

2014 ARRL National Centennial Convention

July 17-19 Hartford, Connecticut

PROGRAM GUIDE



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A Letter from ARRL President Kay Craigie, N3KN

Dear Fellow ARRL Member, Family, and Friends,

Welcome to the ARRL National Centennial Convention! The National Convention and the Regional Centennial Conventions bring us together to reflect on what we were, to celebrate what we've become, and to talk about what our future will be.

By 1914, there were radio experimenters all over the country, some of whom had Amateur Radio licenses that the government had begun issuing 2 years earlier. Two visionary experimenters in the Hartford area, Hiram Percy Maxim and Clarence Tuska, perceived the need for a national Amateur Radio organization. Why?

At the time, there was no nationwide system for relaying messages by Amateur Radio during disasters. Technologically, relay was necessary because radio signals were extremely wide but did not go very far. Relays, however, were unpredictable, catch as catch can.

The new ARRL signed up members, organized a reliable, orderly nationwide network of relay stations, and began publishing a magazine through which hams could share their discoveries and operating achievements, as well as educate each other about the latest developments in radio. That's public service, technology, membership, and education — four of the ARRL's five pillars — established at the organization's birth.

The fifth pillar and arguably the most important one, advocacy, was established at the outset, too. Even before World War I, civilians' right to experiment with radio was challenged. After the war, the Navy's desire to control all radio communications in the USA and keep hams off the air forever was a near-death experience for Amateur Radio. The ARRL's relentless advocacy in favor of private citizens being permitted to experiment with radio not only saved Amateur Radio, but also played a part in laying the groundwork for the 20th century communications environment that emerged from the private sector.

The ARRL's five pillars are as strong and valid today as they ever were. True, we have more techniques for engaging in public service, a vastly larger menu of technologies, a larger and more diverse membership, and options that were unimaginable even a few years ago for educating ourselves and potential hams. Advocacy has become more complex and demanding. Still, the pillars clearly say who we are and what we do as the national association for Amateur Radio. We see them reflected in the National Convention's program of training tracks and forums.

The Centennial isn't entirely about the serious side of the ARRL. Amateur Radio has always been fun, and over the years the ARRL has fostered ways to enjoy playing radio. The W1AW portable operations have sparked the imagination of thousands of hams. I have heard of amateurs who hadn't been on the air for decades but turned their rigs on again to chase W1AW around the country. The Centennial QSO Party has allowed every ARRL member to participate in the fun of the celebration from our own home stations.

As we observe the Centennial, we should take time to give respect to the hams who came before us. The ARRL's first century is thanks to them. The second century? That's up to us. What will we do to ensure that the ARRL has the will and the resources to keep Amateur Radio's passionately creative, technically experimental, service-oriented mentality as strong as ever? The past is a great place to visit, but we cannot afford to live there. As a scientific, technical activity, Amateur Radio has no direction other than forward.

Thanks for being part of the future. Amateur Radio and the ARRL can't go there without you.

73,

A handwritten signature in black ink that reads 'Kay Craigie'. The signature is written in a cursive, flowing style.

Kay Craigie, N3KN
ARRL President

2014 ARRL National Centennial Convention

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FLEX-6500



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A Message from the ARRL Chief Executive Officer

To all attendees at the ARRL National Centennial Convention and on behalf of the ARRL staff: Welcome! We are deeply grateful to you for joining us in Hartford for this once-in-a-lifetime celebration of Amateur Radio's proud past and promising future. Your presence here makes you part of the ARRL's continuing story.

While you are here, I hope you will take the opportunity to visit ARRL Headquarters in Newington, just 15 minutes away. In addition to a splendid program at the Connecticut Convention Center, there are special exhibits at Headquarters and of course, the Maxim Memorial Station, which is authorized to use the call sign W1ØØAW throughout our Centennial Year.

Planning for this great event has caused us to reflect on how much we owe to those who came before us, whose vision led to the formation and growth of our national association. May we deserve to be thought of as fondly by future generations of radio amateurs.

Sincere 73,

David Sumner, K1ZZ
ARRL Chief Executive Officer



A Message from the ARRL National Centennial Convention Co-Chairs

As Convention Co-Chairs, we would like to thank the staff and volunteers who have worked so hard over the past year and a half to make this ARRL National Centennial Convention a success.

The ARRL National Centennial Convention takes place at two separate locations: there are events and exhibits at the Connecticut Convention Center and there is a tour of ARRL Headquarters and W1AW. Almost every staff member at Headquarters has been involved in planning this event, and we want to particularly thank Bob Inderbitzen, NQ1R, our Convention Manager; Lisa Kustosik, KA1UFZ, who coordinated the hotels and accommodations; Dan Henderson, N1ND, who arranged the more than 60 programs and seminars; and Debra Jahnke, K1DAJ, for lining up more than 100 exhibitors.



Along with the ARRL staff, we would like to express our gratitude to our fellow Steering Committee members, including ARRL New England Division Director Tom Frenaye, K1KI, and ARRL Hudson Division Director Mike Lisenco, N2YBB. Also, thanks to ARRL President Kay Craigie, N3KN, and Chief Executive Officer Dave Sumner, K1ZZ, for their advice and support.

We'd like to extend our appreciation to our great group of tour guides, guest speakers, hospitality, communications and parking assistants, and all other volunteers who have assisted with this event. We also thank the organizers of the Boxboro, Massachusetts New England Division Convention which is normally held this time of year, for relinquishing their date so that we could hold this convention.

Thanks to all of you who have helped make the ARRL National Centennial Convention an exciting and memorable event for the ARRL, its members, and the worldwide Amateur Radio community.

73,

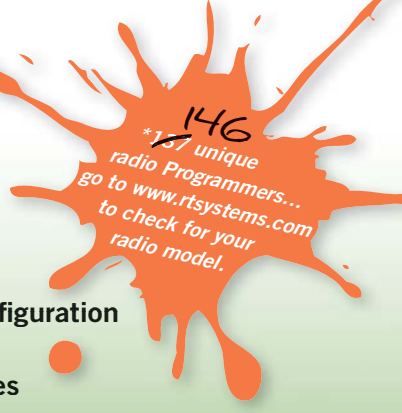
Harold Kramer, WJ1B, ARRL Chief Operating Officer
Mike Raisbeck, K1TWF, ARRL Vice Director - New England Division
Convention Co-Chairs



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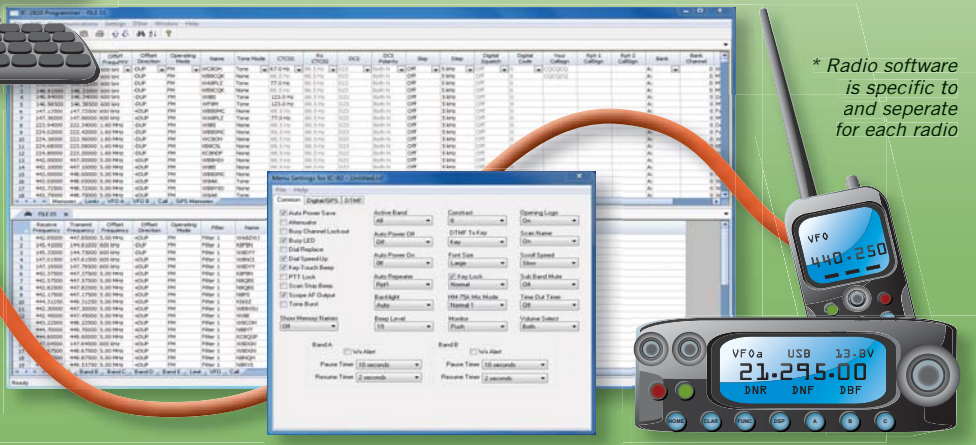


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National Centennial Convention

July 17-19, 2014

Connecticut Convention Center – Hartford, Connecticut

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Drawing Rules: Winners will be drawn from the eligible registrants at the end of the convention on Saturday, July 19, 2014. The winners do not need to present during the drawings. Each prize winner must complete an IRS Form W-9, or in the case of a non U.S. resident, IRS Form W-8BEN before collecting the prize. The Grand Prize winner will receive an IRS form 1099 for the value of the prize, to be issued for the 2014 tax year. Taxes and other expenses associated with the prizes are the sole responsibility of the winners.

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Convention Agenda

Thursday, July 17, 2014 through Sunday, July 20, 2014

Thursday, July 17, 2014

- 8:00 AM: Registration opens, Convention Center, Level 3
- 8:30 AM – 4:30 PM: Training Tracks: Located in the Convention Center, Level 6
 - Room 12: Public Service Communications Academy
 - Room 14: Contest University
 - Room 22: DX University
 - Room 24: An Introduction to Amateur Satellites
 - Room 25: Amateur Radio Legal Seminar [BEGINS AFTER LUNCH]
 - Room 26: Leadership and Training Tools for Amateur Radio
 - Room 27: RFI-101
- 12:00 PM – 1:00 PM: Lunch with special guest speaker, ARRL First Vice President, Rick Roderick, K5UR: Located in the ARRL Centennial Ballroom, Level 6
 - Emcee: Brian Milesosky, N5ZGT, ARRL Director - Rocky Mountain Division
- 5:00 PM – 7:00 PM: International Guests “Welcome” Reception: Located in the Convention Center, Level 6
- Bus trips to tour ARRL Headquarters and W1AW (see schedule on page 30)

Friday, July 18, 2014

- 8:00 AM: Registration opens, Convention Center, Level 3
- 8:30 AM: Opening Ceremony and Ribbon Cutting: Located in the Convention Center, Level 6
 - Moderator: Harold Kramer, WJ1B, ARRL Chief Operating Officer
 - Presenters: Kay Craigie, N3KN, ARRL President; Mike Raisbeck, K1TWF, Vice Director – New England Division
- 9:00 AM – 5:00 PM: Exhibit Hall featuring ARRL program representatives, Amateur Radio manufacturers, equipment sellers, and a flea market. Located in the Convention Center, Level 3, Exhibit Hall B
- 9:00 AM – 4:00 PM: Forums and presentations: Located in the Convention Center, Level 6 (see full schedule and locations on pages 12-13)
- 10:00 AM and 2:00 PM: Amateur Radio License Examinations (two sessions): Located in the Downtown Marriott Hotel, Capital Room (adjacent to Convention Center)
- 4:15 PM: Signing Ceremony – Memorandum of Understanding (MOU) between ARRL and the Federal Emergency Management Agency: Located in the Convention Center, Level 3; ARRL exhibit area in Exhibit Hall B
- 6:30 PM – 9:00 PM: ARRL Centennial Banquet with keynote speaker Craig Fugate, KK4INZ Federal Emergency Management Agency (FEMA) Administrator: Located in the ARRL Centennial Ballroom, Level 6
 - Emcee: Mike Lisenco, N2YBB, ARRL Director - Hudson Division
 - Presenters: Kay Craigie, N3KN, ARRL President, and Dave Sumner, K1ZZ, Chief Executive Officer
- 10:00 PM: ARRL Wouff Hong Ceremony: Located at the downtown Marriott Hotel, Ballroom
- Bus trips to tour ARRL Headquarters and W1AW (see schedule on page 30)

Convention Agenda

Thursday, July 17, 2014 through Sunday, July 20, 2014

Saturday, July 19, 2014

- 7:30 AM – 9:00 AM: Presidents Breakfast: Located in the ARRL Centennial Ballroom, Convention Center, Level 6
 - Emcee: Jim Fenstermaker, K9JF, ARRL Second Vice President
 - Presenter: Kay Craigie, N3KN, ARRL President
- 8:00 AM: – Registration opens, Convention Center, Level 3
- 9:00 AM – 4:00 PM: Exhibit Hall featuring ARRL program representatives, Amateur Radio manufacturers, equipment sellers, and a flea market. Located in the Convention Center, Level 3, Exhibit Hall B
- 9:00 AM – 4:00 PM: Forums and presentations: Located in the Convention Center, Level 6 (see full schedule and locations on pages 12-13)
- 10:00 AM and 2 PM: Amateur Radio License Examinations (two sessions): Located in the Downtown Marriott Hotel, Capital Room (adjacent to Convention Center)
- 12:00 PM – 1:00 PM: Presentation by Joe Taylor, K1JT: Located in the ARRL Centennial Ballroom, Level 6
 - Emcee: Rick Niswander, K7GM, ARRL Treasurer
- 4:00 PM: Closing ceremony and prize drawings*: Located in the ARRL Centennial Ballroom, Level 6
 - Emcee: Dave Sumner, K1ZZ, ARRL Chief Executive Officer
- Bus trips to tour ARRL Headquarters and W1AW (see schedule on page 30)

Sunday, July 20, 2014

- No Convention Center activities
- Bus trips to tour ARRL Headquarters and W1AW (see schedule on page 30)

*All paid convention registrants are entered in door prize drawings for a \$5,000 Grand Prize and \$2,500 Prize. Convention registrants do not need to be present in order to be included in the drawings. (See details on page 6.)

Notice: Seminars, sessions and other events at the convention may be subject to audio and/or video recording. Seminar presenters will be asked to make notifications to this effect before the commencement of any seminar or session. No recording of any session, seminar, event or presentation may be made without the express written permission of ARRL. Any and all recordings, whether video or audio or both, made at and during the convention will become, when recorded, the intellectual property of ARRL and may not be distributed to third parties or presented in exchange for compensation, express or implied.



Meet Our Guest Speakers



Craig Fugate, KK4INZ,
FEMA Administrator

Fugate became Administrator of the Federal Emergency Management Agency in 2009 and obtained his Amateur Radio license in 2012. Prior to FEMA, Fugate started in emergency management as a volunteer firefighter, paramedic and lieutenant, eventually becoming the emergency manager in Florida's Alachua County. In 2004, Fugate managed the largest federal disaster response in Florida history.

After 10 years of service in Alachua County, Fugate was appointed bureau chief of preparedness and response at Florida Division of Emergency Management, where he was involved in responding to many wildfires, floods, and tornadoes.



Joe Taylor, K1JT,
1993 Nobel Prize Winner

Taylor became interested in radio astronomy after obtaining his Amateur Radio license as a teenager. Today Taylor is well known for his 1974 joint discovery with Russell Hulse, of the first pulsar star in a binary system. Taylor used the Arecibo Radio Telescope to conduct moonbounce contacts with amateurs around the world using voice, Morse code, and digital communications. He is also known for his weak signal communication.



Rick Roderick, K5UR,
ARRL First Vice President

Roderick obtained his Amateur Radio license over 45 years ago and has since participated on the ARRL Board of Directors for 22 years. Roderick also chaired the DX Advisory Committee for many years and helped in the creation of Logbook of The World and the DXCC Challenge Award. Roderick holds many operating and achievement records on VHF/UHF and has received many awards.



Training Tracks

Thursday, July 17, 2014 • 8:30 AM – 4:30 PM

Location: Convention Center Meeting Rooms, Level 6

Contest University (Room 14)

Facilitator: Tim Duffy, K3LR

Entering its tenth year, CTU offers the opportunity for both new contesters as well as top competitive operators to hone their skills. Learn from some of the top contesters in the world, many of whom will have just been part of the 2014 World Radio Team Championship (WRTC) held the weekend before the ARRL Centennial Convention.

DX University (Room 22)

Facilitators: Wayne Mills, N7NG, and Dave Anderson, K4SV

Whether you are new to DXCC or striving for the #1 Honor Roll, the presentations of DXU will help you develop skills to work the rare ones. The organizers and presenters will share with you the challenges faced on both sides of the pileups.

RFI-101 (Room 27)

Facilitator: Ed Hare, W1RFI

Speakers:

Mike Martin, K3RFI — RFI Services, Inc

Mike Gruber, W1MG — ARRL Laboratory EMC Engineer

Topics will include:

EMC Fundamentals

ARRL's EMC Work with Industry

The FCC Rules Pertaining to RFI

How to Avoid Some Common RFI Mistakes

How to Find RFI Sources

Public Service Communications Academy (Room 12)

Facilitator: Mike Corey, K11U

Speakers:

Ted Okada, K4HNL, Chief Technology Officer — Federal Emergency Management Agency (FEMA)

Ralph Haller, N4RH, Chairman — National Public Safety Telecommunications Council (NPSTC)

Keith Robertory, KG4UIR, National Disaster Services Technical Manager — American Red Cross (ARC)

James McGowan, Senior Director Strategic Initiatives — National Volunteer Organizations Active in Disasters (VOAD)

Sid Caesar, NH7C, Chief — Division of Emergency Management, Bureau of Indian Affairs (BIA)

Leadership and Training Tools for Amateur Radio (Room 26)

Facilitator: Katie Allen, WY7KRA

Speakers:

"Building a Successful Club," Thomas Sly, WB8LCD

"Using Web-based Tools for Success," Bill Edgar, N3LLR

"Applying Project Management Strategies to Promote Successful Amateur Radio Ventures," Paul Beeman, W2PB

"Using Social Media to Support and Grow Amateur Radio," Katie Allen, WY7KRA

"Leading Hams and Herding Cats...All it Takes is Food," Jack Ciaccia, WM0G

An Introduction to Amateur Satellites (Room 24)

Facilitator: Barry Baines, WD4ASW

Since amateurs heard the first transmissions of Sputnik and OSCAR-1, they have asked, "How can I do that?" This day-long session will provide best practices and helpful hints that will allow even the modest station to be used to communicate with the amateur "birds in space."

Speakers:

Patrick Stoddard, WD9EWK/VA7EWK, AMSAT Director —Field Operations

Burns Fisher, W2BJ, AMSAT Fox-1 Software Team Co-Leader

Peter Portanova, W2JV, AMSAT Area Coordinator

E. Michael McCardel, KC8YLD, AMSAT V.P. for Educational Outreach

Joe Spier, K6WAO

Topics will include:

An Overview of Amateur Radio in Space

Understanding Satellite Orbits and How to Track Satellites

How to Configure and Operate Your Equipment to Work the FM Satellites (Including Operating Techniques and Etiquette)

How to Configure and Operate Your Equipment to Work the CW/SSB Satellites (Including Operating Techniques and Etiquette)

Telemetry and Data Collection from Amateur Radio Satellites AMSAT's Next Satellite: Fox-1

Amateur Radio Legal Seminar (Room 25: Begins After Lunch)

Facilitators: Bart Lee, K6VK, and Chris Imlay, W3KD

Friday July 18, 2014 Forums and Presentations Schedule (descriptions on pages 22-29)

	ROOM 11	ROOM 21	ROOM 22	ROOM 23	ROOM 24	ROOM 25	ROOM 26	ROOM 27	Centennial Ballroom
9:00 AM			Hams in the Great War: Chris Codella, W2PA	Six Meters-The Magic Band: Ken Neubeck, WB2AMU	Amateur Radio and Technology in the American Red Cross: Keith Robertory, KG4UIR	Kit Building Techniques: Joe Eisenberg, KØNEB	FreeDV, Digital Voice over HF using CODEC2: Mel Whitten, KØPEX	Amateur Radio and Common Core Standards: Alma Ripley	
10:00 AM		Intro to HF Digital Operations: Steve Ford, WB8IMY				Tower Climbing: Safety and Rescue: Philip Theis, K3TUF	Intro to PIC Programming: Mark Spencer, WA8SME	National Conf. of VECs and NVEC Question Pool Committee: Rol Anders, K3RA,Mark Erbaugh, N8ME	
11:00 AM	DHS-OEC-National Emergency Plan: Chris Essid, Deputy Director OEC		Art of the Interview: Mark Kraham, W8CMK	QSLing in the 21 st Century: William Hudzik, W2UDT, Doug Rue, W2EN		High Altitude Amateur Radio Ballooning: Doug Loughmiller, W5BL	Why QRP?: Ken Evans, W4DU	The 170 Year History of Telegraph Keys: Tom Perera, W1TP	
1:00 PM		Broadband Mesh Networking and Amateur Radio: Brian Milleshosky, N5ZGT, Ed James, KA8JMW	OH2BH's 50 Year Radio Journey: Marrti Laine, OH2BH	Youth Fox Hunt: Tommy Gober, N5DUX	Public Service Communications-Maintaining Readiness: Ross Merlin, WA2WDT	VHF Rovers: Past, Present and Future: Rick Rosen, K1DS	PICAXE Programming Primer: Bill Unger, VE3XT	An Early History of Radio: James Wades, WB8SIW	
2:00 PM		Technology Outcomes at FEMA: Ted Okada, K4HNL	Ham Radio and the Law: Jim O'Connell, W9WU, Chris Imlay, W3KD, Fred Hopengarten, K1VR	Youth Forum #1: Carole Perry, WB2MGP, Kyle Watt, KD2DWC	Blending of the Maker and Amateur Radio Cultures: Craig Behrens, NM4T, Glen Poppel, KW5GP	An Overview of AMSAT: Barry Baines, WD4ASW, AMSAT President	The Changing Modes of VHF/ Microwave: Doug Rehman, K4AC, Kermit Carlson, W9XA, Marty Woll, N6VI	US Air Force PAVE PAWS Mission Briefing: Lt. Ben Brinich	
3:00 PM		Boston Marathon Communications: Robert Macedo, KD1CY		ARRL Youth Discovery Station: Tommy Gober, N5DUX	National Hurricane Center WX4NHC: Julio Ripoll, WD4R, John McHugh, K4AG	Working Amateur Radio FM Satellites with your HT: Peter Portanova, W2JV	Linux in the Ham Shack: Andy Stewart, KB1OIQ	Where Did the Bands Come From?: Chris Codella, W2PA	

Saturday July 19, 2014 Forums and Presentations Schedule (descriptions on pages 22-29)

	ROOM 11	ROOM 21	ROOM 22	ROOM 23	ROOM 24	ROOM 25	ROOM 26	ROOM 27	Centennial Ballroom
9:00 AM		What We Owe the Amateur Service: Riley Hollingsworth, K4ZDH	Presenting Amateur Radio to the Media: John Amodeo, NN6JA	ARRL Youth Scavenger Hunt: Tommy Gober, N5DUX	International Disaster Response: Jay Wilson, W0AIR, Sri Suri, VU2MY, Howard Pierpont, KDØJAZ	Intro to Antenna Modeling: Greg Algieri, WA1JXR	SDR Advances and the Future of SDR: Stephen Hicks, N5AC	Collecting and Restoring Radios of the Past: Patrick Bunsold, WA6MHZ	
10:00 AM		Remote Station Operations- The Basics Made Easy: Dave Anderson, K4SV	ARRL Field Day- The Gateway for Many: Rol Anders, K3RA	Youth Forum #2: Carole Perry, WB2MGP, Chris Blackwood, KD2CXC, Devlin Murray, KC2PIX	Propagation Forecasting: Carl Luetzelschwab, K9LA	Software Defined Radio for Beginners: Stephen Hicks, N5AC	QRZ – Past, Present and into the Future: Fred Lloyd, AA7BQ		
11:00 AM		How to Blow up Your Balun-and Other Things in Your Antenna System: Dean Straw, N6BV	PR-101: The Next Generation: Ed Tyler, N4EDT	ARRL Youth Radio Lab: Tommy Gober, N5DUX	QRP-Operators Countrywide: Dennis Marandos, K1LQG, Jean Camerer, K1AVM	Raspberry Pi – A Low Cost Platform: Brian Mileskosky, N5ZGT	The Design, Construction and Performance of a Multi-op Station: Fred Kemmerer, AB1OC		
12:00 PM									DXing With Weak Signals: Joe Taylor, K1JT
1:00 PM		The Myths and Misconceptions of RFI: Ed Hare, W1RFI, Mike Gruber, W1MG	The Enigma and Other Communications Enciphering Devices: Tom Perera, W1TP	Building a Successful Club Program: Thomas Sly, WB8LCD	Hamshack in a Backpack – Lightweight DXpeditioning: Scott Andersen, NE1RD	From HT to Microwave: Doug Rehman, K4AC, Rod Blocksome, KØDAS, Marty Woll, N6VI	DXpeditions and the 21 st Century Dynamics: Bob Alphin, K4UEE	The Origins of Silicon Valley: Roots in Ham Radio: Paul Wesling, KM6LH	
2:00 PM		Best Practices of...SKYWARN: Robert Macedo, KD1CY, Jim Palmer, KB1KQW, Carl Aveni, N1FY		Tropo Propagation on VHF/UHF Bands: Gordon West, WB6NOA	MARS Forum: Bob Veth, K1RV/ NNNØASI, Bob Mims, WA10EZ/ AAA1RD	2014 World Radio Sport Team Championship Recap: Randy Thompson, K5ZD, Doug Grant, K1DG	Using Surplus Commercial Radios in Amateur Radio: Paul Gilbert, KESZW	Old Transmissions and Voices from the Past: John Dilks, K2TQN, David Ring, N1EA	
3:00 PM			ARRL Legislative Action Update – HR 4969 Call to Action: Dan Henderson, N1ND			160 Meters - Mastering the Challenge: Carl Luetzelschwab, K9LA			

ARRL Exhibits

Friday, July 18, 2014 through Saturday, July 19, 2014

ARRL Store

Visit the ARRL bookstore to purchase popular ARRL publications, join or renew your ARRL membership, and pick up official ARRL Centennial merchandise. Get official shirts, pins, hats, mugs, and other gear!

- **FREE Gift** when you join ARRL or renew your membership at ARRL EXPO.
- **FREE ARRL Centennial Handbook** when you join or renew for 3 years. Best Deal!
- **FREE ARRL National Centennial Convention Button!**
- **Meet the Authors** who are inspiring today's radio experimenters, operators and innovators.
- **Engraved Call Sign Badges** Get a commemorative call sign badge to remember this once-in-a-lifetime event. ARRL welcomes Capital Engraving of Longview, Washington as the official convention engraver.



ARRL Development and ARRL Foundation

www.arri.org/donate-to-arri

Learn how you can help strengthen ARRL's work on behalf of Amateur Radio and earn your way into the prestigious ARRL Maxim Society by participating in the Diamond Club, contributing to the Spectrum Defense Fund, the Education & Technology Fund, the W1AW Endowment or the Historic Preservation Fund, and joining the Legacy Circle by including ARRL in your estate plans. Learn more about The ARRL Foundation that offers more than 80 annual scholarships and awards grants for Amateur Radio groups working to promote Amateur Radio and involve young people in Amateur Radio activities.



ARRL Second Century Campaign

www.arri.org/scc

The Second Century Campaign is ARRL's capital campaign to add \$10 million to the ARRL Endowment. Learn more about how your generous support of the campaign will help to ensure ARRL's financial health in its second hundred years.

ARRL Volunteer Examiner Coordinator

Amateur Radio Service licensing forms, testing information and more.

ARRL Field Organization Volunteers

Visit this gathering area for ARRL Field Organization networking, hosted by the ARRL Connecticut Section.

ARRL Legislative Action – HR 4969 – A Call for Action

"The Amateur Radio Parity Act of 2014" has recently been introduced into the US Congress. This booth will have available several options to assist members in contacting their Members of Congress to ask for their support in this significant legislation. If HR 4969 is enacted, PRB-1 protections (now in place for Amateur Radio antennas and support structures) would be extended to include homeowner associations (HOAs) and other deed restrictions.

ARRL Visa® Card (U.S. Bank)

Apply for the ARRL Visa card and earn a free gift. Earn benefits that Keep You on the Air! Already have a card? Bring some current receipts and your ARRL VISA card to get a free gift.

ARRL Discovery Station: youth and education exhibit

Explore the exciting world of Amateur Radio through hands-on exhibits and projects. Investigate the basics of radio waves. Try out some of the electronic kits available through the ARRL Education & Technology Program, and get inspired to create something of your own. Check out robots, a CubeSat (satellite) simulator, and an audio-frequency oscillator. If radio technology and electronics interests you, or if you're just getting started in ham radio, you'll want to start here at **ARRL Discovery Station!**

ARRL Media and Public Relations

Learn how to promote Amateur Radio. We'll give you some tips for representing Amateur Radio in all types of media and news outlets. Publication Information Officers and radio clubs: get the tools you need to show and tell our story!

Radiosport and DXCC

DXCC Card Checking – Personnel from the ARRL DXCC Branch and volunteer Card Checkers will be on hand to check applications for all ARRL Award Programs. All cards will be eligible for checking, including old cards, cards for deleted countries and cards for 160-Meters. Applications will be limited to 101 cards (more cards will be checked as time and volunteer Card Checkers are available). See www.arri.org/awards/dxcc for the latest program information and current forms. Use the online DXCC tool and save half on your application! Remember to bring with you a printout of your application, card list, and your cards in the order in which they are entered into the Online DXCC. Card checking will also be available at ARRL Headquarters.

ARRL Contests and Awards – On-air competitions and award hunting are great activities of Amateur Radio. These are effective ways to boost your technical knowledge and improve your radio operating skills—helping make you a better radio amateur. Ask us about the ARRL Award Program and upcoming ARRL Contests. VHF/UHF Century club (VUCC) and Worked All States (WAS) award applications may also be checked during the convention.

ARRL Exhibits

Friday, July 18, 2014 through Saturday, July 19, 2014

QSL Bureau – ARRL members are invited to drop off their QSL cards to be sent through the ARRL Outgoing QSL Bureau (QSLs going to foreign stations; no US-to-US QSLs, please). Save shipping costs by bringing the cards to the convention; the ARRL will transport your cards to the Outgoing Bureau at ARRL Headquarters. In order to take advantage of this exciting benefit, all of the standard QSL Bureau rules must be followed: Cards must be sorted by DXCC country, they must go to countries where a bureau exists and you must be an ARRL member to use the Outgoing QSL Bureau. Cards do not have to be boxed, but should be wrapped with rubber bands.



Japan Amateur Radio League Awards – JARL representatives will be checking applications for certain JARL awards (AJD, WAJA, JCC, ADXA, ADXA-Half and Fuji), as well as the IARU's Worked All Continent (WAC) and 5-Band WAC awards. Amateurs who qualify for these JARL and IARU awards will be issued the certificates right on the spot. Please see the JARL English-language web pages for fees and more information, www.jarl.or.jp/English.



ARRL Centennial Coin

To honor each member's contribution to the Amateur Radio Service and ARRL, convention attendees will receive a commemorative ARRL Centennial Coin. The coins will be distributed by ARRL officials throughout the exhibit area. The die-struck, 1.5 inch brass coin depicts the official "100 Years" ARRL Centennial logo. On the reverse side of the coin is the ARRL diamond logo against a hemisphere of the world, and the year-of-issue: 2014. Five diamond shapes signify the five ARRL pillars: Public Service, Advocacy, Education, Technology and Membership. Often referred to as "Challenge Coins," these medals are most common among the military and civil service organizations to commemorate a special occasion or to show loyalty among individuals who share pride and affinity for a particular service or agency. ARRL introduced its first coin in 2010 for the 75th Anniversary of the Amateur Radio Emergency Service®. Coins have also been issued for the ARRL VEC and 75th Anniversary of W1AW, the Hiram P. Maxim Memorial Station.

ARRL Centennial Merchandise

Join ARRL in celebrating 100 years of "Advancing the art and Science of Radio". Celebrate this milestone in style, with these commemorative items (while supplies last)...

- **Centennial Polo** (S-4XL)
ARRL Order No. 9028
Only \$20.00
- **Centennial T-Shirt** (S-4XL)
ARRL Order No. 9893
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- **Centennial Hat**
ARRL Order No. 0399
Only \$10.00
- **Centennial Pin**
ARRL Order No. 0114
Only \$5.00
- **Centennial Mug**
ARRL Order No. 0405
Only \$14.00
- **Centennial Sling Bag**
ARRL Order No. 0027
Only \$8.00
- **Centennial Patch**
ARRL Order No. 0316
Only \$5.00



- **Centennial Sticker**
ARRL Order No. 0155
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- **Centennial Decal**
ARRL Order No. 0229
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- **Centennial Scarf**
ARRL Order No. 6215
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2014 ARRL National Centennial Convention

Exhibitor Listing

Exhibitor Name	Exhibitor Website	Booth Number(s)
2X Arrays	www.2xarrays.com	168-169,218-219
ABR Industries	www.abrind.com	302
Alfa Radio, LTD	www.alfaradio.ca	113-114
Alinco, Inc./REMTtronix	www.alinco.com	400-401
Ameritron	www.ameritron.com	457
AMSAT	www.amsat.org	500-501
Antique Wireless Association	www.antiquewireless.org	409
Array Solutions	www.arrayolutions.com	109-110
ARRL	www.arrl.org	100
ARRL Lab Flea Market	www.arrl.org	F1-F4
ARRL Visa Card / US Bank	www.arrl.org/membership	100
AvMap Navigation	www.avmap.us/us	253
Battery Tech, Inc.	www.batterytechstore.com	165-166
Begali Keys	www.i2rtf.com	667
Boxboro	www.boxboro.org	262
Buddipole	www.buddipole.com	402-403
Capital Engraving	www.scattercreek.com/~capengrave	100
Collins Collectors Association	www.collinsradio.org	517-519
CQ Communications	www.cq-amateur-radio.com	117
CT ARES Region 4 MCU	www.ctares.org/mcu.htm	520
Cushcraft	www.cushcraftamateur.com	459
Davis Rope and Cable Assembly Company	www.DavisRopeAndCable.com	255
Dayton Amateur Radio Association	www.w8bi.org	312
Diamond Antenna	www.diamondantenna.net	105-108
DMR-MARC	www.dmr-marc.net/	311
DX Engineering	www.DXengineering.com	153-154,203-204
Elad USA, Inc.	http://shop.elad-usa.com	670
Elecraft	www.elecraft.com	155-159
Electro Mavin	www.mavin.com	F23
Exhibitor Services		673-674
Expert Amps USA	www.expertampsusa.com	451-452
Flex Radio Systems	www.flexradio.com	663-665
Force 12	www.force12inc.com	115-116
General Calibration, Inc.	www.gencal.com	F24-F26
Gifts4Hams.com	www.gifts4hams.com	406
Global TSCM Group, Inc.	www.kn2c.us	161
Gold Medal Ideas	www.goldmedalideas.com	359-360
Grace Technology, LLC		F21-F22
Ham Radio Deluxe	www.hrdsoftwarellc.com	250-251
Ham Radio Outlet	www.hamradio.com	350-353
Hammond Manufacturing Company	www.hammondmfg.com	118
HamPlaques.com	www.hamplaques.com	405
Hamsource	www.hamsource.com	357-358
HamTestOnline	www.hamtestonline.com	212-214
hy-gain	www.hy-gain.com	458
International Amateur Radio Union (IARU)	www.iaru.org	653
Icom America, Inc.	www.icomamerica.com	300-301
IEEE	www.ieee.org/index.html	661
InnovAntennas America	www.innovantennas.us	115-116
Japan Amateur Radio League (JARL)	www.jarl.or.jp/English	654
JK Antennas & Systems	www.jkantennas.com	168-169,218-219
Johnson Associates, Inc.		256
K2CK		F13
Kenwood Communications	www.kenwoodusa.com	253-254
KJI Electronics	www.kjielelectronics.com	307-308
Kolin Industries, Inc.	www.2qlite.com	258



2014 ARRL National Centennial Convention

Exhibitor Listing

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Lentini Communications, Inc.	www.lentinicomm.com	305
LIE Gifts		361
Light Beam Antenna & Apparatus, LLC	www.lightbeamantenna.com	450
Luso Tower	www.lusotower.eu/	215
MARS	www.navymars.org	658-660
Mayberry Sales and Service	www.mayberrys.com	160
MFJ Enterprises, Inc.	www.mfjenterprises.com	454-455,512-515
Minuteman Repeater Association	www.mmra.org	167
Mirage	www.mirageamp.com	456
Morse Telegraph Club	www.morsetelegraphclub.org	111
Motorola Amateur Radio Club	www.dmr-marc.net/	311
N2OAM		F11-F12
N3ZN Keys, LLC	www.n3znkeys.com	404
National Public Safety Telecommunications Council	www.npstc.org	650
NCG Company	www.natcommgroup.com	210-211
NCVEC	www.ncvec.org	216
New England Amateur Radio Festival	www.near-fest.com	217
New Wireless Pioneers	www.marconi-wireless.com	F18-F20
Old Old Timers Club	www.ootc.us/	411
Pixel Technologies, Inc.	www.pixelsatradio.com	666
Powerwerx	www.powerwerx.com	303-304
Practical Electronics Magazine, China		669
QRP ARCI	www.qrparci.org	655-657
Quarter Century Wireless Association	www.qcwa.org	410
Quicksilver Radio Products	www.qsradio.com	504-511
R & L Electronics	www.randl.com	205-209
Radio Amateurs of Canada	www.rac.ca	652
Radio Club of America	www.radioclubofamerica.com	672
Radio Oasis, LLC	www.radio-oasis.com	306
Radio Society of Great Britain (RSGB)	www.rsgb.org	502-503
Radiowavz	www.radiowavz.com	453
RemoteHamRadio	www.remotehamradio.com	408
RF Adapter Guy	http://stores.ebay.com/The-RF-Adapter-Guy	F5-F10
RF Parts Company	www.rfparts.com	103-104
RFinder	www.rfinder.net	671
ROHN Products	www.rohnnet.com	668
RT Systems	www.rtsystems.com	354
samlexamerica	www.samlexamerica.com	252
San Francisco Radio Club	www.sfar.org	309
Society of Radio Astronomers, Inc.	www.radio-astronomy.org	651
TAPR	www.tapr.org	662
Ten-Ten International Net, Inc.	www.ten-ten.org	310
The Duffle Bag, Inc.	www.thedufflebaginc.com	F14-F17
Times Microwave Systems	www.timesmicrowave.org	257
Times Technology Company	http://timestechnology.com.hk/	412
TwoWayDigitalRadio.com		F28
VHF/UHF Weak Signal		259-260
Vintage Radio & Communications Museum of CT	www.vrcmct.org	516
W1, W2 Incoming QSL Bureaus		407
W1TP Telegraph Museum	www.w1tp.com	112
W5YI Group	www.w5yi.com	355
W5YI VEC	www.w5yi.com	356
WB2WAK		F27
West Mountain Radio	www.westmountainradio.com	162-164
YAESU USA	www.yaesu.com	151-152,201-202
Young Ladies Radio League	www.ylrl.org	261

Concession Area

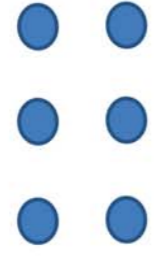
Restrooms

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Exhibitor Services

Exhibitor Area

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ARRL EXPO
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- 32-bit IF-DSP
- External GPS Option



IC-9100

HF + 6m + 2m + 70cm + 23cm¹
All-Around Transceiver

D-STAR optional

- 100/100/100/75/10¹ Watt Output³
- RX: 0.030–60.000², 136.000–174.000², 420.000–480.000², 1240.000–1320.000^{2,3} MHz*
- AM³, FM, SSB, RTTY, CW, & DV¹
- Satellite (Mode B/J/L¹)
- +30dBm TOI²
- Two Independent 32-bit DSP Systems
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- Double Conversion Superheterodyne with Image Rejection Mixer
- USB Port for PC Control and Audio In/Out



ID-880H

ENTRY-CLASS 2m + 70cm DIGITAL MOBILE

D-STAR ready

- 50/15/5 Watt VHF/UHF
- FM, AM (Receive only), DV
- RX: 118–999.99MHz*
- 1052 Alphanumeric Memory Channels
- Free Programming Software![†]

[†]www.icomamerica.com/amateur/DSTAR
for details about free software



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D-STAR ready

- 10 Watt on 23cm (FM, DV, DD)
- RX: 1240–1300MHz*
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The cornerstone of the D-STAR system. Handles up to four RF modules. Basic in-band or crossband operation. Linking capabilities through the internet.



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Access point with a data rate of up to 128kbps. Perfect for email, web applications and support via internet connection.



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23CM DIGITAL VOICE MODULE



ID-RP2000V
2M DIGITAL VOICE MODULE



ID-RP4000V
70CM DIGITAL VOICE MODULE

ID-51A

2m + 70cm VHF/UHF Dual Band Portable



D-STAR ready

- 2m + 70cm FM Analog & Digital*
- 5/2.5/1.0/0.5/0.1 Watt Output
- RX: 88–174, 380–479MHz + AM Broadcast*
- Repeater Directory (Near Repeater)
- 1304 Alphanumeric Memory Channels
- Built-in GPS Receiver
- IPX7 Submersible

IC-80AD

2m + 70cm Dual Band Portable



D-STAR ready

- 5/2.5/0.5/0.1 Watt VHF/UHF
- FM, FM-N, AM (Receive only), WFM (Receive only), DV
- RX: 0.495–999.990MHz*
- 1052 Alphanumeric Memory Channels
- Li-ion Battery
- Free Programming Software†

†www.icomamerica.com/amateur/DSTAR for details about free software

ID-31A

UHF/70cm + Optional D-STAR Portable



D-STAR ready

- 5/2.5/0.5/0.1 Watt Output
- RX: 400–479MHz*
- 1252 Alphanumeric Memory Channels
- Built-in GPS Receiver
- IPX7 Submersible

IC-92AD

2m + 70cm Military Rugged and Submersible Portable



D-STAR ready

- 5/2.5/0.5/0.1 Watt Output
- RX: 0.495–999.990, 118–174, 350–470MHz*
- 1304 Alphanumeric Memory Channels
- Optional GPS Speaker Mic (HM-175GPS)
- IPX7 Submersible

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Forums and Presentations

Friday and Saturday 9:00 AM – 3:00 PM

— Friday, 9:00 AM —

Forum Room 22

“Shut Down and Called-Up — Hams in The Great War”

Presenter: Chris Codella, W2PA

This is the story of ham radio before, during, and after World War I. Hams were put off the air by the government, even required to dismantle their stations due to worries about espionage and the trustworthiness of operators. *QST* ceased publication. But the need for military radio operators was so great that many volunteered for service. As the war ended, everyone needed to be relicensed, and the League needed a jump start. Hams managed to accomplish this while waiting for the long delayed reopening and fighting off threats of restrictive new regulations.

Forum Room 24

“Personal Safety in the Electronic Age”

Presenter: Doug Rehman, K4AC

Amateurs are accustomed to sharing many details of our lives on the air. As we have moved to online venues to communicate, such as Facebook, Twitter, and blogs, we’ve brought this openness with us. What we sometimes don’t realize is the number of people who could be “listening in” who know when you will be away from home and that you just got that new \$3,000 big screen TV. During this session, we’ll take a look at how criminals find victims, both in the real and virtual worlds, and how to avoid being a victim.

Forum Room 25

“Successful Kit Building Techniques”

Presenter: Joe Eisenberg, K0NEB

A look at how to work with various kinds of parts and how to organize and use your parts and tools for the best chance of success building kits.

Forum Room 26

“FreeDV, Digital Voice over HF using CODEC2”

Presenter: Mel Whitten, K0PFX

HF Digital Voice will have a significant role in Amateur Radio’s second-century communications technology. Using FreeDV software with CODEC2 and a robust soft-modem, the audience will experience the technology making this possible. Configuration with a HF transceiver and PC as found in today’s typical ham shack will be described. Live, remote station QSOs will demonstrate the robustness, spectrum efficiency and voice quality.

Forum Room 27

“Amateur Radio & Common Core Standards”

Presenter: Alma Ripley

Forty-six states have adopted the “Common Core State Standards” (CCSS) to attempt to level the playing field across the nation in education. Learn how Amateur Radio-related activities align with the new CCSS standards.

— Friday, 10:00 AM —

Forum Room 21

“An Introduction to HF Digital Operations”

Presenter: Steve Ford, WB8IMY

ARRL Editor and author Steve Ford will present an overview of the ever-changing world of digital operations on the HF bands.

Forum Room 23

“6 Meters — The Magic Band”

Presenter: Ken Neubeck, WB2AMU

A presentation on 6 meters and the interesting propagation modes that appear on the band, along with a summary of the equipment and antennas used.

Forum Room 24

“Amateur Radio and Technology in the American Red Cross”

Presenter: Keith Roberory, KG4UIR

The Director of Disaster Logistics Support for the national American Red Cross will present a broad discussion on the use and direction of technology used during disaster response.

Forum Room 25

“Tower Climbing Safety and Rescue”

Presenter: Philip Theis, K3TUF

An overview to safely approaching working on Amateur Radio towers.

Forums and Presentations

Continued

Forum Room 26

“Introduction to PIC programming”

Presenter: Mark Spencer, WA8SME

A brief overview of using PIC computer technology and how it can become a tool in an Amateur Radio operator's toolbox.

Forum Room 27

“The National Conference of Volunteer Examiner Coordinators and the NCVEC Question Pool Committee”

Presenters: Rol Anders, K3RA, and Mark Erbaugh, N8ME

A discussion of the roles these groups play in running the nationwide testing for US Amateur Radio Licenses. It will also present an overview of how the various question pools for each license exam level are prepared.

— Friday, 11:00 AM —

Forum Room 11

“DHS-OEC — Update on the National Emergency Plan”

Presenter: Chris Essid, Deputy Director, OEC

The Deputy Director of the Office of Emergency Communications in the Department of Homeland Security will give a briefing on how the National Emergency Plan incorporates and supports Amateur Radio.

Forum Room 22

“The Art of The Interview”

Presenter: Mark Kraham, W8CMK

A presentation geared toward providing useful hints and tips when being interviewed by the media on Amateur Radio topics and issues.

Forum Room, 23

“QSLing in the 21st Century”

Presenters: William Hudzik, W2UDT, and Doug Rue, W2EN

The evolution of QSLing. Included will be how the ARRL Outgoing and Incoming QSL bureaus work, how new innovations like e-QSL have changed the landscape, and the impact of LoTW on DXing.

Forum Room 25

“High Altitude Amateur Radio Ballooning”

Presenter: Doug Loughmiller, W5BL

A presentation on the many factors involved in successfully conducting an Amateur Radio high altitude balloon flight. The presentation will focus on conducting such a flight as a club activity and involving youth groups as a tool for recruiting young people into Amateur Radio.

Forum Room 26

“Why QRP?”

Presenter: Ken Evans, W4DU

Many have asked, “Why turn down your power if you're not causing interference?” The current president of the QRP Amateur Radio Club, International (QRP ARCI), will answer those questions and many others. Come explore how QRP has evolved from a process of simply lowering one's power to the multi-faceted part of Amateur Radio that it is today.

Forum Room 27

“The 170 Year History of Telegraph Keys”

Presenter: Tom Perera, W1TP

The first telegraph keys were made over 170 years ago. The evolution of telegraph key designs from those early beginnings to today will be discussed and shown in numerous photographs. Early and rare telegraph keys have significant value to collectors and historians, and this talk will help you to learn the values of both rare and common keys.

— Friday, 1:00 PM —

Forum Room 21

“Broadband Mesh Networking and Amateur Radio”

Presenters: Brian Milesosky, N5ZGT, and Ed James, KA8JMW

Mesh networks are self-discovering, self-configuring, and self-healing networks that enable a number of technologies and applications. This interactive presentation covers the general concept of mesh networks, how they're being used within Amateur Radio, what it takes to get started, and where the action is headed within our community.

Forums and Presentations

Continued

Forum Room 22

"We All Have Our Dreams — OH2BH's 50-Year Radio Journey"

Presenter: Martti Laine, OH2BH

Working stateside on the radio in a professional, rapid-fire manner is rarely the dream of a young man. But replicating the exploits of early DXpedition heroes was a great attraction for Martti Laine, OH2BH/AH3D. Martti has a wealth of wisdom to share. His concept that "The Pileup Behavior is a Mirror of the DX Operator" inspired the creation of the DX University's "Best Practices" for DXpedition operators.

Forum Room 23

"ARRL Youth: Fox Hunt"

Presenter: Tommy Gober, N5DUX

Young radio amateurs are invited to come explore the basics of radio direction finding as we hunt for hidden radio transmitters. We will use directional antennas to hunt down two secret transmitters.

Forum Room 24

"Public Service Communications — Maintaining Readiness When Nothing Bad Is Happening"

Presenter: Ross Merlin, WA2WDT

It is difficult to keep yourself and volunteers prepared and ready when things are quiet. This discussion on how Amateur Radio operators can prepare for traditional and emerging emergency communications opportunities will be lead by a representative of the Department of Homeland Security's Office of Emergency Communications.

Forum Room 25

"VHF Rovers: Past, Present, and Future"

Presenter: Rick Rosen, K1DS

Pictorial and graphic display of VHF Rovers from the time this class was introduced into contesting to the present. Included will be information on class changes, and some thoughts on the future.

Forum Room 26

"PICAXE Programming Primer"

Presenter: Bill Unger, VE3XT

This seminar will walk the participants through the first steps of using the Programming Editor Software and demonstrate how to use circuit simulations.

Forum Room 27

"An Early History of Radio"

Presenter: James Wades, WB8SIW

This presentation covers the early development of radio communications from Marconi through the 1930s. Special emphasis is placed on early Amateur Radio technology including the evolution from spark to continuous wave, the origins of broadcasting and police radio, and the role of the ARRL in the organization and preservation of the early Amateur Radio Service.

— Friday, 2:00 PM —

Forum Room 21

"Technology Outcomes at FEMA"

Presenter: Ted Okada, K4HNL

The Chief Technology Officer at FEMA discusses how their new technology interfaces with partnered agencies, including the Amateur Service. Included will be discussion on how FEMA works to support both the survivors and responders in our communities.

Forum Room 22

"Ham Radio and the Law" (2-hour session)

Presenters: Jim O'Connell, W9WU, Chris Imlay, W3KD, and Fred Hopengarten, K1VR

Members of the ARRL Amateur Radio Legal Defense Fund Committee along with ARRL Volunteer Counsels and staff will offer insight into the current status of the always complicated world of antenna zoning laws and ordinances.

Forum Room 23

"Youth Forum #1"

Presenters: Carole Perry, WB2MGP and Kyle Watt, KD2DWC

An opportunity for youth (and older amateurs as well) to see a project on "Rapid Deployment of Antennas for Portable Operations," developed by Kyle, KD2DWC.

Forum Room 24

"When Worlds Collide: The Blending of the Maker and Amateur Radio Cultures"

Presenters: Craig Behrens, NM4T, and Glen Popiel, KW5GP

Two members of the QRP "Skunk Works" design team will illustrate, by example, how people from all walks of life are joining forces to cross traditional product application and cultural boundaries with new enabling technologies.

Forums and Presentations

Continued

Forum Room 25

“An Overview of AMSAT”

Presenter: Barry Baines, WD4ASW, AMSAT President

Starting with the launch of AO-5 in 1970 and through the deployment of ARISSat-1 in 2011, AMSAT has been directly involved with 15 Amateur Radio satellite projects. The AMSAT President will share some insights and history of this truly unique Amateur Radio venture.

Forum Room 26

“The Changing Modes of VHF And Microwave Amateur Radio”

Presenters: Doug Rehman, K4AC, Kermit Carlson, W9XA, and Marty Woll, N6VI

It seems every time you turn around, a new digital mode or modulation is being developed. These active VHF/UHF/Microwave operators will share with the participants many of the fundamentals of these ever-developing technologies.

Forum Room 27

“US Air Force PAVE PAWS Mission Briefing”

Presenter: Lt. Ben Brinich

— Friday, 3:00 PM —

Forum Room 21

“Boston Marathon Communications — Before, During, and After”

Presenter: Robert Macedo, KD1CY

This presentation covers all the major aspects of Boston Marathon Amateur Radio Communications, including how they are prepared and handled. The presentation will also discuss the extraordinary events that occurred at the 2013 Marathon.

Forum Room 23

“ARRL Youth: Discovery Station”

Presenter: Tommy Gober, N5DUX

Young radio amateurs are invited to come learn some of the hows and whys of some of the activities being tried in the Discovery Station booth in the ARRL exhibition area. Learn the basics of frequency, amplitude, and how we can interact with simple circuits.

Forum Room 24

“National Hurricane Center WX4NHC Amateur Radio”

Presenters: Julio Ripoll, WD4R, and John McHugh, K4AG

WX4NHC is the call sign of Amateur Radio Group at the National Hurricane Center in Miami. This forum will focus on who they are and what they do. This presentation covers the history of WX4NHC, the importance of Amateur Radio Hurricane Surface Reports, various methods of collecting and submitting Surface Reports to WX4NHC and their volunteer programs such as CWOP and ON-NHC.

Forum Room 25

“Working the Amateur Radio FM Satellites with Your HT”

Presenter: Peter Portanova, W2JV

The presentation will give the audience a brief overview of the amateur satellite program from Project Oscar to AMSAT. The goal of the presentation is to teach the attendees how to get on the air with an amateur satellite the next day.

Forum Room 26

“Linux in the Hamshack”

Presenter: Andy Stewart, KB1OIQ

This talk will be an overview of some of the available software for amateur radio which runs natively on the Linux operating system. Discussion topics include logging, digital modes with Fldigi, SDR with gqrx and gnuradio-companion, antenna modeling with xnc2c and FI_moxgen, satellite tracking with Gpredict, and more.

Forum Room 27

“Where Did the Bands Come From?”

Presenter: Chris Codella, W2PA

A historical look at the early days of radio during which several aspects of Amateur Radio were established that survive to the present, including the HF bands, call sign formats, QSLing, operating practices, and equipment characteristics. Many of the things taken for granted today have become disconnected from their origins, and the reasons why they exist have been forgotten.

— Saturday, 9:00 AM —

Forum Room 21

“What We Owe The Amateur Service”

Presenter: Riley Hollingsworth, K4ZDH

The former Special Counsel of the FCC for Amateur Radio Enforcement will share insight as to why it is as important now as ever for keeping our on-the-air operations legal, safe, and appropriate.

Forums and Presentations

Continued

Forum Room 22

“Presenting Amateur Radio to the Media”

Presenter: John Amodeo, NN6JA

A presentation and discussion led by the producer of the hit television show “Last Man Standing” that will focus on how Amateur Radio can put its “best foot forward” when dealing with both the print and broadcast media.

Forum Room 23

“ARRL Youth: Scavenger Hunt”

Presenter: Tommy Gober, N5DUX

Young radio amateurs are invited to join us as we search for various items in and around the Centennial Convention. There will be prizes for being “first to find” certain individual items as well as first to complete the entire list.

Forum Room 24

“International Disaster Response: Lessons Learned”

Presenters: Jay Wilson, W0AIR, Sri Suri, VU2MY, and Howard Pierpont, KD0JAZ

The objective of this presentation is to provide the Amateur Radio community with insight into the opportunities for supporting international disaster response operations, as well as to explore some of the strategies the amateur community can use to better position itself as a resource during catastrophic events.

Forum Room 26

“SDR Advances and the Future of SDR”

Presenter: Stephen Hicks, N5AC

Amateur use of Software Defined Radio (SDR) has gained substantial momentum in the last few years. Many new and exciting SDR radios are being introduced every year from a variety of vendors. This session explores new, emerging and future SDR technologies, demonstrating the secrets behind the technologies, how they advance Amateur Radio, and how the audience can use each technology to increase their operational effectiveness. The session concludes with an exploration of where SDR technology is likely to take Amateur Radio and what it means for today’s operators.

Forum Room 27

“Collecting and Restoring Radios of the Past”

Presenter: Patrick Bunsold, WA6MHZ

The curator of the Crest Radio Museum, which holds the largest collection of radios in the west, will explain how to procure, process, and restore vintage ham radios to near-new condition for display or actual operation. The presentation also includes a video tour of the museum.

— Saturday, 10:00 AM —

Forum Room 21

“Remote Station Operations — The Basics Made Easy”

Presenter: Dave Anderson, K4SV

This forum will examine the basics of setting up remote stations, including brief discussions of controlling the radio and basic equipment/technology needs.

Forum Room 22

“ARRL Field Day — The Gateway for Many”

Presenter: Rol Anders, K3RA

Since its beginnings in 1933, ARRL Field Day has served as thousands of amateurs’ introduction to the hobby. This presentation will focus on the history of the most popular on-the-air ARRL operating event and how it has changed and adapted over the years.

Forum Room 23

“Youth Forum #2”

Presenters: Carole Perry, WB2MGP, Chris Blackwood, KD2CXC and Devlin Murray, KC2PIX

A youth’s perspective on robotics, Amateur Radio, and public service, including a demonstration of the robotic device the young people have built.

Forum Room 24

“Propagation Forecasting — A Peek Behind the Curtain”

Presenter: Carl Luetzelschwab, K9LA

One of Amateur Radio’s most noted propagation experts will discuss how he assembles and analyzes the various elements that go into his projections and forecasts. Come take “a peek behind the curtain” with one of the “wizards of prop” to see how it’s done.

Forums and Presentations

Continued

Forum Room 25

“Introduction to Antenna Modeling”

Presenter: Greg Algieri, WA1JXR

This forum will provide an introduction and demonstrate how amateurs can model and predict antenna performance, as well as how they can experiment with antennas before they hang that wire in the back yard. EZNEC Modeling SW software will be used in this presentation.

Forum Room 26

“Software Defined Radio for Beginners”

Presenter: Stephen Hicks, N5AC

This introduction to Software Defined Radio (SDR) explores the architectural and operational differences in traditional and software defined radios. The early foundations of SDR are used to briefly demonstrate the basics of SDR. Following this, an exploration of different SDR technologies and their capabilities will be discussed with an emphasis on educating the audience on how the technologies work and how they can use each technology to achieve their operational (on the air) goals.

Forum Room 27

“QRZ — Past, Present, and into the Future”

Presenter: Fred Lloyd, AA7BQ

A look at how QRZ evolved into a valuable online tool for Amateur Radio around the globe, including how it evolved from a dial-up BBS to the “service on the cloud.”

— Saturday, 11:00 AM —

Forum Room 21

“How to Blow up Your Balun — and Other Things in Your Antenna System!”

Presenter: Dean Straw, N6BV

Over the last several months, noted antenna expert Dean Straw, N6BV, has worked with the ARRL Laboratory on methodologies for accurately measuring losses in open-wire window line. You have to be careful, and this presentation covers what can go wrong when a single antenna is used in this fashion. Feed line, balun, and tuner losses can steal a great deal of the power you feed into your antenna tuner down in the shack.

Forum Room 22

“PR- 101: The Next Generation”

Presenter: Ed Tyler, N4EDT

An overview of the ARRL's PR-101 course, designed to assist and train ARRL Public Information Coordinators and Public Information Officers.

Forum Room 23

“ARRL Youth: Radio Lab”

Presenter: Tommy Gober, N5DUX

Young radio amateurs are invited to try an exciting, hands-on activity. Join us to build a simple crystal radio, discover how the crystal radio works, and leave with a radio receiver that's all your own!

Forum Room 24

“QRP — Operators Countrywide”

Presenters: Dennis Marandos, K1LGQ, and Jean Camerer, K1AVM

A look at the operators behind the “/qrp” call sign who specialize in low power activities. Topics will include some “how to” tips and a look at some of the equipment involved.

Forum Room 25

“From HT to Microwave — Making The Transition”

Presenters: Doug Rehman, K4AC, Rod Blocksome KØDAS, and Marty Woll, N6VI

There is an exciting and challenging world of Amateur Radio beyond the average hams' HT. This forum will try to demystify the UHF and Microwave amateur bands, exploring how these underutilized frontiers in the hobby might be used by old-timers and newcomers alike.

Forum Room 26

“Raspberry Pi — A Low-Cost Platform for Amateur Radio Projects”

Presenter: Brian Milesosky, N5ZGT

Since its introduction in the spring of 2012 the Raspberry Pi (RPi) has generated excitement within the Amateur Radio community. With its low cost, extensive I/O, and flexible operating system, RPIs are popping up all over the place. In this session, an overview of the RPi single board computer, it's hardware and software, along with Amateur Radio projects utilizing RPi will be covered.

Forums and Presentations

Continued

Forum Room 27

“The Design, Construction, and Performance of a State-of-the-Art Multiop Station”

Presenter: Fred Kemmerer, AB1OC

This presentation will cover the planning, design, construction, and performance of a state-of-the-art multiop station for DXing and contesting. The presentation illustrates the application of a systematic, engineering-based approach to design and construction of a major new station. Information on the design and construction of the associated shack, including ergonomic and other support elements are also covered. Finally, the actual performance of the station is compared against the original design objectives to verify the station's performance.

— **Saturday, 12:00 AM** —

ARRL Centennial Ballroom — Main Stage

“Gazing into the Future — DXing with Weak Signals and Beyond”

Presenter: Joe Taylor, K1JT

Noted amateur and Nobel Prize laureate Joe Taylor, K1JT, will talk about how software tools utilizing weak signal detection have impacted the world of Amateur Radio and how new and emerging technologies may impact and broaden the Amateur Radio experience for licensees in the future.

— **Saturday, 1:00 PM** —

Forum Room 21

“The Myths and Misconceptions of RFI”

Presenters: Ed Hare, W1RFI, and Mike Gruber, W1MG

ARRL Lab Manager Ed Hare and ARRL Lab RFI Expert Mike Gruber will discuss some of the commonly held misconceptions about RFI.

Forum Room 22

“The Enigma and Other Communications Enciphering Devices”

Presenter: Tom Perera, W1TP

The German Enigma cipher machine is the most famous of the many devices used to try to make communications secure from eavesdropping. The history, technology, and deciphering of the Enigma will be described and illustrated. Russian and American devices based on the Enigma will also be discussed and shown.

Forum Room 23

“Building a Successful Club Program”

Presenter: Thomas Sly, WB8LCD

What makes a successful club program? There are certain things that club members expect their leadership to provide. As a hobby, your involvement in a Ham Radio Club should be fun, educational, and entertaining. This presentation will talk about what leadership can do to meet those expectations.

Forum Room 24

“Hamshack in a Backpack — Lightweight DXpeditioning”

Presenter: Scott Andersen, NE1RD

Learn how to experience the excitement of being on the other end of the pileup by traveling with your ham radio equipment on your own DXpedition. In this talk you will learn how to plan, pack, travel, and operate from a remote location as close to home or exotic as you choose. The talk will touch on equipment selection, propagation planning, licensing, operating, and QSLing.

Forum Room 25

“Yankee Clipper Contest Club Meeting”

Presenters: Tony Brock-Fisher, K1KP, and Dennis Egan, W1UE

The YCCC — one of the largest contesting specialty clubs in the US — will hold a meeting for its members and guests. After this one-hour meeting there will be several additional contest-related presentations in the same room.

Forum Room 26

“DXpeditions and the 21st Century Dynamics”

Presenter: Bob Allphin, K4UEE

This presentation will be a brief overview of several recent DXpeditions, paying close attention to many of the challenges faced in putting three unique DX entities on the air. The program will also focus on the challenges many DXpeditions deal with in the planning, operating, and funding arenas.

Forum Room 27

“The Origins of Silicon Valley: Roots in Ham Radio”

Presenter: Paul Wesling, KM6LH

Why did Silicon Valley come into being? The story goes back to local hams trying to break RCA's tube patents, the sinking of the Titanic, naval ship communications requirements, Fred Terman and Stanford University, local invention of high-power tubes (gammatron, klystron), World War II and radar, William Shockley's mother living in Palo Alto, and the San Francisco Bay Area infrastructure that developed. These factors pretty much determined that the semiconductor and IC industries would be located in the Santa Clara Valley.

Forums and Presentations

Continued

— Saturday, 2:00 PM —

Forum Room 21

“Best Practices of the National Weather Service’s SKYWARN Program”

Presenters: Rob Macedo, KD1CY, Jim Palmer, KB1KQW, and Carl Aveni, N1FY

This topic and presentation discusses how the SKYWARN program functions and incorporates best practices to be responsible for over 90% of the damage reports received during severe weather events, as well as up to 2/3rds of the rainfall and snowfall reports measured during significant winter/spring storm events in many areas of the country. It will discuss the deep partnerships with emergency management, the media, and the forecasters of the local NWS forecast offices.

Forum Room 23

“Tropo Propagation on the VHF and UHF Bands”

Presenter: Gordon West, WB6NOA

The noted ham radio personality will speak about tropospheric enhancements and will include recordings of signals being received from 2500 miles away, for days! See how tropo works with a laser demo, and watch the refractive index change to influence tropo bands and distances. Listen to the Hawaii beacon when DSP is added, to clear up the signal from over 2500 miles!

Forum Room 24

“MARS Forum”

Presenters: Bob Veth, K1RJV/NNNØAS1, and Bob Mims, WA1OEZ/AAA1RD

Leaders of the MARS community will provide an overview of their current program capabilities.

Forum Room 25

“2014 World Radiosport Team Championship Recap”

Presenters: Randy Thompson, K5ZD, and Doug Grant, K1DG

The World Radiosport Team Championship is a unique on-site operating competition between 59 teams from around the world. Held every 4 years at locations around the world, WRTC is the “Olympics of Amateur Radio contesting.” This presentation will be an immediate review of the fun, excitement, challenges, competition, and results of the WRTC held the preceding weekend.

Forum Room 26

“Using Surplus Commercial Radios in Amateur Radio”

Presenter: Paul Gilbert, KE5ZW

Public safety and commercial radio users have been required by the FCC to narrowband their equipment. With the narrowbanding, many users also upgraded to new analog or digital systems. This has created treasure troves of surplus commercial grade repeaters, mobiles, and portable radios available at a cost of little to nothing for use in Amateur Radio. This session will discuss the various brands, models, and sources of potential treasures or trash for hams.

Forum Room 27

“Old Transmissions and Voices from the Past.”

Presenters: John Dilks, K2TQN, and David Ring, N1EA

Hear early Ship-to-Shore and Ship-to-Ship transmissions, and what some of the early ham and radio pioneers sounded like, including the voices of Marconi, Jack Binns, Irving Vermila, Tuska, De Forest, Paul Godley, Armstrong, Reinartz, Orin Brown, Elmo Pickerill, Art Collins, General Griswold, and more.

— Saturday, 3:00 PM —

Forum Room 22

“ARRL Legislative Action Update – HR 4969 Call to Action”

Moderator: Dan Henderson, N1ND, ARRL Regulatory Information Manager

“The Amateur Radio Parity Act of 2014” has recently been introduced into the US Congress. If HR 4969 is enacted, PRB-1 protections (now in place for Amateur Radio antennas and support structures) would be extended to include homeowner associations (HOAs) and other deed restrictions. Come hear about this significant legislation and how you can help contact Members of Congress to ask for their support.

Forum Room 25

“160 Meters — Mastering the Challenge”

Presenter: Carl Luetzelschwab, K9LA

An introduction to “Top Band.” The talk will include useful techniques and hints whether you are new to 160 meters or an old hand on the Top Band.

Bus Schedule

To Tour ARRL Headquarters & W1AW

Your convention registration includes a bus trip to tour ARRL Headquarters and W1AW, the Hiram P. Maxim Memorial Station in nearby Newington. Travel time is approximately 15 minutes. Buses will board from the Lobby Level of the Convention Center, near the Information Desk. Individuals with advance reservations will be seated on the buses first; others will be seated on a first come, first served basis; return trips from ARRL Headquarters to the Convention Center are on a first come, first served basis. For the safety of all riders, you must wear your convention registration badge to board a bus (no exceptions). Due to limited parking at ARRL HQ, we recommend that you do not drive to the facility. [Accessibility: On average, two wheelchairs can fit on the coach bus at one time and the weight limit for scooters is up to 600 lbs. on the lift.] Please keep in mind, times may vary slightly from the published schedule.

R = Individuals with reservations will be seated on the bus **first**
 BUS #1 and #2 = 57 passenger Coach Buses
 BUS #S = 24 passenger Shuttle Bus

Thursday	
Convention Center Departures	ARRL Headquarters Departures
10:00 AM – BUS #1	10:30 AM – BUS #1
11:00 AM – BUS #1 (R)	11:30 AM – BUS #1
12:00 PM – BUS #1	12:30 PM – BUS #1
1:00 PM – BUS #1 (R)	1:30 PM – BUS #1
2:00 PM – BUS #1 (R)	2:30 PM – BUS #1
	3:30 PM – BUS #1
	4:30 PM – BUS #1

Friday	
Convention Center Departures	ARRL Headquarters Departures
10:00 AM – BUS #1 (R)	10:30 AM – BUS #1
Spouse/Family Tour to Mark Twain House (reservations required) 10:00 AM – BUS #2	
10:30 AM – BUS #2 (R)	11:00 AM – BUS #2
11:00 AM – BUS #1 (R)	11:30 AM – BUS #1
11:30 AM – BUS #2 (R)	12:00 PM – BUS #2
12:00 PM – BUS #1 (R)	12:30 PM – BUS #1
12:30 PM – BUS #2	1:00 PM – BUS #S
1:00 PM – BUS #1 (R)	1:30 PM – BUS #1
1:30 PM – BUS #S (R)	2:00 PM – BUS #S
2:00 PM – BUS #1	2:30 PM – BUS #1
	3:30 PM – BUS #1
	4:30 PM – BUS #1

Saturday	
Convention Center Departures	ARRL Headquarters Departures
10:00 AM – BUS #1 (R)	10:30 AM – BUS #1
Spouse/Family Tour to Wadsworth Atheneum (reservations required) 10:00 AM – BUS #2	
10:30 AM – BUS #2 (R)	11:00 AM – BUS #2
11:00 AM – BUS #1 (R)	11:30 AM – BUS #1
11:30 AM – BUS #2 (R)	12:00 PM – BUS #2
12:00 PM – BUS #1 (R)	12:30 PM – BUS #1
12:30 PM – BUS #2	1:00 PM – BUS #2
1:00 PM – BUS #1 (R)	1:30 PM – BUS #1
1:30 PM – BUS #2 (R)	2:00 PM – BUS #2
2:00 PM – BUS #1 (R)	2:30 PM – BUS #1
	3:00 PM – BUS #2
	3:30 PM – BUS #1
	4:30 PM – BUS #1

Sunday	
Convention Center Departures	ARRL Headquarters Departures
9:00 AM – BUS #1 (R)	9:30 AM – BUS #1
10:00 AM – BUS #1 (R)	10:30 AM – BUS #1
11:00 AM – BUS #1 (R)	11:30 AM – BUS #1
	12:30 PM – BUS #1
	1:30 PM – BUS #1



ARRL Headquarters and W1AW Tour

225 Main Street, Newington, Connecticut

As part of attending the ARRL Centennial Convention, we invite you to visit ARRL Headquarters at 225 Main Street, in Newington.

Here are some highlights of the tour:

The Lobby:

On display in the ARRL Headquarters lobby is an exhibit called The Progression of Amateur Radio History and Technology. This exhibit of radio hardware illustrates the progress of Amateur Radio technology from its inception to the present day and

features equipment from the ARRL's historic collection. There will also be a visual presentation illustrating the personalities and events significant to the history of Amateur Radio and the ARRL.

An ARRL Membership representative will be in the lobby to help answer any questions concerning your ARRL Membership, including renewal. If you are not yet a member, you can join while on your tour of Headquarters!

Membership and Volunteer Program (MVP) Department Area:

This area features programs that are managed by the Membership and Volunteer Program Department.

■ QSL Bureau:

See how ARRL processes over one million QSL cards per year. Bureau personnel will be on hand to answer questions and discuss the operation of the ARRL Outgoing QSL Service, better known as just "The Bureau."

■ Volunteer Exam Coordinator:

ARRL VEC staff will answer any questions about licensing, call signs, licensing exams, vanity calls, and other related topics.

■ Ham Aid Kit Exhibit:

Ham Aid is ARRL's program for lending Amateur Radio gear for use in disaster areas. See first-hand what a Ham Aid case contains and how it is used.

■ Awards Desk:

Representatives of the ARRL Awards Branch will answer questions about ARRL operating awards and Logbook of The World. We will also accept QSL cards for award checking or for the outgoing QSL bureau.

■ Field Organization:

ARRL personnel will answer questions about how the ARRL Field Organization works and the many ways it serves you.



Notice: If you would like to make a QSO with W100AW while you are at the Convention or visiting ARRL Headquarters, W100AW will be listening on 147.555 MHz FM, its published simplex frequency.

ARRL Headquarters and W1AW Tour

225 Main Street, Newington, Connecticut

The ARRL Lab:

At the ARRL Laboratory, visitors can see the ARRL's Screen Room, where ARRL's product review testing is performed. The Lab also has an active SDR display, a Conducted Emissions Testing room, D-STAR repeaters, and a "Made at the ARRL Laboratory" display case. You can have your handheld radio tested during your visit to ARRL Headquarters to see if it complies with FCC emission standards. Laboratory engineers will be present to answer any technical questions.

The ARRL Lab also houses the "Evolution of the History of Amateur Radio" exhibit, featuring significant pieces of Amateur Radio technology from the past. There are three operational stations from different areas set up, along with a display of Morse code hand keys and bugs. A docent will be on hand to answer questions.

Conference Room Video

ARRL's new video "ARRL at 100: A Century of Ham Radio" will be shown every 30 minutes in the ARRL Conference Room.

ARRL Publications

The ARRL Publications Department is where *QST*, *QEX*, *NCJ*— The National Contest Journal, and the many ARRL books are produced. Visitors will be able to see the next issue of *QST* being produced.

Development Office:

The Development Department will be open and staffed all week, including Saturday and Sunday. If you are interested in making a financial gift to ARRL, our Development office can work with you to meet your needs and interests.

Grounds:

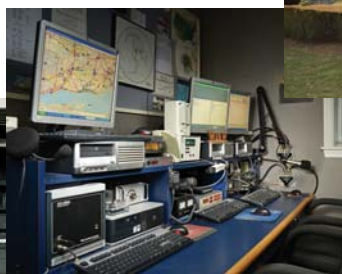
You can tour the ARRL grounds, including the W1AW antenna farm, the monuments, and Diamond Terrace, are included with your visit. Do not miss this opportunity.

W1AW:

Many visitors to ARRL Headquarters tell us W1AW is the highlight of their tour. Now it can be yours, too. W1AW will be open for visitors from 9 AM to 4:30 PM Monday through Saturday and from 9 AM to 1:30 PM on Sunday. Eight stations will be available on the 80, 40, 30, 20, 17, 15, 12, and 10 meter bands. Operating time is first come, first served. Operating times will need to be reserved in advance at the front desk in the lobby.

Concessions:

A limited menu of food and drink will be available for purchase during your visit to Headquarters.





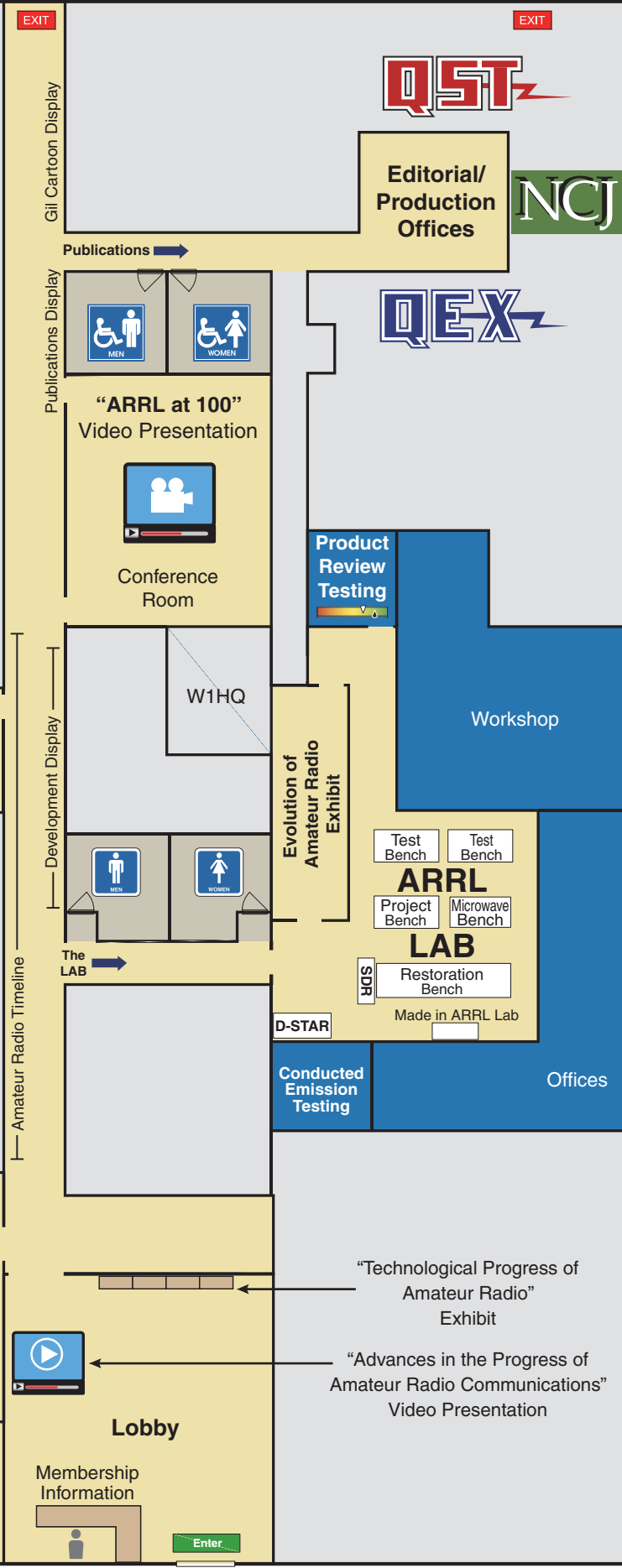
ARRL
100
YEARS

ARRL HQ
Tour Guide
225 Main St.
Newington, CT
(860) 594-0200

Development Office

Membership & Volunteer Programs Offices

- HAM Aid Kits
- Field Organization
- Awards
- Hamfest & Convention Support
- QSL Bureau
- ARRL VEC (Amateur Radio Volunteer Examiner)



Front of Building

ARRL National Centennial Convention

While You Are Visiting

Parking

The Connecticut Convention Center has plenty of onsite parking spaces including an eight-floor garage and outdoor spaces for oversized vehicles in the surface lot. ARRL has negotiated discounted parking rates for the convention. The convention center parking garage will have a \$10 per day daily max rate. There are also many nearby garages and lots.

R&G Parking Lot: Located corner of Main Street & S. Morgan Street. This parking lot is a 13-minute walk from the convention center and offers a daily rate of \$4. Your vehicle can be left overnight, though the lot is unattended at night (park overnight at your own risk). The daily rate for RVs will be no more than \$12 per day depending on the size of the vehicle. The lot is also on the free downtown DASH shuttle route, which includes pickup and drop-off at the Connecticut Convention Center. For more information see www.rgbellc.com

Transportation

CTTRANSIT offers a **free** “dash” shuttle bus in downtown Hartford which connects the convention center with downtown hotels, restaurants and other nearby attractions. Maps with routes and stops are available from the Information Desk in the convention center. The shuttle will operate on an extended schedule during the convention. Shuttles depart every 15 minutes from the Connecticut Convention Center (lobby level).

Things to Do In the Area

Entertainment:

Located at Bushnell Park in downtown Hartford:

Greater Hartford Jazz Festival July 18 – 20, 2014. For a performance schedule visit www.hartfordjazz.com/schedule.html

Shopping:

Located in West Hartford, CT:

Blue Back Square (roughly a 10 minute drive from Hartford)

Westfarms Mall (roughly a 10 minute drive from Hartford)

Educational:

Located in Hartford, CT:

Connecticut Science Center

Harriet Beecher Stowe House and Center

Mark Twain House and Museum

Wadsworth Athenaeum Museum of Art

Located in Windsor, CT:

Vintage Radio and Communications Museum of CT (roughly a 15 minute drive from Hartford)

Amusement:

Lake Compounce and Crocodile Cove, Located in Bristol, CT (roughly a 30 minute drive from Hartford)

Mystic Seaport, Located in Mystic, CT (roughly a 1 hour drive from Hartford)

Six Flags New England, Located in Springfield, MA (roughly a 30 minute drive from Hartford)

Mohegan Sun Casino, Located in Uncasville, CT (roughly a 45 minute drive from Hartford)

Foxwoods Resort Casino, Located in Ledyard, CT (roughly 1 hour drive from Hartford)

Road Trips:

Boston, MA is roughly 1.5 hours away from Hartford

New York City is roughly 2 hours away from Hartford

Dining:

Downtown Hartford offers many different dining experiences around every corner; Main Street, Allyn Street, Trumbull Street, and Asylum Street to name a few! Surrounding areas such as West Hartford and Newington also offer many restaurant choices.

The website www.hartford.com provides options to choose from.



ARRL National Centennial Convention

ARRL National Centennial Convention Steering Committee

Tom Frenaye, K1KI, ARRL New England Division Director
Dan Henderson, N1ND, ARRL Regulatory Information Manager
Bob Inderbitzen, NQ1R, ARRL Marketing Manager
Harold Kramer, WJ1B, ARRL Chief Operating Officer
Lisa Kustosik, KA1UFZ, ARRL Event Planner
Mike Lisenco, N2YBB, ARRL Hudson Division Director
Mike Raisbeck, K1TWF, ARRL New England Division Vice Director
David Sumner, K1ZZ, ARRL Chief Executive Officer

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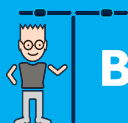


Antennas for the Field

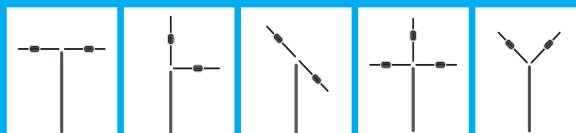


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 Built-in Digital IF Filtering,
 Twin Passband Tuning with
 Selectable Width and Shape
 RS232/Ethernet Control, S/P DIF Audio
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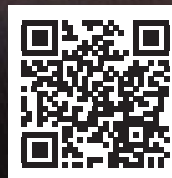
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