VOLUME XLII, NUMBER 9

# SPURIOUS EMISSIONS

SEPTEMBER, 2021

INDIAN RIVER ARC

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

## OFFICERS

**PRESIDENT**
VIRON PAYNE
N4VEP

**VICE-PRESIDENT**
DAVID LERRET
KU0R

**SECRETARY**
ERNIE HOFFMAN
K1CPO

**TREASURER**
STEVEN LUCHUK
N4UTQ

**DIRECTOR**
DAVID SLAWSON
K4UZM

**NEWSLETTER EDITOR**
ARMANDO DELGADO
KN4JN

## CLUB MINUTES

The meeting was called to order by President Viron, N4VEP at 7:15 PM. Following the Pledge of Allegiance, Viron introduced guest visitor Russ, WA1RR from Connecticut.
A quorum was not present at the meeting, so the minutes of the previous meeting were not approved.
The Treasure Report was approved for audit.
Then Steve, N4UTQ summarized the IRARC nets: Every Wednesday at 7:15 PM the weekly net on the 145.37 MHz repeater, followed by the Simplex Ragchew on 147.42 MHz. Also, the monthly Simplex Exercise on the third Saturday of the month at 9:00 AM. The Digital Training Net is every Tuesday at 7:00 PM, as well, on the 145.37 MHz repeater.
Next, Dave, KU0R presented the Technical Committee report: All repeaters are operating well. He has planned a club presentation on the VARA FM system being used in the ECOM facility at the church to operate Winlink, that can transmit regular emails and has a worldwide reach. Dave also mentioned that the issues with the Flex 6400 radio are corrected with the shielding of the CAT 6 cable and an adapter for the Heil microphone for when phone operations are desired.
Dave is also working on a portable 440 MHz repeater, based on a Yaesu DR-2X unit, for the club to use during support activities for charitable marathons, etc. He hopes to have the system operational by November. Initially it will be set at the church, although due to the low height antenna, it may not have a wide reach.
The planned frequencies are 441.825 MHz output and 446.825 MHz input with a tone of 107.2 Hz. The considered call sign for the repeater is AJ4IR, but the decision is not final yet.
President's Report: Viron addressed the need to amend the club By-Laws pertaining to quorums. Since the Covid-19 restrictions, the club has not had a quorum at the meetings and has been unable to conduct business. The old By-Laws Article VII, Section 2 states: *Approval of Motions. Except as otherwise stipulated herein and provided a quorum is present, a simple majority vote of the members present shall be sufficient to officially approve motions entertained or other decisions considered at club meetings. A quorum is established when at least fifty members or twenty per cent of the membership eligible to vote are present.*
The proposed amendment will change the last sentence to read: A quorum is established when twenty percent of the membership eligible to vote are present or participate through a virtual or electronic method.
Viron also suggested creating a Clubhouse Day on the last Saturday of each month from 10 AM to 3 PM to operate radios: work DX, Special Event Stations, DXPeditions, and generally socialize and have fun with our hobby. This plan was tabled pending approval from the church, due to potential conflicts with other church activities.
In other new business: This year is election year for the club and we need to nominate a roster of officers. The club By-Laws require nominations be made in October to be voted in November, for a two year election period. We need nominees and member attendance next month so we can keep our club active.

The 50/50 drawing was won by Neil, K04FHS who got $15.

Following the business meeting, Viron gave a presentation on low power NVIS 80 meters operations.
On 9/6/2021, Viron set up a NVIS antenna using an end-fed system as an inverted-L at roughly 25 ft, running 50 watts, and complemented with ground rods as a counterpoise. With this system he was able to check into the North Florida Phone Traffic Net and contact stations in multiple counties, ranging from 50-275 miles, for an average distance of 149 miles.
Viron summarized his experiment by concluding that NVIS operations can succeed, even at low power, by understanding the propagation qualities of the frequencies involved. In other words, 80 meter nets in Florida operate before 8:30 AM, or after 4:30 PM, times when 80 meters propagation can happen, particularly on shorter distances, as offered by the NVIS. Of course, noise is a problem on 80 meters, but it can be managed.
The meeting was adjourned at 8:30 PM.

Respectfully submitted for the Secretary by Armando Delgado, KN4JN

## HAPPENINGS

**Meteor Scatter:** A propagation mode that takes advantage of the ionization trails left by extraterrestrial debris burning up after entering the Earth's atmosphere. Every day, meteor scatter opportunities exist for contacts on 10 meters, 6 meters, and 2 meters at distances between 500 to 2300 kilometers, especially during the morning hours. During meteor showers, there may be hundreds of "pings" per hour. *WSJT-X*'s MSK144 mode is typically used successfully for meteor scatter communications, though the newer shorter-duration Q65-12A mode may see increasing use. To get started, try Parker Radio Association's Simple Guide to Meteor Scatter / MSK144.

**DXeditions are back!** After over a year of cancelled or postponed operations from rare dx locations due to the Covid-19 epidemic, it seems that this Fall we will begin to see some action. During the next month several undertakings hope to bring some new activity from Africa:
From October 7-18 an Italian team will activate Guinea-Bissau using call sign J5T in CW, SSB, RTTY and J5HKT on FT8. For more details visit their website.

Another organization, a Czech group, will activate Sao Tome and Principe from October 5-14 operating as S90K. Find more dedetails here.
A Russian group plans to operate from the Kingdom of Eswatini, formerly known as Swaziland, from October 22 to November 8 as 3DA0RU. More details are found in their website.

## HAPPENINGS

**The 56th Annual Melbourne Hamfest** hosting the 2021 ARRL Florida State Convention will be on October 8-9. at the Melbourne Auditorium, 625 E Hibiscus Blvd, Melbourne, FL 32901
Open to general attendees Friday 1pm to 7pm, and Saturday 9am to 3pm.
Vendors and tailgaters can setup starting 2 hours before general opening.
Adult admission is $10 for both days. No charge for children 12 and under.

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Special event stations mark 200 years since all of Central America gained independence from Spain; the region had been a single country, the Federal Republic of Central America, split into five entities -- **Guatemala, Honduras, Nicaragua, Costa Rica, Panama, and El Salvador**. Radio clubs from all five entities will field stations containing 200 and the letter "I" in the suffix. Listen for YS200I, TI200I, YN200I, TG200I, HP200I, and HQ200I. Some participants may operate from their home stations. Operation will continue at least through September on SSB, CW, and satellites.

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AMSAT will host its 2021 AMSAT Virtual Space Symposium and Annual General Meeting via Zoom on Saturday, October 30, 1400 UTC - 2200 UTC. It will be available to the general public on AMSAT's YouTube channel at no cost. The event will be a combination of pre-recorded video segments along with live question-and-answer sessions.

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*WSJT-X revision 2.5.0*-rc6 (release candidate 6) is now available on the *WSJT-X* website. Microsoft Windows users may need to consult the *Release Notes* to install *OpenSSL*, one of its dependencies.

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Members of the K1USN Radio Club, who are also members of the CW Operators' Club (CWops), run a one-hour slow speed CW "contest," called the SST.
For those who prefer a more leisurely CW pace or are new CW operators or contesters, this just might be what you're looking for!
SST UTC times do not change
Fridays 20:00-21:00 UTC: 4-5pm EDT
Mondays 00:00-01:00 UTC: 8-9pm EDT Sunday.
More info here.

## ON THE AIR

**North America's Most Westerly Contiguous Highway Point** Sep 25-Sep 26, 1900Z-1900Z, KL7HOM, Anchor Point, AK. South Peninsula Amateur Radio Club. 14.249 18.149 7.249 14.049. QSL. Thomas Kerns, 1189 Cook Way, Homer, AK 99603. https://www.qrz.com/db/KL7HOM

**VOA Bethany Station 77th Anniversary** Sep 25-Sep 26, 1600Z-2100Z, WC8VOA, West Chester, OH. West Chester Amateur Radio Association. 14.268 7.268. Certificate & QSL. West Chester ARA - QSL Manager, P.O. Box 913, West Chester, OH 45071. QSL Direct or via the bureau. An electronic certificate will be available for download after the event is over. it might take up to 24 hours after the event to get your certificate. Details will be posted on our website: www.wc8voa.org

**200th Anniversary of the Santa Fe Trail.** Oct 9, 1500Z-2000Z, KS0KS, Olathe, KS. Sant Fe Trail Amateur Radio Club. 7.280 10.118 14.280 18.080. QSL. SFTARC, P.O. Box 3144, Olathe, KS 66063. Operating from Lone Elm Park at the site of the original Lone Elm Campground that served travelers on the Santa Fe, California and Oregon Trails in the 1800s. sftarc.org

**Get Your Park ON! Celebrating Earth Science Week** Oct 9-Oct 17, 0000Z-2359Z, many 1x1s, worldwide. US Affiliate (KFF), Worldwide Flora and Fauna. All bands, all modes. Certificate & QSL. See QRZ.com, for , information. Check WWFF website for a list of participating calls, including N2G, N4G, K5G, N5G, N6G, N9G, K8P, N0M. QRZ.com or www.wwff.us

J5T Team will be active as J5T and J5HKT from **Bubaque Island**, IOTA AF - 020, Guinea Bissau, 9 - 22 October 2021. They will operate on 160 - 10M, CW, SSB, FT8.

**Shenandoah National Park Special Event** Oct 17-Oct 23, 0600Z-0600Z, W4DO, Charlottesville, VA. Albemarle Amateur Radio Club. 7.240 14.300. Certificate & QSL. AARC - SNP Special Event, P.O. Box 6833, Charlottesville, VA 22906. This special event will activate numerous overlooks and summits spanning the length of Shenandoah National Park. https://www.albemarleradio.org

## SETI by Armando Delgado, KN4JN

Prior to Galileo's 1609 telescopic planetary observations, human perception of the universe was geocentric; that is, that the entire universe revolved around the Earth. Misled by the apparent rotation of the celestial bodies around the Earth, people believed that the Earth was the center of the universe, and all studies and observations of the heavens revolved around astrological and religious beliefs. With the Earth being in the center, humanity was considered unique and no one considered the possibility of any other intelligent beings anywhere else.
In 1543 Copernicus postulated that the universe was heliocentric; that is, that all the celestial bodies, including Earth, rotated around the sun. Galileo's telescopic observations later confirmed that the Earth and the planets rotated around the sun, although it took a while for it to be accepted. Still, a heliocentric universe made the solar system and the Earth, along with its inhabitants, unique and there was not much thought given to the possibility of other intelligent beings in the universe.
By the 19th Century, improvements in telescope magnification and resolution allowed more detailed observations of neighboring planets. In 1877, during one of Mar's near-approaches to Earth, the Italian astronomer Giovanni Schiaparelli made close observations and drawings of the planet and described linear markings on its surface that he called *canali*, meaning channels. Unfortunately, the media translated the word as "canals", suggesting an artificial structure. Popular imagination immediately seized on the possibility of intelligent life in Mars and science fiction writers soon rendered stories about Martians, one of the most famous being H.G. Wells' *The War of the Worlds* written in 1898 and relating a Martian invasion of Earth.
Speculation over inhabited planets and other intelligent life was

not limited to Mars, Venus became another possible contender. Yet, the speculation at this time limited itself to the solar system. Telescopic observations had not reached far enough to give a more clear view and extent of the actual universe.

By mid-20th Century, telescopes like the Wilson Observatory, Palomar Observatory, the beginnings of radio astronomy, and the advances in mathematics, particularly relativity, provided a perspective of the universe very different from previous beliefs. We learned that not only neither the Earth nor the solar system are the center of the universe, but that our solar system is a mere speck at the edge of one arm of a huge spiral galaxy containing billions of stars, some of them perhaps circled by planets, thus changing the debate from the possibility of intelligent life in solar system planets we now recognize as incapable of sustaining life to the probability of planets in the universe capable of sustaining life and permitting the development of intelligent life.

In 1961, Cornell University astronomer Frank Drake proposed an equation to estimate the probability of intelligent life capable of radio communications in the universe.

The equation is as follows: N= R x f (p) x n(e) x f(l) x f(i) x f(c) x L

N = Number of intelligent communicative civilizations.

R = Average rate of star formation (derived from our galaxy, the Milky Way)

f(p) = The fraction of these stars with planetary systems.

n(e) = The number of Earth-like planets per system.

f(l) = The fraction of those Earth-like planets with the capacity to develop life.

f(i) = The fraction of these life-supporting planets where intelligence forms.

f(c) = The fraction of these intelligent life-supporting planets which foster electromagnetic communications technology.

L = The life span of these intelligent communicative civilizations.

In layman's terms this complicated equation calculates the statistical likelihood of extraterrestrial life by multiplying out all relative probabilities (which are listed above). What's interesting about the equation is that it indicates that alien life is statistically inevitable (even if not in our galaxy, but rather the universe as a whole.)

According to the BBC's Drake Equation calculator, even if you were to plug in the lowest possible values for each component of the equation, although sadly there would be no communicating civilizations in our galaxy, there would still be about 15,000 in the universe at large. Using the same calculator, if you punch in "today's skeptical estimate"—using the most conservative scientific data available—the number of communicative civilizations in our galaxy jumps to one, and in the universe, an incredible 78 billion. However, according to Drake's own estimates, there exist 10,000 communicative civilizations in our galaxy alone.

Centered on these concepts, interest developed in the scientific community to search for extraterrestrial intelligence. In late 1960's and early 1970's NASA joined in this SETI effort with several programs. Because of the tremendous interstellar distances, the only possibility of determining the existence of other intelligent life depended on the use of radio, thus several radio telescopes began listening programs to look for narrow band radio signals that could indicate purposeful transmissions. Frank Drake carried out the first such search in 1960 in a program named Project Ozma. Using the 85 ft radio telescope at the National Radio Astronomy Observatory at Green Bank, West Virginia, Drake monitored the emission frequency for hydrogen at 1420 MHz in the direction of a binary star system. This initial project failed to detect any unique signals.

However, a few years later on August 15, 1977 during a radio telescope SETI search of the constellation Sagittarius observers at Ohio State University's Big Ear radio telescope detected a narrow band signal compatible with the criterion for a possible intelligent transmission. Astronomer Jerry R. Ehman noted the pattern in the paper tracing of the recording and wrote next to it "*WOW*". That signal has not recurred, and has not been explained, but it gained notoriety as the "WOW Signal", and is considered the most likely candidate for an extraterrestrial signal to date.

In 1993 Congress cut off funding to the NASA SETI research, but in 1989 a group of scientists founded a non-profit organization, the SETI Institute, dedicated to pursuing the search.

This search continues, using radio telescopes around the world. Occasionally, suspect signals are detected, but invariably most of them are found to be artifacts, mostly from earthly radio transmissions, or from satellites orbiting Earth.

However, as recently as November, 2020, the Parkes radio telescope in Australia, operating under the auspices of the Breakthrough Listen project, reported a signal from the region of Proxima Centauri, the solar system's closest star neighbor at 4.2 light years away, that has become a strong candidate for an intelligent signal. The signal, detected in April, 2019, was a narrow band signal at 982.002 Mhz, lasted several hours, and has not recurred. The signal now designated Breakthrough Listen Candidate 1, or BLC-1 is still under investigation. So maybe we are not alone…time will tell.

**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, Fl 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 Fl |
| 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. | K4UZM | |
| 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 a

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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BUD

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CALRAD
CORNELL DUBILIER
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CUSHCRAFT

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DECIBEL PRODUCTS
DENNISON
DURACELL
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ECG (SEE NTE)
ELECTRONIC RESOURCES
ELECTROVOICE
EVEREADY

FANON-INTERCOMS
FLUKE (WAVETEK)

GC ELECTRONIC
GALAXY
GOLDLINE

**HAM RADIO**
HARADA
HITACHI
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**ICOM RADIO**

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JVC PARTS

**KENWOOD RADIO**
KOSS
KESTER

LITTELFUSE
LOWELL

M & G
MALLORY
MACOM
MAXON
MIDLAND
MOTOROLA

**NTE TRANSISTORS**
**NELLO TOWERS**
NTE ELECTRONICS
NORMAN LAMPS

PANASONIC
PANAVISE
PHILIPS ECG (SEE NTE)
PHILMORE
PIONEER
POMONA
POWERSONIC
PRB
PROAM ANTENNAS

QUAM
QUEST

RANGER RADIO
RAYOVAC BATTERIES

RUSSELL IND.

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SANYO BATTERIES
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SPECO
SWITCHCRAFT

TEI
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TELEX – HYGAIN
TRIPPLITE
**TUBES – ALL TYPES**
**TV ANTENNA'S**

UNIDEN
UNIDILLA
UNION CARBIDE

VARCO
VALOR
VECTOR
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**tedco@bellsouth.net**

**Hours:**
**MON – FRI 9 AM – 5 PM**
**SATURDAY 9AM-3PM**

**TED – W4LR - GENERAL MGR.**

**DOTTIE – OFFICE MANAGER**