



ZERO BEAT

Southeastern Massachusetts
Amateur Radio Association, Inc.
54 Donald Street
South Dartmouth, MA 02748



Since 1932

Volume 48 Issue 3

SEMARA-W1AEC

March 2012

Special Event Opportunity

THE U.S. ORIGINAL 13 COLONIES S/E GROUP PRESENTS THE 4TH ANNUAL:
4th Of July Week - 13 Colonies Special Event
JULY 1ST - JULY 5TH, 2012
Colonial Era US Navy Tall Ships











GOD BLESS AMERICA

OLD IRONSIDES

K2A-NY* K2B-VA* K2C-RI* K2D-CT* K2E-DE*
K2F-MD* K2G-GA* K2H-MA* K2I-NJ* K2J-NC*
K2K-NH* K2L-SC* K2M-PA*

73

CLEAN SWEEP

IN RECOGNITION FOR PARTICIPATING IN
THIS SPECIAL EVENT, A SPECIAL
AWARD IS AWARDED

CONTACTS: _____ KUZUS-AWARDS MGR: *Ken Wilson*

July 1-5, 2012*

* **Bonus Day 30 June 2012**

Since the 4th comes in the middle of the week, we will operate a *bonus day*.

Massachusetts will use the special event callsign **K2H**.

We will operate from 09:00 AM Eastern (1300Z) on Saturday, 30 June 2012 right through 11:59 PM ET on Thursday, 5 July 2012 (0359Z July 6).

Participating clubs in 2011 are expected to do so in 2012.

Westford, MA - *QSL Manager* **WB1GOF**, Police Amateur Radio Team of Westford

Fall River, MA - **K1ZZN**,

Raymond J. Levesque Memorial ARC

Dartmouth, MA - **W1AEC**,

Southeastern Massachusetts Amateur Radio Association

Gloucester, MA - *Primary Digital Mode* - **W1GLO**, Cape Ann Amateur Radio Association

The theme for 2012 is "*Colonial Era US Navy Tall Ships*." Old Ironsides adorns the 2012 certificate, printed on heavy card stock - very cool. You can work one state or, all 13 and, be eligible for the certificate. A "Clean Sweep" indicator will also be affixed, for those

The 13 Original Colonies

Massachusetts

K2H

(Continued on page 4)

ZERO BEAT

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2011 SEMARA OFFICERS**President**

Marcel Dumont—W1MLD

Vice President

Joe Krisnowsky—N1IXC

Secretary

Marc Dumont—KB1ODE

Treasurer

Mike McDonald—KB1NB

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Directors:

Andy Reuter—WA1FNM

Brad Paiva—W1BEP

John Walsh—WA1LSH

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Trustees: (year term is up)

Henry Blanchett—W1GYL (2012) ch.

John Walsh—WA1LSH (2013)

Louis Mester—W1CH (2014)

Joe Krisnowsky—N1IXC (2015)

Dick Halliwell—K1AHA (2016)

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STANDING COMMITTEES**Building and Grounds**

Marty Jordan—KA1YFV

Tony Lessa—KB1UAM pending

Scholarship

Sonny Eddleston—K1USW – chair

Chuck Moszczenski—KB1FRL

Alan Dulong—WB1FQP

Joe Krisnowsky—N1IXC

Technical/Repeater/Website

Dave Goldstein—W1DJG: Technical

Rick Cabral—W1RJC: Repeater

Rick Cabral—W1RJC: Website

Ben Jackson—N1WBV: facebook

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SPECIAL COMMITTEES**Activities**

VACANT

ARES/SKYWARN/RACES

Rob Macedo—KD1CY

QSL Manager

John Nery—WA1ESO

Radio Events

Bob Kelley—K1KVV

Tech Talk

Brad Paiva—W1BEP

It seems to me ... de Bob - K1KVV, Editor

that we need to reinvent ourselves, amateur radio club-wise. What should we be doing as a radio club? For starters, we should be operating!

See the cover story for an invitation to the membership to participate in a special event activity. See my commentary on page 3 about reinstalling our Sommers Log-Yagi on our small 85' tower. Also on page 3, see the empty space reserved for Tech Talk announcements. Finally, does anyone know why we are the only local club that offers VE Sessions on an alternate month schedule? Enough said!

On the sunny side - We had three new hams pass their exams in our clubhouse. And we have at least one new member from the recent Technician licensing classes.

Except for the 2-m 7 PM net, the other nets are meeting every week. It seems that repeater activity has lessened over the winter. Is it the number of repeaters at SEMARA: 144, 220, 902 (all connected via IRLP/EchoLink)? Well, whatever the reason, I am asking for a 'volunteer' to host a round-table on 2-m at 7 PM - any evening. What kind of round-table? How about one that features discussion about TRIVIA?

Footnote to page 7.

I built a full-wave 6-m rectangular loop. The vertical spacing is $1/3\lambda$, the horizontal width is $1/6\lambda$ and the feedpoint impedance is about 50 Ω resistive. I used 12 gauge wire with electrical conduit for stiffness. (Mentioned in this column in the Oct. 2006 issue of *Zero Beat*.)

**POINT TO PONDER**

"Work with the public and let some of your hidden qualities shine."

~found in a Chinese Fortune Cookie

HAMMIN' AROUND

Question* G6C15 What is the main reason to use keyed connectors instead of non-keyed types?

- A. Prevention of use by unauthorized persons
- B. Reduced chance of incorrect mating
- C. Higher current carrying capacity
- D. All of these choices are correct

* 2015 Element 3 General Class Question Pool (good thru 2015-06-30)

Answer on page 8.

Club Notes

March is the month when the weather starts to become more mild, although the wind does blow! After all, we've enjoyed almost no snow this winter—three 'storms' by my count.



When will we be taking advantage of the mild weather to finish the repair of the Log-Yagi Sommers antenna? It it ready to be reinstalled on the tower, isn't it? We can hope, can't we?

See our website for the latest post-ings: <http://semara.org>.



SEMARA Feb. 4th VE Session Results

Welcome these new hams to the hobby.

General class licensee

Jean Pierre Chiron - KB1WQO

and Technician class licensees

David Eiklamp - KB1WQP, and

Robert M Souza - KB1WQQ.

Come on down to the club!

Join in a ragchew!



Club Numbers

GPS Coordinates:

Lat. N 41° 36.795' Long. W 070° 56.550'

Maidenhead Grid Coordinates: FN41mo

For FISTS Sprints: FISTS #10555

LOCAL NETS

Everyone is welcome to check in!

147.000+ (PL 67.0 Hz) (FM) — Massachusetts RACES Drill (Region 2, Sector A) is held on the first Monday of the month at 7:30 PM.

50.200 MHz (USB) — Net is held Wednesdays at 8:30 PM. Dick, K1AHA (Dartmouth) is net control.

28.490 MHz (USB) — Net is held Tuesdays at 8:30 PM. Dick, K1AHA (Dartmouth) is net control.

3868 kHz (LSB) — SEMARA Morning Net is held weekdays from 7:30-8 AM ET.

LOCAL REPEATER DIRECTORIES

See <http://www.nerepeaters.com/se.htm>

144 (<http://www.nerepeaters.com/2m.htm>)

222 (<http://www.nerepeaters.com/222.htm>)

440 (<http://www.nerepeaters.com/440.htm>)

902 (<http://www.nerepeaters.com/902.htm>)

Sudoku

Here is an interesting Sudoku puzzle to solve while waiting for the net to start. (Solution on p. 8.)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | 6 | | | 9 | |
| 3 | 4 | 1 | 8 | | 9 | | 6 | 2 |
| | | 6 | 4 | | | 8 | 1 | 3 |
| 9 | 6 | | 7 | 2 | 4 | | 3 | 8 |
| 1 | | 2 | 9 | | | | | 6 |
| | 3 | | 5 | | | 2 | | 9 |
| | 2 | 9 | 1 | 8 | 7 | | | 4 |
| 4 | 1 | | | | 5 | | | |
| | | 8 | 6 | | | | 2 | |

Tech Talks. This space reserved for announcements about the Tech Talk. **Brad, W1BEP**, is in charge. Ask him when we will have our next Tech Talk and what the topic will be.



NEXT SEMARA VE SESSION

April 7, 2012

Clubhouse @ 10:30 AM

Contact: Larry Houbre-AA1FS

<[exams\[at\]semara\[dot\]org](mailto:exams[at]semara[dot]org)>

508-991-6055



Official Meeting Minutes



February 2, 2012

The meeting was called to order at 7:05 p.m. by the President, **Marcel (W1MLD)** with salute to the flag. The roll was called with 20 members and 0 guests present.

SECRETARY'S REPORT

A motion was made, seconded and unanimously approved to accept the Secretary's Report as posted on the board and in Zero Beat.

TREASURER'S REPORT

The Treasurer, **Mike (KB1NB)** reported that total income for the past month was \$156.00 and total outflow was \$2157.00 leaving a balance of \$25271.00. Treasurer's checks were received from NETCOM in the amount of \$8320.00 towards past due balances. Al from NETCOM stated that he intends to increase payments in the following months to pay outstanding past balances in order to become and stay current. There was also mention of possibly taking over a currently unused radio building in the back as an addition to the main building.

A motion was made, seconded and unanimously approved to refer the Treasurer's Report to audit.

STANDING COMMITTEES

Technical

Marcel (W1MLD) mentioned that he heard from **Rick (W1RJC)** and that one antenna for wireless linking has been installed and the second is expected shortly. This will facilitate IRLP for the repeaters.

Scholarship

Joe (N1IXC) stated that one application had been received for the annual scholarship and they are awaiting more.

SPECIAL COMMITTEES

ARES, RACES, SKYWARN

Joe (N1IXC) reported that there will be an important meeting at MEMA on February 25. He and **Brad (W1BEP)** will attend and report back at the next meeting.

Radio Events

Bob (K1KVV) mentioned several different events for the upcoming months including different upcoming QSO parties.

Repeater

Chris (W1EAV) mentioned that **Tony (NN1D)** will check on the 147.00 radio and amplifier as it is not operating at full power.

OLD BUSINESS

There was some discussion regarding replacement of the backup battery for the repeaters. The cost is expected to be in the area of \$300.00. After discussion it was decided that **Brad (W1BEP)** would put together a detailed estimate to the Finance Committee prior to and for discussion at the next business meeting.

Marcel (W1MLD) informed the membership that inventory was progressing well and that **Armand (W1BUG)** had compiled all information into a book, complete with photographs, which can be updated as necessary.

FOR THE GOOD OF THE CLUB

There was discussion regarding the upcoming Technician licensing class given by **Tony (NN1D)**. **Marcel (W1MLD)** mentioned that we are waiting for the date to be finalized before advertising the class. There are several students interested.

ADJOURN

A motion was made, seconded and unanimously voted to adjourn the meeting at 7:52 pm.

Respectfully Submitted,

Marc M. Dumont (KB1ODE), *Secretary*

The **50/50 raffle** was won by **Joe (N1IXC)**.
The split was \$22.50/\$22.50.

(Continued from page 1)

lucky enough to "Q" all 13.

We are out to have some fun this 4th of July week, and will try to accommodate everyone.

If you would like to be put on the **K2H operators list**, contact

Bob-K1KVV, k1kvv@arrl.net

NOTE: One contact with a Thirteen Colonies state is sufficient for credit for that state. Additional contacts on other bands or with the other state stations do not get you any more credit. If you limit yourselves to one contact per state, others may have a chance. This way, stations with "no gain" antenna's, stations working 100W, QRP/Mobiles and DX have a chance to get all "13" too!

SEMARA News

Baluns and UnUns

A *BalUn* is a matching device. The name “*BalUn*” comes from the words describing one of the functions of the device; balanced to unbalanced. A BalUn's primary function is to prevent common-mode currents on the transmission line while matching an unbalanced transmission line to a balanced load or antenna.

If you think about it, when you erect your new dipole and feed it with a 50 ohm coax what are you doing? I mean besides having a great time.

First: the center point impedance of a dipole at resonance is approximately 70 ohms. Matching it to a 50 ohm line is not that bad.

Second: you are connecting a balance device, the antenna, to an unbalanced feed line, the coax, and operating one-half the antenna against ground. Well, the antenna tuner can handle that.

Think about the antenna system as a whole. Is it going to be able to be used, and here I put in that ugly word “*efficiently*,” at any frequency other than the frequency you cut the wire for. Well, the even harmonics of the fundamental frequency, the frequency that the antenna was cut for will work pretty well too but the bandwidth of the antenna will be narrower as the frequency of the even harmonics get higher. Keep in mind the band allocations and where the even order harmonics will fall.

| Band (MHz) | 2 nd Harmonic | 4 th Harmonic | 6 th Harmonic | 8 th Harmonic |
|------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 3.5-4.0 | 7.0-8.0 | 14.0-16.0 | 21.0-24.0 | 28.0-32.0 |
| 7.0-7.3 | 14.0-14.6 | 28.0-29.2 | | |

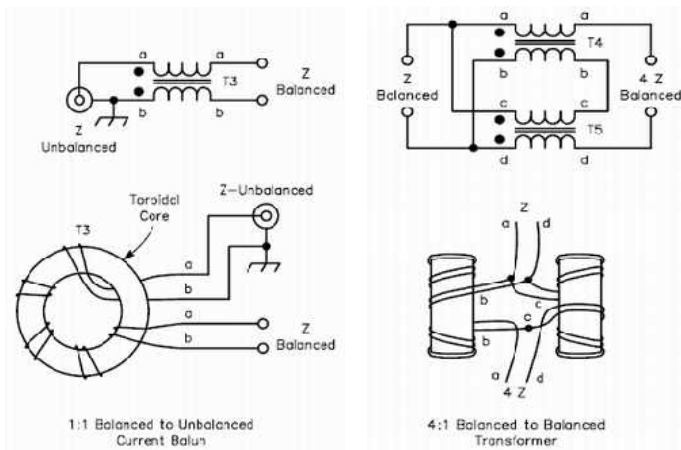
The even harmonic relationship to the fundamental frequency of the antenna is displayed in the table below. Care should be taken when planning the use of the antenna on other bands to be sure the cut is such that the harmonic falls within the band allocation.

Example: for an antenna cut for the 75/80 meter band to operate in the allocated portion of the 20 meter band the fundamental cut would have to be for resonance at 3.5875 MHz or lower.

What if we put a Current or Choke BalUn at the feed point of the antenna. Let's make it a 1:1 ratio current balun for two reasons.

One: the feed point impedance of a dipole is approximately 70 ohms and we want to use 50 ohm coax and

Two: a current balun is used because the center feed point is a high current point with low voltage at



resonance.

With this configuration we have more of the best and less of the worst characteristics of the dipole we have been discussing.

Best: we are operating a balanced device as a balanced device and reducing the radiation from the feed line. Fewer spurious emissions from the system and an antenna that is easier to tune.

Worst: the system will still require a tuner when operating away from the fundamental frequency; external interference, ie. TVI or other types of RFI may still be present, they are significantly reduced.

All this from just one little piece of hardware that can be whipped together in a few minutes; or if you don't like whipping things together, these devices are readily available from many internet companies. See the URL list at the end.

Here are a couple of BalUn drawings that may give you a clearer picture of the devices. They are not hard to assemble and will help a lot when you put up that new antenna. Another thought; BalUns are not limited in use to a dipole; beams, loops, quads, etc., all benefit from the use of these devices.

Figures 32 and 38 are from the ARRL Antenna Book 21st Edition. pages 26-24 and 26-28. (Copied with permission.) Figure 32 - Ferrite-core baluns. Each uses transmission line techniques to achieve wide frequency coverage. The transmission line can consist of coaxial

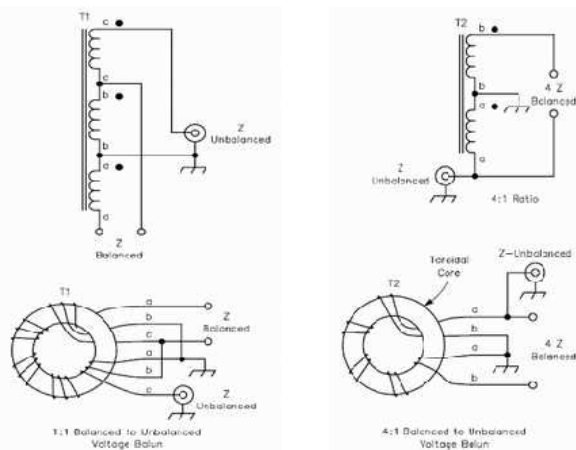
(Continued on page 6)

Amateur Radio News

(Continued from page 5)

cable or tightly coupled (side-by-side) bifilar enameled wires. Typically, twelve turns of #10 wires wound on 2.4 - inch toroidal cores with $m = 850$ will cover the whole range from 1.8 to 30 MHz. The 4:1 current balun at the right is wound on two cores, which are physically separated from each other.

Figure 38 - Voltage-type baluns. These have largely been supplanted by the current (choke) type of balun.



Vendors advertising Current Baluns

BuxComm: www.buxcomm.com/catalog/

Radio Works: radioworks.com/

Surplus Sales of Nebraska: www.surplussales.com/

MFJ Enterprises: www.mfjenterprises.com/index.php

Good News from WRC12

A New Band - 600 m

At its Plenary meeting held 14 February 2012 in Geneva the World Radiocommunication Conference approved a new secondary frequency allocation to the Amateur Radio Service at 472 to 479 kHz.

The new band at 600 metres will represent the return of amateurs to the medium waves - an area of spectrum not available since the earliest days of radio regulation.

The power which radio amateurs may use in 472 to 479 kHz will be limited to 5 watts (e.i.r.p.) except for amateur stations within 800 km of the borders of a number of countries - principally Russia - the limit will be 1 watt.

~Bryan Rawlins, VE3QN



Logbook of The World to Now Support CQ Awards

The ARRL and CQ Communications, Inc have signed an agreement to begin providing support for CQ-sponsored operating awards by the ARRL's Logbook of the World (LoTW) electronic confirmation system.

CQ's awards will be the first non-ARRL awards supported by LoTW and will be phased in beginning with the CQ WPX award, with additional CQ awards to follow. The ARRL's LoTW system - an interactive database recording contacts between radio amateurs - was created in 2003 and has been adopted by 47,500 radio amateurs worldwide. It already has records of 400 million contacts and is growing weekly.

The target date for beginning LoTW support for WPX is April 1, 2012. Amateurs will be able to use LoTW logs to generate lists of confirmed contacts to be submitted for WPX credit. Standard LoTW credit fees and CQ award fees will apply.

RSGB Announces Special Prefixes

The Radio Society of Great Britain (RSGB) and Ofcom have authorized radio amateurs to use special prefixes during 2012 in celebration of Queen Elizabeth II's Diamond Jubilee and the 2012 Summer Olympics and Paralympic Games.



The Queen's Diamond Jubilee runs from May 5-June 10. They will add or substitute the letter "Q" in the place of the regional identifier in the call sign. During the Summer Olympics and the Paralympic Games, from July 21-September 9, they will use the letter "O" in the same fashion.

Amateurs in the United Kingdom who will use special call signs with GQ, MQ and 2Q prefixes to celebrate the Diamond Jubilee, and GO, MO and 2O prefixes to celebrate the Olympic and Paralympic Games.

In addition, calls in the series GB2012aaa will be available for Special Event Stations relating to the Olympics. Licenses will also be issued for four "flagship" stations using the prefix 2O12a (that's the letter "O," not a zero; "a" is a single letter relating to the location of the station).

Amateur Radio News

New Rules for 5 MHz (60 Meters)

To Go Into Effect March 5

On November 18, the FCC released a Report and Order (R&O), defining new rules for the 60 meter (5 MHz) band. In the February 3 edition of the Federal Register, the FCC announced that these new rules will go into effect on March 5, 2012.

Details can be found at

<https://www.federalregister.gov/articles/2012/02/03/2012-2477/amateur-radio-use-of-the-allocation-at-5-mhz>

In summarizing the new rules, the FCC explained that the new rules amend the current rules to facilitate more efficient and effective use by the Amateur Radio Service of five channels in the 5330.5-5406.4 kHz band (the 60 meter band): "Specifically, and consistent with our proposals in the Notice of Proposed Rulemaking in this proceeding, the Commission replaces one of the channels with a less encumbered one, increases the maximum authorized power amateur stations may transmit in this band to 100 W PEP. For the purpose of computing ERP, the transmitter PEP will be multiplied by the antenna gain relative to a half-wave dipole antenna. A half-wave dipole antenna will be presumed to have a gain of 1 (0 dBd).

Amateur stations are allowed to transmit four emission designators: Phone- 2K80J3E, upper sideband SSB; Data- 2K80J2D, USB (for example, PACTOR-III); RTTY- 60H0J2B, USB (for example, PSK31); CW- 150HA1A, Morse telegraphy by means of on-off keying.

The Commission also adopted an additional operational rule that prohibits the use of automatically controlled digital stations and makes editorial revisions to the relevant portions of the Table of Frequency Allocations and our service rules."

The Amateur Radio Service in the United States has a secondary allocation on 60 meters. Only those amateurs who hold General, Advanced or Amateur Extra class licenses may operate on this band.

| 60 M Band Freq. (kHz) | Carrier Center (kHz) |
|-----------------------|----------------------|
| 5330.5 | 5332.0 |
| 5346.5 | 5348.0 |
| 5357.0 | 5358.5 |
| 5371.5 | 5373.0 |
| 5403.5 | 5405.0 |

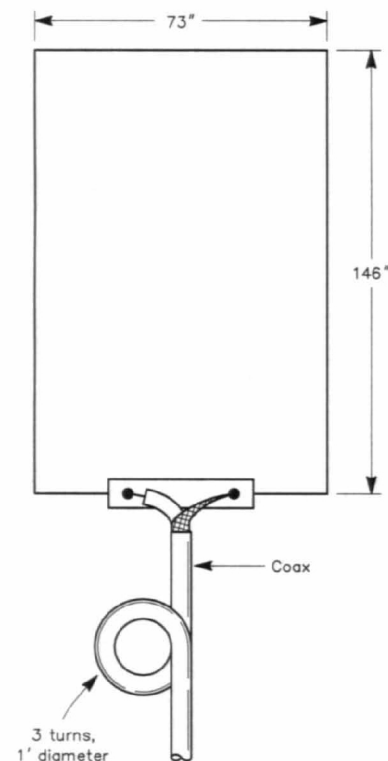
A Gain Antenna for 28 MHz

A simple antenna for 10-meters originally published by **Brian Beezley, K6STI** in *QST* July 1994, p. 70.

A simple rectangular wire loop antenna with 2.1 dBd gain for 10-meters fed directly with 50 Ω coax. Note: 2:1 SWR bandwidth is 800 kHz in 10-m band. Dimensions are for 28.4 MHz resonance frequency.

#12 copper wire used; reduce dimensions by 2% for insulated wire. Support with non-conducting spreaders or ropes at the corners.

Loops can be an interesting alternative. With the use of low loss tubing and high quality tuning capacitors, it is possible to make very small yet efficient antennas. At the other extreme, very large wire loops offer possibilities for HF operation on a number of different bands.



Some additional antenna reads

A Home-Brew LOOP Tuning Capacitor
QST November 1994, pp. 30-32

Another loop for 20- through 10-meters using a novel "trombone slide" arrangement as a tuning capacitor.

The Loop Skywire

QST November 1985, pp. 20-22

An inexpensive, easy to build full wave wire loop for 80- or 40-meters.

A Horizontal Loop for 80-Meter DX

QST August 2002, pp. 30-35

Some Radio Events

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

Phone/CW/Digital modes

Mar 11, 1800Z - Mar 12, 0100Z 3.5-28/50

Wisconsin QSO Party www.warac.org

Mar 17, 0001Z - Mar 17, 2359Z 28

10-10 Mobile QSO Party www.ten-ten.org

Mar 17, 1300Z - see website 3.5-28/50

Oklahoma QSO Party
www.k5cm.com/okqp.htm

Mar 17, 1400Z - see website 1.8-28/50

Virginia QSO Party www.qsl.net/sterling

Phone/CW modes

Mar 3, 0000Z - Mar 4, 2400Z 432, 3.4G

Worldwide EME contest www.dubus.org

Mar 5 - see website 3.5/50

OK1WC Memorial Contest
www.hamradio.cz/ok1wc

Mar 17, 1200Z - Mar 18, 1159Z 3.5-28

CQIR - Ireland Calling www.irts.ie

Mar 17, 1200Z - Mar 18, 1200Z 1.8-28

Russian DX Contest www.rdx.com

Mar 17, 1800Z - Mar 18, 1800Z 1.8-28/50, 144

North Dakota QSO Party www.w0nd.com

Mar 20, 1700Z - Mar 21, see website 3.5-28

CLARA & Family HF Contest
www.claranet.ca

Digital

Mar 11, 000Z - Mar 11, 0400Z 3.5-14

North American RTTY Sprint
www.ncjweb.com

Local VE Sessions

Walk-ins permitted unless otherwise noted.

<http://www.arrl.org/find-an-amateur-radio-license-exam-session>

SEMARA – 10:30 AM April 7th

Larry Houbre-AA1FS
<[exams\[at\]semara\[dot\]org](mailto:exams@semara.org)>
508-991-6055



Fall River, MA – 7:00 PM March 19th

Skip Denault-KB1CNB
<[skip\[at\]newtestamentschool\[dot\]org](mailto:skip@newtestamentschool.org)>
774-644-3469

Falmouth, MA – 9:00 AM March 10th

W. Ben Fleck-K2LYE
<[BenFleck\[at\]verizon\[dot\]net](mailto:BenFleck@verizon.net)>
508-540-2583

Providence, RI – 7:00 PM March 8th

Louis Mester-W1CH
<[W1CH\[at\]arrl\[dot\]net](mailto:W1CH@arrl.net)>
401-263-6045

Coming FLEAS & FESTS

www.arrl.org/hamfests/search

| | | |
|-----------|---------------------|--|
| 10 Mar | Feeding Hills MA | MtTARA Mary NITTOY 413.222.1990 |
| 10 Mar | N Conway NH WMARC | Thaire W2APF 603.447.2376 |
| 17 Mar | Daville CT ECARA | Paul KEILI 860.928.2456 |
| 18 Mar | Southington CT SARA | Norm W3IZ 860.584.1403 |
| 18 Mar | Henniker NH CVRC | Don NIZIH 603.651.8000 |
| 23-24 Mar | Lewiston ME | AARC ME Conventiion Ivan NIOXA 207.784.0350 |
| 25 Mar | Framingham MA FARA | Bev NILOO 508.626.2012 |

Answer: HAMMIN' AROUND

What is the main reason to use keyed connectors instead of non-keyed types? (B) Reduced chance of incorrect mating

Answer: Sudoku

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | 5 | 8 | 6 | 4 | 3 | 9 | 2 | 1 |
| 4 | 1 | 3 | 2 | 6 | 5 | 9 | 8 | 7 |
| 6 | 2 | 9 | 1 | 8 | 7 | 3 | 5 | 4 |
| 8 | 3 | 4 | 5 | 1 | 9 | 2 | 7 | 6 |
| 1 | 7 | 2 | 9 | 3 | 8 | 5 | 4 | 6 |
| 6 | 9 | 5 | 7 | 2 | 4 | 1 | 3 | 8 |
| 5 | 6 | 9 | 4 | 7 | 2 | 8 | 1 | 3 |
| 3 | 4 | 1 | 8 | 5 | 9 | 6 | 7 | 2 |
| 2 | 8 | 7 | 3 | 6 | 5 | 9 | 7 | 4 |
| 2 | 8 | 7 | 3 | 6 | 5 | 9 | 7 | 4 |

CLUB ACTIVITIES

BUSINESS MEETING

7 PM First THURSDAY of the month

SUNDAY RAGCHEW

7-10 AM

MOST-OF-THE-TIME LUNCH(call ahead)

Meet at the clubhouse at 11:00 AM FRIDAYS

Leave for LUNCH at 11:30 AM