



ARES COMMUNICATOR

Information for Scott County Amateurs



November, 2018

Accurate, Reliable Emergency Communications for our Community

Volume 18, Number 11

WINTER FD 2019

January 26th - 27th

CQ Minnesota Hams! "The Other" season in Minnesota is here! Enter the mosquito-free time of the year. Amateurs have a tradition of responding to emergency communications needs whenever they happen. The response is not limited to the non-freezing season.

Individual amateurs as well as ARRL Organizations like ARES & RACES need to maintain operational skills year-round. The addition of Winter Field Day will enhance those already important skills of those that who generously volunteer their time and equipment to these organizations. This is why WFD is open to all licensed amateur radio operators worldwide.

Disasters are unpredictable by nature and can strike when you least expect them. Winter Field Day Assn's goal is to help enhance your skills and ready you for all environmental conditions found in the US and Canada during the spring, summer, fall and winter

Preparedness is the key to a professional and timely response during any event and this is what local and state authorities are expecting when they reach out to the emergency service groups that offer their services.

If you are serious about emergency communications as the Field Day Assn; they welcome you to join them for the yearly Winter Field Day event. This event is a pleasant change and challenge to that of a normal summer time field day.

Winter Field Day 2019 is January 26th and 27th. Winter Field Day is a 24-hour event but there is nothing in the rules that says you and a handful of your club members can't go out for a pleasant afternoon. Find a picnic table in the sun, throw up a wire and have some fun. Complete information can be found at: www.winterfieldday.com/.

BREAK - OVER

The ARES COMMUNICATOR is published for the benefit of Amateur Radio Operators in Scott County and other interested individuals.

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YOTA Month

December 2018

December is Youth on the Air Month. Although YOTA is primarily a European event, hams around the world and especially in the U.S. are encouraged to get kids from their neighborhood, scout, school or church group on the air.



You can organize this as a club activity or simply talk it up at an upcoming meeting. Your activity does not have to be a dramatic affair. Simply get a kid (with a parent) to sit down in front of a shortwave station and microphone.

Stir up a QSO and give the kid a chance to say a few words into the microphone and watch him or hear someone halfway across the country talk back to them.

Two thoughts: 1) Get the girls involved, too...radio isn't just for boys anymore. 2) Make it an HF station...let's face it. A handheld may hold as much excitement for kids as a ten-year-old flip phone.

You can find more info about the Youth on the Air program at their website: www.ham-yota.com/

More info about the December Youth-on-the-Air activity is located here: www.ham-yota.com/wp-content/uploads/2018/11/DYM_2018_Bulletin.pdf

BREAK - OVER

ARES Activities

Weekly Net Monday 7 PM 146.535 mhz (s)

Breakfast Saturday, December 8th

Digital Monday, December 10th

ARES Nets

MN ARES Phone Net

6:00PM Sunday Freq: 3.860 mhz

ARRL MN Phone Net

12:00p, 5:30p CST Daily Freq: 3.860 mhz

ARRL MN CW Net

6:30p, 9:50p CST Daily Freq: 3.568 mhz

NETS WITH OUR NEIGHBORS

North Dakota: Daily 3.937 mhz 6:30pm

South Dakota: Daily 3.860 mhz 6:00pm

Wisconsin: Daily 3.985 mhz 5:30pm

Iowa: Daily 3.970 mhz 12:30/5:30pm

SKYWARN Recognition Day

Saturday, December 1 2018

SKYWARN™ Recognition Day (www.weather.gov/crh/skywarnrecognition) 2018 takes place on Saturday, December 1, from 0000 until 2400 UTC. Developed in 1999 by the National Weather Service (NWS) and ARRL, SRD celebrates the contributions that SKYWARN volunteers make to the NWS mission, the protection of life and property. During SKYWARN™ Recognition Day, special event stations will be on the air from NWS offices, contacting radio amateurs around the world.

“Amateur Radio operators comprise a large percentage of the SKYWARN™ volunteers across the country,” the NWS announcement said. “Amateur Radio operators also provide vital communication between the NWS and emergency management, if normal communications become inoperative.”

The object of SRD is for all amateur stations to exchange contact information with as many National Weather Service stations as possible on 80, 40, 20, 15, 10, 6, and 2 meters, plus 70 centimeters. Contacts via repeaters are permitted. Stations should exchange call sign, signal report, and location plus a quick description of the weather at your location (e.g., sunny, partly cloudy, windy, rainy, etc.). EchoLink and IRLP nodes, including the Voice over Internet Protocol Weather Net (<http://voipwx.net/>), are expected to be active as well.

Stations will employ various modes, including SSB, FM, AM, RTTY, CW, and PSK31. While working digital modes, special event stations will append “NWS” to their call signs (e.g., N0A/NWS). It’s suggested that during SRD operations a non-NWS volunteer serve as a station control operator.

Event certificates are electronic and printable from the main website at the conclusion of SRD. Submit SRD log summaries using the online submission form. Additional info at ARRL HQ at (www.arrl.org/skywarn-recognition-day).

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Scott County ARES Contacts

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Asst Emergency Coordinator
Chad Palm KD0UWZ
Chaska, MN
KD0UWZ at scottares.org



Test Your NIMS Knowledge

This month we begin our review of ICS-700, An Introduction to National Incident Management System. This course is designed to enable personnel to operate efficiently during an incident or event within the Incident Command System (ICS). ICS-700 provides an overview of the NIMS structure.

Check your recall of the course material with this question.

1. Exercises should:

- Include multidisciplinary, multijurisdictional incidents.
- Include participation of private-sector and nongovernmental organizations.
- Cover aspects of preparedness plans, including activating mutual aid and assistance agreements.

- _____
 - A. Contain a mechanism for incorporating corrective actions.
 - B. Have consequences for inadequate performance.
 - C. Be repeated until performance is at an acceptable level.
 - D. Be based on the most catastrophic scenario that could affect the community.

Check next month's ARES Communicator for the solution

October NIMS Knowledge Solution

1. To better serve their constituents, elected and appointed officials should do the following, EXCEPT FOR:

- D. Assume the role of incident commander for all incidents and direct the on-scene technical operations from the Emergency Operations Center.

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NBEMS Current Versions

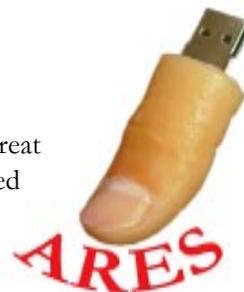
The current version of the Fldigi manual is available at NBEMS Info page at www.scottares.org. Look under the ‘Help Sheets’ heading.

Now is a good time to check to your digital software to make sure you are running the newest versions. You can find the most recent versions posted at both: www.w1hkj.com/ and www.scottares.org/NBEMS.htm

Here are the most recent releases as of Oct. 20 2018.

Software	Version
Fldigi	4.0.18
Flwrap	1.3.4
Flmsg	4.0.7
Flamp	2.2.03

The Monday evening training net is a great place to have your digi questions answered and problems solved! Join the Scott ARES group on 146.535 MHz simplex at 7:00pm on Monday evenings.



Ideal Diode

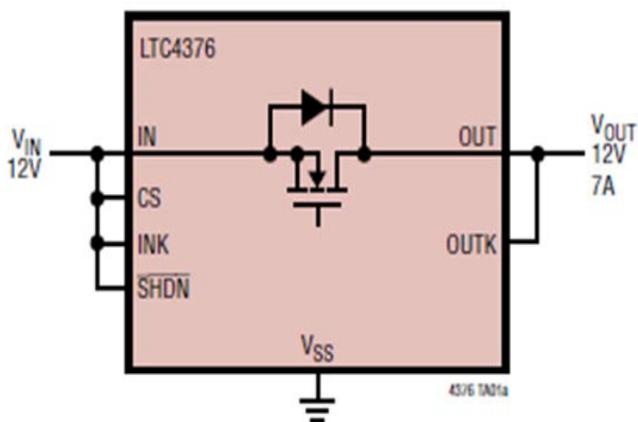
Electronic Design

By using an ideal diode IC in place of a simple Schottky diode, the voltage drop and dissipation of the Schottky can be almost entirely eliminated, allowing for higher currents and lower losses in battery protection and related applications.

Diodes are an essential component in many systems, but using them for reverse-connection protection in automotive and other power applications has one weakness: Their forward voltage drop (which can be as low as 0.3 V for a Schottky device) wastes valuable power while the diode's self-heating due to resistive loss can significantly limit current-handling and operating range. That's where a clever analog topology called the "ideal" diode can provide major benefits (obviously, it's not perfect with 0- Ω on-resistance and thus no voltage drop or dissipation, but it comes surprisingly close).

The just-introduced LTC4376 from Analog Devices is an ideal diode rated at 7 A, targeting nominal 12-V automotive battery protection as well as redundant power supplies, portable battery devices, and computer systems and servers. Although internally far more complex than a diode, it's externally a simple-to-use, three-terminal device in its basic operating configuration—input, output, and ground.

12V, 7A Ideal Diode



The LTC4376 7-A ideal diode needs just three connections in its basic operating mode. Remaining package pins support shutdown and other operating modes for additional in-circuit flexibility.

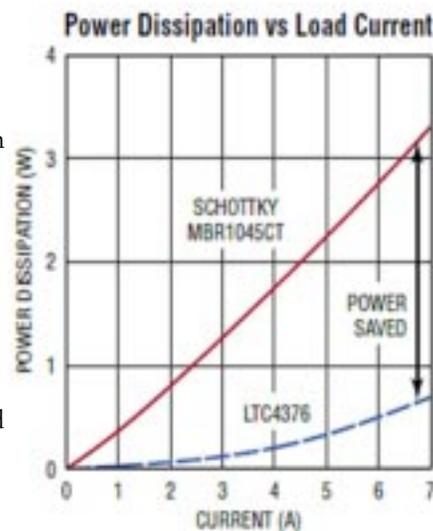
The internal 15-m Ω on-resistance N-channel MOSFET replaces a discrete Schottky diode when used in diode-OR and high-current diode applications, thus reducing power consumption, heat dissipation, and even PC board area. A diode of equivalent current-handling rating would be far larger than its 16-pin 5- \times -4-mm DFN package.

cont'd col. 2

In operation, the LTC4376 controls the forward voltage drop across the MOSFET to ensure smooth current delivery without oscillation, even at light loads. If a power source fails or is shorted, a fast turn-off minimizes reverse-current transients. The LTC4376 also easily ORs power sources to increase total system reliability.

Operating current is just 150 μ A, and a shutdown pin allows users to invoke a corresponding mode that reduces the quiescent current to 9 μ A. The pin can also control the forward current path when an external MOSFET is used in series with the internal MOSFET in a back-to-back configuration.

Operating voltage range is 4 to 40 V with reverse-input protection to -40 V. In addition to the many tables and graphs showing performance under various conditions, the datasheet provides examples of how this ideal diode can be used in a basic circuit, as well as with added features such as undervoltage lockout (UVLO). Versions of the LTC4376 are available for 0 to +70 $^{\circ}$ C, +40 to +85 $^{\circ}$ C, and +40 to +125 $^{\circ}$ C operation; the DC2705A evaluation board is also available. Pricing (1000-piece lots) begins at \$2.55.



As load current increases, the span between the dissipation of this ideal diode and a standard Schottky diode becomes more dramatic and consequential.

BREAK - OVER



Weekly ARES Net
7 PM Monday Evening
146.535 simplex
 Scott ARES Training Net



Saturday Dec 1st

It is ARLIDAZZLE time! That time of year we plan for our favorite HAM Supported festival of the year — The City of Arlington - ARLIDAZZLE Christmas Festival. This year, they will be celebrating on Saturday, December 1st from 9 am 'til 9 pm. This is the 10th Year HAM RADIO has been a part of this special event!

Your chance to be part of the fun is here. Amateur operators are needed primarily for Saturday, the main festival day. If you want to help with set up on Friday, November 30th, your help will be appreciated!

Communications support is simple - Provide Main Street lock down from 12 Noon until 9 pm, and provide safety and communications for the 5K Run at 1:30 PM, Staging and Parade from 3:30 - 7:30 PM and finally the Fireworks from 7 - 8 pm.

After the events, the Arlington Chamber of Commerce is providing free food and drinks to all us HAMS who spent the day supporting this special event.

We will be using the K2KLN Portable Repeater along with KC0QNA Green Isle Repeater for Talk IN, and several MN ARES simplex UHF Channels for this event. We will be under the supervision of the Arlington Police Chief and KC0QNA, Don Burgess, Festival Logistics Boss.

To be ready for this event, all you need is the following:

- Winter Attire for that day's weather conditions — we been 45 and sunny and we have been Minus 30 below for this event, so plan accordingly

- Safety Coat or Vests that are Lime-Yellow or Orange for this event

- UHF Portable Radio and extra batteries - Preferably Lapel Microphone and/or ear piece or headsets as we do get really loud during parade operations.

* Talk In 443.825+ PL tone 141.3 Green Isle Repeater

* Operations 442.825+ DCS 271 - Digital Coded Squelch - K2KLN portable repeater

* Simplex 446.000 PL tone 136.5 - MN ARES UHF CALL

* Simplex 442.300 PL tone 203.5 MN ARES UHF ALPHA

* Simplex 444.325 PL tone 203.5 MN ARES BRAVO

cont'd from col. 1

- Loud Whistle — as we might be called to help with AUTO TRAFFIC Control or Parking situations - A whistle helps gets the drivers attention

- Flashlight and/or Safety Light Baton - as the latter half of the festival is in the dark and YOU want to be seen at your corner positions and it helps clear out traffic around you quickly as well.

Each year, we average 40 to 50 HAM Operators who come from all over the state to come and play radio for the whole day.

Something NEW this year — we are trying to put together a flat bed trailer for ham dependants to come and be in the parade and help us promote ham radio, if we can get enough help and a trailer. If you have family who would like to be a part of this, please contact Don Burgess, KC0QNA@Yahoo.com.

If you want to be a part of the fun this year, please RSVP: Don Burgess at: KC0QNA@Yahoo.com and please — let him know YOUR NAME, CALL SIGN and CELL PHONE and your availability.

BREAK - OVER

Q: A chemist was murdered in his own lab. The only evidence was a piece of paper that had the names of chemical substances written on it. The substances were nickel, carbon, oxygen, lanthanum, and sulfur. The chemist only had three people come by his lab on the day of the murder: fellow scientist Claire, his nephew Nicolas, his wife, and his friend Marc. The police arrested the murderer right away. How did they know who it was?

First Thursday Net

Metro District Hospital Net

The Metro District ARES Hospital net is held on the first Thursday of each month. The purpose of the net is to provide an opportunity to exercise Dual-band xcvrs installed at hospitals and clinics in the metro area. The net is open to all amateur radio ops and provides the opportunity to participate in a directed net and practice directed net procedures.

Everyone is welcome!

- First Thursday of each month
- 12:30PM (lunch time)
- 146.700 - (PL118.8)



Who Sent This?

Tracking the email code

Internet emails are designed to carry the IP address of the computer from which the email was sent. This IP address is stored in an email header delivered to the recipient along with the message. Email headers can be thought of like envelopes for postal mail. They contain the electronic equivalent of addressing and postmarks that reflect the routing of mail from source to destination.

Finding IP Addresses in Email Headers

Many people have never seen an email header because modern email clients often hide the headers from view. However, headers are always delivered along with the message contents. Most email clients provide an option to enable display of these headers if desired.

Internet email headers contain several lines of text. Some lines start with the words **Received: from**. Following these words is an IP address, such as in the following fictitious example:

Received: from teela.mit.edu (65.54.185.39)
by mail1.aol.com with SMTP; 30 Jun 2003 02:27:02 -0000

These lines of text are automatically inserted by email servers that route the message. If only one “Received: from” line appears in the header, a person can be confident this is the actual IP address of the sender.

Understanding Multiple ‘Received: from’ Lines

In some situations, however, multiple “Received: from” lines appear in an email header. This happens when the message passes through multiple email servers. Alternatively, some email spammers will insert additional fake “Received: from” lines into the headers themselves in an attempt to confuse recipients.

To identify the correct IP address when multiple “Received: from” lines are involved requires a small bit of detective work. If no faked information was inserted, the correct IP address is contained in the last “Received: from” line of the header. This is a good simple rule to follow when looking at mail from friends or family.

Understanding Faked Email Headers

If faked header information was inserted by a spammer, different rules must be applied to identify a sender’s IP address. The correct IP address will normally not be contained in the last “Received: from” line, because information faked by a sender always appears at the bottom of an email header.

To find the correct address, in this case, start from the last “Received: from” line and trace the path taken by the message by traveling up through the header. The “by” (sending) location listed in each “Received” header should match with the “from” (receiving) location listed in the next “Received” header below. Disregard any entries that contain domain names or IP addresses not matching with the rest of the header chain. The last “Received: from” line containing valid information is the one that contains the sender’s true address.

cont'd col. 2

Note that many spammers send their emails directly rather than through Internet email servers. In these cases, all “Received: from” header lines except the first one will be faked. The first “Received: from” header line, then, will contain the sender’s true IP address in this scenario.

Internet Email Services and IP Addresses

Finally, the popular Internet-based email services differ greatly in their use of IP addresses in email headers. Use these tips to identify IP addresses in such emails.

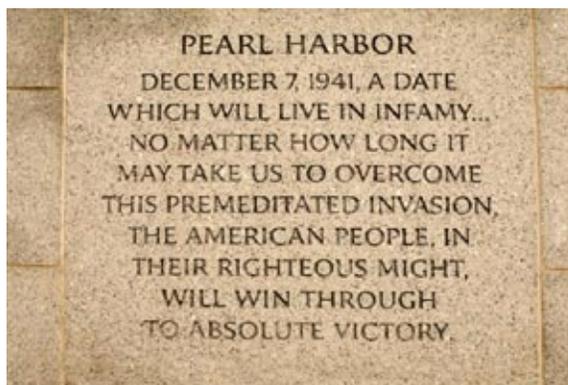
- Google’s Gmail service omits the sender IP address information from all headers. Instead, only the IP address of Gmail’s mail server is shown in Received: from. This means it is impossible to find a sender’s true IP address in a received Gmail.
- Microsoft’s Hotmail service provides an extended header line called “X-Originating-IP” that contains the sender’s actual IP address.
- Emails from Yahoo! contain the sender’s IP address in the last Received: entry.

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Pearl Harbor Day

December 7th



Celebrated annually on December 7th, National Pearl Harbor Remembrance Day commemorates the attack on Pearl Harbor, Hawaii during World War II. During this attack, 2,403 American servicemen were killed and more than 1200 servicemen were injured. This attack also resulted in severely damaging or sinking five battleships, three destroyers, three cruisers, three destroyers and one mine-layer. It also resulted in the destruction of more than 200 aircraft and the damaging of 159 other planes. While this day is a special observance for most people, it isn’t a federal holiday – which means that government buildings, postal service, and most businesses remain open on this day.

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Surf's Up!

Surfing the web for interesting topics related to radio, building, computing, and anything else interesting along the way

Kits! Kits! Kits!

fofio.blogspot.com/2015/07/radio-kit-guide.html

A good list of sources for kits that are currently available. Many of these are for QRP operation, but a few are full-featured professional transceivers. AKA:RadioKitGuide.com

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E-mail to a Disaster Area

Use WINLINK

Gordon Gibby, KX4Z

There's a common misconception that one has to have complicated equipment, software and skills to leverage the ham radio-developed WINLINK system to reach into disaster areas. In fact, one of the major advantages of the system is that it can easily connect disaster area-located volunteers (who must use radio to make any connection) with anyone else in the state, nation or world. It provides an easy way for "back-home" supporters, family and friends to keep in touch with deployed volunteers.

First you have to know the correct email Winlink address of the disaster-located ham: it is simply their callsign (e.g., K4AAA)@winlink.org thus K4AAA@winlink.org

Second, because WINLINK was built to handle slow-speed radio connections, receiving a load of spam would be catastrophic for throughput over a slow modem protocol. To avoid this, WINLINK developers put in a "white list" — a list for each WINLINK email user of who is allowed to send them email. While the WINLINK user can simply add you to their email-okay list, there's an even simpler way for support amateurs to bypass this, which will not be known by spammers — just put //WL2K at the beginning of your subject line. For example, like this: //WL2K What is your current Status?

With those two critical components of the Winlink email message format, anyone with normal email can make needed communications to a deployed volunteer who is participating in the WINLINK system. One caveat: WINLINK can't "force" email onto a volunteer who doesn't have their radio turned on, or isn't connecting into a Winlink server station, so it depends on periodic check-ins by the participant to check for, receive and send email by radio.

Approximately 50,000 messages per month are transacted by this system, so it is in regular substantial usage. WINLINK email-users can also add entire domains to their "white list" (e.g., arrl.org, arrl.net, em.myflorida.com and state.fl.us) — which might be a useful thing to do for those who are going to be deployed and will be in contact with officials or managers. Additional information can be found here: <https://winlink.org/>

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Take a Dip in the General Pool

Time to test your knowledge of the information covered by the General Class license exam. Each month we'll take a look at a selection from the question pool.

Strap on your thinking cap and see what you can recall. Here is this month's sample:

1. What is the approximate junction threshold voltage of a germanium diode?

- A. 0.1 volt
- B. 0.3 volts
- C. 0.7 volts
- D. 1.0 volts

2. Which of the following is an advantage of using a Schottky diode in an RF switching circuit as compared to a standard silicon diode?

- A. Lower capacitance
- B. Lower inductance
- C. Longer switching times
- D. Higher breakdown voltage

3. Which of the following is an analog integrated circuit?

- A. NAND Gate
- B. Microprocessor
- C. Frequency Counter
- D. Linear voltage regulator

(Check next month's issue of the ARES Communicator for the answer.)



There was a very obvious clue on the piece of paper. If you combine the abbreviations of the chemical substances on the paper, you'll get a name: Ni-C-O-La-S.

October General Pool Answers

1. What are two major ratings that must not be exceeded for silicon diode rectifiers?

- A. Peak inverse voltage; average forward current

2. What is the output PEP from a transmitter if an oscilloscope measures 500 volts peak-to-peak across a 50-ohm resistor connected to the transmitter output?

- B. 625 watts

3. What are the stable operating points for a bipolar transistor used as a switch in a logic circuit?

- A. Its saturation and cut-off regions

BREAK - OVER

Amateur Radio License Exam

Want to become a ham? Want to upgrade your license? You can find information and resources to success in ham radio at this page: <http://www.scottares.org/License Info.htm>

If you want to ask questions or find a local Elmer (Mentor) just drop an email to: newhaminfo@scottares.org

The hams in Scott ARES gather for breakfast the first Saturday of the month at the Perkins Restaurant in Savage. Bring you ham radio questions and talk to local amateur radio operators.

Now that you have done the work to study for your upgrade, here is where to find a convenient exam session near you. There is a VE exam search engine at: http://www.arrl.org/exam_sessions/search

Walk-ins allowed at most sessions however it is always best to check the details at the specific session you are planning to attend. Below is a list of scheduled sessions close to Scott County. Good Luck!

December 1, 2018 Saturday 10:00 AM

St Paul Radio Club
Leon H. Dill (651) 688-9964
Email: w0coe@arrl.net
Location: Ramsey Co Library Maplewood
3025 Southlawn Dr
Saint Paul MN 55109-1577
Walk-ins allowed, Pre-reg requested

December 12, 2018 Wednesday 7:00 PM

Sponsor: VARC
James C. Rice (612) 384-7709
Email: jrice@danpatch.org
Location: Perkins Restaurant & Bakery
17387 Kenyon Avenue
Lakeville MN 55044-4459
Walk-ins allowed, Pre-reg requested

December 17, 2018 Monday 6:00 PM

Sponsor: SMARTS
Dale A. Blomgren (952) 402-2155
Email: kdzerob@aol.com
Location: Carver County Library
7711 Kerber Blvd
Chanhassen MN 55317
Walk-ins allowed, Pre-reg requested

January 5, 2019 Saturday 10:00 AM

St Paul Radio Club
Leon H. Dill (651) 688-9964
Email: w0coe@arrl.net
Location: Ramsey Co Library Maplewood
3025 Southlawn Dr
Saint Paul MN 55109-1577
Walk-ins allowed, Pre-reg requested

January 28, 2019 Monday 6:00 PM

Sponsor: SMARTS
Dale A. Blomgren (952) 402-2155
Email: kdzerob@aol.com
Location: Carver County Library
7711 Kerber Blvd
Chanhassen MN 55317
Walk-ins allowed, Pre-reg requested

February 2, 2019 Saturday 10:00 AM

St Paul Radio Club
Leon H. Dill (651) 688-9964
Email: w0coe@arrl.net
Location: Ramsey Co Library Maplewood
3025 Southlawn Dr
Saint Paul MN 55109-1577
Walk-ins allowed, Pre-reg requested

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Monday Evening 7PM

The Scott ARES net meets every Monday evening at 7:00 PM either on 146.535 simplex or on the first Monday of the month the WBORMK repeater 147.165 (PL 107.2).

The net is in a directed net format and provides the opportunity to practice working in an emergency net style.

There is help available in setting up and using NBEMS digital messaging software and generally a weekly digital message for practice.

Everyone is welcome to check in and contribute two cents worth!



ARES Breakfast

Saturday
November 10th 2018
7:30AM

**Hy-Vee Market Grille,
6150 Egan Dr, Savage, MN**

NECOS Schedule December 2018

The first Monday or the month the net is held on the WBORMK repeater, Carver. You will find WBORMK here: 147.165/765 PL 107.2

Date NECOS _____

December 2018

Dec 3rd - N0BHC Bob First Mon. Net

Dec 10th - WA0DGW John

Dec 17th - KD0UWZ Chad

Dec 24th - Merry Christmas Eve

Dec 31st - N0BHC Bob

January 2019

Jan 7th - WA0DGW John First Mon. Net