



**INDIAN
RIVER ARC**

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

VOLUME XLIII, NUMBER 3

SPURIOUS EMISSIONS

MARCH, 2022

CLUB MINUTES

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WOAGE

NEWSLETTER EDITOR

ARMANDO DELGADO

KN4JN

The meeting was called to order by President Steve Luchuk, N4UTQ at 7:19 PM.

Following the Pledge of Allegiance, Steve stated that the club's annual report had been filed with the state.

Treasurer's Report: The General Fund has \$1326.17 and the Equipment Fund \$1883.65. The Report was approved for audit.

The minutes of the February meeting were next approved. There were no old business to discuss.

New Business:

Next, Steve brought up the MS Walk of the previous Saturday. Dave, KU0R mentioned that the radio set up showed good reception around the buildings. Unfortunately, the Walk was called off due to inclement weather.

The simplex net will be held on the last Saturday of the month, March 26. Following the net, members will gather at the club house around 11 AM for a Club House Day to enjoy good company and fine food. The plan is to operate HF digital. In other news, the March for

Babies is TBD at this time, and the JDRF will be held in Orlando this year, so the club is not planning to participate. On Saturday, March 19 the QRP group will hold an event at Manatee Cove Park on Merritt Island, starting at around 9:00 AM.

Following the business meeting, Steve gave a presentation on the history of the Heathkit Company. The company actually began building kit airplanes in the 1920's. Unfortunately, the founder died in a plane accident and later the company went bankrupt. It was purchased by a gentleman by the name of Joseph Anthony who turned it to building electronic test equipment.

It was not until 1951 that Heathkit began to offer amateur radios, the first one being the AT-1 transmitter that was coupled with the AR-3 receiver. In 1955 it introduced the DX-100, an AM/CW transmitter. In the 1960's under new management, the company introduced the HF SSB line of radios covering 80-10 meters. These came to be known as the "Collins S-line lookalikes" because they

imitated the design of that famous line of radios.

By 1965, Heathkit introduced the first transceivers, the SB-100, SB-101, SB-102, and SB-110 which became very popular. They also made single-band SSB transceivers for 80, 40, and 20 meters.

During the following years, Heathkit moved on to introduce FM transceivers, the HW-202, a 6 channel crystal-controlled radio in 1973, followed by the HW-2036 in 1975 and the HW-2021, a 1 watt HT, also crystal-controlled.

In 1975, Heathkit introduced their first computer, the Altair 8800, and in 1980 the SS 9000 solid state transceiver, a very pricey piece of equipment. Unfortunately, those later more sophisticated radios were very difficult to build as kits and in time the company lost sales to the competition and eventually went bankrupt.

The meeting adjourned at 8:26 PM

Respectfully submitted,
Armando Delgado, KN4JN
Secretary

HAPPENINGS

ARRL Field Day rules are being updated on a permanent basis starting this summer. The ARRL Programs and Services Committee recommended a number of rule changes for ARRL Field Day, which will take place this year over the June 25 - 26 weekend. Starting this year, the maximum PEP output for a transmitter used by anyone submitting a Field Day log will be **100 W**. As previously announced, 100 W is now the low

-power category limit for all ARRL and IARU HF Contests, effective January 1, 2022.

Class D (Home) stations will continue to be able to earn points for contacts with other Class D stations. The club aggregate scoring change initiated in 2020 as a temporary measure will become part of the permanent rules. In the aggregate scoring plan, the scores of individual stations are combined under the score of a

single club.

Another change, involving Rule 7.3.2 Media Publicity, has been modified. With the ease of posting via Facebook, Twitter, Instagram, and various other media websites, Field Day participants will now be required to obtain publicity, not just try to do so. Posting the details of your upcoming or ongoing Field Day activity, or your Field Day results, on a club or news media site, on

Facebook, or via Twitter and Instagram would meet the bonus criteria. Field Day 2022 Official Rules can be found [here](#)

.The [ARRL World Wide Digital Contest](#) will debut at 1800 UTC on June 4, ending at 2359 on June 5, 2022. All non-RTTY modes are permitted. Going forward, RTTY will be the sole mode for the ARRL RTTY

HAPPENINGS

Roundup, which will continue to take place in January. In broad strokes, this will be an HF – 6-meter event, on 160, 80, 40, 20, 15, 10, and 6 meters, with single-operator and multi-single entry categories. Power categories will be QRP (5 W transmitter output or less) and low-power (maximum 100 W PEP transmitter output). The exchange for the World Wide Digital Contest will be a station's four-character grid square designation. Stations may work each other once per band, regardless of digital mode. Participants will earn 1 point for each contact, plus 1 point for each 500 kilometers (310 miles) between stations.

So, a contact between stations 1,000 kilometers apart would be worth 3 points. The total score is total contact points. Details [here](#).

The Montgomery Amateur Radio Club in Maryland is offering a free online Zoom amateur radio Technician license class on seven Saturdays from March 19, 2022 through April 30, 2022 from 1:00 PM to 4:00 PM with an outdoor free test session on Sunday, May 1, 2022 8:30 AM to 11:00 AM. More information about this Zoom class is at <https://www.marccclub.org/mweb/education/classes/technician.html>

Detailed Footage Finally Reveals What Triggers Lightning

Scientists have never been able to adequately explain where lightning comes from. Now the first detailed observations of its emergence inside a cloud have exposed how electric fields grow strong enough to let bolts fly. More details [here](#).

Volunteer Monitor Program Cautions against Operating Beyond License Privileges

Many of the Advisory Notices sent out each month by the ARRL Volunteer Monitor Program go to stations heard operating outside the operator's license privileges. While some may be doing so deliberately, it seems clear that many of these reports reflect a lack of clarity

regarding the Part 97 – Amateur Radio Service rules.

Typical cases often involve operators holding Technician- or General-class amateur licenses being heard on a frequency or band not permitted by their license privileges. Most recent incidents have frequently entailed FT8 digital mode operation by Technician licensees on 20 and 40 meters. Technician licensees do not have any operating privileges on 20 meters, let alone digital privileges, and FT8 is a digital protocol.

ARRL Volunteer Monitor Program Administrator Riley Hollingsworth, K4ZDH, said licensees who need a refresher course regarding their operating privileges may refer to Section 97.301 of the rules.

ON THE AIR

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 Radio 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

120th Anniversary of the Rockville Bridge Mar 19-Mar 27, 1400Z-0200Z, W3R, Rockville, PA. Cumberland Amateur Radio Club K3IEC. 14.045 MHz 14.245 MHz. QSL. Frank Mellott, KB3PQT, 1010 Good Hope Road, Mechanicsburg, PA 17050. The Rockville Bridge is the longest stone masonry bridge in the world. www.radioclub-carc.com

Sun-N-Fun Aerospace Expo Special Event Station Apr 5-Apr 10, 0800Z-1700Z, W4S, Lakeland, FL. Lakeland Amateur Radio Club (LARC). 2, 20, and 40 meters; other bands and modes possible.. QSL. LARC, P.O. Box 90853, Lake-

land, FL 33804. www.lakelandarc.org

Texas State Parks on the Air Apr 9-Apr 10, 1400Z-0200Z, K5LRK, The Colony, TX. Lake Area Amateur Radio Klub. 80M-3.825MHz, 40M-7.225MHz, 20M-14.225MHz; CW bottom of band +40 kHz; phone general segment and 28.350; VHF 50.200 and 144.200 15M-21.325MHz. QSL. Ken Rainey, AC5EZ, 529 Kenilworth Ave., Oak Point, TX 75068. The Lake Area Amateur Radio Club (K5LRK) is organizing the Texas State Parks on the Air event this year. The event will take place on April 9 and 10, 2022 (4/9 1400 to 4/10 0200, and

4/10 1400 to 2000. The event website is tspota.org. On the website can be found the rules and list of Texas State Parks designers. We hope your club will participate in this event this year by trying to make contact with Texas HAMS activating a state park in Texas. Questions can be directed to info@k5lrk.com <https://www.tspota.org>

Don, FH/K6Z0 will be active from **Mayotte Islands**, IOTA AF - 027, 18 - 22 March 2022. He will operate on HF Bands, CW, SSB. QSL via K6Z0. Direct QSL: Don Jones, PO BOX 21500, Washington, DC 20009, USA.

The Evolution of Amateur Radio Operating by Armando Delgado, KN4JN

Presently, and over the past forty to fifty years, when an amateur radio operator wants to get on the air he turns on his radio, tunes to his favorite frequency and calls "CQ". Any station hearing his call and wanting to answer responds on the same frequency and a QSO results. This

QSO could be a brief exchange of call signs and signal reports, the minimum requirement for an official contact and commonly used in contests and other special event stations, like dxpeditions and special events

seeking many contacts in a short period of time, or it could be a lengthy ragchew. Amateurs did not always operate this way. Our amateur ancestors operated using separate transmitters and receivers, generally

connected to a single antenna. This arrangement required a switch to toggle the antenna between the transmitter and receiver in a different operating process than the modern transceivers that automatically perform that function. To call "CQ", the operator

would have to toggle his antenna switch to the transmitter, which would render his receiver mute, since it was taken off the air. He would make his call, in the blind so to speak, a call that would have to be extended much longer than would be currently. After making his "CQ" call, the ham would turn the antenna switch to the receiver and listen for a reply.

In the days of the spark gap transmitters, the listening for a reply would require tuning through the entire receiver range. Early spark gap transmitters produced a very broad signal, encompassing several kilohertz. Likewise, early receivers had very low sensitivity and selectivity. To hear a response to a call required a lot of patience, skill, and understanding of the operating equipment. DX contacts in those days were few and far between; QSL cards became priced acknowledgements of the skill of the operator and amateurs eagerly exchanged them.

With the advent of the vacuum tube, radio's selectivity and sensitivity improved, but the operating techniques remained the same. To call "CQ", a ham still needed to toggle his transmitter to the antenna, but to listen for a reply became easier. Receivers were more selective and sensitive and searching for a response required less frequency search.

When commercial broadcast stations first appeared in the early 1920's, they captured the imagination of the public. Everyone wanted to listen to the radio, and everyone wanted a radio receiver in their home. In a short time, this popularity led to a tremendous increase in commercial radio stations across the country, and a tremendous demand for radio receivers. The market responded and many companies began to manufacture radio equipment. The end result was that the competition between companies led to many new innovations and improvements to radio receivers, and to a drop in the price of receivers.

In those days, amateurs generally invested in a good quality commer-

cial receiver and home brewed their transmitters. The better receiver allowed them to spot their transmitters, so they had a better idea of the frequency they were in and where to expect a reply to a "CQ". Unfortunately, early equipment lacked accuracy and selectivity and home brewed transmitters tended to drift, at times. After calling "CQ", hams still had to do some frequency hunting to detect a reply.

During WWII, electronics advanced rapidly. The demand for radio equipment that could withstand the rigors of combat and fit in the military vehicles used led to the development of smaller and more rugged components as well as smaller radio units that could perform in mobile military transports, such as tanks and airplanes. After the war, much of that electronic equipment reached the surplus market and hams eagerly acquired many of those excellent receivers and transmitters at bargain prices, to convert them to amateur operations. Units such as the AN/ARC-5, SCR-274N, ART-13, and BC-348 became popular with hams. These excellent radios, operating AM phone and CW, allowed for more precise exchanges on the air. Although, they were separate receivers and transmitters and still required switching the antenna from one to the other, the operator could tune each unit to the same frequency, so searching for replies to "CQ" became much simpler. These types of radios also paved the way for later amateur equipment, such as Drake, Collins, National and Swan, which dominated the amateur market prior to the era of the transistorized transceiver.

The transistor was invented in 1947, but the first transistorized radio did not appear until 1954, when Texas Instruments marketed the Regency 1, the first transistorized receiver.

From that point on, transistors made a slow creep into the radio world. During the 1960's amateur gear replaced mostly the AM mode with SSB as the dominant voice technology. In those years many manufacturers produced tube transceivers, which quickly became popular. By the 1970's many amateur radios were hybrid units combining solid state components with tube sections, mostly in the final amplifiers. By the 1980's fully transistorized transceivers became available and rapidly dominated the amateur market.

The transceiver, and in particular the solid state transceiver, changed dramatically the way amateurs operate. The very rapid and seamless switching from transmit to receive allowed for quick contacts. After calling "CQ" an operator can sit back and wait for a reply, and hearing none could repeat his call or move to a different frequency. There is no longer the need for the time-consuming switching of antenna and the receiver hunt for a reply. Contacts can be made quickly and effortlessly. Also, the receiver muting during transmit is so brief that conversations seem natural. In CW in particular, with the radio in full QSK, the operator can receive between characters, literally. This allows for break-in stations to be heard prior to completing a transmission, which permits more efficient communications. In radio contests, modern transceivers permit quick exchanges and lots of contacts in a short period of time. One can only wonder how stations performed during Field Day in times past.

Of course, there might be another side to the old method. In those days operations were slower, more measured and relaxed. Whether good or bad, that is a personal choice.



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



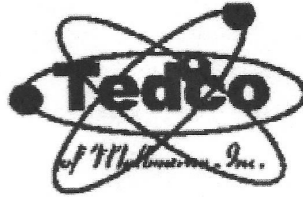
Editor's Note:

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	W4NXL	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	W4NXL	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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HARADA
HITACHI
HYGAIN

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KENWOOD RADIO
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KESTER

LITTELFUSE
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MACOM
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