



INDIAN RIVER ARC

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

SPURIOUS EMISSIONS

SEPTEMBER, 2022

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ARMANDO DELGADO
KN4JN

CLUB MINUTES

The meeting was called to order by President Steve Luchuk, N4UTQ at 7:15 PM.

After the Pledge of Allegiance, Steve announced in the President's Report that on Saturday, October 1, the club will conduct a Simulated Emergency Test (SET) to assess the club's EMCOMM capabilities. The center of operations will be the EMCOMM facility set up by Dave, KU0R at the church.

The activities will start at 9:00 AM using the 145.37 MHz repeater for coordination and voice communications. The 146.88 MHz repeater will be used for digital communications, primarily using NBEMS.

During the test the club will coordinate with the general public in communications using FRS and GMRS through the WRAW609 repeater of Dave Slawson, K4UZM. The plan is to send practice emergency messages utilizing all systems available.

Steve also reminded the club that on Saturday, September 25, we will hold our monthly Simplex Exercise starting at 9:00 AM using the simplex frequency, 147.42 MHz.

Vice-President Report: Nothing to report this month.

Director at Large Report: Nothing to report this month.

Treasurer's Report: The General Fund stands at \$1081.16. The Equipment Fund, \$1884.11.

Next, the minutes of the August meeting were approved.

After the business meeting, Steve asked Danny, KE4OZD to show the members present the portable communications kit that he built. Danny is a believer in simplex communications and constantly monitors in his QTH all VHF and UHF amateur calling frequencies, plus the 10m calling frequency. The kit he showed is a 2m set up he uses for portable operations that has a battery, a radio, and a Slim Jim J-pole antenna that he purchased from K5BJM in Texas, also attached to the back pack. The system uses 80 watts and recently he tested its range, achieving solid contacts over 49 miles on the 2m calling frequency of 146.52 MHz. Danny will next do an experiment trying a contact between Jetty Park and the Sebastian Inlet jetty, a distance of 39 miles, using the same 2m equipment. He also hopes to experiment with NVIS on 40m and 80m. Danny

will notify Steve of his future activities so that other club members can participate in his experiments.

Following Danny's presentation, Steve discussed Morse code practice software, in particular the program available at the club's website, *Just Learn Morse Code*. This is an MSI file that is free and accessible in the Archives section under Software downloads. The program uses the Koch Method for learning the code. It also has many options on how to select the characters used: they can be program-pre-selected groups; they could be individual user selected characters, words, or groups; they could be program-selected random words. The program also allows for text files to be played and MP4 recordings to be created. Of course, the speeds of transmission can be selected as well as the tone frequencies. Steve thinks this is one of the best Morse code learning programs available, not only to learn, but to practice as well.

Following the presentations, the meeting adjourned at 8:00 PM.

Respectfully submitted,
Armando Delgado, KN4JN,

HAPPENINGS

ARISS, Amateur Radio on the International Space Station, announced that simultaneous operations of the ARISS Voice Repeater and digital APRS communications on the Space Station is now a reality. Packet operations are on 145.825 MHz. On August 11, final checkouts were completed and the APRS packet mode was switched on for amateur radio use. The Columbus Module radio uses the call sign

NA1SS and the new Service Module radio uses RSOISS. Aside from the call signs, the radios are identical and packet operations are the same as before. Hams can use RSOISS, ARISS, or APRSAT as the packet path. Also, both radios are expected to be on full time, except during educational contacts, EVAs, and dockings or undockings. You can find operational status and expected down-times of the ISS radios at [https://](https://www.ariss.org/current-status-of-iss-stations)

www.ariss.org/current-status-of-iss-stations.

Windows RF Calculator, WinRfCalc

[This website](#) offers a free of charge RF toolbox with many interesting RF calculators and analyzers. It can be downloaded, offering the following capabilities:

Antenna numbers

Transmission loss
Unit converters
Attenuators
EMC and Shielding
RF Mixer analyser
DSP
General RF calculators
Butterworth filters
Impedance matching
Interdigital filter calculator

HAPPENINGS

Masonic Lodges on the Air (MLOtA), an amateur radio special event, will be on the air Saturday, September 24, 2022, from locations across the county.

The event will be operating K8BXQ from 10:00 AM - 6:00 PM ET, using SSB only on 80, 40, 20, 15, and 10 meters. Please honor all band plans. All contacts must be in the phone portion of the bands. Stations may be contacted once on each band.

Full contest rules and information can be found at cqmorelight.com/rules.

JOTA-JOTI 2022 (Jamboree-on-the-Air-Jamboree-on-the-Internet), the world's largest amateur radio Scout event, is set for October 14 - 16, 2022.

The event connects millions of young people around the world for a full weekend of amateur radio and online activities that

promote friendship and global citizenship. Using both the airwaves and the Internet, JOTA-JOTI enables young people and volunteers to participate in fun and engaging group activities focused on developing 21st century skills through Scouting. To learn more about JOTA-JOTI, visit their website at www.jotajoti.info.

When NASA's Artemis I rocket launches for its mission to the moon this month, you'll be able to track it using 70-centimeter beacons. With the Artemis Real-time Orbit Website (AROW), anyone with internet access can pinpoint where Orion is and track its distance from the Earth, its distance from the moon, the mission duration, and more. AROW is available on NASA's website and Twitter account. AROW visualizes data collected by sensors on Orion that are sent to the Johnson Space Center's Mission Control Center in Houston during its flight. It will provide peri-

odic real-time data beginning about 1 minute after liftoff through the separation of the Space Launch System (SLS) rocket's Interim Cryogenic Propulsion Stage, approximately 2 hours into flight. Once Orion is flying on its own, AROW will provide constant real-time information. On the web, users can follow AROW to see where Orion is in relation to the Earth and the moon, and follow Orion's path during the mission. Users can view key mission milestones and characteristics on the moon, including information about landing sites from the Apollo program. Also available for download will be an ephemeris, which provides trajectory data from the flight. For more information, read <https://www.nasa.gov/feature/track-nasa-s-artemis-i-mission-in-real-time/>.

A crossband activation of NEPM, the Battleship USS Iowa's original active call sign, is scheduled in memory of Pearl Harbor on December 6 and 7, 2022. Under the authority of the Navy and Marine Corps Spectrum Office Southwest, they will transmit using the Iowa's NEPM call sign on assigned military frequencies and listen for calls from the amateur radio community in their adjacent bands. NEPM will transmit on 14.375 MHz, 18.170 MHz, and/or 21.460 MHz on J3E upper sideband and/or A1A CW. The operator will advise listeners as to where they are listening. Amateur participants are reminded not to transmit on the NEPM military frequencies. Operations on both days are expected to be from 1500 to 2400 UTC. QSL procedures can be found at <https://biara.org>. For specific questions in advance of the operation, contact w6hb@biara.org.

ON THE AIR

242 Anniversary Muster at Sycamore Shoals on the Watuga River and march to Kings Mountain Sep 25-Oct 7, 1700Z-1700Z, WR4CC, Elizabethton, TN. Carter County Amateur Radio Association.

3.900 7.075 14.290 21.350. QSL. Larry Davis, KM4RWO, 172 Carl Taylor Dr., Elizabethton, TN 37643. To help celebrate the gathering and march of men from the frontier that helped win The American Revolution. The march to Kings Mountain was 242 years ago in the year 1780. wr4cc.org

Toccoa-Currahee Military Weekend Sep 30-Oct 2, 1600Z-1400Z, W4T, Toccoa, GA. Currahee Military Museum. 1.945 3.885 7.270. QSL. Garret Scott, 10236 Birch Hill Lane, Knoxville, TN 37932. Military Weekend commemorating the

training of WWII Airborne Troops at Camp Toccoa, Georgia. Parachute Infantry Regiments of the 101st and 82nd Airborne Divisions, and others, trained at Camp Toccoa, notably including the 506st PIR "Easy Company". All operations will be from original WWII radio equipment, including an SCR-177B/BC-191/BC-312, SCR-284/BC-654, SCR-694/BC-1306, SCR-536/BC-611, and SCR-511/BC745. AM and CW modes will be utilized. Radio operations will be conducted from living history encampments at the Toccoa Museum, Toccoa Courthouse, Camp Toccoa, and Currahee Mountain. WWII veterans are expected to participate in this event. w8bug.com/w4t

WWV 103rd Anniversary SES Oct 1-Oct 8, 0000Z-0000Z, WW0WWW, Fort Collins, CO. WWV Amateur Radio Club. 14.280. Certificate & QSL. WWV Amateur

Radio Club, P.O. Box 273226, Fort Collins, CO 80527. Clean sweep certificates available for stations contacting SES operators in each of the 6 active time zones www.varc.org

Get Your Park ON! Celebrating Earth Science Week Oct 8-Oct 16, 0000Z-1259Z, K5G and more, Various towns. US Affiliate (KFF) of Worldwide Flora and Fauna. All bands, all modes. Certificate. See QRZ for, each individual 1X1, call. Call signs currently participating: N2G, K5G, N6G, K7G, and N9G. See website details and complete list of 1X1 call signs. QSL information for each call will be on www.qrz.com. www.wvff.us

TONGA, A3. Masa, JA0RQV will be QRV as A35JP from Nuku'alofa, Tongatapu Island, IOTA OC-049, from August 27

to September 30.

Activity is in his spare time on 40 to 6 meters using CW, SSB, FT8, and FT4. QSL to home call.

BELGIUM, ON. Special event station OR1050HERZ will be QRV from September 1 to October 31 to mark the 1050th anniversary since the foundation of the town of Herzele in the Belgian province of East Flanders. Activity will be on all bands and modes. QSL via bureau.

MACQUARIE ISLAND, VK0. Matt, VK0MQ has been QRV on 30 meters using FT8 around 0900z. He is active until October 1. QSL via M00X0.

VP2MLB, VP2MZN, VP2MOK, VP2MYV, VP2MDA, VP2MXH will be active from **Montserrat Island, IOTA NA - 103, 13 - 20** October 2022.

They will operate on 160 - 6m, including 60m Band, CW, SSB, FT8, FT4.

The Wonders of Resonance by Armando Delgado, KN4JN

When radio amateurs hear the terms resonance or resonant invariably they first think of a resonant antenna; that is, an antenna whose electrical length equals the wavelength of a certain frequency. At that frequency, the antenna will radiate all the signals presented to it with no reflections, barring an impedance mismatch between the feed line and the antenna.

However, resonance is a rather complex term that affects many factors in radio besides antennas.

For one, resonance is an exclusive phenomenon of AC circuits. It is the end result of the way AC electrical impulses behave as they interact with the circuit components.

When an AC signal interacts with an inductor, the voltage in the signal leads the current. As the voltage peaks and begins to decrease, it induces a back current that creates a de-facto resistance to the current in the signal. Since this resistance is different from that created by the physical components in the circuit, it is referred to as *reactance*. In an inductor, the reactance is directly proportional to the inductance of the component and to the frequency of the signal; that is, as the frequency or the inductance increase, the reactance also increases.

In capacitors the current leads the voltage and once it peaks a capacitive reactance is also created. In capacitors the reactance is inversely proportional to the capacitance and to the frequency of the signal. As the frequency increases, the reactance decreases in a capacitor.

For any given circuit having capacitors and inductors there will be a certain frequency at which the reactance of the capacitor and the reactance of the inductor will be equal. That certain frequency is the resonant frequency of the circuit. That frequency can be determined by the chosen values of the

capacitor and the inductor in the circuit. Yet, what happens to the signal at resonance will depend on the arrangement of the components.

If the inductor and the capacitor are in series, the two respective reactance will subtract each other and the only resistance to the signal will be the physical resistance of the components. In that circumstance the resonant frequency will produce a peak signal. At frequencies above resonance in this circuit, the inductive reactance will increase and the signal intensity will decrease. Likewise, at frequencies below resonance the capacitive reactance will be higher and those signals will also decrease.

When the inductor and capacitor are in parallel, on the other hand, at resonance the two reactance will add and produce a peak resistance to the signal. Resonant frequencies in these circumstances will be at a minimum. At frequencies above resonance, the capacitive reactance will decrease and the signal intensity will increase, and at frequencies below resonance, the inductive reactance will decrease and the signal will also increase.

Physical circuits invariably contain resistance and that resistance adds a component to the process of resonance. This particular effect is called "Q", not the obnoxious character from *Star Trek the Next Generation*, but a ratio of the reactance of the resonant circuit divided by the physical resistance of the components in the circuit. Since reactance and resistance are measured in ohms, the resulting value of Q has no units but is just a number, the quality factor.

By adjusting the resistance of the resonant circuit, it is possible to change the Q of the system. Just like changing the

capacitance and inductance of the components can allow controlling the resonant frequency, adjusting the resistance can change the sensitivity of the resonant circuit. Resonant circuits with high Q values have sharper signal intensity and higher currents, while low Q values produce wider bandwidth and lower intensity signals.

For example, magnetic loop antennas have a high Q, because the reactance of the loop is much higher than the resistance of the components that make up the antenna. Thus, loop antennas have a narrow bandwidth and are difficult to tune.

On the other hand, dipole antennas at resonance have very low reactance and thus a low Q. That gives dipoles a broader bandwidth.

An interesting use of Q is in determining the -3dB range of a resonant frequency, the half-power bandwidth. It is the ratio of the resonant frequency divided by the Q of the circuit.

Resonance is a very important concept in radio that permits the selection of some frequencies over others, like is used in trap antennas and filters, among others. It also allows understanding what occurs in certain situations and circuits.



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



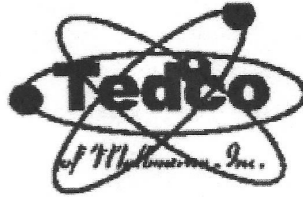
Editor's Note:

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 | | 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 | |
| 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 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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C.B.RADIO
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CORNELL DUBILIER
CELLPHONE AMPS
CHICAGO MINIATURE
CINCH JONES
CLOVER
COBRA
CUSHCRAFT

DALBANI
DECIBEL PRODUCTS
DENNISON
DURACELL
DANTONA IND.

ECG (SEE NTE)
ELECTRONIC RESOURCES
ELECTROVOICE
EVEREADY

FANON-INTERCOMS
FLUKE (WAVETEK)

GC ELECTRONIC
GALAXY
GOLDLINE

HAM RADIO
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HITACHI
HYGAIN

ICOM RADIO

JSC WIRE
JW DAVIS SOUND
JVC PARTS

KENWOOD RADIO
KOSS
KESTER

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MALLORY
MACOM
MAXON
MIDLAND
MOTOROLA

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NELLO TOWERS
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