

SPARKS

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Welcome to the Delta Amateur Radio Club

Visit our home on the web at: <http://www.deltaclub.org>

EMAIL: darc4you@gmail.com

Facebook: <https://www.facebook.com/darcmem>

Newsletters; <http://www.deltaclub.org/sparks.html>

W4BS

REPEATER SYSTEM

146.820^{-107.2} 147.360^{+107.2}

146.625^{-107.2} 443.200^{+107.2}

224.420^{-107.2}

This month's meeting begins at 7pm on October 11, 2016, at Ellendale Church of Christ, 7365 Highway 70 Memphis, TN (1 ½ miles north of Highway 64 (Stage Road)).

In this month's program we welcome James Butler, KB4LJV. James moved to Memphis in 1969. He graduated Frayser High School in 1973 and University of Memphis with a BSEE engineering degree in 1977, then worked as an R&D engineer for Dover Elevator Systems in Horn Lake, MS, designing and developing new products for the elevator industry. He received his amateur radio license in 1985. He worked as an Avionics Specialist designing avionics test equipment and tracking hardware for Boeing Aircraft. He took some time off work and built a new house in 1999 on his farmland outside of Mason, TN. He worked with high speed production equipment making Slimfast Diet drinks for Slimfast Foods in Covington and also worked as their Safety Coordinator, training new hires and running the plant safety program. In 2003 he taught in Vatterott College's Electrical program. After receiving heating and air conditioning certifications, he taught in Vatterott's heating and air conditioning program. Since 2009 he has worked in the Electronics shop at the FedEx hub in Memphis. James' hobbies include QRP, digital modes, CW, short wave listening, building kits, electronics, and computers.

Since about 1989 James has contributed an **amazing** array of articles to Sparks. The ham community thanks you for your efforts, sir!

James' program will be a brief history of Heathkit and the kits they have offered over the years. His slideshow will include pictures of the ham radio, test equipment, and educational kits they sold. He will bring a Heathkit manual to show as well as one of his HW-8s.

Delta Club Director of Programs, Jim Cissell, KI4I, has suggested that attendees bring one or more of the Heathkits you've built!

Delta Club FCC testing sessions are held monthly except December. Registration begins at 5:30 PM; testing begins by 6:00 PM. Please bring a photo ID and another form of identification, copies of existing licenses or CSCEs, and your FCC Registration Number (FRN) if one has been issued. Please be on time for registration to allow our Volunteer Examiner (VE) team to complete their work prior to the club meeting. The 2016 test fee is \$15 (cash or check). Individuals receiving their initial FCC license grant at a Delta Club test session or through a Delta Club training class will receive a complimentary individual club membership for the remainder of the current calendar year when they also show proof of ARRL membership. For more information, please email our VE Liaison, [Jeff Krause, AJ4GY](#), or call at 901-301-6776.

Congratulations to those who passed exams during Delta's September, 2016, test session: new Technician Robert Briggs, KM4WSL, new Generals Clarence Bowermaster, KM4WSM, and Steve Evans, KM4VYA, and new Extra Robert Jones, K9RLJ.

November Meeting Notice!

Delta's meeting location, Ellendale Church of Christ, will serve as a polling location for the November 8th election and will not be available for our November meeting.

Bill Stevens, WC9S, has arranged for us to meet at Lord of Life Lutheran Church, 6865 Poplar Pike, Memphis, TN 38119 on November 8th.

FCC testing sessions, HQ 101, and the club meeting will take place at the normal times. Thanks to Bill for his help in wrangling November's meeting location.

President's Corner

Submitted by Ken Laseter, KI4AOH

Looks like mother nature is teasing us a little with cooler temperatures, then hot weather again. After it being so hot this summer I'm sure looking forward to cooler weather. For me, along with the cooler weather comes the opportunity to sit on the patio and tinker with new antennas.

Once again, we are now planning for our next public service event, the St. Jude Marathon. We still need additional volunteers! Please, if at all possible, volunteer for this worthwhile event. Contact [Roger Schlichter, WR4R](#), and let him know you want to help. This is probably the largest event we support each year. So, do it now, send Roger an email and hop aboard, we always have fun working this event. I'll see you there!

It's not too late! If you would like to be on the board of directors, now's the time to put your name on the ballot. Or, if you know someone you think would make a good director, just let [me](#) know. There are only two basic requirements: 1) you must be a club member, and 2) you must have attended at least six club meetings during calendar 2016. Please be thinking about helping us fill all the board positions. We will discuss nominations at this month's club meeting. Remember, election of new officers will be held at our regular club meeting in November.

The following is a list of the nominees we have at this time. If you want your name on this list, please let [me](#) know at your earliest convenience.

President: -----	Kenneth Laseter	KI4AOH
Vice-President: -----	Steve Frazier	KK4VPT
Secretary: -----	Barri Munday	WB4SWP
Treasurer: -----	Linda Laseter	KJ4CTX
Director of Training: -----	Joe Lowenthal	WA4OVO
Director of Publications: -----	Dan Lasley	NE7JN
Director of Programs: -----	open	
Director of Meeting & Special Events: -----	open	

As always, please don't forget to check into the Delta Club information net on the 146.820 repeater at 8:00 pm each evening, and when you check-in, make sure to thank the net control operator for taking time from their family and busy schedule to call the net for us. They are some our most valuable assets!

If you have not renewed your club membership now is the time. I think we still have some members who are procrastinating or have forgotten. Linda, KJ4CTX, will be glad to accept your renewal application and cash, check or money order, either at a club meeting or via snail mail.

See you at the meeting Tuesday night!

73,

Kenneth Laseter
KI4AOH

Treasurer's Report

Submitted by Linda Laseter, KJ4CTX

DELTA AMATEUR RADIO CLUB

Monthly Treasurer's Report

For month ended September 30, 2016

Submitted by Linda Laseter KJ4CTX Treasurer

CHECKING ACCOUNT

BEGINNING BALANCE		
BEGINNING BALANCE	as of September 1, 2016	\$ 8,711.92

INCOME			
Date	Description	Amount	
9/15/2016	Membership dues	\$ 120.00	
TOTAL INCOME		<u>\$ 120.00</u>	\$ 120.00

EXPENSES				
Date	Check #	To	Description	Amount
9/6/2016	1387	ComServ Wireless	Repeater repair	\$ (213.04)
9/13/2016	1388	Jim Cissell	Extension cord	\$ (35.11)
9/13/2016	1389	Steve Frazier	Meeting refreshments	\$ (65.25)
9/16/2016	1390	Linda Laseter	SERA membership	\$ (35.00)
TOTAL EXPENSES				<u>\$ (348.40)</u> \$ (348.40)

ENDING BALANCE as of September 30, 2016 \$ 8,483.52

CERTIFICATES OF DEPOSIT			
	Maturity Date	Balance as of	
Certificate of Deposit #1	10/10/2018	7/13/2016	\$ 10,372.85
Certificate of Deposit #2	10/11/2016	10/9/2015	\$ 5,050.12

TOTAL DARC CASH ASSETS \$ 23,906.49

This Month's Board Meeting Minutes

October 4, 2016 -- Submitted by Barri Munday, WB4SWP

Attendees: Bill Stevens, WC9S, Steve Frazier, KK4VPT, Dan Lasley, NE7JN, Ken Laseter, KI4AOH, Linda Laseter, KJ4CTX, Len Grice, W4MKS, and Barri Munday, WB4SWP. Michael Knight, KK4IOH, Jim Cissell, KI4I, and Joe Lowenthal, WA4OVO, were absent,

Ken called the meeting to order. Linda began the evening's business by covering the Treasurer's Report and discussing the budget with a newly formatted budget report. Linda also talked about prizes being bought for the drawings in November & December meetings. The board voted to give Linda \$200 to spend for prizes for those meetings.

Len mentioned the upcoming 2017 ID cards with a repeater list on the back of the card.

Bill Stevens suggested we have coffee and donuts for the swap-n-shop which will be held Saturday, October 8th from 9am - 1pm at the Delta meeting site.

Bill said the ICOM 756 Pro 2 sold for \$750, but \$100 of that was used for repair of the 146.82 repeater feedline and connectors.

See page three for the slate of 2017 officers.

The November 8th meeting will need to be changed to another location due to the church being a polling place. Bill will check on the availability of Lord of Life Lutheran Church as a meeting location for the November meeting.

Joe Lowenthal called in his contribution, a General Class beginning November 7th for 6 weeks at the Germantown Police Training Room on Farmington Boulevard in Germantown.

Minutes of Last Month's Club Meeting

September 13, 2016 – Submitted by Barri Munday, WB4SWP

The meeting began at 7:02 pm with Ken Laseter, KI4AOH, asking those in attendance to introduce themselves by name and call sign.

Bill Stevens, WC9S, moved to approve the minutes as printed in Sparks; seconded by Len Grice, W4MKS. The motion was accepted by acclamation.

Len Grice moved to accept the Treasurers report as printed in Sparks, seconding not recorded. The motion was accepted by acclamation.

Everyone was reminded of a window line J pole class to be presented by Ham Hilliard, W4GMM, and to be held on September 24th.

Linda Laseter, KJ4CTX, mentioned the YL lunch on Saturday, September 17th at Bahama Breeze Restaurant at Wolf Chase Mall.

Bill Stevens talked about an Icom 756 for sale by the club and reminded everyone about the swap meet at Delta's meeting site on October 8th from 9am to 1pm.

Jim Cissell, KI4I, asked for suggestions for programs for the remainder of the year.

Dan Lasley, NE7JN, on behalf of Jeff Krause, AJ4GY, mentioned those who passed exams during tonight's test session: one new Technician, two new Generals, and one new Extra. See page 2 for details.

Joe Lowenthal, WA4OVO, said he intends to present a General class, possibly in November, the location to be determined.

We heard a recap of the ARRL VHF/UHF contest; a number of Delta Club members participated from Mt. Nebo, Arkansas.

Tina McElravey, KM4PMZ, delivered the evening's presentation on the Shelby County Health Department's emergency preparedness and Medical Reserve Corps.

At 8:30pm Len Grice moved to adjourn, seconded by Billy Freeman, WL4B.

Amateur Hardware Update

Article and image submitted by James Butler, KB4LJV

Many times we want to control DC devices with solid-state devices. The best device for this is a Power MOSFET. These can handle higher voltage and current. They are also solid-state which means no moving parts. The device can be turned off and on quickly with a varying duty cycle. This allows for light dimming and speed control of DC motors. The most common is the IR520 MOSFET. The voltage is up to 24 VDC and 1 amp current. You can get up to 5 amps with a heat sink installed. You can buy this on a PC board ready to hook up to your computer or homebuilt circuit. On EBay the cost of the PC board with all parts installed is under \$2.00. The board has connectors to hook up power and signal to turn the MOSFET on and off. It also has an onboard LED that lights up when the MOSFET is on. This is a good way to experiment with solid-state outputs. Go to EBay and do a search for "Arduino fet driver".



Amateur Packet Update

Submitted by James Butler, KB4LJV

Amateurs are using home computers along with their Ham Radios. We want to find programs we can run. One good website is Snapfiles. The site has lots of good programs you can download to your computer. They have the programs organized into categories like graphics or utilities. They also show if the program is a trial copy, a shareware copy, or a freeware copy. I have been using this site for years and their software is first class. They also show ratings from users of the software. Each program also includes a write up of what it does and a screen shot of what the program looks like. If you are looking for software to run on your computer go to this great website. The address is <http://www.snapfiles.com/>

Jamboree On The Air, October 14 and 15

Submitted by Hugh Wardlaw, WB4SLI, contributions by Morris Butcher, KM4FHT

The World Organization of Scouting sponsors this event annually in October. This is an event where the Scouts use amateur radio to communicate with Scouts all over the world. I am saying Scouts meaning both Boy Scouts and Girl Scouts.

This is not a contest. The whole focus is to have Scouts talking with Scouts. There are no points or any type of scoring.

When considering doing this I would remind everyone that today's youth are the future of the hobby. I have had the most success setting up at a park or church grounds and operating outside.

Please seriously consider connecting with a Scout organization and offering your service.

Morris tells us that a Jamboree On The Air will be held at Camp Currier in Nesbit, MS, starting Saturday, October 15th. If anyone needs information, contact Morris at 901-568-4719 or Kevin Litt at 901-327-4193.

See <http://www.arrl.org/jamboree-on-the-air-jota> for additional information.

Ham Questions 101

Submitted by Linda Laseter, KJ4CTX

We never know what questions or subjects will come up in HQ 101 and September's session was no exception. We discussed everything from loss of signal strength when using an ear piece to leaking and swollen capacitors. We also discussed what type of antenna could be used in an apartment setting. The formal presentation was on repeaters.

We had a full house for our J Pole class on September 24th. We all had fun measuring, cutting, and soldering as we constructed our J Pole antennas. Each antenna was tested and passed with flying colors, proving we all did a good job constructing our antennas. Three hams tried out their new J Poles on the air Saturday night and all came through loud and clear.

We also learned about the word "HOT" in this class. Luckily everyone listened to our instructor, Ham, W4GMM, and kept their fingers away from the torch flame, the melting solder, and the hot pipe...so no burned fingers.

Please refer to the article on page 18 for class photos and information on the class.

We are rescheduling the J Pole ladder line class for a later date. Steve, W5VAA, will be our instructor. We will keep you updated on the class date, time, etc.

This month our topic for discussion will be "Power loss in coaxial cables" and related subjects. Dan, NE7JN, will lead the discussion.

We hope you will join us. This is a small, informal group setting. We are here to help you, so bring those questions and join in.

We meet upstairs in the Ellendale Church at 6:00 p.m. just prior to the regularly scheduled monthly Delta Club meeting. If you are not able to attend the forum, then please send us your questions via email.

For information, contact [Linda Laseter](#), KJ4CTX, or [Dan Lasley](#), NE7JN.

Delta Ham License Training 2016
Submitted by Joe Lowenthal, WA4OVO

There is no charge for classes, but the student is responsible for the purchase of the license manual and the \$15 ARRL FCC examination fee.

Licenses Earned in 2016 from Delta Classes

17 Technician
7 General
5 Extra

If you are interested in attending a training class, send an email to [Joe Lowenthal](mailto:Joe.Lowenthal@deltaamateurradioclub.com) with the desired class name in the subject line, along with your name, email address and cell phone number in the text.

The new [Technician question pool](#) is effective July 1, 2014, through June 30, 2018. You will need the [ARRL Ham Radio License Manual 3rd Edition](#) to study for the Technician exam.

The new [General question pool](#) is effective July 1, 2015, through June 30, 2019. You will need the [ARRL General Class License Manual 8th Edition](#) to study for the General exam.

The new [Extra question pool](#) is effective July 1, 2016, through June 30, 2020. You will need the [ARRL Extra Class License Manual 11th Edition](#) to study for the Extra exam.

Classes Completed

Technician Class 4-16: July 7 – August 18, 2016.

Congratulations to the 10 students who earned their licenses.
Thanks to the Germantown Police Department for the use of their training room for this class.

Planned Classes

The next Technician license class will probably start in late February.

General Class 5-16: November 7 – December 12, 2016.

The next General license class will start November 7th from 6:15pm to 9:30pm if there are six students registered for the class. The location will be at the Germantown Police Department training room, 1930 South Germantown Road.

Last Month's Program

Submitted by Dan Lasley, NE7JN, contributions by Tina McElravey, KM4PMZ



Photo by Dan Lasley, NE7JN

Tina McElravey, KM4PMZ, MPH, BSN, RN, with the Public Health Preparedness Program (PHEPP), has more acronyms to her credit than [Carter has Little Liver Pills!](#)

Tina directs the recruitment, retention, and training of Medical Reserve Corps (MRC) volunteers who may be asked to assist during a public health emergency. She also facilitates and teaches specialized medical and emergency preparedness training for Shelby County Health Department staff and MRC volunteers. All these qualifications brought Tina to Delta's September program.

Tina told us that "shortly after the terrorist attacks on September 11, 2001, and subsequent anthrax attacks, Congress appropriated funding to CDC to support preparedness for emergencies at public health departments nationwide."

The Shelby County Health Department MRC Mission Statement: "The mission of the Shelby County Health Department Medical Reserve Corps is to improve the health and safety of Shelby County residents by organizing and training volunteers to prepare for and respond to local public health emergencies and support public health initiatives."

Tina said that most disasters or emergencies are relatively unexpected, most give little or no warning, our first responders will be overwhelmed, and services such as phones, transportation, utilities, sanitation, radio and TV may be unavailable.

In the event of a disaster or emergency, you are not helpless! Tina gives us some guidelines:

- Be aware of what might happen in your area and how you will be notified.
- Have a plan.
- Know what to do before, during, and after a disaster/emergency.
- Practice your plan.
- Put together and maintain a disaster kit.
- More often than not, everyday citizens are the first people at the scene of a disaster or emergency.
- Get Community Emergency Response Teams (CERT) training

Tina says a disaster plan should include the following:

- Emergency supplies of food, water, and other necessities
- Radios and communication
- Shelter in place and evacuation plans
- Fire Safety
- Region specific hazard safety and interventions
- Earthquake, flood, hurricane, tornado, radiation emergency

Tina also talked about disaster supplies, including the obvious food, water, sanitation, first aid, medications, pet supplies, and one item I'd never thought of but makes perfect sense. Not only will you need cash, but Tina said you should keep \$10 in quarters in your car.

In discussing medical countermeasures, Tina amazed me by saying a goal is to be able to distribute antibiotics to 100% of the local population with 48 hours and perhaps as quickly as 36 hours!

Tina called for members of the audience to consider volunteering for the Medical Reserve Corps. If you would consider joining, please contact [Tina](#).

Thanks to Tina for a very interesting presentation and for allowing us to post her [presentation](#) on Delta's web site.

YL News

Submitted by Linda Laseter, KJ4CTX

YL LUNCHEON – The September 17th Bahama Breeze Grill luncheon was fun and the food was delicious. Lee, W8ZQX, won a scented candle as a door prize and Gale, KI4VDI, also won a door prize which was a ceramic pumpkin light.

For October we have planned a fun casual day at Fat Larry's Bar-B-Q.

October 22, 2016
11:30 a.m.
Fat Larry's Bar-B-Q
7537 US 70
Bartlett, TN
901 386-1900

We hope you will join us.



Photo by Linda Laseter, KJ4CTX.

YL Luncheon Attendees (L-R): Betsy Freeman, KD4KOM, Janice Shaner, KM4HZY, Ann Cissell, WB4FAA, Gale Tisdale, KI4VDI, Barri Munday, WB4SWP, Janet Kelly, KK4PRT, and Lee Race, W8ZQX.

YL NET - We have been on the air for a month and going strong! Thank you to all the YLs who are joining us on Saturday evening at 8:45pm to check-in and to the OMs who join in as well. We appreciate you and your words of support. I would also like to thank Barri, WB4SWP, and Stacy, KJ4MDA, as they join me in calling the net each month. They are doing a great job!

We hope to hear more YLs on the air soon. This Net is for you to practice your radio communication skills, connect with other YLs, and to share information. If you have a suggestion, or a question about ham radio, or want to share a recipe, or make a comment about the YL luncheon, or maybe you saw a really good movie and would like to share that, we would love to hear from you.

Thank you for checking in and making the 2016 YL Net a success.

33,
[Linda Laseter](#), KJ4CTX

Coax Tests

Article and photos by Dan Lasley, NE7JN

I found some exceedingly inexpensive coax jumpers at the Huntsville hamfest in August. I bought a 50-foot RG-8X coax jumper and on the way back from Huntsville I wondered whether my exceedingly inexpensive coax jumper was also exceedingly poor quality! I asked Tony Brignole, WA4KHN, to check the 50-footer and a couple of other coax jumpers. Here are the results.

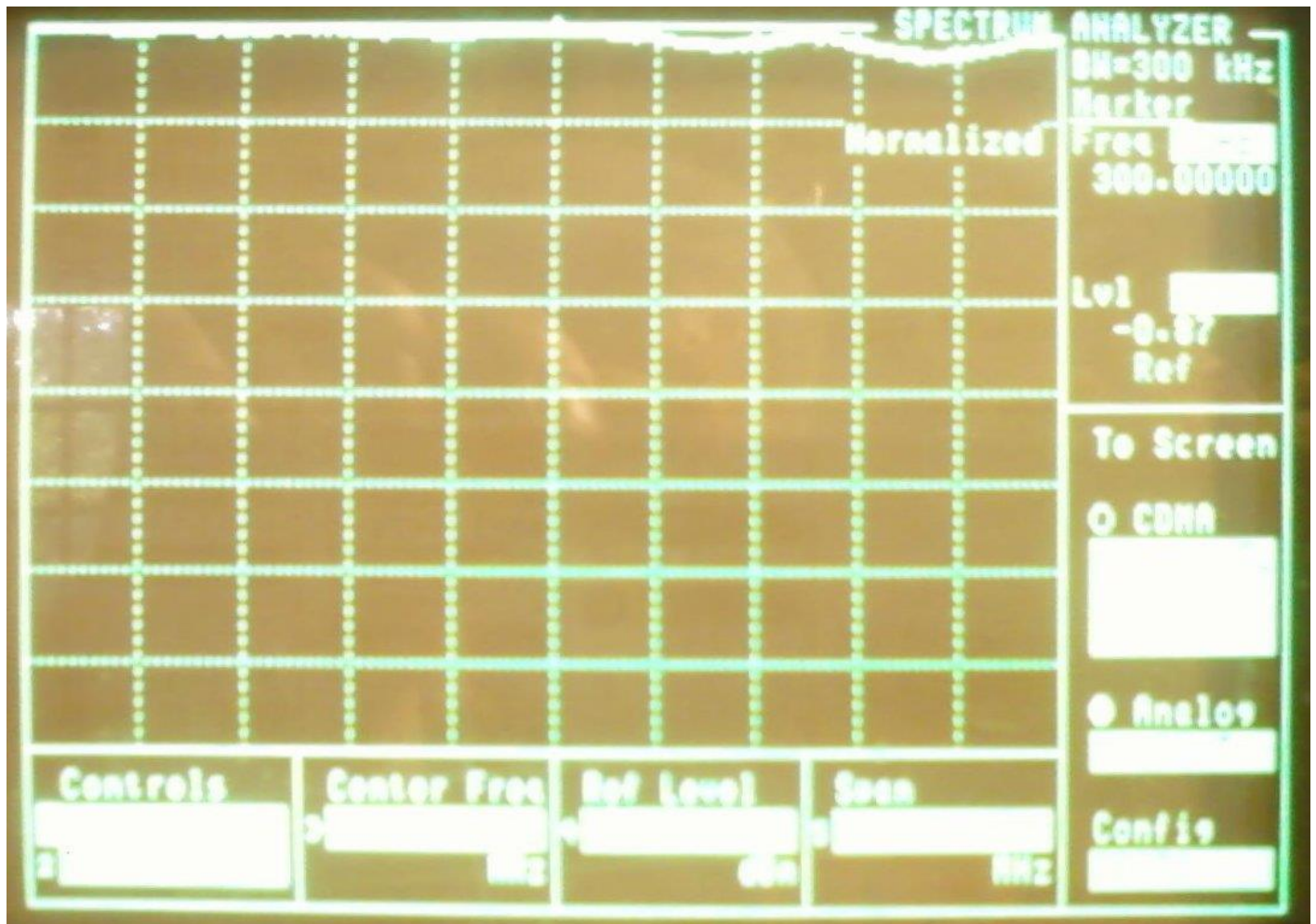


Photo 1: Three feet of RG/8X

Tony set up his Hewlett-Packard 8924C spectrum analyzer with the appropriate connectors and initial settings, which include a sweep of 540 MHz, beginning with 30 MHz and ending with 570 MHz. In each image, you will see eleven vertical lines; the leftmost vertical line represents 30 MHz, the center line represents the center frequency of 300 MHz, and the rightmost vertical line represents 570 MHz. The extra dot at the top of the center line is an easy reminder that this is the 300 MHz center frequency marker. Each vertical line is a change of 54 MHz from its immediate neighboring lines.

You'll see a solid horizontal line at the top of each image. This line represents a loss of 0 dB, the next horizontal line represents a loss of 10 dB, then 20 dB, etc.

If you look closely at photo 1, at about 354 MHz (vertical center line of 300 MHz plus one division of 54 MHz) you can see a slight droop from there to about 435 MHz, then a larger droop from 435 MHz to 570 MHz. The droops represent losses of about 3 and 4 dB, respectively.

The coax jumper used in photo 1 is three feet of RG/8X.

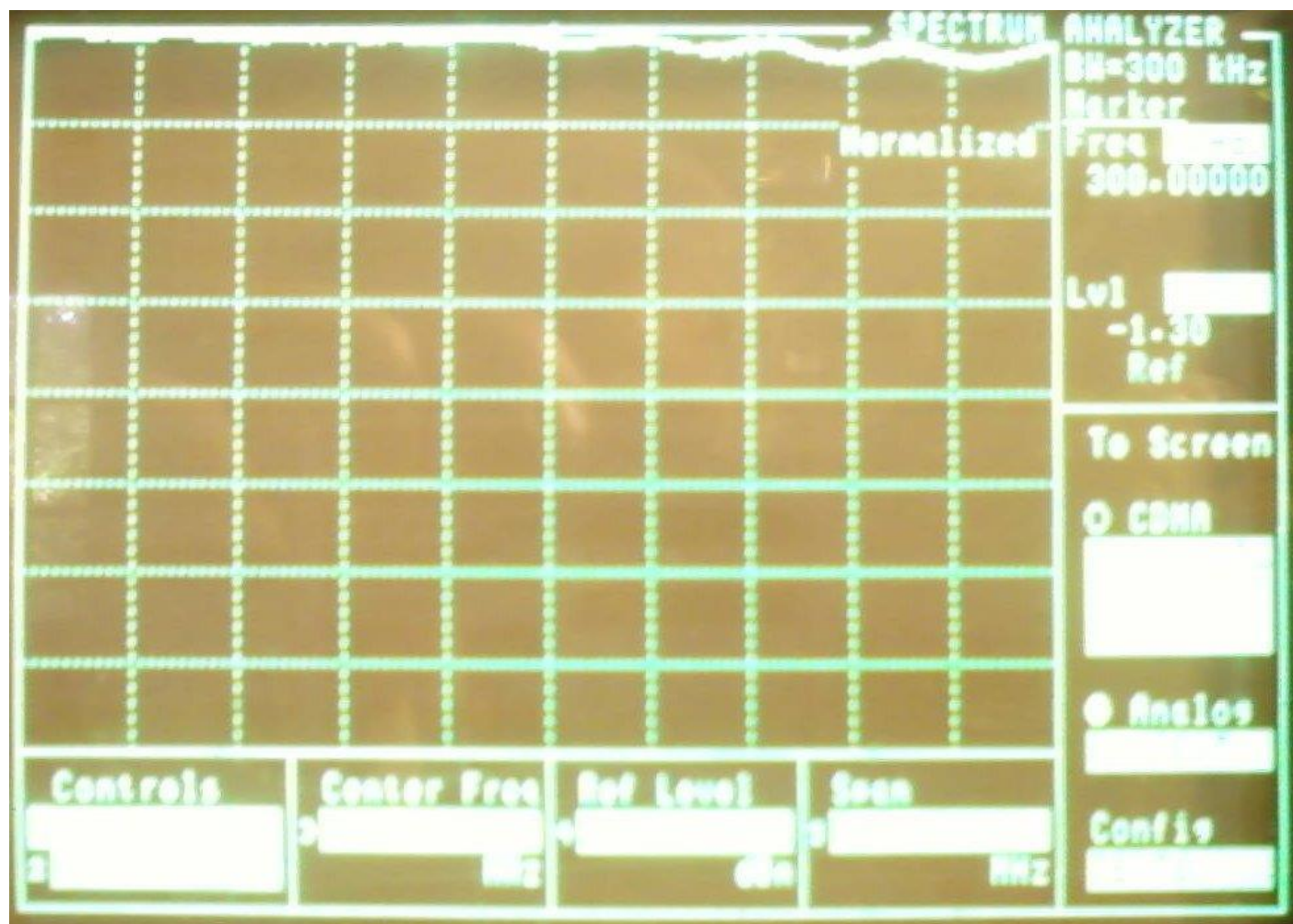


Photo 2: Three feet of RG/8

In photo 2, you can see about four droops, the first of which is centered at about 300 MHz. The most pronounced droop represents a loss of about 4 dB.

The coax jumper used in this photo is three feet of RG/8.

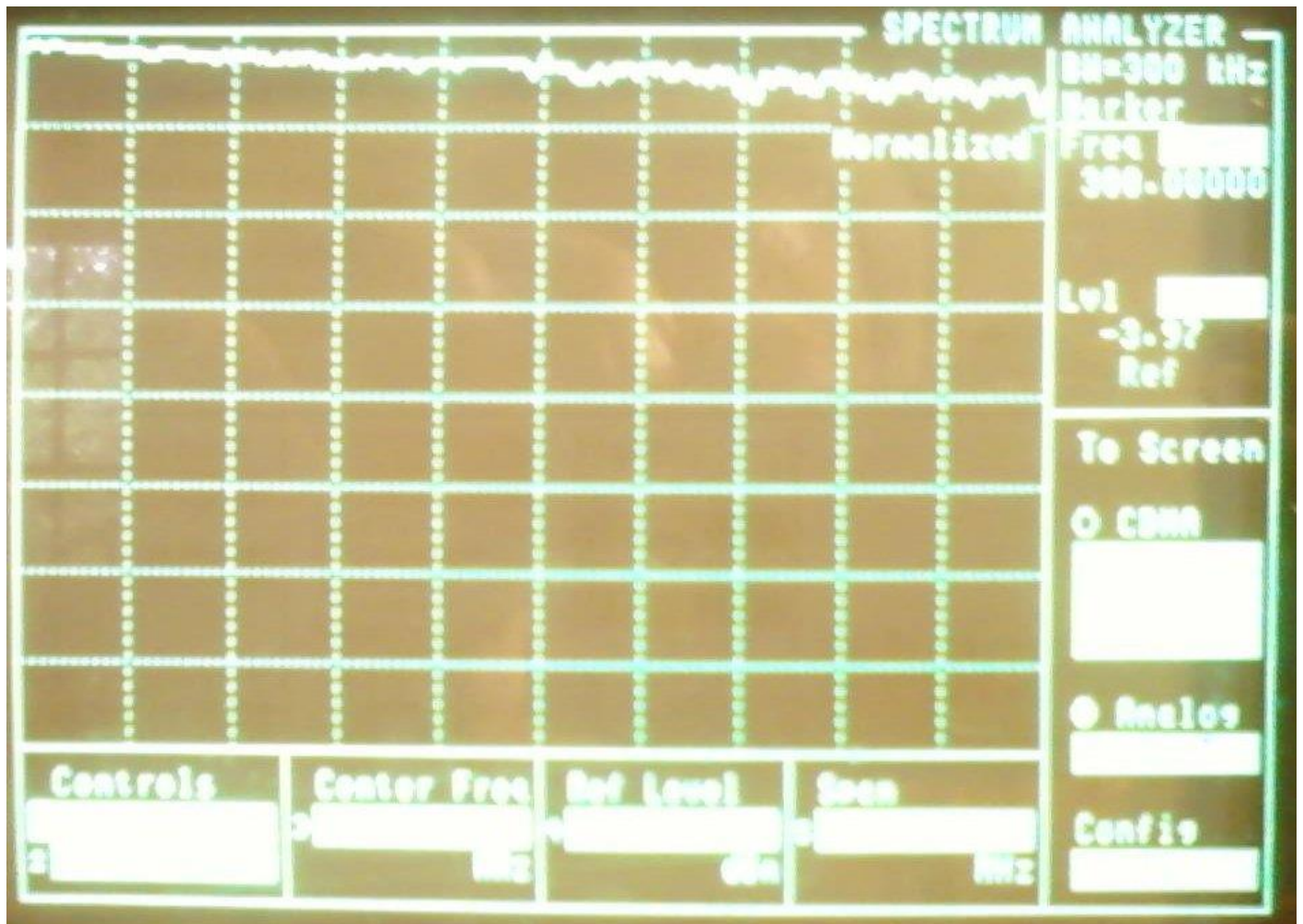


Photo 3: Fifty feet of inexpensive RG/8X

In photo 3, which is the testing of a 50-foot section of inexpensive RG/8X coax jumper, you'll see a rough trace which starts with a small loss at 30 MHz and increases to about a 5 dB loss at 570 MHz. Tony says this is decent coax and I shouldn't have concerns about using it. Tony also mentioned that UHF connectors (PL-259 and SO-239) begin to exhibit poorer characteristics at UHF frequencies and other connectors such as N, BNC, and SMA are preferred over UHF connectors at these frequencies.

Thanks, Tony, for your help and for enlightening me and the readers!

DIY 2-Meter/440 MHz Antenna Class

Submitted by David W. Webb, KV4QI and Linda Laseter, KJ4CTX;
photos by Gary Weatherford, W5EMA, Bob Vawter, KW4RJ, Ken Laseter, KI4AOH

On September 24, 2016, Mid-South Amateur Radio Supply hosted a “Do-It- Yourself” J-Pole instruction class facilitated by Ham Hilliard, W4GMM, with assistance from Rosalinda Melena, WN2V; Steve Smith, W5VAA; and Gary Weatherford, W5EMA.

Although attendees initially thought their take-home product would be a Ladder-Line style portable J-Pole, the group nonetheless embraced the opportunity to craft their own 2-Meter antenna from ½” copper tubing. As a volunteer in the Emergency Management community, I was personally reminded that no matter how much you seem to practice different response scenarios – real events always require the willingness and ability of everyone involved to “improvise, adapt, and overcome”. By that standard of measure, the cooperative fellowship of all involved, and the production of very workable antennas – this latest class was an overwhelming success!

Thanks to Ham, Rosalinda, Steve and Gary for sharing their knowledge and skills with this latest class – pictured below from left are Kim Martinez (no license yet), Amanda Nash, KM4MSC; David Webb, KV4QI; Linda Laseter, KJ4CTX; Janice Shaner, KM4HZY; Miguel Martinez, KM4VQT; Jim Barnes, N4VOK; Ken Laseter, KI4AOH; David Jackson, KM4SEC; Bob Van Keuren, KM4SEB; Bob Vawter, KW4RJ; Ham Hilliard, W4GMM.



Photo by Gary Weatherford, W5EMA



Photo by Ken Laseter, KI4AOH

J pole class in progress. (L-R) Janice, Linda, Ham, Bob V., Bob VK., Jim, David J., Miguel, Kim (partially obscured), David W., and Amanda.



Photo by Bob Vawter, KW4RJ

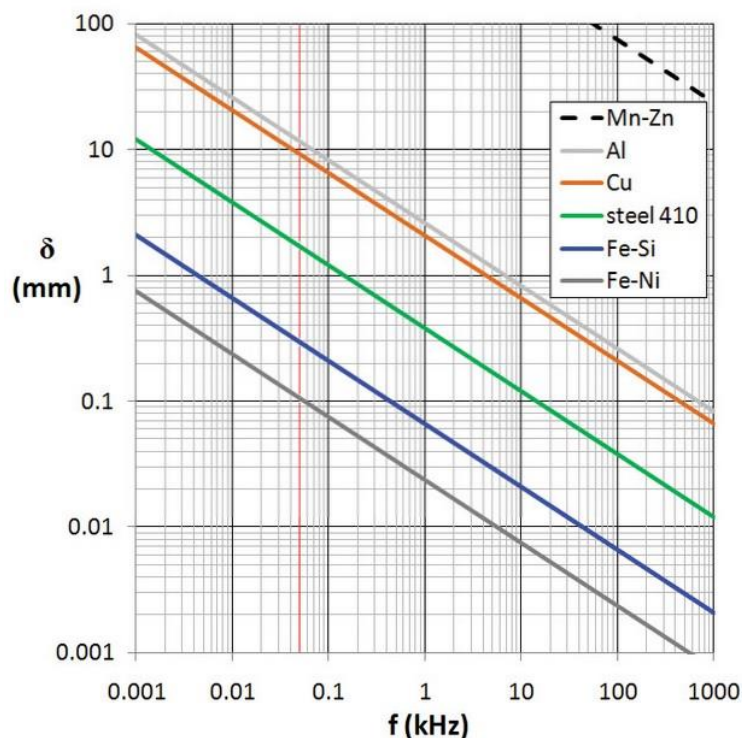
(L-R) Amanda and Linda are torturing a piece of 1/2" copper pipe and enjoying it! Ham and Janice are in the background.

Radio Frequency Interference

Article and photo by Dan Lasley, NE7JN

According to their web site, [Nuts & Volts Magazine](#) "is written for the hands-on hobbyist, design engineer, technician, and experimenter. The diversity of subjects appeals to all levels of experience and spans such topics as amateur robotics, circuit design, lasers, computer control, home automation, data acquisition, new technology, DIY projects, electronic theory, analog, and myriad microcontrollers." In the last year or two they have also begun publishing articles of interest to the ham community.

A recent N&V article, "[RF Interference](#)" by H. Ward Silver, NOAX, provides a good introduction to Radio Frequency Interference (RFI) by explaining some of its causes and describing how to solve RFI problems.



In the section entitled "Differential and Common-Mode Signals" Ward tells us that "a single [coaxial] cable can support both DF [differential-mode] and CM [common-mode] signals at the same time. In fact, at RF, the outside of a braided or foil shield is electrically independent from the inside!"

He goes on to say, "Why does this happen? The skin effect restricts AC current flow to the outside of a conductor. As shown in [the figure at left], at frequencies above 1 MHz, current penetrates copper or aluminum less than 0.1 mm!"

[Skin depth vs. frequency for some materials](#). Red vertical line denotes 50 Hz frequency: Mn-Zn, magnetically soft ferrite; Al, metallic aluminum; Cu, metallic copper; steel 410, magnetic stainless steel; Fe-Si, grain-oriented electrical steel; Fe-Ni, high-permeability permalloy (80%Ni-20%Fe).

I hope you will read his article to understand why a piece of coax has the equivalent of three conductors.



Later in the article Ward says, "As day-to-day users of the spectrum, ham radio folks are intimately familiar with the symptoms and cures for RFI."

One of the first RFI problems I had to deal with was my XYL's makeup light (see photo at left). The light has no switch per se, but cycles through low-medium-high-off when you touch the base. Occasionally when she was putting on her makeup in the morning, my operating on HF would cause the light to cycle through one or more settings. The result wasn't exactly [The Wrath of Khan](#), but she was getting pretty frustrated by the constantly changing light!

In an RFI remediation effort, I applied five small-diameter snap-on ferrites to the light's power cord. No effect. I snapped on the remaining five small-diameter ferrites. No effect. I found three larger diameter snap-on ferrites and since the power cord would go length-wise through this ferrite twice, I made a loop in the power cord so that each of the

larger ferrites enclosed two runs of the power cord. Now we're getting somewhere! The light isn't cycling on each 40 meter transmission.

The next morning she says the light is still occasionally changing. Back to the drawing board!

One of the local ham clubs had a swap meet coming up; on the day of the event, I bought a 2½" diameter toroid. That night I stripped off all the snap-on ferrites, positioned the toroid close to the light, and wrapped as many turns of the power cord as would fit through the toroid, then doubled up a segment of power cord and reapplied the three larger diameter ferrites and all ten small-diameter ferrites (see above, left to right). Success!

Now the only time the light seems to change is when I switch to a different HF band without retuning. With proper tuning, the SWR on all bands is very close to 1:1 and almost no power is reflected from the antenna back into the tuner. If I forget to tune, the SWR may go radically higher with a corresponding increase in reflected power. With incorrect tuning, I think reflected common-mode RF on the outside of the coax shield is radiating and affecting the light. If anyone has a better idea, please let [me](#) know.

MS 150 Bike Ride

Submitted by Dan Lasley, NE7JN, with contributions by Jim Cissell, KI4I

Bike MS: Rock-N-Roll 2016, a fund raising event for the [National Multiple Sclerosis Society](#) (NMSS), took place on September 10 and 11. Bikers ride about 75 miles from Landers Center to Tunica on Saturday and make the return trip on Sunday.

Darrell Sheffield, KK4D, who did another great job organizing ham volunteers for the event, said 25 hams participated. Kelsey Vaughn, Event Manager for NMSS, told me 110 cyclists signed up for the event.

Saturday brought warm and humid weather with a threat of thunderstorms. Art Barnett, WA4PSS, Sean Hailey, KM4CFN, and I worked one of the rest stops. When we arrived, three NMSS women volunteers were struggling with heavy water containers (more than 40 pounds each), heavy tables, and lots of supplies to move, so we pitched in to help.



Here are Sean Hailey, KM4CFN, and Teresa Johnson, NMSS Programs and Services Specialist, replenishing water and Gatorade during Saturday's event.

While we were awaiting the arrival of the riders, Chef [John Woods](#) put on a cooking demo of two dishes: grits with shrimp and grits and greens. When I warned John that I'd never been a huge fan of grits, he said I would like both dishes. He was right! I had two helpings of each dish, just to be polite, of course.

Photo by Dan Lasley, NE7JN



Jim Cissell, KI4I, worked rest stop 1 on Saturday. Jim says, "Notepad, Yaesu FT-2400, coffee mug, wrench, shop towel. KI4I ready to go on the air."

Photo by Jim Cissell, KI4I



Jim's station was above and behind the white tent. You can see most of his white Lincoln and if you look carefully, below the LL in the PLEASANT HILL RD sign you can see part of his two meter beam antenna. Jim says, "Four elements on 2M. Overkill!"

This image shows a dozen riders taking advantage of the rest stop. The sign near the top of the red brick building says "J.A. SUMMERS & SON, 1917." The sign suggests stories must be lurking thereabouts.

Photo by Jim Cissell, KI4I



Photo by Dan Lasley, NE7JN

Michael Chandler (MS-150 volunteer), Art Barnett, WA4PSS, Darrell Sheffield, KK4D (ham coordinator), Rodney Cain (deputy sheriff), Kirsten Homeyer (SAG truck driver), Ned Savage, KA4BLL, Rosalinda Melena, WN2V, David Alkema (Sea Cadet leader).

Sunday's weather was fantastic, with an initial temperature of 78, low humidity, and severe clear skies. Upon reaching rest stop 3, we met David Alkema, who was in charge of a number of young men from the Sea Cadets. David had never set up an MS-150 rest stop before, but that didn't deter him and his Sea Cadets. Before you could say "Ahoy, mate!" these guys had the tables set up, the coolers filled, and oranges, bananas, and snacks ready for the riders.

Rest stop 3 is at a location called "The Wall" due to an uphill, seemingly near-vertical ride which severely tested the mettle of each rider. At the top of The Wall, looking west and down (behind Michael), it's difficult to portray how steeply The Wall drops off!



Photo by Dan Lasley, NE7JN

Denise Ganucheau, KJ5DG, Pat Lane, W4OQG, and Barri Munday, WB4SWP, took care of net control duties for the event. At the bottom left of the photo is Denise's event map to keep track of SAG (Support And Gear) trucks on the 75 mile course.

Denise and Barri are part of Pat's "harem," hence the big smile on Pat's face!



Back at Landers Center on Sunday, September 11, flags are shown at half-staff in remembrance of the fifteenth anniversary of September 11, 2001. May we never forget the terrorist attacks of that date.

In the background you can see a gear-down FedEx MD-11 on left base to land at Memphis International Airport. The pilot could be one of several Delta Club members.

This was my third time to work the MS-150 event and I enjoyed it as much as the other two times. The NMSS web site says they "achieved \$155,327" in donations for the event. Thanks to everyone who helped: NMSS employees and volunteers, hams, several members of the public, and especially law enforcement officers (including J.W. Green and Rodney Cain), to whom we owe so much!

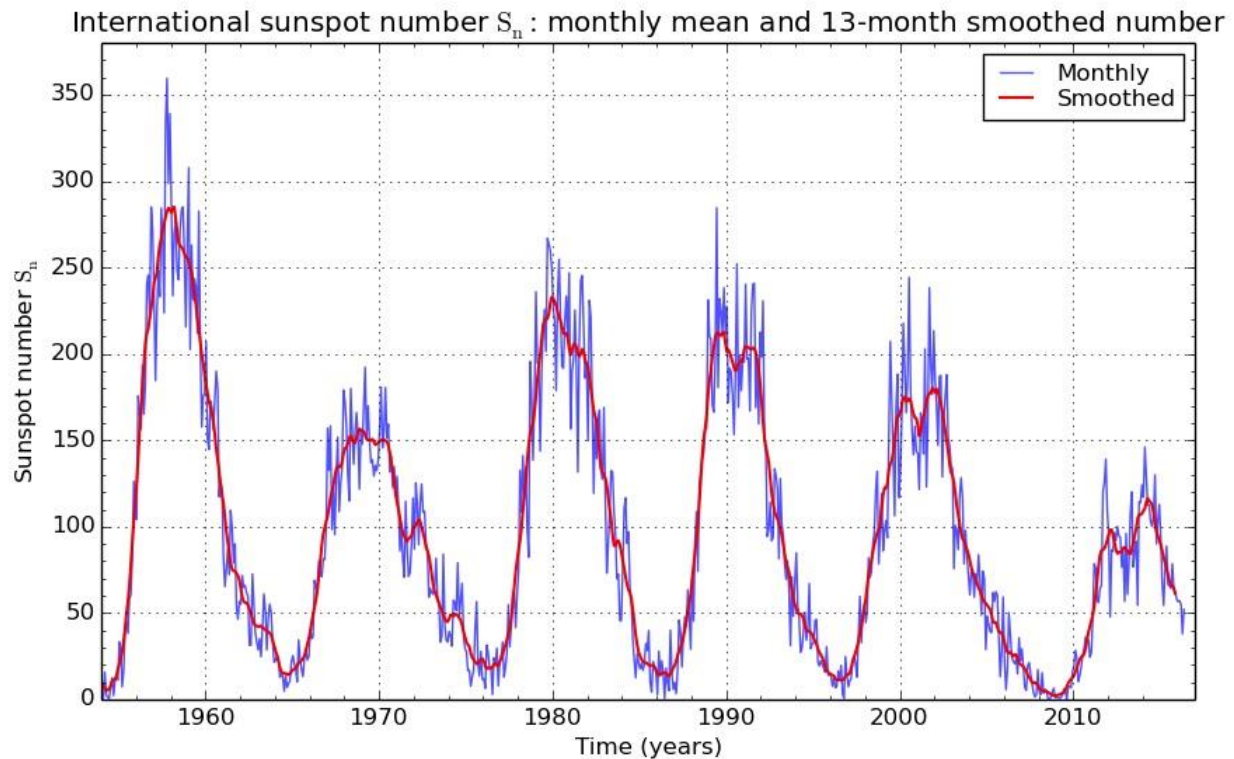
Photo by Dan Lasley, NE7JN

HF Propagation

Submitted by Dan Lasley, NE7JN

Many readers are familiar with [Popular Electronics](#) magazine, published (on and off) from 1954 to 2003. Gale Tisdale, KI4VDI, recently gave me the March, 1965, issue (thanks, Gale!), an issue that is 51 years old. Remember the number 51; we will return to it below. A propagation article on page 83 of this issue states, "Sunspots, or explosions on the surface of the sun, are caused by factors unknown to us at this time."

Now we know (borrowing heavily from a [NOAA](#) web site) that sunspots appear darker than the surface of the sun because in visible light they are cooler than the non-spotted surface. At ultraviolet or x-ray wavelengths, however, sunspots and associated active regions are considerably brighter than the non-spotted surface and have very energetic magnetic fields that form into loops which confine solar plasma and heat it to temperatures in excess of 1 million degrees Kelvin. NOAA tells us that "changes in these magnetic fields are the main source of most of space weather, like solar flares (Radio Blackouts) and fast coronal mass ejections (CMEs)." NOAA goes on to say that "the total number of sunspots has long been known to vary with an 11-year period known as the solar cycle. The peak of the solar cycle is known as solar maximum and the valley of the cycle is known as solar minimum."



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2016 June 1

Credit: <http://www.sidc.be/images/wolfmms.png>

We have, alas, left a solar maximum (it peaked in 2014) and are heading into a solar minimum (possibly in 2020). How will a drop in the sunspot number affect HF propagation?

The ARRL Letter email for September 15, 2016, quotes propagation authority Carl Luetzelschwab, K9LA, in saying that "while conditions on 12 and 10 meters will pick up as they always do in the fall, F2 propagation on those bands will decline thereafter, with only sporadic E during the summer months as a possible saving grace. On the other hand, the lower bands -- 160, 80, and 40 meters -- should be good going forward, and 20 and 17 meters will be the mainstays of daylight HF propagation." Carl's full presentation can be found at <http://wwrof.org/webinar-archive/solar-topics-where-were-headed/>.

Carl also noted "data suggest that Solar Cycle 24, the current solar cycle, will bottom out in 2020." He advised "radio amateurs may need to lower their expectations on the higher bands (and 6 meters) looking beyond that. There seems to be a good correlation between how long a solar minimum is and the next solar cycle. The longer you spend at solar minimum, the smaller the next cycle."

The ARRL Letter concludes with Carl saying, "We don't fully understand the process inside the Sun that makes solar cycles."

Perhaps some of your grandchildren will be doing a google search 51 years from now and in 2067 they learn from this issue of Sparks that in 2016 we don't know how to predict solar cycles!

Fall Auxcom Exercise

Submitted by Dan Lasley, NE7JN

Eugene Jones, KI4YUA, with the Shelby County Office of Preparedness, has announced a Fall Auxcom Exercise on Saturday, October 22, 2016, from 9am to 3pm.

He says, "This event will consist of classroom and hands-on training. Classroom training will consist of an Active Shooter presentation, Coax and Connector overview, ICS Operational Forms, and Enhancing HT Performance in an emergency. The hands-on session will be an outside exercise on building and erecting an emergency UHF/VHF antenna. Additional information and an event schedule will be emailed to those who register."

The event will take place at the Shelby County Office of Preparedness, 1075 Mullins Station Road, Building C, Memphis, TN 38134.

Please go to <https://goo.gl/forms/ID6IZvImZjNLL26q1> to register for the event.

Participants do not have to be licensed Amateur Radio Operators to register.

Odds-n-Ends

Submitted by Dan Lasley, NE7JN

Happy birthday, FO-29! The ARRL Letter email of September 1 reports that "it's been 20 years since the Fuji-OSCAR 29 ([FO-29](#)) satellite launched on August 17, 1996, from Tanegashima Space Center. Its 100-kHz-wide analog Mode V/U transponder continues to serve the Amateur Satellite community, although its packet BBS and digitaiker no longer function." The Letter also indicates a confirmation of 10 QSOs through FO-29 is good for an award from [JARL](#).

The ARRL Letter email of September 15 told us that several radio amateurs were among the [2016 Radio Club of America](#) award recipients and Fellows. Joe Taylor, K1JT, co-recipient of the 1993 Nobel Prize in Physics, received the Lifetime Achievement Award in recognition of his significant achievements and a major body of work that has advanced the art and science of radio and wireless technology. His [amateur radio work](#) includes WSJT, MAP65, WSPR, WSJT-X, and more. See also "WSPRring Around the World" by Joe Taylor, K1JT, and Bruce Walker, W1BW, QST, November, 2010, and "[The Radio Whisperer](#)" by George R. Steber.

I was searching for tropospheric ducting information recently and found an amazing site on "[The Elephant Cage](#)" [antenna](#). After reading the technical information, see the comment by amateur radio operator SQ5RIX in the comments section. It may bring a lump to your throat.

Rick Tillman, WA4NVM, provided a very interesting URL: "[Where Are All The Hams?](#)" You can find hams by call sign, by state, or by zip code. A partial zip code search such as "38" locates 6306 hams in 382 different zip codes.

Larry May, K4QZF, passed along a [real-time lightning map](#) which shows the continental U.S. A [zoomed-in map](#) shows the local area. The local area map is useful if you're trying to operate near a thunderstorm, but don't substitute the map for common sense!

From The ARRL Letter for September 29, 2016: "ARRL to Host [CHIRP](#) Radio Programming Webinar: ARRL will host a CHIRP Radio Programming [webinar](#) on October 19 at 8 PM ET (0000 UTC on October 20 in US time zones). This presentation will offer a brief overview of the free, open-source CHIRP software, which can be used to program most radios. Attendees will learn: What CHIRP is, which radios are supported, how to get CHIRP, and how to troubleshoot CHIRP. Presenter James Lee, N1DDK, became active in CHIRP development for the initial TYT9800 driver. He is a hardware development engineer for Qualcomm. Register now! Those signing up will receive a confirmation e-mail containing information about joining the webinar."

DX News

Submitted by Dan Lasley, NE7JN

Most of this information is courtesy of the ARRL's DX news emails.

LESOTHO, 7P. Gordon, K7TRB is QRV as 7P8VA until November 5. Activity is on 80 to 10 meters, and possibly on 6 meters, using SSB and various digital modes. QSL to home call.

DJIBOUTI, J2. Jean-Philippe, F1TMY is here for 3 to 5 years and plans to be active as J28PJ. Activity is on the HF bands and 6 meters. QSL to home call.

PITCAIRN ISLAND, VP6. Uli, DL2AH will be QRV as VP6AH from September 3 to November 25. Activity is holiday style on 40 to 10 meters using SSB and various digital modes. QSL direct to home call.

NIGER, 5U. Yves, F5PRU is QRV as 5U7RK for the next few months. Activity is on 80 to 10 meters using CW and SSB. QSL to home call.

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

MINAMI TORISHIMA, JD1. Kakutani is QRV as JD1YAA from the Japan Meteorological Agency Ham Club Station located on Marcus Island until mid November. Activity is mainly on 17 and 12 meters using SSB around 2200z and 0300z, respectively. QSL via bureau.

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.

Two [10-10 QSO PARTIES](#) in October: **Sprint** - a 24 hour event held on October 10th (10-10), 0001 UTC through 2359 UTC. **Fall CW** - held on the third full weekend in October, 0001 UTC Saturday through 2359 UTC Sunday.

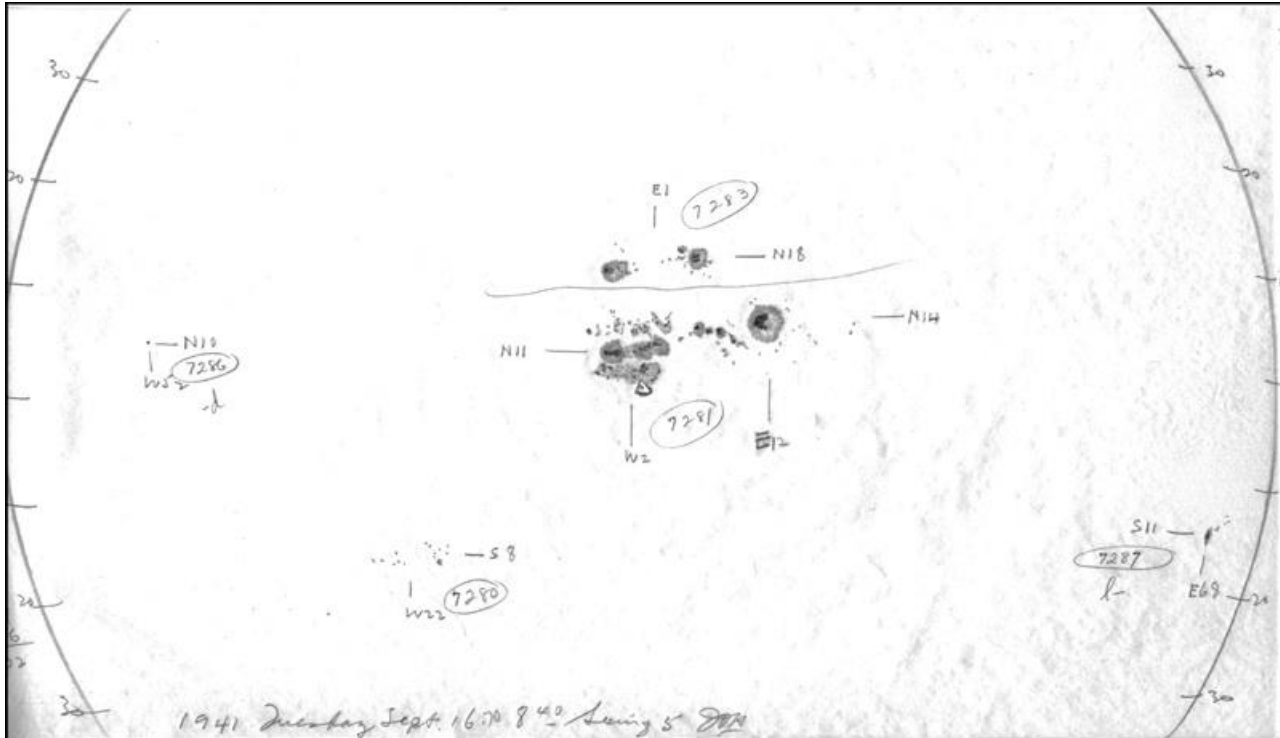
BERMUDA, VP9. Mark, AA1AC will be QRV from Hamilton Parish as VP9/AA1AC from October 10 to 15. QSL via AA1AC.

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 HF 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 or LoTW.

The Geomagnetic Blitz of September 1941

Submitted by Dan Lasley, NE7JN

I check spaceweather.com just about every day. Their site is an excellent source of information on sunspots, solar wind, x-ray solar flares, and other solar conditions affecting radio communications. On Sunday, September 18, spaceweather.com posted a link to [The Geomagnetic Blitz of September 1941](#), a brief article on solar flares reported on September 17, 1941, followed the next day by the arrival of a coronal mass ejection.



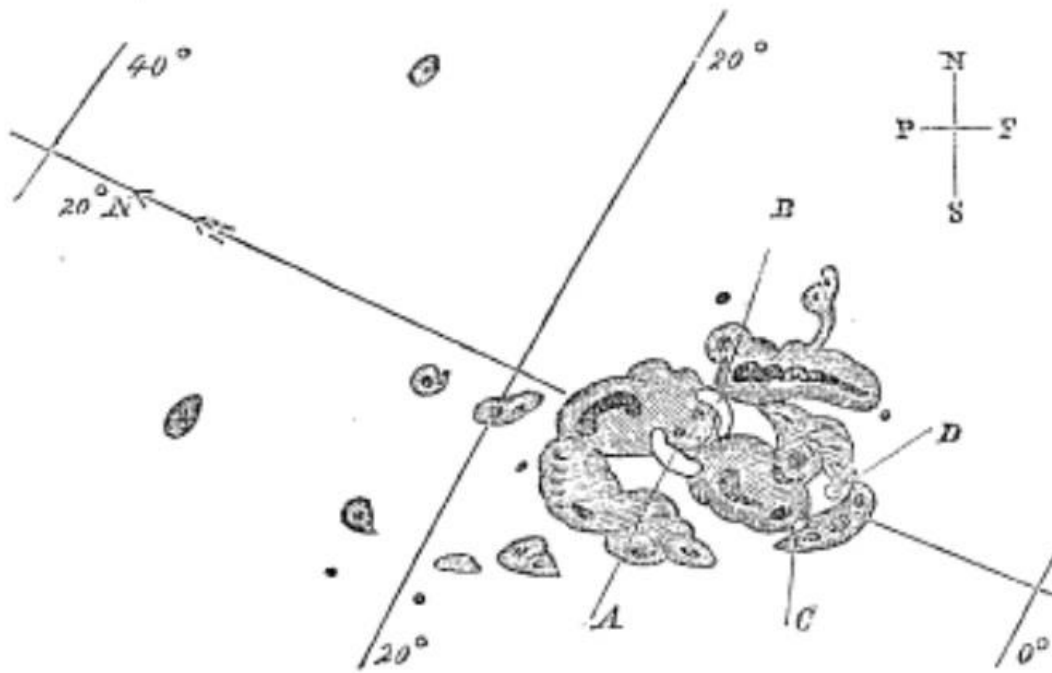
Drawing of [sunspots](#) observed from Mount Wilson Observatory, California, on 16 September 1941. Credit: Carnegie Observatories.

Quoting from the article, "A magnetic observatory in Cheltenham, Md., operated by the U.S. Coast and Geodetic Survey, registered six separate occurrences of geomagnetic storms with a K index of 9 (the most intense value possible)." NOAA'S [Space Weather Scales](#) (under the Geomagnetic Storms heading) explains that a K value of 9 may cause widespread voltage control problems and protective system problems in power systems, some of which may experience complete collapse or blackouts, HF (high frequency) radio propagation may be impossible in many areas for one to two days, low-frequency radio navigation can be out for hours, and auroras may be seen in latitudes as low as 40° (e.g., Florida and southern Texas).

In September, 1941, another type of blitz was in progress: World War II. If you are interested in history, *The Geomagnetic Blitz of September 1941* describes a cosmic radio silence, a British Royal Air Force raid on a German supply base, a German bombardment of

Leningrad, a U-boat attack on an Allied convoy, and other events aided by auroras produced by the intense solar blitz.

The *Blitz* article points indirectly to a NASA article about the [Carrington Event](#), an 1859 solar flare of an intensity that "just before dawn the next day, skies all over planet Earth erupted in red, green, and purple auroras so brilliant that newspapers could be read as easily as in daylight. Indeed, stunning auroras pulsated even at near tropical latitudes over Cuba, the Bahamas, Jamaica, El Salvador, and Hawaii." Stunning auroras aside, let's hope we don't see another Carrington Event in our lifetimes!



Sunspots sketched by Richard Carrington on Sept. 1, 1859. Copyright: Royal Astronomical Society, provided by [NASA Astrophysics Data System](#).

SPARKS Newsletter & Delta Club Information

SPARKS is published monthly by the Delta Amateur Radio Club and emailed to club members. All information published in this newsletter is provided as a service. While every reasonable effort has been made to ensure accuracy, neither the Delta Amateur Radio Club nor its officers assume any liability resulting from errors or omissions. All correspondence may be mailed to:

Delta Amateur Radio Club * P.O. Box 342768 * Memphis, Tennessee 38184-2768

An alternative email address to offer the Board your suggestions, ask questions, and voice complaints is darc4you@gmail.com.

Please note that you must provide your name and call sign if you're requesting specific actions or personal follow-ups, and also be aware that any profane or mean-spirited comments will be unceremoniously discarded without consideration.

Delta Club Members Can Like Us/Follow Posts On Facebook! Go to <https://www.facebook.com/darcmem>.

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Board members beginning their positions in 2016 are listed in *italics*.

Upcoming Public Service Events

If you are a coordinator for any of these events, please review the listed information. Please [email](#) corrections or additions.

2016 Date	Event	Contact Information
Dec. 3	St. Jude Marathon 26.2 mile fund raiser in downtown Memphis	Roger Schlichter, WR4R

2017 Date	Event	Contact Information
May 6	March of Dimes March for Babies	Linda Laseter, KJ4CTX

Tennessee Ham Radio License Plate Submitted by Joe Lowenthal, WA4OVO

The link below is for information and instructions about Tennessee ham radio call sign Emergency/Safety automobile license plates:

<http://www.tn.gov/revenue/article/emergency-safety>

The application can be found at this link:

<http://www.tn.gov/assets/entities/revenue/attachments/f1312601Fill-in.pdf>

Other Notes of Possible Interest

Submitted by David Webb, KV4QI

It's Time to Renew Your 2017 Annual Memberships! Download the latest Delta Club [Membership Application Form](#). Thanks for Your Active Support of Delta Amateur Radio Club!

Memphis Area VHF/UHF Nets

Updated September, 2016

Name of Net	Freq. MHz	Tone	Local Time	Day of Week
Delta Club Information Net	146.820	- (107.2)	8:00p	Daily
YL Net	146.820	- (107.2)	8:45p	Sat
Mid-South Barefooted Bullfrog Net	146.535	[simplex]	7:30p	Daily
Secret Service Net	224.780	[no tone]	8:30p	Mon
Elmer Net	145.210	- (107.2)	9:00p	Mon
The Short Winded Net	146.850	- (107.2)	8:30p	Tue
MedMERS Net	146.820	- (107.2)	12:00p	Wed
CERTPlus Net	443.200	+ (107.2)	8:30p	Wed
ARES Training Net	146.880	- (107.2)	9:00p	Thu
Super Sunday Niner Net	927.6125	- (146.2)	8:30p	Sun

Delta Club sponsored Nets are shown in red.

TENNESSEE HF NETS

As of December, 2015

All times are Central Time

Net Name	Freq. MHz	Local Time	Day of Week
Tennessee CW Net	3.563	7:00p	Daily
Tennessee Slow CW Net	3.682	7:30p	Tue-Sun
Tennessee Alternate Phone Net	7.238		As needed
CUSEC (Center for United States Earthquake Consortium)	3.810		As needed
CUSEC (Center for United States Earthquake Consortium)	7.180		As needed

3980 kHz – TN Phone Net

Mon-Fri - 5:40 AM, 6:45 AM & 6:30 PM

Saturday - 8:00 AM & 6:30 PM

Sunday - 8:00 AM only

Holidays - 8:00 AM only

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See Advertisement Order Form for Instructions.



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Wire	Swivel Ball	RCA	Rotor Cable

LDG Electronics	Accessories	Miscellaneous
Automatic Antenna Tuners	RF Chokes	Gordon West Books
Remote Tuners	Power Poles	Coax Seal
Brand Specific Antenna Tuners	Antenna Switches	Fuse Holders
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DARC Meeting: Second
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We offer our continued thanks to EMHC ambulance company for generously providing their training room for the many ham radio classes given there.

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