely multi-faceted. Can we please not judge and harass the people that want to get involved? I guess the whole reason why I wrote this post is because I'm sick of the "DO IT MY WAY" mindset. Can we please just get back to having fun and ignore the politics?

73 es gud DX,
Nick K1NZ



Thanks to Dan Curry KM4AJ, for the following links. The first one is an interesting way to listen in on HF through the internet. The second a Ham shop that sells used equipment in Ohio. Check them out!

<http://websdr.org/>

<http://www.rand>

Greenwood Amateur Radio Society (GARS) Hamfest

January 13, 2018 will be here before you know it. Plan on attending your clubs annual ham fest at Piedmont Technical College. Bring your family and invite all your friends.

On Friday January 12 the venue will be open and available for vendors to set up their tables from 2-5 p.m. If you are looking for a way to contribute something to the club this would be a good opportunity. Help is always needed in setting up, assisting vendors and in the parking lot. Vendors pay a one time fee of \$10.00 per table with an additional \$10.00 if 117VAC power is needed. All vendors, retail and others, may only setup at designated areas inside the building venue. This provision is required by our insurance carrier. Outdoor vendors are prohibited. **NO EXCEPTIONS!**

On January 13, the venue will be opened for vendor setup from 7-9 a.m. At 9 a.m. the doors will be opened to the public. Adult admission is \$8.00, club members and children under 12 are free. People coming for the VE license exam are not required to pay an admission fee unless they will be attending the Hamfest, in that case they will pay the \$8.00.

The point of contacts are Tedd Davison, AI4WN at AI4WN@yahoo.com and Buddy Willis, W4DEW at W4DEW@arrl.net

See you there

From Wikipedia



CQ call of German amateur radio station DG2RBH on the 80 m band
CQ is a code used by wireless operators, particularly those communicating in Morse Code , (— · — · — — · —), but also by voice operators, to make a general call (called a *CQ call*). Transmitting the letters *CQ* on a particular radio frequency is an invitation for any operators listening on that frequency to respond. It is still widely used in amateur radio.

History and usage

The CQ call was originally used by landline telegraphy operators in the United Kingdom, French was, and still is, the official language for international postal services and the word *sécurité* was used to mean "safety" or "pay attention. It is still used in this sense in international telecommunications. The letters CQ, when pronounced in French, resemble the first two syllables of *sécurité*, and were therefore used as shorthand for the word. It sounds also like the French "c'est qui?" which in English means "who's there?". In English-speaking countries, the origin of the abbreviation was popularly changed to the phrase "seek you" or, later, when used in the CQD distress call, "Calling all distress".

CQ was adopted by the Marconi Company in 1904 for use in wireless (spark) telegraphy, and was adopted internationally at the 1912 London International Radiotelegraph Convention, and is still used.

A variant of the CQ call, CQD was the first code used as a distress signal. It was proposed by the Marconi Company and adopted in 1904, but was replaced between 1906 and 1908 by the SOS code. When the Titanic sank in 1912, however, it initially transmitted the distress call *CQD DE MGY*, MGY being the ship's call sign. (The Titanic's radio operator alternated between SOS and CQD afterwards.)

In amateur radio usage, a CQ call can be qualified by appending more letters, as in *CQ DX* (meaning "calling all stations located in a different continent to the caller"), or the ITU call sign prefix for a particular country (e.g. *CQ VK* for Australia "calling "). The originator of the call can be identified by appending the letters *DE* (French for "from", also means "this is...") and the call sign of the transmitting station.

The code was used as part of the chorus to the song "Communications" by Slim Giallard.

Modern HF Digital Modes

Dan Curry KM4AJ



Since the invention of CW, radio operators have been using digital modes to transmit over the airwaves. In modern times, more and more amateur radio operators are connecting their computers to their radios for all sorts of reasons. Whether it be to make contest logging easier, controlling your rig for faster frequency changes or to decode digital signals. Whatever the reason, we live in a golden age of radio with operating options unlike what was available 50 years ago.

The top 3 digital modes in use today according to PSKReporter.info are FT8, JT65 and PSK31. All three modes can be operated over HF frequencies with a radio connected to a computer's soundcard interface and some type of rig control connected to the computer's serial or USB port. Here's a quick rundown of each.

PSK31 was developed in 1998 to provide real-time chat capability over the air. PSK31 uses the soundcard on your computer to decode an audio signal over USB HF frequencies into text. The text is decoded real time so you can see text scrolling across your screen as the signal is received. Since the PSK31 signal is only about 60hz wide of the 3Khz USB received signal, multiple transmissions can be made simultaneously. Operators can take turns transmitting text messages to carry on a conversation, or simply make a contact. PSK31 uses prosigns used for CW conversations so the exchange is familiar to CW operators. Due to the lack of error correction, it is common for messages to become garbled when the signal weakens.

JT65 was introduced in 2003 for use in moon bounce radio transmissions. It is heavily dependent on your computer's clock to be synchronized to a good time source as it uses a scheduled transmit/receive window. While your computer is transmitting, other stations are listening and vice versa. JT65 also uses USB to receive audio signals and uses the computer's soundcard to decode the message. Due to the scheduled transmit/receive cycles, the messages are limited in size. In order to facilitate orderly contacts, JT65 has a predefined exchange and is only intended for making radio contacts, not rag chewing. JT65 also performs forward error correction, meaning that the signal contains redundant information, so if a portion of the transmission is lost, it can be reconstructed to verify a clean copy. The combination of forward error correction as well as using the computer's soundcard to decode the message means that JT65 works well over long distances. One drawback of JT65 is that it uses a 1 minute transmit/receive cycle, so it takes several minutes to make a contact. In recent years it has been adapted for use over HF and has become a popular option for long distance HF contact.

The new kid on the block, FT8 was introduced in July of 2017. FT8 was based on JT65 but uses a 15 second transmit/receive cycle. This means that a contact can be exchanged in under a minute. FT8 has forward error correction like JT65 and was designed to work over HF. FT8 also uses a predefined exchange and only requires 50hz of bandwidth allowing for many simultaneous conversations within one 3khz USB section of the band. This has made FT8 an instant hit for amateurs all over the world. When using FT8 with software like WSJT-X, you can report the transmissions that you see to PSK Reporter info as well as see who has heard you. Even if you are not having a QSO with a remote station, they will report seeing your transmission so you can see how far your

Modern HF Digital Modes (Cont'd)

signal is propagating. PSKReporter.info has a map that shows the stations that heard you and shows the greyline indicating which geographical locations are in darkness. PSK Reporter sees between 2000 and 6000 active reporting stations per hour from all over the world. The ability to see your signal propagation really enhances the experience of operating digital modes.

So what do you need to have in order to get setup for digital modes? You'll need an HF radio with an audio output and a microphone input. Having a rig control connection to your computer through serial or USB is a huge plus, but not required if your radio is compatible with a Signalink USB computer interface. The signalink computer interface can connect to the audio output and mic input of your radio and has a USB connection to your computer. The signalink can trigger the radio's PTT if you don't have rig control. Once the computer is connected to the radio, you'll need some software. There is a variety of free software out there that you can use to operate digital modes. Ham Radio Deluxe, JT65-HF and WSJT-X to name a few. I have links to the software on my website KM4AJ.NET if you need them.

So if you're interested, get on the air and try it out. There are tons of instructional videos on YouTube to help you get started. I would recommend checking out Dave Casler's YouTube channel, who has recently posted a video about FT8

<https://www.youtube.com/watch?v=zHXScGrsw-A&t=151s>

You may even find some new interest in the hobby of Amateur Radio that you didn't even know was out there.

HAMFESTS & EVENTS

Minden Amateur Radio Association

Christmas Hamfest

December 16, 2017

Minden, La

<http://n5rd.org>

Tech Fest

Lawrenceville, Ga. 30046

January 20, 2018

<http://gars.org>

Mark your Calendars!! Greenwood Amateur Radio Society Hamfest at Piedmont Technical College, Greenwood, South Carolina 1/13/2018

I have read many articles talking about the impact that FT8 has on the Digital modes. I ran across these numbers and thought I would share them. They are not attributable to any source, but they were on the internet, so they must be accurate. Right?

Modes over last 2 hours

FT8	264626	MSK144	48
JT65	7648	VARA	42
CW	2329	SIM31	25
RTTY	876	PSK	9
PSK31	508	WSPR	3
JT9	165	PSK63	3
OPERA	96	ROS	3

- ◆ **The American Radio Relay League protects our rights as Amateur Radio Operators** <http://www.arrl.org>
- ◆ **Support for SERA supports proper coordination!** <http://www.sera.org>
- ◆ **Remember your local and regional interest clubs!**
- ◆ **Southeast DX Club** <http://www.sedxc.org>
- ◆ **Spread The Word! 147.165 2m Net Thurs. 9pm**
- ◆ **Callsign info** <http://www.ae7q.com>
- ◆ **Track us on APRS:** <http://aprs.fi>

I hope you have enjoyed reading our newsletter. Please contact me with any ideas/suggestions etc. or write an article about experiences you have had in Ham Radio. When submitting articles, please include the source and send to me at Mike31406@gmail.com for possible inclusion in future newsletters.

Mike

Classifieds:

Hy-Gain TH7DX 10-15-20 M beam. Verified SWR 1.5 to 2.5 on all bands at 13' off ground. New plastic parts i.e. end caps and trap covers. Retail \$900, asking \$450 TeddyAE4TJ email me at myemail122060@Yahoo.com

Wanted: I need some help in programing a new Baofeng UV 5R V2 Plus, Stephen Lyda, KI4ZSY at StephenLyda@Yahoo.com Thank you!

If anyone has any Ham radio items to sell or trade... list it in this column by contacting Buddy, w4dew@arrl.net, 864-445-7574