Charles County Amateur Radio Club

Smoke Signals

Volume 23
issue 12

December 2020

Inside this issue:

Meeting 4th @ 1900 EDT Zoom

THE PRESIDENT'S WORKBENCH

The COVID status for the state is that we are currently rolled back to Phase 2. Because of the COVID pandemic we have postponed our annual Christmas party until spring or summer. The plan is to hold a picnic complete with door prizes. We will also be holding our December meeting via Zoom.

If you haven't checked into our weekly net recently, or at all, you are missing some interesting topics of discussion. Thanks to Rob, N2OMC, and Gene, N3NO, the repeater can now be accessed through an EchoLink Node that Rob will activate every Wednesday night. If you can't join by RF, you can join by EchoLink. During the November 18 net we held a "Last Call Ceremony" for Art, AA3RT. If you have never experienced one of these ceremonies they are quite moving. Rest in peace Art.

Have you put ham radio items on your Christmas wish list? I usually try to slip a new ham radio book or tool onto my list. The ARRL always has some good books and apparel. Many of the popular online sellers, such as HRO, have a list of gift suggestions on their websites. Searching those lists and the ARRL book store is a good way to find new things to try in ham radio. Finding a new

(Continued on page 2)

CALENDAR

December

04 Club meeting

02 Net 2030

09 Net 2030

16 Net 2030

23 Net 2030 &

News articles due

30 Net 2030

January

01 meeting Zoom

06 Net 2030

13 Net 2030

20 Net 2030

27 Net 2030 & News articles due

(Continued from page 1)

mode, band, antenna, etc. is a great way to rekindle your passion.

Speaking of trying new modes, Bob, KB3KOW, and I tried a new mode a couple weekends ago. Some of you may recall a few years back when Bob and I, along with Spencer, KB3WYR, were playing with amateur television, commonly called ATV. At the time we were using old NTSC analog transmitters that worked with regular old televisions which were a dime a dozen at yard sales. Recently, Bob and I have acquired some digital video equipment and have begun the journey into the world of D-ATV. Due to the extremely high cost of American ATSC standard transmitting equipment we have decided to go with the European DVB-T standard. Currently the video exciter sells for about $300 and the receiver sells for about $100. As Bob and I do more testing and start to build up the equipment roster with a linear power amp for the transmitter and a low noise preamp (LNA) for the receiver, expect to hear more on the topic.

The special event station outlook for December is interesting. There are several stations commemorating the Pearl Harbor attack, and several stations celebrating Christmas. Locally, Michelle, N3YRZ, our humble newsletter editor, will be operating a station commemorating the first voice transmission via radio. She won't be alone, though, as the Vienna Wireless Society across the river will be doing the same. Michelle will be operating from Cobb Island where that historic radio transmission took place. Do you recall the name of the gentleman who made that transmission? Listen for Michelle on December 23, operating from Old Fisherman's Field.

My favorite day of the year for radio is coming up. I enjoy operating on New Year's Eve and listening as people call CQ looking to make their first contact of the New Year. These are not special event stations, and there's no contest. Just regular hams getting on the air to have a little fun, and usually fueled by a favorite alcoholic beverage for toasting in the New Year. The one thing they all share is a simple desire to get on the air and wish a few people around the world a Happy New Year. After all the stress and calamity of 2020, I think I could use a good dose of simple goodwill, cheer and warm wishes for a Happy New Year. Hopefully New Year's Eve will be graced with many sunspots for some good grey line DX.

Stay safe and have fun on the air.

by Bob, NW3M

CCARC weekly net

Charles County Amateur Radio Club net each Wednesday 2030 local time 147.195 MHz, + 600 offset, PL 156.7 Hz. & EchoLink N2OMC-L If repeater failure 146.480 simplex

Follow us on Netlogger

Nets will be roundtable type with a question of the week for discussion. All amateur radio operators are welcome; please join in the fun!

Sign up for net control at

https://www.signupgenius.com/go/20F0B48ACAB2CA5F85-ccarc

HAMFESTS

Santafest cancelled

The next exam session for CCARC

February 6, 2021

Practice questions

Which of the following is an acceptable method to determine that your station complies with FCC RF exposure regulations?

A. By calculation based on FCC OET Bulletin 65

B. By calculation based on computer modeling

C. By measurement of field strength using calibrated equipment

D. All of these choices are correct

What type of electrical component stores energy in a magnetic field?

A. Resistor

B. Capacitor

C. Inductor

D. Diode

Which of the following could be a cause of interference covering a wide range of frequencies?

A. Not using a balun or line isolator to feed balanced antennas

B. Lack of rectification of the transmitter's signal in power conductors

C. Arcing at a poor electrical connection

D. Using a balun to feed an unbalanced antenna

Which of the following can divide the frequency of a pulse train by 2?

A. An XOR gate

B. A flip-flop

C. An OR gate

D. A multiplexer

Advanced Technical Information Online

By Bob, NW3M

The other day I was reminiscing with a friend about "the good ole days" of ham radio. The subject of past Field Days came up. We talked about the fun times we had, and in good fisherman style, about those contacts that got away. I mentioned that my most frustrating missed QSOs were usually because of QRM from our own Field Day site. One of the other stations would transmit every time I was listening for the reply from the station I was trying to work. The source of that QRM was mostly receiver front end overload, even though I was operating on 40M and the other stations were on 20M and 80M.

My friend said they fought with that same situation at their Field Day site until one year someone in their club built some simple stub filters for all of the stations. Stub filters are made with just a piece of coax cable. No fancy hand wound inductors or special capacitors, just a piece of coax cable and a tee connector. When he mentioned the stub filters, I remembered building some of those for another friend years ago who lived a few blocks away from the WPGC-FM transmitter. It was making his VHF high band scanner deaf as a doornail. So we built stub filters to notch out enough of the WPGC signal from his antenna system so that the scanner was no longer being de-sensed by the strong signal from WPGC-FM.

I must confess, I haven't built a stub filter in decades. So I had to do a bit of research on them to familiarize myself again. I found lots of helpful tutorials online including a couple that show how to make a set for HF that sounds very much like what my friend had described.

Depending upon whether the free end of the stub is left open circuit, or is short circuited, will render the stub either a bandpass filter or a band reject filter. Not only do they work on the design frequency but they also work on harmonics of that frequency. Thus, not only will they help keep unwanted out-of-band signals from your receiver but they will also suppress harmonic output from your transmissions.

These filters work best at high voltage nodes along your coax cable. This might sound confusing since we think of coax cable as having a constant signal level all along its length. Hopefully one of the links below that explains the reasons for optimal placement of stubs will help you to understand what is really happening inside coax cable.

Coax Stub Intro by AC0C https://ac0c.com/mainpage_so2r_coax_stub_intro.html

How Does a Stub Filter Work from Chemandy Electronics.
https://chemandy.com/technical-articles/stub-filter/how-does-a-stub-filter-work.htm

Optimizing Placement of Stubs http://www.pj2t.org/ccc/optimizing.placement.of.coax.stubs.pdf

K2TR Coax Stub Filters for multiple HF transmitters – http://www.k1ttt.net/technote/k2trstub.html

Coax Stub Filters for VHF and UHF – http://www.ifwtech.co.uk/g3sek/swxfiltr/swxfiltr.htm

CCARC Activities

By Jeff – KB3SPH

4 December 2020 – Monthly CCARC Meeting at 7:00 PM via ZOOM teleconference.

Presentation - “WSPR (Weak Signal Propagation Reporter) Basics” by Bob – KB3KOW

Join the 4 December 2020 Zoom Meeting via desktop/laptop/smartphone: https://us02web.zoom.us/j/82894822523?pwd=ZkNyWFJoY1hqaERMZVVjT3NHclpuZz09

Dial in via landline/cell phone and follow voice prompts:

301-715-8592

Meeting ID: 828 9482 2523

Passcode: 232100

23 December 2020 – CCARC Special Event at Cobb Island to commemorate the first radio voice transmission by Reginald Fessenden. Point of Contact: Michelle – N3YRZ

1 January 2021 – Monthly CCARC Meeting at 7:00 PM

5 February 2021 – Monthly CCARC Meeting at 7:00 PM

Contests in December

QCX Challenge	1		RTTYOPS Weeksprint	15
RTTYOPS Weeksprint	1		Worldwide Sideband Activity Contest	15
Worldwide Sideband Activity Contest	1		Phone Fray	16
Phone Fray	2		QRP Fox Hunt	16
QRP Fox Hunt	2		CWops MiniCWT Test	16 to 17
VHFUHF FT8 Activity Contest	2		RTTYOPS Weeksprint	17
CWops MiniCWT Test	2 to 3		AGBParty Contest	18
NRAU 10m Activity Contest	3		NCCC Sprint	18
QRP ARCI Topband Sprint	3		QRP Fox Hunt	18
RTTYOPS Weeksprint	3		Russian 160 Meter Contest	18
SKCC Sprint Europe	3		Feld Hell Sprint	19
NCCC Sprint	4		OK DX RTTY Contest	19
QRP Fox Hunt	4		RAC Winter Contest	19
ARRL 160 Meter Contest	4 to 6		RTTYOPS Weekend Sprint	19
RTTYOPS Weekend Sprint	5		Croatian CW Contest	19 to 20
EPC Ukraine DX Contest	5 to 6		Padang DX Contest	19 to 20
FT Roundup	5 to 6		ARRL Rookie Roundup CW	20
PRO CW Contest	5 to 6		Run for the Bacon QRP Contest	20 to 21
UFT Meeting	5 to 6		K1USN Slow Speed Test	21
K1USN Slow Speed Test	7		OK1WC Memorial	21
OK1WC Memorial	7		RTTYOPS Weeksprint	22
ARS Spartan Sprint	8		Worldwide Sideband Activity Contest	22
RTTYOPS Weeksprint	8		Phone Fray	23
Worldwide Sideband Activity Contest	8		SKCC Sprint	23
Phone Fray	9		CWops MiniCWT Test	23 to24
QRP Fox Hunt	9		RTTYOPS Weeksprint	24
VHFUHF FT8 Activity Contest	9		NCCC Sprint	25
CWops MiniCWT Test	9 to10		DARC Christmas Contest	26
RTTYOPS Weeksprint	10		Gedebage CW Contest	26
NCCC Sprint	11		RTTYOPS Weekend Sprint	26
QRP Fox Hunt	11		Stew Perry Topband Challenge	26 to 27
RTTYOPS Weekend Sprint	12		RAEM Contest	27
TRC Digi Contest	12 to 13		K1USN Slow Speed Test	28
SKCC Weekend Sprintathon	12 to 13		OK1WC Memorial	28
ARRL 10Meter Contest	12 to 13		QCX Challenge	28 to29
PODXS 070 Club Triple Play Low Band Sprint	12 to 14		RTTYOPS Weeksprint	29
International Naval Contest	12 to 15		Worldwide Sideband Activity Contest	29
CQC Great Colorado Snowshoe Run	13		Phone Fray	30
QRP ARCI Holiday Spirits Homebrew Sprint	13		QRP Fox Hunt	30
4 States QRP Group Second Sunday Sprint	14		CWops MiniCWT Test	30 to31
K1USN Slow Speed Test	14		Bogor Old and New Contest	31
OK1WC Memorial	14		RTTYOPS Weeksprint	31

Art Audley AA3RT

SWL WQZD805

SK

Arthur Robert (Art) Audley of La Plata, MD died November 12, after a long struggle with bladder cancer.

Born on July 1, 1953 in Jamestown, NY, he was the son of the late Robert and Virginia Allenson Audley.

Raised in Sugar Grove, PA, Art was a 1971 graduate of Eisenhower High School in Russell, PA and a 1973 graduate of the Williamsport (PA) Area Community College where he received an associate degree in broadcasting.

Art enlisted in the U.S. Coast Guard in March of 1974, was trained as a sonar technician and served for 3 years on the Coast Guard Cutter Gallatin. In March of 1979, Art relocated to La Plata, MD where he was employed at the Navy Research Laboratory's Blossom Point Tracking Facility where he worked until his death.

Art was a lifelong railway enthusiast and was a member of a number of railroad historical societies. He was especially interested in the railroads of Northwest Pennsylvania and Western New York in the region where he was raised.

Art was also interested in many forms of technology. He held both a commercial radio operator's license and an extra class amateur license, call sign AA3RT. He was a charter member of the Charles County (MD) Amateur Radio Club.

He was also a member of the American Legion, Post 82, La Plata, MD, AmVets Post #50 in Sugar Grove, PA and the National Rifle Association.

Additionally, Art served on the Town of La Plata's Historic Preservation Commission and was proud to have been a part of the effort that reopened the La Plata Train Station Museum in 2019.

Art is survived by his dedicated stepson, Robert Baldwin of La Plata, his brother Doug (Wendy) of Amelia, VA and nephew David Audley, also of Amelia.

He was preceded in death by his bride of almost 39 years, Brenda Lanier Audley, who he married on May 30, 1981 and died on March 12, 2020.

In accordance with Art's wishes, there will be no viewing or funeral, however there will be a graveside service, held at the convenience of the family, at the Shiloh Baptist Church Cemetery in DeRidder, LA where Art will be laid to rest next to Brenda.

In lieu of flowers, the family requests that memorial donations be made to:
The Sugar Grove United Methodist Church, Sugar Grove, PA
The Sugar Grove Free Library, Sugar Grove, PA
The Charles County (MD) Humane Society

I am saddened to hear of Art's passing. He was a wonderful person always willing to help someone. I personally always enjoyed our conversation standing outside of the Post Office, we met there frequently as we both stopped to pick up our mail. He was also very helpful to me with Ham Radio questions and many times helped me to identify frequencies. Listening to scanners was one of his hobbies, and he helped me several times to make sure one of my scanners was programed correctly or identified the frequencies. So, I will certainly miss seeing him at our Radio meeting, and at the post office. Art was a founding member of CCARC and an active participant. When the tornado struck La Plata, Art was there on the front line giving of his time and energy with a great willingness to help in any way he could. I will miss his literary style of writing and the humor he added to his writings. My prayers are with his stepson and family. Joe KB3HNP

One of the early memories I have of Art and cracks me up thinking about it..We had just started CCARC meetings at the Train Station. I was sitting there running the meeting and all of the sudden, Art and another person just jump up and run out of the building. I was sitting there thinking "what the heck is going on". Then after a few seconds, someone said train! And I was thinking "oh, it's a train, guess that's a big deal?". Of course after getting to know Art Better, trains were a big deal to him and a lot of other people.

I always enjoyed hearing Art talk about his scanners and what he was listening to, always interesting. I have always liked scanning and still do today. Like Art, that's how I got into Ham Radio, listening to a scanner as a teen in Upstate NY. Rob - N2OMC

Photos courtesy CHARLES COUNTY AMATEUR RADIO CLUB

Above, Lee Flick, call sign N3YWZ, operates one of many digital communication modes available to amateur radio operators during a drill. Right, Art Audley, call sign AA3RT, operates voice mode at multiple mode at a previous field day station.

Local hams have a field day

■ Amateur radio club to hold 24-hour drill in La Plata

Members of the Charles County Amateur Radio Club will take to the airwaves June 22 and 23 to practice emergency communications during a 24-hour nationwide drill, called field day.

Club members will join many thousands of other amateur radio operators across the country and North America in setting up portable radio stations in parks, malls and backyards, and simulating disaster conditions.

The local club will set up at Laurel Springs Regional Park in La Plata and begin the drill at 2 p.m.

"There will be 35,000 stations set up," around North America, said Bob Curran, the training officer and volunteer exam operator for the club. "In the 24-hour period, [the Charles County club will] expect 12 or 13 to participate."

Amateur radio operators, called "hams," are often among the first to provide rescuers with critical information because they can send messages from isolated and remote locations without phones or Internet, Curran said.

During the year, club volunteers help local organizations with activities.

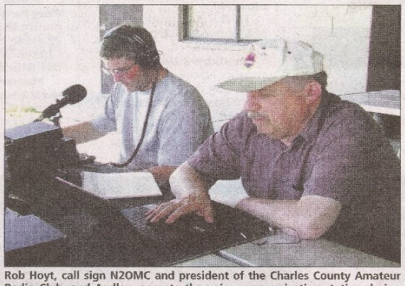
At the recent March of Dimes fundraiser, March for Babies, the club provided communication to the walk's headquarters to relay where walkers were on the trek and report stations where supplies were running low.

"We'd call in and let them know what's was going on," said Curran, who started as a ham radio operator in 1979.

During field day, club members will send and receive messages to other hams in the country and around the world.

"It is both an emergency drill and a contest," said Curran, who's Federal Communications Commission assigned call sign is KE3GG.

"By running the drill as a contest, it gives a metric where all participating stations can measure their level of success compared to all other participants," he said.



Rob Hoyt, call sign N2OMC and president of the Charles County Amateur Radio Club, and Audley, operate the voice communication station during a field day event.

Communication station

The Charles County Amateur Radio Club will hold a 24-hour drill beginning 2 p.m. June 22-23 at Laurel Springs Park, La Plata.

For more information, call 301-503-4706 or go to http://K3SMD.org.

"In time of crisis, communication capability is crucial. Those who score the highest obviously have assembled an emergency station that will have the greatest success at securing help," Curran said.

The drill is sponsored by the American Radio Relay League, the national association for amateur radio.

During the past year, the news has been full of reports of hams providing communications during unexpected emergencies in cities and towns across America, according to a news release from the club.

Ham radios come in handy when cellphone coverage is unavailable in some areas or when service is knocked out because of weather conditions.

Last year at Curran's house in Waldorf, the derecho storm knocked out the phone lines, but "my radio still worked," he said.

When hurricanes and tornadoes sweep through the area, the club steps in to help where it can.

"We set up communication systems and support the local community until it can get back up and running," said Rob Hoyt, president of the club. "It's our way to support the community."

Wildfires in the western states, major storms like Superstorm Sandy and the tornadoes in Oklahoma are a few of the disasters where hams sprang to action to provide vital communications in the early hours of assessing the damage and getting help on the scene, Curran said.

Hams were also on the scene providing communications during the Boston Marathon this year when the bombs went off, and they were able to quickly stop the runners along the route and help coordinate runner transportation from the rest stops, Curran said.

"The fastest way to turn a crisis into a total disaster is to lose communications," said Allen Pitts of the ARRL. "Because ham radios are not dependent on complex systems, they work when nothing else is available. We need nothing between us but air."

The league's slogan, "Ham Radio Works," is more than just words to the hams as they prove they can send messages in many forms without any other infrastructure that can be compromised in a crisis.

Club members invite the public to come and see ham radios' new capabilities and learn how to get their own FCC radio license before the next disaster strikes.

The club sets up to make it 24 hours, which includes food.

"We have to cook," Curran said, and it's not just for the members.

The club sets up the area as if they are participating in a real disaster, not using commercial power, instead operating equipment using generators, batteries or solar power.

Club members will be on the scene to talk to people about what's going on, Hoyt said.

"We're easygoing," he added.

Each year, the club gets about two or three new members from the field day event, Hoyt said.

It might be surprising to a lot of people, but ham radio is still alive and well, Hoyt said.

The hobby attracts people from all walks of life, Curran added.

"Plumbers, business executives, truckers, police, firemen," he said. "Anyone who has an interest in communications and volunteerism."

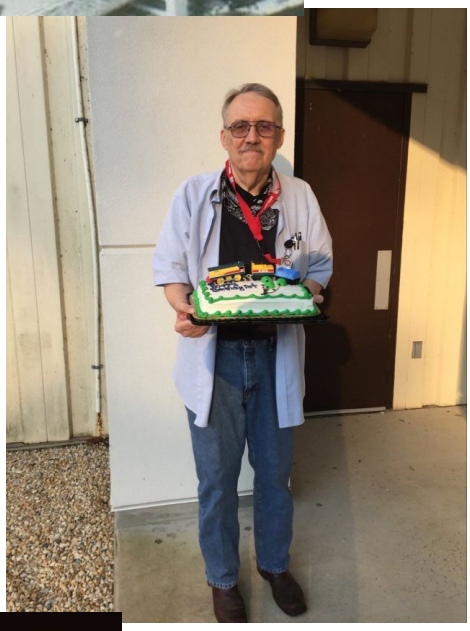
The club, which formed in the county in 1996, meets once a month in La Plata.

SARA K. TAYLOR

Life is like a mountain railway,
With an engineer that's brave;
We must make the run successful,
From the cradle to the grave;
Watch the curves, the fills, the tunnels;
Never falter, never fail;
Keep your hands upon the throttle,
And your eyes upon the rail.

Refrain:
Blessed Savior, Thou wilt guide us,
Till we reach that blissful shore,
Where the angels wait to join us
In Thy praise forevermore.

You will roll up grades of trial;
You will cross the bridge of strife;
See that Christ is your conductor
On this lightning train of life;
Always mindful of obstruction,
Do your duty, never fail;
Keep your hands upon the throttle,
And your eyes upon the rail.



You will often find obstructions,
Look for storms and wind and rain;
On a fill, or curve, or trestle
They will almost ditch your train;
Put your trust alone in Jesus,
Never falter, never fail;
Keep your hands upon the throttle,
And your eyes upon the rail.

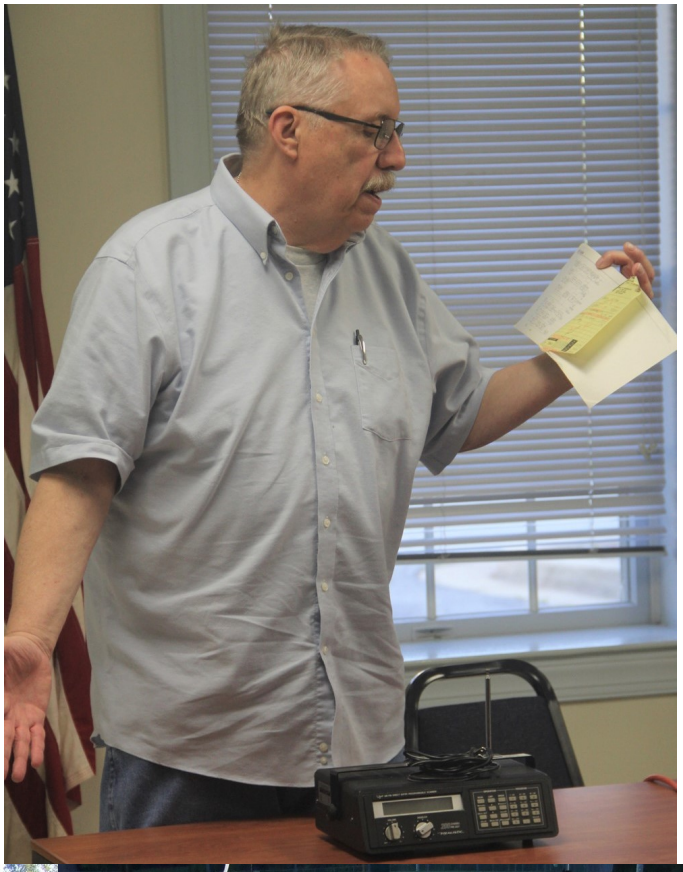
As you roll across the trestle,
Spanning Jordan's swelling tide,
You behold the Union Depot
Into which your train will glide;
There you'll meet the Sup'rintendent,
God the Father, God the Son,
With the hearty, joyous plaudit,
"Weary Pilgrim, welcome home."

This song is based on "The Faithful Engineer" by William S. Hays, published in 1886.

When your friends are gone and you only can look at pictures, then remember, that times and people change but that memories stay forever.
C.M.

Field day 2016

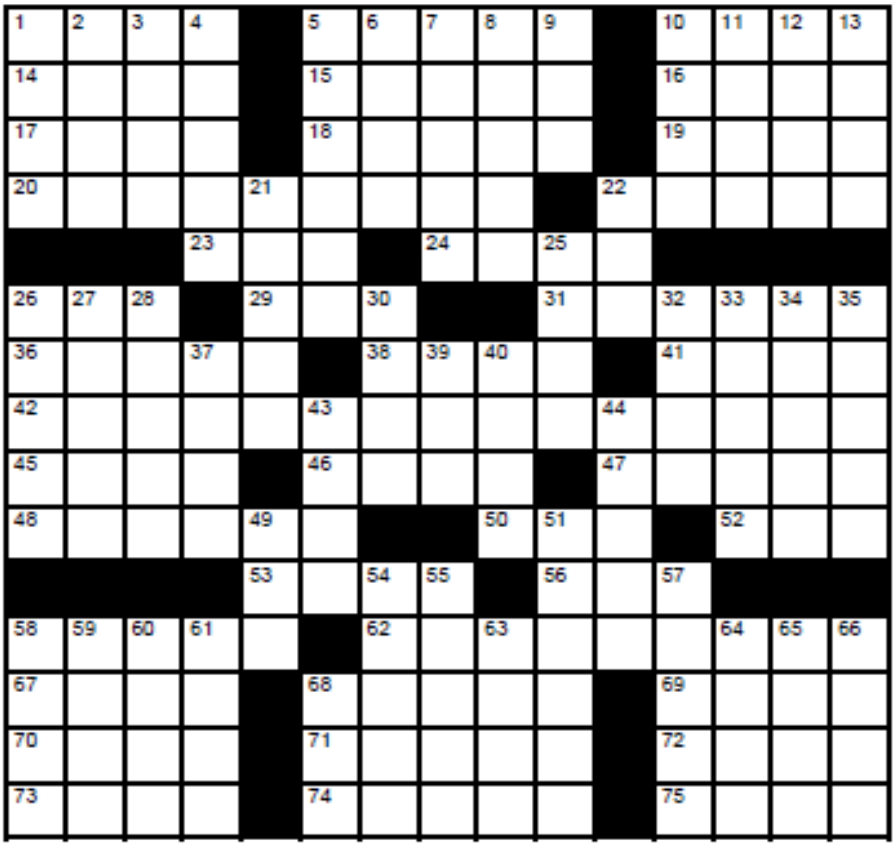
A special friend is hard to find, hard to lose and impossible to forget.
Unknown




AA3RT

by Chris Codella, W2PA 11/17/2009

Signal Makers



Across

1. Ant. meas.
5. Cousin of 38-across
10. Caucasus region prefix
14. Part of DE, on phone
15. Lid like
16. PW1 maker
17. Part of 23 across
18. Eastern zone-36 prefix
19. NA or SA, e.g.
20. Encoder, in a way
22. Last stage, with 62 across
23. Measuring dev.
24. W5LFL's employer, once
26. SDR part
29. Band booking
31. RX starter
36. Prefix with -band
38. Parasitic array
41. Part of a score, maybe
42. Political pundit?
45. Apple spray
46. Theories
47. Lisbon prefix
48. Seminal radio textbook author
50. Equipment seller
52. Homer's neighbor
53. Eastern zone-28 prefix
56. Dir., for one
58. Dit dah doer
62. See 22 across
67. Tea type
68. Dig, so to speak
69. Eight in some circles
70. HS denizen
71. Part of some joints
72. Dayton digs
73. QSL bureau process
74. Put up, as a crank-up, say
75. Lodges

Down

1. DVM predecessor
2. "QSY!"
3. "___ Thing"
4. Q followers
5. JD1 name
6. "Get ___!"
7. It's a gas
8. Probably contains a 41 across
9. W5 sect.
10. KP4 name
11. Harbor vessel
12. Turin prefix
13. Apache or Cheyenne, e.g.
21. Gates' job
22. Hole goal
25. Span's partner
26. Amateur 24 across partner
27. Having two parts
28. RIT button
30. Swindles
32. 90 degrees
33. Illegal lighting?
34. Belfast prefix
35. Cut down
37. School session
39. Ready for firing
40. "Gee!"
43. Kink companion
44. Gut bug
49. MI, MO and MT QP mo.
51. Give in
54. Water walker
55. Bratislava prefix
57. CD followers
58. SB-401, 301, 201 and 101, once
59. EME artifact
60. Y2K part
61. Menu option
63. CPU part, abbr.
64. EP place
65. Take home
66. SM-land rugs
68. Took the cake, say

Special Event Calls December

120 year anniversary of wireless telephony	W4F	18
21st Amendment Celebration	W8A, W4P	5
22nd Anniversary of PSK-31	K9Z	10
5th Annual Christmas Birthday Party	K2B	24
ARRL 160M contest	K1A	3
Battle of Trenton	W2T	26
Commemoration of Pearl Harbor Day	W2W	4
Cookeville Repeater Association Santa Net	K4S	24
Covina Christmas Parade	W6C	5
E.H. Armstrong Memorial	W4A	18
First Transatlantic Radio Communication	K2R	12
Hams All-Holiday On Air Celebration	W1E	12
Happy New Year America	W2W	16
HCOHSEM NVIS COMMEX	W5T	6
Mrs. Claus at the North Pole	N0P	17
National Skywarn Day	W4W	1
NJ Santa's Workshop	W2S	10
On the Air with Santa	N0P, W8S, W4W	1
Pearl Harbor Rememberance Day	W5W	4
Radio first voice	N3V	20
Rock House TXpedition	K5M	3
Santa Watch Net	N1S	15
The Christmas Train	K8C	17
Third Annual 12 Days of Christmas	K2P, K2S, W2C, W2D, W2F, W2G, W2L, W2M, W2N, W2P, W2R,	14
WHOA Weekend/SCOTA	W1M	5
Youth on the Air Month	K8A, K8O, K8T, K8Y	1

Special event call N3V to commemorate first voice transmission
December 20 - January 2, 2021

On December 23, 1900, we have permission to set up an event station on Old Fisherman's Field on Cobb Island. Join us at the station set up on Cobb Island between noon and 1630 EST. We hope to have 2 radios but will need to restrict to no more than 5 at a time at the radio table. Anyone not active on the radio needs to wear a mask and social distance. A logger at the table not on the radio, would need to wear a mask.

Secondly, use the call sign from your home and send me a log of your contacts made with it. Please include contacted call sign, date, time, band & RST. You may use anytime between Dec 20 and 22, and Dec 24 through Jan 2. I want to assure all the N3V contacts between noon and 1630 on the 23rd are from Cobb Island as that is submitted & QSL differently. There is a QRZ page so you can let folks know to check it for information.

Thanks Michelle N3YRZ ….and now some history :

That cell phone would not be possible if Reginald Fessenden had not put voice on the radio! And yes that happened right here in Charles County Maryland. December 23, 1900 on Cobb Island , he sent the first voice over the air. Our special event is to cast a little spotlight on the man--and the place--that helped make modern wireless communication possible. "When I closed my eyes and dreamed, I saw an invention that could send voices around the world without using wires or cables."

Though Fessenden was born in Knowlton, Quebec Canada, he claimed dual citizenship as his father was American. He did most of his experiments in the US & has hundreds of patents mostly in radio and sonar. He is credited with the beginnings of AM radio, the first radiotelegraphic signals across the Atlantic and the first speech on radio. Fessenden had an exceedingly early interest in audio radio transmissions, in contrast to the early spark-gap transmissions that could only transmit Morse code messages. As early as 1891, he investigated sending alternating currents of varying frequencies along telegraph lines to create a multiplex telegraph system; applying knowledge about tuning and resonance to the higher frequency currents used in radio, to develop the concept of continuous-wave radio signals. Fessenden's. Patent 706,737, called for the use of a high-speed alternator (referred to as "an alternating-current dynamo") that generated "pure sine waves" and produced "a continuous train of radiant waves of substantially uniform strength", or, in modern terminology, a continuous-wave (CW) transmitter. CW conflicted with the "whiplash" effect of large electrical sparks needed for adequate strong signals. Fessenden's next step, taken from standard wire-telephone practice, was to insert a simple carbon microphone into the transmission line, which was used to modulate the carrier wave signal for audio transmissions, or, again using modern terms, used to produce amplitude modulated (AM) radio signals.

Through persistence, he convinced Thomas Edison to hire him despite no formal education, quickly got promoted to junior technician and helped with a lot of different projects…in chemistry, metallurgy, and electricity. Laid off in 1890, he then taught electrical engineering at Purdue & Western PA, and helped Westinghouse set up lighting for the 1893 Chicago world fair. In 1900, Fessenden began working for United States Weather Bureau- to prove that using coastal stations to transmit weather information would avoid the expensive telegraph lines. Fessenden came to Cobb Island through his association with Frank Very, whose brother-in-law owned one of the island's two houses. Fessenden and Very decided Cobb Island would be a good place to tinker in peace. The contract provided workspace, assistance, and housing with Fessenden retaining ownership of any inventions, but gave the Weather Bureau royalty-free use of any discoveries made. He worked to develop audio reception of signals through the invention of a barretter detector, then an electrolytic detector, (fine wire dipped in nitric acid), setting a new standard for sensitivity in radio reception. Fessenden also developed the heterodyne principle, (two closely spaced radio signals to produce an audible tone) that made Morse code transmissions much easier to hear. However, heterodyne reception

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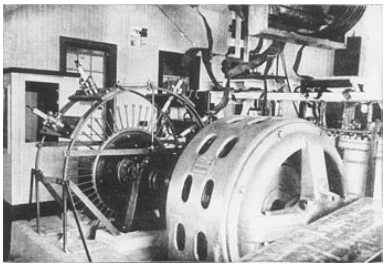
would not become practical for a decade after it was invented, because it required a method for producing a stable local signal, which would not become available until the development of the oscillating vacuum-tube.



Fessenden‘s research on audio transmissions on Cobb Island, were with an experimental "high-frequency spark" transmitter, (the higher spark rate got closer to making continuous waves). He successfully transmitted speech over 1.6 kilometers (one mile). Reginald Fessenden stood near a 50-foot pole and spoke into a microphone "One, two, three, four. Is it snowing where you are Mr. Thiessen? If it is, telegraph back and let me know." A telegraph message crackled back from the bank of the Potomac River, standing next to another pole. Mr. Thiessen had heard Fessenden's words, loud and clear. "This afternoon, here at Cobb Island," Fessenden wrote later that day, "intelligible speech by electromagnetic waves has for the first time in the world's history been transmitted." Identical antennas supported by 15-meter masts were used on each end. The RF carrier was produced by a spark transmitter that produced 10,000 sparks per second. The carrier was amplitude-modulated by means of an asbestos-insulated carbon microphone inserted in series with the transmitting antenna feedline. Soundwaves varied the microphone resistance which modulated the antenna current and consequently the amplitude of the radiated RF signal. The received voice signal was reportedly accompanied by disagreeable noise but was said to have been perfectly intelligible.

In hopes of improving his wireless telephony apparatus, Fessenden looked for something to replace the coherer, a detector of electromagnetic waves that was part of all early radio setups. The coherer amounted to a tube of metal filings inserted within a circuit. If no radio waves were present, the filings were randomly oriented and had a fairly high resistance. But when the coherer was acted upon by a wave, the filings lined up and completed the circuit. The coherer worked better than any other wave detector, but it had numerous deficiencies, not the least of which was that it had to be tapped with a vibrator to decohere the filings.

Fessenden replaced the coherer with what he called a barretter, a very thin piece of wire. A radio wave induced a current in the wire, heated it, and increased its resistance. This “hot-wire” barretter, which took form during 1901, was no more sensitive than the coherer, but because it lacked the coherer’s on-or-off nature, it could reproduce speech much more efficiently.

Long-distance wireless telephony, however, required a more sensitive detector. He found an answer by accident in 1902 when he broke a barretter while cleaning it in nitric acid. Surprisingly, the broken wire worked much better than a whole one. He then designed a detector incorporating two extremely fine platinum wires whose ends were dipped into a pool of acid.

Fessenden realized greater lay in the use of higher frequencies- 60 cycles per second, created vibrations that made telegraph clicks & voices difficult to hear; frequency above the range of human hearing reduced the problem. Fessenden continued working with more sophisticated high-frequency spark transmitters, including versions with compressed air similar to arc-transmitters (patented by Poulsen) Fessenden tried to sell radiotelephone, (electrical engineers stated received over twenty-five miles), and the sets were advertised for sale. Fessenden's ultimate plan for an audio-capable transmitter was to use electrical alternator, rotated at speeds that produced alternating current

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of few hundred cycles-per-second (Hz), greatly increase its rotational speed, in order to create electrical currents of tens-of-thousands of cycles-per-second (kHz), thus a steady transmission when connected to an aerial. However, it would take many years of expensive development before even a prototype alternator-transmitter would be ready, and a few years beyond that for high-power versions to become available. Fessenden contracted with General Electric (GE) to help design and produce a series of high-frequency alternator-transmitters. Fessenden's request for a faster, more powerful unit was assigned to Ernst Alexanderson, who in 1906 made an improved model transmitting at frequency ~50 kHz, with far less power than Fessenden's rotary-spark transmitters. The alternator-transmitter sent quality but weak audio signals due to low amplification. On December 21, 1906, Fessenden made an extensive demonstration of the new alternator-transmitter at Brant Rock, showing its utility for point-to-point wireless telephony, including interconnecting his stations to the wire telephone network. As part of the demonstration, speech was transmitted 18 kilometers (11 miles) to a listening site at Plymouth, Massachusetts. The invention of amplitude-modulated (AM) radio, so that more than one station can send signals (as opposed to spark-gap radio, where one transmitter covers the entire bandwidth of the spectrum) is attributed to Reginald Fessenden .

Christmas Eve 1906, Reginald Fessenden used an Alexanderson alternator and rotary spark-gap transmitter to make the first radio audio broadcast, from Brant Rock, Massachusetts. Ships at sea heard a broadcast that included Fessenden playing O Holy Night on the violin and reading a passage from the Bible. Reginald Fessenden died in Bermuda on July 22, 1932,buried at St. Mark’s cemetery,

his grave is marked with these words: “By his genius, distant lands converse and men sail unafraid upon the deep.”

In 1947, AT&T commercialized the Mobile Telephone Service started in St. Louis; then to one hundred towns and highway corridors by 1948. Because only three radio channels were available, only three customers in any given city could make mobile telephone calls at one time so it was expensive and rare. Early beginnings from Fessendens dream are now a reality- **mobile devices** worldwide in 2020 number 4.02 billion, with forecasts suggesting by 2024, will reach 17.72 billion.

https://www.inventionandtech.com/content/voice-over-radio
https://www.nps.gov/articles/fessendenexperiments.htm http://www.hammondmuseumofradio.org/fessenden-bio.html
https://www.ieee.ca/millennium/radio/radio_birth.html
https://www.statista.com/statistics/245501/multiple-mobile-device-ownership-worldwide/#:~:text=The%20number%20of%20mobile%20devices,set%20to%20reach%2017.72%20billion.

For the 15th consecutive year, The 3916 Nets will be presenting The Santa Net on 3.916 MHz. Good girls and boys can talk to Santa Claus, via amateur radio, nightly at 7:15 PM (Central) starting Friday, November 27, 2020. The Santa Net will run nightly at 7:15 PM Central through Christmas Eve, December 24, 2020.

Pete Thomson (KE5GGY), of The 3916 Nets, commented on The 3916 Santa Net. He said, "Christmastime and Santa Net are the best time of the year on 3916. We enjoy helping young people and their families have a shared Christmas experience that they'll always remember. And we get to introduce young people to the magic of amateur radio."

Youngsters can talk to "Santa at The North Pole" via strategically placed operators who relay the voice of Santa. Thomson said that The Santa Net is a team effort that involves the efforts of a number of 3916 Net members. He said, "In our first year, we connected 10 kids to Santa on Ham Radio and it's grown steadily since. This year we should connect over 800 children with Santa Claus."

Prior to each night's Santa Net, pre-net check-ins can be made at www.cqsanta.com Third party rules and regulations apply.

The Santa Nets are presented annually by The 3916 Nets. The Rag Chew Crew, The Tailgaters and The Freewheelers are all amateur radio nets that meet on 3.916 MHz nightly. For more information on The 3916 Nets, go to http://www.3916nets.com For more information on The Santa Net, email KE5GGY at Gmail dot com

Charles County Amateur Radio Club Meeting Minutes
Oct 3, 2020

Officers Present:

President – Bob Curran NW3M

Vice President – Bob Davison KB3KOW

Treasurer – Pamela Humbert KB3SWS

Members Present:

Bill Luyster W8BL

Patrick Hinman KB3UYZ

Jay Howard KC3MUV

Tom Abernathy W3TOM

John Kohansby KC3PMJ

Visitors:

Bob Denny N3BD

Meeting opened 1900 Hours.

President Bob Curran NW3M opened the Zoom Meeting by welcoming the members and visitor Bob Denny N3BD. The President also advised the Art AA3RT was at home.

Vice President Bob Davison KB3KOW gave a demonstration on the Raspberry Pi Micro-computer and assorted Ham Radio Apps.

New Business

Treasurer:

Pamela Humbert KB3SWS, gave the Treasurer's Report. The November's Treasurer Report was approved.

Activities Manager:

Jeff KB3SPH reported on the following upcoming activities:

4 December 2020 – Monthly CCARC Meeting at 7:00 PM

12 December 2020 – "SantaFest": CANCELED The Hamfest is held at the American Legion Youth Camp, 9201 Surratts Road, Cheltenham, MD 20623. CANCELED

Secretary:

Minutes for the October Meeting are published in the Monthly New Letter. The October Minutes were approved.

Old Business

President – Bob Curran NW3M advised the Club Christmas Party is postponed. The Party will be a picnic in June or July.

Vice President – Bob Davison KB3KOW reported that ARRL ARES Connect has been set up for Charles County ARES.

Closing:

A motion was made and seconded to close the meeting. The motion passed at 2044 Hours.

Charles Hallock AA3WS

Secretary

The Wide Area Ragchew Session

The Saint Mary's County Amateur Radio Association is hosting a monthly, informal ragchew session via Zoom for hams in the surrounding counties. The idea is to just get together to chat about what's going on, activities, etc. 2nd Thursday of every month 7:30 PM Eastern Time

AGENDA:

- Everyone is invited from anywhere in the MDC area (southern Maryland, Northern Neck, eastern shore of Maryland, etc.)
- Open chat – who is doing what, club news from all areas, how can we work together better to keep ham radio a growing, viable hobby, sharing of news about upcoming ham events, meet new people!
- Please keep all discussions related to ham radio activities!

JOINING THE GROUP (there are 3 different ways to join in on the meeting):

1 – Click on this QUICK LINK:
https://us02web.zoom.us/j/8673965998?pwd=Q2lUL05PTVB3RnEvUkZPNmlKUFJ3QT09

2 – Open up the ZOOM app on your computer or device and:
Select 'Join Meeting' button and type in the meeting ID and password:
Meeting ID: 867 396 5998 Meeting Password: 1460464

3 – Use your regular telephone (no computer needed, voice only, no video):
Dial 1-301-715-8592 (US) – Follow the voice prompts… enter the Meeting ID followed by the # (pound) symbol; then enter your participant ID (if applicable) followed by #; then enter the meeting password followed by #

Contact information: Rob Hoyt, N2OMC – SMCARA President/ host robhoyt32@yahoo.com

Odd & ends

Below is the link to the presentation by Dr. Scott McIntosh on this upcoming Solar Cycle 25. It's a fascinating look at how using 22-year Hale Cycles and their terminators we can better predict an upcoming solar cycle intensity like cycle 25 which could be in the top 5 since records began.

https://us02web.zoom.us/rec/share/NMlTa_PcxJMN335-sN-Hhq5t1WzbmTY-gNTDt1SCedeR9pxPdG6o3p_046iVtmAI.qEgoEo-6p34nOrmf

Passcode: z7qCn@3G

Bill, N3WD

Here is an interesting take on the new Solar Cycle 25.
73, Tom - W3TOM

A research paper, "Overlapping Magnetic Activity Cycles and the Sunspot Number: Forecasting Sunspot Cycle 25 Amplitude," by Scott W. McIntosh, Deputy Director of the National Center for Atmospheric Research in Boulder, et al., has concluded that Solar Cycle 25 could be among the strongest sunspot cycles ever observed, and will almost certainly be stronger than the just-ended Solar Cycle 24 (sunspot number of 116).

The scientists say it will also most likely be stronger than Solar Cycle 23 (sunspot number of 180). As the abstract explains:

Sunspot cycle graph dating to 1700. [SILSO Graphic]

"The sun exhibits a well-observed modulation in the number of spots on its disk over a period of about 11 years. From the dawn of modern observational astronomy, sunspots have presented a challenge to understanding -- their quasi-periodic variation in number, first noted 175 years ago, stimulates community-wide interest to this day. A large number of techniques are able to explain the temporal landmarks, (geometric) shape, and amplitude of sunspot 'cycles;' however, forecasting these features accurately in advance remains elusive.

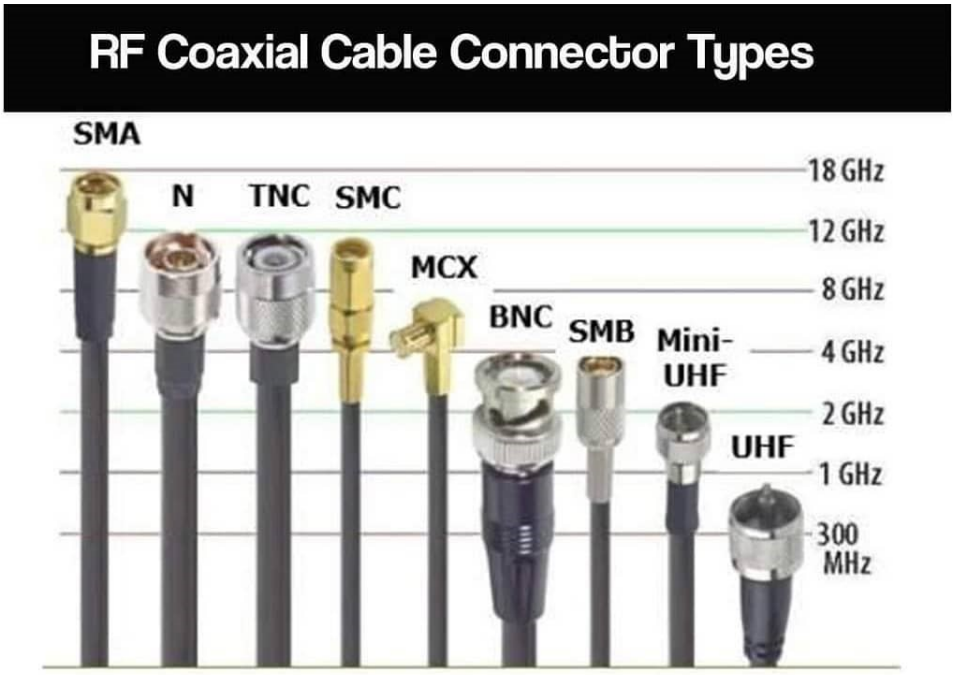
"Recent observationally motivated studies have illustrated a relationship between the sun's 22-year magnetic cycle and the production of the sunspot cycle landmarks and patterns, but not the amplitude of the sunspot cycle. Using (discrete) Hilbert transforms on more than 270 years of (monthly) sunspot numbers, we robustly identify the so-called 'termination' events that mark the end of the previous 11-year sunspot cycle, the enhancement/acceleration of the present cycle, and the end of 22-year magnetic activity cycles. Using these, we extract a relationship between the temporal spacing of terminators and the magnitude of sunspot cycles.
"Given this relationship and our prediction of a terminator event in 2020, we deduce that Sunspot Cycle 25 could have a magnitude that rivals the top few since records began. This outcome would be in stark contrast to the community consensus estimate of Sunspot Cycle 25 magnitude."

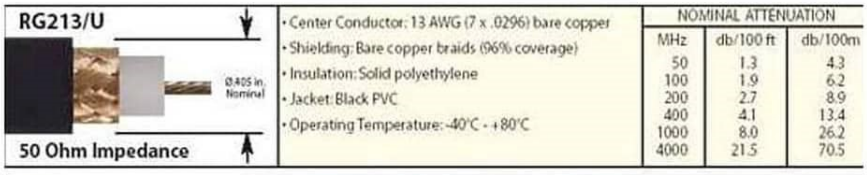
H  ms in Action

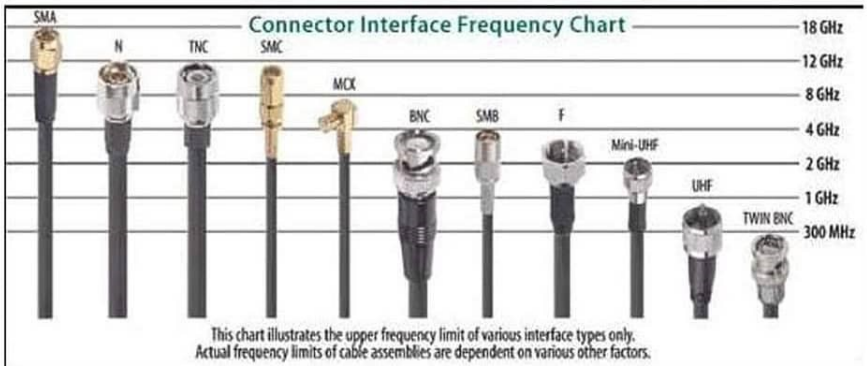
Want to help FEMA help those in need? Here's an on-call job with the FEMA Reservist program as an HF Operator:

www.usajobs.gov/GetJob/ViewDetails/585313700

Frank W3LPL







ANSWERS

Answers to practice questions

1D 2C 3C 4B

WANT ADS, FOR SALE, &

PUBLIC SERVICE ANNOUNCEMENTS:

Smallwood Camera Club

Open to all skill levels and photographic interests.

email: SmallwoodCameraClub@gmail.com

AMA 822
CHARLES COUNTY RADIO CONTROL CLUB
MARYLAND

Interested in joining the fascinating hobby of RC airplanes?

The Charles County Radio Control Club is ready to help you get started.

Visit us on the web: charlescountyrc.com

K3SMD

Charles County Amateur Radio Club

Service Club

We're on the web

http://
k3smd.net

Meetings, nets, & contacts

First Friday- Monthly meeting @ 7 PM/1900 Charles County Rescue Squad 2 Calvert Street, LaPlata, MD

Net-Wednesdays 8:30 PM local: 147.195 MHz, + 600 offset, PL 156.7 Hz.

PO BOX 169, La Plata, MD 20646

President: Bob Curran NW3M flyingham@verizon.net

Vice-president: Bob Davidson rdavidson@aceweb.com

Secretary: Charles Hallock AA3WS selbynet@hotmail.com

Treasurer: Pam Humbert KB3SWS *humbertpj@gmail.com*

Activities: Jeff Humbert KB3SPH humbert1js@gmail.com

Newsletter Michelle Sack N3YRZ msack@verizon.net

VE Coordinator Bob Curran NW3M

Leave laughing

Since Art was a big fan of the 3 stooges...and author of wireless on the web… travel on over to the link below...to hear them sing carols.

https://www.youtube.com/watch?list=RDTGZhYIzXbj4&v=TGZhYIzXbj4&feature=emb_rel_end&ab_channel=TheThreeStooges-Topic