About the LVRA

The Las Vegas Repeater Association (LVRA) is an association of amateur radio enthusiasts dedicated to advancing the art, technology, and operation of radio communications systems. The LVRA owns and operates VHF and UHF amateur radio repeaters throughout Southern Nevada. LVRA is registered as a non-profit corporation in the State of Nevada. LVRA members take pride in supporting public service service through a system of open repeaters, as well as a closed UHF repeater system which is available for emergency communications.

2019 LVRA Officers

Vice President  Nat Talpis W70QF  
Treasurer  Elliott Bloch W7EB  
Secretary  Mark Sappington N5TYH

What’s Inside

System Reports.........................2 & 3  
‘Web Dude’ Report......................4  
Upcoming Events......................4  
Weekly Nets............................5  
LVRA July Meeting.....................6  
Licensing Classes.....................7  
Clark County ARES.................8-10  
Radio WWV 100th Anniversary.....13-15  
Virgin Valley ARC News ............19

LVRA Members gather at Winchell’s for the July meeting of the Las Vegas Repeater Association  (Photo courtesy of NX7R)

August LVRA Meeting

The August meeting of the Las Vegas Repeater Association will take place Saturday, August 17th, at 8:00 AM, at Winchell’s Pub and Grill, 199 East Warm Springs, Las Vegas. Our meeting will include opportunities for fellowship and a discussion of upcoming club activities.  Be sure to join us.
LVRA Linked Analog Repeaters

- Angel Peak
  - 449.500
- High Potosi
  - 449.175
  - 146.880
- Highland Peak
  - 145.220
- Low Potosi
  - 449.400
- Mesquite
  - 448.020
- Red Mountain
  - 449.100

D-Star System - W7AES

- Red Mountain
  - 147.975
  - 449.575
  - 1282.39
  - 1299.39 (high speed data)

DMR System - NX7R

- Black Mountain
  - 448.625
- Red Mountain
  - 449.625
- VoTech Mesa
  - 445.625
- Mission Hills
  - 447.625

1NX7R Mission Hills Repeater at 447.6250 CC-15, timeslots one & two. Analog DPL=754

**System Status**

For more information on LVRA and affiliated system repeaters, please visit: [www.wa7hxo.us](http://www.wa7hxo.us)

**System Reports**

**NX7R DMR System**

Terry reports the Black Mountain DMR site at 448.6250 is still off the air. New ‘TV 21’ management has not allowed the gear to be powered on. All other sites are working fine.

**WA7AES D-Star System**

The RF repeaters, gateway computer and controller are functioning well. User-commanded cross-linking between the W7AES repeaters, i.e., UHF-to-VHF, VHF-to-1.2 GHz, etc. is working; as are user commanded links to other D-Star repeaters and Reflectors (pseudo-repeaters) around the world.

Investigation of the router port forwarding scheme for the 'Dashboard' and the 'Registration Page' continues. Once this is figured out, the pages will be accessible via your web browser. In the meantime, you can continue to get a general idea of what's going on by viewing the '14-day page' at: 'http://dstarusers.org/viewrepeater.php?system=W7AES'

New users can register at the national site at: 'https://registration.dstargateway.org/Dstar.do'. This is a two-part process. If you need help, contact Mel K6UV.

Dave, AK7I alerted Mel to a website that is a running list of Texas Trust Server traffic. It shows callsign,
System Reports (continued)

where you connected from, what you are connecting to, RPT1, RPT2, etc. It’s nice to have this information, especially since the dashboard is temporarily unavailable. If a new user is having trouble with radio configuration or if someone is up to no good, it shows what’s going on. It’s a near real time running list at: [https://nj6n.com/dplusmon](https://nj6n.com/dplusmon).

LVRA System

Ralph reports he intends to travel up to Angel in the next several weeks to relocate the microwave link the club is using to get internet access. He reports intermittent P-Loss at Angel and High Potosi that is thought to be caused by a ‘marginal path.’

(Thanks to Ralph N7TND, Terry NX7R, and Mel K6UV for their consistent support in reporting on the status of LVRA & DMR systems and assets - ed.)

Las Vegas Repeater Association

Wednesday Evening Net Control

Gary Hartman KK7LV, has announced that effective May 1st, he is stepping down as manager of the LVRA Wednesday Evening Net. Short term, the club will need a member (or members) to step forward to serve as Net Control, in order that stations on frequency continue to look to our net as a regular event. In addition, we need a club member to serve as in informal ‘point of contact‘ to insure a ‘Net Control‘ station will be available each week. Both ‘tasks‘ require a minimal amount of time and commitment. The Wednesday Evening Net continues to be popular, and serves an important purpose for our community and Hams along the LVRA ‘system.’ Club members who are interested in serving as net control or net manager(s) are asked to contact Gary KK7LV, or an LVRA board member.

Las Vegas Monthly Ham Radio Swap Meet

Southern Nevada Amateur Radio operators hold an informal, non-sponsored ‘swap meet’ the first Saturday of every month. There is no charge for set-up or sales. Event starts at sunrise and typically runs 2-3 hours, depending on interest. Location is Peterson Center, 6455 Dean Martin Drive (Location is corner Dean Martin Drive & Sunset Road (adjacent to I-15). Set-up is on the south end of the property.

Welcome to the newest VE testing organization in Las Vegas. The Las Vegas Testing Team (LVTT) is affiliated with Laurel Amateur Radio Club (LARC). LARC is the 3rd largest VEC in the United States. Per LARC policy, LVTT does not charge for testing. LVTT process New Technician and Amateur upgrade licenses within few days. LVTT offers testing on Saturdays, and by 9 AM on the following Monday, the FCC data base is updated. LVTT is the only LARC group in Nevada.
LVRA Website Report

Greetings, All

We’re updating the web site quite extensively and possibly looking to re-host it. More about that later. Meanwhile, the site should now work much better on small devices like smart phones and tablets. Thanks to the fine work of Jay K7NJS, who has been helping me correct some web issues and has re-aligned the layout of the LVRA home page. Jay is a former LVRA member, and has been very helpful.

Please take a look and experiment with a small device.

If you see any error on the web site, or want to update your contact information in the HXO Roster, let me know: kk4ib@arrl.net.

Gene ‘the Web Dude’ KK4IB kk4ib@arrl.net

Upcoming Events

Clark County ARES / RACES Training
Saturday, September 14th, 2019, at 9:00 AM, Clark County Government Center, (Training Room 3), 500 South Grand Central Parkway, Pueblo Room, Las Vegas. Information at ‘ccnvares.org’

Clark County ARES / RACES Quarterly Membership Meeting,
Saturday, October 13th, 2019 at 9:00 AM, Clark County Government Center, (Training Room 3), 500 South Grand Central Parkway, Pueblo Room, Las Vegas. Information at ‘ccnvares.org’

San Diego Hamfest and Disaster Preparedness Event, Saturday,
October 5th, 2019 at 9:00 AM, Lakeside Rodeo Grounds, 12584 Mapleview Street, Lakeside, CA. Information at ‘lakesidearc.org’

Help Wanted

- **Clark County ARES RACES Monday Night Net** - Clark County ARES RACES members are encouraged to consider serving as Net Control Operator (NCO) during the weekly Clark County Monday Night Net. The net provides a great opportunity to practice your communications and net control skills in a supportive environment.

- **LVRA Webmaster** - The LVRA Webmaster is looking for a replacement. We need a member who can edit the website (need a minimal knowledge of html), and can spend about 20 minutes a month doing it. If you have the skill and interest, please contact Gene at kk4ib@arrl.net.

- **LVRA Wednesday Night** Net Manager and Net Control Operators are needed for LVRA Wednesday Night Net at 7:00 PM on the LVRA repeater network. Contact any LVRA Board member or Gary Hartman KK7LV or for more information (see announcement pg. 3).
Weekly Nets

Monday
- 7:30 pm - Clark County ARES net on Las Vegas RACES linked repeaters and EchoLink ‘CCNVARES.’
- 8:00 pm - Southern California PAPA System DMR roundtable on talk group 3106.
- 7:00 pm - Virgin Valley Amateur Radio Club net on the LVRA linked repeater system.

Tuesday
- 8:00 pm - Sierra Nevada (SNARS) DMR net on talk group 31328.

Wednesday
- 7:00 pm - LVRA Wednesday Night Net on the LVRA linked repeater system, EchoLink ‘WA7HXO-L’, Allstar, and D-Star Port B (UHF).
- 8:00 pm - Angel Peak Net 224.500, PL® 131.8, 927.250 PL® 114.8 & Potosi Net 224.480, PL® 110.9 & 927.0375 PL® 141.3.

Thursday
- 7:00 pm - Nevada section ARES net on Las Vegas RACES linked repeaters and EchoLink ‘NV-Gate.’

Saturday
- 7:00 am - Nevada section ARES HF net on 3.965 MHz.
- 9:00 am - Brandmeister worldwide DMR net on talk group 91.

Sunday
- 8:00 am - Southwest Division ARES net on 3.965 MHz and EchoLink ‘WA6TWF-R.’
- 5:00 pm - TAC-310 DMR net on talk group 310.
- 6:15 pm - Nevada Section HF ARES traffic net on 3.945 MHz.
- 7:00 pm local - Southern Utah 2m SSB Roundtable on 144.250 MHz USB.

LVRA Affiliations

High Desert Repeater Network
(Victorville, California) - the HDRN links to the LVRA at Low Potosi, and it's linked UHF repeaters provide coverage from Victorville to Las Vegas.

Virgin Valley Amateur Radio Club
(Mesquite, Nevada) - the VVARC links to the LVRA using the Mesquite UHF repeater.

Eastern Nevada Amateur Radio Society
(Ely, Nevada) - the ENARS links to the LVRA at Highland peak, and its 3 linked VHF repeaters provide coverage for the greater Ely, NV region.

Members of any affiliated club may use the closed repeaters of all organizations.

LVRA Weekly Net

LVRA Wednesday Evening Net is scheduled to start at 7:00PM local time each Wednesday evening, and when activated, includes links to:
- the LVRA UHF repeater network
- the 145.11 repeater on Red Mountain
- the 145.220 repeater on Highland Peak
- High Desert Radio Network repeaters
- Eastern Nevada Amateur Radio Society repeaters in Ely, Nevada
- Echolink and Allstar
- W7AES D-Star repeaters on Red Mountain

NOTES:
- DMR check-ins are taken on the HXO talk group (31325) 10 minutes before the regular net begins.
- If the D-Star bridge is not operating, D-Star check-ins will be taken separately, 10 minutes before the regular net begins.
Las Vegas Repeater Association July Meeting

Mark Sappington N5TYH, LVRA Secretary

The July general membership meeting of the LVRA was held on Saturday, July 20, at Winchell’s Pub and Grill on Warm Springs in Las Vegas. The Secretary and Treasurer were present. Former President, Gary Hartman KK7LV presided. Seven members, one associate member, and one guest attended. The meeting was called to order at approximately 9 AM.

The Treasurer’s report was read by Elliot Bloch W7EB and accepted. Minutes from the June meeting were accepted.

Old Business:

Proposals for modification of LVRA bylaws proposed by Gary Hartman KK7LV at the June meeting (detailed in June meeting minutes) were discussed. Members debated the three proposals and agreed to amend the first proposal, removing the three year waiting period before a new member can run for the Board. This proposal was modified to allow a member in ‘good standing’ for twelve consecutive months, to run for LVRA Board. Members present agreeing to keep proposals 2 and 3 as originally presented at the June meeting. Agreement among attendees to e-mail ballot to members on the three proposals, as meeting lacked required quorum.

New Business / LVRA Site Rental:

Elliot Bloch W7EB reported Las Vegas Metropolitan Police Department sending an invoice for $700 for use of High Potosi site. Secretary Mark N5TYH will contact Metro to discuss the current (expired) agreement and a potential new agreement.

New Business / ByLaws:

Additional bylaws modifications were proposed; a.) Removal of the language in the bylaws related to the mobile command vehicle (MCV), which the organization no longer owns. b.) Addition of language to modify full membership requirements for associate members in order to become full member. These two new proposals will be discussed at the August meeting.

New Business / LVRA Website:

Future options for the LVRA web site include; maintain current web site and hosting as-is, change web site to ‘CMS’ site, such as WordPress™, Switch to Google G-Suite™ for Nonprofits or Microsoft 365 Cloud™ for Nonprofits.

Agreement that more information needed for an informed choice, Secretary Mark Sappington N5TYH will provide additional information in the near future on these options.

New Business / LVRA Picnic Site:

Gary KK7LV investigating Boulder City Hemenway Park venue for LVRA October Picnic. Site is booked for desired dates. Discussion regarding feasibility of picnic venue in Mesquite, NV. Mark N5TYH will email Virgin Valley Amateur Radio Club President Johnny Rauzi K7ZZQ to inquire about a no-cost venue for the LVRA October Picnic.

The meeting was adjourned at approximately 10 AM.
Amateur Radio Technician Licensing Classes

In-Depth Technician License Class
If you know of someone with an interest in Amateur Radio and would like to obtain their Technician Class license or upgrade to the General Class license, or even upgrade to Amateur Extra, Ham Radio classes are held three times a year (Winter, Spring and Fall), sponsored by and held at the Salvation Army on Cheyenne. Classes last about 8 weeks and the cost is $15.00, plus cost of textbook, for a total of $30.00. The next Technician licensing class starts Wednesday, September 18th, 6:00 - 9:00 PM. For more information go to 'nellisrac.org,' or contact Dennis Simon KB7UTV (702) 643-1670 (leave message).

3-Day Technician License Class
The next Amateur Radio Technician licensing class is a 3-day event, planned for Saturday, August 31st, Sunday & Monday, September 1st & 2nd, with examination administered the afternoon of September 2nd. Class will take place starting at 8:00 AM and conclude at 5:00 PM each of the three days. Applicants do not need a knowledge of electronics - the instructors will teach everything needed to pass the examination. The book is “The ARRL Ham Radio License Manual” (4th edition). Class fee is $20.00. The examination is administered by the Las Vegas VE Team and cost is $15.00. The textbook cost is $30.00 is available by contacting the instructor or at the class. Pre-study is beneficial but not required. For information contact Dennis Simon KB7UTV at ‘kb7utv@arrl.net’ or call (702) 643-1670 (leave message).

Amateur Radio VE Testing Sessions

VE Testing at Red Rock Search & Rescue
Las Vegas area Amateur Radio VE testing is held on first Saturday of each month, at Red Rock Search & Rescue, 340 Villa Monterey Dr., Las Vegas 89145. The next testing sessions will be held Saturday, September 7th, Saturday, October 5th, Saturday, November 2nd, and Saturday, December 7th. Applicants bring driver license + valid photo ID + $15.00. Applicants upgrading bring a “official copy” of FCC license. Applicants arrive at 1:30 PM for 2:00 PM testing. Information at ‘lvhamtest.us.’

VE Testing at College of Southern Nevada / North Las Vegas
The ‘Las Vegas Test Team’ (LVTT), an organization of LARC VEC, will be holding their next VE Test Session on Saturday, August 17th, from 9:00 AM to 2:00 PM at the College of Southern Nevada, North Las Vegas Campus, 3200 E Cheyenne Ave, North Las Vegas, NV 89030. LVTT policy is to offer VE sessions free of charge, and sessions are open to the public. For more information please go to ‘www.lvtttnv.com’ or email us at lvtttnv@gmail.com. We are also looking at increasing our Volunteer Examiner Corp. If you would like to be a VE please send your request to lvtttnv@gmail.com.
ARES RACES Meetings for 2019:

1. Training meetings planned for March 9th, May 11th, June 8th, August 10th, September 14th, November 9th, and December 14th.
2. Quarterly membership meetings are planned for April 13th, July 13th, and October 13th.
3. Unless otherwise notified, all Clark County ARES RACES meetings are at 9:00 AM, at the Clark County Government Center, 500 South Grand Central Parkway, Las Vegas, Training Room 3. Park on the Northeast side of the building. An alternate meeting location is 820 South Valley View, Suite 110 (just North of Charleston Blvd.)

‘ARES Connect’

The ARES organization is transitioning to a new volunteer management system ‘ARES Connect,’ which will manage ARES member sign up, rosters, and activity reporting. New and renewing ARES members will need to enroll in the new system, once it is up and running. Additionally, all ARES members are now required to complete three on-line FEMA Incident Command System classes; ICS 100, 200 & 700. These are offered at no cost. See the Clark County ARES RACES website for more detail.

Completion of the following courses are now required of all ARES members:

1) **EC-001 - ARRL Introduction to Emergency Communications** (a no-cost program)
2) **IS-100 - Incident Command System IS-100; Introduction to the Incident Command System**
3) **IS-200 - ICS for Single Resources and Initial Action Incidents**
4) **IS-700 - An Introduction to the National Incident Management System (NIMS)**
5) **IS-800 - National Response Framework, An Introduction**

These courses will give you the basics regarding ICS principles. Clark County Office of Emergency Management will offer classroom training on ICS 100, 200, 700, and ‘Personal Assessment and Resiliency Training’ Course schedule and registration information is also included on page 12 of this issue of the ‘LVRA News.’
Clark County Office of Emergency Management will offer classroom training on ICS 100, 200, 700, and ‘Personal Assessment and Resiliency Training.’
Course schedule, contact and registration information is featured below.

Incident Command System Training
ICS 100, ICS 200, ICS 700, P.A.R.T.
2019 Bi-annual Course Schedule

The Clark County Office of Emergency Management & Homeland Security in partnership with Southern Nevada Public Safety Agencies is pleased to announce the coordination and delivery of ICS 100, 200, 700 and Personal Assessment and Resiliency Training (P.A.R.T.) courses.

Target Audience:
Individuals who may be called upon to support the Multi Agency Coordination Center (MACC), City Emergency Operation Centers (EOC) and Family Assistance Centers (FAC) during times of emergency activation.

Prerequisites:
None

FEMA Student ID REQUIRED at registration
To obtain a FEMA Student ID, please visit: https://cpd.dhs.gov/femasid/register

For questions or to register for any of the above courses, please email the desired class dates to Misty Richardson at richardsonm@clarkcountynv.gov

<table>
<thead>
<tr>
<th>Class</th>
<th>Feb</th>
<th>Mar</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Oct</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICS 100</td>
<td>3/1 @</td>
<td>4/5 @</td>
<td>5/3 @</td>
<td>6/7 @</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:30</td>
<td>8:30</td>
<td>8:30</td>
<td>8:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICS 200</td>
<td>3/1 @</td>
<td>4/5 @</td>
<td>5/3 @</td>
<td>6/7 @</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13:00</td>
<td>13:00</td>
<td>13:00</td>
<td>13:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICS 700</td>
<td>3/22 @</td>
<td>4/26 @</td>
<td>5/24 @</td>
<td>6/28 @</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8:30</td>
<td>8:30</td>
<td>8:30</td>
<td>8:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.A.R.T.</td>
<td>2/22 @</td>
<td>3/22 @</td>
<td>4/26 @</td>
<td>5/24 @</td>
<td>7/2 @</td>
<td>8/8 @</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td>13:00</td>
<td>13:00</td>
<td>13:00</td>
<td>13:00</td>
<td>8:00</td>
<td>8:00</td>
<td>Mesq</td>
<td>EOC</td>
<td>NV</td>
<td></td>
</tr>
<tr>
<td>MACC/EOC 101</td>
<td>2/22 @</td>
<td>3/22 @</td>
<td>4/26 @</td>
<td>5/24 @</td>
<td>7/2 @</td>
<td>8/8 @</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td>13:00</td>
<td>13:00</td>
<td>13:00</td>
<td>13:00</td>
<td>8:00</td>
<td>8:00</td>
<td>Mesq</td>
<td>EOC</td>
<td>NV</td>
<td></td>
</tr>
</tbody>
</table>

Class Hours:
ICS 100 – 3 Hours: 0830-1130
ICS 200 – 3 Hours: 1300-1600
ICS 700 – 3 Hours: 0830-1130
P.A.R.T. – 2.5 Hours: 1300-1530
MACC / EOC 101 4 Hours 0800-1200

Jan – June 2019 Locations:
Multi Agency Coordination Center (MACC)
Clark County Fire Station 18
575 E. Flamingo Rd, Las Vegas, NV 89119

MACC/EOC 101
July 2, 2019 EOC – 240, S. Water St. Henderson, NV 85015
August 8, 2019 EOC - 751 Sauer Dr. Las Vegas, NV 89128

Invite a Ham friend to join the Las Vegas Repeater Association!
Clark County Nevada ARES / RACES

“Clark County Amateur Radio Emergency Service (ARES) and Radio Amateur Civil Emergency Service (RACES) is a team of Amateur Radio operators licensed by the Federal Communications Commission (FCC), who have voluntarily agreed to utilize their skills and occasionally their equipment for public service communications in support of government and non-governmental entities.”

The Clark County Nevada ARES®/RACES August training meeting was held Saturday, August 10th, at 09:00 AM at the Clark County Government Center, Training Room 3.

Steven Deveny KF7WGL reports the topic was the ARES® Standardized Training Plan and the ARES® Emergency Communicator Individual Task Book. These two items are now a reality for all ARES Emergency Communicators in their work with served agencies.

In addition, information was presented on the new ARRL EC-001 “Introduction to Emergency Communication,” and ARRL EC-016 “Public Service and Emergency Communications Management for Radio Amateurs.” The presentation provided a look behind the scenes on what ARRL EC-001 volunteer mentors do. Also included in this presentation were suggestions for those planning to take the Federal Emergency Management Administration (FEMA) online classes, and emergency communication resources that responding Amateur Radio operators should consider carrying in their ‘go bag.’

Glenn Hale KB7REO, ARRL Section Emergency Coordinator
Announcement at 2019 NVCON

“My last official duty as Nevada Section Emergency Coordinator (SEC) was at the NVCON Amateur Radio Emergency Service (ARES) Forum. John KD7NHC will be the new SEC.

This decision was made based solely on my time availability for the position given the new ARES Strategic Plan changes. I am still working from 9:00 am to 7:00 pm each day. Management of the data base members, calendar and checking approval of participation hours just added to my work load. In addition I haven’t had time to do any FEMA class studying.

I will be available to John during the transition. I will continue to assist the Section with HF ARES exercises and any assistance to District Emergency Manager (DEM). I will also host and coordinate the Tonopah, Nevada Leadership Conference.

I have enjoyed working as SEC over these past several years and wish everyone the best in State.”

73

Glenn KB7REO
kb7reo@arrl.net
Support Las Vegas Repeater Association When You Shop

In March 2018, LVRA became a registered 501c(3) charity on Amazon Smile. Amazon donates 0.5 percent of all eligible purchases to LVRA when members use Amazon Smile to make purchases. **LVRA has received $82 through member purchases** as of May 2019. LVRA members are reminded to make Amazon Smile for their online shopping in 2019. And remember, ‘spouse purchases’ are included! So... ‘Let’s get busy!”

Thank you to everyone who supports the LVRA with their purchases.

To use Amazon Smile, you must use your web browser (not the Amazon app) and go to smile.amazon.com. Search for ‘Las Vegas Repeater Association’, select ‘LVRA’ as your charity, and start shopping. LVRA will then receive quarterly deposits direct from Amazon.

---

List Your Items for Sale or Trade in the “LVRA News”

Consider advertising your unwanted Ham equipment with LVRA. Advertisements received by the first Friday of the month will be included in one newsletter issue. Include an email address or telephone number.

---

LVRA News Deadline Reminder

A reminder regarding the deadline for contributions for the ‘LVRA News.' Contributions are due by the **first Friday of the month**. The deadline for the August issue is **Friday, September 6th**. Work takes place on the newsletter the following Saturday and is then sent to the LVRA board for review and distribution, no later than the weekend before the monthly meeting. The timely submission of articles and photos is appreciated and serves to enhance the image of the club with ‘external audiences.’ Distribution of the August issue of the **LVRA News** has been delayed due to vacation travel.

Our members are reminded that contributions, photographs of club activities and suggestions are encouraged and welcome. Today, almost everyone carries a camera with ‘smartphones.’ Documenting club activities enhances the enjoyment of reading our newsletter, and provides a record of our club’s activities.

The ‘Las Vegas Repeater Association News' features member Ham equipment to list for sale or trade.

My sincere thanks to all LVRA members and friends of our club who continue to support the ‘LVRA News’ by providing news and items of interest to the ‘LVRA News.’ - **Martin Reid N6QU**
Las Vegas Repeater Association
July 2019 Membership Meeting

LVRA Members (and dreaded ‘smiley face’ balloons) gather at Winchell’s for the July meeting of the Las Vegas Repeater Association
(Photos courtesy of NX7R)
United States Institute of Standards and Technology
Radio Station WWV

The National Institute of Standards and Technology Radio Station WWV will celebrate the 100-year anniversary of its call letters on October 1, 2019. WWV is not only one of the world’s oldest continuously operating radio stations, but also one of the oldest scientific and technical services provided by the United States government.

The National Institute of Standards and Technology (NIST) was founded in 1901 and is now part of the U.S. Department of Commerce. NIST is one of the nation's oldest physical science laboratories. Congress established the agency to remove a major challenge to U.S. industrial competitiveness at the time—a second-rate measurement infrastructure that lagged behind the capabilities of the United Kingdom, Germany, and other economic rivals.

From the smart electric power grid and electronic health records to atomic clocks, advanced nanomaterials, and computer chips, innumerable products and services rely in some way on technology, measurement, and standards provided by the National Institute of Standards and Technology.

Today, NIST measurements support the smallest of technologies to the largest and most complex of human-made creations—from nanoscale devices so tiny that tens of thousands can fit on the end of a single human hair up to earthquake-resistant skyscrapers and global communication networks.

NIST radio station WWV broadcasts time and frequency information 24 hours per day, 7 days per week to millions of listeners worldwide. WWV is located near Fort Collins, Colorado, about 100 kilometers north of Denver. The broadcast information includes time announcements, standard time intervals, standard frequencies, UT1 time corrections, a BCD time code, and geophysical alerts.

Broadcast Frequencies
WWV operates in the high frequency (HF) portion of the radio spectrum. The station radiates 10 000 W on 5 MHz, 10 MHz, and 15 MHz; and 2500 W on 2.5 MHz and 20 MHz. Each frequency is broadcast from a separate transmitter. Although each frequency carries the same information, multiple frequencies are used because the quality of HF reception depends on many factors such as location, time of year, time of day, the frequency being used, and atmospheric and ionospheric propagation conditions. The variety of frequencies makes it likely that at least one frequency will be usable at all times.

Antennas
The WWV antennas are half-wave vertical antennas that radiate omnidirectional patterns. There are antennas at the station site for each frequency. Each antenna is connected to a
Antennas (continued)
single transmitter using a rigid coaxial line, and the site is designed so that no two coaxial
towers are used. Each antenna is mounted on a tower that is approximately one half-wavelength
tall. The tallest tower, for 2.5 MHz, is about 60 m tall. The shortest tower, for 20 MHz, is
about 7.5 m tall. The top half of each antenna is a quarter-wavelength radiating element.
The bottom half of each antenna consists of nine quarter-wavelength wires that connect to
the center of the tower and slope downwards to the ground at a 45 degree angle. This
sloping skirt functions as the lower half of the radiating system and also guys the antenna.

Modulation
The signals broadcast by WWV use double sideband amplitude modulation. The modulation
level is 50 percent for the steady tones, 50 percent for the BCD time code, 100 percent for
the second pulses and the minute and hour markers, and 75 percent for the voice
announcements.

Experimental 25 MHz WWV Broadcast
WWV has resumed broadcasting on 25 MHz on an experimental basis. The broadcast
consists of the normal WWV signal heard on all other WWV frequencies, at the same level
of accuracy.

Current 25 MHz Broadcast Specifications
Schedule: typically continuous. As an experimental broadcast, the 25 MHz signal may be
interrupted or suspended without notice. Radiated Power: 2.5 kW, antenna: half-wave
vertical dipole.

Listener comments and reception reports may be emailed to: wvv@nist.gov, or sent via
postal mail to: National Institute of Standards and Technology, Radio Station WWV, 2000 E.
County Rd. 58, Fort Collins, CO 80524

Military Auxiliary Radio System (MARS)
and U.S. Department of Defense (DoD) Exercises
Beginning April 19, 2019, Radio Stations WWV and WWVH will be announcing upcoming
and current MARS and DoD exercises.

Founded in 1925, MARS is an organization established by DoD that trains volunteer
Amateur Radio operators to provide contingency high-frequency (HF) radio communications
assistance in times of natural disasters and other urgent situations. MARS volunteers also
assist DoD by providing humanitarian assistance and disaster relief, and morale and
welfare communications.

The MARS exercises will take place several times per year, on a regional and nationwide
basis. The WWV and WWVH announcements will provide information to Amateur Radio
participants regarding the purpose, dates, times and locations of the exercises and other
information. WWV will air MARS announcements on the 10th minute of each hour, and
WWVH will use the 50th minute. The announcements will air for about two weeks, prior to
and during each exercise.

For more information about MARS, see: http://www.usarmymars.org/home/history-of-
mars and https://www.mars.af.mil/. MARS exercise participants are directed to
www.dodmars.org.
Celebrate 100 years of WWV 1919-2019

The Northern Colorado Amateur Radio Club and the WWV ARC are preparing to operate a special event radio station, WW0WWV, to commemorate the 100th anniversary of radio station WWV this fall, operating from September 28 through October 2, 2019.

The National Institute of Standards and Technology (NIST) is planning a recognition ceremony at WWV on October 1, 2019. Nine weeks until we go on the air the evening of September 27.

The goal is to make as many U.S. and world-wide contacts during the 120-hour period as possible, using multiple bands and multiple modes on at least 4 simultaneous transmitters. Many operator hours will be required and volunteer operators are encouraged to apply. Many time slots have been filled. We still have a few open CW slots on Tuesday October 1 and Wednesday, October 2, if interested.

WW0WWV will also operate a 5th “Get On The Air” station for facilitating school, museum, and special contacts over the 5 days of operation. Our efforts have been helped immensely by loans of equipment from Elecraft, Flex Radio, and SteppIR, as well as tremendous support being provided by Rocky Mountain Ham, the Colorado Civil Air Patrol, and local club members.

Visit our Facebook (@WWV100) and Twitter (@WWV_100) sites and follow us on social media! We welcome volunteers and encourage you to complete a volunteer application and join the project.

National Park Service, Ham Radio Groups Celebrate International Lighthouse Weekend

Park staff and members of both the Carteret County Amateur Radio Society and The Outer Banks Repeater Association will have Ham radios set up at Bodie Island, Cape Hatteras, and Cape Lookout Lighthouses to communicate over the air-waves with other participating lighthouses and lightships from around the world.

The International Lighthouse and Lightship Weekend attracts over 500 lighthouse entries located in over 40 countries. Today, it is one of the most popular international amateur radio events in the world.

Cape Hatteras National Seashore and Cape Lookout National Seashore are part of the National Parks of Eastern North Carolina, a collaborative of five parks that share resources and support each other.

Ham radios will be set up in the vicinity of the respective lighthouses’ Keepers Quarters. Visitors are encouraged to interact with the ham radio operators and listen in as they communicate with other lighthouses and lightships.

Cape Hatteras National Seashore and Cape Lookout National Seashore will celebrate International Lighthouse and Lightship Weekend on Saturday, August 17 and Sunday, August 18 from 9 AM to 3 PM.
Images from NVCON 2019:

ARRL Section
Emergency
Coordinator
Glenn Hale
KB7REO, ARRL
Section Manager
John Bigley
N7UR, and
ARRL Assistant
Section Manager
Elizabeth Bigley
KD7RIN prior
to the Emergency
Manager’s
Meeting.

Anthony Marcin
W7XM prior to
his well-attended
presentation on
Digital Mobile
Radio.

The ARRL Supports Amateur Radio
“Something New”
Gary Hartman  KK7LV, LVRA Past President

“Transmitter Localization”

The May / June issue of “QEX” includes an article of interest regarding identifying the location of transmitters. The article details the use of Time Difference of Arrival (TDOA) System for Transmitter Localization. It is a system of using 3 or more receivers in a city located at different locations. It is certainly not a new concept but the discussion of receiver sensitivity and time differences could make for some interesting discussion about how we perform transmitter hunting.

This can certainly open a dialogue and inform us of other techniques and abilities. For me, the mention of receiver sensitivity lends a lot of Amateur Radio T-Hunts. As we know, many of the ideas we already use like, directional antennas and attenuators. Are we missing other opportunities?

A google search of TDOA will provide a wide variety of information and context into this fascinating technology.

https://github.com/steve-m/kalibrate-rtl
https://github.com/mutability/librtlsdr/tree/async-rearrangements
https://github.com/steve-m/librtlsdr
www.panoradio-sdr.de
https://github.com/DC9ST

News From the Virgin Valley Amateur Radio Club

Since Field Day, it has been rather quiet here in Mesquite. Two weeks ago the Virgin Valley Amateur Radio Club (VVARC) conducted another VE exam and passed two new Amateur Radio Technician Class licensees, with help from Craig Fabbi from the MOAPA Club.

We continue to support the Southern Utah Roundtable SSB Net on Sunday evenings plus our Monday Net and the Las Vegas Repeater Association Wednesday Evening Net.

Next February 7 - 9, 2020 the VVARC will once again be supporting the 'Ultra 100 Mile Run' in the desert. There is also a possibility of a 120 mile run up on Flat Top Mesa in March 2020, but the BLM permit for the race hasn’t been issued yet.

73,
Johnny K7ZZQ
Las Vegas Repeater Association — Membership Information

The Las Vegas Repeater Association (LVRA) owns and operates VHF and UHF Amateur Radio repeaters throughout Southern Nevada. LVRA is registered as a nonprofit corporation in the State of Nevada and prides itself in offering public service with open repeaters as well as a closed UHF system that is always available for emergency communications. Our membership is active in all aspects of Amateur Radio including HF operation, ATV, Packet Radio, APRS, ARRL field support and local frequency coordination. The mainstay of our club is a network of UHF repeaters that are always linked together, permitting Amateur Radio Operators on one repeater to talk and be heard simultaneously on other repeaters, much the way an intercom works.

A prospective LVRA member needs to be sponsored by a member who has been a member in good standing for at least one year. It is important to get to know a current member to learn what our club is about. We are always interested in attracting people who are active in Amateur Radio and willing to make a contribution to the hobby and our club in some manner. We welcome prospective members who are active, can regularly attend our monthly meetings, and are willing to pitch in when the need arises. If you are interested in joining, contact an LVRA member. Scan our frequencies as listed at www.WA7HXO.us. Learn what we’re about. Annual dues are currently $60 and subject to change. Our membership is limited to 60 families.

If this sounds interesting to you, please make the effort to get to know us. We enjoy participating in the many facets of Amateur Radio, and have fun working with Hams who share similar interests. To apply for membership, ask any member for an application, complete the information, and either e-mail the completed application to ‘membership@wa7hxo.us’ or mail to P.O. Box 72732, Las Vegas, Nevada 89170-2732.
Las Vegas Repeater Association, Inc  
PO Box 72732, Las Vegas, Nevada 89170-2732  

Membership Application

(Please Print Legibly)

[ ] New Member (Attach copy of license)    [ ] Renewal    [ ] Updated Info

Name_________________________________________ Application Date_____/_____/_____

Call Sign_________________________ License Class_________ Expiration Date_____/_____/_____

Are you an ARRL Member? [ ] Yes    [ ] No  How long in Amateur Radio? _____ years

Home Address________________________________ City_______________St___Zip__________

Mailing Address________________________________ City_______________St___Zip__________

Home Telephone(____)__________________ Work Telephone(____)__________________

Cellular/Pager(____)__________________ E-mail_____________________________________

Occupation___________________Employer_________________________________________________________________

[ ] Family Membership

Name_________________________ Call_________ License Class_________ Relation______________

Name_________________________ Call_________ License Class_________ Relation______________

Name_________________________ Call_________ License Class_________ Relation______________

Other Radio Club affiliations (past & present)_______________________________________________

Positions held/or currently hold in Amateur Radio organizations____________________________

What Frequencies can you operate?________________________________________________________

What Modes can you operate?____________________________________________________________

Do you have a four wheel drive vehicle?____ On what committee can you serve?______________

What can you offer the club?____________________________________________________________________

_____________________________________________________________________________________

Annual dues are $60 per year. Dues are the same for an individual or family membership.
I agree to abide by the rules, regulations and By-Laws of the Las Vegas Repeater
Association, Inc.

Signature____________________________________ Recommended By_______________________