The Ham Radio Communicator

Devoted Entirely to Amateur Radio

February 2018 www.w0uk.org

Best Robot/Drones CES 2017
Mine Creek Winterfest
GoPro Quits Done Business
Freeze Your Keys
World Radio Day
Severe WX Symposum
Fox-1D Satellite Launch

Douglas County Amateur Radio Club
Lawrence, Kansas

THE MIC **3**
Cover Page 3
MEETING MINUTES **4**
MICRO-CONTROLLERS **6**
Trends in Microcontrollers 6
ROBOTICS **7**
Here are the best robots and drones from CES 2017. 7
GoPro Quits Drone Business 8
GoPro's aerial struggle 9
How Automated Transportation Will Change Our Lives 10
PUBLIC SERVICE **14**
Mine Creek Winterfest 14
World Radio Day 15
FREEZE YOUR KEYS 16
2018 Douglas County Severe Weather Symposium 17
Calendar of Events 18
ANTENNAS **21**
Loop antenna 21
Coaxial Dipole 22
SATELLITE COMMUNICATIONS **23**
Fox-1D Satellite Set to Launch this Week, China to Launch Five New CubeSats 23
SHACK ACCESSORIES **26**
SWR & Power Meter 26
Antenna Analyzer MFJ-225 27
RADIO-SPORT **30**
2018 ARRL Contest Calendar 30
WA7BNM Contest Calendar 30
HAM RADIO CROSS-WORD PUZZLE **31**
HAM RADIO CROSS-WORD PUZZLE SOLUTION **32**
EMERGENCY MANAGEMENT **33**
Bridgewater man receives outstanding service award 33
Amateur Radio Emergency Service (ARES) 36
HAM CLASSES: **37**
TEST SESSIONS **38**
TECHNICAL DEMOS **39**
CONTACTS **40**
REPEATERS & NETS **41**
MEETINGS **42**
Tuesdays 42

SATURDAYS 42
2ND WEDNESDAY 42
LAST TUESDAY 42
MEMBERSHIP APPLICATION 43
VENDOR LINKS 44
RADIOS 44
ANTENNAS 44
TOWERS 44
MORSE KEY 45
STORES 45
FILTERS 45
SOFTWARE AND SOUNDCARD 45
BATTERIES/CHARGERS 46
BUYING ELECTRONIC SURPLUS 46
CIRCUIT BOARDS 46
COMPONETS 46
DATA LOGGING 46
DESIGN/ENGINEERING/REPAIR SERVICES 46
DEVELOPMENT PLATFORMS/TOOLS 46
EDUCATION 46
EMBEDDED SYSTEMS 46
ENCLOSURES 47
LCDS/DISPLAYS 47
MICROCONTROLLERS / I/O BOARDS 47
MISC./SURPLUS 47
MOTORS / MOTOR CONTROL 47
ROBOTICS 47
TEST EQUIPMENT 47
TOOLS 47
TRANSFORMERS 47
WIRE, CABLE AND CONNECTORS 48
WIRELESS PRODUCTS 48
COPYRIGHT 49

The MIC

The purpose of THE MIC column is provide a place for anyone to make comments to the club. Please send me your comments and they will be placed here.

Cover Page

If you've not been following along watching Dr. Bob Heil build the Pine Board Project on Ham Nation, then you've really missed out. Bob has built in stages, the necessary parts for building an AM transmitter, literally on pine boards. Check out the entire Pine Board Project at the bottom of the www.heldsound.com web site. – Jim Cessna AC0KN

Your comments goes here!

MEETING MINUTES

By Kevin Oneslager – KS0EGL

Douglas County Amateur Radio Club
W0UK

Meeting Minutes
January 10, 2018
Douglas County Fairgrounds, Lawrence, KS

Meeting called to order by President John Harris at 7:00pm

Roll Call of Officers:

President John Harris – present
Vice President Virginia Filardo – present
Secretary Kevin Oneslager - present
Treasurer Bill Musick – present
Program Coordinator Ken Filardo – present
Web Site Dave Klamet – present
Activities Manager Matt Hilt – present
Training Managers Ken Filardo – present, Matt Hilt – present
Newsletter Jim Cessna - present

Previous meeting minutes were approved

Treasurers Report:

General Fund	$998.65
Expenses	$42.98
Repeater Fund	$1,791.55
Total	$2,790.20

Members: 21

Presidents Report:

Presented new meeting format for the new [2018] year. Officers/Board had a meeting to set new goals for the club. 1. Increase Membership, 2. Develop Mentors, 3. Make Web Focal Point for information, 4. Programs/Activities.

Motion made and passed to do away with senior level dues and provide the follow dues schedule:

Membership Dues $25
Students Dues $10
Family Dues $30

Winter Field Day January 27 – 28, 2018

ARES:

Sunday night net is on N0APJ 147.030 repeater while club repeater is having issues at 8:00pm

DMR ARES Net right after on talk group 3120

Repeater: John Harris reported that repeater is having issues with the audio. There will be some testing to find the issue. The new antenna feed line and antenna still needs to be installed dependent on the climbers. Possibly get a standby repeater up and ready if something was to happen to the current tower utilizing the old repeater in storage.

Need a new trustee for the repeater and club call sign. Motion made and approved to have Bill Musick KC0NFL as the new trustee.

Website: If you want something added to the website contact Dave Klamet. Facebook and twitter setup for the club. Facebook: facebook.com/DgCoARC twitter: @DgCoARC

Licensing class coming, Ken Filardo is also looking for suggestions on what everyone would like to see as presentation material.

Meeting Adjourned 7:40pm

Next Meeting: February 14, 2018 at 7:00pm Flory Building, Douglas County Fairgrounds

Presentation by Ken Filardo on electro static discharge.

Attendees:

AC0KN, KD0LFH, KA0THK, KE0KRC, KC0NFL, K0AVG, N0APJ, WA5RGU, KB7CZZ, KE0EFY, KS0EGL, N6UOP, K0TOY, plus 2 non-hams

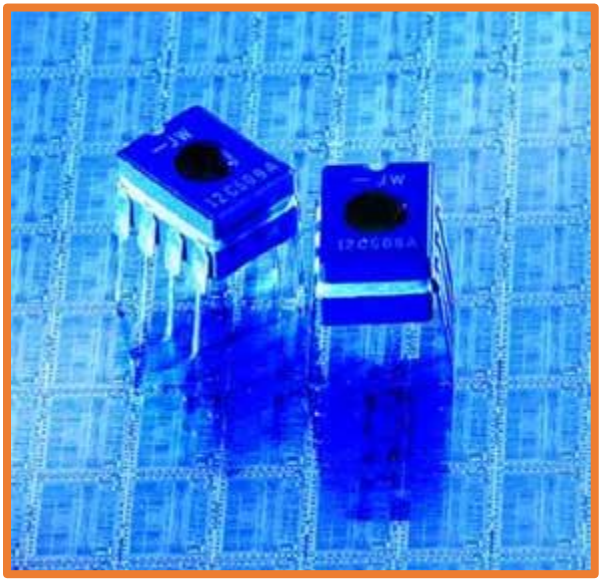
Upcoming Events:

February 3, 2018 – Mine Creek Winterfest, 204 Commercial St, La Cygne, KS
March 3, 2018 – Sever Weather Symposium, Double Tree Hotel, 7am – 4pm $15 DGCO EOC
March 28, 2018 – Weather 101
April 21, 2018 – Ararat Hambash
June 23-14, 2018 – ARRL Field Day

MICRO-CONTROLLERS

Trends in Microcontrollers

From www.elektormagazine.com



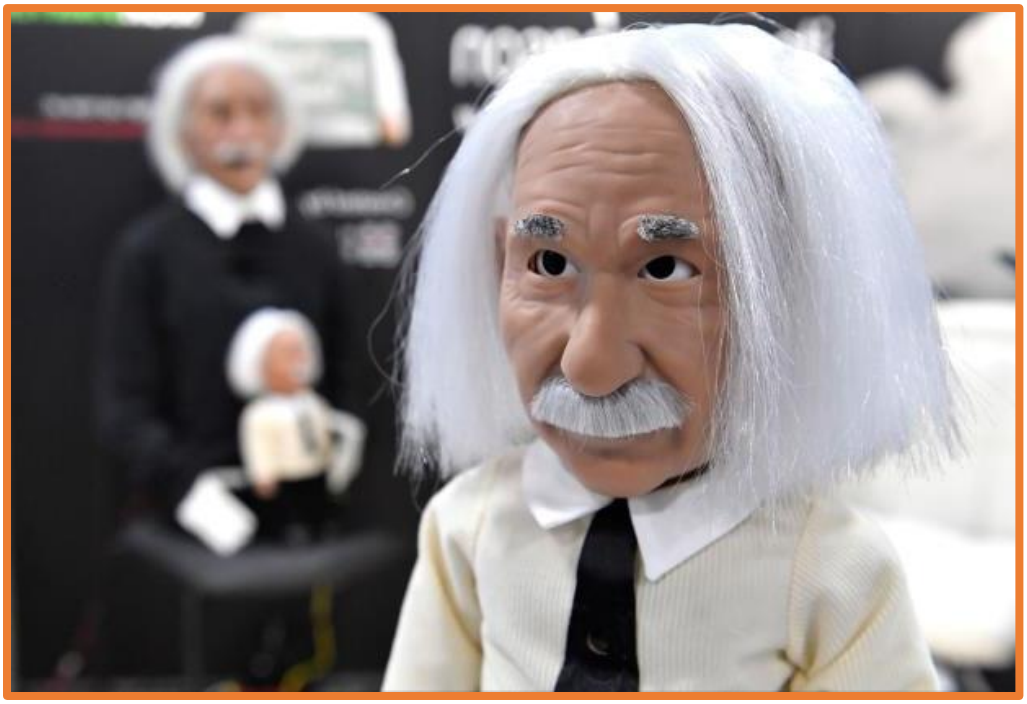
An abundance of choice

The number of different microcontrollers on offer just keeps on growing. Nearly every single week a new product appears on the market. Choosing the right microcontroller for a particular design is becoming increasingly more difficult. Reason enough to appraise the latest developments. The microcontroller market is mostly dominated by a few ‘heavyweights’ such as Microchip, Atmel and, to a lesser extend, Philips. In addition, there are many smaller manufacturers who make very interesting developments in this area. There are also a number of manufacturers who are not at all that well known for their microcontroller products, and are often forgotten as a consequence. Names that come to mind are Toshiba with its TMP86xxx-family, and Zilog, the inventor of the famous Z80, who now offers the Z8 Encore! and eZ80 families. Also don’t forget Dallas Semiconductor with its DS89C420, Cypress with its PsoC (Programmable System-on-Chip) such as the CY8C27x, or the, until recently, completely unknown company Cygnal with its C8051xxx.

ROBOTICS

Here are the best robots and drones from CES 2017.

By Steve Crowe



Robots of all shapes and sizes dominated CES 2017. Robots, drones, self-driving cars and robotic assistants took over Vegas to kickoff the new year, and we were there to take it all in.

We've compiled our list of best robots and drones, but we also want to hear from you. What was your favorite robot from CES 2017? Share your thoughts in the comments.

Click here for the 10 Best Robots & Drones of CES 2017.

How did the robots at CES 2017 compare to prior shows? Check out our 2016, 2015 and 2014 recaps.

Also don't miss our roundup of the Top 10 Robotics Startups at CES 2017.

GoPro Quits Drone Business

GoPro has announced the end of their drone program, only two years after they released their first drone to the public. The GoPro Karma drone, which generated mixed reviews and even suffered a complete recall, will be the last model drone produced by the company.

GoPro stated in its quarterly earnings report that it will officially exit the drone market "after selling its remaining Karma inventory." As a result of this move, the company will be laying off over 200 employees as it looks to scale back its product offerings to its core items.

GoPro's aerial struggle

The Karma drone launched back in 2015, a time when most consumer drones including were designed to work with a GoPro camera. Since then, however, drones are increasingly housing their own cameras, with popular models from DJI even boasting 4K resolution on their native cameras.

Is this shift in cameras to blame for the end of GoPro's drone program? It's possible, although the consumer drone market is heavily saturated with other offerings, and GoPro may simply have entered the game too late, without a strong enough offering to make a real splash in the market.

The company also blamed tightening regulations in both Europe and the United States as factors in the Karma drone not finding commercial success. Governments are still struggling over how to regulate both consumer and commercial drones, with the UN going so far to even propose a global drone registry last year.

Read more:
https://www.roboticsbusinessreview.com/consumer/gopro-quits-drone-business/?utm_source=rbr_article&utm_medium=social&utm_campaign=rbr_content&eid=399017737&bid=1974413

How Automated Transportation Will Change Our Lives

By Thomas J. Atwood January 23, 2018
From www.roboticstrends.com

Summer 2040 on a U.S. interstate: ”Ma’am, I’m sorry to pull you over, but I’m not getting a ping back from your vehicle’s transponder. Are you letting your onboard autopilot drive the vehicle?”

“Officer, I’m driving in a safe fashion, not exceeding the speed limit. Why is there a problem?”

“With all due respect, you must let your onboard computer do the driving on interstate highways. It’s now the law, and it’s safer both for you and your vehicle….”

Diverse technologies are coming together to create a new era in travel. Robotic vehicles have been on the road for years in Europe, and new vehicle designs and automated transportation models are being developed across the globe. The nature of the technological trends behind these changes are well illustrated by the new Tesla trucks recently unveiled by Elon Musk.

Tesla Semis are better characterized as freight-carrying mobile data networks than simply as computerized trucks. Pioneering vehicle design elements as well as data management innovations are blending in ways that create new economic models for transportation of freight.

Tesla projects that its trucks will operate at lower costs. The drag coefficient of the Tesla Semi is 0.36, well below that of a diesel truck, at 0.65 to 0.70, and it beats even the Bugatti Chiron race car, at 0.38. An aerodynamic front, side flaps that map to the freight trailer, and a flat cab bottom greatly decrease the energy needed to push the truck through the air, decreasing transportation costs.

An electric motor is stationed at each of the four rear wheels that power the cab. Computer control dynamically adjusts the torque to eliminate jackknifing, the worst nightmare of a trucker.

The batteries are carried in the floor pan to lower center of gravity and reduce the probability of a rollover. The Tesla Semi features automatic lane changing.

In an emergency, it's designed to automatically come to a halt and contact local authorities. These features vastly enhance safety not just for the trucks themselves, but also for other vehicles and their occupants.

There is no transmission, brake pads, emissions scrubber, or differentials to break down or be maintained. Braking recharges the batteries. The Tesla Semi has a 500-mile range at maximum gross weight (80,000 lb.) at highway speeds.

Tesla guarantees inexpensive charging 24/7 based on its solar-powered and battery-backed megachargers, and full charging can take place on a trucker's break. Musk has claimed that convoys of Tesla Semis can transport freight at rates that are competitive even with shipment by railroad.

While America's approximately 2 million truckers are legitimately concerned about their livelihoods, electric, connected, and autonomous vehicles are likely to change their profession. On the one hand, autopilot features could relieve the drudgery of long-haul drives, improve safety, and address impending shortages due to retirement. On the other hand, they could threaten jobs of proud people who haven't needed a college education to make a living wage.

Pepsi and UPS have already placed orders for hundreds of Tesla Semi trucks.

The global race to next-gen transport

Scania automated truck

In the broader context, there are many automated vehicle development centers across the country working on self-driving cars and driverless trucks.

“There are several important automated vehicle initiatives and activities under way in Florida,” said John Lambert, an autonomous systems consultant and research associate at the University of Central Florida’s Institute for Simulation and Training. “These include annual Automated Vehicles Summits, the Central Florida Automated Vehicle Partnership—one of the 10 U.S. Department of Transportation designated Automated Vehicle Proving Grounds—several residential communities introducing shared-mobility autonomous electric vehicles, and urban automated vehicle programs associated with Florida Smart Cities initiatives.”

Volvo autonomous truck

Trends in automated transport for freight as well as people are global. In Sweden, Scania is a leading provider of automated trucking across Europe. It is working with Toyota on robotic truck "platoons" that will efficiently move freight around the port of Singapore.

Daimler also plans to test platooning on U.S. roads.

Volvo is developing self-driving trucks that will operate 1,320 meters (4,330 ft.) underground in narrow mine tunnels in the Kristineberg Mine in northern Sweden. It plans on testing them for "hub-to-hub" intralogistics.

We can expect a continuing acceleration in the pace of automated transportation R&D in what now appears to look more and more like an international race.

About the author: Tom Atwood is the executive director of The National Robotics Education Foundation, and is a director of the AUVSI Florida Peninsula Chapter. He was editor in chief of *Robot* magazine, a former print bi-monthly, from 2006 through 2014.

John Lambert also contributed to this article. He has been a leader in autonomous and robotics systems for over 15 years, serving on the board of directors of the Association for Unmanned Vehicle Systems International (AUVSI) for 10 years, including two years as the President and Chairman of the Board.

PUBLIC SERVICE

Mine Creek Winterfest

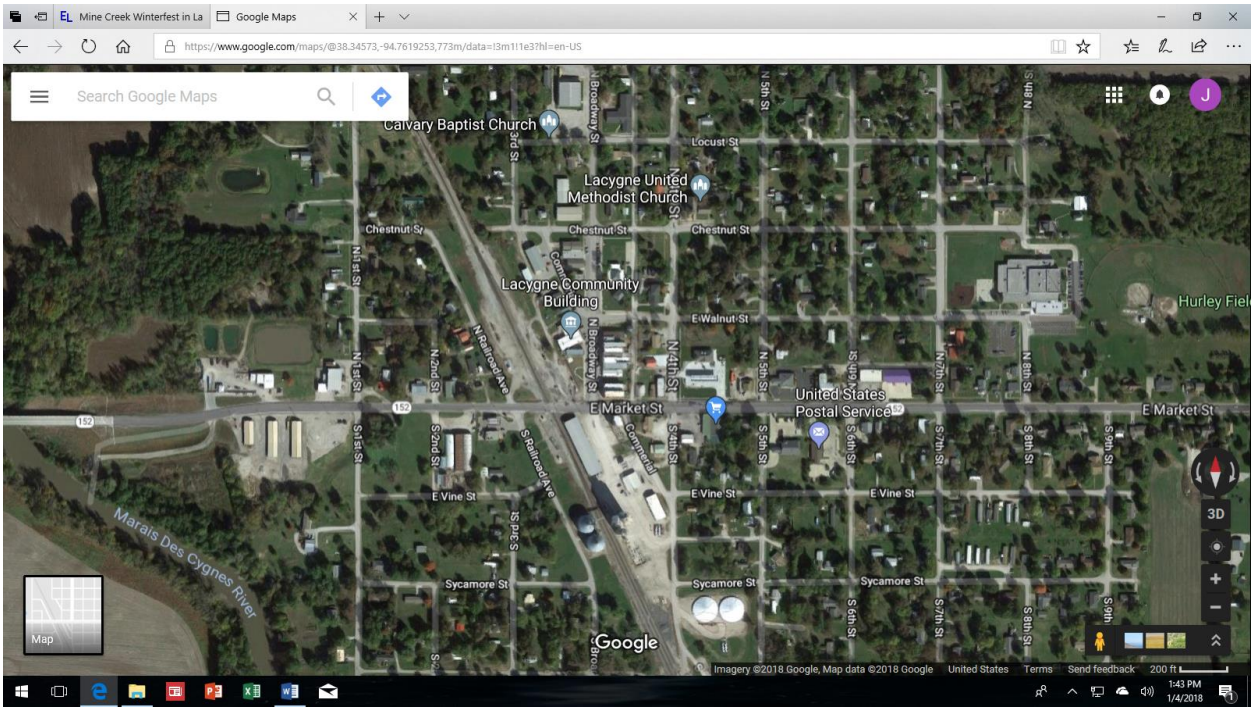
By Ron Cowan

February 3, 2018

08:00-13:00

Event Location
Community Building
204 Commercial Street
La Cygne, KS 66040

Description
Sponsor: Mine Creek ARC
Type: ARRL Hamfest
Talk-In: 147.285
Public Contact: Ron Cowan, KB0DTI
PO Box 36
La Cygne, KS 66040
Phone: 913-757-3758
Email: kb0dti@arrl.net



World Radio Day

From Wikipedia

World Radio Day is an observance day held annually on 13 February. World Radio Day is about celebrating radio, why we love it and why we need it today more than ever. A day to remember the unique power of radio to touch lives and bring people together across every corner of the globe. It was proclaimed on 3 November 2011 by UNESCO's 36th General Conference after originally proposed by the Kingdom of Spain.

World Radio Day 2018

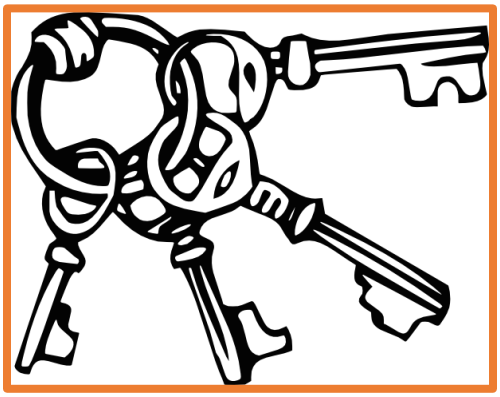
World Radio Day 2018 will be held on 13 February 2018 around the theme of "Radio and Sports". As we look forward to a year of momentous sporting events that have the ability to unite the hearts and minds of people everywhere. World Radio Day 2018 will celebrate the traditional sports that connect us to our cultural heritage, the grassroots sports that anchor us within our communities, and the inspiring stories that challenge gender stereotypes and provide positive role models for young people around the world. The theme for 2018 is all about the alliance of sport and radio as a force for civic participation and development as well as for celebrating humanity in its diversity. World Radio day 2018 will celebrate radio's critical function in shaping this alliance, by providing a platform for radio stations, and listeners alike, to construct their programs and conversations around Radio and Sports. The sub-themes are:

- Radio and Sports build and unite communities
- Radio and Sports inspire participation and inclusion
- Radio fosters goodwill and inspires humanity
- how radio impacts on our lives

Read more:
https://en.wikipedia.org/wiki/World_Radio_Day

FREEZE YOUR KEYS

By Gary Auchard W0MNA



The Place is the shelter house at Weston Bend State Park Missouri on Saturday February 17, 2018. This is on 45 highway just north of 92 highway. The start time will be 8:00 a.m. local time and we shut down at 4:00 p.m. as the park closes at dusk. If the park is closed due to bad weather the alternate site will be the VA City Park in Leavenworth Kansas. Our main frequencies will be 14.058 CW, 7.035 CW, 14.325 SSB and 7.240 SSB but other frequencies will be in use as bands permit. This is a Special Event operation and will be listed as such in the February 2018 issue of QST Magazine. The call sign in use will be W0EBB. Everyone is welcome.

Talk-in frequency will be 147.000 repeater in Leavenworth that uses a 151.4 Hz tone. Questions can be sent to me at w0ebb@juno.com.

2018 Douglas County Severe Weather Symposium

The Symposium is for Storm Spotters, but is open to the public. This day is designed to train and expand your knowledge in advanced storm development, spotter safety, and the importance of spotter reports. The presentations will include incredible storm videos; experts in the field from the National Weather Service and the private sector, and will conclude with a Round table discussion with local television meteorologists.

Place - Double Tree Inn Lawrence
Date - March 3
Time – 7:30 doors open till 4:00 pm
Fee

- **$15 fee per person if paid by 5PM on Feb. 12th. Payments made after Feb 12th will be $20 per person.**

Payments can be submitted via

- Mailed check, money order or cash. Check or money order should be made payable to "Douglas County Emergency Management".
  - **Mail To: Douglas County Emergency Management**
  - **C/O Jillian Rodrigue**
  - **111 East 11th St., Unit 200**
  - **Lawrence, KS 66044**
- **Credit card payments will be taken over the phone during normal business hours. There is a 2.35% fee per transaction**

More info: https://www.douglascountyks.org/severe-weather-symposium/join-us

Calendar of Events

DATE	TIME	EVENT
01/27/2018	10:00-15:00	**KS DAY**: KS joined union 1/29/1861
01/27/2018 01/28/2018	13:00 13:00	**Winter Field Day** https://www.winterfieldday.com/
01/27/2018 01/28/2018	10:00-17:00 10:00-15:00	**WW1USA – Commemorating Wilson's "14 Points" speech** Herb Fiddick NZ0F 913-744-0586 hfiddick@gmail.com
02/3/2018	08:00-13:00	**Mine Creek Winterfest** Ron Cowan KB0DTI 913-757-3758 kb0dti@peoplestelecom.net
02/17/2018	09:00-16:00	**Freeze Your Keys – W0EBB 14.058 14.325 7.035 7.240** Gary Auchard **w0mna74@gmail.com**
03/03/2018	07:00-16:00	**Sever Weather Symposium** Double Tree Hotel 10100 College Blvd Overland Park, KS 66210 $15 DGCOEOC
03/28/2018		**Weather 101**
04/07/2018		**MS-WALK – Kansas Speedway** Herb Fiddick NZ0F 913-744-0586 hfiddick@gmail.com
04/21/2018	08:00-14:00	**Ararat Shrine Hambash** Ararat Shrine Temple 5100 Ararat Drive Kansas City, MO 64101 **www.hambash.com**
04/21/2018		**GARMIN (Olathe) Marathon** Herb Fiddick NZ0F 913-744-0586 hfiddick@gmail.com
04/21/2018	0000-2359Z	**International Marconi Day** (K2M, GB4IMD, EI6YXQ) http://gx4crc.com/gb4imd/
04/26/2018		**Morse Code Day** https://www.daysoftheyear.com/days/morse-code-day/
05/12/2018		**Armed Forces Day** Layne LaBaume, AE1N **ae1n@gmail.com**
05/12/2018 05/13/2018	10:00-17:00 10:00-15:00	**WW1USA – Commemorating The Battle of Cantigny** Herb Fiddick NZ0F 913-744-0586 hfiddick@gmail.com
05/18/2018 05/19/2018 05/20/2018	07:30-18:00 07:30-17:00 08:00-13:00	**Dayton Hamvention** http://hamvention.org/
05/19/2018 05/20/2018		**William Becknell Heritage Days – Starting of the Santa Fe Trail 1821**
06/10/2018		**Lone Star Bike Ride** (Lone Star Lake, Lawrence) http://www.kansascyclist.com/events/Calendar.html
06/16/2018		**Tour de Cure Wheel to Weston** Steve Rainey WD0DPB wd0dpb@comcast.net 913-963-9089

06/23/2018 06/24/2018	s-time: 13:00 e-time: 13:00	**Field Day** http://www.arrl.org/field-day
07/14/2018	08:00-13:00	**Warrensburg Hamfest** **Crest Ridge Middle School 50 Hwy and 58 Hwy** **5 miles West of Warrensburg** **Ken Smith, KO9R klsmith92@gmail.com 660-441-0007**
07/21/2018		**Moonlight Bike Ride** Steve Rainey WD0DPB wd0dpb@comcast.net 913-963-9089
07/18/2018- 07/27/2018		**Boy Scouts Jamboree On The Air (JOTA)** http://www.summitbsa.org/events/jamboree/overview/
08/19/2018		**Salina Convention**
08/25/2018		**Joplin Hamfest**
08/25/2018 08/26/2018	09:00-21:00 09:00-15:00	**KS QSO Party** www.ksqsoparty.org
09/03/2018		**Bike for the Brain** www.bikeforthebrain.org Steve Lester KD0EKS 913-390-3570 stevekd0eks@gmail.com
09/8/2018- 09/9/2018	06:00 08:00	**Hawk 100 Run** Clinton State Park, Lawrence, KS Contact: Bill Gery KA2FNK at 913-575-3763 ka2fnk@gmail.com
09/8/2018 09/9/2018		**William Becknell Heritage Days – Starting of the Santa Fe Trail 1821**
09/22/2018 09/23/2018		**Bike MS Olathe to Lawrence and Back** Herb Fiddick, NZ0F 913-744-0586
09/15/2018		**Bikers 4 Babies** Kansas Speedway Matt May, KC4WCG kc4wcg@twc.com 913-927-4148
09/23/2018	13:00	**Lawrence Crop Hunger Walk** http://www.crophungerwalk.org/lawrenceks
09/22/2018 09/23/2018	10:00-17:00 10:00-15:00	**WW1USA – Commemorating the Muse-Argon Offensive** Herb Fiddick NZ0F 913-744-0586 hfiddick@gmail.com
10/20/2018	08:00-13:00	**Southside Hamfest** Mill Creek Upper Elementary School 308 South Cleveland Ave. Belton, Mo. 64012 Dave Nielnhuser KC0CMD 913-636-9696 info@southsidearc.net
10/19/2018- 10/21/2018		**BSA-JOTA** Les Mignerey, KB0MEF Assistant Section Manager for Radio Scouting South Texas Section, ARRL West Gulf Division Houston, TX 77070 kb0mef@arrl.net
11/03/2018	08:00-13:00	**Raytown Hamfest** Ararat Shrine Temple 5100 Ararat Drive Kansas City, MO 64101 Joel Griebshaber KC0ELZ kc0elz@sbcglobal.net
11/11/2018	10:00-17:00	**WW1USA – Commemorating Armistice Day**

		Herb Fiddick NZ0F 913-744-0586 hfiddick@gmail.com
12/31/2018 01/01/2019	s-time: 18:00 e-time: 18:00	**Straight Key Night** http://www.arrl.org/straight-key-night

ANTENNAS

Loop antenna

From Wikipedia

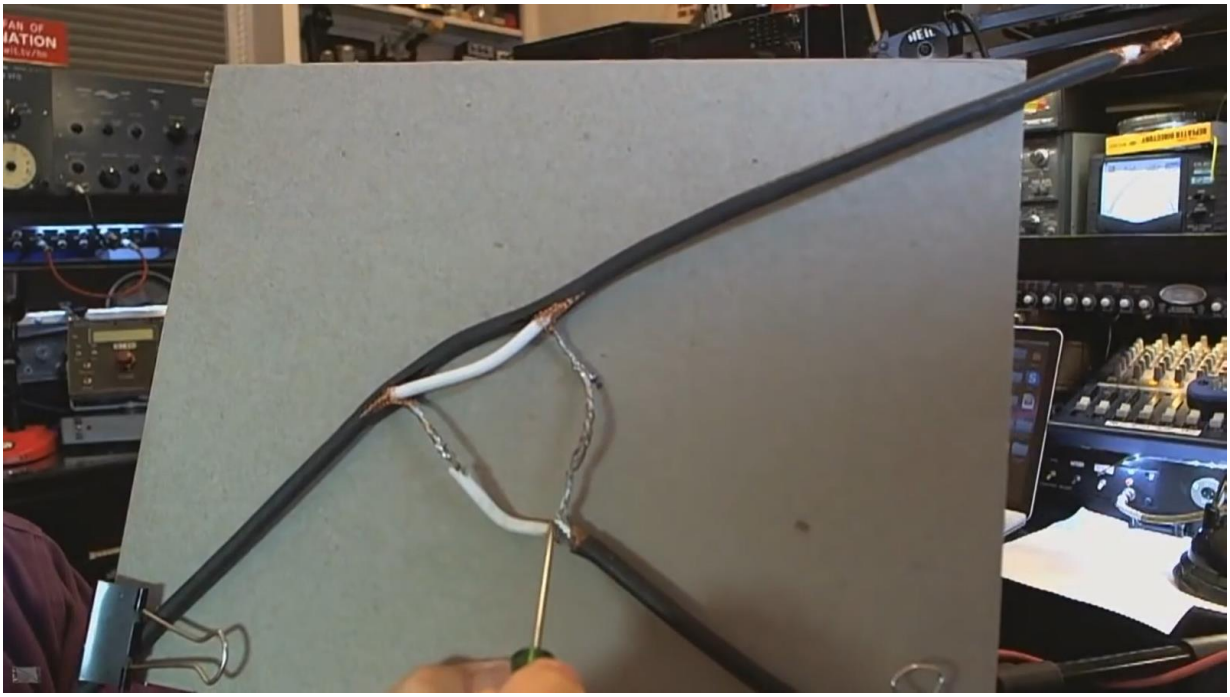
A **loop antenna** is a radio antenna consisting of a loop or coil of wire, tubing, or other electrical conductor usually fed by a balanced source or feeding a balanced load. Within this physical description there are two distinct antenna types. The large self-resonant loop antenna has a circumference close to one wavelength of the operating frequency and so is resonant at that frequency. This category also includes smaller loops 5% to 30% of a wavelength in circumference, which use a capacitor to make them resonant. These antennas are used for both transmission and reception. In contrast, small loop antennas less than 1% of a wavelength in size are very inefficient radiators, and so are only used for reception. An example is the ferrite (loopstick) antenna used in most AM broadcast radios. Loop antennas have a dipole radiation pattern; they are most sensitive to radio waves in two broad lobes in opposite directions, 180° apart. Due to this directional pattern they are used for radio direction finding (RDF), to locate the position of a transmitter.

Read more:
https://en.wikipedia.org/wiki/Loop_antenna

Coaxial Dipole

By Jim Cessna – AC0KN

In Ham Nation episode 266, Bob talks about building a coaxial dipole. He says it is broad-banded and does not need a tuner. The picture shows how it is constructed.



Note the center wire is not cut. The shield is cut and feed with another coax. There is a whole lot more information on building the coax dipole in the 266 episode including the end components, so view the episode before building this dipole.

View Ham Nation episode 266

https://www.twit.tv/shows/ham-nation/episodes/266?autostart=false

SATELLITE COMMUNICATIONS

Fox-1D Satellite Set to Launch this Week, China to Launch Five New CubeSats

From The ARRL Letter

The launch from India of AMSAT-NA's Fox-1D CubeSat will take place on January 12 (UTC). The Polar Satellite Launch Vehicle (PSLV) flight had to be rescheduled from December 30. AMSAT Vice President Engineering Jerry Buxton, N0JY, delivered Fox-1D to Spaceflight Inc. in Seattle last November for integration.

In addition to a Fox-1 U/V FM transponder, Fox-1D will carry several university experiments, including a MEMS gyro from Pennsylvania State University-Erie, a camera from Virginia Tech, and the University of Iowa's High Energy Radiation CubeSat Instrument (HERCI) radiation mapping experiment. Fox-1D also carries the AMSAT "L-Band Downshifter," which gives the option of utilizing a 1.2 GHz uplink for the FM transponder. The Fox-1D downlink will be on 145.880 MHz, and uplinks will be on 435.350 and 1267.350 MHz (67 Hz CTCSS), switchable.

The PSLV also will carry the French PicSat, which carries an Amateur Radio V/U FM transponder. PicSat will perform space observations. The transponder uplink is 145.910 MHz, the downlink is 435.525 MHz. Some 30 smaller secondary payloads from India, the US, and other international entities will also be on the launch, AMSAT News Service has reported.

AMSAT will release Fox-1D's Keplerian elements on its website as soon as they are known and seeks telemetry data on the CubeSat to assist with commissioning. "Participation in telemetry collection by as many stations in as many parts of the world as possible is essential as AMSAT Engineering looks for successful startup and indications of the general health and function of the satellite as it begins to acclimate to space," AMSAT said over the weekend. AMSAT said the on-orbit checkout procedure could be completed in a few days. AMSAT asks the Amateur Satellite community to refrain from using the transponder uplink while on-orbit testing is under way.

Chinese CubeSats Set to Launch

Meanwhile, AMSAT-UK reports that China will launch Hunan Amateur Radio Society's constellation of five similar 6U CubeSat spacecraft on January 17 from its Jiuquan Space Center. Identified as TY-2 through TY-6, the satellites will carry out ionospheric transmission-detection experiments, in addition to Amateur Radio HF/VHF/UHF re-transmitting experiments in any narrow-band mode. The constellation will also carry out inter-satellite communication experiments that include Amateur Radio loads, Li-Fi high-speed LED digital downlink, and CW lamp signal communication experiments. Downlinks are on 70 centimeters using 9.6 kbps GMSK and on 2.4 GHz and 5.8 GHz using 5 Mbps OFDM.

TY2	435.350; 2403.000, 5833.000 MHz Down	5653.000 MHz Up
TY3	435.875; 2406.000, 5836.000 MHz Down	5656.000 MHz Up
TY4	435.925; 2409.000, 5839.000 MHz Down	5659.000 MHz Up
TY5	436.025; 2412.000, 5842.000 MHz Down	5665.000 MHz Up
TY6	436.100; 2415.000, 5845.000 MHz Down	5667.000 MHz Up

Fox-1D Amateur Radio CubeSat Launches Successfully, Now Designated as AO-92

Right on schedule on January 12, the Indian Space Research Organisation (ISRO) Polar Satellite Launch Vehicle (PSLV) launched, taking AMSAT-NA's Fox-1D CubeSat and 30 other satellites on board toward a sun-synchronous orbit. By 27 minutes into the flight, confirmation came that all nanosatellites had been deployed. Fox-1D was in orbit!

"At about 0517 UTC, the satellite came to life, and its antennas deployed over the North Pole," AMSAT reported. "The AMSAT Engineering team and Amateur Radio operators worldwide were watching various WebSDRs for signs of life. Around 0525 UTC, the characteristic 'Fox tail' of the Fox-1 FM transmitter was seen on multiple WebSDRs. Fox-1D was alive!"

In addition to a Fox-1 U/V FM transponder, Fox-1D will carry several university experiments, including a MEMS gyro from Pennsylvania State University-Erie, a camera from Virginia Tech, and the University of Iowa's High Energy Radiation CubeSat Instrument (HERCI) radiation mapping experiment. This week the Virginia Tech experimental camera payload returned some very clear photos of our planet as seen from low-Earth orbit.

The PSLV launcher also carried the French PicSat, which includes a V/U FM transponder.

The satellite will not be available for general use until the on-orbit checkouts are complete. Read more.

SHACK ACCESSORIES

SWR & Power Meter

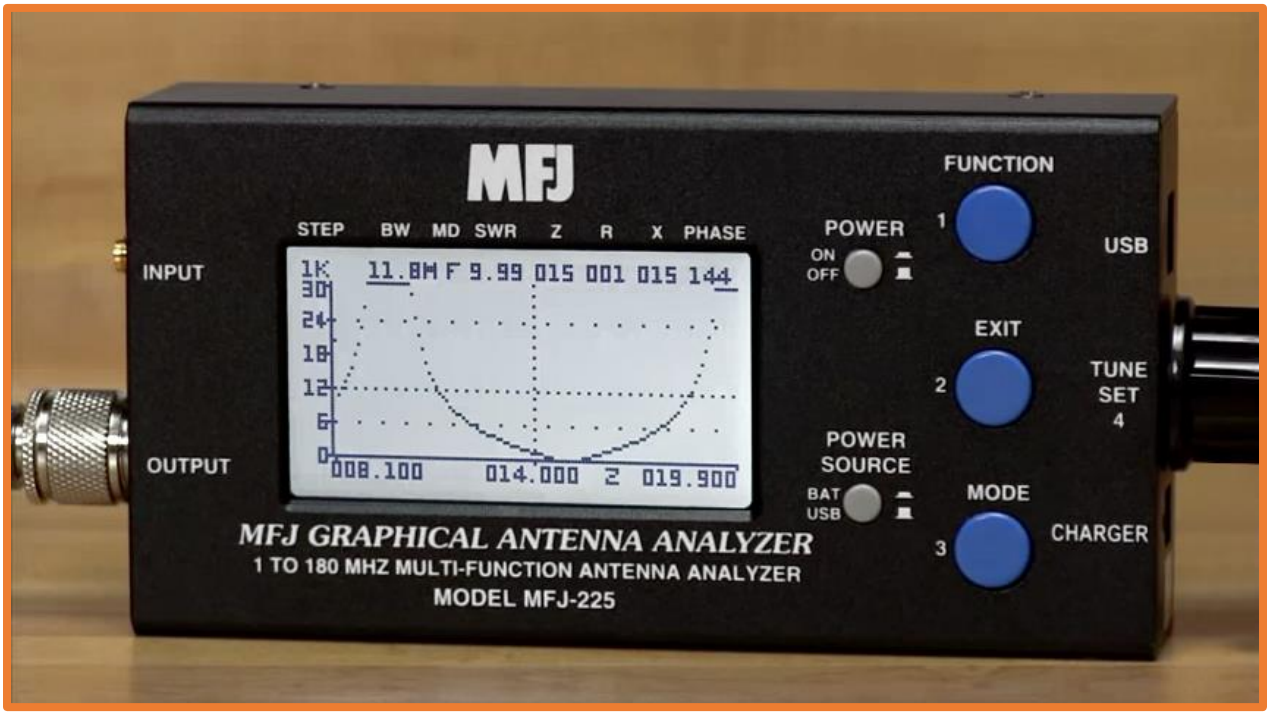
The **SWR meter** or **VSWR (voltage standing wave ratio) meter** measures the standing wave ratio in a transmission line. The meter can be used to indicate the degree of mismatch between a transmission line and its load (usually a radio antenna), or evaluate the effectiveness of impedance matching efforts.

T4A05
Where should an in-line SWR meter be connected to monitor the standing wave ratio of the station antenna system?

A. In series with the feed line, between the transmitter and antenna
B. In series with the station's ground
C. In parallel with the push-to-talk line and the antenna
D. In series with the power supply cable, as close as possible to the radio

Antenna Analyzer MFJ-225

By MFJ Enterprises



Take RF testing to the next level with the new MFJ-225! All the basic analyzer functions you`ve come to depend on plus a host of advanced features like builtin LCD graphics, two-port VNA measurement, PC-Interface using IG-miniVNA freeware, precise DDS frequency control, self-calibrating . . . easy-to-use!

Two Analyzers in One

Out in the field, MFJ-225 is a compact completely self-contained handheld analyzer. On the bench it becomes a full-fledged two-port (S21) desktop machine when teamed up with your PC. Using powerful IG-miniVNA freeware, you`ll run detailed data analysis and then print out stunning color-graphic plots to document your work!

Seeing is Believing

Get a big picture every time with MFJ-225`s built-in back-lighted 3-inch LCD graphic display. Make fine circuit adjustments using full-screen easy-to-view SWR bar graph, capture vivid swept displays for SWR, impedance, return loss, phase angle, more! Operation is simple, you can adjust the center frequency, tuning step, and sweep width instantly while viewing your plot, literally shaping it before your eyes.

Continuous HF-VHF Coverage

Tunes from 1.5 MHz to 179.9 MHz with rock-solid stability and no gaps. That`s because the MFJ-225`s VFO is a state of the art programmable DDS (direct digital synthesis) generator with pin-point 1-kHz frequency resolution. DDS control means no mechanical band switches or tuning elements, just a reliable velvet-smooth optical encoder to

glide across the spectrum.

Powerful Clean Signal Source
The MFJ-225 DDS stimulus generator also gives you a leveled -5 dBm signal source for driving mixers, low-power amplifiers, filters, networks, diplexers, and antennas on the test range. And, your test signal is always clean, with over -50 dBc of harmonic and spur suppression. That`s better than many precision lab generators costing thousands of dollars! Connect an external step attenuator, and it becomes a highquality signal generator for peaking sensitive receivers and preamplifiers.

Information Powerhouse
The MFJ-225 simultaneously compiles and displays all important parameters you need on a single screen, giving you a wider range of results at a glance. You`ll work faster and smarter without the inconvenience of scrolling through menus or making tedious conversions to get your data.

What the MFJ-225 Measures:
• SWR (1:1 to 9.9:1)
• Complex Impedance (R+jX)
• Impedance Magnitude (Z)
• Return Loss (RL, 0-30dB)
• Phase (0-180°)
• Capacitance (0-9999pF)
• Inductance (.1uH-80uH)
• Cable Length (0.5-45m)
• Cable Loss (0-30dB)

Two-Port Flexibility
In addition to traditional single-port (S11) reflected-power measurements, MFJ features an invaluable advantage of making two-port (S21) forward-power measurements, essential for optimizing filters, diplexers, matching networks, etc. It bridges the gap between a simple scalar analyzer and true vector-analysis performance.

Ergonomic Operation
“Advanced features” conjure visions of greater complexity and more buttons to push . . . not true for MFJ-225! The graphic display is "advanced" because it places more information at your fingertips without needless scrolling and searching. Also, the layout is unique with three large soft-touch selector buttons located on the front panel next to the screen and a large side-mounted frequency control knob conveniently positioned for your right hand. Everything is located where it needs to be for intuitive operating and unobstructed screen view!

Easy To Power
MFJ-225 can be powered by four AAA alkaline batteries or four AAA Ni-MH rechargeable batteries (batteries not incl.). Optional MFJ-1312D, or any external 12 VDC power is required for the built in recharging circuit with charge indicator LED. LED will light while charging and turn off when cycle is completed. On the bench, power it through the USB power port using any

USB power source. Optional USB cable,MFJ-5430

Self-Calibrating
In order to maintain out-of-the box accuracy, all analyzers require periodic calibration checks -- a potentially time-consuming operation that may require special RF loads and step-by-step procedures. However, the MFJ-225 uses built-in firmware to perform its entire calibration routine in less than a second! Simply initiate the "calibrate" command and you`re done!

Specifications
MFJ-225 requires 4 NiMh AAA cells or optional power adapter MFJ-1312D, $15.95.
PC interface requires a USB Type-B cable. Analyzer`s OUT port is SO-239. IN port is SMA-female. 3 3/32W x 6 1/8H x 1 1/2D inches.

RADIO-SPORT

2018 ARRL Contest Calendar

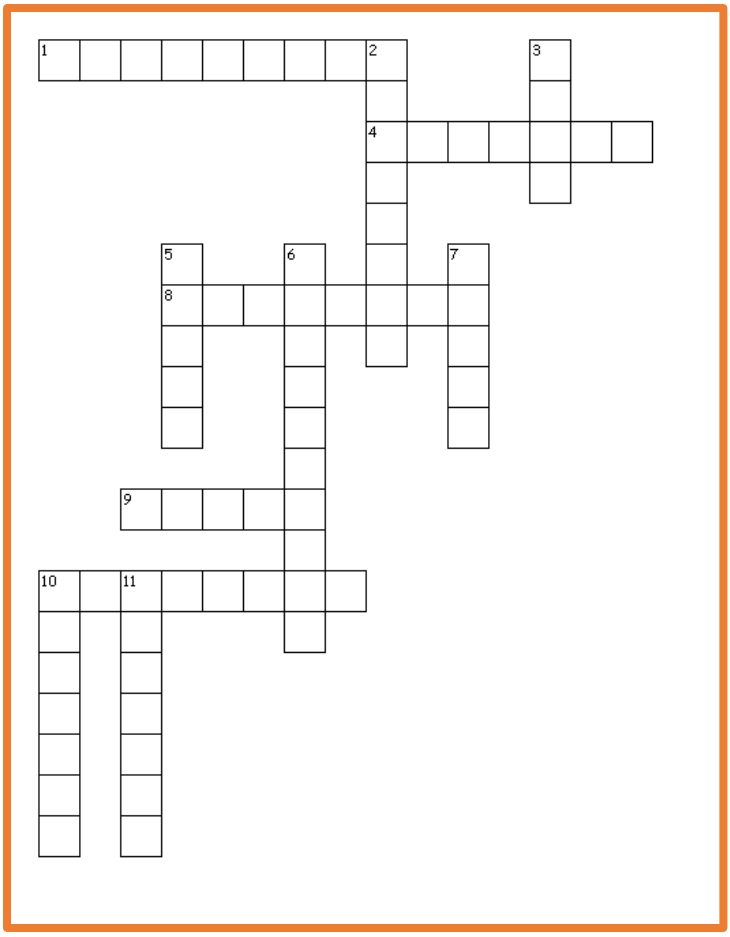
January 2018 1 **Straight Key Night** 6 **Kids Day** 6-7 **RTTY Roundup** 20-21 **January VHF**	February 2018 12-16 **School Club Roundup** 17-18 **International DX – CW**
March 2018 3-4 **International DX– Phone**	April 2018 **15** **Rookie Roundup – Phone**
May 2018	June 2018 9-11 **June VHF** 17 **Kids Day** 23-24 **Field Day**
July 2018 7-8 **IARU HF World Championship**	August 2018 4-5 **222 MHz and Up Distance Contest** 18-19 **10 GHz & Up – Round 1** 19 **Rookie Roundup – RTTY**
September 2018 8-9 **EME - 2.3 GHz & Up** 8-10 **September VHF** 15-16 **10 GHz & Up - Round 2**	October 2018 6-7 **EME - 50 to 1296 MHz** 15-19 **School Club Roundup**
November 2018 3-4 **EME - 50 to 1296 MHz** 3-5 **Nov. Sweepstakes – CW** 17-19 **Nov. Sweepstakes – Phone**	December 2018 1-3 **160 Meter** 8-9 **10 Meter** 16 **Rookie Roundup–CW**

WA7BNM Contest Calendar

http://www.hornucopia.com/contestcal/

HAM RADIO CROSS-WORD PUZZLE

From puzzlemaker.discoveryeducation.com



Across

1. Time a transmitter is operating at full output power
4. The second lowest ionospheric region
8. The shape formed by the maximum values of the instantaneous amplitude of an AM signal
9. The basic unit of capacitance
10. The wires or cable used to connect a transceiver to an antenna

Down

2. Negatively charged particles found in the nucleus of an atom
3. The amount of amplification of a signal in a circuit.
5. The basic unit of inductance
6. Combining two signals in order to obtain signals at the sum and difference of the frequencies of the original signals
7. The basic unit of frequency
10. An FCC form that serves as the application for your Amateur Radio license
11. Part of an antenna designed to radiate or receive

HAM RADIO CROSS-WORD PUZZLE SOLUTION

Across
1. **DUTYCYCLE -** Time a transmitter is operating at full output power.
4. **ERIGION** - The second lowest ionospheric region.
8. **ENVELOPE** - The shape formed by the maximum values of the instantaneous amplitude of an AM signal.
9. **FARAD** - The basic unit of capacitance.
10. **FEEDLINE** - The wires or cable used to connect a transceiver to an antenna.

Down
2. **ELECTRON** - Negatively charged particles found in the nucleus of an atom.
3. **GAIN** - The amount of amplification of a signal in a circuit.
5. **HENRY** - The basic unit of inductance.
6. **HETERODYNE** - Combining two signals in order to obtain signals at the sum and difference of the frequencies of the original signals.
7. **HERTZ** - The basic unit of frequency.
10. **FORM605 -** An FCC form that serves as the application for your Amateur Radio license.
11. **ELEMENT** - Part of an antenna designed to radiate or receive.

EMERGENCY MANAGEMENT

Bridgewater man receives outstanding service award

By Sandy McCurdy Fontanelle Observer

Jan. 3, 2018 (From *Creston News Advisor* an on-line newspaper)

Photo by Sandy McCurdy

Caption

Keith Carpenter of Bridgewater opened his mail one day last week to find a certificate he had never seen or heard of before. It's a United States Air Force Military Auxiliary Radio System Certificate of Outstanding Service. It was given to him, "in recognition of your outstanding service and selfless contributions supporting our Nation, the Department of Defense and United States Air Force MARS mission in 2017 and all of your teammates in Region 7." Carpenter said it is the first time he has ever seen this certificate from the US Air Force MARS.

There were three of these awards given, one person from Region 5 and the third to a person in Region 8.

What Is MARS?

The Military Auxiliary Radio System (MARS) is a Department of Defense sponsored program, established as separately managed and operated programs by the Army and the Air Force. MARS members are volunteer licensed amateur radio operators who are interested in providing auxiliary or emergency communications to local, national and international emergency and safety organizations, as an adjunct to normal communications.

Carpenter is one of some 2,500 amateur radio operators, volunteering his time and radio equipment to assist government agencies in the event normal communications channels are disrupted, either by natural calamity or deliberate hostile action.

Carpenter has logged 600 hours in five states. He has recruited and trained three new operators in Iowa. Recruiting, training and setting up communication trailers are all part of the hobby Carpenter is very dedicated to. He began working with ham radios when he was 14 years old. When he joined the Marines in 1974, the ham radios became his job during his service.

Carpenter attended a SIMCOM located in Lake Delton, Wisconsin, in April, 2017. SIMCOM is the State Interoperable Mobile Communications, an exercise designed to display, educate and test mobile emergency communications from federal, state, tribal, local governments and volunteer agencies. Their goal is to develop relationships and understand the capabilities of other agencies before they are needed in a real emergency. Carpenter along with two MARS members Mike Vititoe and Tom Conrey ministers maintained stations in a TeePee type tent, with generator power, for five days.

“The hosts of the SIMCOM didn’t think we would last three days, but they were wrong.” Carpenter said. The SIMCOM for 2018 is to be held again in Wisconsin, however, Carpenter won’t be able to attend.

Carpenter was awarded the Civilian Award for Humanitarian Service in 2012 from the Army, for his help which resulted in a unified working relationship between the National Guard and county officials.

In addition to the Chief's Award, Carpenter also received a 5x8 foot flag in a presentation case with documentation of the flag having flown over the White House. This was also from the Air Force MARS.

Carpenter currently serves as the Deputy Director for Region 7 of the Air Force MARS, a position he has held for the past 2 years. He was previously the director, a position he held for four years, but many personal factors caused him to step down, as he wasn't able to devote the time to being director.

Region 7 covers the states of Iowa, Nebraska, Kansas and Missouri. Region 5 includes Wisconsin, Michigan, Ohio, Illinois and Indiana.

Carpenter and his wife Roberta (Bert) live in Bridgewater. Both play important roles as volunteers in Bridgewater activities. Carpenter has worked at Bridgestone Firestone in Des Moines for 33 years and is looking forward to his retirement on May 1, 2018.

Amateur Radio Emergency Service (ARES)

The Amateur Radio Emergency Service® (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment, with their local ARES leadership, for communications duty in the public service when disaster strikes.

ARES Membership Requirements

Every licensed amateur, regardless of membership in ARRL or any other local or national organization is eligible to apply for membership in ARES. Training may be required or desired to participate fully in ARES. Please inquire at the local level for specific information. Because ARES is an Amateur Radio program, only licensed radio amateurs are eligible for membership. The possession of emergency-powered equipment is desirable, but is not a requirement for membership.

How to Get Involved in ARES

Fill out the **ARES Registration form** and submit it to your local Emergency Coordinator.

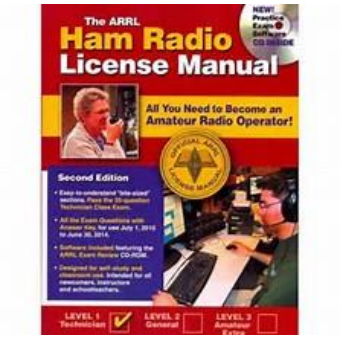
Sign-up to receive an ARES e-Newsletter at http://www.arrl.org/ares-e-letter.

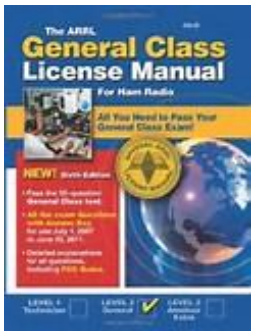
ARES is activated before, during and after an emergency. Generally, ARES handles all emergency messages, including those between government emergency management officials. RACES, on the other hand, almost never starts before an emergency and is active only during the emergency and during the immediate aftermath if government emergency management offices need communications support. RACES is normally shut down shortly after the emergency has cleared.

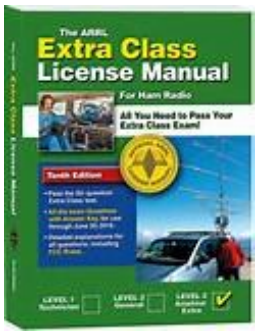
REPEATER	FREQUENCY	TONE	LOC	MODE	DAY	TIME	NET
W0UK	146.760 MHz	88.5	DCARC	Analog	Sunday Tuesday	20:00 20:00	ARES Club

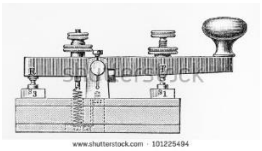
HAM CLASSES:

Class Offered:	TBD	
Contact:	Ken Filardo	ka0thk@arrl.net
PLACE:	TBD	
SDATE:	TBD	
EDATE:	TBD	
Test Session:		
TIME:		









CW Not required for license, but lots of fun.

The Technician Class is the first of three ham radio licenses. It is the entry to ham radio. The classes are geared towards the student with no electrical or electronic experience. The ham classes will provide, at a slower pace (8 consecutive Saturdays), the instruction necessary to obtain the Technician Class ham license.

This course follows the ARRL License manual and it is structured to provide an understanding of the subject matter. Topics are taught at a slower pace, and presented in simpler terms to increase student comprehension.

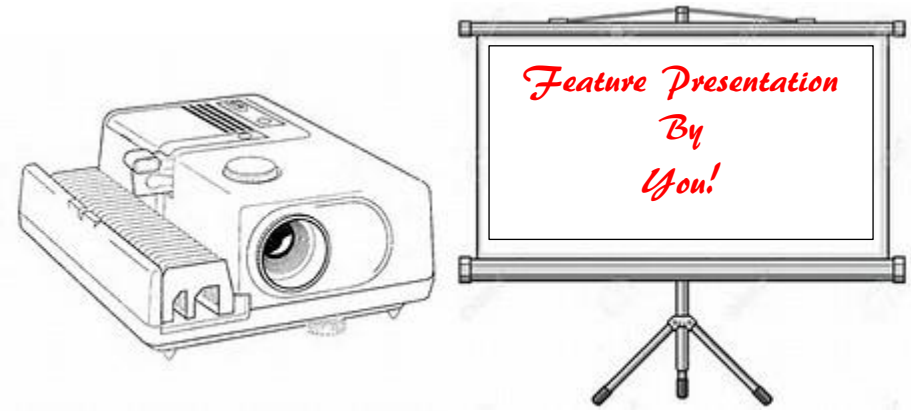
Latest enrollment date and money will be collected on the first day of class.

TEST SESSIONS

W5YI TEST SESSIONS	LOCATION	CONTACT
Second Saturday 09:00 AM	Fire Station #1 950 N. Spring Street Independence, Mo. (24 Hwy/Spring)	Norma Hatfield (W0KC) 816-536-0469 normalibby@sbcglobal.net
Third Saturday 09:00 AM	Blue Valley Library 9000 W. 151 Street Overland Park, Ks 66221 (West of 151 & Antioch)	Jim Lee (N0KCB) 913-745-5121 jimlee@kc.rr.com
Forth Saturday 09:00 AM	Mid-continent Public Library 850 NW Hunter Dr. Blue Springs, Mo. 64105	Jim Arnold (N0SAK) Arnold-j@swbell.net
Odd Nbr Months 07:00 PM	City Hall 234 Main St. Carbondale, Ks. 66414	W. Paul Mills (AC0HV) 785-286-3506 Ac0hv@mills-usa.com

ARRL TEST SESSIONS	LOCATION	CONTACT
First Saturday	Kearney Library 100 S. Platte-Clay Way Kearney, Mo. 64060	Bill Gerle (N0JJA) 816-289-6301 Bill.n0jja@gmail.com
Second Saturday 02:00 PM	Topeka Public Library 1515 SW 10th Ave. Topeka, Ks. 66604	W. Paul Mills (AC0HV) 785-286-3506 Ac0hv@mills-usa.com Pre-Registration Requested!

TECHNICAL DEMOS



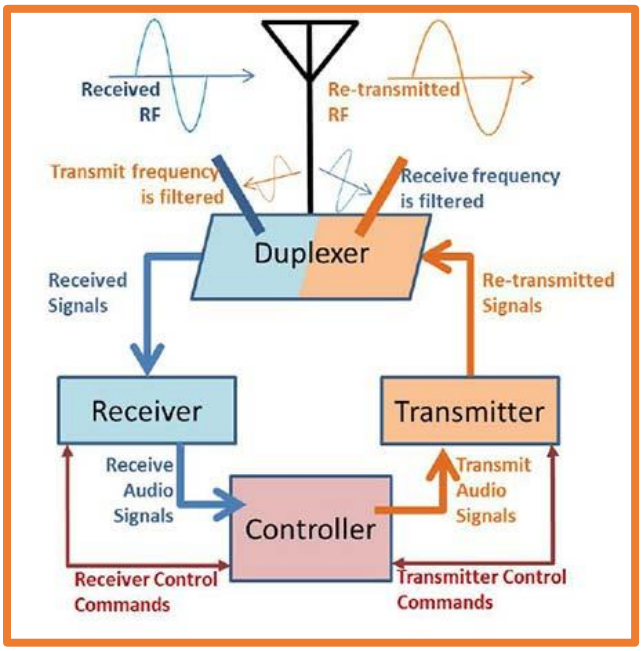
2018			
DATE	**SUBJECT**	**PRESENTER**	**EMAIL**
01/10/18	Club Goals	John Harris	john.harris101@yahoo.com
02/14/18			
03/14/18			
04/11/18			
05/09/18			
06/13/18			
07/11/18			
08/08/18			
09/12/18			
10/10/18			
11/14/18			
12/12/18	Christmas Party		

CONTACTS

PRESIDENT	John Harris N6UOP	john.harris101@yahoo.com
VICE PRESIDENT	Virginia Filardo KD0LFH	vhfilardo1116@yahoo.com
SECRETARY	Kevin Oneslager KS0EGL	kevin@prometheusinc.net
TREASURER	Bill Musick KC0NFL	blackcat@sunflower.com
EMER MGMT CORD	Bill Musick KC0NFL	blackcat@sunflower.com
TRAINING MGR	Ken Filardo KA0THK	ka0thk@arrl.net
PROGRAM MGR	Ken Filardo KA0THK	ka0thk@arrl.net
ACTIVITIES	Matt Hilt K0TOY	k0toy@yahoo.com
FIELD DAY	Ken Filardo KA0THK	ka0thk@arrl.net
HAM CLASSES	Ken Filardo KA0THK	ka0thk@arrl.net
ARES	Bill Musick KC0NFL	blackcat@sunflower.com
REPEATER	Skyler Huffman KU0JHK John Harris N6UOP	skylerhuffman@outlook.com john.harris21@sbcglobal.net
WEB SITE	David Klamet KE0EFY Bill Wachspress K0BTY	info@w0uk.com bill@wachspress.net
NEWSLETTER	Jim Cessna AC0KN	jimrcessna@aol.com

REPEATERS & NETS

REPEATER	FREQUENCY	TONE	LOC	MODE	DAY	TIME	NET
W0UK	146.760 MHz	88.5	DCARC	Analog	Sunday Tuesday	20:00 20:00	ARES Club
N0APJ	147.030 MHz	88.5	Douglas Co				
N0RC	442.000 MHz		Basehor				
K0USY	444.750 MHz	88.5	Lawrence				
K0USY	444.800 MHz	88.5	Lecompton Lawrence	Analog			
K0USY	444.825 MHz	88.5	Lecompton	DMR P25 Fusion D-Star			
K0HAM	444.900 MHz	88.5	Linked KS				
W0OQW	147.390 MHz	151.4	Ottawa				



W0UK 146.760 MHz repeater Lawrence, KS
Repeater upper-right in cabinet.
Large 4 gray Duplexers for 2m.

MEETINGS

DAY OF WEEK	PLACE	TIME	EVENT
Tuesdays	Dairy Queen 1835 Mass St. Lawrence, Ks. 66044	11:30 am	Lunch
Saturdays	Hy-Vee 4000 W 6th St. Lawrence, Ks. 66049	6:00 am	Breakfast
2nd Wednesday	Douglas Co. Fairgrounds 2130 Harper Lawrence, Ks. 66046	7:00-9:00 pm	Club Meeting at Flory Meeting Hall
Last Tuesday	Hy-Vee 3504 Clinton Pkwy Lawrence, Ks. 66047	11:30 am	Ladies Luncheon

MEMBERSHIP APPLICATION

Make Check/Mail to:
Douglas County Amateur Radio Club
3916 Bob Billings Pkwy.
Lawrence, KS 66049

DATE: _____ NEW MEMBER: ___ RENEWAL: ___

CATEGORY	**AMT**
Regular	$25
Family	$30
Student	$10

CALL:	
NAME:	
ADDR:	
CITY:	
STATE:	
ZIP:	
PHONE:	
EMAIL:	

To Join Our Ham Radio Club!

VENDOR LINKS

RADIOS

ALINCO	DMR HAM RADIO	
ELECRAFT	SDR RADIO	
FLEX RADIO		
ICOM		
KENWOOD		
TEN-TEC		
YAESU		

ANTENNAS

ALPHA-DELTA	JET STREAM	PACIFIC ANTENNA
BUDDIPOLE	M2 ANTENNA	SPIDERBEAM-US
CHAMELEON	MFJ ANTENNA	TENNADYNE
COMET	SCORPION ANTENNA	LNR PRECISION
CUSHCRAFT	STEPPIR ANTENNA	VARI-TEN
D&L ANTENNA	TARHEEL ANTENNA	
DIMOND ANTENNA	INTERNATIONAL ANT CO	
GAP ANTENNA	LDG ELECTRONICS	
HY-GAIN ANTENNA	MOSLEY ELECTRONICS	

TOWERS

ALUMA		
GLEN MARTIN		
ROHN		
TEXAS TOWERS		
TASHJIAN TOWERS		
US TOWER		

MORSE KEY

BENCHER		
BEGALI KEYS		
KENT KEYS		
VIBROPLEX		

STORES

ALL ELECTONICS		
ASSOCIATED RADIO	RF PARTS CO	
CHEAP HAM	SSB ELECTRONICS USA	
DX ENGINEERING	WEST MOUNTAIN RADIO	
GIGAPARTS	WIREMAN	
HAM RADIO OUTLET		
HAMMOND MFG		
HEIL SOUND		
UNIVERSAL RADIO		
MAIN TRADING CO		
QUICKSILVER		

FILTERS

PALOMAR ENGINEERS		

SOFTWARE AND SOUNDCARD

RT SYSTEMS	TIGERTRONICS	
	TIMEWAVE TECH	

BATTERIES/CHARGERS

HITEC COMM SOLU		

BUYING ELECTRONIC SURPLUS

ALL ELECTRONIC		

CIRCUIT BOARDS

ACCUTRACE	SAELIG CO INC	
EXPRESS PCB		

COMPONETS

ALL ELECTRONICS		
SAELIG CO INC		

DATA LOGGING

MEASUREMENT COMPUTING		

DESIGN/ENGINEERING/REPAIR SERVICES

ACCUTRACE		
EX[RESS PCB		

DEVELOPMENT PLATFORMS/TOOLS

TECHNOLOGIC SYSTEMS		

EDUCATION

COMMAND PRODUCTIONS	PARALLAX	
M.E. LABS	POLABS	

EMBEDDED SYSTEMS

SAELIG CO INC		

TECHNOLOGIC SYSTEMS		

ENCLOSURES

HAMMOND MFG		

LCDS/DISPLAYS

SAELIG CO INC		

MICROCONTROLLERS / I/O BOARDS

M.E. LABS		
TECHNOLOGIC SYSTEMS		

MISC./SURPLUS

ALL ELECTRONICS		

MOTORS / MOTOR CONTROL

HITEC COMM SOLU		
SERVOCITY		

ROBOTICS

HITEC COMM SOLU		
SERVOCITY		

TEST EQUIPMENT

POLABS		
SAELIG CO INC		

TOOLS

PANAVISE		
POLABS		

TRANSFORMERS

HAMMOND MFG		

WIRE, CABLE AND CONNECTORS

ALL ELECTRONICS		

WIRELESS PRODUCTS

LEMOS INTERNATIONAL		
TECHNOLOGIC SYSTEMS		

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Get Involved … we help others … through Ham Radio.