VOLUME XLV, NUMBER 11

SPURIOUS EMISSIONS

NOVEMBER, 2023

INDIAN RIVER ARC

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

OFFICERS

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N4UTQ

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KJ4VGR

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KN4JN

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DAVID LERRET
KU0R

DIRECTOR
ROBERT SCORAH
W0AGE

NEWSLETTER EDITOR
ARMANDO DELGADO
KN4JN

CLUB MINUTES

The IRARC business meeting was called to order at 1921L, a few minutes late due to technical issues with presentation computer.
Steve Luchuck-N4UTQ, President of IRARC, led the Pledge of Allegiance.
Steve-N4UTQ recognized visitor Steve- new licensee.
The president then gave a reminder for the Christmas party at Red Lobster on 520 on December 5th at 1800L. He then gave a report of the end of month simplex exercise pointing out the benefits of CW and reminded members that there would be no simplex exercise or socials in November or December due to the holidays.
Steve presented the Treasurer's report noting that there was no activity in the account since last meeting. The balance for the checking was $1472 and the saving was $1903.65 for a total balance of $3375.65. The Treasurer's report was approved. Steve to accept the meeting minutes from October. Ernie-K1CPO made a motion to accept the meeting minutes which was seconded and unanimously approved.
Technical Report: Dave-KU0R reported that the power supply at the 88 repeater site had been replaced. The Samlex power supply had failed to due to heat death, 2/3 of the 20A modules had failed. A new power supply was installed and two new modules were replaced in the old power supply. The clock issue was also fixed. Dave-KU0R is also near completing the installation of the VHF 1:1.2/UHF 1:1.4 antenna on the clubhouse. The antenna will also be used for GMRS 1:2.1 at only 5W as that is an out of band operation for the antenna.
Dave-KU0R also spoke about the half marathon on the Cape with an opportunity to see the last Delta IV Heavy and the Starship #2 test.
Viron Payne-N4VEP spoke about the exceptionally good turnout at this past Saturday's QRP event at Osteen Park. Viron-N4VEP and Steve-N4UTQ were first to arrive and setup stations making contacts on 15m, 17m, and 20m. Europe was heard on all bands but not contacts were made. We had a number of hams and park visitors drop by.There will be no scheduled QRP events until January due to the holidays. Viron-N4VEP also collected $80 in dues.
Steve-N4UTQ spoke about matching his 80m antenna with his manual tuner versus his automatic tuner. He appreciated having real SWR and reflected power readings on a manual tuner.
Steve-N4UTQ said that there were no nominations at the last meeting for new officers and then called for floor nomination of new officers; there were none. Steve then called for a motion to accept the 2022/2023 slate of officers for 2024/2025. Viron-N4VEP made a motion to retain the current IRARC officers for the 2024/2025 term. Ernie-K1CPO seconded the motion, and it was passed.
Steve then presented the 2024/2025 budget.
It was discussed that the mailbox fee has gone up. Steve estimated that about 20-25 members pay dues by mail. Ernie-K1CPO pointed out that is about $4 per dues paid. Steve will explore options of possible reducing the box size or switching to electronic business address. He believes we need a physical address for government purposes. The club has been using the same PO Box for a few decades, so it is a well established address.
Dan-K4XLG inquired how the maintenance of repeaters was funded. Dave-KU0R said that the club generally accepts donations when equipment is needed. For the past few years the cost has been very low. The largest potential expense recently was replacing the lightning damaged hardline at the 37 site about 4yrs ago, but that cable was donated.
Viron-N4VEP moved to accept the 2024 budget as published. The motion was seconded and approved unanimously.
Steve-N4UTQ moved onto the presentation on Foxhunts. He mentioned his first experience fox hunting with TARC that used antennas to hunt the fox. A Daytona group joined their fox hunt using time of arrival equipment finding the fox immediately. The Daytona club provided the fox for the next hunt and provided a two-stage fox, a crossband 2m/70cm repeater style fox, that was disguised as a lawn sprinkler head on a copper pipe that had tag "Sprinkler Head." Steve showed a number of amateur foxes available online. Then he showed several cell phone jammers mentioning that many hams prefer building, hence a small number of commercially made amateur foxes. He also mentioned the area scale of fox hunts and scale of signal strength and methods of dealing with strong signals. Some methods for dealing with strong signals included padding signals, directional antennas, removing antennas, and signal strength meters.
Steve4UTQ called for motion to adjourn. The meeting adjourned at 2010L.

Respectfully submitted, Viron Payne, N4EVP for the Secretary, Armando Delgado, KN4JN

HAPPENINGS

The ARRL welcomes news of a scheduled vote by the Federal Communications Commission (FCC) to consider removing symbol rate restrictions that restrict digital modes, foster inefficient spectrum use, and dampen incentives for innovation. The FCC Fact Sheet can be found online here.
In the draft Commission decision, the FCC would replace the current HF restrictions with a 2.8 kHz bandwidth limit. The Commission also announced that it will consider a Further Notice in which it will propose eliminating similar restrictions where they apply in other bands and consider relying on signal bandwidth limits.

The deadline to file comments on the 60-meter band proposal has been extended by the Federal Communications Commission (FCC) to November 28, 2023. Replies to comments will be due December 28, 2023. The public comment period was originally to close October 30, 2023.
The ARRL strongly encourages all amateurs to submit comments expressing support to the FCC for the current 100 W ERP power limit (instead of reducing the power limit to 15 W EIRP) and continuing secondary access to the current channels.
ARRL has assembled a web page with instructions on how to submit your comments, as well as background information on the issue at, https://www.arrl.org/60-meter-band .

Many of the presentations from the June 2023 Software Defined Radio Academy, held in conjunction with The HAM RADIO in Friedrichshafen, Ger-

HAPPENINGS

many, are available on YouTube. One that may be of particular interest to HF contesters is called SDRA'23 - 04 - G3ZIL & G4HZX: Propagation path analysis on HF, using SDR and FST4W. In addition to the more common modes of propagation via the F2 layer, they identify some characteristics of "less commonly known modes including two-hop side scatter that can dominate at frequencies above the maximum usable frequency for a band and time of day."

AU2JCB is a special event call sign commemorating the birth date and radio accomplishments of Indian scientist Acharya Jagadish Chandra Bose. Bose was a pioneer in early radio, especially at microwave frequencies, starting his work in 1894. He was even experimenting with semiconductors around the turn of the century. AU2JCB will be active from November 23 through December 11, 2023. AU3JCB and AU5JCB will also be active during this period.

The National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service (NWS) are finalizing plans for 2023 SKYWARN™ Recognition Day. The event is held annually on the first Friday and Saturday of December, so this year it will be on Friday, December 1, and Saturday, December 2. SKYWARN Recognition Day was developed in 1999 by the NWS and ARRL. It celebrates the contributions that volunteer SKYWARN amateur radio operators make to the NWS. During the event, SKYWARN operators visit NWS offices and contact other radio operators across the world. More details about the event will be posted on the SKYWARN™ Recognition Day and ARRL websites

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The ARRL Foundation is accepting applications for scholarships through January 10, 2024. The ARRL Foundation Scholarship Program supports eligible amateur radio operators pursuing higher education. The ARRL Foundation manages more than 100 scholarships established by generous donors ranging from $500 to $25,000. Scholarships will be awarded for the academic year that will begin no earlier than June 2024 following the application deadline. The scholarships vary in eligibility requirements. Additional information and a link to the application can be found at www.arrl.org/scholarship-program. Here is a direct link to the application: http://www.arrl.org/scholarship-application

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Bob Luchen, W3RDL is starting another set of Amateur Radio classes. There will be a "Basic Electronics" class starting on Saturday, December 2, 2023 and ending on Saturday, January 9, 2024 at Hobbs Pharmacy Community Room. The class will be in person and online (Zoom). It is intended to cover basic math skills and basic electronic theory (prequel to Technician license).

There will also be an "Amateur Radio Technician License" class starting on Saturday, January 27, 2024 and ending on Saturday, March 9, 2024 at Hobbs Pharmacy Community Room. Also in person and online.
Classes are free. Contact Robert Luken, w3rdl@arrl.net or 321-432-0550 for more information or sign-up.

The popular annual SKYWARN™ Recognition Day (SRD) will be held on December 2, 2023, from 0000Z to 2400Z
For more information on SRD and operating details: NWS SKYWARN Recognition Day Main Page

ON THE AIR

SEC QSO Party
Dec 1-Dec 2, 2100Z-2100Z, W4DFU, Gainesville, FL. Gator Amateur Radio Club. 14.288 7.288. QSL. Dr. Jay Garlitz AA4FL, P.O. Box 100012, Gainesville, FL 32610. gatorradio.org

W2W Pearl Harbor Day Commemoration Dec 1-Dec 11, 1300Z-2200Z, W2W, Hunt Valley, MD. Amateur Radio Club of the National Electronics Museum. 14.241 14.041 7.241 7.041. Certificate & QSL. K3NY, 108 Brent, Arnold, MD 21012. Primary operation will be Dec 1-Dec 7 with additional operation possible during the Dec 8-Dec 11 period as operator availability permits. Operation on 80M (3.541, 3.841) and digital modes possible during event. Frequencies +/- according to QRM. QSL and Certificate available via SASE; details at ww-2.us

WX3MAS Dec 7-Dec 10, 1400Z-2200Z, WX3MAS, Nazareth, PA. Christmas City ARC. 14265 7270 3850. QSL. Christmas City Amateur Radio Club, 14 Gracedale Avenue, Greystone Building, Nazareth, PA 18064. Daily operation 1400 to 2200 UTC, may be extended as conditions permit.

Ike's Atoms for Peace Speech - Sponsor of Nuclear Ship Savannah Dec 9, 1400Z-2200Z, K3S, Baltimore, MD. Nuclear Ship Savannah ARC. 7 14 21 28. QSL. ULIS FLEMING, 980 PATUXENT ROAD, Odenton, MD 21113. Operating from the ship. Please check the spotting networks since we may be operating anywhere on 40, 20, 15, or 10m SSB or CW. qrz.com/db/k3s

Edwin Howard Armstrong Commemoration special event
Dec 16-Dec 18, 0000Z-2359Z, W4A, Bluff City, TN. N9EN. 3.540 7.040 14.040 21.040. QSL. Brad Anbro, 1118 WALNUT GROVE RD, Bluff City, TN 37618. Operating all bands from 160 to 10 meters, including the 12, 17 and 30 meter WARC bands. CW-only operation. n9en@live.com

Dave, VK2DS will be active as VK0DS from **Davis Station, Antarctica,** from December 2023 - till November 2024. He will operate on HF Bands, plus 6m and EME 2m and 23cm. QSL via home call.

H44WA Team will be active from **Guadalcanal Island,** IOTA OC - 047, Solomon Islands, 15 - 29 November 2023. Team - WA7CPA, N7QT, N7JP, N9ADG, NU7J, WC7Q, KC7EFP. Honorary Team member - WC7Q. They will operate on 160 - 10m, CW, SSB, FT8.
QSL via M0URX, OQRS.

The Quarter Century Wireless Association (QCWA) is sponsoring the third annual W2MM special event station to celebrate their 76th anniversary on December 5, 2023. Beginning on the first weekend of December, QCWA members in the US and its territories will be able to activate W2MM for this event, which will run for 7 days.
Details at the QCWA website.

Solar Cycle 25 by Armando Delgado, KN4JN

Presently, we are well advanced into Sunspot Cycle 25. Sunspot cycles are 11 year periods of increasing number of sunspots and solar activity followed by another 11 years of diminished numbers of sunspots and solar activity.

Human awareness of sunspots is not something new. The ancient Chinese and Greeks noticed them and reported them in their chronicles, but it was not until after the invention of the astronomical telescope that people began to study them. Actually, around 1610 Galileo made observations of sunspots by reflecting the sun image on a surface. He made drawings of sunspots and tracked them as they moved across the solar disc. However, it took many years of continuous observation before observers became aware of the changes in the frequency and number of sunspots.

The first astronomer to notice the cyclical pattern of sunspots was the Danish Christian Horrebow who after 15 years of observation noted in 1775 that there was a cyclical pattern of changes in the numbers and size of sunspots. Later, in 1843 Samuel Heinrich Schwabe, a German astronomer, confirmed the cyclical 11 year pattern of sunspot changes after many years of continuous observation. In 1852, Rudolf Wolff, a Swiss astronomer, following his own observations and after reviewing the extensive record of previous observers, determined that based on the best continuous data the first sunspot cycle that could be reliably chronicled began in February, 1755. Wolff also developed a method to calculate the sunspot number that minimized observer variations. His system is still in use today.

And so, after 268 years of continuous solar observation, the longest continuous astronomical data set in history, here we are in cycle 25, a high sunspot cycle. Following a low sunspot cycle, cycle 24, there were initial doubts as to when the current cycle began. Cycle 24 began in December, 2008 and since the cycles last 11 years, cycle 25 was to start in 2019. Yet, as that year progressed the typical indicators of a forecoming new cycle were not apparent. During 2019, cycle 24 showed many consecutive days without sunspots. Normally, sunspots in a given cycle form along the solar equator and have the same magnetic polarity. The first suggestions of a cycle change are sunspots appearing towards the poles of the sun and some showing reverse magnetic polarity. Towards late Fall and early Winter of 2019 some sunspots began to appear that suggested a cycle change was near, but as the year 2020 began, the sun remained inactive, with many days without any sunspots. During the Spring of 2020 some experts feared that the sun might have entered another Maunder Minimum, a reference to a period between 1645 and 1715 when there were very few sunspots. Then in the Summer of 2020 definite signs of changes in solar activity became apparent leaving no doubt that cycle 25 had begun, but the question was when did it start. That determination is important because it frames the predictions for the entire cycle, particularly the peak of the cycle. Experts began a careful reevaluation of the data from the previous year and finally concluded that solar cycle 25 began in December, 2019.

Thus, based on that date, the peak activity of cycle 25 should happen in mid-2025 and the cycle should end in 2030. However, cycle 25 is not behaving as predicted. It gained strength faster than predicted and the solar activity is more intense than expected.

One occurrence typical of all solar cycles is a reversal of the sun's magnetic poles during the peak of the cycle. In Summer, 2023 the sun's magnetic poles began to weaken and by September the southern magnetic pole disappeared. There remains only a weak northern pole. So, experts now suspect that the peak of cycle 25 will occur in 2024 and since that will be so early in the cycle, there is a good possibility that cycle 25 will have two maxima.

For amateur radio as things stand, two maxima may be a blessing. Along with increased solar activity there have been many coronal mass ejections (CME) occurring in the past few months. Increased solar flux enhances radio propagation, but CME's produce an adverse effect on propagation, at times shutting down radio signals altogether. It is possible that following a solar peak the frequency and intensity of CME's will diminish while the solar flux remains high. If that happens, we may see two or three years of excellent propagation with minimal interference, particularly in the higher HF frequencies.

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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ASTI

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BUSSMAN FUSES
BUD

C.B.RADIO
CALRAD
CORNELL DUBILIER
CELLPHONE AMPS
CHICAGO MINIATURE
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FLUKE (WAVETEK)

GC ELECTRONIC
GALAXY
GOLDLINE

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HITACHI
HYGAIN

ICOM RADIO

JSC WIRE
JW DAVIS SOUND
JVC PARTS

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