



INDIAN
RIVER ARC

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FLORIDA 32923-7285

VOLUME XLVI, NUMBER 2

SPURIOUS EMISSIONS

FEBRUARY, 2024

CLUB MINUTES

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HAPPENINGS

The [Digital Library of Amateur Radio & Communications](#) (DLARC) is now archiving issues of *QST NFL*, the newsletter of the Northern Florida ARRL Section. DLARC is a project of the Internet Archive, the not-for-profit online library. DLARC is growing to be a massive online library of the past and present of ham radio and related topics.

President Steve Luchuk, N4UTQ called the February meeting to order at 7:15 PM. Following the Pledge of Allegiance, Steve called for visitors; there were none.

President's Report: Steve announced that next Saturday, February 24 there will be a Simplex Exercise. It starts at 9:00 AM on the usual frequency of 147.42 MHz. Steve also mentioned that the Titusville radio club will hold its annual tailgate on Saturday, March 23 starting at 7:00 AM. He also added that last Saturday was the monthly QRP activity, this time at Tom Statham Park off US1 on Port St. John. Viron N4VEP then said that he worked 10m and that the band was open to Europe and he heard stations from several countries but could not work any of them, although another participant using CW worked 10 stations.

Treasurer Report: The month started with \$1475.25 in the checking account and ended with \$1882.25 after \$407.00 in dues were added. The Equipment Fund is stable at \$1903.65. The Treasurer Report was approved for audit.

Results of 2023 National Household Survey on Disaster Preparedness. Since 2013, FEMA has conducted the National Household Survey on Disaster Preparedness. This survey of people from across the United States gauges the nation's disaster preparedness actions, attitudes, and motivations. You may find survey results [here](#).

Next, the January, 2024 minutes were approved.

Technical Committee Report: Dave KUOR mentioned that a monitor at the church station broke and had to be replaced. He said that the 145.37 MHz repeater timer issue so far remains stable, but he still plans to address the issue. All other club equipment is working well. Dave suggested that those who have the hamshack.com system must use it or be disconnected by that agency. He recommended that during the next Simplex Exercise on Saturday the club should activate a hamshack conference call so that the club doesn't lose its conference account. Dave also said that the ARES group wants to implement a new high speed digital communication protocol in the county that uses SHF frequencies and they suggested using the church EMCOM station as a node. This is a line-of-sight frequency and would require high gain antennas to succeed. The problem is complex and will require planning and coordination to be implemented.

Following the club business, Steve gave a presentation on

lightning. He explained what lightning is, how it develops and gave facts on the physical qualities of lightning: its massive charge of tens of thousands of kilovolts and the temperature generated, estimated to be 5×10^6 C, much hotter than the sun. Steve showed multiple pictures of lightning strikes and pictures of damage caused by lightning. He then described other types of lightning, like those created by volcanic eruptions and that develop due to the dust particles ejected by the volcano. Steve showed pictures of this type of lightning. He also talked about ball lightning, a rare form of lightning that can linger for several seconds, and he showed pictures demonstrating this phenomenon. Finally, he showed pictures of *sprites*, a form of lightning that occurs in the mesosphere above thunderstorms and produces a red light. These are now thought to originate in the upper levels and spark down into the thundercloud.

Following the presentation, the meeting adjourned at 8:19 PM.

Respectfully submitted,

Armando Delgado, KN4JN, Secretary

teur radio license JS1YMG for LEV-1, which has been transmitting Morse code on 437.41 MHz since January 19. The probe uses a 1 W UHF antenna with circular polarization and is transmitting "matters related to amateur business."

Errata to the 2024 - 2028 Amateur Extra-Class Question Pool Released. The National Conference of Volunteer Examiner

The Japan Aerospace Exploration Agency (JAXA) successfully landed their Smart Lander for Investigating Moon (SLIM) on January 19, 2024. Just before touchdown, SLIM released two small lunar surface probes, LEV-1 and LEV-2. LEV-2 collects data while moving on the lunar surface and LEV-1 receives the data.

The JAXA Ham Radio Club (JHRC), JQ1ZVI, secured ama-

HAPPENINGS

Coordinators (NCVEC) Question Pool Committee (QPC) has released errata for the new 2024 - 2028 Element 4 Extra Class Question Pool, which goes into effect on July 1. The errata includes minor question changes, the removal of one question, and one modified graphic. These updates are reflected in the new downloadable files, dated January 31, 2024. The ARRL VEC advises the community to regularly check the NCVEC website at <https://www.ncvec.org/> for updates to the question pools.

On January 30, 2024, Senators Richard Blumenthal (CT) and Roger Wicker (MS) introduced a bill in the Senate to amend the Communications Act of 1934. The bill, labeled S.3690 and named the "Amateur Radio Emergency Preparedness Act", aims to eliminate homeowner association land use restrictions that prohibit, restrict, or impair the ability of an Amateur Radio Operator to install

and operate amateur station antennas on residential properties they own. The preamble to the bill summarizes its intent:

1) More than 770,000 amateur operators in the United States are licensed by the Federal Communications Commission (in this section referred to as the "Commission") in the amateur radio services, and, by treaty, amateur operators licensed by other countries are authorized to operate within the United States.

(2) Amateur radio, in addition to providing life-saving emergency communications at no cost to taxpayers, provides a fertile ground for technical self-training in modern telecommunications, electronics technology, and emergency communications techniques and protocols.

(3) There is a strong Federal interest in the effective performance of amateur stations established at the residences of amateur operators. Among other reasons, when an emergency arises, it can be too late, and too dangerous, to erect an effective antenna. However, amateur stations have been shown to be

frequently and increasingly precluded by unreasonable private land use restrictions, including restrictive covenants.

(4) Commission regulations have for more than 3 decades prohibited State and local regulation of amateur station antenna structures that precludes or fails to reasonably accommodate amateur service communications, or that does not constitute the minimum practicable regulation to accomplish a legitimate State or local purpose. The policy of the Commission has been and is to require States and localities to permit erection of a station antenna structure at heights and dimensions sufficient to reasonably accommodate amateur service communications. The Commission struck an appropriate balance by enabling effective use of the amateur service without burdening localities and adjoining properties.

5) The Commission has sought guidance and direction from Congress with respect to the application of the Commission's limited preemption policy regarding amateur service communications to private land use restrictions, including restrictive cove-

nants.

(6) In section 207 of the Telecommunications Act of 1996 (47 U.S.C. 303 note; Public Law 104-104), Congress provided guidance, direction, and authority to the Commission by directing the Commission to promulgate regulations that have pre-empted all private land use restrictions applicable to exterior communications facilities that impair the ability of citizens to receive television broadcast signals, direct broadcast satellite services, or multichannel multipoint distribution services, or to transmit and receive wireless internet services.

(7) To further the public interest benefits that amateur radio brings to society, private land use restrictions that prohibit, restrict, or impair amateur operators from operating, installing, or maintaining effective outdoor amateur station antenna structures should also be preempted.

ON THE AIR

75th Anniversary of MerCI Train Boxcar Feb 10-Feb 29, 0000Z-0000Z, NV7AL, Las Vegas, NV. American Legion Paradise Post 149 and 40&8 Voiture 306. 7.074 7.250 14.074 14.250. QSL. Robert Bencsko, 2548 Fort Lauderdale Dr, Las Vegas, NV 89156. This special event station is set up to raise awareness of the 75th Anniversary of 40&8 "MERCI Train Boxcar" Please check out the QRZ page. The 24th and 25th may be operating on location of the Nevada boxcar in Boulder City, NV Watch for us on DX Summit QSL with SASE to AD7J <https://www.qrz.com/db/NV7AL>

American Legion 102nd Birthday Mar 8-Mar 10, 1500Z-0300Z, K4L, Sevierville, TN. American Legion Post 104

Amateur Radio Club - AL4US. 20 Meter - 7.250 MHz 40 Meter - 14.250 MHz. Certificate. AL4US, 403 W.Main Street, Sevierville, TN 37864-4242. All Contacts can request an E-Certificate with a valid email address. tnpost104.org/al4us

16th Anniversary Solivita Car Show Mar 16, 1400Z-2000Z, N4SRC, Kissimmee, FL. Solivita Radio Club. 14.255 28.435. QSL. Solivita Radio Club, 307 Bell Tower Crossing West, Kissimmee, FL 34759. This is a non-commercial event held by our community for car enthusiasts and open to the public free of charge. <https://solivitaradioclub.weebly.com>

International Women's Day YL POTA Party Mar 8, 0000Z-2359Z, Your call, Any POTA Park (or hunt

POTA from home!). Young Ladies Radio League. All modes, any frequency within your license class. QSL. QSL to operator, contacted to receive, QSL. This is a world-wide event. Submit POTA activations to the POTA database. www.ylrl.net

ARRL International DX Contest—Phone Portion—March 2-3, 2024. This is a fun contest with a simple exchange that provides a chance for lots of DX contacts. Rules found [here](https://www.arrl.org/contests).

Timo, OH1NOA will be active as 3B8/OH1NA from **Mauritius Island**, IOTA AF - 049, 25 February - 7 March 2024. He will operate on HF Bands, CW, SSB, FT4, FT8. QSL via LOTW, ClubLog OQRS.

MADAGASCAR, 5R. Eric, F6ICX is QRV as 5R8IC from Sainte-Marie Island, IOTA AF-090, until

March 31. Activity is on 40 to 10 meters using mainly CW. This includes being active on Satellite QO-100. QSL to home call.

TONGA, A3. Bob, W7YAQ and Al, K7AR will be QRV as A31DK and A31DL, respectively, from Nuku'alofa, IOTA OC-049, from February 15 to 27. Activity will be on the HF bands. QSL via LoTW.

EASTER ISLAND, CEO. A large group of operators will be QRV as CBOZA from Robinson Crusoe Island, IOTA SA-001, from February 10 to 24. Activity will be on 160 to 6 meters, including 60 meters, using CW, SSB, RTTY, and FT8 in DXpedition mode. QSL via N200 Columbia Basin DX Club, WS7G, will celebrate **Washington's birthday** on February 21 - 24 from 0001Z to 2359Z. WS7G will operate on 14.322, 14.255, 7.222, and 7.260 MHz

Uncommon Antennas by Armando Delgado, KN4JN

In what respect antennas, most hams prefer devices that are simple, perform well, and are easy to maintain.

In the lower HF frequencies, those between 80m and 30m, generally most amateurs prefer simple wire dipole antennas, or long wire antennas. A few may choose verticals, like the GAP antenna design that does not require ground radials, or shortened verticals that require ground radials for proper performance, fed through a matching coil to match impedance. Yet, in many cases these latter antennas are not practicable due to either real estate limitations, or community restrictions.

In the old days, rhombic and horizontal loop antennas were common, but in the modern world, where most hams operate in urban settings with limited spaces and in many cases many community restrictions, these very large antennas are not feasible, and they are rarely seen. Likewise, there are many designs of amateur antennas in these frequency ranges that are not commonly used, primarily because they exceed modern limitations of real estate and space. These include the collinear and broadband arrays, the cage dipole, the bazooka, and the discone antenna. They all promise higher gain or broader band radiation, but will not fit in most amateur's real estate and are not commonly seen today.

In the higher HF bands, antennas become smaller and the ham has more variety to choose from. Still, most prefer the simple wire dipole. Those who can afford a beam antenna and who do not have HOA limitations will select a beam, mostly a multiband system.

Verticals also become more practical at these frequencies, particularly in 10m where ground plane antennas can be mounted on most roofs, or on a raised mast. During the last solar cycle 10m became practically inoperable and the once popular 10m ground plane an-

tenna just about disappeared, but with the advent of the high solar activity in the current solar cycle, that antenna may become popular again.

In the late 1940's Clarence Moore, W9LZX designed an antenna, called the quad, that became very popular, as it had directivity and gain. Basically, this antenna is a vertical loop arranged on a square or triangular supporting frame. This antenna could be a single loop or multiple loops of different sizes forming an array. There was even a design, called a spider antenna that consisted of concentric loops covering several bands. As can be imagined, the physical support for this antenna required some engineering and it provided a large wind load that made it easily damaged. In time, this design was replaced by the beam antennas and they are rarely seen today.

Currently, there is a spider type antenna called the Hexbeam that consists of hexagonal concentric wire loops arranged horizontally. The mechanical support for this antenna is simpler than for its predecessor, but it still has a high wind load, requires a relatively large space and is not very popular.

The January, 2024 issue of QST has an article by Phil Hejtmanek, K9UC, in which he illustrates a Sterba curtain antenna for 10m. The Sterba consists of two parallel dipoles at a half-wave separation, interconnected by 180° out-of-phase stubs.

A simple 10m wire dipole would be about 15 ft in total length. This Sterba is 66.4 ft long and 16.6 ft wide. To operate properly, this antenna must maintain its configuration, which means a complex support system. Although the Sterba has a theoretical gain of about 8 dBd and is directional,

it is doubtful that it will become popular.

In the VHF range of frequencies, 6m stands alone in that those who operate that band generally use beam antennas, since at those frequencies the physical size of the antenna generally is not a problem.

The upper VHF and UHF frequencies generally are used with repeaters and the most common antennas are vertical. Those who practice CW and SSB in these bands will use generally beam antennas horizontally polarized.

In the SHF frequency realm, where few hams dare to go, the common antenna used is the parabolic dish. This antenna design at these frequencies provide excellent gain and directivity for those narrow beam signals.

There is, however, a new antenna design for these frequency ranges that is small, practicable, and that has a reasonable high gain: the Vivaldi antenna. It was invented by Peter Gibson in 1978 and since then has gradually gained popularity in the commercial world, but not yet in the amateur world.

The Vivaldi is a tapered slot, traveling wave antenna, similar to a horn antenna but two dimensional, with a wide frequency range and a high gain, estimated to be 10 dBi.

For more information on the Vivaldi antenna, jemengineering.com and antenna-theory.com/antennas/aperture/vivaldi.php have more details.

The repertoire of amateur antennas is quite large, but hams will generally settle for the simpler designs.



W1AW CW PRACTICE TRANSMISSIONS

7 PM EST Slow CW : 5-15 WPM
Mon, Wed, Fri

7 PM EST Fast CW: 35-10 WPM
Tue, Thu

FREQUENCIES:

1.8025, 3.5815, 7.0475,
14.0475, 18.0975, 21.0675,
28.0675, 50.350, 147.555



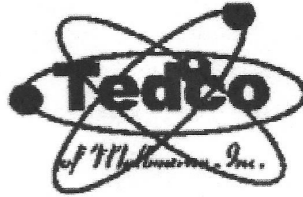
Editor's Note:

Send comments about the Newsletter or to contribute information or articles to the Editor's email address:

olardelga@aol.com.

ACTIVE REPEATERS INCLUDING DMR, PACKET & SIMPLEX							RACESBRE0008 REV B
Repeaters & Packet are open for all licensed amateur radio operators to use.							
OUTPUT FREQ.	STD. NAME	OFFSET	TONE/CC	CALL	LOCATION	OWNER	NOTES
WBFM							
145.130	130 VB	-600	107.2	AB4AZ	VERO BEACH, INDIAN RIVER	AB4AZ	
145.350	350 SC	-600	103.5	K4OSC	St. CLOUD, OSCEOLA	K1XC	Radio Science Club, FI Club
145.370	370 CO	-600	156.7	W2SDB	COCOA-BROADCAST CT.	IRARC	Yaesu Repeater replaced with Bridgecom FM
145.470	470 ME	-600	107.2	K4HRS	MELBOURNE- RIALTO PL.	HIRAC	
145.490	490 TI	-600	100.0	WN3DHI	TITUSVILLE SR405 & Fox lk rd.	WN3DHI	
146.610	610 ME	-600	None/107.2	W4MLB	MELBOURNE- HOLMES HOSP	PCARS	Tone Downlink only
146.625	625 MM	-600	100.0	KE4NUZ	NW of MIMS NEAR HARRISON RD.	KE4NUZ	Limited coverage
146.775	775 MM	-600	100.0	K4KSC	NW of MIMS Hog Valley , W of I95	K4KSC	
146.850	850 ME	-600	None/107.2	W4MLB	PALM BAY- Port Malabar Rd.	PCARS	Tone Downlink Only
146.880	880 RO	-600	107.2	W4NLX	ROCKLEDGE- WUESTHOFF HOSP.	IRARC	FUSION Repeater replaced with Bridgecom F
146.895	895 PB	-600	107.2/107.2	K4EOC	PALM BAY- DeGroot Library	EOC	TSQL as of 5/2018
146.910	910 TI	-600	107.2	K4KSC	TITUSVILLE Water Tower on south st.	TARC	
146.940	940 RO	-600	None	K4GCC	ROCKLEDGE Carver Rd.WLRQ Tower	LISATS	
146.970	970 TI	-600	107.2	K4KSC	TITUSVILLE-T'VILLE TOWERS	TARC	
147.075	075 SC	+600	107.2/107.2	K4EOC	SCOTSMOOR Near US1-Aurantia Rd	EOC	TSQL as of 5/2018 Relocated 4/2019
147.135	135 RO	+600	107.2/107.2	K4EOC	ROCKLEDGE-EOC	EOC	TSql as of 5/2018
147.240	240 DE	+600	123.0	KV4EOC	DELAND	VARES	
147.255	255 PB	+600	107.2	K4DCS	Near Babcock & Palm City S City limi	PBARC	
147.330	330 TI	+600	107.2	K4NBR	TITUSVILLE-PARRISH HOSP.	NBARC	
147.360	360 TI	+600	107.2	N4TDX	TITUSVILLE-PARRISH HOSP.	NBARC	DSTAR Gateway in work
442.850	850TI4	+5000	107.2/107.2	N4TDX	TITUSVILLE-PARRISH HOSP.	NBARC	TSql;FUSION/WBFM/WIRES-X
444.325	325ME4	+5000	107.2	K4DCS	MELBOURNE-TRINITY TWRS-E	PBARC	
444.375	CNLBRE	+5000	107.2		195 FDT Twr 1/2 Mile N of County Lin	SARNET	"SARNet Sebastian Repeater"
444.425	425ME4	+5000	107.2	W4MLB	MELBOURNE- RIALTO PL.	PCARS	
444.525	525RO4	+5000	103.5/103.5	K4EOC	ROCKLEDGE-EOC	EOC	TSql; VOICE/NBEMS
444.650	CNMBRE	+5000	107.2	W4NLX	COCOA-FHP SR520	IRARC	"SARNet Cocoa Repeater"
444.750	750TI4	+5000	156.7/156.7	N4TDX	TITUSVILLE- TGO WATERTOER 230 ft.	NBARC	TSql
444.875	875MI4	+5000	107.2	KC2UFO	MERRITT IS. COURTNEY SPRS.	K4UJM	
444.925	925KS4	+5000	131.8/131.8	N1KSC	KENNEDY SP. CTR.-VAB	KSCARC	FM Tsql ; P25 capable
224.120	120CO2	-1600	123.0	AA4CD	COCOA Broadcast Ct.	AA4CD	
DMR							
444.150	150TI4	+5000	CC1	K2JO	TITUSVILLE-PARRISH HOSP.	KC2CWT	DMR FL
444.575	575CO4	+5000	CC3	K4DJN	COCOA BROADCAST CT.	AA4CD	DMR Brandmeister
444.675	675TI4	+5000	CC3	K4DJN	TITUSVILLE-T'VILLE TOWERS	AA4CD	DMR Brandmeister
ATV							
427.250	250CO4			K4ATV	COCOA BROADCAST CT.	LISATS	NTSC INPUT 439.25 See www.lisats.org
PACKET STATIONS:							
145.090	W12KPB	WINLINK		W2PH-10	PALM BAY-W2PH QTH	PBARC	WINLINK GATEWAY
145.090	090 ME	PCARS		W4MLB-2	MELBOURNE-TRINITY TWRS-EAST	PCARS-K1YON	BBS W4MLB-4 EASTNET
145.770	770 PB	SEDAN		K4EOC-7	PALM BAY	N2DB	http://www.fla-sedan.com
145.770	770 TI	SEDAN		KD4MWO-4	TITUSVILLE	N2DB	INACTIVE NODE
BREVARD RACES/ARES SIMPLEX							
146.480	CENTX	SIMPLEX		N/A	CENTRAL REG	IRARC	CENTRAL NET SIMPLEX BACKUP
146.550	SOUTHX	SIMPLEX		N/A	SOUTH REGION	PBARC	SOUTH NET SIMPLEX BACKUP
146.580	MLBX	SIMPLEX		N/A	MELBOURNE REGION	PCARS	MELBOURNE REGION NET SIMPLEX BACKUP
146.595	NORTHX	SIMPLEX		N/A	NORTH REGION	TARC	NORTH NET SIMPLEX BACKUP
147.540	EOCROX	SIMPLEX		N/A	RACES Bay	EOC	EOC VOICE/NBEMS
SIMPLEX							
146.520	CALL52	SIMPLEX		N/A	Station to station, anywhere		VHF national simplex calling freq
146.490	TAC A	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
146.560	NBRX	SIMPLEX		N/A	NBARC -Club/Parrish Hosptial Activities		
146.580	TAC B	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
147.420	TAC C	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
147.420	IRARCX	SIMPLEX		N/A	IRARC "FUN NET" and CLUB ACTIVIES		
147.450	TAC D	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
147.570	TAC E	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
446.000	CALL46	SIMPLEX		N/A	Station to station, anywhere		UHF national simplex calling freq
446.500	TAC A4	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
446.600	TAC B4	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
446.700	TAC C4	SIMPLEX		N/A	Station to station, anywhere		Standardized tactical option since 2006
2 Meter & 70 cm WBFM repeaters use CTCSS; if one frequency is listed it is for uplink (user Tx) , if two are listed the repeater is set for uplink and downlink (user Tx and user Rx)							
Repeater Call Signs in bold are owned by Brevard Emergency Management and are maintained by the county. Repeater Trustee: Ron K2RJ							
NOT ON AIR							
Standard Names in Bold are recommended for Emergency Radio in Brevard *							
PBARC= Palm Bay Amateur Radio Club (Replaces DCS for South Brevard) See Ed W2PH for more info							

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HITACHI
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ICOM RADIO

JSC WIRE
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KOSS
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LITTELFUSE
LOWELL

M & G
MALLORY
MACOM
MAXON
MIDLAND
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