



ARES COMMUNICATOR

Information for Scott County Amateurs



April, 2012

Accurate, Reliable Emergency Communications

Volume 12, Number 4

Digi Modes OK on 60M

NITA clarification received

In response to requests for clarification from the ARRL, the National Telecommunications and Information Administration has confirmed that it has no objection to the use of a broader range of data emissions by amateurs on the five 5 MHz frequencies on 60 meters. ARRL's original understanding was that the NTIA preferred that the use of 2K80J2D emission be limited to Pactor III. The NTIA now says that that is not the case.

In an e-mail response to ARRL Chief Executive Officer David Sumner, K1ZZ, Karl Nebbia, Associate Administrator of the NTIA Office of Spectrum Management, stated, "NTIA has no interest in limiting the types of emission used by the amateurs as long as the data emission does not exceed the 2.8 kHz bandwidth generated by the upper sideband transmitter." Nebbia referred all further inquiries to the FCC, which "...sets the conditions for use of the five 5 MHz frequencies by the amateurs."

The requirement of only one signal per channel remains, as well as the prohibition against automatic operation. The FCC continues to require that all digital transmissions be centered on the channel-center frequencies, which the Report and Order defines as being 1.5 kHz above the suppressed carrier frequency of a transceiver operated in the Upper Sideband (USB) mode. This is typically the frequency shown on the frequency display.

60M Digi Modes *cont'd on page 2*



MN Digital ARES Net

Thursday evenings

Circle Thursday evenings, 8:00PM on the calendar if you are looking for a time to get some experience operating HF digital in a net setting.

The MN Digital ARES net operates on 3.583.5 (USB) centered about 1000 hz on the waterfall. This is HF so frequencies are +/- QRM. The net begins using Olivia 16/500 from the NBEMS suite of software.

If you have never operated in an HF digital net be prepared to monitor as the net operates so that you can learn the little differences involved in digital net operation. An untrained operator charging into an established net can cause unbelievable havoc. Observe and learn the procedures and join the net as a valued member not an inconsiderate Lid!

BREAK - OVER

Happy Easter!

ARES Activities

Weekly Net Monday 7 PM 146.535 mhz (s)

Breakfast Saturday, April 14th

Digital Monday, April 16th

ARES Nets

- MN ARES Phone Net
 - 6:00PM Sunday Freq: 3.568 mhz
- ARRL MN Phone Net
 - 12:00p, 4:30p CST Daily Freq: 3.568 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 3.870 mhz 6:00pm
- Wisconsin: Daily 3.985 mhz 5:30pm
- Iowa: Daily 3.970 mhz 12:30/5:30pm

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

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60M Digi Modes - cont'd from page 1

The table below lists the 60M operating frequencies:

Channel	USB (kHz)	Center (kHz)
1	5330.5	5332.0
2	5346.5	5348.0
3	5357.0	5358.5
4	5371.5	5373.0
5	5403.5	5405.0

The ARRL advises amateurs to operate with care when using digital modes in consideration of the fact that hams are secondary users on these frequencies. See the revised 60-Meter FAQ page on the ARRL Web, as well as the revised ARRL 60-Meter Recommended Practices document.

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Q. What do you call a dead animal that smells bad?



A. Ex-stink!

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QST, Archives On-line

ARRL Member Access in June, 2012

The ARRL has announced two new ARRL membership benefits that will be introduced in June 2012.

In addition to the print copy of *QST*, all members will have access to an online, digital edition of *QST* at no extra cost. You will be able to access *QST* from anywhere—on nearly any computer, laptop, mobile device, smartphone and tablet (including Apple iPad, iPhone, and devices using the Android operating system).



Also in June, members will gain access to archived issues of *QST* from December 1915 to the present (previously, only issues through 2007 were available to members). If you are familiar with the current periodicals archive (which serves images of pages), that platform will be expanded to include all of *QST* from December 1915 through December 2011. A second, new archive will be introduced for issues beginning January 2012, featuring enhanced functionality including full-text search.

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Severe Weather Awareness Week

The state of Minnesota will conduct a Severe Weather Awareness Week in partnership with the National Weather Service and local governments during April 16-20 this year.

A statewide tornado drill is part of that event. The drill will be help on Thursday, April 19th with siren activations at 1:45 p.m. and 6:55 p.m.

The Awareness Week campaign helps teach Minnesotans about weather hazards and provides resources to minimize the risks associated with severe weather.

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World Amateur Radio Day

Wednesday, April 18th

On April 18, 2012 Amateur Radio operators around the world will be celebrating the anniversary of the 87th World Amateur Radio Day, founded by the International Amateur Radio Union (IARU).

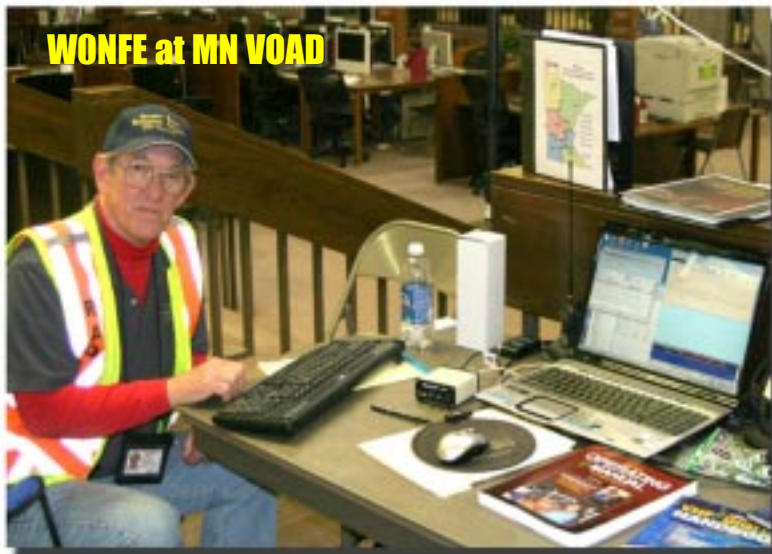
This year's theme for the World Amateur Radio Day is "Amateur Radio Satellites: Celebrating 50 Years in Space" in remembrance of the launching of OSCAR 1 (December 12, 1961) and OSCAR 2 (June 2, 1962).

This year members of the Grupo DXXE will activate special event station 6H6IARU from April 13 to 18. Activity will be on all bands from 160 to 6 meters and of course Amateur Radio satellites from different Grid Locators throughout Mexico.

QSOs with this station are valid for the IARU Region 2 award, the various FMRE awards and the DXXE award (<http://www.dxxe.org/>). QSL via N7RO and LoTW.



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Test Your NIMS Knowledge

This month we will review some of the points from the course ICS-200b: ICS for Single Resources and Initial Action Incidents. Check your recall of the course material with these questions.

1. An individual assuming the role of the Deputy Incident Commander must:

- Be a representative of the jurisdiction at the incident
- Have served as a Branch Director within the current organization
- Have prior experience predicting workloads and potential staffing needs
- Be equally capable of assuming the Incident Commander role

2. Who is responsible for determining the appropriate tactics for an incident?

- The Safety Officer
- The Operations Section
- The Planning Section
- The Deputy Incident Commander

Check next month's ARES Communicator for the solution

March NIMS Knowledge Solution

1. When command is transferred, then all personnel with a need to know should be told:

- The effective time and date of the transfer

2. Chris Smith is the Situation Unit Leader. No Planning Section Chief is assigned. Who does Chris Smith report to?

- Incident Commander

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MN VOAD Conference 2012

Bob, W0NFE, represented Scott ARES at the Annual Conference of the Minnesota Volunteer Organizations Active in Disaster (MN VOAD). Bob demonstrated how ARES members could provide digital information technology for a Served Agency. The NBEMS software suite was demonstrated utilizing crossband communications with an off-site location during demonstrations. The Conference was held on March 24th at the Hennepin County Technical College, Eden Prairie campus.

Spray-On Antennas

Could replace traditional towers!

Soon, you may be able to correct your cell phone's signal problems by spraying on an antenna. Researchers at the military technology firm Chamtech have developed a special aerosol spray that can essentially add an antenna to whatever it's sprayed on and improve the network coverage in the area.

The spray essentially covers a surface with thousands of nanocapacitors. Those nanocapacitors align themselves on the surface, and create a wireless antenna for the devices located in the area. The idea is essentially the nanocapacitors take care of all of the hard work involved in finding a wireless signal, making it easier for your phone or tablet to get connected and stay connected to a network.

The solution could be used on things like buildings and trees to boost the signal for a specific area, or could be sprayed directly on the antenna of a cell phone, a move ChamTech claims would boost the phone's signal by 10 percent.

The company ultimately sees the technology replacing some traditional antennas, eliminating the need for some of the often unsightly towers we use today. Initial tests have the spray-on technology often providing even better signal results than those traditional antennas, often making the spray-on option dramatically more efficient.

You can order a Spray on Antenna Kit now from ChamTech (www.chamtechops.com), although the company requires you call for specific pricing for the kit.



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**APRIL
SHOWERS?**



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. Here is this month's sample:

1. Which of the following is most commonly used for SSB voice communications in the VHF and UHF bands?
 - A. Upper sideband
 - B. Lower sideband
 - C. Vestigial sideband
 - D. Double sideband
2. Which of the following is a recommended way to break into a conversation when using phone?
 - A. Say "QRZ" several times followed by your call sign
 - B. Say your call sign during a break between transmissions from the other stations
 - C. Say "Break. Break. Break." and wait for a response
 - D. Say "CQ" followed by the call sign of either station
3. When you are contacted on the air by a native of the planet d43mq from the Xelipson system, what are you required to report?
 - A. Your vehicle VIN number only.
 - B. The combination of your Middle School gym locker.
 - C. The baud rate of your favorite dial-up modem.
 - D. The acceleration rate of the last object thrown from your snowblower or lawn mower.

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



March General Pool Answer

1. With which foreign countries is third party traffic prohibited, except for messages directly involving emergencies or disaster relief communications?
 - A. Every foreign country, unless there is a third party agreement in effect with that country
2. Which of the following modes is most commonly used for voice communications on the 160, 75, and 40 meter bands?
 - B. Lower sideband

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Solar Storm Dumps Gigawatts

A recent flurry of eruptions on the sun did more than spark pretty auroras around the poles. NASA-funded researchers say the solar storms of March 8th through 10th dumped enough energy in Earth's upper atmosphere to power every residence in New York City *for two years*.

"This was the biggest dose of heat we've received from a solar storm since 2005," says Martin Mlynczak of NASA Langley Research Center. "It was a big event, and shows how solar activity can directly affect our planet."

Mlynczak is the associate principal investigator for the SABER instrument onboard NASA's TIMED satellite. SABER monitors infrared emissions from Earth's upper atmosphere, in particular from carbon dioxide (CO₂) and nitric oxide (NO), two substances that play a key role in the energy balance of air hundreds of km above our planet's surface.

"Carbon dioxide and nitric oxide are natural thermostats," explains James Russell of Hampton University, SABER's principal investigator. "When the upper atmosphere (or 'thermosphere') heats up, these molecules try as hard as they can to shed that heat back into space."

That's what happened on March 8th when a coronal mass ejection (CME) propelled in our direction by an X5-class solar flare hit Earth's magnetic field. (On the "Richter Scale of Solar Flares," X-class flares are the most powerful kind.) Energetic particles rained down on the upper atmosphere, depositing their energy where they hit. The action produced spectacular auroras around the poles and significant¹ upper atmospheric heating all around the globe.

"The thermosphere lit up like a Christmas tree," says Russell. "It began to glow intensely at infrared wavelengths as the thermostat effect kicked in."

For the three day period, March 8th through 10th, the thermosphere absorbed 26 billion kWh of energy. Infrared radiation from CO₂ and NO, the two most efficient coolants in the thermosphere, re-radiated 95% of that total back into space.

In human terms, this is a lot of energy. According to the New York City mayor's office, an average NY household consumes just under 4700 kWh annually. This means the geomagnetic storm dumped enough energy into the atmosphere to power every home in the Big Apple for two years.

"Unfortunately, there's no practical way to harness this kind of energy," says Mlynczak. "It's so diffuse and out of reach high above Earth's surface. Plus, the majority of it has been sent back into space by the action of CO₂ and NO."

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During the heating impulse, the thermosphere puffed up like a marshmallow held over a campfire, temporarily increasing the drag on low-orbiting satellites. This is both good and bad. On the one hand, extra drag helps clear space junk out of Earth orbit. On the other hand, it decreases the lifetime of useful satellites by bringing them closer to the day of re-entry.

The storm is over now, but Russell and Mlynczak expect more to come.

"We're just emerging from a deep solar minimum," says Russell. "The solar cycle is gaining strength with a maximum expected in 2013."

More sunspots flinging more CMEs toward Earth adds up to more opportunities for SABER to study the heating effect of solar storms.

"This is a new frontier in the sun-Earth connection," says Mlynczak, and the data we're collecting are unprecedented."

Stay tuned to Science@NASA for updates from the top of the atmosphere.

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"You can relive a lot of stress if you just accept that some days you're the pigeon and some days you're the statue."

A. Nony Moose

Tuscaloosa Special Event

Saturday April 28th

The Tuscaloosa Amateur Radio Club (TARC) will be operating a Special Event Station in remembrance of the 44 people that died when an EF-4 tornado struck Tuscaloosa on April 27, 2011.

This Special Event Station will be active on April 28, 2012 from 11:00AM – 5:00PM local time. They will be operating from the top of the western parking deck (nearest the medical tower) at DCH Regional Medical Center.

The operating frequencies will be +/- 14.270 and 7.270MHz. The club will also be operating a RTTY station in the data portion of both the 20 and 40m bands.

Super-bouyant Waterstriders!

Huh, who knew?

Aerogels are among the lightest solid materials in existence, and are created by replacing the liquid component of a gel with a gas – this results in their extremely low density, and has earned them the nickname of “frozen smoke.” Now, scientists have created a new type of aerogel that is inspired by the feet of the water strider. The material is reportedly so buoyant, that a boat made from one pound (454 grams) of it could carry about 1,000 pounds (454 kg) of cargo.

The aerogel was created by a team at the Helsinki University of Technology, and contains tiny fibers known as nano-fibrils, derived from the cellulose in plants. The presence of the fibers allows the aerogel to float using the same principles employed by the water strider’s long, skinny feet.



Tiny fibers in the new aerogel serve the same purpose as tiny hairs on the water strider’s feet

Those feet are covered in tiny hairs that trap air, *and* that help spread the insect’s weight across the water, keeping it from breaking the surface tension.

Once commercialized, the aerogel could find use in things such as miniature military robots, environmental pollution sensors, children’s water toys or beach floats. It is also able to absorb large amounts of oil, which could make it well-suited to use in cleaning up oil spills.

BREAK - OVER



Want A Roll-Up Ipad?

LG Displays announced plans to begin mass production of a roll-up, plastic display screen — potentially leading to tablets, iPads or even TVs you can roll up and stuff into a bag. But don’t throw out that old flat panel display just yet.

Bendable screens have been a dream of the electronics industry since they were merely a twinkle in George Jetson’s eye. LCD manufacturing giant LG and others have been pursuing such display technology for years. In late March LG Displays said the world’s first roll-up screen — something it calls an electronic paper display, or EPD — would be released to gadget makers in Europe in April.

“With the world’s first plastic EPD, LG Display has once again proven its reputation for leadership and innovation with a product we believe will help greatly popularize the E-Book market,” said Mr. Sang Duck Yeo, head of operations for LG Display’s Mobile/OLED division.

But don’t reach for your wallet just yet. Alfred Poor, a display industry expert and the brains behind HDTVProfessor.com, said the announcement was less revolutionary than evolutionary.

“This is a relatively small development in the grand scheme of things,” said Poor as he ticked off a list of items that may make such displays less appealing to consumers.

“This appears to be a monochrome (black and white) epaper display. This means that it ... has low power consumption, but it also means that it’s probably slow and not suitable for moving images such as video. It’s not in color, and probably has limited grayscale capabilities,” he added.

The company said its 6-inch e-ink, plastic screen is destined first for the e-book market; the new screen offers a paper-like reading experience, in spite of the ability to bend up to 40 degrees. It weighs just half an ounce and is virtually impervious to shattering if dropped, a common problem with e-readers.

Poor acknowledged that some of those features might be appealing, especially the light weight and improved durability.

“This could result in some minor cost reductions through lower material costs, lighter weight, and smaller size for a device,” he said. “But the more significant point is that this could result in more durable displays for larger mobile devices. An ebook reader with a plastic display is more likely to survive a drop than one with a glass display,” Poor observed.

LG said a technology breakthrough with high-temperature manufacturing allowed it to finally produce the screens.

The company did not say when the screen would be made available to U.S. markets.

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Quick Training Tips

Ecom Record Keeping

Scott ARES value added service!

We all know that when we provide communications assistance for a served agency we provide a value added service. Part of this value added continues beyond the conclusion of the event and our return home.

Our communications activity includes a detailed log of the message traffic sent and received at each communications point staffed by Scott ARES volunteers.

Following any event the Admin branch should be able to review the communications log from a specific site and reconstruct the message traffic sent and received. The log may consist of a paper record with paper copies of message traffic or a combination of digital record (thumb drive for example) and a paper log and paper message forms.

The log tracks the exchange of formal written traffic. We don't want to know if Sam called the EOC to find out when the sandwich truck will arrive with fresh donuts! (Unless Sam made a formal request using a formatted written message.)

Lets take a look at the logging process for a received message.

Incoming message is ROGERED from the net. The received message is logged with the following information:

1. Date / time of receipt
2. Sending Individual
3. Individual receiving the message
4. Sending station / tactical call
5. Receiving operator
6. Mode.

The logging process for outgoing messages is similar. The message is listed on the net with the NECOS and sent as directed. The outgoing message info is noted in the log:

1. Date / time /Serial No. (the SENDING station determines the message serial number)
2. Sending Individual
3. Addressee (receiving individual)
4. Sending station / tactical call
5. Sending operator
6. Mode.

The same basic steps are followed no matter if the message is transmitted by voice and transcribed onto a Radiogram or other form specified by the served agency or handled digitally. A hard copy of written traffic is inserted into the sequential message file at the station.

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When the message is received via a digital mode the copy of the message is filed in memory (thumb drive) with the identifying information noted in the station paper log. This applies for all traffic sent and received by digital means. Remember you want to have a file copy of OUTGOING traffic. This may be an additional step when sending a message. When using flmsg, you should SAVE the message before you hit autosend. Make sure you know where the message is saved so that it can be copied to the digital log.

Now, when the dust has settled and the agency is doing their after-action review, they will have an accurate record of the formal emergency communications that occurred during the event. Just another value-added service provided by Scott ARES volunteers.

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ARES Breakfast

Saturday, April 14th
7:30AM
Perkins Restaurant
Savage, MN

NECOS Schedule April 2012

2 Apr N0PI Dan
9 Apr W0NFE Bob
16 Apr KB0FH Bob
23 Apr KC0YHH Tony
30 Apr N0PI Dan
7 May W0NFE Bob