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OCTOBER 2018



CQ

Emergency Communications Special

On the Cover: Peter Prabucki, VA3ELE, works moonbounce from CQ Zone 2 during a one-man gridXpedition in Canada. Details on pages 4 and 86.

CONTENTS

OCTOBER 2018 • VOLUME 74 NUMBER 10

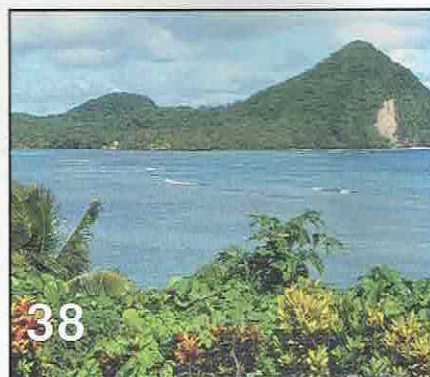


86 COVER: VHF PLUS

Spring Sprints, Central States VHF Conference, and a Canadian GridXpedition

By Tony Emanuele, K8ZR

Peter Prabucki, VA3ELE, of Mississauga, Ontario, activated more than two dozen Canadian grids – many of them rare – during a 2800-mile roundtrip expedition last summer. He made terrestrial and moonbounce contacts on 144 and 432 MHz and had "a mini pile up off the moon." (Cover photo by Peter Prabucki, VA3ELE)



FEATURES

- 12 **NEIGHBORS HELPING NEIGHBORS:** Radio Clubs in Service to the Community
By Joseph Ames, W3JY
- 18 **BEYOND UNTETHERED:** Operating Your Station, Cell Phone, and Remote Simultaneously with a Wireless Headset
By Jim Millner, WB2REM & Gene Hinkle, K5PA
- 23 **BUILD A TRANSCEIVER COOLER**
By Gary Geissinger, WA0SPM
- 28 **SHERLOCK SOLVES A 30-YEAR TRANSMITTER HUNT**
By "Sherlock"
- 30 **GATOR CASE PROJECT FOR THE YAESU FT-897D:** KDØKHD Shows You How to Build a Permanent, Portable Case
By Randal R. Schulze, KDØHKD
- 34 **MAKE YOUR OWN REMOTE BASE LINK:** WB9YBM Offers a Solution to Link Two Radios
By Klaus Spies, WB9YBM
- 38 **DX:** 3D2EU Rotuma — An Unforgettable DXpedition
By Bob Schenck, N2OO & Ronald Stuy, PA3EWP
- 42 **NEWS ANALYSIS: WWV FACES ELIMINATION**
By Rich Moseson, W2VU
- 44 **HOW I INVENTED THE HAMERICK**
By Sumner Weisman, W1VIV
- 46 **MOBILE HF FUN WITH A WELL-TUNED ANTENNA SYSTEM**
By Jim Kocsis, WA9PYH

EMCOMM SPECIAL:

Ham radio is a lot of fun most of the time, however, when disaster strikes and all else fails, ham radio is the only way to get through. This month, CQ reports how hams prepare and answer the call to serve their communities in its time of need. See pages: 12, 18, 23, 28, 30, 34, 52, 61, 62, 68, and 70!

COLUMNS

- 50 **MATH'S NOTES:** Ultra Low Frequency Communications (Part 1)
By Irwin Math, WA2NDM
- 52 **MAGIC IN THE SKY:** EmComm — Simpler is Better
By Jeff Reinhardt, AA6JR
- 58 **THE LISTENING POST:** Closures Hit Opposition Broadcasters, While Japan Scales Back Frequencies
By Gerry Dexter
- 62 **GORDO'S SHORT CIRCUITS:** "My Fear is My Family Will Sell My Radio Gear for the Price I Claimed I Paid for It"
By Gordon West, WB6NOA
- 68 **CQ WORLD WIDE:** EmComm Discussed, Chile Shares Its Plan, Sleuth Services in India, and 60 Meters for Slovenia
By Tom Smerk, AA6TS
- 70 **MF/LF OPERATING:** Potential Roles for 630 and 2200 Meters in EmComm
By John Langridge, KB5NJD
- 74 **ANTENNAS:** CQ Reviews Paradox Radio Antenna Disconnect Actuator
By Kent Britain, WA5VJB
- 74 **QRP:** QRP on the Go: A Portable QRP Antenna Showdown
By R. Scott Rought, KA8SMA

- 80 **KIT-BUILDING:** Climbing the Hill and is "The Shack" Back?
By Joe Eisenberg, K0NEB
- 84 **LEARNING CURVE:** BIC ... With a Focus on the "C"
By Ron Ochu, KO0Z

DEPARTMENTS

- 61 **EMERGENCY COMMUNICATIONS:** Device Dependent
By Walt Palmer, W4ALT
- 91 **AWARDS:** Slovakian Awards to Aim for This Fall
By Ted Melinosky, K1BV
- 98 **CONTESTING:** Getting Ready for CQWW and Improving Skills
By David Siddall, K3ZJ
- 104 **PROPAGATION:** Good Conditions Predicted for 2018 CQWW DX SSB Contest
By Tomas Hood, NW7US
- 2 **ANNOUNCEMENTS**
- 3 **HAM RADIO NEWS**
- 8 **ZERO BIAS**
- 10 **NEWS BYTES**
- 54 **CQWW ALL-TIME RECORDS**
- 63 **SPURIOUS SIGNALS**
- 72 **BEHIND THE BYLINES**
- 109 **READER FEEDBACK**
- 112 **HAM SHOP**

Getting a fully-equipped ham station to a field location for emergency or public service communications can be a struggle. KDØKHD shows us how he solved that problem in a permanent, portable, manner.

Gator Case Project for the Yaesu FT-897D

BY RANDAL R. SCHULZE,* KDØHKD

It all started with ... The Big Radio Case. When I was a kid during the early 1970s, the high school I was attending had just completed a production of Rogers and Hammerstein's *South Pacific*. After the show, the props and other items they were going to throw out included an old Navy surplus radio in a heavy-duty case, and another similar radio case, which was empty. One of the older students laid claim to the radio, so I grabbed the empty case.

This thing was massive. It was about 32 x 12 x 18 inches. It was heavy, made of 1-inch thick wood, and was divided into three compartments; one large compartment at one end, and two at the other end. It had lids at each end that would clamp on and seal with rubber gaskets, and a small hinged trap door on the side. The case had carrying handles on each side, and as I recall, it had mounting points within for rack-mounted equipment. It was painted battleship gray and had decals with various numbers and USN stenciled on it at several locations.

I had big dreams of mounting radios, batteries, and power supplies, along with switches, knobs, and blinking lights, in the old case. Most radios and other electronic equipment were typically large in those days. They were still using tubes, and while "solid-state" circuitry was around, integrated circuits and the degree of miniaturization we enjoy today was not quite ready for prime time. The financial resources available to me at the time did not allow me to really invest in the equipment I wanted to install in the big Navy case, so that dream was more or less forgotten over time. I still have the case somewhere out in the garage, where it contains model airplanes and other toys from my youth.

Time Goes By

Many years and three successful careers later, I'm an amateur radio operator with various models of radio equipment suited for the various modes and roles hams enjoy. One of my favorite radios is my trusty Yaesu FT-897D. Over a few years, I've purchased various accessories for this rig, including the LDG AT-897 HF tuner and the external analog meter. For several years, this radio was configured as my base radio in the shack at my home. Later, I purchased a bigger radio with more advanced features and the FT-897D became the

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Photo A. The Gator Case is designed primarily for safely transporting professional audio equipment but also works great as a ham radio "go kit."

radio I would use at outdoor events, such as Field Day, or the WW1USA special events.

To store and transport the radio, tuner, mics, and accessories, I used several hard-plastic gun cases with pluck & pull foam. These worked pretty well for storage, but when it came time to deploy, everything would have to be unpacked, assembled, and the various plugs plugged in. This often caused the need for troubleshooting if plugs were not plugged in to the correct ports or plugged in properly. One or more of the pins from the 8-Pin DIN/CAT cables would often get bent, or worse yet, break off.

A Great Idea

A friend of mine, Joe Krout, KRØUT, came up with a good idea for his field rigs. He mounted his ICOM HF radios in something called the Gator Case (Photo A). The Gator Case line of products came about to serve the live music industry, as a means to provide protection and portability to sound equipment deployed at various venues as large as concert



Photo B. The Samlex SEC-1235M power supply is available for rack-mounting as well as standalone operation.

Photo C. The Outrigger 4 power distribution unit from Electro-Resales was the perfect option for providing DC power to all the equipment in the Gator Case. (Photo courtesy Electro-Resales)

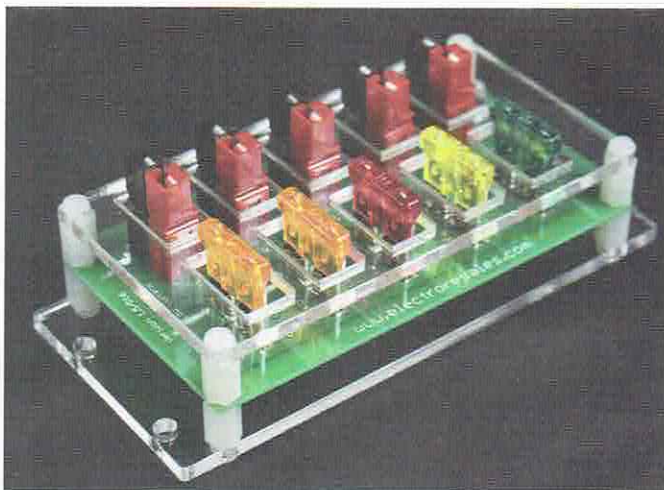


Photo D. Close up of the "blue meters."

halls, or as small as the corner bar. The cases come in various sizes and feature a lifetime warranty. The Gator Case is well-suited to hold any type of electronic equipment which can be rack-mounted.

It took me a while to come around, but after considering the monetary value of my radio equipment and accessories in question, it appeared that investing in a Gator Case project would be money well spent. I took my time and put a great deal of thought into exactly what equipment I would mount in the case, and how I would mount it.

One of my favorite power supplies has been the Samlex 1235M (Photo B), which has volt and amp meters mounted on the front. I also learned that Samlex makes a rack mount for this power supply, in models which will accommodate either one or two power supplies. Two seemed like overkill, so I opted for the single unit rack in my plans. Next, I searched for an electronics rack to mount the bulk of the other equipment and accessories, and came up with the Raxxess RAX Unitrack, Universal Rack. My plans were starting to shape up.

While thinking, I felt that connecting the power supply directly to the radio really didn't make this configuration a "portable" radio for field work. I knew I would need a power distribution unit that would allow for flexibility, and perhaps some added protection for my equipment. After wandering around on the internet for a while, I stumbled across the Outrigger 4 Power Distribution Unit (PDU) by Electro-Resales <www.electroresales.com> (Photo C). I don't know how I could have overlooked these people up to this point, as they are located right here in the Kansas City area, where I live. I realized that I've talked to these guys before. This PDU is just the right size, is of very good quality and craftsmanship, and costs only a third of what the competitor is asking.

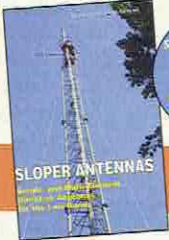
So, the power strategy is simple. Everything going in and out is fused. The power supply connects to the Outrigger 4 PDU. From there, power is supplied to the radio, and all the lights for the meters, with two more ports to spare. I'm considering other future additions to the project that utilize the spare ports. This also makes this arrangement a quasi-portable package. I can use the power supply with any standard 110-volt AC power source, such as the Samlex power supply, or I can quickly attach other options, such as batteries, solar, what have you, so long as they



Photo E. Front view of the finished project

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Photo F. Steve Cummings, K0BLR, operating the author's Yaesu FT-897D in the Gator Case during the 2018 Missouri QSO Party.

have Anderson Powerpole connections, which is nearly standard in the amateur radio community.

Initially, I purchased the Yaesu bracket for mounting an FT-897D to the underside of a vehicle dashboard. That was a mistake. While this was a high-quality bracket, it turned out this added

an additional two vertical inches to the top of the radio, thus making it two inches too big to fit in the case. I found that if I removed the wire stand from the bottom of the radio, (which was also adding height to the radio), I could use the same screws and the same threaded holes to secure the radio to the rack shelf. Since

these specific screws were used with the radio, I could ensure that the metal screws would not extend into the electronics, and cause a short.

Two more bells and whistles were added. LDG makes an external analog meter for the FT-897D, which connects to a port at the bottom of the radio, just under the main VFO knob, with a 1/8-inch plug. This meter also has a 12-volt power connection on the back, which I had not used before, but found that if power is supplied, the meter has a nice, blue-colored backlight. Cool. Let's hook it up. Next, I'm looking around my shop among the typical treasures most hams collect over the years, and find I have a few of those inexpensive LED volt displays which, when connected to power, shows the voltage at the power source. When hooked up, this reads a nominal voltage coming to the PDU of 13.7 volts. And what do you know? The LEDs are glowing in that same nice shade of blue as the analog meter ... cool! (See *Photo D.*) Let's hook that up, too!

Finished Project

Some Anderson Powerpoles, a few drops of solder here and there, some aluminum strapping formed into brackets, some heat shrink tubing, nuts, bolts, and putting everything in place like a tightly fit jig-saw puzzle, and voila. A plug-and-go radio station. (See *Photo E.*)

Take it into the field, connect the mic, the antennas, the computer, and the power option and get on the air (*Photo F.*), all the while protecting my equipment in an attractive, easy to manage case.

When the radio is not being used, there is ample space below the equipment on either side of the power supply to store and carry a few additional, yet necessary, accessories such as microphones, cables, adaptors, and my foot switch. I expected this would be extremely heavy when fully loaded, and to an extent it is, weighing in at 36.4 pounds with everything stored on board. But this is far less than the 50+ pounds I expected. I may not want to lug this up to the top of a mountain on my back, but with the handles and shoulder strap supplied with the Gator Case, getting it from my car to the field is a breeze.

It occurred to me that that dream I had as a kid of mounting radios and electronics into a case with switches, knobs, and lights ... has finally happened!

More details about the construction of the Gator Case Project for the Yaesu FT-897D can be found at: <<http://ham-space.com/Gator/index.htm>>.

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BEHIND THE BYLINES...

... a little bit about some of the authors whose articles appear in this issue

Joseph Ames, W3JY ("Neighbors Helping Neighbors – Ham Style," p. 12), is National Chairman of Radio Relay International <<http://radio-relay.org>>. RRI provides an alternative message-handling network to the ARRL's National Traffic System. As explained in this article, RRI's local networks include Family Radio Service (FRS) and General Mobile Radio Service (GMRS) users in addition to radio amateurs. Long-haul message traffic is handled on amateur frequencies.

Jim Millner, WB2REM ("Beyond Untethered," p.18), is a frequent contributor to *CQ*. A ham since age 11, he has operated from about a dozen different DX locations and has written on a variety of topics, from remote radio operation to the psychology of QRMers and "DX cops." Co-author **Gene Hinkle, K5PA**, is a retired systems engineer specializing in radio geolocation and co-founder/trustee of the Hill Country Mountain Topper Association, which sets up and operates remote and/or temporary stations in the hill country of Texas.

Gary Geissinger, WA0SPM ("Build a Transmitter Cooler," p. 23), has been licensed since 1968 and is a member of MARS. He holds a master's degree in electrical engineering and spent 40 years as a design engineer in the aerospace field.

Randal Schulze, KD0HKD ("Gator Case Project for the Yaesu FT-897D," p. 30), works in information technology but has a communications background that includes radio broadcasting and law enforcement. He is also co-founder of "Hams in Space," which offers presentations at clubs and hamfests on how to work FM satellites. He is also affiliated with the Amateur Radio Club of the National World War I Museum (WW1USA) in Kansas City, Missouri.

"Sherlock" ("Sherlock Solves a 30-Year Transmitter Hunt," p. 28), is not the author's real name but this is his real story:

When Sherlock was about 11 years old, he hung around the Baker Street Grocers because his uncle was a butcher there. That is how he got interested in ham radio. It was there on the magazine rack he first found *CQ* magazine. It was the 6- x 9-inch version. All of the ham abbreviations and terms were foreign to him. He didn't even know what "CQ" was. He soon found an Elmer and became a ham.

1951, Real story. –*Sherlock*

and 2200-meter bands to amateurs. Appropriately equipped 2200-meter stations could extend the usable ground wave range considerably but noise conditions at any prospective operating site should be evaluated for the band of interest prior to beginning construction and comprehensive planning. At my station here in suburban North Texas, 2200-meter reception is virtually impossible during the day in any direction but becomes considerably quieter after dark, which may seem counterintuitive until considering that many local businesses are closed for the day and associated noise generators are probably powered off at night.

A Challenge for the Future

At the beginning of 2018 I was thinking about plans for Field Day and how those plans might include 630 and/or 2200 meters. Given that Field Day is intended to be as much a contest as it is an exercise in setting up portable or temporary operating positions sometimes using emergency power, it seemed like a good opportunity to look at the feasibility of MF and LF under potentially difficult (and often meager) conditions. While I submitted UTC notifications on the behalf of a number of larger clubs in the Dallas-Fort Worth area and their

respective Field Day sites, I ran out of time to make a comprehensive push at club meetings to ensure that groups might actually set up a station at their sites and get on the air. In addition to making Field Day QSOs (of which several were, in fact, completed around North America), my local area vision focused on passing message traffic via CW or digital modes, and perhaps I would function as a clearinghouse and liaison to ensure that traffic passed on 630 meters (in my case) would be injected into the traffic network for routing to its final destination.

Just thinking out loud, it would make a lot of sense in the future for the ARRL to allow a "free station" that does not increase transmitter count for both 630 and 2200 meters as a demonstration opportunity at Field Day. Perhaps a meaningful number of points could be established for someone who set up a station and made at least one QSO on at least one of the bands. This approach to a fixed point value is already used for servicing message traffic to a Section Manager, completing a satellite QSO and having a public service agency representative in attendance.

Regardless of anything official that happens in 2019 or the future related to MF, LF and Field Day, I would encour-



Photo C. Loading and matching for the 630-meter Marconi-T at W8CDX were accomplished by this junk box gem. A shunt match coil (left) feeds a small variometer (center) to allow frequency agility and fine adjustment. The larger coil (right) is in series with the variometer and manages the bulk of the loading. Both sides of the open-wire feed line are connected to the top of the coil. Note the minimal radials and ground rod to the right. (Courtesy of NO3M)