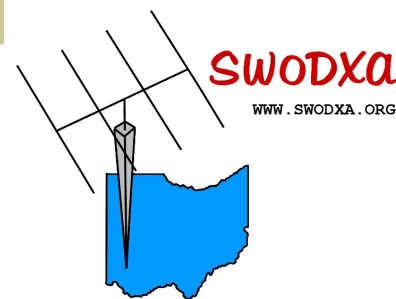




Volume 3, Issue 2

11/2019

the exchange



SouthWest Ohio DX Association

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The Prez says....Tom, NR8Z

I'm writing this just after what I think of as the start of the DX contest season, the CQWW DX SSB contest was last weekend. Conditions didn't seem very good to me but it was great to see so many DX entities at least being spotted. Band conditions can't get any worse, right?! On the other hand, a few days ago, I worked both VK and ZL stations on 40 meters using 50 watts more than an hour after sunrise. FT-8 is going to upend my usual propagation thinking, I hope old dogs can learn new tricks.

I took my own advice from September's "The Exchange" Newsletter and got out to work on one of my antennas. It was one of those beautiful fall Ohio days with yellow leaves falling all around me. I repaired the ravages of weather and time on my 40M dipole and got it a little more in the clear with more of an inverted V shape (I never got around to modeling the old "Inverted W"). I don't know if it will do much for my signals but at least it made for a nice day outside.

In a few short months the club will be gearing up for the DX Dinner® and DX Forum in 2020. Though the work is not difficult, it does take a number of people to make these annual events successful. Due to changes in availability and a silent key, we really could use new helpers in this endeavor. So please, if you have time and interest, step forward and let me or anyone on the committee know that you can help. And remember, if all else fails, as the President you've given me the power to "voluntold" someone!

The next club meeting is 14-November @6:30pm EST at the Marion's Piazza in Mason. The SWODXA holiday party will be held Monday, 16-December at Cibo e Vino (nee Spinning Fork, 2229 N. Verity Parkway, Middletown, OH 45042). The cost is \$10 per attendee (plus any adult beverages), with the club picking up the remainder of the cost. Family members and significant others are welcome. I hope to see you there.

73,
Tom NR8Z



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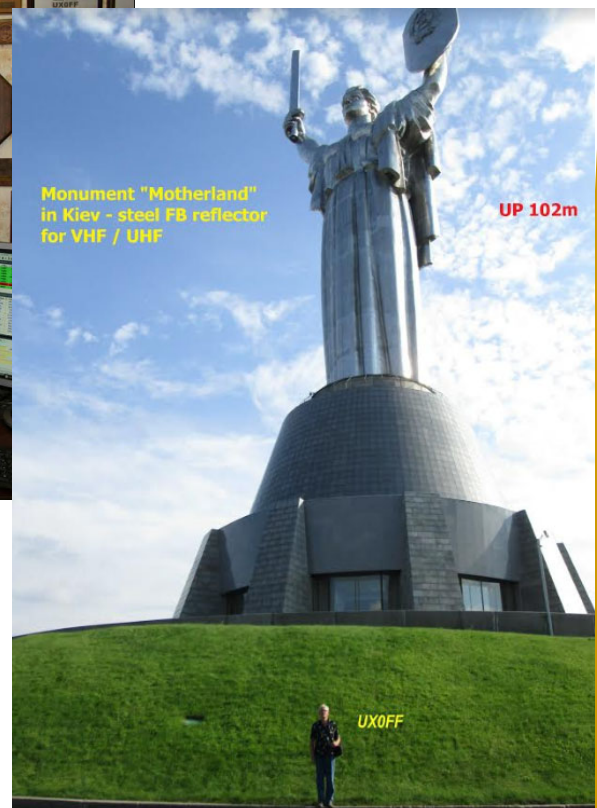
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Interview with UXOFF —Nikolay

I worked Nikolay and then sent him an email asking him to answer a few questions. He sent along the article on the next couple of pages. What an experience! Since the article was originally published in CQ Magazine, I contacted Bob N200 and Rich, W2VU. This article was Reprinted with permission from the February 2013 issue of CQ magazine. Copyright CQ Communications, Inc. All rights reserved.

Rich was kind enough to send me the original...Enjoy!



CQ's Worked All Zones award is one of amateur radio's biggest challenges. Five-band WAZ is even tougher. But what about 11-band WAZ?

An Amazing Ham, An Amazing Accomplishment: UXØFF Earns First-Ever 11-Band Worked All Zones Award

BY FLOYD GERALD,* N5FG

Worked All Zones, or WAZ, is the second-oldest amateur radio operating award available today, dating back to November 1934.^{1,2} Forty years ago, in 1973, *CQ* added to the challenge of earning WAZ by introducing single-band, single-mode awards in addition to the previous mixed and single-mode awards. In that time—until now—no ham has qualified for *all* of the single-band awards ... plus one!

**CQ* WAZ Award Manager
of *CQ* magazine

What makes WAZ so difficult? The basic rule for the award is simple, but achieving it is not: Make confirmed contacts in all 40 CQ zones of the world. There is no introductory level of this award, as there are in so many others. With a few narrow exceptions³, you must work and confirm all 40 zones in order to qualify.

Last September, Ukrainian amateur Nikolay Lavroka, UXØFF, became the first amateur to qualify for 11-Band WAZ, earning certificates for confirmed contacts on 160, 80, 40, 30, 20, 17, 15,

12, 10, and 6 meters, as well as the WAZ EME award, with all contacts on 2 meters.

Introducing UXØFF

Nick's accomplishment is amazing in itself, but it becomes even more noteworthy when you learn a little more about the man behind the callsign. Nick has been licensed since 1971 and is a leading DXer and contester in the Ukraine (as well as in the former Soviet Union). He has more plaques and certificates than one can easily count (see photo A), has led island DXpeditions, and is active on 6 meters and 2-meter EME (moonbounce) in addition to traditional HF DXing and contesting. He was the first chairman of the Ukrainian Amateur Radio League's HF Committee and has been the chief judge of the UR DX Digital Contest since its inception in 2004. He is the first recipient of his



Photo A—The walls of Nikolay Lavroka's ham shack are covered with operating awards. He needs to make space for his one-of-a-kind CQ 11-Band Worked All Zones plaque. (Photos courtesy of UXØFF)





Photo B—All of UX8FF's antennas are home-built, and they cover the spectrum from 160 meters to 2-meter moonbounce.

nation's highest sporting award—the "Honored Master of Sports"—in amateur radio. Nick says he has uploaded over a quarter-million QSOs to the ARRL's Logbook of The World (LoTW) ... in addition to more than 300,000 "old-time QSOs in paper logs."

In addition, Nick has built all of his antennas (see photos B and C), as well as his power amplifiers and more.

A Very Bad Fall

A serious accident suffered while working on his antennas in 2009 makes Nick's story all the more amazing. As he tells it, his climbing bolt failed, causing him to fall from 10 meters (30 feet) up on one of his towers. He survived the fall (obviously), but suffered 37 fractures and was confined to bed for nearly four months, after which he needed to learn to walk all over again. However, says Nick, "the ham radio was a very great helper in that bad time," noting that "my friends and my son Pavel, UR5FJN, helped put together a low-power station near my bed" (photo D).

"I made over 3000 QSOs during that time with very low power, only a small FT-100D, without an antenna tuner," Nick explained, "and, with this bed 'position,' was the winner in the 2009 IOTA (Islands On The Air) contest for SO LP Mixed (single operator, low-power, mixed mode)."

Nick says he has made a full recovery and is back to fixing his antennas (many of which were damaged in bad

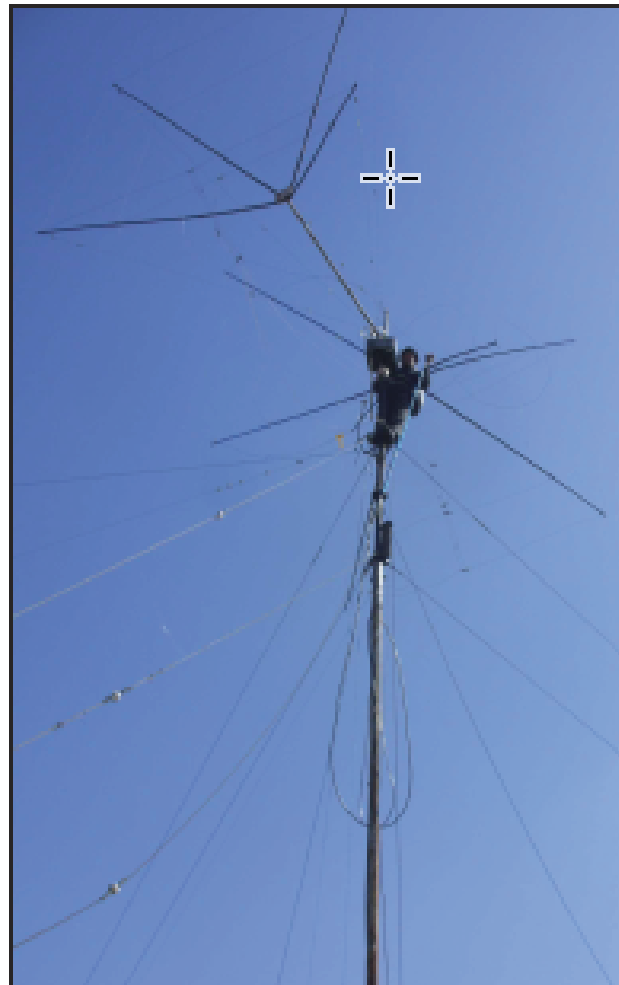
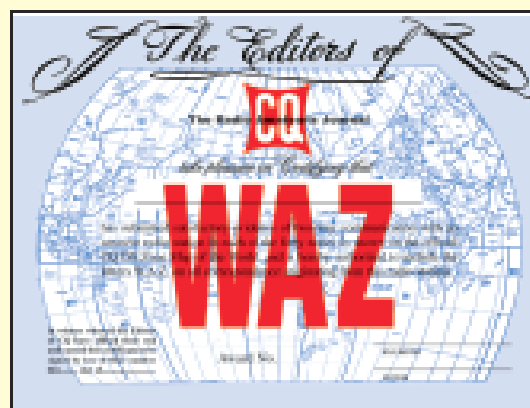


Photo C—UX8FF working on one of his antennas. A climbing accident in 2009 resulted in multiple fractures and slowed his completion of the EME (Earth-Moon-Earth) portion of his WAZ awards.

About the WAZ Award

For more information on WAZ, including complete rules, zone definitions, and a WAZ map, visit the WAZ page on the CQ magazine website at <<http://tinyurl.com/7mlzqht>>.

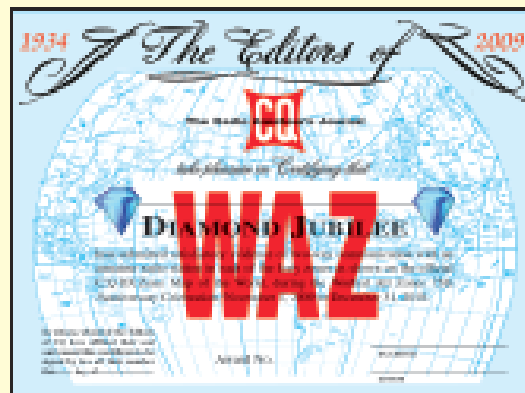


The (Long-Delayed) WAZ Diamond Jubilee Wrap-up Report

CQ celebrated the 75th anniversary of the Worked All Zones award in 2009 with a limited-time Diamond Jubilee WAZ Award, issued for making contacts with all 40 CQ zones between November 1, 2009 and December 31, 2010. We're about a year-and-a-half late on reporting the results, but finally, here they are, courtesy of WAZ Award Manager N5FG:

I issued 117 Diamond Jubilee Awards. The first was issued on November 16, 2009, only 16 days into the event period, and it went to N8FW. A close second was WK3N on November 17th. The first six not only made the required contacts (QSLs were not required) in less than 30 days, but got their applications to me before the end of the first month.

Table 1 lists the first 10 Diamond Jubilee WAZ awardees. Tables 2 and 3 list how many awards were issued in each of the U.S. and Canadian call areas, and by DX entity.



001	N8FW	11-16-09
002	WK3N	11-17-09
003	N4NX	11-23-09
004	N8OO	11-26-09
005	WD5DBV	11-30-09
006	WT8C	11-30-09
007	VE3XN	12-1-09
008	W9RPM	12-1-09
009	WA5VGI	12-1-09
010	4X4JU	12-3-09

Table 1—The first 10 winners of the CQ Diamond Jubilee WAZ Award.

USA (62 Total)		W0	6
W1	3	KH6	1
W2	1	KP4	1
W3	6		
W4	8	Canada (8 Total)	
W5	8	VE1	1
W6	12	VE2	1
W7	5	VE3	4
W8	7	VE7	2
W9	4		

Table 2—Geographic distribution of the 70 Diamond Jubilee WAZ awards issued in the U.S. and Canada, by call area.

4X	1	JA	8	SP	1
9A	1	LA	1	TF	1
DL	13	LY	1	UA	1
F	1	OK	1	UB	1
G	2	ON	1	VK	1
GM	1	PY	1	YO	1
HB	1	S5	3	ZS	1
I	2	SM	2		

Table 3—Geographic distribution of the 47 Diamond Jubilee WAZ awards issued outside of North America.



Photo D—Nick's accident left him confined to bed for nearly four months while his 37 fractures healed. His recovery was helped along by having a ham station at his bedside assembled by his son and their friends.

storms), especially his EME antennas, which he needed to complete his EME WAZ award—with all QSOs on 2 meters—his 11th band (out of 10 possible!) for his incredible achievement.

CQ congratulates Nick for this accomplishment and has commissioned a special plaque to recognize his status as the first person in the world to achieve Worked All Zones on 11 different amateur bands.

Notes

1. WAZ was originally offered by RQ magazine, a predecessor of CQ. Ownership of the award was transferred to CQ with its founding in 1945.

2. The only currently-available award older than WAZ is the International Amateur Radio Union's Worked All Continents (WAC) award. The ARRL's DX Century Club (DXCC) award dates back to 1936.

3. Due to the extreme difficulty of working all 40 zones on certain bands, the 160-Meter WAZ award is issued on confirmation of at least 30 CQ zones; and the 6-meter and EME awards are issued on confirmation of at least 25 CQ zones.

60 Meters—The Channel Band

By Joe, W8GEX

Pitcairn 60m permission story

Ralph K0IR, team leader for the Pitcairn VP6R DXPedition, had been turned down by the licensing folks in New Zealand for permission to operate 60m. He had his hands full testing equipment and getting the container ready for shipment to New Zealand and, knowing I had helped many teams get on this band in the past, asked if I would help in winning permission.

I knew I would need help on this project, so I asked Paul G4MWO and Mike ZL4OL for assistance. Between the three of us, plus Ralph, we sent many, many emails. First we wrote Shirley Dillon of the Pitcairn administrative office in New Zealand. She referred the request to Bill Haigh, Telecommunications Network Manager for the Government of the Pitcairn Islands, and he again denied the request. Not ready to give up, Paul wrote to Laura Clarke, the Pitcairn Governor who lives off island as she is also the UK High Commissioner for New Zealand. With his letter he sent supporting documents from the ITU WRC-15 conference, showing 60m had been allocated worldwide. Unsure if the email had been delivered, Mike volunteered to call her, but with no luck. In the meantime, in response to a fax, Paul received a note from the Governor's secretary saying that the Governor was on leave, but she would pass on the letter upon her return. When Paul finally did get a response from the fax, the situation at that point still remained unchanged.

By now Meralda Warren VP6MW, who lives on the island, had joined our team. She had been very active from 1984 until recently when she had some equipment failure. Meralda asked Bill for permission and also got a "no" answer. Then she asked the Pitcairn Island Council if they would ask Bill Haigh to reconsider, which led to several meetings on this issue. One reason Bill was turning us down is that he was reading old 60m documents and was concerned about interference,

so we needed to bring him up-to-date. Paul G4MWO is

great on this type of research, so he provided outstanding information for his review.

In the meantime, Mike ZL4OL had asked John Moriarty ZL2JPM of NZART and the IARU Liaison officer in New Zealand, for help. John knew that the ITU WRC-15 60m frequencies were 300 kc away from the New Zealand Search & Rescue frequency, and interference shouldn't be a problem, so he contacted Bill and explained the frequency range and the 2017 ITU 60m frequency allocation. Shortly after this, our permission was finally granted.

Confusing to say the least, but as you can tell, this team of K0IR, ZL4OL, G4MWO, VP6MW, ZL2JPM and W8GEX has worked tirelessly for the past several months in obtaining this permission. At times we were about to give up, but we persevered. Paul and I have worked on other licensing projects and Mike, being a local down under, was so helpful because he knew the right people to contact. It was my privilege to work with such an outstanding crew and for the team of VP6R.

(Cont. on Next Page)



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60 Meters Update (cont.)

Our most sincere gratitude goes to Bill Haigh ZL1BUQ, the Telecommunications Network Manager for the Government of the Pitcairn Islands for his reconsideration of this permit.

The team said they are looking forward to operating 60 meters and we are all looking forward to the ATNO.

Joe W8GEX

Other 60M Notes

VU7 - Lakshadweep Islands—M0KRI, Shabu, has announced his plans for a DXpedition to the Lakshadweep Islands. He will be using the callsign VU7RI from October 19 to November 3. This will be a three man team and are expected to be on 60m. **They will try to be on** 5pm to 7pm Indian standard time and 4am to 6am Indian standard time. Please convert to your local time, Ft8 or CW.

South Orkney Islands VP8/VP8DXU - NEW COUNTRY: Their last press release stated they will operate on 60 meters. A big thanks to all that had written them asking for a 60m operation from Feb. 20, 2020 to Mar. 5, 2020. <https://sorkney.com>.

They have asked the 60m community to support the project with money. It took a lot of discussion to overcome the resistance. Be sure to support this DXpedition.

T6 – Afghanistan - From Kabul T6AA—Robert has plans to start up early in this month and continue until summer, 2021. Robert thinks he will mostly do CW "with some SSB and digital modes," 160 6M. LoTW will be the initial primary QSL route. OQRS QSLing for paper cards direct only is being worked up. For updates: <https://www.qrz.com/db/t6aa>. Robert adds that he will be on 60 meters CW and expects to be transmitting "somewhere around 5352.5 up to 5355" KHz.

5R – Madagascar: JF1OCQ, Hiro, and JA8VE, Kuni, will be taking their annual "DXvacation time" on from Madagascar as 5R8VX and 5R8KU respectively from November 12 to 25. Digital modes including FT8 and FT4. They will have a 43 foot high vertical and a Hexbeam. QSL 5R8VX via JF1OCQ and 5R8KU via JA8VE.

Looking for CW QSO's: From Serge LU7YS :

I am very active in 60 meters and I have very good conditions for DX from my QTH in Patagonia. I find very little activity in the band at CW, although I have many contacts with Europe. I'm QRV for sked, eve with USA in split. My mail is sergio@lu7ys.com.ar



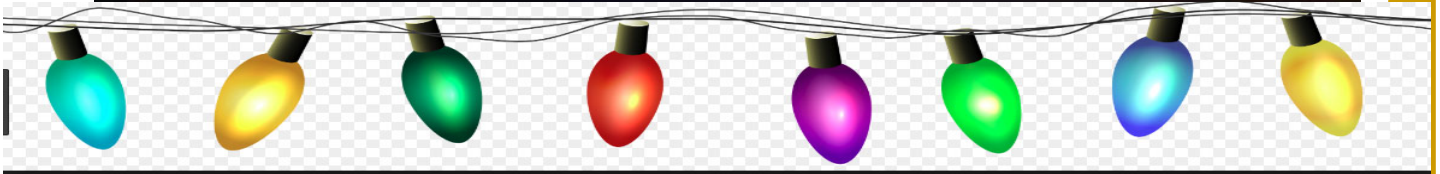
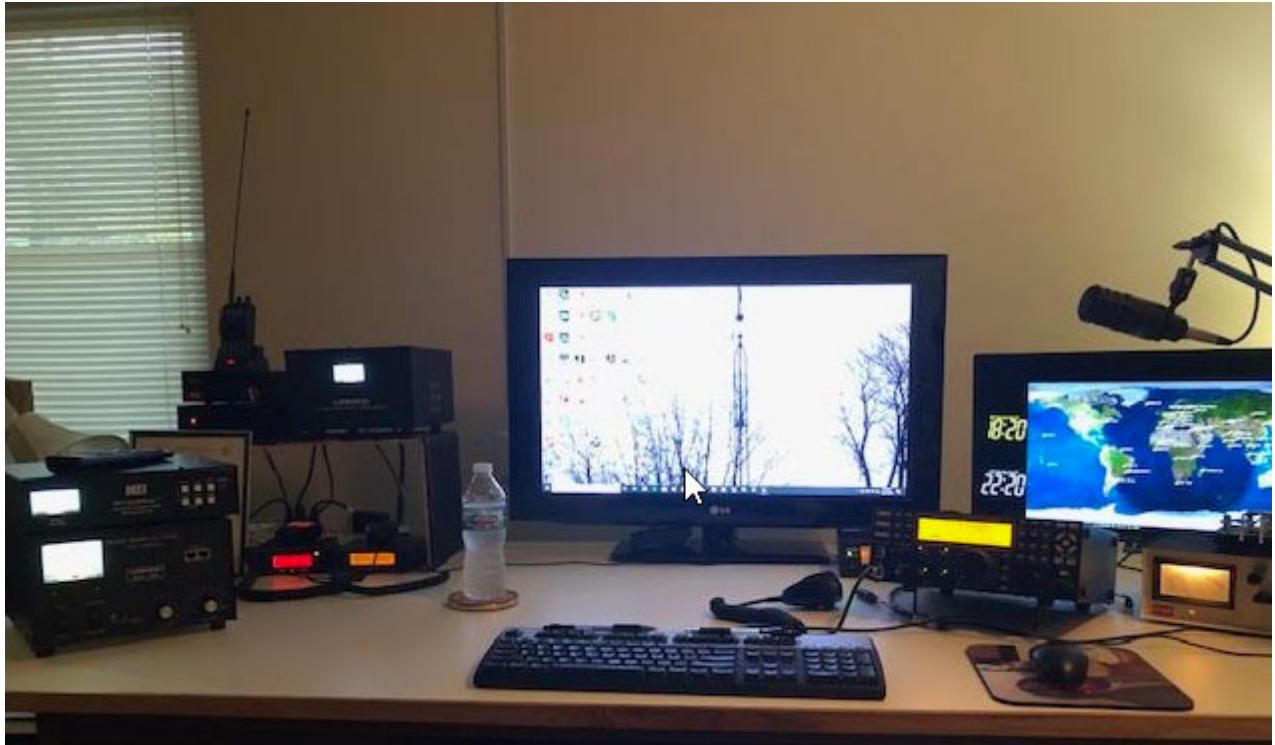
N3FJP

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I have asked many times for Shack Pics.....

AB8YK answered the call. Below is a “most excellent” pic of the shack.

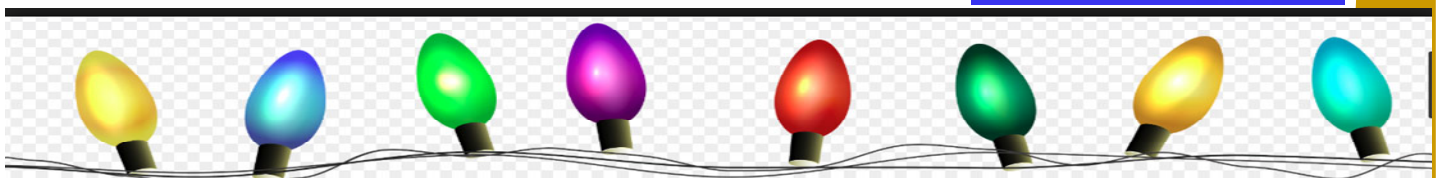
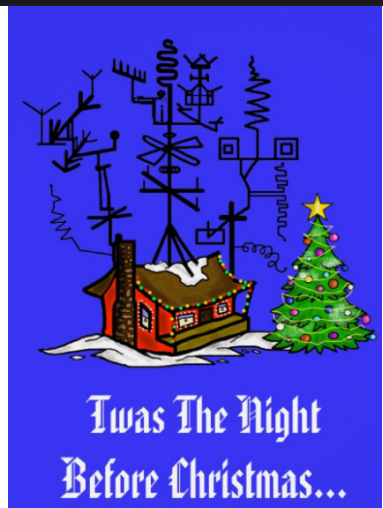
Congrats Jim!!!



SWODXA 2019 Christmas Party

The SWODXA holiday party will be held Monday, 16-December at Cibo e Vino (nee Spinning Fork, 2229 N. Verity Parkway, Middletown, OH 45042). The cost is \$10 per attendee (plus any adult beverages), with the club picking up the remainder of the cost.

Contact Mindi— kc8ckw@fuse.net for information and watch your email!!





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Your Thoughts on FT8?

I sent an email to our distribution list asking if and how much you had been using FT8 and/or FT4. The answers were excellent! Thanks to all

When I do operate it is about 69%
Jim Storms - AB8YK

Sorry, none.
Byron. WA8NJR

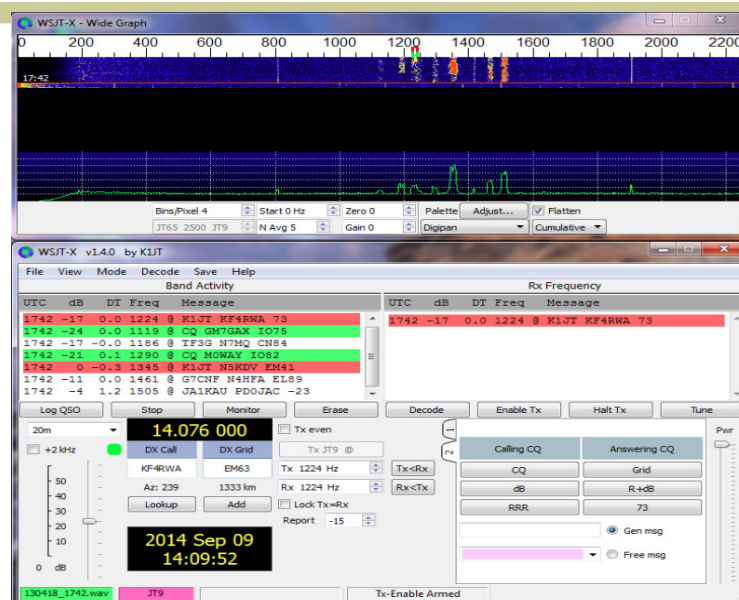
I have it set up. not very active. fewer than 100 QSOs. expect to use it from TN later in the year. mostly 40m with no dx as yet.
btexpress51@gmail.com

I am using FT-8 about 75% and CW 25%. I would use FT-8 a lot less and CW a lot more if band conditions were better. I do very little DXing due to HOA imposed antenna restrictions.
Ken Lowry

I have been using FT8 about half the time in normal operating and DXing. Mostly I use it when QRP portable. Honestly, there's more activity there most of the time though my contact rate QRP isn't all that good.
Tom – NR8Z

None - three Joneses

I use FT8 full time on all bands.
Joe W8GEX



I use FT-8 almost all the time. When the bands are dead, FT-8 still works. Some surprises even when you do not see many QSO's. I contacted one station out of 3 one evening, it was Antarctica. Wow, and it is confirmed via LOTW.

K8UD—Steve

I don't have my station running yet so I have never used FT8 but it's definitely a mode I will try once I'm up and running.
John—K2SY

I use FT8 all the time. I find it particularly beneficial on 6m and also 160 as both bands can benefit from some additional RX help.

That said I still use CW quite a bit and I still consider it my favorite mode.

Prior to FT8 I was active on RTTY and PSK but FT8 seems to have siphoned most of that digital activity to the new mode and, as a result, my usage of those modes has all but stopped also.

Scott, W3YX

(Cont. on Page 12)

LIFE IS SIMPLE



FT8 Thoughts (cont.)

99%

K8ST

I use FT8 mostly and still some on CW & Phone. If that is where the DX is that is where I go but FT8 is by far the largest part of my operation.

Randy—WB8ART

Given the poor band conditions for SSB operation I use FT 8 all the time. It has given me a way to make DX contacts with my simple 100 watts and a wire setup that would otherwise be impossible. For example this morning I made my first contact and gained another DX entity with Guam (over 7000 miles) using FT8. Without FT8 I never would have gotten DXCC in less than 2 years. There always seems to be someone calling CQ with FT8 and thus a way to utilize the ham bands since I don't do CW (sorry). I'm VERY happy Joe Taylor and his buddies invented it...

W8JBL - Joe Jr.

For 160 meters 100% FT8

For the other bands around 50%

W8RKO—Mike

100%. Although as soon as the bands clear I will be back on voice my preferred mode. Also I plan to learn to do computer assisted code as I cannot hear it due to hearing loss.

KB8BKW - Bill

I use it every time I get on the air. It's not the exclusive mode, but I try it every time I'm on.

Rob, W8MRL

It depends on band conditions and activity. I am always on CW on Wednesdays for CWTs and when there is a DXpedition to chase, but I am working a lot of FT8 and FT4 when conditions are so poor--mostly 40, 30, and 20.

K8CMO—Dave

I use FT8 about half or less for all my operating here in New Mexico. Much of my DX the last 6 months has been FT8 because that's where the DX was. I miss RTTY. Not much CW either.

Looking forward to seeing y'all at next year's Hamvention.

Alden, AG5S

Been there, done that! Mode works, especially since it appears everyone has migrated CW and SSB. It is NOT a low power mode, like it was originally touted to be. Some times I have had to turn up the heat to make the contact. Hear stuff on otherwise DEAD bands on FT8. Just starting to play with JT-DX. Probably only made 200-300 Q's on this mode in past year. Concerned that if we only work FT8 and forgo other modes we will eventually loose that spectrum space.

Jay, K4ZLE

I have been running about 90% FT8. I have a high noise level at my QTH and FT8 puts me back in the game. Still want to DX all mode but not much on now. First year without a new country so far and band slots very infrequent.

Ron, N9RC



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*Owned and Operated
since 1996 by
fellow ham
Scott Neader KA9FOX*

(Cont. on Next Page)

FT8 Thoughts (cont.)

To be honest, beyond checking propagation, I don't find an advantage in using FT-8. Anytime I have tuned into any FT-8 activity it seems to be the same folks working each other, especially on the lower bands. FT-8 on 20 meters is a mess in my opinion with several stations transmitting in the same spot and many times on top of the DX station. And finally, this is just me, I get more satisfaction out of working a "new one" on CW or SSB instead of my computer getting all of the credit.

Gary W8PU

I use FT8 several times a week. It is a good mode to work while watching TV or doing other work at my desk (multitasking). FT8 has been about 80% of my QSO's, with CW contesting/DX being the rest. I have 130 DX confirmed and WAS on several bands using FT8. My favorite lately is using it to catch band openings on six.

Ernie W8EH

I use ft-8 quite a bit. My routine is check the dx spots and if there is anyone there to work I try to work them. Usually after being frustrated with that I switch to ft-8. Look at 10 and 6 meters and then work

my way down the band usually ending up on 20m. I have WAS and have 90 some dx stations on LOTW. I found it a little boring at times but not as boring as dead air.

Bob Holmes NN8M

I have used FT8 for a few contacts to keep up with the latest technology. However, I don't use it on a regular basis. I find no fault in those who do but I tend to be old school...CW about 99% of the time with an occasional SSB QSO. That said, if a DX station I needed was only on FT8, I would make the QSO but continue to try to get him on CW. Really, I would feel "bad/guilty" if I had to count that entity with an FT8 QSO. But that's just me...to each his own. In recent years, I frequent the low bands most of the time, especially 160M over the winter months. For me I worry that 160 will go the way of 6M with everyone's computer calling CQ on one frequency with no CW or SSB signals anywhere.. Sorry this was a bit verbose but that's my 2 cents.

Ron NX8Y



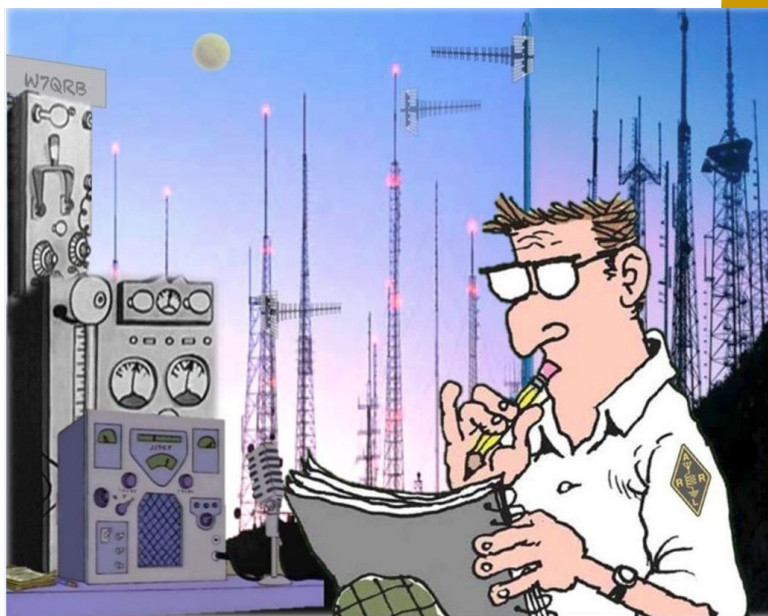
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**If I add just one more antenna and increase power by 3db,
I can bounce signals off Jupiter.**

Interview with CE3LEW—Luis

I worked Luis on 30M and then sent him an email asking him to answer a few questions. He agreed immediately and the results are below.

AJ8B: How did you first become interested in amateur radio?

CE3LEW: My interest was born in 1991, for work reasons I was in the Salar de Maricunga, in turn of 21 days of work 7 rest, a person arrived with a radio citizen Band (CB) Royce 639, installed a dipole type "V" Invested and began searching for stations. He invited us to talk and I found it very interesting, when I returned home I began to find out how I could do the same after a long time finding out in 2 months I had a Royce 639 radio installed and a 5/8 vertical ground antenna, starting at 27.555 MHz.

AJ8B: When did you first get on the air?

CE3LEW: In September of 1991, with the name of the station "Galileo", later 32 AT 115, with the arrival to have 150 entities in 27 MHz.

AJ8B: Do you have a favorite band or mode?

CE3LEW: I really like the 10m band and especially SSB. Today I also use FT8 and Satellites.

AJ8B: I know you have a lot of success chasing countries. Any secret to your success?

CE3LEW: I believe that the main thing, and something that helps, a lot is patience, and, above all things patience!

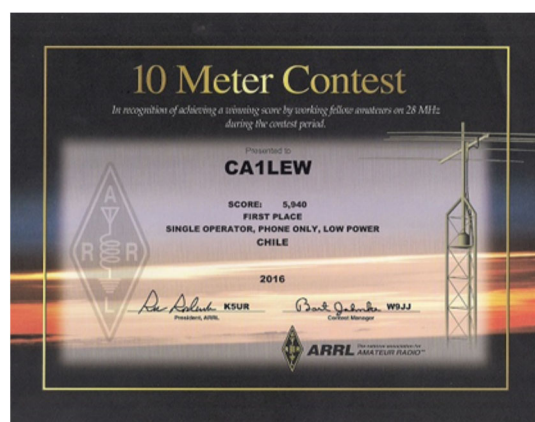
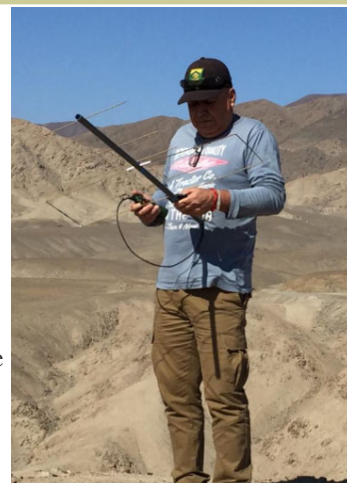
AJ8B: Do you participate in contests?

CE3LEW: If I participate in contests, with my own

callsign and with DX group calls as well

AJ8B: Which contests are your favorites?

CE3LEW: ARRL 10m and the CQ World Wide DX Contest



AJ8B: What license levels do you have in Chile?

CE3LEW: In Chile there are 4 Types of License

Superior Category: XQ

General Category: CE

Novice Category: CA

Applicant Category: CD

Special Call: XR, CB, 3G

AJ8B: Describe what you are currently using:

CE3LEW: My station is composed at home by:

Yaesu FTDX 1200 and a Dipole antenna "V" inverted I really like going out to the field, it is very little that I transmit from home.

In 80m Band I lift an inverted "V" dipole at 35 meters high, mounted on a crane. In SSB I transmit a lot from the Former Chacabuco Saltpeter Office, located 100 km north of the city of Antofagasta.

(Cont. on Next Page)



Interview with CE3LEW—Luis (cont.)

AJ8B: What advice do you have for those of us who try to break the pileups to work DX?

CE3LEW: One of the rules of radio hobby is to listen a lot, respect for all things, and a lot of patience because we all have the minute of glory. The radio does not have borders nor do the distances exist, but we are all subject to the fluctuations of propagation, QSB, QRN. For us knowing spread is the main thing, because everything is far away—

Spain 10,927 Km
United States 8,465 Km
Australia 13,500 Km.
South Africa 8500 Km

AJ8B: What coaching / advice would you give to new fans?

CE3LEW: Radio amateur is not something you are born with, you just have to develop it. These days there is so much technology available to everyone and it is easy to buy equipment and antennas. The best thing for new radio amateurs is to go to the field to participate in field day, expeditions, etc.

This makes the difference, sharing the same interests with others. But the joy of watching an antenna lift is experienced only by those who do.

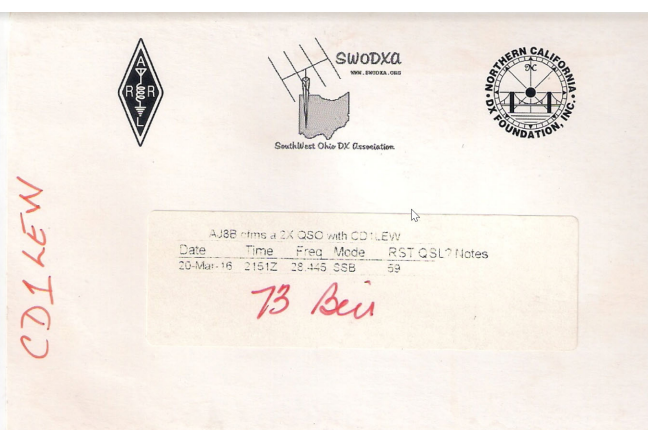
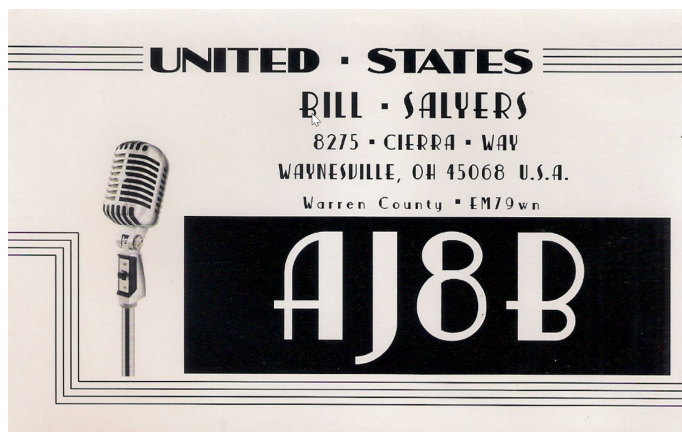
AJ8B: Thank you for taking the time to answer my questions. Is there anything you would like to share with us?

CE3LEW: Thank the kindness of becoming part of this project, show others what we all do daily, but that being so far away we only imagine because we only know each other by ear.

I hope with all my heart to find them wherever we all go ...



Satellites from an area of hills within Antofagasta



The Monday Morning Memo...

If you aren't receiving this each Monday, you should!

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ARRL OH Section Updates

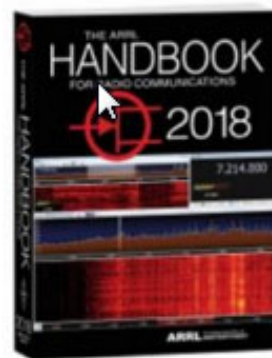
From our ARRL Section Manager, Scott, N8SY

Hey Gang, Do you get updates from your ARRL Ohio Section Manager via email? If not, go to: <http://arrl-ohio.org/handbook.html> and get registered.

What's the catch? I want to get everyone checking in to the Ohio Section website as often as possible, and in order to register each month, you have to visit the website often! There's nothing else to it. I pay all expenses, and from time to time, I Give Away more than just a Handbook. And, you'll never know just what months will be those special times that I will have more than just a Handbook to Give Away!!

Did you see the ad from ARRL recently? Well, they liked my idea so much that they've copied it. Yup, they were giving away a Handbook too!

Many of you ask me just how do I know when the drawing is on? Well, that's easy all you need to do is check in on the Ohio Section Website on a regular basis and watch for the big RED Arrow that will appear on the left side of the page. This is the sign that the drawing is on and you need to get registered. So, keep a sharp eye out on the website and check in often!
<http://arrl-ohio.org>



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An Introduction to Operating on 160m

Carl Luetzelschwab K9LA k9la@arrl.net

(Reprinted with permission of K9LA—This article originally appeared in the November 2006 issues of CQ)

I ran this article last year in this very same issue. Thought it would be timely again!



Operating on 160 meters has always been a challenge. Two of the biggest challenges are the physical size of efficient antennas and noise when receiving. The purpose of this article is to provide appropriate information to address these two challenges, along with general information about other issues necessary to get your feet wet on topband (also known as the Gentleman's Band).

A Short History of 160m

The 160m band has been around for a long time. In the First Edition of the Radio Amateurs Handbook (1926, published by the ARRL), Amateurs had an allocation from 150 meters to 200 meters in wavelength (that is 2 MHz down to 1.5 MHz). Due to AM broadcast stations and other services, the 160m band was eventually narrowed up to 1.8 ñ 2.0 MHz.

Because of LORAN issues (LORAN is a radio location service), there have been power and frequency restrictions over the years. For example, during my early years in Amateur Radio in northwest Indiana (early 1960s) I could only operate from 1800 to 1825 KHz with a maximum power of 200 W during the day and 50 W during the night. There were similar restrictions in other areas of the country.

Nowadays those of us in the US can operate anywhere from 1.8 to 2.0 MHz at up to 1500 W PEP output. Of course you should always strive to use the minimum power to make the QSO.

The first order of business for an introduction to 160m is to look at the band plan for 160m ñ what frequencies should we use for CW, what frequencies should we use for SSB, what frequencies should we use for AM, etc.

160m Band Plan

Unlike our HF bands, the FCC (Federal

Communications Commission) does not regulate 160m with respect to band segmentation by mode. Legally any mode can operate anywhere. But obviously this could cause (and has caused) conflicts.

To impart order to this issue, a Gentleman's Agreement band plan was developed by an ARRL Ad Hoc committee with input from users of 160m. The recommended band plan is shown in Table 1. You are strongly encouraged to adhere to this plan. A little cooperation among fellow Amateurs can go a long way!

With the band plan outlined, a couple comments on where common activities take place is in order. Rag chewing on 160m starts around 1.843 MHz and extends all the way up to 2.0 MHz. There is a lot of spectrum above 1.9 MHz that is relatively lightly used, so you might want to consider moving up there for your rag chewing activities. AM aficionados hang out around 1.885 MHz, and it's an enjoyable side hobby to fix up old radios and put them on the air (I can vouch for this through my efforts with my Viking Ranger II and Drake 2B with a homebrew converter). Finally, most DXing on 160m outside of contests is done on CW in the lower 35 KHz or so of the band. If you want to work DX on 160m, knowing code is almost a must due to CW's inherent weak signal advantage over SSB and the CW bandwidth letting in less noise (more on this latter aspect in a bit).

Since LSB (lower side band) is normally used on 160m, note that 1.843 MHz refers to the carrier frequency for LSB. The intent here is to keep the side bands at 1.840 MHz and above (since the bandwidth of an SSB signal is about 3 KHz). And there is no segmentation by license class ñ General, Advanced, and Extra class licenses have equal access to the entire band.

(Cont. on Next Page)

An Introduction to Operating on 160m (cont.)

When Is 160m Good?

Now that we know where we should operate in the 160m band, the next issue to address is when should we operate, that is, when is 160m good?

If your interest is only for local QSOs (rag chewing, nets, etc), then 160m is good anytime, day or night, summer or winter. And where we are in a solar cycle won't matter, either.

If your interest in 160m is DXing, then there are times, seasons, and phases of a sunspot cycle when 160m is best. Due to excessive daytime D region absorption, 160m is useful for DXing when the path is in darkness or very near darkness. Because of geomagnetic field activity considerations, 160m is best during the winter months and from solar minimum to a couple years thereafter. The latter portion of the previous sentence says now is the time to get on 160m if you're pursuing DXCC or WAZ. We are at solar minimum between Cycles 23 and 24, and the next couple of winter seasons (2006-2007, 2007-2008, and possibly 2008-2009) should offer excellent opportunities for the DX minded.

Simple Transmitting Antennas

As stated in the introduction to this article, the first biggest challenge for operating on 160m is the physical size of an efficient transmitting antenna. The length of a half wavelength dipole at 1.85 MHz is approximately 253 feet (each side would be about 127 feet). That's quite a bit of a horizontal span for those on small lots.

An easy way to overcome this horizontal span requirement is to make the dipole into an inverted-vee. For example, the top of a 50 foot tower or 50 foot support could be used as the center point for the inverted-vee. The sloping portion of each side of the inverted-vee could be approximately 70 feet, with the remaining 57 feet running horizontal to the ground and even snaked around a bit to fit the lot. Figure 1 shows this configuration. This would make an excellent antenna for local activity on 160m (but don't be surprised if you work DX with it the ionosphere can be the great equalizer among different stations).

If your interest is DXing, generally you'll want an antenna that puts more of its energy at the lower elevation angles. Perhaps the simplest antenna to fit this bill is the inverted-L. The total radiator length needed would only be about 127 feet, as this is essentially a vertical antenna operated against ground. A tree could be used to support the vertical portion of the inverted-L, with the remaining length (127 feet minus the vertical portion) sloping down to a convenient support. Figure 2 shows this configuration using a tree for the support. Either buried radials, radials lying on the ground, or elevated radials could be used to provide the ground image for this antenna.

Figure 2 is what I use on 160m, with a pulley in a nice tall tree anchoring the vertical portion and six elevated radials at about 7 feet to keep the deer from running into them.

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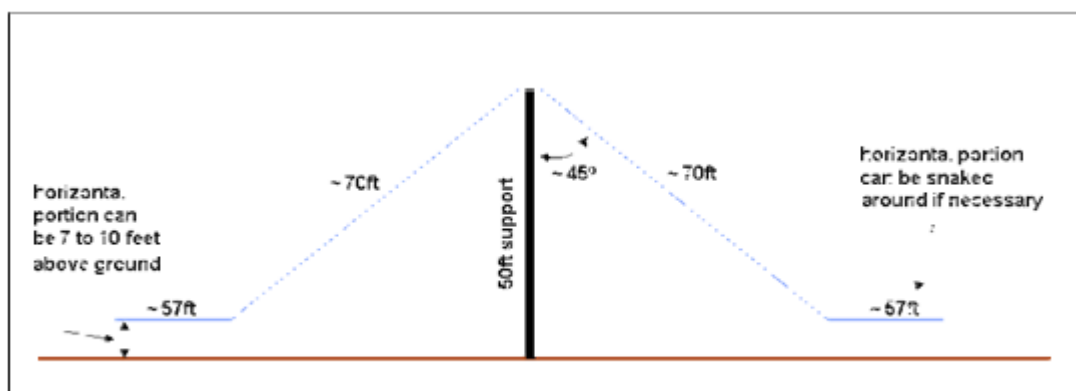


Figure 1 Inverted-Vee Installation

An Introduction to Operating on 160m (cont.)

Noise

The second biggest challenge noted in the opening paragraph (mostly affecting those interested in DXing) is noise and its impact on the ability to hear weak signals. There are two sources of noise that make receiving on 160m difficult: man-made noise (machinery, appliances, lights, and so forth) and atmospheric noise (static from lightning discharges propagating into your QTH). Figure 3 shows the magnitude of the noise problem (from data in the International Telecommunications Union document Rec. ITU-R P.372-7).

The three curves in Figure 3 are the expected noise from a short monopole antenna in a CW bandwidth (500Hz) in terms of S-units for three noise environments: residential, rural, and quiet rural. This plot should be used as a ballpark guideline, as your mileage may vary according to your specific local conditions. I would expect the noise received by the inverted-L in Figure 2 to roughly agree with the short monopole data in Figure 3, with the inverted-vee of Figure 1 maybe a bit better due to some directivity (see the next section). For the data in Figure 3, I assumed S9 was -73 dBm (50 microvolts) and an S-unit was 5 dB (based on my measurements, this is typical of current receivers).

In a residential area, the expected noise on 160m in a CW bandwidth is around S7. Wow! Even moving to a rural area only knocks this down to S6. Heading out into the country puts the noise at S3. That S3 value is the level of noise in a CW bandwidth on my OMNI VI Plus using my inverted-L.

The S3 value doesn't sound like much, but remember that the noise floor of a modern receiver is around -130 dBm. Using a signal generator, the S3 value on my OMNI VI translates to about -103 dBm. Thus I am giving up almost 30 dB of hear-ability, which is the difference between my external noise level and my receiver's noise floor when using my inverted-L for receive.

Be aware that the data in Figure 3 assumes you don't have a particularly troublesome local man-made noise source that masks everything else (for example, a noisy utility line). If you do, then you have your work

cut out to eliminate it. On a personal note, the most interesting noise source I had to find and resolve was an electric blanket used by our neighbors to keep their cat warm.

Simple Receiving Antennas

When you first start out on 160m, you'll probably use your transmit antenna for receive. As you progress with your 160m activities, you may need to work weaker signals that are at or even below the noise level resulting from using your transmit antenna.

This is where low-noise receiving antennas come into play. Regardless of the category of the low-noise antenna, they all work on the same principle: increase the directivity of the antenna (make front-to-back and front-to-side ratios larger) to reduce the total amount of noise being received from around the compass. This assumes the arriving noise is not a localized source as mentioned in the previous section. And if there is a noise source in the direction you want to receive, you have a real problem.

The improvement in hear-ability for a given low-noise receiving antenna will generally follow the narrowness of the pattern: a narrower pattern will let less noise into your receiver and lower your noise level, and thus will thus allow you to hear closer to your receiver's noise floor. From this consideration, we can make a first-order list of how effective some of the common low-noise receiving antennas will be. In order of least effective to most effective, they are:

- ◆ Short Beverage (80m long)
- ◆ Elongated terminated loops (EWE, Flag, K9AY, etc)
- ◆ Standard Beverage (160m long)
- ◆ 4-Square (quarter wavelength spacing)
- ◆ Long Beverage (300m long)

(Cont. on Next Page)

An Introduction to Operating on 160m (cont.)

Propagation and Predictions

If we look at worldwide electron densities, we'll see that the ionosphere always has enough ionization to refract 160m back to Earth for multi-hop propagation ñ even during the dead of night at solar minimum. Thus the problem on 160m is not with the MUF (maximum usable frequency) ñ it's with the amount of absorption and the resulting signal strength. This was the basic premise mentioned previously in the "When Is 160m Good?" section due to absorption, the best place for 160m RF is in the dark ionosphere.

Now if you've used propagation predictions on our HF bands, you've probably noticed that most of them do not include 160m. There is a very good reason for this is because of the impact of the Earth's magnetic field on three basic propagation parameters. With 160m being so close to the electron gyro-frequency, the magnitude of the magnetic field and the direction of propagation with respect to the direction of the magnetic field modify the amount of absorption incurred, the amount of refraction incurred, and the polarization of the wave(s). This can get very complicated very quickly over long paths, and the proper way to address this rigorously is with full-blown ray tracing software.

Over the years there have been several studies by 160m enthusiasts to come up with a simple method to predict whether 160m is going to be good on a given night. These studies have usually been based on solar flux and K or A indices. These efforts have not met with much success, as they do not consider all the variables that appear to be involved with propagation on 160m ñ especially events that happen in the lower ionosphere to enable ducting mechanisms and reduce absorption. In general a quiet geomagnetic field seems to be a requisite, but it doesn't appear to be the only requisite.

This all comes down to two simple pieces of advice with respect to propagation on 160m:

1. Use the excellent mapping feature in many of our propagation prediction programs to determine the best times for 160m propagation over the desired path with respect to darkness along the path. Pay particular attention to sunrise and sunset times

at your QTH and at the other end of the path for possible signal strength enhancements.

2. Get on the band to check it out in real-time.

Watching PackerCluster spots also helps to get a real-time assessment.

Summary

As mentioned several times in this article, 160m is also known as the Gentleman's Band. The current users of 160m would like it to stay that way. So regardless of your operating preference (rag chewer, DXer, contester, digital enthusiast, QRPer, or whatever) please strive to uphold the reputation of 160m.

The advice and solutions offered in this article probably won't get you to the Top of the DXCC Honor Roll on 160m. But they will allow you to sample the challenge and adventure of 160m. Where you go from there is up to you.

160m Tips

The following is a list of tips, slanted toward the DX aspect of operation on 160m, to help you enjoy your experience on 160m.

Operating issues

- ♦ Listen, listen, listen
- ♦ Don't call incessantly in a DX pile-up
- ♦ Be courteous and uphold the reputation of 160m as the Gentleman's Band

Propagation issues

- ♦ Know when the desired path is in or very near darkness Pay particular attention to sunrise and sunset times
- ♦ Don't shy away from elevated K indices ñ there may be skewed paths Check paths to the southwest at your sunrise and southeast at your sunset

48-Hour Contest Recorder Using a Raspberry Pi—Bill aj8b@arrl.net

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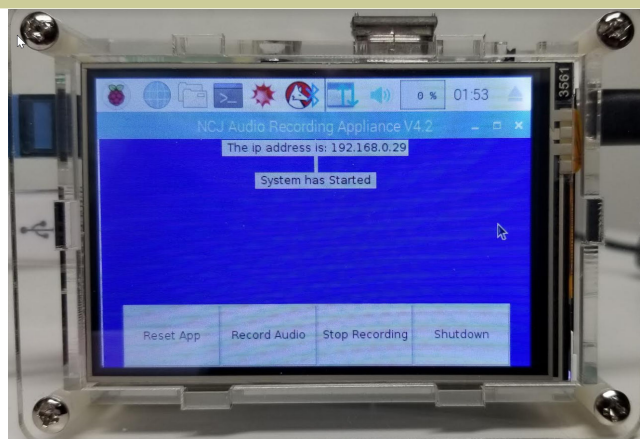
Thanks to Jim, AB8YK, for his opening remarks!

From Jim : Recently I received an email on the SWODXA Member Reflector about an article in the National Contest Journal written by our own Bill Salyer, AJ8B. It was about using a Raspberry Pi as a contest audio recorder. If you have been following the updated contest rules You would have noticed that any serious entries may require confirmation by audio recordings. In fact at the last DARA club meeting Tim Duffy, N3LR demonstrated recordings that were required of all contestants at the WRTC.

I was intrigued by Bill's article and being always up for a Raspberry Pi project I decided to build one. Since I don't subscribe to the publication I contacted Bill with Kudos and asked about the article. He sent me the PDF of the article which I printed out. Since I almost always have a Pi laying around I did not need to purchase one but they are usually about \$35-40. I pulled out one of my Model B (not B+) for this project. Since I am an Amazon Prime member I chose to order the rest of the needed items from them. Using the supplied part numbers for the touchscreen, memory card, case and USB soundcard they were ordered and quickly on the 2 day free ship way. After two days there was a bag-o-stuff in my mailbox. Ripping open the bag I sat down to start the build.

Mounting the main board and attaching the display was no big deal. However, being slightly challenged in installing the sides and top proved interesting. In fact the pictures on the case box showing how to install everything is difficult to interpret. At least for me. I had to remove everything and start over as the main board was installed 180 out. That did not become apparent until I tried to install the sides. Having corrected that the sides were the next challenge. The pictures don't show it but the keyways are slightly different sizes. So after much flipping and turning I finally got them in. The top took some playing with to finally get it seated. Finally ready for the smoke test and software in-

stalls.



quick power up to prove nothing smoked and ready to move on. You do not want to plug in the hdmi shorting board which takes the hdmi from the Pi and sends it the touchscreen until after the Raspbian Linux is installed. Follow the supplied instructions and install the OS. It went smooth as usual. The instructions tell you to go to Bill's website and get the python programs and drivers. When I went to where he indicated they were not there. After much playing around I finally went to his home page and boom....there they were. He had changed it and updated the article but that was not the one sent to me! Thanks Bill. Having finally getting them the rest of those steps worked fine.

On to setting up the USB sound dongle. I about fell out of the chair because all the steps worked great. No problems. So the sound card is working fine.

That leaves the touchscreen to setup. So after powering down I put in the shorting link. Since these steps are done using SSH connection (look it up if you don't know that part of Linux) you power the unit back up and it shows the display on it. So now you need the screen drivers. I went to the article's indicated web site for the vendor. Nope no drivers there as the page is not found. So the screen came with a "gasp" printed instruction manual page. It had a different location to find the drivers. You guessed it they are not there either as page is not found. Now being 0 for 2, I go to the vendor's homepage and support link. THERE THEY ARE. Also updated ones even. Downloaded and they installed using Bill's instructions. I believe he has updated those links now on his website and in the article. Powered down and back on and now the touchscreen works.

(cont. on next page)

48-Hour Contest Recorder Using a Raspberry Pi (cont.)

Home stretch now. Followed remaining instructions and almost all work as given. The next to last command has a sudo, administrator privilege, and should not have. But I did as Bill said. However, I know enough Linux to understand that to get the last one to work I had to sudo it also. If you don't sudo the first one then the second works without it. Powered off and back on and to my amazement it works correctly. Tested functions and worked ok. Conversations with Bill has revealed that he is improving the program to permit play back within the Pi and plans to release an update soon.

My initial usage of this recorder is planned to monitor one of the local repeaters. Additionally I plan to try to use it on the Dave Kalter Youth DX Adventure to record QSO's. Doing some research for the K3 I think it can be plugged in to record both sides at once. For other sites I will have to research those radios to see how to make it

This was a fun project and most of all gave me the satisfaction of busting Bill's chops for the website links. He took it in stride and was thankful (I think) for the shakedown. I recommend you try this one.

—Jim Storms

Why buy an expensive recorder or tie up a device for 2 days to record your contest audio when a low-cost Raspberry Pi can do the job? Although I am a "little pistol," I do what I can when I can. Over the summer, I spent considerable time trying to dig out call signs and QSOs from the noise on 40 and 80. In October, I decided to put up an inverted L for 160. This combination of listening and digging made me wish that I had a way to record what I was hearing, so that I could use that as practice to develop my skills. One of my other ham activities is to teach in the CWops CW Academy program. I like to have the group listen in on solid QSOs that are being conducted, but you can't always find one when you need it. To accomplish this, I decided to build a recorder using a Raspberry Pi with a touch-screen interface.

In June of 2018, I represented SWODXA at the Milford ARC Hamfest. Several SWODXA members

were present and most of them are testers at some level. The discussion quickly turned to testing, and one of the more prolific testers asked about the best way to record audio during long contests. CQ-sponsored contest rules address this issue; ARRL-sponsored contests contain no rules requiring recordings for possible adjudication among top finishers. I'll never be in that category, but a challenge is a challenge, and I decided to build a recorder that would:

- ◆ Record multi-channel audio for the length of the contest.
- ◆ Provide the user with a granular set of files representing the recorded audio — in this case, one file every thirty minutes.
- ◆ Have a simple interface.
- ◆ Have a small footprint.

The rule for CQ-sponsored contests, <https://cqww.com/blog/new-recording-rule/>, states:

XII.C. Audio Recordings: Any single operator entrant (see V.A.1) competing for a top three finish at the (a) World, (b) Continent, or (c) USA levels, must record the transmitted and received audio as heard by the operator for the duration of the contest operation.

The recording must be in a common format (e.g., mp3) and should include the audio to each ear as a separate channel.

The recording may be requested by the Committee within 90 days after the log deadline to help adjudicate the log. The recording files must be provided by the entrant within 5 days of the request.

The recording files must be provided by the entrant within 5 days of the request. If no recording is made available, the Committee may reclassify or disqualify the entry.

(cont. on next page)

48-Hour Contest Recorder Using a Raspberry Pi (cont.)

The Raspberry Pi 3 (RP3) and Components

Computer: The RP3 motherboard has four USB ports, an HDMI port, an audio out port, a network port, and a USB mini port for power, all on a 2.3×3.5 circuit board. The RP3 even has wireless network capability built in.

Keyboard and Mouse: During setup, you may want to connect a USB keyboard and mouse, although a USB wireless keyboard and mouse or a Bluetooth keyboard and mouse can be used. The finished product has a user interface through the attached touch screen, so you won't need a keyboard and mouse after you are finished. Also, you can connect to the unit via a Secure SHell (SSH) connection over the network from your existing PC.

Network: You can use the onboard RJ45 connection for an Ethernet connection, or you can use the onboard wireless connection (or a wireless USB dongle) to provide network access. I use a wired connection to maintain a faster connection when it is needed, but both will work.

Memory Card: Most of the complete kits you purchase for the RP3 come with a 32 GB SD memory card. You will need a 64 GB card for this project. After 48 hours of recording, you will use up approximately 32 GB of data. You will want the extra space provided by the 64 GB card.

LCD Display: The LCD display I chose was a KOOKYE 3.5" LCD Touch Screen display with case. The display fits directly over the RP3, and the entire unit can be housed in the accompanying case.

Audio Adapter: The onboard audio connector is audio out only, so you need a mic or line input. I chose the Adafruit audio-to-USB adapter (see Figure 2). The audio that feeds your headset can also be sent to this interface, perhaps by a splitter cable.



Figure 2 Adafruit Audio/USB interface

Software: You will need to load the Raspbian operating system (OS), a flavor of *Unix* that has been tailored to this hardware platform. The program to record and store the sound files is written in *Python* ver 3, and the user interface was created with *tKinter*. A more detailed description of the OS process is at raspberrypi.org/documentation/installation. Other files referenced can be downloaded via www.aj8b.com/NCJ_Recorder/.

How it Works

This may be the simplest software you will ever pull together for a project. When the record function is running, every hour a file that contains the audio from the previous one hour is created and left on the device. At the end of the contest, you will have 96 thirty-minute-long files, each starting at the top and/or bottom of the hour. If you need to review a QSO from a specific time period, it can be easily done. A description of the basic functions is below with the corresponding file name in (). Each of these files will be in a directory named (/home/pi/NCJ/Files) The user interface, or GUI, is a simple window that appears on startup. There is a status message that appears along the top of the display that indicates the i.p. address that has been assigned to the unit. This makes it very easy to connect to the unit via a Secure SHell connection. (SSH) If no network connection is found, the status will indicate that. There are 4 "soft" buttons along the bottom of the GUI. (NCJ_gui.py)

(cont. on next page)

48-Hour Contest Recorder Using a Raspberry Pi (cont.)

The first soft button is the Reset App button. Since there is limited file storage, pressing this will delete all the previously stored sound files and reset all the system parameters. You will be notified of the “danger” of going forward, but it will set up the unit for a clean recording session (NCJ_Reset.sh).

The second soft button is the Record Audio button. Pressing this will initiate recording of the audio present at the mic jack on the USB/audio dongle. Every thirty minutes, a file will be stored in the Files directory (/home/pi/NCJ/Files). This is a standard .mp3 file that can be played back as desired after being moved to a PC or other device. (NCJ_Start.sh).

The third soft button is the Stop Recording button. Pressing this will stop the recording and the current open audio file will be closed and saved (NCJ_Stop.sh).

The fourth soft button is the Shutdown button. Pressing this will stop the recording, save the current open audio, and shut the unit down. It will NOT turn power off to the display. This needs to be done manually. (NCJ_Shutdown.sh)

What makes it all work is a task that runs every thirty minutes once the Record button has been pressed. The script (NCJ_Status.sh) is saved in the same directory as the other files.

Any time you would like to access the stored audio files, you just need to view the /home/pi/NCJ/Files directory. The file name of each recorded session is NCJ_YYYY_MM_DD_HH_MM_SS.mp3. In this way, the files can easily be tied to a time frame. It is important that the RP3 be configured with UTC, so that the log time and the file time correlate.

Configuring the Unit

You should have a working RP3 unit to proceed. It is important to have the Raspbian Operating System loaded on the 64 GB card, so there will be room for the OS and files. More information on building the OS can be found at www.raspberrypi.org/documentation/installation.

Connect a standard monitor, USB keyboard, USB mouse and an Ethernet cable to the RP3. (We will install the touch screen later) Apply power to the unit. You should see a variety of messages scrolling by and then finally a graphic desktop.

Specific instructions for programming the unit are on the NCJ website, ncjweb.com or on my website at www.aj8b.com/NCJ_Recorder.

Let's Go!

Once the unit is programmed, you should now be able to reboot and off we go. The GUI should appear with the four buttons at the bottom of the screen and the IP address message at the top. At this point, you can start recording. Look in /home/pi/NCJ/Files and you should see a file starting with “NCJ” and ending in “.mp3.”

I'll be working on a couple of tweaks, such as accessing the files created directly over the network via a Windows PC and playing files back on the unit. I'll post updates on my website via “What's New” at www.aj8b.com/NCJ_RecorderComponents

Component	Amazon Search Info	Cost
Raspberry Pi 3	Raspberry Pi 3 Model B Motherboard	\$36.99
3.5" LCD Screen, Case	KOOKYE 3.5" Touch Screen LCD Display Monitor with Transparent Case	\$26.99
Power Supply	CanaKit 5 V, 2.5 A Raspberry Pi 3 B+ Power Supply / Adapter	\$9.99
Heat Sinks	LoveRPi 5-Pack Performance Heat Sink Set	\$10.99
64 GB micro SD Card	SanDisk Ultra 64GB Micro SDXC	\$11.99
USB Audio Adapter	Adafruit USB Audio Adapter [ADA1475]	\$3.94
Total		\$100.89

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SouthWest Ohio DX Association (SWODXA)

Club Fact Sheet

Who We Are: SWODXA is comprised of active DX'ers and contesters with a deep passion for all aspects of Amateur Radio. We welcome everyone who is interested in joining our club to please contact us. SWODXA members are active in all facets of DX and Contesting. We also travel to, and fund various DXpeditions all over the world. SWODXA sponsors the annual DX Dinner held on the Friday evening of Hamvention weekend in Dayton, Ohio. In addition, SWODXA members moderate the Hamvention DX Forum. SWODXA is proud sponsor of the prestigious *DXPedition of the Year Award*.

DX Donation Policy: The policy supports major DXpeditions that meet our requirements for financial sponsorship. Details are available on the website at: <https://www.swodxa.org/dxgrant-application/> and elsewhere in this newsletter

Club History: The Southwest Ohio DX Association (SWODXA) is one of the country's premier amateur radio clubs. Though loosely formed in mid-1977, the club had its first formal organizational meeting in August of 1981 where Frank Schwob, W8OK (sk), was elected our first President. While organized primarily as a DX club, SWODXA members are active in all aspects of our hobby.

Requirements for Membership: We welcome all hams who have an interest in DXing. It doesn't matter whether you're a newcomer, or an old-timer to DXing; everyone is welcome! Visit <http://swodxa.org/member.htm>

Meetings: The club meets on the second Thursday of each month alternating locations between at Marions Piazza on Kingsridge Dr. in Dayton, OH or Marions Piazza in West Chester. (Check the website) Members gather early in the private room for dinner and then a short business agenda at 6:30 PM, followed by a program. If you enjoy a night out on the town with friends, you'll enjoy this get together. Meeting attendance is NOT a requirement for membership.

Club Officers: Four presiding officers and the past president (or past VP) make up the Board of Directors. The current roster of officers are: President Tom Inglin, NR8Z; Vice President Kevin Jones, W8KJ; Secretary Mindi Jones, KC8CKW, and Treasurer Mike Suhar, W8RKO.

Website: We maintain websites at www.swodxa.org and www.swodxaevents.org managed by Bill, AJ8B. These sites provide information about a variety of subjects related to the club and DXing.

SouthWest Ohio DX Association (SWODXA)

DX Donation Policy

The mission of SWODXA is to support DXing and major DXpeditions by providing funding. A funding request from the organizers of a planned DXpedition should be directed to the DX committee by filling out an online funding request.
(<https://www.swodxa.org/dx-grant-application/>)

The DX Grant committee will determine how well the DXpedition plans meet key considerations (see below). If the DX Grant committee recommends supporting the DXpedition in question, a recommended funding amount is determined based on the criteria below. The chairman of the committee will make a recommendation at the general meeting on the donation.

Factors Affecting a DXpedition Funding Request Approval

DXpedition destination	Website with logos of club sponsors
Ranking on the ClubLog Most Wanted Survey	QSLs with logos of club sponsors
Online logs and pilot stations	Logistics and transportation costs
Number of operators and their credentials	Number of stations on the air
LoTW log submissions	Bands, modes and duration of operation

H40GC	H44GC	ZL9HR	XX9D	HK0NA	FT4TA
KH1/KH7Z	EP2A	FT5ZM	C21GC	VK9WA	NH8S
K4M	CY9C	VK9MA	PT0S	FT4JA	YJ0X
6060	VP6D	T04E	XR0ZR	VP8STI	SP8SGI
W1AW/KH8	K1N	3D2C	VK0EK	S21ZBB	E30FB
ST0RY	TI9/3Z9DX	VK9MT	K5P	9U4M	TX3X
VU7AB	3Y0Z	3C0L	TX7EU	CE0Z	3C1L
		3B7A	K9W		