

**This is a 501c3 club, so your donations are tax deductible.**

**This club is also an Arizona Non-Profit Corporation.**

**OVARC Newsletter Editor: Ron Herring W7HD**

**Monthly club meeting location is at Ascension Lutheran Church**

**1220 W Magee Road Tucson, AZ 85704**

**(just east of LaCanada on Magee)**

**Meetings are held the third Friday of each month at 7:00 pm except in December. Elections are held in the January meeting.**



**Facebook:**  
[https://www.facebook.com/ovalleyarc?ref=tn\\_tnmn](https://www.facebook.com/ovalleyarc?ref=tn_tnmn)

**Website: <http://tucsonhamradio.org>**

**How to contact us:**

- <http://tucsonhamradio.org/contact-us>
- 

**June meeting will be on the 21<sup>st</sup> at 7:00 pm.**

**<http://tucsonhamradio.org/ovarc-repeaters>**

**Note that the repeater information is now a link to the OVARC website. That is avoid the possibility of incorrect information, since Tom W7TRA will maintain that list on the website.**

**Oro Valley Amateur Radio Club now has our very own Fusion YSF room.**

US Oro Valley AZ

YSF74158

People with hotspots can go to the Fusion YSF section on Configure page and find the above. It is in alphabetical order starting with US.

## **Gary KT7AZ**

**We will stage our monthly OVARC operating event on August 17 at Pima Air and Space Museum. We had tentatively planned an event for Tonto National Monument but in August it will likely be hotter than the surface of the sun. Pima A & S Museum will allow us to set up in air-conditioned comfort in the restaurant as we did 2 years ago. Our thanks to Bill Hickey AB7AA, who is a docent at the museum, for getting permission from the powers that be.**

Stay tuned for details. 73 de W8TK

cross-reference

**Field Day 2019**

**TIPS, TRICKS AND LINKS**

**Now's the time to get your name on NASA's next mission to Mars**

**ARLS003 Ham Radio Satellites to Deploy from ISS**

**CQ Newsroom**

**D-i-Y TUNER BALUN**

**Amateur Radio Weekly articles**

**EDITORS PAGE**

2019 OVARC Board of Directors

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There is a new Calendar that is accessed from the OVARC main web page.

<http://localendar.com/public/OVARC>



## **Field Day 2019 Approaches**

Preparations are well underway for OVARC FD, Saturday Jun 24th. Event will be held at W8TK property at 10771 N. Camino de Oeste, about 0.4 miles north of Lambert Lane. Using that address on your GPS will not get you here. For GPS,: 32° 24' 06.91" N, 111° 03' 55.15" W

Setup begins at 0600 on Friday to beat the heat. Field Day weekend is always the hottest of the year. Wear long pants because the yard grew lots of brushy stuff over the wet winter, and bring work gloves for tugging on antenna ropes. Coffee and donuts will be provided. We usually have all the antennas up by 0800 when work heads inside to the air-conditioning.

Signup Genius link is available on the club website: [tucsonhamradio.org](http://tucsonhamradio.org) One link is for operating slots and one for the potluck dinner which will start around 1600 Saturday. Slots are filling fast, so if you wish to operate, get yourself on the schedule! Potluck was a hit last year and party subs will be furnished by the club to complement dishes brought by members.

Four stations will be set up, so we will sign K7T as class 3A plus W7AI as GOTA. The stations will be identical, with Kenwood TS590SG at each, headset with boom mic and footswitch, WinKeyer with Begali paddle. GOTA station will have a fan dipole for 80/40

meters and a small triband beam for 10/15/20 meters. Of the 3A stations, one will be on 20 meters, one on 80/15 meters (depending on which band is open) and the third on 40/10 meters. A new triband Spiderbeam at 50 ft will be on a triplexer so the 3 stations can share it, while inverted Vees at 50 ft will handle 80 and 40 meter duty. Each station will have a Windows computer loaded with N1MM+ Logger, WSJT-X, fldigi, and MMTTY, and two video monitors to provide enough video real estate to run all the software.

Last year's setup worked well with the 3A stations at the casita and the GOTA station in a quiet bedroom in the house. The GOTA station antennas were a big disappointment last year and we have worked hard to make sure that won't happen again. GOTA will have a 2200 watt Honda generator and casita will use a 7kw gas generator for all 3 stations. All indoor spaces are air-conditioned.

As always, the operator calls the operating mode. Keep in mind that CW and digital contacts are worth 2 points, phone contacts one point. If you are not a regular N1MM user, please view the FD instructional video on the N1MM website: <https://n1mmwp.hamdocs.com> Go to Support>Instructional videos> N1MM LoggerPlus on Field Day. The video gives a good overview of how to operate FD as well as how to log it, so it's 17 minutes well spent. The program is free to download, so you can practice with it. Please don't sit down at the radio and ask, "What do I do now?"

If you plan to operate digital modes (FT8, PSK31, RTTY), make sure you know how. I am not an expert in digital modes, so I expect you to be one if that's what you want to do. Or you can partner with somebody who can guide you. Each operator slot has an "assistant" position that you can sign up for. All the digital mode programs are free as well, so load up and practice!

As in the past 2 years, we will be competing with Coconino ARA and Cochise ARC for the Arizona FD trophy. Coconino has claimed it both years and we want it back! Get signed up and get ready!

OVARC Field Day kicks off in just 2 weeks. The FD elves are scurrying about measuring and cutting wires and ropes, loading computers, firming up plans. Things to do:

- Check club website ([tucsonhamradio.org](http://tucsonhamradio.org)) for Field Day details, including links for operating slots and potluck dinner signups.
- Unless you are a regular N1MM Logger user, go to the website: [https://n1mmwp.hamdocs.com/downloads/#elf\\_l1\\_SG93VG8gVmlkZW9z](https://n1mmwp.hamdocs.com/downloads/#elf_l1_SG93VG8gVmlkZW9z) Download and view the video on Field Day. 17 minutes well spent.
- Plan to help with setup on Friday, June 21 at 0600. Bring work gloves. I recommend long pants. Winter rains made for lots of brush on the yard.

73 de W8TK  
 Tom Kravec  
 OVARC FD Chairman  
 (520)572-0554

**NOTABLE ACCOMPLISHMENTS**

233945 -1 0.2 1414 ~ W7HD W8NOR DM42  
 234000 Tx 1998 ~ W8NOR W7HD -01  
 234015 1 0.2 1413 ~ W7HD W8NOR R-04  
 234030 Tx 1998 ~ W8NOR W7HD RR73  
 234045 -1 0.2 1412 ~ W7HD W8NOR 73

Thanks for the QSO today. First one on 6m, ever. I used my windom antenna and 10w. Not a big accomplishment since we're only a few miles apart.

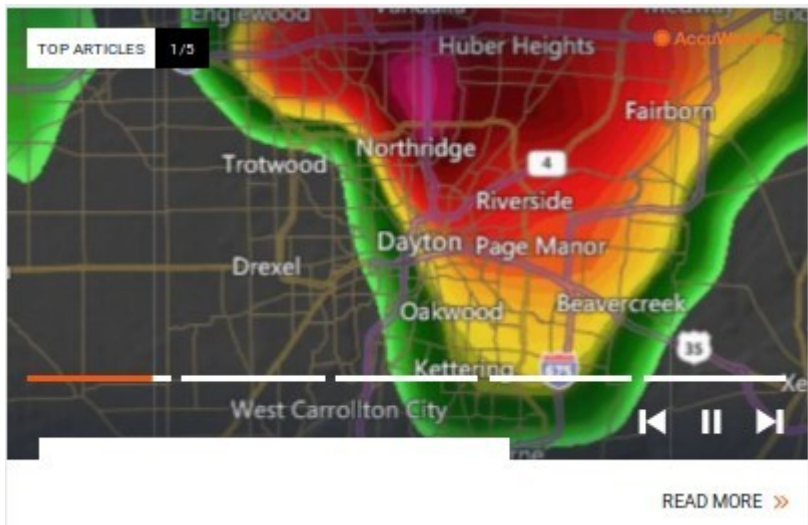
73 Helge W8NOR

W7HD was running a KX3 at 5W to a vertical. We are 19 miles apart, according to the FT8 window. He was on the other side of the Tucson Mountains from me, so that made this notable. The difference in signal reports was perfect, since he was running twice the power I was (3dB).

- **OVARC email contacts:**

For general information about OVARC	<a href="mailto:info@tucsonhamradio.org">info@tucsonhamradio.org</a>
For licensing and VE questions	<a href="mailto:licensing@tucsonhamradio.org">licensing@tucsonhamradio.org</a>
For help setting up your station or other operating questions	<a href="mailto:elmer@tucsonhamradio.org">elmer@tucsonhamradio.org</a>
For suggestions on club programs, etc.	<a href="mailto:suggestions@tucsonhamradio.org">suggestions@tucsonhamradio.org</a>
For membership questions	<a href="mailto:membership@tucsonhamradio.org">membership@tucsonhamradio.org</a>
For assistance with public service events or to help out at public service events	<a href="mailto:public_service@tucsonhamradio.org">public_service@tucsonhamradio.org</a>
For Field Day information	<a href="mailto:field_day@tucsonhamradio.org">field_day@tucsonhamradio.org</a>
For website suggestions or comments	<a href="mailto:webmaster@tucsonhamradio.org">webmaster@tucsonhamradio.org</a>
For Sunday night net questions	<a href="mailto:Net_manager@tucsonhamradio.org">Net_manager@tucsonhamradio.org</a>
For hamfest informations	<a href="mailto:hamfest@tucsonhamradio.org">hamfest@tucsonhamradio.org</a>
For newsletter submissons or comments	<a href="mailto:newsletter@tucsonhamradio.org">newsletter@tucsonhamradio.org</a>
Have events added to the OVARC Calendar	<a href="mailto:Calendar@tucsonhamradio.org">Calendar@tucsonhamradio.org</a>

**Please note that we removed the email addresses listed in the newsletter due to a phishing attempt. So please use the ones from the links above.**



Dayton tornadoes May 28, 2019

Hara Arena was pretty much destroyed. It was good thing the Hamfest was moved to Xenia. It had far less damage.

## TIPS, TRICKS AND LINKS

### [How to Free Over 10GB of Disk Space After Installing Windows 10's May 2019 Update](#)

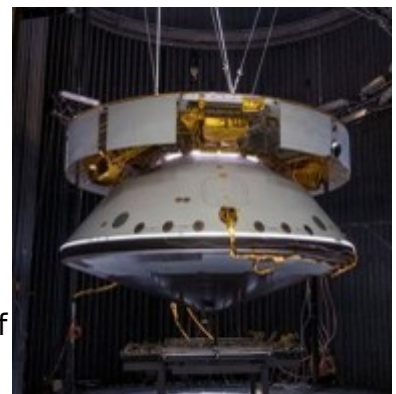
- Did you just install the May 2019 Update? If so, there's more than 10 GB of data wasting space on your hard drive—we had 24.6 GB! On a laptop or tablet with a limited amount of storage, this can fill up your device quite a bit.

### [Gigabyte matches Corsair with an incredibly fast SSD](#)

- Not to be outshone by Corsair, Gigabyte announced a new AORUS NVMe Gen4 SSD. The drive can hit up to 5,000MB/s read speeds and 4,400 MB/s write performance, which is significantly faster than Samsung's fastest NVMe SSD. The downside is you'll need a new AMD motherboard capable of support PCI-E 4.0. Intel is still playing catch up and only supports the 3.0 standard.

## Now's the time to get your name on NASA's next mission to Mars

It's that time of the year again, when NASA gives you the opportunity to "ship" your name to another celestial body. This time, the destination is Mars, and the shipping service is NASA's future Mars 2020 rover, which will be headed to the Red Planet in - you guessed it - 2020. The rover's primary mission is to get closer to answering that fundamental question: did Mars ever host alien life? The robot is equipped with tools and instruments that will help scientists figure out if the planet may have hosted life in the past. On top of that, the rover will also be drilling and collecting samples of Martian dirt. It'll then leave those samples on the ground, where they could potentially be picked





up someday by another spacecraft and brought back to Earth. And while the Mars 2020 rover is doing all of this, your name could be along for the ride. If you send in your name sometime before September 30th, NASA engineers at the Jet Propulsion Laboratory will etch it onto a silicon chip with an electron beam, and then the rover will carry it on its journey. The names are going to be pretty teeny, though - about one-thousandth the width of a human hair. That's small enough so that more than a million names can be included on a single chip as big as a dime - but big enough for any Martian microbes to read (only kidding... Martians can't read). NASA has provided this opportunity for members of the public before, when it landed the InSight lander on Mars in 2018 or when it sent the OSIRIS-REx spacecraft to the asteroid Bennu. And just like any seasoned traveler, you'll get a boarding pass and "frequent flyer" miles. Seeing as how the InSight travelers got about 300 million miles from their trip, the Mars 2020 folks are poised to get some serious points, too. Unfortunately, it seems doubtful Delta airlines will accept them. AND - when I filled out my reservation - I listed my name as " Tom KB8UUZ Parkinson" So when the new rover lands, my callsign will be forever on the Martian surface. Go to: <https://mars.nasa.gov/participate/sendyour-name/mars2020/>



### Handheld Transceiver Accumulation Syndrome

- A Handheld Transceiver (HT) is a convenient, compact all-in-one wireless device for FM operating on the VHF/UHF bands. HTs are sometimes referred to as a Shack On The Belt. There's a lot to like about a transceiver that has wide frequency range, built-in antenna and power source.

### It's Not About Hara

- There's been a festering, ongoing social media battle over Hamvention, its new venue, the fairground in Xenia, and the old Hara arena. It seems this has bubbled up to the surface again with the recent tornado disaster in Trotwood which severely damaged homes and the venerable, but severely dilapidated Hara Arena. I won't dispute that ...

### <https://www.techradar.com/news/windows-10-giving-you-a-black-screen-after-latest-patches-dont-panic>

- **Genius.com accused Google of stealing its lyrics:** You might think it'd be impossible to steal lyrics results, but Genius.com says Google is doing exactly that. The company employed a neat trick to prove the site scraping: It alternated apostrophe types between straight and curly to spell out "Red Handed" in Morse code, which showed up on Google. You could call that: Genius.

### *CQ Newsroom stories include:*

**"Near-Normal" Atlantic Hurricane Season Predicted** - NOAA expects between 9 and 15 named storms this year, of which 4 to 8 might become hurricanes

**Hurricane Response Was Key Element of Amateur Radio Demonstration** - Test for FEMA and Red Cross involved hams from South Carolina to Maine, using voice and HF digital modes

**FT4 Beta "Release Candidate 7" in Use Through Early Summer** - Authors of contest-focused digital mode hope it will be ready for general release by mid-July

**ARRL Seeking Volunteer Monitors** - Applicants for new joint ARRL/FCC program will be vetted and interviewed by ARRL staff

**FCC Re-Charter Technical Advisory Council; 2 Hams Among Members** - Greg Lapin, N9GL, will represent ARRL while NYU Professor Ted Rappaport, N9NB, will also serve on the group

**RAIN Report Goes QRT** - Founder Hap Holly, KC9RP, has decided to retire from producing the weekly audio newscasts

**Cricket World Cup Marathon** - Stations with special call signs are active now from England and Wales, as well as other countries

**Sailing in Space** - Two satellites planned for launch this month will incorporate different types of "sails" in their designs.

Details on these stories and more are online in the CQ Newsroom at:

<http://cqnewsroom.blogspot.com/>

SB SPACE @ ARL \$ARLS003  
ARLS003 Ham Radio Satellites to Deploy from ISS

ZCZC AS03  
QST de W1AW  
Space Bulletin 003 ARLS003  
From ARRL Headquarters  
Newington, CT June 14, 2019  
To all radio amateurs

SB SPACE ARL ARLS003  
ARLS003 Ham Radio Satellites to Deploy from ISS

Three BIRDS-3 satellites with Amateur Radio payloads are scheduled to be deployed from the International Space Station on Monday, June 17. The BIRDS-3 constellation includes CubeSats from three countries: They are Nepal's first satellite, NepaliSat-1; Uguisu from Japan, and Sri Lanka's first satellite, Raavana-1.

The primary mission of the BIRDS constellation is to provide ciphered short messages via its 435.375 MHz beacon, giving the opportunity for the Amateur Radio community to decipher the messages using a publicly available key on the BIRDS-3 website at, <http://birds3.birds-project.com/document/amateur/> .

Operators able to successfully decipher the message will be recognized on the BIRDS-3 website and receive a BIRDS-3 QSL card.

Live streaming of the deployment starts at 0835 UTC at, <https://www.youtube.com/watch?v=rrw3cMw10nQ> . An April 11 Cygnus resupply mission to the ISS delivered the three BIRDS-3 CubeSats and three other CubeSats.

## D-i-Y TUNER BALUN

### A SIMPLE, LOW COST HOME-BREW TUNER BALUN FOR UP TO 500 WATTS

From the previous page on TUNER BALUNS, we saw why a 4:1 balun of any type is the WRONG balun to use as a Tuner Balun. Indeed the 1:1 Guanella (Choke Balun) is the only correct way to address the task of transitioning from Openwire Feedline to an Unsymmetrical Antenna Matchbox.

**BEWARE: MOST PEOPLE WORKING IN THE SHOPS WHO SELL BALUNS DO NOT UNDERSTAND WHY AND ARE STILL LIVING IN THE FALSE WORLD OF YESTERDAY WHERE PEOPLE BELIEVED THE 4:1 BALUN WAS THE BALUN OF CHOICE.**

Besides, they will offer you a balun costing \$80 to \$150 and claim "this is what most people use." In one respect they are right. Most people are using the wrong balun, due to the bum advice they are receiving from the people who claim to be experts.

Do your self and your bank account a favor: home-brew your own balun!

**Now on with the project:**

### A VERY SIMPLE AND EFFECTIVE TUNER BALUN:

**That YOU can build for under \$20**

#### Parallel Connection

In this example, the terminals used are

**Terminals** 6mm solder lugs spaced to fit standard Wireman 450 Ohm Windowline.

This simple 1:1 Guanella (Choke) Balun is wound on an FT-240-xx ferrite core.

It consists of a specific number of turns of coax.

**"X" Turns of a Specific Coax on a Specific Ferrite Toroid**



The special winding *Cross-Wound*, or Cross-Winding technique is called the "Reisert Method", named after Joe Reisert, W1JR, who first described this technique of winding. (see EXAMPLE: W1JR (Reisert) Cross-Winding Method)

In this picture the balun has a female UHF (PL) connector because that's what this particular application called for. If you would remove the heat-shrink tubing, you'll find a normal PL-259 soldered to the coax. A standard PL-259 connector and a double-female PL enables you to connect to "whatever."

### **Insulation is a combination of heat-shrink tubing and liquid electrical tape.**

It is perfectly OK to use this outdoors but then you should insulate the connection terminals with electrical tape or similar after connecting to the 450 openwire (windowline).

Purists may also want to coat the pre-wound toroid with several coats of liquid electrical tape, but that is not absolutely necessary.

### **APPLICATION SPECIFIC DETAILS:**

Contrary to what most commercial balun vendors try to make us believe, there is no such thing as a "best" balun or "one-size-fits-all" balun.

- Which toroid size?
- Which Ferrite mix?
- Which size of wire or which type of coax?
- How many turns of wire or coax?
- Reisert cross-wind or classic wind?

With this many variables, how can there possibly be just ONE balun type that is best?

If that were true, there wouldn't be so many variables to work with and there would have been no need for Jerry Sevick to write his book on Baluns and Ununs.

Yet most salesmen trying to sell you a balun will try to make you believe there is a "best" that most people use. **NONSENSE!**

### **A GENERAL PURPOSE TUNER BALUN:**

The selection of components for your tuner balun will depend on the required bands it must cover as well as the power level it must handle.

In a perfect world, we would have 3 different baluns, one for 160/80, one for 40/30 and one for 20-10m. We would swap them in and out as necessary.

In our real world, this is not a practical solution, so we seek the best compromise.

The tables below show recommended values. In some cases it shows more than one possibility. Again I remind you it is always a compromise when trying to cover multiple bands. Where there is a choice, the one solution will favor the lower band(s), the other solution will favor the higher band(s).

**RECOMMENDATIONS:**

<b>HIGH POWER 500 W. OR MORE</b>				
<b>BANDS</b>	<b>TOROID</b>	<b>COAX</b>	<b>TURNS</b>	<b>COMMENT</b>
160/80	FT-240-31	RG-303	18	
160/80/40	FT-240-31	RG-142 / RG-303	17	Favors 160
	FT-240-43	RG-142 / RG-303	17	Favors 40
80/40/30	FT-240-43	RG-142 / RG-303	17	
80 - 10	FT-240-43	RG-142 / RG-303	17	Favors 80/40
	FT-240-43	RG-142 / RG-303	15	Favors 40-10
40 - 10	FT-240-43	RG-142 / RG-303	15	
20 - 10	FT-240-61	RG-142 / RG-303	15	
1 to 300 W.	1x FT	RG-58		
1 to 500 W.	1x FT	RG-142 / RG-303		
500 to 1 KW	2x FT	RG-142 / RG-303		
1 to 1.5 KW	3x FT	RG-142 / RG-303		

NOTE: The combinations marked with a yellow background are typical for what most people will use for their 80-10m tuner balun.



LOW POWER: LESS THAN 500 W				
BANDS	TOROID	COAX	TURNS	COMMENT
160/80	FT-140-31	RG-316	18	
160/80/40	FT-140-31	RG-316	17	Favors 160
	FT-140-43	RG-316	17	Favors 40
80/40/30	FT-140-43	RG-316	17	
80 - 10	FT-140-43	RG-316	15	
40 - 10	FT-140-43	RG-316	15	
20 - 10	FT-140-61	RG-316	15	
1 to 200 W.		RG-174		

IMPORTANT:

The tables above assume you want your matchbox to be usable with "any kind" of openwire-fed antenna.

It seems to me that most people designing baluns make the assumption that most users will only use the matchbox with symmetrical antennas. They seem to forget that some users want to match openwire-fed OCFD antennas or vertical-dipoles with it.

These two antennas just mentioned can tend to have a lot of common mode current on them. The table above takes that into consideration and suggests toroids with enough permeability for the job.

If you are only matching a center-fed dipole or a full-wave loop and these are hung high and in the clear of surrounding objects, then you may wish to use toroid cores with less permeability - thus slightly less loss.

In that case, in the tables above, substitute as follows:

- Instead of #31, use #43
- Instead of #43, use #52



### EXAMPLE: W1JR (Reisert) Cross-Winding Method



#### Cross-Winding using the Reisert (W1JR) Method:

With classical winding, both ends of coax end up sitting next to each other on the same side of the toroid. Often this is OK. Sometimes it is advantageous to have them at opposite sides of the toroid (i.e. one on top, the other on the bottom).

- Begin by securing the coax cable very tight to the toroid with one or two wire ties, leaving a stub length long enough for the planned connection.
- You may wind towards the left or the right, it doesn't matter.
- Wind half of the turns on one side of the toroid.
- Once you have reached the middle of the side opposite from where you begin, bend the coax 180 degrees and run it back to its initial starting position, but slightly off center towards the free half of the toroid.
- When you reach to opposite side, take care that the cable passes the toroid on the opposite side than where it passed at the beginning of this curve. Sounds difficult. Please observe where turn 9 in the picture above moves across the toroid and becomes turn 10. It begins above the toroid and on the opposite side it runs under the toroid.
- Proceed winding the other half of the turns onto the other half of the toroid.
- Once reaching the end of the free half of the toroid, you should have the number of turns you were attempting to wind onto the toroid.

## Amateur Radio Weekly articles

### [Time to update!](#)

- Today was my time to sit down at the PC and check out what amateur radio programs needed updating.....now this has always lead me into a computer/software adventure. I use the word "adventure" loosely as it's more like a grey hair adventure. The pro...

### [Back To The Magic](#)

- The magic band has always had a strong pull on me, ever since being put under its spell in the late 60s. I quickly learned that the surest way to guarantee a band opening was to leave the house for a few hours. Invariably when returning, the other lo...

### [DMR Plus - The Network that is Gaining Popularity in the West](#)

- When it comes to DMR, people usually think of Brandmeister. But there is another network rapidly gaining popularity in North America worthy of your attention - DMR Plus. DMR Plus gives you many of the same features as Brandmeister such as talkgroups, SMS messaging, private call, reflectors and more. The main difference is DMR Plus [...]

## EDITORS PAGE

Deadlines for 2019 submissions are on the Monday preceding club meeting

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Feel free to email me at [newsletter@tucsonhamradio.org](mailto:newsletter@tucsonhamradio.org)

Please note that all articles submitted may be edited for spelling and grammar mistakes. My document program does automatic spell checking (LibreOffice Writer). DOC, RTF, PDF, ODT, TXT are all acceptable. If pictures are included, having them in separate files as JPG or PNG formats is best. I can place captions under the pictures if needed.

Note that the repeater information is now a link to the OVARC website.

Now that the commerce.com websites are being updated again, I have expanded the [propagation page](#) on my [website](#) to include several new links for more info.

I traded in my FT-857D for an IC-7100 for a difference of \$434.99!

Things I have noticed about the IC-7100:

- It is incredibly sensitive to RF in the shack. This will cause the control head to reboot.
- I reduced this by putting a shielded Cat-7e 3 ft cable between the radio and the control head.
- I am now tracking down the sources of RF in the ham shack.
- It is a great receiver on 160M-70cm.

May your noise be low, signals high, and your waterfall never dry up :-)



**Ron Herring W7HD**

**Newsletter Editor, Past Vice-President**

**Serving Pima County and Southeast Arizona,**

**now distributed worldwide**