



**INDIAN  
RIVER ARC**

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

VOLUME XLVI, NUMBER 10

# SPURIOUS EMISSIONS

OCTOBER, 2024

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## CLUB MINUTES

President Steve Luchuk, N4UTQ called the meeting to order at 7:18 PM following a slight delay due to technical difficulties with the video equipment.

After the Pledge of Allegiance, Steve went on to the Treasurer's Report. The Checking Account has \$1138.09 and the Equipment Fund \$2013.65, both remaining unchanged from the previous month. The Treasurer's Report was accepted for audit.

Next, the minutes of the September meeting were approved.

Past President Report: Viron, N4VEP mentioned that this next Saturday, October 19 will be a QRP Event at Tom Statham Park in Port St. John just east of the Space Coast Regional Airport. The plan is to start at around 9:00 AM and continue until 1:00 PM.

Following the business meeting, Steve gave a summary presen-

tation of Hurricane Milton. The storm formed from a low pressure system that advanced from the Caribbean Sea to the Bay of Campeche where it became a tropical storm on October 5. By October 7 it developed hurricane strength winds and then rapidly intensified to a category 5 storm with winds of 180 mph. The rapid intensification of the storm was due to the warm waters of the Gulf of Mexico and the absence of wind shear in the surrounding area. Fortunately, the storm endured multiple eyewall replacements that caused the hurricane to weaken considerably to a category 3 by the time it hit land just south of Tampa, FL. on October 9.

The storm crossed the Florida peninsula with the eye passing over Cocoa and Merritt Island, by then as a category 1 storm on October 10. The initial projections for the storm suggested a possible category 5

hurricane striking the west coast of Florida. This led to people collecting gas and food supplies in preparation for the storm which led to gas stations running out of gas and empty shelves in groceries.

Although the storm itself did not cause much damage on the east coast of Florida, multiple tornadoes spawned by the storm did. A tornado in Cocoa Beach damaged a number of structures, including the West Fargo Bank and a beauty salon. Steve showed multiple slides of some of this damage. He also showed slides of damage incurred in the west coast.

Following the presentation, the meeting adjourned at 7:57 PM

Respectfully submitted,

Armando Delgado, KN4JN,

Secretary

## HAPPENINGS

The "ARRL Letter" of October 10, 2024 has a brief article nicely summarizing Florida's amateur community response to hurricane Milton:

### **Hams Continue to Serve During Active Hurricane Season**

As Hurricane Milton moved across Florida, amateur radio operators volunteering through the Amateur Radio Emergency Service® (ARES®) were stationed

*in the State Emergency Operations Center, in county EOCs, and at designated shelters in local communities. The volunteers utilized the Amateur Radio Service to provide a communications link that works when all else fails. Florida has a robust ham radio communications network called SARNET, that serves as the official link between EOCs during a storm. SARNET has been placed in a*

*restricted net condition to ensure traffic could flow as needed. In times of crisis, the net is limited for agency/EOC and emergency traffic only. The State of Florida provides the network a microwave backbone between individually-owned repeaters.*

*ARRL's Director of Emergency Management, Josh Johnston, KE5MHV, says the radio amateurs in Florida are well pre-*

*pared. "Florida hams have a lot of experience in emergency communications. They are well-trained and have the necessary infrastructure and support from the state to serve," he said.*

*Across the country, ham radio operators participated in several nets to assist the National Hurricane Center with gathering surface information about the storm. The Hurricane*

## HAPPENINGS

Watch Net and VoIP Hurricane Net were both active. At the NHC, volunteer operators monitored each of these ham radio communications methods from a special station at the center, WX4NHC. Stan Broadway, N8BHL, Assistant Manager of the Hurricane Watch Net, reports the net has concluded operation for Hurricane Milton. "The net launched a 6-hour preparatory session October 8, 2024, to log stations anticipating the storm. We then began the morning of October 9, 2024, to collect storm data as Milton approached the Gulf Coast of Florida," said Broadway. "Overall, the net was in operation for 33 hours, operating on 7.268 MHz and 14.325 MHz as propagation allowed. Net sessions were very busy with reports which were forwarded to the National

Hurricane Center. As always, we offer our thanks to nets and operators who stood aside to allow us a clear frequency. Our prayers are with those who suffered damage and loss from the storm."

Rob Macedo, KD1CY, Director of Operations for the VoIP Hurricane Net, said the net secured on Thursday, October 10 at 1100 AM EDT. Informal system monitoring will occur through Thursday evening. Also, a reminder that due to the lengthy and overnight activation of the VOIP Hurricane Net for major Hurricane Milton, the VoIP Hurricane Prep Net for Saturday, October 12 is canceled. "We wish to thank the reporting stations and our net controls for their support during this activa-

tion that spanned 22 hours," he said.

The next **Frequency Measuring Test (FMT)** will be on Thursday November 7 at 9:29 PM EST. (2:29 UTC, November 8). This time, there will be two separate stations sending the test signals, Michael Suhar, W8RKO in Ohio and Connie Marshall, K5CM in Oklahoma. The test will be in two separate bands, 40m and 80m. On 40m W8RKO will do a call up at 9:29 PM on 7064 kHz followed by a one minute test signal starting at 9:34 PM and ending at 9:35 PM.

K5CM will follow with a call up at 9:44 PM on 7065 kHz and a test signal starting at 9:49-9:50 PM. The 80m test will begin with W8RKO call up on 3598 kHz at 9:59 PM, with the test signal run-

ning from 10:04-10:05 PM. K5CM follows at 10:14 PM with a call up on 3599 kHz and a test signal from 10:19-10:20 PM.

Information on how to measure a carrier frequency can be found at [www.k5cm.com](http://www.k5cm.com). Also, WSJT-X can be used for accurate frequency measurement. Joe Taylor, K1JT has a website explaining the technique at [https://wsjt.sourceforge.io/FMT\\_User.pdf](https://wsjt.sourceforge.io/FMT_User.pdf).

To report results, the ARRL has an online data entry form at <https://famt.arrl.org/fmtentry.php>. The submission deadline is November 11 at 0200 UTC.

The FMT is a great challenge and an opportunity to understand the equipment that we use, its accuracy, and its deficiencies, plus the operator's skill.

## ON THE AIR

**Yorktown Special Event Oct 19, 1400Z-2000Z, K4RC**, Williamsburg, VA. Williamsburg Area Amateur Radio Club. 7.265 14.265. Certificate & QSL. QSL Manager, WAARC, PO Box 1470, Williamsburg, VA 23187. Celebrating the 243rd anniversary of the British surrender to the joint American and French forces under Gen. George Washington in Yorktown, VA. This ended the American Revolutionary War on October 19, 1781. FOR CERTIFICATE: The Virginia Historic Triangle Certificate is available for contacting the Jamestown, Williamsburg, and Yorktown Special Event Stations. You don't need to contact these stations in the same calendar year. For a Certificate send QSO info from the three stations to [qslmgr@k4rc.net](mailto:qslmgr@k4rc.net). <https://www.k4rc.net/events/special-event-stations>

**WOC-TV 75th Anniversary Oct 26-Nov 11, 0000Z-2300Z**, WOC, Davenport, IA. Davenport Radio Amateur Club. 14.310. QSL. Davenport Radio Amateur

Club, P.O. Box 1523, Davenport, IA 52809. Recognizing the 75th anniversary of pioneer broadcaster WOC-TV (now KWQC). Multiple bands and modes depending on operator availability. Send SASE to: Davenport Radio Amateur Club, P.O. Box 1523, Davenport, IA 52809 [drac.club](http://drac.club)

**86th Anniversary of the War of the Worlds Broadcast Oct 27, 1600Z-2100Z, WOW**, Grovers Mill, NJ. Delaware Valley Radio Association. 7.225 14.255 21.300. Certificate & QSL. Delaware Valley Radio Association, P.O. Box 7024, Trenton, NJ 08628. [www.w2zq.com](http://www.w2zq.com)

**BOO! On Bald Mountain Oct 31-Nov 1, 1900Z-0001Z, WA4TRS**, Fairview, NC. The Road Show Amateur Radio Club, Inc. 18.313 14.313. QSL. The Road Show ARC, 57 Echo Lake Drive, Fairview, NC 28730. Join Us For a Night of Fun From The Graveyard, GUEST Accommodations Available! [wa4trs.org](http://wa4trs.org)

**49th Anniversary, Sinking of the SS Edmund Fitzgerald Nov 1-Nov 15, 0000Z-2359Z, W8F**, Livonia,

MI. Livonia Amateur Radio Club. 14.260 7.260 7.050 14.050. Certificate. See website, for information, <https://livoniaarc.com/qsl/>. Saturday. Nov. 9, 1530-2030 UTC, W8F will operate from Dossin Great Lakes Museum, Belle Isle State Park, Detroit, MI. (POTA US-1487 this date only), Nov. 1-15 Club members signing as W8F on all bands/modes-see spotting sites. QSL INFO ON W8F Page at QRZ.com <https://livoniaarc.com>

**Operation Able Archer '83 Nov 2-Nov 16, 0001Z-2359Z, W9A**, Salem, WI. W9AFB. 14.250. Certificate & QSL. Scott Grams, General Delivery, Salem, WI 53168. Commemorating the 1983 Cold War Able Archer Exercise. See W9A QRZ page for operating times, modes, and additional details <https://www.qrz.com/db/w9a>  
**Air Force MARS 76th Special Event Nov 5-Nov 11, 0500Z-0459Z, KB2UNZ**, Scott AFB, IL. Air Force MARS. 14.325.00 7.210.00 3.890.00 28.350.00. Certificate. Chief Air Force MARS FOA ACC CCC, 203 W. Losey St,

BLDG 1700, Scott AFB, IL 62225. Amateur HF bands (80-6) in the General License portion of the band and in the Technician License portion of 10 meters using SSB, CW and digital modes. <https://community.apan.org/wg/afmars/air-force-mars-76th-special-event>

**118th Anniversary of SOS and Maritime Calling Frequency 500 kHz Nov 3, 0000Z-1200Z, various**, Many locations. AA8SH. 600 meters, CW from 472 to 475 kHz and WSJT-X; FST4 (60 second pass) at 474.2 kHz USB. Certificate. QSL to, station, worked. This event provides an opportunity for clubs or individuals to put a vintage MW transmitter back on the air, or try one of a number of solid modern approaches. Those interested should be sure to register with the Utilities Technology Council prior to October 3, 2024 (30-day waiting period). <https://utcc.org/plc-database-amateur-notification-process/>; <https://www.arrl.org/news/fcc-opens-630-and-2200-meter-bands-stations-must-notify-utcc-before-operating>. Questions and more information, email [aa8sh@aol.com](mailto:aa8sh@aol.com)

## Solar Emissions by Armando Delgado, KN4JN

The sun, like all stars, is a nuclear furnace. The massive gravitational forces in the interior of stars cause atoms to fuse together releasing huge amounts of energy, most of which is in the form of electromagnetic waves, covering the entire electromagnetic spectrum.

The most energetic photons are in the form of gamma rays, X-rays, and far- ultraviolet rays, the so-called ionizing radiation, because it can interact with individual atoms releasing ions and electrons. Fortunately for us, the great majority of this radiation interacts with atoms in the atmosphere and does not reach the ground.

The extreme ultraviolet radiation is slightly less energetic, and although it interacts with some atoms in the upper atmosphere, most of its rays reach the ground causing skin burns in those individuals who stay out in the sun too long, and with long term exposure skin damage in the form of dermal elastosis and in susceptible individuals actinic keratoses and some forms of skin cancer.

Next in decreasing energy is visible light that ranges in wavelengths of 700-400 nm covering all the colors of the visible light spectrum. This radiation passes freely through the atmosphere but different wavelengths interact with the atmosphere differently causing the blue color of the sky and the reds and oranges of dawns and sunsets.

Invisible to the human eye is infrared radiation that encompasses the spectrum from 780 nm to 1 mm wavelengths. Infrared light provides the heat from the sun.

Below the infrared is the radio spectrum and the sun emits radio waves in this entire spectrum. Radio waves from the sun originate in the upper layers of the sun, in the chromosphere and the corona, triggered through different mechanisms by electrons accelerated in the solar plasma found in those portions of the sun.

The best known solar radio emis-

sion is the 10.7 cm (2.4 GHz) radiation that is used to calculate the solar flux, a measure of solar activity that parallels the sunspot number but that is more accurate because it is not affected by cloud cover and the subjective nature of counting sunspots. Interestingly, the solar flux never decreases below 62, even during very low solar cycles, an indication of the persistence and regularity of solar radio emissions. Yet, solar radio radiation fluctuates constantly due to the nature of its source in the surface of the sun that is in constant turmoil.

Although the sunspot number has been recognized for over 150 years, solar radio emissions are a new discovery, since it was not until well into the 20<sup>th</sup> Century that radio receivers became sensitive and selective enough to detect solar radio signals.

The first discovery of radio waves from the sun happened in 1942 when British radar operators detected radio noise associated with a solar flare. Then in 1944 Grote Reber published a study of solar radio signals in the 160 MHz portion of the spectrum. Later observations, including those currently made, view wide portions of the radio spectrum simultaneously using spectrum analyzing techniques.

The HF portion of the radio spectrum is well represented in the solar radio emissions. Fortunately for us, the high energy ionizing radiation from the sun creates the ionosphere that bends HF radio signals back to Earth giving us radio propagation. Interestingly, that same ionosphere will also bend radio signals reaching Earth from outside back into space, providing a protective layer from solar and outer space HF radio noise. Without the ionosphere HF radio communications would be impossible because,

not only long distance propagation would not happen, but also because solar HF radio noise would make any radio signals unreadable.

Although mostly suppressed by the ionosphere, solar HF signals can still be detected, including using simple amateur antennas. In the April 2020 issue of QST, Steve Ford, WB8IMY wrote an article titled "Listening to the Sun at 20 MHz" in which he describes a method he used to record solar radio signals. Since the sun's effect on the background radio noise is faint and too gradual to discern with the human ear, Ford used a computer program that records radio sound and creates a graph recording of the noise pattern. Using this technique, it is possible to see the change in background noise as the sun crosses the antenna field. The program he used can be found at the website [radiosky.com](http://radiosky.com).

Solar radiation makes life on Earth possible; it also makes possible our radio communications.



### 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, 18.0775, 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](mailto: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
<b>WBFM</b>							
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		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.	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	
<b>DMR</b>							
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
<b>ATV</b>							
427.250	250CO4			K4ATV	COCOA BROADCAST CT.	LISATS	NTSC INPUT 439.25 See www.lisats.org
<b>PACKET STATIONS:</b>							
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
<b>BREVARD RACES/ARES SIMPLEX</b>							
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
<b>SIMPLEX</b>							
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							