

# THE eQRM



The BVARA in Beaver County Pennsylvania

January 2016

# THE eQRM

**On the Cover** : Welcome New Year! Have you set some new goals to reach this year? Your plans may include a license upgrade, making a presentation to your Ham Club, visit a Hamfest you've never been to or maybe a new radio in your shack. Plan some milestones (or goals) to achieve for the coming year. Write them down. As Year 2016 moves along, take a look at your list for a progress check. BVARA wishes you a goal-achieving and fun new year for 2016.

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### CHECK IN TO THE NETS

#### **Wednesday 2 Meter**

8:30PM on 145.310 MHz pl 131.8

#### **Wednesday 10 Meter**

9:00PM on 28.470 MHz

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## **WASHfest 2016**

*The South Hills Hamfest*

Sunday, February 28<sup>th</sup>, 2016  
8:00 AM until 3:00 PM Rain or Shine (or Snow!)  
Castle Shannon VFD Memorial Hall



I do! I do see a Hamfest!

I got all excited!  
Now I will have to wait until  
February. . .



# A Christmas Letter from Beverly Merz, the Widow of Tom Merz - N4KRA (SK)

Dear Family and Friends:

My family and I have had many changes since last Christmas. We have had two deaths in our immediate family, Tom, my husband of 43 years and my younger brother Richard. Although these occurred last year, we are still feeling the effects. We have experienced a birth also, Alexa Michelle Merz, soon to be 10 months old.

The physical changes have been just as challenging; I sold our house of 27 years in Pennsylvania, moved to Florida. (The six feet of snow in Western Pa had a BIG influence). Our son Tom, his wife Michelle, children Sean & Alexa also came with me and Miz Kitty (otherwise known as Penny). We now live in Florida & so far really like it. Sean likes his school & Alexa is crawling everywhere. The kitties love getting into everything, when they are not sunning themselves on the back porch.

I have joined the choir at my new church: they say they needed me with only two tenors. Except for the traffic, things are good.

I hope everyone has a blessed Christmas and good New Year.

A handwritten signature in black ink that reads "Beverly + Penny". The signature is written in a cursive, flowing style.

This letter is respectfully shared with you by the BVARA Club Officers. If you would like to write to Beverly Merz please contact one of us.

# This Month

## This month's BVARA Club feature presentation:

This Month : K3SOM

Speaker : Rich Soltesz

Topic : Operating on the Bands

**Including :** Continuing with our BVARA Presentation Series this year, our topic this month takes a look at operating on the bands from several different perspectives. The Electronic code of Federal Regulations (e-CFR) is a regularly updated, editorial compilation of C.F.R. material and Federal Register amendments produced by the National Archives and Records Administration's Office of the Federal Register (OFR). That was a mouthful and it sounded really official! This is the document that defines the FCC controls and all of the operations with respect to Amateur Radio activities. We'll talk about some of the more recent changes that may not be familiar to everyone. Beyond that, we'll look in detail at the current band plans and at suggested frequencies to use under "The Considerate Operator's Frequency Guide" as suggested by the ARRL.

Do you often wonder what some of those strange signals are within the ham bands? What does an Olivia signal or a JT-65 signal sound like? Why do they all go silent after about 50 seconds of apparent bedlam? Where are the QRP CW calling frequencies on each band? Where are the Digital Voice 'watering holes' on the HF bands? Do daily nets own certain frequencies? Why do we have beacons? There are so many new questions as technology advances. This is one exciting presentation you won't want to miss!







Rich's Background:

Extra Class Ham, Licensed since 1962, VE,  
B.S. Electrical Engineering

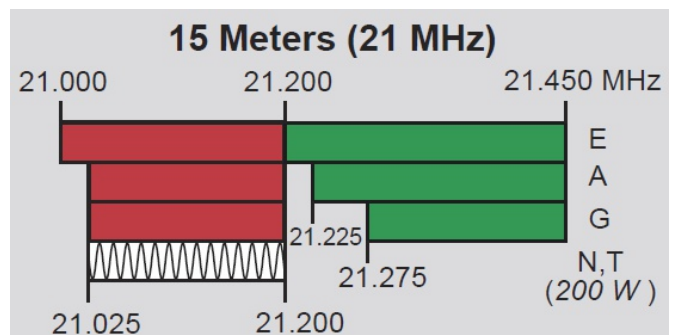
7.030	QRP CW calling frequency
7.040	RTTY/Data DX
7.070-7.125	RTTY/Data
7.100-7.105	Automatically controlled data stations
7.171	SSTV
7.173	D-SSTV
7.285	QRP SSB calling frequency
7.290	AM calling frequency

**KEY**

**Note:**  
CW operation is permitted throughout all amateur bands.  
MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.  
Test transmissions are authorized above 51 MHz, except for 219-220 MHz

	= RTTY and data
	= phone and image
	= CW <i>only</i>
	= SSB phone
	= USB phone, CW, RTTY, and data
	= Fixed digital message forwarding systems <i>only</i>

E = Amateur Extra  
A = Advanced  
G = General  
T = Technician  
N = Novice



# More this Month

## VE TEST SESSIONS

Beaver County Emergency Services Center  
351 14th Street  
Ambridge, PA 15003

Tests begin promptly at 5 pm, January 14, 2016.  
All classes of amateur radio license tests are administered.

ALL candidates MUST bring ALL of the following:

1. 2 forms of I.D. - one MUST be a photo I.D.
2. A pencil AND a pen with blue or black ink.
3. The original AND a photocopy of any valid ham license.
4. The original AND a photocopy of any C.S.C.E.
5. The test fee of \$15 - cash, check, or money order.

For more information, contact :  
Rich Soltesz, K3SOM  
(724) 847-0610  
k3som@arrl.net



## WEEKLY

### Thursday Morning Breakfast

The BVARA meets every Thursday at Steak 'n Shake in Center Township, by the Beaver Valley Mall, at 10:00 AM. All radio amateurs are encouraged to come join us at our Thursday morning breakfast.

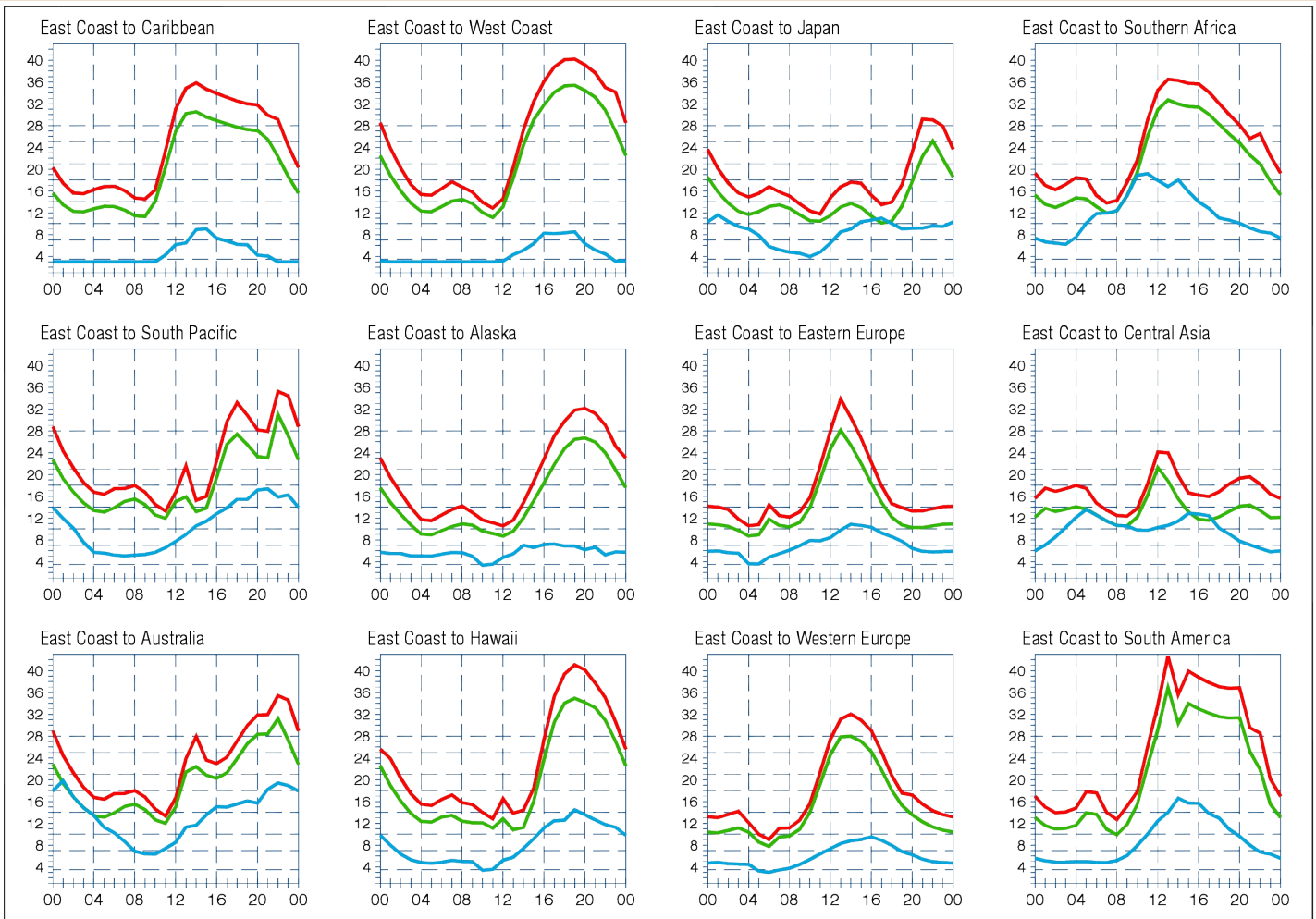


See you at



# Propagation Charts

From the ARRL



**When are the bands open?** These charts, generated using CAPman, show probabilities for average HF propagation in the month of **January** for the paths indicated. The horizontal axes show Coordinated Universal Time (UTC), and the vertical axes frequency in MHz. On 10% of the days of this period, the highest frequencies propagated will be at least as high as the upper red curves (HPF, highest possible frequency) and on 50% of the days they will be at least as high as the green curves (MUF, classical maximum usable frequency). The blue curves show the lowest usable frequency (LUF) for a 1500-W CW transmitter. For SSB or a lower transmitter power, the LUF will be somewhat higher than the blue curves indicate. See Oct 1994 *QST*, pp 27-30, and Feb 1995 *QST*, pp 34-36, for more details. The predictions assume an observed 2800-MHz solar flux value of 118. This is a Very **High** level of solar activity. See the detailed propagation tables on *The ARRL Antenna Book CD-ROM*.

## PROPAGATION

The East Coast propagation chart listed above is for January 2016. If you would like more information on how to read these charts, or for more information on propagation in general, please visit <http://arrl.org/propagation>

## RACES / ARES

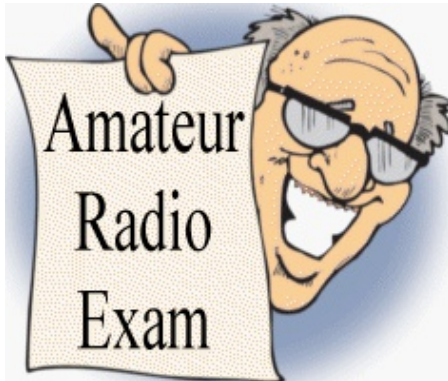
### eQRM Urges All County Hams to Participate

As a matter of editorial opinion, the eQRM urges all Beaver County licensed amateurs to participate in the County's RACES and ARES programs.

Any Beaver County Amateur that is interested in participating in the RACES/ARES programs can do so by checking into the Beaver County Public Service Net which meets every Monday evening at 8:30 PM local time on the N3TN 146.850 MHz repeater (131.8 PL)



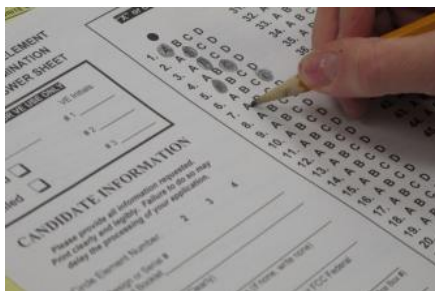
# New License and Upgrades BVARA VE Testing



There are no test results to report for this month. We all went to the Christmas Party in lieu of testing and a club meeting for the month of December 2015.



**BVARA  
2015  
Christmas  
Party**





# Who We Are

## Membership Information and Club Officers



### 2015 BVARA OFFICERS

President: Jack Spencer, KZ3Z  
Vice President: Dick Hanna, K3VYY  
2nd Vice Pres.: Rob Miller, N3OJL  
Treasurer: Pam Spencer, W3PMS  
Secretary: Norm Trunick, K3NJT  
Director: Bob Winkle, N3AZZ  
Director: Bob Croft, KB3RHN  
Trustee: Rich Soltesz, K3SOM

### MONTHLY MEETINGS

E-Board meetings are now held the Saturday before the monthly club meeting.  
VE testing begins at 5:00.  
Regular meetings are at 6:30.

All meetings are held at  
Beaver County  
Emergency Services Center  
351 14th Street  
Ambridge, PA 15003  
on the second Thursday of every month  
(unless otherwise stated).

### MEETING DATES 2016

Jan 14  
Feb 11  
Mar 10  
Apr 14  
May 12  
Jun 09  
Jul 14  
Aug no meeting  
    Corn Roast (TBA)  
Sep 08  
Oct 13  
Nov 10  
Dec no meeting  
    Christmas Party (TBA)



**Beaver County**

**W3SGJ**

Beaver Valley Amateur Radio Association  
P.O. Box 424  
South Heights, PA 15081, USA

ITU 8, CQ 5, Grid EN90ur, Beaver County

SPECIAL SERVICE CLUB

Authenticity Guaranteed eQSL.cc



# Bits and Pieces



A dear friend of mine, Rob Swider, invited me to "Skills Night". It sounds so interesting I wanted to invite you too. I am sure it will be an interesting evening. Skills nights are held quarterly. I encourage you to go! Read on!

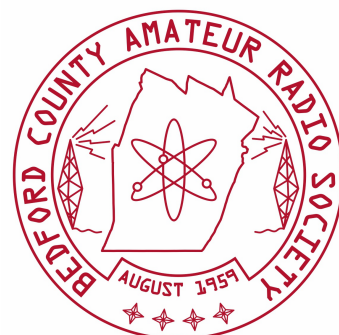
## **Bedford County Amateur Radio Club is presenting a "skills night" Thursday, January 21st @ 6:30pm.**

To our knowledge, this is the first of its kind in the area. We are reaching out to people within WPA ARES and other radio clubs to drum up interest, as well as looking for people that want to present on a topic or project. Unlike a club meeting

or a hamfest, this will be an open forum. It is being geared towards demonstrations and the exchange of knowledge. If you or anyone you know is interested in being a presenter, please let me know and pass this along. What will you find at a Skills Night? The Skills Nights are a real mix. The aim is to have at least three demonstrations taking place. Presentations aimed at beginners, some covering new modes, some offering equipment demonstrations, and some offering tips or services. This is an indoor, weekday evening type of event.

<http://www.bcars.org/skillsnight>

Show what you know, learn what you want.



The Skills Night, hosted by the Bedford County Amateur Radio Society (BCARS) is an informal quarterly get-together in Bedford County, where anyone with an interest in Amateur Radio or STEM (Science, Technology, Engineering, Mathematics) can come along, try something new, share ideas, get help and advice, as well as socialize with others interested in the hobby. The Skills Nights are free to attend, informal, and open to everyone! You don't need to be licensed, no need to be from Bedford County, and no need to be a member of BCARS. Skills Nights have an open format – no lengthy speeches or power point presentations. The get-togethers run three to four hours, visitors can arrive and leave at any time. Presenters Wanted! If you would like to demonstrate a skill, show off a project (complete or under construction), or talk about a subject, please contact

John Hogenmiller  
john@hogenmiller.net  
814-602-9298 (c)  
73s

### **Navigating:**

The address is 10229 Lincoln Highway Everett, PA 15537. This is between Wal-Mart and UPMC Hospital across from Bedford Valley Petroleum. Google Maps will not take you to the right spot, instead put "Tony Roy Auto 10241 Lincoln Hwy, Everett, PA 15537" into your map program. It is behind where Tony Roy Autos used to be.

As always my motto

is...

Safety! Safety!Safety!

# Radio Sport

## - January 2016 Contests -

ARRL VHF January 30-February 1, 2016

The date is announced annually by the ARRL and is generally the third or fourth weekend in January. Begins 1900 UTC Saturday, ends 0359 UTC Monday. For amateurs in the US and Canada (and their possessions) to work as many amateur stations in as many different 2 degrees x 1 degree Maidenhead grid squares as possible using authorized frequencies above 50 MHz. Stations outside the US & Canada (and their possessions) may only work stations in the US (and its possessions) and Canada.

Stations in KH0-9, KL7 & KP1-KP5, CY9 and CY0 count as W/VE stations and can be worked by DX stations for contest credit.

North American QSO Party is held on January 9th (CW), on the 16th (SSB) and February 27th (RTTY)

The object is to work as many North American stations as possible during the contest period. North American Stations are defined by the ARRL DXCC List with the addition of Hawaii. Contest periods are January/February 2016, CW is 1800 UTC January 9 to 0600 UTC January 10, 2016 (second full weekend in January). The SSB is 1800 UTC January 16 to 0600 UTC January 17, 2016 (third full weekend in January).

The RTTY portion is 1800 UTC. February 27 to 0600 UTC February 28, 2016 (starts on last Saturday in February).

For more information go to the ARRL web site with the Keywords: "contest calendar"

<http://www.arrl.org/contest-calendar>

# Radio Sport

## Contest Corral – January 2016

Check for updates and a downloadable PDF version online at [www.arrl.org/contests](http://www.arrl.org/contests).

Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Start Date-Time	Finish Date-Time	Bands	Contest name	Mode	Exchange	Sponsor's Website
1 0000	1 2359	All	ARRL Straight Key Night	CW	No specific exchange	<a href="http://www.arrl.org/straight-key-night">www.arrl.org/straight-key-night</a>
1 0000	1 0100	3.5	AGB New Year Snowball Contest	CW Ph Dig	RST, serial, mbr (if any)	<a href="http://www.qsl.net/eu1eu/agnb_nysb.htm">www.qsl.net/eu1eu/agnb_nysb.htm</a>
1 0800	1 1100	3.5, 7	SARTG New Year RTTY Contest	Dig	RST, serial, name, "Happy New Year" in native language	<a href="http://www.sartg.com/contest/nyrules.htm">www.sartg.com/contest/nyrules.htm</a>
1 0900	1 1200	3.5-14	AGCW Happy New Year Contest	CW	RST, serial, mbr (if any)	<a href="http://www.agcw.org/index.php/en">www.agcw.org/index.php/en</a>
1 1400	1 1800	144, 432	AGCW VHF/UHF Contest	CW	RST, serial, power, 6-char grid	<a href="http://www.agcw.org/index.php/en">www.agcw.org/index.php/en</a>
1 1500	1 1800	1.8-28	QRP ARCI New Years Sprint	CW	RST, SPC, mbr or power	<a href="http://www.qrparci.org/contests">www.qrparci.org/contests</a>
2 0000	2 2359	3.5-28	PODXS 070 Club PSK Fest	Dig	RST, SPC	<a href="http://www.podxs070.com">www.podxs070.com</a>
2 1200	3 1200	3.5-28	WW PMC Contest	CW Ph	RS(T), PMC abbreviation or CQ zone	<a href="http://www.s59dcd.si/en10">www.s59dcd.si/en10</a>
2 1500	3 1500	3.5-14	Original QRP Contest	CW	RST, serial, power	<a href="http://www.qrpcc.de/contestrules">www.qrpcc.de/contestrules</a>
2 1800	3 2359	3.5-28	ARRL RTTY Roundup	Dig	W/VE: RST, SP. Non-W/VE: RST, serial	<a href="http://www.arrl.org/rtty-roundup">www.arrl.org/rtty-roundup</a>
2 2000	3 0700	1.8	EUCW 160 Meter Contest	CW	RST, name, mbr or "NM"	<a href="http://www.eucw.org/eu160.html">www.eucw.org/eu160.html</a>
3 1800	3 2359	3.5-28 + repeaters	Kids Day Contest	Ph	Name, age, QTH, favorite color	<a href="http://www.arrl.org/kids-day">www.arrl.org/kids-day</a>
5 0200	5 0400	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	<a href="http://arsqrp.blogspot.com">arsqrp.blogspot.com</a>
6 2000	6 2100	3.5	UKEICC 80 Meter Contest	Ph	4-char grid square	<a href="http://www.ukeicc.com">www.ukeicc.com</a>
9 0500	9 0900	3.5-28	Old New Year Contest	CW Ph	RST, age plus years on the air	<a href="http://www.radio.ru/cq">www.radio.ru/cq</a>
9 1200	10 2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
9 1200	10 1200	3.5-28	UBA PSK63 Prefix Contest	Dig	RSQ, serial (starting with 1001)	<a href="http://www.uba.be/en/hf/contest-rules">www.uba.be/en/hf/contest-rules</a>
9 1800	10 0559	1.8-28	North American QSO Party, CW	CW	NA: Name, SPC. Non-NA: Name	<a href="http://www.ncjweb.com/NAQP-Rules.pdf">www.ncjweb.com/NAQP-Rules.pdf</a>
10 0630	10 0830	3.5, 7	NRAU-Baltic Contest, SSB	Ph	RS, serial, 2-letter region	<a href="http://www.nrau.net/nrau-baltic-contest">www.nrau.net/nrau-baltic-contest</a>
10 0900	10 1059	28	DARC 10-Meter Contest	CW Ph	RS(T), serial, DOK (if any)	<a href="http://www.darc.de/referate/dx/contest">www.darc.de/referate/dx/contest</a>
10 0900	10 1100	3.5, 7	NRAU-Baltic Contest, CW	CW	RST, serial, 2-letter region	<a href="http://www.nrau.net/nrau-baltic-contest">www.nrau.net/nrau-baltic-contest</a>
13 0130	13 0330	1.8	NAQCC CW Sprint	CW	RST, SPC, mbr or power	<a href="http://naqcc.info/sprint201601_160.html">naqcc.info/sprint201601_160.html</a>
13 2300	17 2300	1.8-7	AWA Linc Cundall Memorial CW	CW	RST, eqpt year, input power	<a href="http://www.antiquewireless.org">www.antiquewireless.org</a>
15 1800	15 2200	3.5, 7	LZ Open Contest	CW	Serial, serial received from last QSO	<a href="http://www.lzopen.com/lz-open-contest">www.lzopen.com/lz-open-contest</a>
16 1200	17 1159	1.8-28	Hungarian DX Contest	CW Ph	RS(T), HA county or serial (non HA)	<a href="http://www.ha-dx.com/HADX">www.ha-dx.com/HADX</a>
16 1800	17 0559	1.8-28	North American QSO Party, SSB	Ph	NA: Name, SPC. Non-NA: Name	<a href="http://www.ncjweb.com/NAQP-Rules.pdf">www.ncjweb.com/NAQP-Rules.pdf</a>
16 2000	17 0559	1.8-7	Feld Hell Sprint	Dig	RST, mbr, SPC, grid	<a href="http://sites.google.com/site/feldhellclub">sites.google.com/site/feldhellclub</a>
18 0200	18 0400	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	<a href="http://fpqrp.org/pigrun">fpqrp.org/pigrun</a>
23 0000	24 2359	All	YL-SSB QSO Party, CW/SSB	CW Ph	RS(T), name, SPC, mbr	<a href="http://www.ylssystem.org/qsoparty">www.ylssystem.org/qsoparty</a>
23 1200	24 1200	3.5-28	BARTG RTTY Sprint	Dig	Serial	<a href="http://www.bartg.org.uk/">www.bartg.org.uk/</a>
23 1900	23 2300	1.8	WAB 1.8 MHz Phone	Ph	RS, serial, WAB square or country	<a href="http://wab.intermip.net">wab.intermip.net</a>
23 0000	24 2359	1.8-432	Montana QSO Party	CW Ph Dig	RS(T), county or SPC	<a href="http://www.fvarc.org/">www.fvarc.org/</a>
24 2000	24 2359	3.5-28	QRP ARCI Fireside SSB Sprint	Ph	RS, SPC, mbr or power	<a href="http://www.qrparci.org/contests">www.qrparci.org/contests</a>
27 0000	27 0200	1.8-28	SKCC Sprint	CW	RST, SPC, name, mbr or power	<a href="http://www.skccgroup.com">www.skccgroup.com</a>
27 2000	27 2100	3.5	UKEICC 80 Meter Contest	CW	4-char grid	<a href="http://www.ukeicc.com">www.ukeicc.com</a>
29 2200	31 2200	1.8	CQ 160-Meter Contest, CW	CW	W/VE: RST, SP, DX: RST, CQ Zone	<a href="http://www.cq160.com/rules.htm">www.cq160.com/rules.htm</a>
30 0000	30 2359	1.8-28	Feld Hell Sprint	Dig	RST, mbr, SPC, grid	<a href="http://sites.google.com/site/feldhellclub">sites.google.com/site/feldhellclub</a>
30 0600	31 1800	3.5-28	REF Contest, CW	CW	RST, department prefix or serial	<a href="http://concours.r-e-f.org/contest/">concours.r-e-f.org/contest/</a>
30 1300	31 1300	3.5-28	UBA DX Contest, SSB	Ph	RST, serial (and province for ON)	<a href="http://www.uba.be/en/hf/contest-rules">www.uba.be/en/hf/contest-rules</a>
30 1700	31 1700	All	Winter Field Day	CW Ph Dig	Category, ARRL section or "DX"	<a href="http://www.winterfieldday.com">www.winterfieldday.com</a>
30 1900	1 0359	50 and up	ARRL January VHF Contest	CW Ph Dig	4-char grid square	<a href="http://www.arrl.org/january-vhf">www.arrl.org/january-vhf</a>
31 1400	3 0800	1.8-144	Classic Exchange, CW	CW	Name, RST, SPC, rig manuf/model	<a href="http://www.classicexchange.org">www.classicexchange.org</a>

All dates refer to UTC and may be different from calendar dates in North America. Times given as AM or PM are local times and dates. No contest activity occurs on the 60, 30, 17, and 12 meter bands. Mbr = Membership number. Serial = Sequential number of the contact. S/P/C = State, Province, DXCC Entity. XE = Mexican state. Data for Contest Corral is maintained on the WA7BNM Contest Calendar at [www.hornucopia.com/contestcal](http://www.hornucopia.com/contestcal) and is extracted for publication in QST 2 months prior to the month of the contest. The ARRL gratefully acknowledges the support of Bruce Horn, WA7BNM, in providing this service. Listings in blue indicate contests sponsored by ARRL or NCJ. The latest time to make a valid contest QSO is the minute listed in the "Finish Time" column.

# Technical Info

## Radio Frequency Interference – A Different Perspective for the Ham Chapter 3 – You’ve Found Some RFI Sources – Now What?

### Introduction

Chapter 1 gave us an introduction to Radio Frequency Interference (RFI) along with some basic definitions and terminology while Chapter 2 provided some suggestions for finding some of these pesky reception spoilers. Now that we’ve found some offending sources of RFI whose noise falls within our ham bands, it’s time to take action. Let’s get started!

### Light Dimmers, Energy-Efficient Light Bulbs and Touch Lamps



A solid-state light dimmer is an electronic switch that rapidly turns the current on and off 120 times per second to achieve the dimming effect. This rapid current switching may cause radio frequency interference (RFI) — an audible buzzing noise — with sensitive audio and radio equipment. At least one manufacturer has recognized this problem and regularly includes an RFI filter within their product.

However, depending on several factors including separation distance, specific device, and types of lights controlled, additional RFI filtering may frequently be required. Lutron Electronics Co. publishes a helpful application note that provides a more detailed explanation of the issue but also describes an additional filter called a ‘Lamp Debuzzing Coil’ that is wired in series with their light dimmers to provide additional RFI filtering. My hat’s off to Lutron!

Some Energy-efficient light bulbs, particularly early in their introduction to consumers created significant RFI in the high frequency ham bands. In fact, packaging included a statement to that effect. A technical review by QST in the October 2013 issue of a sample of some these bulbs showed that most of those tested were ‘clean’. However, the bulb that you have that is generating RFI may not have been one of the ones that were evaluated. Some bulbs that are directly shipped from China have no FCC certification and can cause considerable noise in the HF spectrum. The closer the offending bulb is to your ham equipment, the more intense is the interference. If it interferes, replace it with one that does not and possibly give the bulb to someone whose needs do not include problems with RFI. After all, there may still be 8 years on that 10-year bulb!



Touch lamps are more difficult to deal with. From the ARRL website: “RF Touch lamps are RF-operated devices that often cause, or are susceptible to, EMI problems. They have a free running oscillator that is very broad and rich in harmonic energy. This oscillator is hooked up to a touch plate that changes the frequency of the

# Technical Info



oscillator when a hand is placed near the plate. Unfortunately, this plate also acts as an antenna, radiating some of the energy of the oscillator, or picking up nearby radio signals.” Inserting a low-pass filter between the internal lamp oscillator and the touch pad is required. The filter should consider the oscillator frequency when inductance and capacitor values are selected. QST articles referenced later provide the details. My Steelers touch lamp has sentimental value but is never plugged in. That was easy!

## Wall Warts and Routers

Wall warts that contain switching power supplies are smaller and more efficient than the simpler transformer, diode, and capacitor power supplies. Many new devices now include these switching power supplies that can generate considerable RFI on the HF ham bands. By using a toroid right at the wall wart and another one at the DC end just as it plugs into the device have been very effective for me. Either barrel or snap-on toroids that are wrapped with three turns of the DC wire eliminates almost completely the RFI when the device is not on the same circuit as the ham radio equipment. If the DC connector will not fit inside the barrel toroid, then the snap-on toroid is the one to use. Mouser stocks these in several sizes. The Mix 31 has a broad frequency range of effectiveness but the Mix 43 is almost as effective except on 160 meters, and to a lesser extent, on 80 meters.



Photo Courtesy of W1HIS

Routers require toroids on not only the wall wart, but also on the Ethernet devices that are directly connected to the router. Joel Harrison – W5ZN wrote an excellent pdf article entitled: “Slaying the Grim Reaper of Internet Router Noise on 6 Meters”. The title says it all. Joel wrapped Ethernet cables going to his router with two Mix 43 and one Mix 31 toroids with five turns around each Mix 43 toroid and 9 turns around the Mix 31 toroid. The Mix 43 toroids are located as close to each end connector of the Ethernet cable so as to

reduce any radiation. Because the Ethernet connection is bi-directional, both ends must be filtered. Joel’s results in his own words: “The result was nothing short of amazing! After utilizing the techniques identified (on 6 meters) the birdies were reduced into the noise and undetectable, and the noise floor decreased 10 dB.”

The Fair-Rite Mix 31 and Mix 43 cores can be purchased from Mouser or other suppliers. The Fair-Rite part number

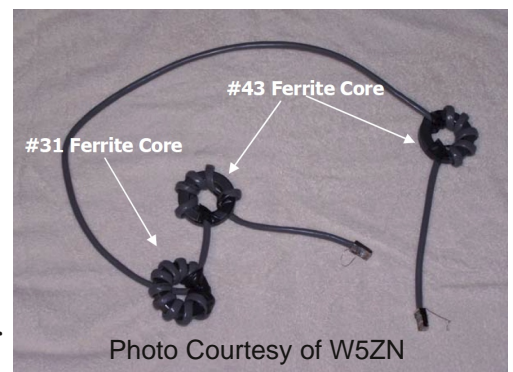


Photo Courtesy of W5ZN

# Technical Info

for the Mix 31 is 2631803802 and 2643803802 for the Mix 43. These are round “donut” cores for cable measuring 2.4” in diameter with a 1.4” diameter hole, 0.5” thick.

## Wrap up

By now I hope that you are beginning to appreciate that making your station RFI free can be a time-consuming effort but the rewards can be enormous. Next time we will travel to other parts of your home with some more tools and ideas for you to try.

Much of the introductory material is contained within Chapter 27 of the 2015 ARRL Handbook for Radio Communications and thanks are gratefully expressed to the ARRL for publishing this great reference handbook.

I would recommend A Ham's Guide to RFI, Ferrites, Baluns, and Audio Interfacing by Jim Brown – K9YC that is available as a pdf file at

<http://audiosystemsgroup.com/RFI-Ham.pdf> for your enlightenment. He does a very nice job on the available ferrite materials available and when and where to use them.

Another favorite document that is entitled Common Mode Chokes by Jim

Counselman – W1HIS that is also available as a pdf file can be found at:

<http://www.yccc.org/Articles/W1HIS/CommonModeChokesW1HIS2006Apr06.pdf> for your use.

Lutron recognizes the possibility of RFI to sensitive situations like ham radio reception and offers a document and products to alleviate RFI from their light dimmers. The pdf file can be found at:

<http://www.lutron.com/TechnicalDocumentLibrary/360484.pdf>

Touch lamp articles from the ARRL in QST can be found at:

Touch Lamp RFI Cured ...And Again! (65,536 bytes, PDF file)

QST May 1993, p. 78

And:

Technical Correspondence

Hints and Kinks - Low-Pass Filter Cures Touch-Lamp Interference (65,536 bytes, PDF file)

QST April 1995, pp.72-73

Rich – K3SOM



# Some Interesting Links

Current UTC time [http://www.worldtimeserver.com/current\\_time\\_in.UTC.aspx](http://www.worldtimeserver.com/current_time_in.UTC.aspx)

BCARS skills night information <http://www.bcars.org/events/skills-night-jan-21st/>

DX expeditions time line [http://www.dx-world.net/timeline/dxw\\_timeline\\_1\\_1.php](http://www.dx-world.net/timeline/dxw_timeline_1_1.php)

ham radio DX expeditions <http://dxnews.com/>

More ham radio DX expeditions <http://www.ng3k.com/misc/adxo.html>

DX spotting page <http://www.dxsummit.fi/#/>

Amateur Radio Newline Report <http://www.arnewline.org/>

Dr. Tamitha Skov Space Weather for Radio Amateurs <http://spaceweather.tv/category/amateur-radio-resources/>



## The Amateur's Code

**CONSIDERATE** ...never knowingly operates in such a way as to lessen the pleasure of others.

**LOYAL** ...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

**PROGRESSIVE** ...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

**FRIENDLY** ...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

**BALANCED** ...radio is an avocation, never interfering with duties owed to family, job, school or community.

**PATRIOTIC** ...station and skill always ready for service to country and community.