



**INDIAN
RIVER ARC**

P.O. BOX 237285, COCOA
FLORIDA 32923-7285

VOLUME XLIII, NUMBER 2

SPURIOUS EMISSIONS

FEBRUARY, 2022

CLUB MINUTES

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ARMANDO DELGADO
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HAPPENINGS

FEMA's Emergency Management Institute (EMI) will offer the [K0428 CERT Train-the-Trainer course](#) online. This course prepares participants to deliver FEMA's CERT Basic Training course. The audience for this course includes those who will have or currently have either of the following responsibilities: serves as the course manager for the CERT Basic Training course or serves as a CERT Basic Training

The meeting was called to order by the president, Steve, N4UTQ at 7:15 PM. Following the Pledge of Allegiance, Steve announced that BEARS has been reconstituted.

Treasurer's Report: Checking account has \$1306.17 after a gain of \$200 from club dues. The Equipment Fund has \$1883.65. The Treasurer's Report was approved for audit. The minutes of the January, 2022 meeting were next approved.

New Business: The next simplex net will be on Saturday, February 26 starting at 9:00 AM.

Following the net, the club will hold a social at the clubhouse starting at 11:00 AM. There will be food, drinks, and Viron, N4VEP wants to test a new antenna.

The MS Walk will be on March 12 at the church in Viera where it is held every year. Dave, KU0R mentioned that the arrangements for communications have not been finalized, but that likely there will be three different routes of walkers. The plan for communications will be to use a base sta-

tion with an antenna and operate on the simplex frequency of 147.42 MHz. Dave is debating whether to bring his portable repeater to try it out.

Following the business meeting, Steve showed pictures of the Winter Field Day event. Then he proceeded with a presentation on amplifiers. He indicated that 100 watts is usually enough for most amateur activities, but there are times when an amplifier can make a difference.

These circumstances are contests, special event stations, net control operations, especially using phone in the 40 and 75 meter bands, poor band conditions, when having scheduled contacts, and during emergency operations, when getting through is critical.

Amplifiers come in tube type units and solid state ones. The tube amplifier's bigger drawbacks are the cost of the tubes and the need for 220 volts to operate. There are many different types of tubes used, but the most popular is the 3-500Z which currently costs about \$250 a piece. Among the tube amplifier models are the Heath-

kit SB 200 and SB 220, the Kenwood TL922A, the Ameritron AL-82, the Acom, that is a self-tuning amplifier, and many others.

Solid state amplifiers offer the advantage of light weight, no tuning, low drive power, running on 120 volts, including one model, the Ameritron ALS 500M that runs on 12 volts DC, but some require 220 volts to operate. Among the solid state units are the RM Italy, a very popular amplifier, the Elecraft ALS 1500 and ALS 1300, and the Ameritron ALS 1300, plus many others.

Accessories for amplifiers include an interface unit to connect to the radio, essential in older tube amplifiers, and a tuner because without a good impedance match to the antenna and the feed line, very high and dangerous voltages and currents could develop in the system while using amplifiers.

Following the fine presentation from Steve, the meeting adjourned at 8:12 PM. Respectfully submitted by Armando Delgado, KN4JN, Secretary.

course instructor. For additional information, contact Jamie "Betsy" Mauk, EMI Course Manager, at jamie.mauk@fema.dhs.gov. Please refer to the [EMI website](#) for course date availability.

From the ARRL:

Our next QSO Today Virtual Ham Expo will be held live from March

12-13, and then on-demand for 30 days afterwards. We promise an amazing learning and networking experience to help you improve your amateur radio knowledge and get exposed to new ideas, equipment, and practical techniques. No need to travel - participate from your home or office! Early Bird Tickets will go on sale February 1st, 2022, and are just \$10 (through March 6) and then \$13.50 to

the end of the on-demand period. Tickets include entry for the Live 2 day period and the 30 day on-demand period. Save on gas, lodging, and transit time to attend the QSO Today Virtual Ham Expo on March 12th and 13th. For more information go [here](#).

A new [ARRL Foundation Club](#)

HAPPENINGS

Grants program, funded by a grant from Amateur Radio Digital Communications (ARDC), will make \$500,000 available to radio clubs. The program will provide up to \$25,000 for worthy club projects. Requests for more than that will be referred back to ARDC.

Beginning in April 2022, amateur radio clubs will be able to apply for these grants by filling out a simple form on the ARRL website. The ARRL Foundation will evaluate the grant proposals. The Foundation was established in 1973 to advance the art, science, and societal benefits of the Amateur Radio Service by awarding financial grants and scholarships to individuals and organizations in support of their charitable, educational, and scientific efforts.

Electronics Notes has launched a new easy to understand tutorial video explaining SINAD. SINAD is used for specifying radio receiver

sensitivity, especially for VHF / UHF FM radios. Using SINAD, it is possible to compare different radios as the method of measurement and specification is standardized by an international body (ETSI). [The five minute long video can be seen in YouTube.](#)

Amateur Radio Digital Communications (ARDC) has continued its largesse, funding a variety of projects through individual grants. Among the latest is a nearly \$900,000 award that will permit the [Internet Archive](#) to build the Digital Library of Amateur Radio and Communications (DLARC), "an online, open-access resource that preserves the vital resources — past, present, and future — that document the history of amateur radio and communications," as the project proposal explained. Internet Archive is a nonprofit

library of millions of free books, movies, software, music, websites, and more.

The club operated Winter Field Day on a cold but beautiful Saturday, January 29, 2022 in the club house location at the River of Life Assembly of God Church on Merritt Island. Activities began at mid-morning with the hoisting of antennas to cover the desired frequencies. As usual, Viron, N4VEP did most of the hoisting with the assistance of other club members.

By noon, Steve, N4UTQ had prepared lunch items consisting of hotdogs, an excellent chili, and all the usual hotdog trimmings. Sodas and water were provided to wash down the food.

The actual contest began at 2:00 PM and soon the two operating stations were busy making contacts in 20 and 40 meters.. Ini-

tially, both stations operated phone, but later one of the stations switched to CW.

The exchange we used was 2 Indoor, South Florida. The number "2" for the number of separate stations used, Indoors because we operated from a building, not a home or outdoors, and South Florida for our ARRL section.

Although propagation was not the best, we managed to get a total of 52 contacts split evenly between CW and phone. All in an operating time of 4-5 hours.

As with all our club activities, camaraderie, good conversation and a good time were the order of the day.

Winter Field Day served as a training activity for the summer version of the event. With propagation rapidly improving, this year promises to be a good one.

ON THE AIR

JY1 Memorial Special Event

Feb 1-Feb 28, 0000Z-2359Z, N9SES, Lake Station, IN. Arab QRZ International. 14.025 14.076 14.250 21.025. QSL. Ayman Azar, 2861 Decatur Street, Lake Station, IN 46405. <https://www.n9ses.com/jy1-memorial-special-event-station> (Note: JY1 was King Hussein's of Jordan call sign. He was a very active ham for many years. He died in 1999).

2022 Speedweek/Daytona

500 Feb 16-Feb 20, 0000Z-2359Z, N4DAB, Daytona Beach, FL. Daytona Beach CERT Amateur Radio Team. 14.255 14.074 7.255 7.074. Certificate. Steve Szabo, WB40MM, Trustee, 536 Central Park Blvd., Ponce Inlet, FL 32127. n4dab@n4dab.com or www.n4dab.com

HL Hunley Commemoration and Special Event

Feb 17, 1400Z-1900Z, N4HLH, Sullivans Island, SC. Trident Amateur Radio Club. 14.262 7.262. QSL. QSL Manager, P.O. Box 60732, North Charleston, SC 29419. <https://www.tridenthams.org/hl-hunley>

Voice of America 80th Anniversary of the First Broadcast Overseas

Feb 19-Feb 21, 1400Z-2359Z, W3V, Washington, DC. Voice of America Amateur Radio Club. 3.880 7.280 14.280. Certificate & QSL. Voice of America Amateur Radio Club, 330 Independence Ave. SW, Rm 2525-croft, Washington, DC 20237-0073. Also operating W80 and W4A. See separate listings. <https://www.qsl.net/k3voa>

75th Anniversary of Decommissioning USS Tennessee (BB43)

Feb 25-Feb 26, 1422Z-1422Z, W4BSF, Huntsville, TN. Big South

Fork Amateur Radio Club - Scott County ARES. 14.250. Certificate & QSL. Big South Fork Amateur Radio Club, P.O. Box 5029, Oneida, TN 37841-5029. The Big South Fork Amateur Radio Club will operate live from the USS Tennessee (BB-43) museum in Huntsville TN. 75th Anniversary of Decommissioning. For spotting, QSL/certificate information and to learn more about the USS Tennessee see www.qrz.com/db/w4bsf or www.bsforc.com

80th Anniversary Avro Lancaster - 1st Operational Sortie

Mar 1-Mar 28, 0001Z-2359Z, GB80LAN, Luton, UNITED KINGDOM. Royal Air Force Amateur Radio Society. 14.270 14.055 14.074 3.710. QSL. See website, for QSL information, RAF Waddington, RAF Halton, RAF Cosford, RAF East Kirkby, ENGLAND. The call will be active from four different locations at three Royal Air Force Amateur Ra-

dio Club Stations Waddington, Halton, Cosford and ex RAF East Kirkby (home of Lancaster "Just Jane"). Hopefully the call will be active on all bands and modes 160m - 70cms during the event. More info on qrz.com and rafars.org. VK80LAN & VE80LAN are also hoped to be on the air. www.qrz.com/db/gb80lan

DL7BO and DJ6TF will be active as Z220 and Z21A from Zimbababwe, 3 - 20 February 2022. He will operate on 160 - 10m, CW, SSB, FT8, FT4. QSL via DJ6TF for Ukraine via UY5ZZ, LOTW. QTH - Harare, Zimbababwe. They will use 2 ICOM IC-7300 transceivers and 1kw amplifier. 18m GP for Low Bands.

The Inverted L Antenna by Armando Delgado, KN4JN

We are in the middle of winter, and along with low ambient temperatures, we also see lower atmospheric noise in the amateur bands, particularly in the lower bands. This time of the year sees increased amateur activity in the 80 meter band and particularly in the band most susceptible to atmospheric noise, the 160 meter band. Unfortunately, for most hams this band is inaccessible because of antenna limitations. Yet, it doesn't have to be that way.

Traditional antenna designs do not offer good low angle DX radiation in 160 meters for the average ham. Horizontal dipoles in this band have two significant limitations. Physically they are too large for most amateurs' real estate, and secondly, for DX activity, most hams cannot build them high enough to get a low radiation angle. The best they can achieve is an NVIS antenna with limited range. Vertical antennas provide a low radiation angle, but for 160 meters suffer from the size limitations of their dipole counterparts. Shortened verticals are possible, but they are problematic and structurally more difficult to construct, and like all compromise antennas lack efficiency.

The more practical solution to this problem is an antenna that allows low radiation angles without the need for oversized dimensions. This antenna is the inverted L, also known in the literature as a Marconi antenna because the design was first used in the early days of radio transmissions, and for good reason, since those early frequencies were very low and required physically large antennas.

As the name implies, the inverted L antenna has a vertical component and a horizontal one (Figure 1). The performance of the antenna can be simple or complex, depending on the length of the individual components of the antenna. If the vertical component is longer, the antenna performs primarily as a vertical antenna; if the horizontal component is longer, the results

vary. Either way, the antenna always exhibits both a vertical and horizontal radiation pattern; the dominant one depends on the length of the individual components. The inverted L antenna is omnidirectional, regardless of configuration.

In principle, the inverted L antenna is a vertical antenna with a top capacitive hat provided by the horizontal component. This hat also brings the impedance of the antenna to practical levels. Adding ground radials enhances the efficiency of the antenna, and like any vertical antenna, the more radials closer in length to $\frac{1}{4}$ wavelengths, the higher the efficiency; yet, radials $\frac{1}{16}$ wavelength long will work in most cases.

Like all vertical antennas, the inverted L is fed at the base of the antenna. The feed point impedance depends on the overall length of the antenna. Cut to a total length of $\frac{5}{16} \lambda$, the feed point impedance will be about 50Ω , irrespective of configuration and can be fed with coaxial cable. Likewise, the horizontal component of the antenna can be sloped without affecting the feed point impedance or the radiation angle. In restricted space circumstances, the far end of the horizontal component can be drooped without any effect on the performance of the antenna.

Inverted L antennas can be used on any band, but they are more advantageous in the lower frequencies, where they allow low radiation angles in frequencies where other common antenna designs are impractical for the average amateur.

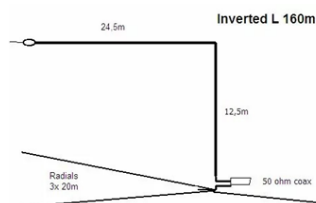


Figure 1. Typical Inverted L Antenna Design.

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



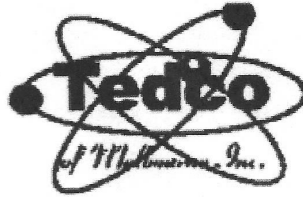
Editor's Note:

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	SCOTTSMOOR 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		I95 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.	K4UJZM	
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	WL2KPB	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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