



INDIAN RIVER ARC

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SPURIOUS EMISSIONS

OCTOBER, 2016

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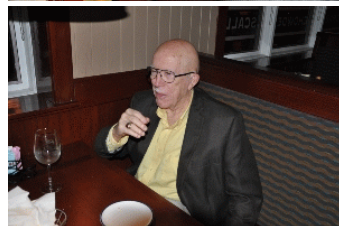
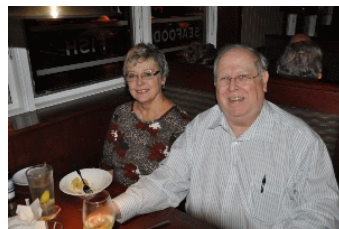
NEWSLETTER EDITOR

ARMANDO DELGADO

KN4JN

CLUB MINUTES

Once more the club meeting was cancelled due to a storm. Here are some pictures from last year's Christmas party.



HAPPENINGS

Software Defined Radio" is the topic of the August 25 episode of the "ARRL The Doctor is In" podcast. Followed by "Coaxial Connectors" and "Coping with the Solar Minimum".

For the first time ever, the origin of solar wind has been determined with certainty. NASA's Solar Terrestrial Relations Ob-

servatory, or STEREO, collected observations which allowed scientists to determine that while normally the magnetic forces of the sun confine its plasma to its atmosphere along the magnetic field lines, in the outer fringes of the solar atmosphere, the force of corona particles emanating from the sun exceed the magnetic force's ability to contain it, and the particles diffuse like a gas. At a

distance of 20 million miles, observations were made by STEREO, and then processed to remove extraneous background radiation in the visible and non-visible spectra. The corona is visible as it disperses into the solar wind.

Amateur Radio-Military Interoperability Exercise Set for October

31-November 1: An Amateur Radio-military interoperability exercise will take place October 31-November 1. The event will begin at 1200 UTC on October 31 and continue through 2359 UTC on November 1 on 60 meter channels 1-4 -5.3305 MHz, 5.3465 MHz, 5.357 MHz, and 5.3715 MHz, respectively. During this exercise, military stations will attempt to make radio contact with stations in as many of the

HAPPENINGS

3077 US counties as possible. Radio amateurs providing "county status" information will receive a US Department of Defense "interoperability QSL card." For more information, contact the Military Auxiliary Radio Service (MARS).

The ARRL November Sweepstakes runs for 30 hours, and participants may operate for 24 out of the 30 hours. The CW event is November 5-7; the phone event is November 19-21.

The ARRL Foundation will begin accepting scholarship applications on October 1 from eligible radio amateurs planning to pursue post-secondary education in the 2017-2018 academic year. Completed applications must be received by January 31, 2017. Individuals and clubs support many of the more than 80 scholarships, ranging from \$500 to \$5,000, that are awarded annually. Applicants for all scholarships must be active radio amateurs and must complete and submit the online application.

So far, 219 US stations have registered to take part in Scouting's 2016 Jamboree on the Air (JOTA), which will take place October 14-16. Registration remains open for the 59th annual event. Last year, 400 US stations registered. JOTA officials are asking JOTA 2016 participants not only to register for this year's event, but to follow up with a post-JOTA report.

Due to Hurricane Matthew the Florida State Convention/Melbourne Hamfest was postponed until October 21-22 (Fri-Sat). Aside from shifting the dates, everything remains the same—times, tickets, tables/spaces, etc. The official website for the hamfest is <http://pcars.org/>.

ON THE AIR

3W2R Vietnam. EA1ACP, EA5HPX, EA7FTR, US7UX, EB7DX will be active from Vietnam 20 - 28 October 2016 as 3W2R.

RWANDA, 9X. Jim, KB1ZSQ is QRV as 9X0JW from Kigali until December 20, 2017. Activity is holiday style on 80 to 10 meters using SSB and various digital modes. QSL via operator's instructions.

BOSNIA-HERZEGOVINA, E7. Special event station E703QLA is QRV until November 15 to

draw attention to the 3rd Quarry Life Award, an international research contest concerning the biodiversity in quarries. Activity is on 80 to 10 meters using CW, SSB and RTTY. QSL via bureau.

BELGIUM, ON. Lions Clubs International Belgian Amateur Radio operators are QRV as OR100LCI until March 2017 to mark its 100th anniversary. Activity is on the HF bands using CW, SSB and RTTY. QSL via ON8ZL.

BERMUDA, VP9. Mark, AA1AC will be QRV from Hamilton Parish as VP9/AA1AC from October 10 to 15. QSL via AA1AC.

SOLOMON ISLANDS AND TEMOTU PROVINCE, H44 and H40. Stan, LZ1GC and Emil, DL8JJ will operate as H44GC from Guadalcanal (OC-047) from September 24 to October 3 with two stations on the HF bands using CW, SSB, RTTY and PSK. Emil then returns to Germany, while Stan moves on

to Nendo Island to operate as H40GC from October 4 to 17. He then returns to Guadalcanal for another stint until October 21. QSL via ClubLog OQRS, LoTW.

U.S. Coast Guard Auxiliary 77th Anniversary. Multiple special event stations across the country will celebrate the U.S. Coast Guard Auxiliary 77th Anniversary October 21-23. Operations will be on multiple bands and frequencies, but the best will be on 14.230-14295 MHz. Look for N1A, K1G, N1H, W9C, K6A, W1H, and W3T.

DDRR Antennas by Armando Delgado, KN4JN

Folks involved in radio constantly try to improve the devices they use. This is particularly true for antennas, probably because antennas are relatively simple and inexpensive devices to build. We see amateurs creating new designs all the time. Considering that fundamental antenna designs are well understood, today most new antenna designs intend to address a specific problem or circumstance, such as limited space, stealth antennas, etc. One particular antenna design illustrates how specific needs call for a unique

design by manipulating the basic antenna fundamentals, in a very elegant and ingenious manner. This antenna, the directional discontinuity ring radiator or DDRR, was developed by a professional designer, Dr. Joseph M. Boyer (W6UYH SK), at Northrop for military applications in the 1950's.

The original design of the antenna, pictured in Figure 1, called for a 3 meter diameter

ring built of 4 inch metal tubing with a 6 foot vertical section and set on top of a ground plane. The design was for naval use, utilizing the metal deck of the ship as the ground plane. The purpose of the antenna was to provide a compact HF multi-band antenna. Figure 2 shows a prototype built on land—the rectangular patterned ground is a metal plate ground plane.

The designer stressed that the antenna material should be copper or aluminum tubing, and the ground plane should be composed of a solid, continuous metal plate for the antenna to perform according to design parameters. Some amateurs have built this antenna design using chicken wire mesh as the ground plane, and automobile exhaust metal pipe for the ring, but the designer commented that such approach is inadequate for proper performance.

DDRR Antennas

The initial impression on seeing the diagram and the picture is that this is a horizontal loop antenna. Yet, it uses a ground plane and is built of very large diameter tubing, none of which would be components of a typical loop antenna. In fact, this antenna is a highly shortened vertical antenna. The radiator is the 6 foot vertical portion, and the loop is a capacitive hat that brings the antenna reactance to tunable levels; a vacuum variable capacitor allows multi-band operation.

Unfortunately, this antenna is not practical for amateur use. Although the design provides a compact vertical antenna, its horizontal size is quite significant, and because of the potential high reactance involved, the antenna may produce high voltages that require securing the area of the antenna from people and animals: not your regular backyard project. Also, the materials required would make this antenna rather expensive to build. Yet, this antenna design shows how ingenuity can manipulate the

basics to build an efficient antenna for a very specific purpose.

References:

https://archive.org/stream/73-magazine-1976-08/08_August_1976#page/n29/mode/2up

https://archive.org/stream/73-magazine-1976-09/09_September_1976#page/n35/mode/1up

"I told my psychiatrist that everyone hates me. He said I was being ridiculous - everyone hasn't met me yet."

- Rodney Dangerfield

W1AW CW PRACTICE TRANSMISSIONS

7 PM EST) Slow CW :

Mon, Wed, Fri

7 PM EST Fast CW:

Tue, Thu

FREQUENCIES:

1.8025, 3.5815, 7.0475,
14.0475, 18.0975, 21.0675,
28.0675, 147.555

ARRL Qualifying Run

For those wanting to check their CW skills and get a certificate to prove it, there is the Qualifying Run that W1AW holds every month in the same frequencies as the CW practice. The transmissions run from 10-35 WPM and one must underline at least 1 minute of perfect copy, certify that it was made without aid, include name, address, call sign, and \$10 for the original certificate. Subsequent endorsement stickers are available for \$7.50.

The next Qualifying Runs will be

October 3 Monday 10:00PM

October 19 Wednesday 4:00 PM

November 2 Wednesday 9:00 AM

November 16 Wednesday 7:00 PM

December 2 Friday 10:00 PM

December 13 Tuesday 9:00 AM

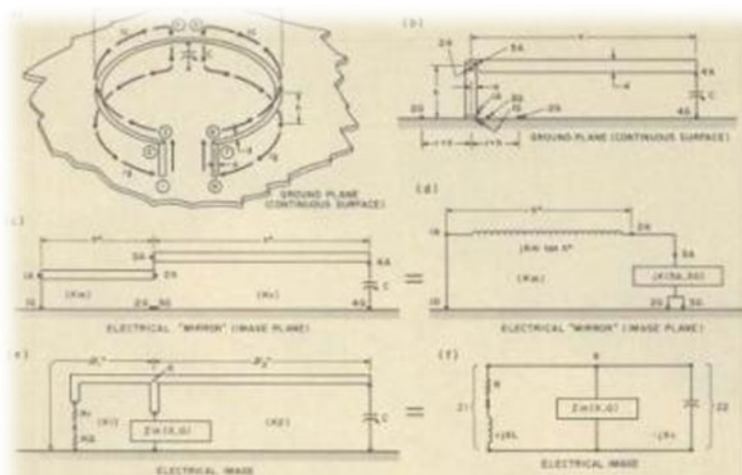


Fig. 1. (a) Wheeling-type two post DDRR over metal sheet ground plane, showing current flow elements and ground. (b) Half circumferential section of two post DDRR in linear alignment. (c) Design schematic of vertical post monopole transmission line "terminated" into horizontal transmission line section. (d) Equivalent circuit of monopole transmission line antenna loaded with top reactance. (e) Diagram for matching feed transmission line to the DDRR antenna. (f) Equivalent circuit of input impedance at feedpoint X.

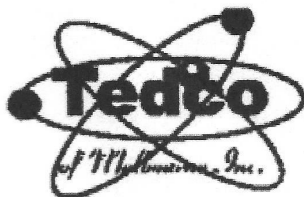
Figure 1.



Fig. 2. Close-up view of military-type Directly Driven Ring Radiator (DDRR) antenna set up for long range communications tests in the 2.0 to 30 MHz frequency spectrum. Each vertical post supporting the ring elements are fibreglass tubing tapered with "beehive" insulators. The hands of the engineer at the left rest on the 50 kV variable vacuum tuning condenser. The height of the ring in the foreground is six feet; the innermost 17.2 to 30 MHz ring element is 1.5 feet in height (Northrup Corporation photograph).

Figure 2

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