



# the Radio Flyer, a BRARA Newsletter

January 2017

## BRARA Calendar:

Sun 01-Jan-2017 New Years Day

19:00 Mon 02-Jan-17 (145.29 [110.9])  
Monday Night Nets

19:00-21:00 Tue 03-Jan-17  
Club Meeting @ West Boca Library

09:00-12:00 Wed 04-Jan-17  
Ham Shack Work & Radio Day

~~20:00 Wed 04-Jan-17 (442.875 [110.9])~~  
~~Red Informativa en Español~~

09:00-13:00 Sat 07-Jan-17  
Ham Shack Work & Radio Day

19:00 Mon 09-Jan-17 (145.29 [110.9])  
Monday Night Nets

09:00-12:00 Wed 11-Jan-17  
Ham Shack Work & Radio Day

~~20:00 Wed 11-Jan-17 (442.875 [110.9])~~  
~~Red Informativa en Español~~

09:00-12:00 Sat 14-Jan-17  
Ham Shack Work & Radio Day

Mon 16-Jan-2017 MLK Day

19:00 Mon 16-Jan-17 (145.29 [110.9])  
Monday Night Nets

09:00-12:00 Wed 18-Jan-17  
Ham Shack Work & Radio Day

~~20:00 Wed 18-Jan-17 (442.875 [110.9])~~  
~~Red Informativa en Español~~

Thu 19-Jan-2017 REL Birthday

Fri 20-Jan-2017 Inauguration Day

09:00-12:00 Sat 21-Jan-17  
Ham Shack Work & Radio Day

19:00 Mon 23-Jan-17 (145.29 [110.9])  
Monday Night Nets

09:00-12:00 Wed 25-Jan-17  
Ham Shack Work & Radio Day

~~20:00 Wed 25-Jan-17 (442.875 [110.9])~~  
~~Red Informativa en Español~~

Sat 28-Jan-17 Chinese New Years Eve

09:00-13:00 Sat 28-Jan-17  
Ham Shack Work & Radio Day

12:00 Noon Sun 29-Jan-17  
Deadline for Newsletter Input

19:00 Mon 30-Jan-17 (145.29 [110.9])  
Monday Night Nets

09:00-12:00 Wed 01-Feb-17  
Ham Shack Work & Radio Day



## This Month's Speaker

This month, Bob Furtaw, W8IL, gives a presentation on airplane signals. Synopsis on last page.

Next month, Jim Talens (N3JT) & John Silva (N3AM) will speak on CW, & CW Oprs Club.

Future speakers include Rich Ladisky (WB1J): underwater adventures w/pics, Ryan Krenzischek(W4NTR): Army MARS, Ed Callaway (N4II): TBA, Ron Zimmer (KB1MPI): Israel trip.



## Repeater, HSMM, & Ham Shack News

Even though the new Shack is operational, there are still a lot of areas for innovation and improvement. We still meet every Wednesday and Saturday morning roughly between 09:00 and 13:00.

Both analog repeaters are working. Innovation and improvement opportunities are present here too. The work on the new 2m antenna and connections are completed

Repeater 2m/70cm linking as well as the time stamp are still works in progress. We are still fund collecting for a new 2m repeater antenna.

While the digipeater is operational, the packet repeater is a work in progress.

We have still not solved the limited internet connection and are still dependent on individual hot spots. We are, however, getting closer to resolving the internet link from the Repeater.

## QSL Report <sup>n4ii</sup>

As we closed out 2016, N4BRF has logged in 2,688 QSLs/\_8,436 QSOs (31.9%) on LoTW.

**DXCC Account Status:** New this month Chagos Isl Diego Garcia (VQ9); and Cambodia (XU). Awards received: Mixed, CW, Phone, 17m, 15m and 10m. 20m DXCC up to 96%

**WAS Account Status:** Nothing new this month. Awards issued: Mixed, 20m, CW, Phone, Digital, Triple Play, RTTY. We still need:

- AK, ID for 40m
- WV for 15m
- WY for 20m Phone
- NV for 20m CW.
- AK, DE, ID, ME, NV for 40m CW.

We have received the following QSOs from Field Day activities:

- 176 (+0) QSLs from 2012,
- 184 (+0) QSOs from 2013
- 257 (+1) QSOs from 2014
- 279 (+0) QSOs from 2015
- 152 (+0) QSOs from 2016

**VUCC Account Status:** New this month: FN32. 6m VUCC now up to 88.

Update at the next Club Meeting on Tuesday 02-Jan-2017



## Take It or Leaf It

Did you know that trees can affect your signal? If a vertical 28 MHz antenna is surrounded by moderately thick trees that are higher than the top of the antenna, signals will be attenuated 2 to 3 dB on average. Find these and other radio tidbits (Fact of the Day) at:

<http://www.smeter.net/>

## Is There a Market for a \$400 "Prepper" Radio?

By Dan Romanchik, KB6NU A couple of days ago, a reader wrote: "I would like to know if it would be feasible to build a radio with the following features:

- SSB operation (only SSB is required, CW would be an additional benefit)
- 20 - 50W of power
- Portable-friendly (lightweight, capable of operating at lower voltages from small portable batteries)
- Low receiver current drain
- Coverage of 40m and 80m bands. Very limited coverage is acceptable. Even channelized coverage of a few select frequencies would be acceptable.
- S-meter

"It strikes me that there is a large market for ham radio products for "preppers," and there has been a lot of interest in the Baofeng line of radios from that market. I think there would be a LOT of interest in a radio that could go far beyond line-of-sight and contact friends or family hundreds of miles away. Preppers would have little interest in contacts more than a state or two away, and no interest at all in novel operating modes. I wonder if a radio that trims away excess features (all-mode operation, wide frequency coverage, high power output, sophisticated audio filtering) could be produced for a lot less cost than currently available HF rigs. If so, and it was paired with a decent NVIS dipole and some General-class study materials and sold as a package deal, it could be a huge hit - Something you could tuck in a bug-out -bag, set up in the field, and use to make contacts in a reasonably local area, or set up in your backyard at home and use minimal power to operate.

"Is there a reason why I don't see radios like this on the market, some kind of technological limitation that would make this sort of thing impractical? If something like this was built, what kind of cost and

performance would you expect? I'm certainly not expecting any kind of detailed analysis, but even just a speculation about if such a project could be feasible would be appreciated."

I replied: "I think one of the reasons you don't see radios with the feature set you describe is that more full-featured radios are already pretty inexpensive. The Yaesu FT-450D, for example, costs less than \$800 and offers 100W output. The FT-817ND, which is designed for portable operation, costs less than \$700. Is that too much for preppers?"

I replied: "While it might seem like you could sell a radio with fewer features for less, I think that you hit the law of diminishing returns. At some point, removing features, doesn't reduce the cost all that much. For example, removing the CW capabilities from a transceiver capable of SSB operation really doesn't save that much because in a way CW operation is really just a subset of SSB operation. You'll save the cost of a key jack, but how much is that? Maybe a buck or two. Having said that, it could be that the big amateur radio manufacturers are overlooking an opportunity here."

We swapped a couple more e-mails about this. He noted, "Most preppers would probably rather buy a high-end AR-15 or several months worth of storage food for \$800 than a radio." I suggested, "If there was a catastrophic event, and you really needed to communicate, wouldn't it seem silly to have not spent the extra \$400 on a really decent radio?"

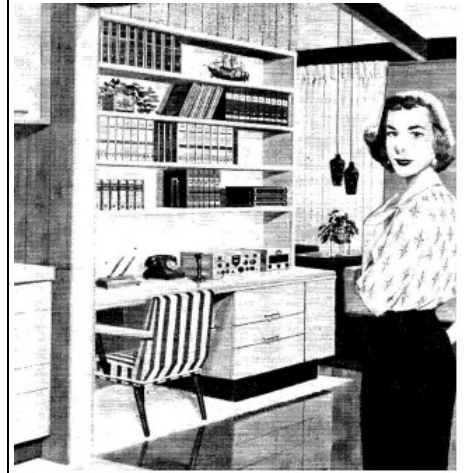
What do you think? Is my analysis a little too simplistic perhaps? Are amateur radio manufacturers ignoring a potential market?

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= Dan, KB6NU, is the author of the "No Nonsense" amateur radio license study guides, and blogs about amateur radio at KB6NU.Com. You can contact him by e-mailing [cwgeek@kb6nu.com](mailto:cwgeek@kb6nu.com).

## Blast from the Past— Collins Ad

Can anyone guess what year?



## To XYL's Only

Does your OM's ham-shack resemble a surplus store? Are you afraid to clean "that corner" for fear the vacuum cleaner will inhale cables, spare tubes or crystals? For your future peace of mind why not describe Collins compact KWM-1 to him: small enough to fit neatly into the bookshelves in the living room. 175 watts of input power (SSB-PEP), a super sensitive receiver, outstanding frequency stability and calibration, 14-30 mc frequency range—and, when he is mobiling in the family car, it makes a neat installation, easily removable, not a "shin bumper". Cost? Through the years it will cost him less than anything else he can build or buy. Tell him to call his Collins distributor for the facts about this revolutionary KWM-1 mobile transceiver. Available on easy terms.

*Collins* CREATIVE LEADER IN COMMUNICATION 



*"Every day sees  
humanity more  
victorious in the  
struggle with space  
and time."*

*Guglielmo Marconi*

## Monday Night Nets

### KG4FUR

BRARA now runs three Monday Night Nets on the 145.290 MHz -0.600 [110.9] repeater:

- ⇒ New HAMs Net: 19:00-19:30.
- ⇒ BRARA Informational Net: 19:30-20:00. Out-of-Area Amateurs may check-in via EchoLink. Our Node is 826953.
- ⇒ South County NBEMS Net 20:00-20:30. Analog Voice and FLDigi/FLMsg mixed mode.

## NBEMS KG4FUR

For more information and the latest Guide and Troubleshooting, go to [www.qsl.net/k4wrc/PBC-BASIC-NBEMS.html](http://www.qsl.net/k4wrc/PBC-BASIC-NBEMS.html) or simply Google "Palm Beach NBEMS"

### Scheduled Nets

Mon	20:00	S County	145.290 -0.6 110.9
Tue	19:30	PBC NBEMS	147.285 +0.6 103.5

## Other Local HAM

### Analog Repeater Nets

Daily	18:00	SEFL Traffic	146.61 MHz
Tue	19:00	Boynton CERT	443.1 MHz
Tue	20:00	IRLP Tech	147.075 MHz
Fri	09:00	SARNet:	
		PBC	443.975 MHz
		FTL	442.850 MHz

## Scheduled DMR Nets

Day	EDST	Talk Group	
Sun	2000	TG-2	(LO) FL Tech
Mon	1600	TG-13	(EN) UK Tech
Wed	2100	TG-03	(NA) NA Tech
Sat	1200	TG-01	(WW)

## Local DMR Repeaters

Location	Rx Freq	Color Code
Miami	442.225	1
N Dade	443.1250	10
Dania Bch	442.4000	1
Plantation	442.4250	1
Boca Raton	442.0000	8
Delray Bch	443.3000	1
Wellington	442.3000	7
Lk Worth	444.4500	10 In Repair
WPB	444.9125	1
PBG	442.1000	10
Jupiter	442.6000	10 Pending

## Social Media Committee

A committee was formed to update, simplify and modernize BRARA social media: W4BFL (Jerry), KO4XL (Bruce), NE4LS (Nelson), N1QFH (John C)

## Club Repeaters

144.390 APRS Repeater  
145.070 Packet Repeater  
145.290 -0.600 [PL 110.9] EC-826953  
442.875 +5.000 [PL 110.9]

Location: 26.39724 -80.09485  
145.290 & 442.875 linking planned

## Club Ham Shack

West Delray Regional Park  
10875 West Atlantic Avenue  
Delray Beach, FL 33446

## Board of Directors

### Scheduled Meetings

The BRARA Board of Directors:

K4LEW (Lew), KG4FUR (Gerry),  
KO4XL (Bruce), WA8VSJ (Art),  
KE4OBV (Patrick), W4BFL (Jerry),  
and W4WCD (Walt)

will hold scheduled monthly meetings at 18:00 on the third Thursday of the month in the McDonalds on Yamato Rd and Technology Way. Impromptu meetings may be held at the Shack on Wednesday and Saturday mornings.

## Donations & Contributions

Contributions to BRARA—a 501(c)(3) organization—are tax deductible as charitable donations. As you complete your membership renewal or begin your year-end tax planning, please consider making a donation to BRARA.

Planned Giving—Please also consider BRARA when updating or initiating planned giving (including charitable gift annuities, bequests and gifts or retirement plan assets) and other assets.

## Apparel Donations

\$10 donation-BRARA Name Plate with your Call Sign.  
\$30 donation-BRARA Polo Shirt with your Call Sign.  
\$40 donation-BRARA button down red cotton/poly shirt (short sleeve)

## Membership Application & Renewal

- \$25 Full Membership
- \$5 Associate Membership
- \$5 Family Mbr w/License

Name: \_\_\_\_\_

Call Sign: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

ARRL Member:  Yes  No

Birthday: Month: \_\_\_\_\_ Year: \_\_\_\_\_

License Grade: \_\_\_\_\_ Exp Date: \_\_\_\_\_

Interests:  Field Day  Ham Fest

HF  Digital  DXing

VHF  Packet  CW

UHF  Voice  Contesting

EmComm  Skywarn  Public Svc

DMR  MARS  CERT

Award Chasing  Ragchewing

Building & Experimenting  Satellite

Other: \_\_\_\_\_

Signature: \_\_\_\_\_

*Return with dues to BRARA at either:*

BRARA  
P.O. Box 480162  
Delray Beach, FL 33448-0162

Or

to a director at the Shack on Wednesday or Saturday morning radio days.

## Southwest Florida Regional Hamfest

Start Date: 01/20/2017  
 End Date: 01/21/2017  
 Location: Gulf Coast Church of Christ  
 9550 Six Mile Cypress Parkway  
 Fort Myers, FL 33901  
 Website: <http://fmarc.net/hamfest>  
 Sponsor: Fort Myers Amateur Radio Club  
 Type: ARRL Hamfest  
 Talk-In: 146.345 (PL 136.5)  
 Public Contact: Frank Nocera ,  
 WO4K  
 610 SW 28th Terrace Cape Coral, FL  
 33914  
 Phone: 239-357-7021  
 Email: [WO4K@arrl.net](mailto:WO4K@arrl.net)

## SFC Section Convention (Tropical Hamboree®)

Start Date: 02/03/2017  
 End Date: 02/04/2017  
 Location: War Memorial Auditorium  
 800 NE 8th Street  
 Ft. Lauderdale, FL  
 Website: <http://hamboree.org>  
 Sponsor: Dade Radio Club of Miami, Inc.  
 Type: ARRL Convention  
 Talk-In: 147.000 (PL 94.8)  
 Public Contact: Lloyd Kurtzman ,  
 N4LJK  
 8266 Mills Drive PO Box 835367 Miami,  
 FL 33283  
 Phone: 305-332-9142  
 Email: [LLOYD0703@gmail.com](mailto:LLOYD0703@gmail.com)

## Free Laurel VEC Testing



Sun 08-Jan-2017, 11:00-13:00, Fire Station 28, 1040 RPB Blvd, Royal Palm Beach [PWARC] (1st Sunday of odd months).

Tue 09-Jan-2017, 18:00-19:30, Broward Gen MC, 1600 S Andrews Ave, Ft Lauderdale [BARC] (2nd Tue of every month).

Thu 9-Feb-2017, 19:00-21:00, Rutherford Com Ctr, 2000 Yamato Rd, Boca Raton, FL 33498 [BRARA] (Quarterly: Feb, May, Aug, Nov)

## TARC Fest

Start Date: 01/14/2017  
 End Date: 01/14/2017  
 Location: Tampa Amateur Radio Club  
 7801 N 22nd St  
 Tampa, FL 33601  
 Website: <http://www.hamclub.org>  
 Sponsor: Tampa Amateur Radio Club  
 Type: ARRL Hamfest  
 Talk-In: 147.105 (PL 146.2)  
 Public Contact: Bill Bode , N4WEB  
 14302 Capitol Drive Tampa, FL 33613  
 Phone: 813-382-9262  
 Email: [n4web@hamclub.org](mailto:n4web@hamclub.org)

## SE Division Convention (Orlando Ham Cation®)

Start Date: 02/10/2017  
 End Date: 02/12/2017  
 Location: Central Florida Fairgrounds  
 4603 West Colonial Drive  
 Orlando, FL 32801  
 Website: <http://hamcation.com>  
 Sponsor: Orlando Amateur Radio Club (OARC)  
 Type: ARRL Convention  
 Talk-In: 146.760 - 600 (no PL tone),  
 147.015 + 600 (no PL tone)  
 Public Contact: Lidy Meijers ,  
 KJ4LMM  
 PO Box 547811 Orlando, FL 32854  
 Phone: 407-841-0874  
 Email: [info@hamcation.com](mailto:info@hamcation.com)

## BRARA Ham Shack Key Rules <sup>K4Lew</sup>

To obtain a key for our ham shack you must be a member in good standing for a minimum of a continuous year and hold a general class license or above and go through a short training session with K4LEW (Lew), W4BFL (Jerry), W4WCD (Walt) or N4CGC (Max).

### Welcome New Members:

NONE Reported

### For more on BRARA:

[www.n4brf.org](http://www.n4brf.org)

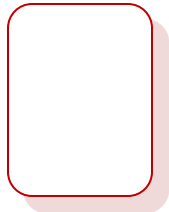
## the Radio Flyer's Purpose

The purpose of this newsletter is to keep club members and other interested hams updated on club events and ham activities in the Greater Boca Raton Area. We hope you enjoy this month's *the RF* as much as we did publishing it!



### the Radio Flyer

P.O. Box 480162  
 Delray Beach, FL 33448-0162



BRARA Club Member Name  
 Call Sign  
 Street Address  
 City, State Zip Code



## Amateur License Refresher

It's probably been awhile since you took your Amateur License exam. Here are a few sample questions just to keep those synapses firing. BRARA is planning a Extra Class after the first of the year.

### Extra Pool

#### E4E02

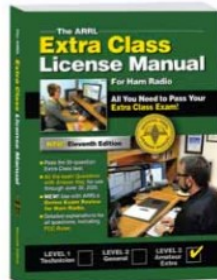
Which of the following types of receiver noise can often be reduced with a DSP noise filter?

- A. Broadband white noise
- B. Ignition noise
- C. Power line noise
- D. All of these choices are correct

#### E4E15

Which of the following can cause shielded cables to radiate or receive interference?

- A. Low inductance ground connections at both ends of the shield
- B. Common mode currents on the shield and conductors
- C. Use of braided shielding material
- D. Tying all ground connections to a common point resulting in differential mode currents in the shield

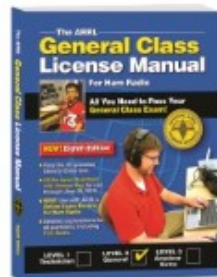


### General Pool

#### G7A04

What is the peak-inverse-voltage across the rectifier in a half-wave power supply?

- A. One-half the normal peak output voltage of the power supply
- B. One-half the normal output voltage of the power supply
- C. Equal to the normal output voltage of the power supply
- D. Two times the normal peak output voltage of the power supply



#### G7A07

What is the output waveform of an unfiltered full-wave rectifier connected to a resistive load?

- A. A series of DC pulses at twice the frequency of the AC input
- B. A series of DC pulses at the same frequency as the AC input
- C. A sine wave at half the frequency of the AC input
- D. A steady DC voltage

### Answers to License Refresher:

E4E02 (D)

E4E15 (B)

G7A04 (D)

G7A07 (A)

## W2GGI DMR

### Repeaters Channel

### Options *kg4fur*

Bob (W2GGI) is expanding channel options on the 443.3000 (Delray Beach-DLB)) and 444.9125 (West Palm Beach-WPB).

New on Bob's Repeaters are:

TG 302 [CAN] Canada-Wide  
TG 444 [NYC] Bronx-TRBO NY-Metro

Both will TS1.

I know the observant will note that the CS and MD radios are limited to 16 channels per zone. Not to worry!

When the zones were originally planned on the Club codeplugs, I created place holders. The intent being to provide space for the future.

With this in mind:

- Channel 10 inactive 1776 [USA] will be changed to 302 [CAN].
- Channel 13 [MI] will be changed to 444 [NYC] putting it right next to 3136 [TRI (PA/NJ/NY)] on channel14.
- 3126 [MI] will be moved to Channel 6 replacing inactive 14 [SP] on these repeaters only.

N1QFH has the MD-380/390 codeplug for inclusion in the Google Doc. KM4WMF is working on the codeplug for the CS750/800 series.

Of course, more than 16 channels may be programmed into Scan. I need to work on this and create a new W2GGI Zone and Scan for John C and John Q to distribute.

Bob is considering other additions.

Again Bob, Thanks for all you do!

## Articles for the Newsletter *KG4FUR*

Got an idea for an article? Or constructive critique? Want to share club news and events? How about writing a short 30-minute project idea? Your submissions to the Red Flyer are needed to help keep this one of the best club newsletters in South Florida.

Please send articles to  
KG4FUR@yahoo.com



## Newsletter Guidelines

Thanks for all who submitted articles last year and I hope you continue to do so. We're also looking for new writers as well. Here are some guidelines for article submissions.

- Text should be in MS Word or equivalent, saved as a .DOC file. ASCII text written in an email works too.
- Write your best stuff, but don't sweat the grammar. That's why there's an editor.
- Please submit pictures/illustrations as separate files, don't embed them in the text.
- Be sure to submit clear, in-focus photos



## Ham Humor

### *NRRL Documents Show Discord Over NPOOTA*

By K5KVN, on the scene

**NEWINGSTEAD, VT** — Recently uncovered documents from a National Radio Retransmission Legion (NRRL) meeting in 2015 show discord over what kind of on-air event the group should sponsor in 2016. The records show a bewildered discussion about what, precisely, should be activated. Ham Hijinks obtained the meeting records though an anonymous source who wasn't authorized to speak about the NRRL's strategic planning process.

"We unsuccessfully tried several methods to pick something - throwing darts at pieces of paper on the wall, pin the tail on the activation and rock-paper-scissors. We ruled out a CW battle when we discovered four out of the five participants were no-code Techs," said the source.

Pizza ovens, of course, were chosen. The popular National Pizza Ovens On The Air (NPOOTA) year-long event has proven to be a tremendous success, with more than 800,000 activation QSOs submitted to Logbook of the Globe and more than 6,500,000 calories consumed. President Obama got into the action, as well.

The question remains about how and why pizza ovens were chosen. The documents reveal other ideas that were considered which have not been made public until now:

- Parks; ruled out because "hams don't get outdoors much."
- Golden Corral; ruled out because "hams would never leave."
- Radio Shack stores; ruled out because "there aren't many left and they only have cell phones and batteries."

It remains to be seen what, if anything, the NRRL will do next year to top NPOOTA. NRRL officials didn't return emails, phone calls or traffic through the NTS nets requesting comment.



### *75 Meter Lids Vow To Take Back Title*

By WBØRUR, on the scene

**BURBANK, Ariz.** —The group of n'er-do-well hams who call the 75 meter band home (and fill the airwaves with disgusting sounds, comments and vulgar language) have vowed to take back the title of "Most Vile Ham Radio Operators" after relinquishing the honor to relatively new upstarts.

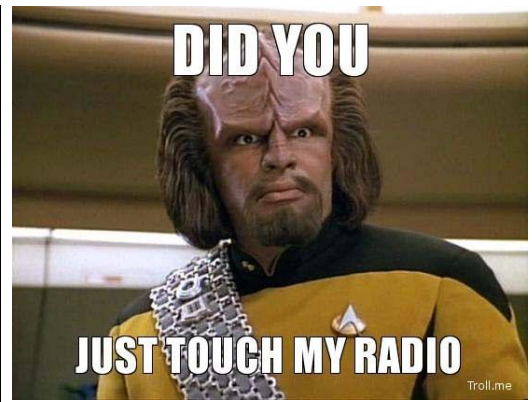
These 75 Meter LIDS asked us to hide their identity.

"We really have let our standards slip," says an anonymous ham - a patron of the 75 meter frequencies for years. "Used to be, a few [redacted] and a couple of [redacted] and you were golden. But not so much anymore. Nowadays, you really need to be able to insult race and political positions, [redacted]. And woe be to the [redacted] ham who doesn't have a quick library of sound effects to draw upon at the push of a button."

Over the past 5 years, aggressive recruiting of prolific obscenity-prone hams to 14.313 MHz and - more recently - to 7.200 MHz have cut the 75 meter band membership in half.

"It won't come easy. We'll have to [redacted] rebuild our base. Plans are for several hamfest workshops across the country. These sessions will include curse word workbooks and [redacted] laminated quick reference guides that hams may keep on their [redacted] operating desks."

The group admits they may never overcome the 14.313 MHz daytime propagation advantages, but feel they should be able to win strongly in the evening hours as long as those [redacted] foreign broadcast stations don't interfere.



*"Our city's vast and complex communications system, is indebted to the many trained amateur radio volunteers, who are efficient and dependable and lend a much needed hand in times of crisis or disaster. They are an invaluable part of our city's communication network..."*

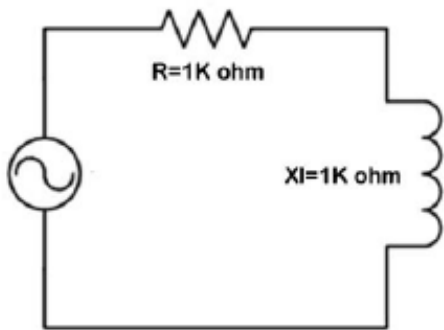
**Rudolph Giuliani**

## j Numbers - Part II

KD8NZF

Last month we started looking at the use of j numbers in electronics, wrote a j number for this series resistive inductive circuit and calculated the impedance of the circuit. Not too shabby. So let's back up a little and talk about a couple of things we skimmed over last time.

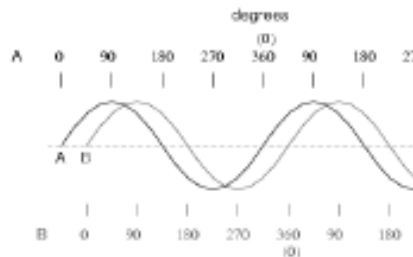
Resistance works to reduce current in a circuit and is measured in ohms, usually shown as  $\Omega$ . Resistors don't care if they are in an AC or DC circuit, they pretty much work the same. Capacitance and Inductance behaves differently depending on whether it is in an AC or DC circuit. Most text books explain Capacitance first so just to be ornery, let's start with Inductance or better yet let's start with Inductors. Inductors are the parts. So in the diagram the symbol on the right is an inductor. It's drawn with a series of loops because an inductor is just that, a series of loops of wire. You could literally wrap a piece of wire around a dowel rod and it would be an inductor.



When you put an Inductor in an AC circuit a couple interesting things happen; the inductor reduces current and it messes with time. Since it reduces current it is kind of acting like a resistance. When they were figuring all this stuff out, they decided to call it reactance to tell it apart from resistance. Reactance is measured in ohms ( $\Omega$ ) just like resistance and if you learned ohm's law you can use reactance in calculations just like you did with resistance. The catch is the part about messing with time.

In electronics they call differences in the timing of signals a phase difference. If the two waves start at the same time they are said to be in phase but if they start a different times they are out of phase. It's difficult to draw in phase signals since they are the same and on top of each other, so here is a drawing of out of phase signals. The drawing also shows two time scales, one for each wave. Look closely and you will see the top

time scale starts further to the left than the bottom one.



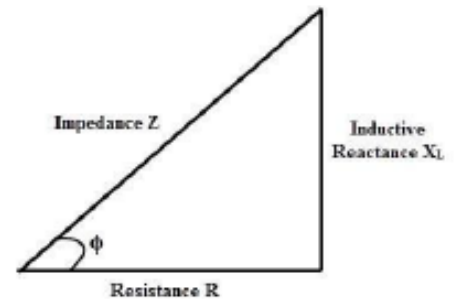
Oscilloscopes are usually used to look at signals and this drawing is similar to what you would see on a scope. On a scope time starts on the left side of the screen and goes to the right, so the further you are to the left the earlier it is in time. This drawing is showing wave A starting earlier in time than wave B. In tech talk they would say A and B are out of phase with each other. A full cycle of a wave is considered to be  $360^\circ$  and if you look closely at the A time scale and the A wave you will see that it starts at  $0^\circ$ , goes up to a maximum, drops back to the center, goes below the center line to a negative max and returns to the center line at  $360^\circ$ . Waves don't usually stop at the end of a cycle so they drew another cycle of the A wave. Now look at the B wave. It does the same thing, but its starting point is about half way between 0 and 90 on the A scale. Well half way is about 45, so the B wave is  $45^\circ$  degrees out of phase with the A wave. Because B started after A, B is said to Lag A by  $45^\circ$ .

Whew, glad that's over. So what could cause a wave to shift in time? Yep that pesky inductor. If you have only an inductor in a circuit the phase shift is  $90^\circ$ , if you have only a resistor there is no shift, said to be a  $0^\circ$  shift. If you have both in a circuit, the result depends on the relative size of each part and will be between  $0^\circ$  and  $90^\circ$ .

If you remember last month we blamed a lot of stuff on Pythagoras so let's continue with that. Last month we drew this triangle and labeled the sides as R and XL. We ignored it, but in the bottom left corner of the triangle there was an arc labeled  $\Phi$ .  $\Phi$  is the Greek Symbol Phi. It's just the way the math guys label an angle in a triangle, so they are showing the angle  $\Phi$ . That angle is the phase angle for the circuit. Can you see this coming? If you know the two sides you can calculate the angle.

But instead of getting tied up in that let's just use common sense. The triangle is drawn with the R side and the XL side the same length because they represent the two parts in the circuit and both parts were 1000 $\Omega$ . (The circuit is at the beginning of this article) Look at the triangle. With

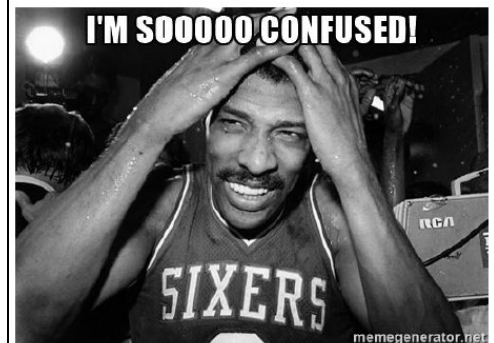
equal sides, the angle looks about  $45^\circ$ . Remember that calculator we used last month, well if you looked closely it shows you the phase angle also. It's in the lower left part of the screen and I have highlighted it also. They used a different Greek symbol, but it's still the angle.



Well you say this is cheating using a calculator from Google. Yep. Back in the slide rule days we didn't have these tools and had to go through the math. Today a \$10 calculator from Walmart with do these calculations, so I vote for using the tools. But if you want to do the math, the equations are shown on the screen along with the results.

I thought we would have this all wrapped up this month but we still have a little to do, so next month let's put the parts together. I forgot to put the Cop Out at the beginning of this article, so here it is:

I am not a heavy duty mathematician, physicist, or engineer. But what I have been able to do is find some simplified ideas that helped me understand some complicated ideas. So if you are a mathematician, physicist, or engineer, I'm going to take some liberties with the theory.



Yet it will all become abundantly clear. Be sure to read Part Three in the next issue.

## Contest and Special Event Operating News and Information

Data below as well as more information courtesy of the following website:  
<http://www.hornucopia.com/contestcal/index.html>.

Contest and Special Event	Date Time Group
AGB New Year Snowball Contest	0000Z-0100Z, Jan 1
SARTG New Year RTTY Contest	0800Z-1100Z, Jan 1
AGCW Happy New Year Contest	0900Z-1200Z, Jan 1
AGCW VHF/UHF Contest	1400Z-1700Z, Jan 1 (144) and 1700Z-1800Z, Jan 1 (432)
QRP ARCI New Years Sprint	1500Z-1800Z, Jan 1
QRP ARCI New Years Sprint	1500Z-1800Z, Jan 1
ARS Spartan Sprint	0200Z-0400Z, Jan 3
QRP Fox Hunt	0200Z-0330Z, Jan 4
Phone Fray	0230Z-0300Z, Jan 4
CWops Mini-CWT Test	1300Z-1400Z, Jan 4 and 1900Z-2000Z, Jan 4 and 0300Z-0400Z, Jan 5
UKEICC 80m Contest	2000Z-2100Z, Jan 4
NCCC RTTY Sprint	0145Z-0215Z, Jan 6
QRP Fox Hunt	0200Z-0330Z, Jan 6
NCCC Sprint	0230Z-0300Z, Jan 6
PODXS 070 Club PSKFest	0000Z-2400Z, Jan 7
WW PMC Contest	1200Z, Jan 7 to 1200Z, Jan 8
SKCC Weekend Sprintathon	1200Z, Jan 7 to 2400Z, Jan 8
Original QRP Contest	1500Z, Jan 7 to 1500Z, Jan 8
Kid's Day Contest	1800Z-2359Z, Jan 7
ARRL RTTY Roundup	1800Z, Jan 7 to 2400Z, Jan 8
EUCW 160m Contest	2000Z-2300Z, Jan 7 and 0400Z-0700Z, Jan 8
DARC 10-Meter Contest	0900Z-1059Z, Jan 8
Midwinter Contest	1000Z-1400Z, Jan 8
QRP Fox Hunt	0200Z-0330Z, Jan 11
Phone Fray	0230Z-0300Z, Jan 11
CWops Mini-CWT Test	1300Z-1400Z, Jan 11 and 1900Z-2000Z, Jan 11 and 0300Z-0400Z, Jan 12
AWA Linc Cundall Memorial CW Contest	2300Z, Jan 11 to 2300Z, Jan 12 and 2300Z, Jan 14 to 2300Z, Jan 15
NCCC RTTY Sprint	0145Z-0215Z, Jan 13
QRP Fox Hunt	0200Z-0330Z, Jan 13
NCCC Sprint	0230Z-0300Z, Jan 13
Old New Year Contest	0500Z-0900Z, Jan 14
UBA PSK63 Prefix Contest	1200Z, Jan 14 to 1200Z, Jan 15
North American QSO Party, CW	1800Z, Jan 14 to 0559Z, Jan 15
NRAU-Baltic Contest, SSB	0630Z-0830Z, Jan 15
NRAU-Baltic Contest, CW	0900Z-1100Z, Jan 15
Run for the Bacon QRP Contest	0200Z-0400Z, Jan 16

### Reminders fm de Pres:

#### Next Meeting:

**Monday  
February 7, 2017  
19:00-20:45  
West Boca Library**

#### 2017 Membership Renewal:

**Renew your membership with BRARA. In addition to sending your check to our P.O. Box, you can renew your membership at the next meeting or at our weekly meetings. Renewals begin 01-October and are due by 31-January.**

**Along with your renewal, please consider a donation to the Antenna Fund. We need your help!**

**Kids Day is 7 Jan 2017 (1800 UTC - 2359 UTC). It is designed to give on-the-air experience to young people and hopefully foster getting a license of their own.**

**Orlando Ham cation is coming up. Remember to mark you calendars for 10-12 Feb 2017 and pre-order your tickets.**

### 2016 Tax Donation Letters

Tax Donation letters will be emailed for all the 2016 donations. Please turn in your receipts by January 15 to take advantage of this.



Contest and Special Event	Date Time Group
QRP Fox Hunt	0200Z-0330Z, Jan 18
Phone Fray	0230Z-0300Z, Jan 18
CWops Mini-CWT Test	1300Z-1400Z, Jan 18 and 1900Z-2000Z, Jan 18 and 0300Z-0400Z, Jan 19
NAQCC CW Sprint	0130Z-0330Z, Jan 19
NCCC RTTY Sprint	0145Z-0215Z, Jan 20
QRP Fox Hunt	0200Z-0330Z, Jan 20
+ NCCC Sprint	0230Z-0300Z, Jan 20
LZ Open Contest	1800Z-2200Z, Jan 20
Hungarian DX Contest	1200Z, Jan 21 to 1159Z, Jan 22
North American QSO Party, SSB	1800Z, Jan 21 to 0559Z, Jan 22
ARRL January VHF Contest	1900Z, Jan 21 to 0359Z, Jan 23
WAB 1.8 MHz Phone	1900Z-2300Z, Jan 21
Feld Hell Sprint	2000Z-2359Z, Jan 21 (EU/AF) and 2300Z, Jan 21 to 0259Z, Jan 22 (ENA/ESA) and 0200Z-0559Z, Jan 22 (WNA/AS/OC)
SKCC Sprint	0000Z-0200Z, Jan 25
NAQCC CW Sprint	0130Z-0330Z, Jan 25
QRP Fox Hunt	0200Z-0330Z, Jan 25
Phone Fray	0230Z-0300Z, Jan 25
CWops Mini-CWT Test	1300Z-1400Z, Jan 25 and 1900Z-2000Z, Jan 25 and 0300Z-0400Z, Jan 26
UKEICC 80m Contest	2000Z-2100Z, Jan 25
NCCC RTTY Sprint	0145Z-0215Z, Jan 27
QRP Fox Hunt	0200Z-0330Z, Jan 27
NCCC Sprint	0230Z-0300Z, Jan 27

*January 2017*

*Presentation:*

## *Airplane Signals*

There are approximately 300,000 private, commercial or airline transport pilots registered in the U.S. and on any day there could be 50,000 flying. This is approximately the same amount of amateur radio licensed operators that there are registered in the US.

Today, a pilot only needs to be licensed to operate a radio if he uses an HF radio or conducts flight internationally. All aircraft are required to be individual or fleet station licensed, even if they carry only an emergency locator beacon.

Today's modern aircraft radiates, and is susceptible to lots of EMF as they say "from DC to blue light".

This presentation will help understand the systems, spectrum, diversity of protocols, power levels and safety issues associated with these emissions so that you can understand and avoid signals, in the hopes of avoiding interference and have some fun listening in on some of these signals.

## TALARC Monthly Nets

EchoLink, 20-Meter, and IRLP Nets meet the 2nd Saturday of each month.

40-Meter Net meets the 3rd Sunday of each month.

D-Star Nets meet the 1st and 3rd Mondays of each month.

Note: Access to the \*FMCA-ARC\* EchoLink Conference Node cannot be made via a Repeater.

Mode	Day	Date	Time [Zulu]	Band	Where to find the Net
EchoLink	Saturday	June 11	12 Noon ET [1600Z]		*FMCA-ARC* Conference
HF	Saturday	June 11	1:00 PM ET [1700Z]	20 meters	14.275 MHz [+/- 5 KHz]
IRLP	Saturday	June 11	2:00 PM ET [1800Z]	2 meters	Node 9735 [K9DC-Indy]
HF	Sunday	June 19	6:00 PM ET [2200Z]	40 meters	7.243 MHz [+/- 5 KHz]
D-Star	Monday	June 20	9:00 PM ET [0100Z]		REF 026A
D-Star	Monday	July 4	9:00 PM ET [0100Z]		REF 026A

You know it's bad when...you start hearing CW all the time, and there really isn't any...

**Clinton Herbert [AB7RG]**

The difference between involvement and commitment is like ham and eggs. The chicken is involved; the pig is committed.

**Martina Navratilova**

## DX Operating News and Information

Credit for the below information and further information on these operations and others can be found at the following website:  
<http://www.ng3k.com>

Jan-17							
Start	End	DXCC	Call	QSL via	Reported by	NEW	Information
2017 Jan01	2017 Jan07	<b>Qatar</b>	<a href="#">A70X</a>	M0OXO	<a href="#">DXW.Net</a> 20161123		By a team fm Al Safliyah I (IOTA AS-088); HF; SSB CW + digital
2017 Jan01	2017 Jan09	<b>Aruba</b>	<b>P49X</b>	LotW	<a href="#">TDDX</a> 20161221		By W0YK; HF; CW SSB RTTY; QRV for ARRL RTTY Roundup; QSL also OK via Club Log
2017 Jan02	2017 Jan11	<b>Maldives</b>	<b>8Q7AZ</b>	DL8AZ	<a href="#">DXNews</a> 20161212		By DL8AZ fm Meeru I (IOTA AS-013, MJ64uk); 40-10m; SSB
2017 Jan03	2017 Jan21	<b>Laos</b>	<b>XW4XR</b>	LotW	<a href="#">TDDX</a> 20161209		By AA4XR fm Vientiane; 160-10m; CW RTTY JT65; QSL also OK via E21EIC
2017 Jan04	2017 Jan22	<b>Micronesia</b>	<b>V63</b>		<a href="#">DXW.Net</a> 20160912		By JA3ARJ as V63ARJ, JH3LSS as V63LSS, JA3AVO JH3PBL W7AYA likewise fm Pohnpei; 160-6m; CW SSB + digital
2017 Jan05	2017 Jan09	<b>South Cook Is</b>	<a href="#">E51AMF</a>	LotW	<a href="#">DXW.Net</a> 20160730		By K7ADD fm Rarotonga I (IOTA OC-013); 80-10m, perhaps 160m; SSB RTTY; 1.5kw; verticals and wires near salt water; QSL also OK via K7ADD direct, Club Log, eQSL
2017 Jan06	2017 Jan16	<b>Laos</b>	<b>XW4ZW</b>	LotW	WB6RSE 20161208		By K4ZW fm Vientiane; focus on low bands; QSL also OK via K1SE (see link at call sign for details)
2017 Jan07	2017 Jan30	<b>PE &amp; Marion Is</b>	<b>ZS8Z</b>	ZS1LS	<a href="#">TDDX</a> 20161124		By ZS1BCE; HF; SSB + digital; broadband dipole; operation to continue for 17 months; start date uncertain
2017 Jan08	2017 Jan25	<b>Bonaire</b>	<b>PJ4B</b>	PA8A Direct	PA3GVI 20160930		By PA8A; 40-40m; 100w; end-fed; holiday style operation; include US\$2 (no IRCs) + SAE w/ QSL request
2017 Jan11	2017 Jan25	<b>Cyprus SBA</b>	<b>ZC4SB</b>	G0GSB Direct	<a href="#">TDDX</a> 20161122		By G0GSB fm the Akrotiri area; mainly 80 40 20m; SSB CW; 100w; dipoles; include US\$3 + SAE w/ QSL request
2017 Jan11	2017 Feb06	<b>North Cook Is</b>	<a href="#">E51AMF</a>	LotW	<a href="#">DXW.Net</a> 20160730		By K7ADD fm Manihiki Atoll (IOTA OC-014); 80-10m, perhaps 160m; SSB RTTY; 1.5kw; verticals and wires near salt water; QSL also OK via K7ADD direct, Club Log, eQSL
2017 Jan12	2017 Jan18	<b>Palau</b>	<b>T8</b>	Home Call	<a href="#">TDDX</a> 20161216		By JA6EGL as T88SM, JA6KYU as T88HS, JI6BFF as T88TK, JQ6FQI as T88WM, JH7IPR as T88UW fm IOTA OC-009; 160-10m; CW SSB RTTY
2017 Jan14	2017 Jan22	<b>Cayman Is</b>	<b>ZF2PG</b>	LotW	<a href="#">TDDX</a> 20161129		By K8PGJ; QRV for NAQP; QSL also OK via K8PGJ
2017 Jan19	2017 Mar09	<b>Guadeloupe</b>	<b>TO7D</b>	LotW	<a href="#">TDDX</a> 20161215		By F6ITD fm Baie Mahaut, Desirade Island (IOTA NA-102); 160-6m; SSB CW + digital; 500w; dipoles; also FG/F6ITD; QSL also OK via F6ITD
2017 Jan20	2017 Feb23	<b>Vanuatu</b>	<b>YJ</b>	See Info	JA2NQG 20161211		By JH2BNL as YJ0AA, JI2UAY as YJ0FM, JA2NQG as YJ0WW (all requested); 160-10m; CW SSB FM RTTY; 2 500w stns 1 200w stn; Inverted L, dipoles, CrankIR, HB9CV; QSL LoTW for YJ0AA, others via home_calls
2017 Jan20	2017 Jan26	<b>Iceland</b>	<b>TF</b>	LotW	<a href="#">DXNews</a> 20161215		By PY2SEX as TF/DL1NX fm IOTA EU-021; 80-10m; Buddipole
2017 Jan20	2017 Mar03	<b>Guinea Bissau</b>	<a href="#">J5UAP</a>	LotW	HA3AUI 20161201		By HA3AUI; 20-10m, other bands on request; CW; 100w; Spiderbeam; QSL also OK via HA3AUI direct

2017 Jan20	2017 Mar03	<b>Guinea Bissau</b>	<a href="#">J5UAP</a>	LotW	HA3AUI 20161201	By HA3AUI; 20-10m, other bands on request; CW; 100w; Spiderbeam; QSL also OK via HA3AUI direct
2017 Jan20	2017 Mar03	<b>Senegal</b>	<a href="#">6W2SC</a>	LotW	HA3AUI 20161201	By HA3AUI; 20-10m, other bands on request; CW; 500/100w; Spiderbeam; QSL also OK via HA3AUI direct
2017 Jan22	2017 Feb02	<b>Ivory Coast</b>	<a href="#">TU5MH</a>	LotW	<a href="#">DXW.Net</a> 20161119	By DF3FS DJ7JC DJ9RR DL8JJ; 80-10m; CW RTTY SSB; 1kw; verticals, arrays; QSL also OK via DJ5BWD (Buro or direct) and Club Log
2017 Jan25	2017 Feb01	<b>Dominican Republic</b>	<a href="#">HI1UD</a>	LotW	N2WB 20161207	By HI3MPC HI3TT HI3CC HI3RWP HI8RD HI8K HI8C HI3Y HI3MRV HI8EES fm Beata I (IOTA NA-122, FK47fn); all bands; CW SSB; QSL also OK via Club Log (preferred) or W2CCW direct (w/ \$US2 + SAE

## Holiday Party Snippets



Snippets are courtesy of Jim Talens (N3JT)



When you care to send the very least!



**Ham Radio & Electronics Show**

**INFORMATION**  
**Quick Reference Guide**

**HamCation Hotline** 24/7 call 407 841 0874  
or call 800 214 7541 E-mail: [info@hamcation.com](mailto:info@hamcation.com)  
Website: [www.hamcation.com](http://www.hamcation.com)

**Dates-**

February 10, 11 & 12, 2017

**Times-**

Friday February 10, **9:00 am to 6:00 PM**

Saturday February 11, **9:00 am to 5:00 PM**

Sunday February 12, **9:00 am to 2:00 PM**

**Talk In -**

**KB4UT 146.760 (-600/no PL)**  
(Backup on 145.015 (-600/no PL)  
**D-star K1XC 146.820 (-600)**

**Tickets -**

**\$15.00 for all three days at the gate.**  
\$ 13.00 purchased before December 31 2016

**Where -**

Central Florida Fairgrounds  
4603 West Colonial Drive  
Orlando, Florida 32808

**Coordinates -**

- 81.438338, 28.55671,0

**RV Info -**

Check-in Wednesday February 8, 2017,  
2:00 PM till 8:00 PM. Then Thursday  
Check-in is 7:00 am - 8:00 PM  
RV is \$30.00 per night  
All guests need tickets for the show.  
Enter through **SOUTH gate** - Main  
Entrance. No camping outside gates!

**Swaps info -**

Set-up time for Swaps Tables  
Thursday February 9, 2017,  
7:00 am to 7:00 PM. Check in Friday  
February 10, 2017 7:00 am to 9:00 am.  
Swaps tables \$ 55.00. All need tickets  
Enter through **EAST gate**.

**Tailgate Info -**

Tailgate admission Thursday  
February 9, 2017 2:00 PM to 8:00 PM.  
Friday February 10, 2017, 7:00 am 9:00  
am. **First come first served.** Tailgate per  
spot \$45.00. All need tickets  
Enter through **SOUTH** gate.

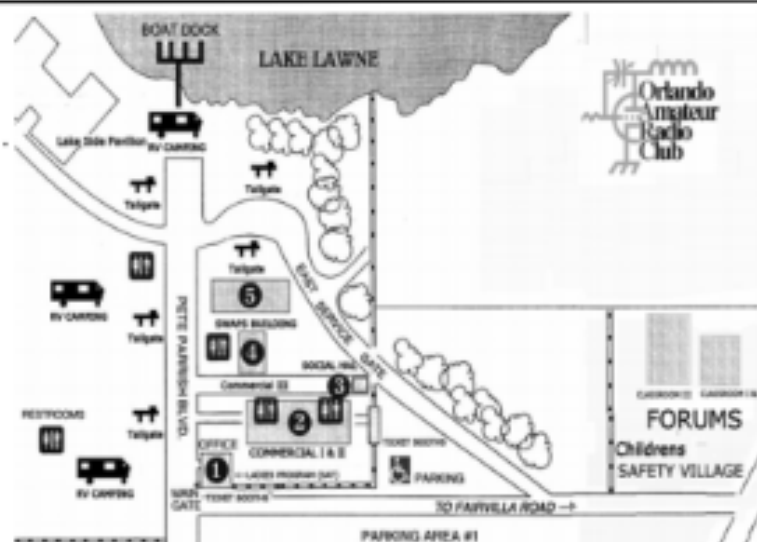
*To order Commercial Spaces, Tickets, RV Spots, Swaps  
Tables, and Tailgate Spots. Go to [www.hamcation.com](http://www.hamcation.com).*

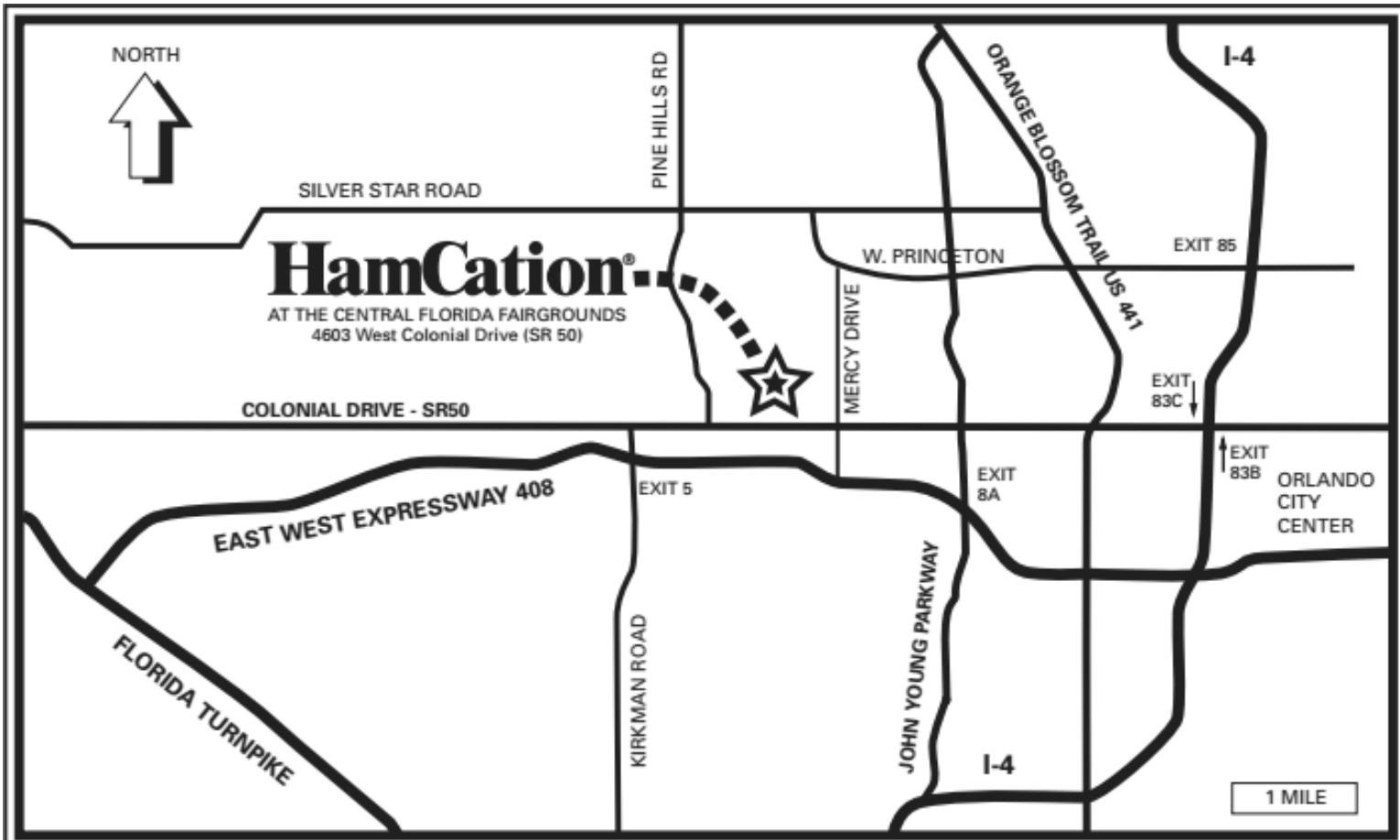
**Testing info -**

Friday February 10, 3:00 PM  
Saturday February 11, 9:00 AM  
and 1:00 PM  
Must be **pre-registered**,  
mail: [testing@hamcation.com](mailto:testing@hamcation.com).  
Testing fee \$15.00

**Forums**-Friday February 10,  
Saturday February 11, 2017.  
Children Safety Village and  
Lake side pavilion  
9:00 AM - 5:00 PM

**Hotels info - HamCation®  
Specials!** Holiday Inn Express  
& Suites. Drury Inn Suites,  
Rosen Inn at Pointe Orlando,  
The Rosen Inn International  
and International Palms Resort  
& Conference Center.  
See accommodations tab on  
the web site. Early reservation  
is strongly recommended.





## 2017 HamCation® Reservation Form

(Pre-registration ends December 31, 2016)

Reservations after this date will hold for will call

Name \_\_\_\_\_ Call \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ St \_\_\_\_\_ Zip \_\_\_\_\_

E-Mail: \_\_\_\_\_

Phone: \_\_\_\_\_

Make check or money order payable to:  
**Orlando HamCation.**

Mail to: Orlando HamCation®  
P.O. Box 574962  
Orlando, FL 32857-4962

Tickets ( ) @ \$13 = \$ \_\_\_\_\_

Swap Tables ( ) @ \$55 = \$ \_\_\_\_\_

Swap Table Electricity Needed?: Yes  No

Swap Table Day of Arrival: Thur.  Fri.  Sat.

Tailgate (3 days) ( ) @ \$45 = \$ \_\_\_\_\_

RV per Night ( ) @ \$30 = \$ \_\_\_\_\_

RV day of arrival: **Wed. Thur. Fri. Sat.**

PLEASE CIRCLE

**Total Due:** \$ \_\_\_\_\_

CHECK # \_\_\_\_\_

Please include a **self addressed-stamped envelope**, #10 – business size, for all reservations. Reservations not including the business size s.a.s.e. will be held at the **Will Call** window. This may cause some delay.

Orlando HamCation® organization has a standing refund policy. No refunds unless all the paperwork has been received by USPS mail **10 days** before the show starts. It is at the discretion of the HamCation® chairman to execute a refund. No food and drinks sales allowed at the site by the HamCation® vendors. Weapons are not allowed at the Fairgrounds. No dogs allowed in all the buildings, social hall and Forums, except service animals.

**To order Tickets, RV Reservations, Swap Tables, and Tailgate spots On Line go to**  
**[www.hamcation.com](http://www.hamcation.com)**