SHORT SKIP

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REPEATERS

Freq	*Location*
147.000	Merrillville
147.240	St. John
442.075	Merrillville

All Lake County ARC Repeaters are open to all amateurs. All repeaters must have a PL of 131.8 set in order to access.

From The Parade Stand

by Tim, N9CA, LCARC President

As the French say; "Viva' a la difference".

Celebrating what is new in Ham Radio, and cherishing old school vintage Ham Radio.

What's New; ARRL proposed LF amateur 2200 meter band 135.7-137.8 kHz (2.1KHx wide). FYI a dipole would be nearly a ½ mile long, maximum power would be 5 watts EIRP. The band would be shared with power company signals (PLC) that control the US electrical power grid and commercial ocean fishing buoys beacons. An LF operator is called a "Lo-Fer", not to be confused with Lofer Australia or your shoe.

What's New; ARRL proposed MF 630 meter band for US amateurs 472-479 kHz. FYI a dipole would be a mere 635 feet long. A non-loaded vertical would be 32 stories high (to say nothing of your ground radials). Maximum EIRP would be 5 watts. Signals work best at night… in the winter… dusk and dawn.

What's Old; 60 meter channels! Five "shared" channels authorized by the FCC in May 2003 for USB with 50 watts ERP. On USB with a 2.7kHz wide signal, tune your radio to 1 of the 5 channels using a radio dial frequency of; 5330.5kHz, 5346.50kHz, 5357.0kHz, 5371.50kHz, or 5403.5kHz. By "shared" channels it means - if the US Coast Guard needs the frequency - you must QRT. No 73's. No 88's. No CUL. QRT!

What's Newer; 60 meter channels! In 2012, the FCC allowed US hams to operate USB, CW, RTTY, and all other digital modes. US Hams can now use 100 watts ERP. With the digital modes, you must stay in the center of the channels ie; 5332.0kHz, 5348.5kHz, 5358.50kHz, 5373.0kHz, or 5405.0kHz.

The ARRL has petitioned the FCC for a 60 meter band. It would be 15 kHz wide; 5351.5 - 5366.5kHz. The other four channels would remain. The FCC is mulling it over. Perhaps it's like the fable of the Nomad in his desert tent and the sly camel who begs at first that he "only wants to stick his nose into the tent , then begs that "he only wants to stick his head into the tent" and so on. Stay tuned!

A mixed bag of ham radio modes or "whatever floats your boat". (*CW and RTTY are as popular as ever). What's older digital; CW, RTTY, Pactor, Packet, Clover, WEFAX, AMTOR, SITOR, ARQ

Newer digital; DMR, D-Star, C4FM, PSK-31, PSK-63, JT65, FSK-441, MSK-144, JT9, WSJT, WSPR, DSSTV

Ham radio operators have always been pioneering experimenters who have created most if not all of the rich radio landscape that we have at our disposal. Fantastic new radios that hams not that long ago could only dream about. So many wonderful band privileges. So many cool new operating modes!

Yet, we still need to somehow "find" each other on the bands. To have a meaningful person-to-person exchange with fellow hams. Don't hesitate to call CQ. Don't hesitate to come back to someone else's CQ. Attend Club events. Be "radio active". Ham Radio is most definitely not a spectator sport.

73, Tim McGillen/ N9CA 2017 LCARC President

If you are applying for DXCC be aware of the Online DXCC application at **https://p1k.arrl.org/onlinedxcc/** rather than the old school form. You enter your QSO's online and pay the fees online, then just print the finalized sheet out for the checker to use and approve. When the checker approves as is, the ARRL just has to click the "OK" button and the credits are applied. It's much easier for all, and eliminates someone at the ARRL having to type all of your QSL's into the system.

Meeting Minutes

March 10, 2017

The meeting was called to order at 7:30PM

We had a moment of silence for Mar WV9O, who passed away Friday morning.

Introductions were made with 18 attending meeting.

Minutes from last meeting were read and accepted as read.

Treasury's report was read by Tim.

We have 5 new members in our club from Tim's Amateur radio class.

DX report 3YO group are getting together a DX Expeditions Central Africa DX Expeditions are another getting together.

No nets to report and next net is March 16.

Next month's meeting is from Mark, K9MQ who will demonstrate the COAX stripper kit from DX engineering.

Tonight's program was a presentation of skywarn, It started at 8:00PM

After program Tim raffled off some prizes to members

Meeting was adjourned at 9:00PM

Logbook of The World to No Longer Accept Contacts Signed by TQSL Versions Earlier Than 2.0 01/03/2017

As of 1400 UTC on January 16, ARRL Logbook of The World (LoTW) no longer will accept contacts that have been digitally signed by versions of TQSL earlier than version 2.0. Users of earlier versions are encouraged to upgrade as soon as possible, as older TQSL versions contain uncorrected defects and display inaccurate error messages.

The current versions of TQSL for Windows, OS X, and Linux are available online, **https://lotw.arrl.org/lotw-help/installation/**

Links of Interest

Looking for a net? Check out this site, maintained by Ben, KC9UNS, for a complete list of Chicagoland nets.

https://docs.google.com/spreadsheets/d/1YdopCuQOizD7iSrC_PO3Tnn62rknWkQM_FJ0ASDg1V8/edit#gid=0

Want to know how to wire that plug? Check out this comprehensive manual at: **http://hammadeparts.jivetones.com/Amateur_Radio_Manuals_Schematics/MICROPHONES/mic_soc_info.pdf**

And this this one from Tom, W8FIB: NASA is usually pretty tight-lipped about how it does things, but the free software catalog they just released offers details on launching spacecraft, exploring planets and everything in between.

You can browse by category (15 of them) which I did for image processing--I have no idea what most of these do! The Electronics category was a smaller than I hopped as some of the others. Many of the categories have 6 or more pages of software titles with descriptions.

https://software.nasa.gov/

What the Heck is UHF Anyway?

Link to article

Recently, I got into a twitter exchange about a UHF radio. It seems a ham was complaining that someone had advertised an 800 MHz radio, describing it as "UHF". His issue was that in land mobile radio, UHF is commonly used to refer to radios in the 380 to 500-ish MHz range. I was using the ITU definition of UHF, which is any frequency between 300 MHz to 3 GHz.

This got me thinking about how we toss around these terms quite loosely, even though they have precise definitions. Let's start with the basics, the ITU definitions of radio spectrum.

LF	Low Frequency	30 to 300 kHz
MF	Medium Frequency	300 kHz to 3 MHz
HF	High Frequency	3 MHz to 30 MHz
VHF	Very High Frequency	30 MHz to 300 MHz
UHF	Ultra High Frequency	300 MHz to 3 GHz
SHF	Super High Frequency	3 GHz to 30 GHz

You can see that the basic scheme divides up the spectrum into decades (factors of ten), aligned with frequencies that start with 3 (e.g., 3 MHz, 30 MHz, 300 MHz). If we map the amateur bands onto this system, we see that the bands from 80m (3.5 to 4.0 MHz) through 10m (28-29.7 MHz) fall into the HF range, as expected. Note that 10m almost qualifies as a VHF band, coming in just shy of the 30 MHz limit. That band does have some VHF tendencies. The 160m band (1.8 to 2.0 MHz) actually falls into the MF range even though many of us just think of it as HF.

There are three VHF bands: 6 m (50 to 54 MHz), 2 m (144 to 148 MHz) and 1.25 m (222 to 225 MHz). The UHF range includes the 70 cm (420 to 450 MHz), 33 cm (902 to 928 MHz), 23 cm (1240 to 1300 MHz) and 13 cm (2300 to 2450 MHz) bands.

The two most commonly used bands in the VHF/UHF region are 2 m and 70 cm. These bands are home for lots of FM repeaters, FM simplex, SSB simplex and plenty of other modes. Common dualband transceivers, both mobile and handheld, operate on the 2m and 70cm bands. These radios are so common that we often refer to them as VHF/UHF dualband radios. Accordingly, you will often ham refer to the 2m band as simply VHF and the 70 cm band as UHF, as if VHF means 2 meters and UHF means 70 cm. I know I've been guilty of saying "let's switch over to VHF" when I really mean "let's go to the 2m band." The 2m band is certainly VHF but VHF does not always mean 2 meters. Similarly, we might say "I'll call you on the UHF repeater" when it would be more precise to say "I'll call you on 440 MHz."

For a more graphic representation of the spectrum, see the full chart on page 4. — ed.

Continued on page 4

Do Switch-Mode Power Supplies have a place in your shack?

by K5ACL

I decided to give switching power supplies a go. Figured what the heck, i'm tired of this beast of an Astron when I have to take my radio to portable events, or when i'm just travelling period. Last I lugged it to a beachhouse @ South Padre Island… never again I said! The Astron weighs 26 pounds, the Alinco DM-330FX pictured below? 4! I drilled through review after review trying to find out if it would introduce hash or interference to my SDR waterfall, I found a few reviews, but there were so few online, I wanted to add my own, and with a video to show just how much interference this switching power supply produces. Each SMPS i've encountered is just a bit different than the last in the amount of interference it can produce & the spacing of said RFI.

I had such a good experience with a switching power supply built for my Elecraft KX3 by Pro Audio Engineering called the KX33 that I decided to give this one a go. Note that it says 'Low RFI' and not Zero RFI (I was never able to detect the interference from the KX33 though). The Alinco DM-330FX produces a slight high pitched sound drifting up and down in frequency, and produces some very slight vertical lines in the SDR waterfall about every 35kHz or so. Nothing too noticeable though, heck it took me forever just to find the lines in the first place! But now I know what to listen & look for when i'm using the Alinco. The noise offset feature does work on this thing, if you've never had to use it before, that's great, you probably just haven't ran into that small sliver of RFI.

Anywho I made a video on it just to show what i'm talking about, but you'll note that it's hard to detect in the video, so I gave this little guy 4 stars over on eHam. 5 still goes to the Astron. It may be a beast, but functionally speaking it's absolutely quiet.

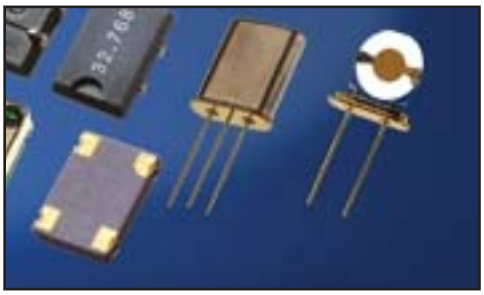
Astrons usually run quite hot, the Alinco runs much cooler, but has a fan on the back that's a tad quieter than the fan on my Kenwood TM-V71A. I've seen other folks throw a small computer case fan on their Astron, maybe I should give that a go!? I threw an Anderson Powerpole pig tail on the back, and had all the features I need now on one little compact unit. I think for normal base station use, the Astron will probably be my goto power supply because i'm on the waterfall quite a bit, now if i'm just leaving my station in monitor mode (which has been quite a bit lately!) I use the SMPS

A Solar-Powered Headset From Recycled Parts

Solar power has surged ahead in recent years, and access for the individual has grown accordingly. Not waiting around for a commercial alternative, Instructables user [taifur] has gone ahead and built himself **a solar-powered Bluetooth headset. Check the link**

International Crystal Going Out of Business

from ARRL Letter 03/10/2017



International Crystal Manufacturing (ICM) of Oklahoma City has announced that it will be going out of business, probably at the end of May. Royden Freeland Jr., W5EMH, son of the company's founder, posted a letter this week on the ICM website.

"We will be honoring all orders that we have already taken and will be able to fill a limited amount of new orders dependent upon raw materials available," Freeland said. "We would like to thank you for your past business. The success of ICM over the previous 66 years has been largely due to its amazing customer base."

International Crystal produces RF control devices — quartz crystals, oscillators, QCM crystals, filters, TCXOs/VCTCXOs, and precision crystals.

Royden R. Freeland Sr. founded International Crystal in 1950, at first operating out of his garage. One of his first contracts was to produce crystals for Collins Radio. The elder Freeland and his wife died in a 1978 air crash, and his son took over the company, which expanded into the production of other electronics in the 1980s.

In the 1990s, though, it sold off some of its equipment and distribution business to concentrate on its core enterprise — the manufacture of crystal and oscillator products.

The announcement caught some manufacturers off guard, and they are seeking to source the products they had been buying from ICM, one of the few remaining US-based manufacturer of crystal products. Radio amateurs requiring crystals for projects or as replacement parts for older equipment also will have to look elsewhere.

Ironically, International boasts on its website that it's "a proud supplier to RadioShack," which, for the second time in 2 years, declared Chapter 11 bankruptcy this week.

Tubular crank-up / tilt over tower and Yaesu G1000DXA rotor. Also comes with 2/3 of a 3 element 10-40 mtr beam. If you are interested contact John W9WY. A great deal for someone who wants to get into a tower with a little work.

A Light in the Dark

Bell Labs proves Existence of Dark Suckers, April 1

For years it has been believed that electric bulbs emitted light. However, recent information from Bell Labs has proven otherwise. Electric bulbs don't emit light, they suck dark. Thus they now call these bulbs dark suckers. The dark sucker theory, according to a Bell Labs spokesperson, proves the existence of dark, that dark has mass heavier than that of light, and that dark is faster than light.

The basis of the dark sucker theory is that electric bulbs suck dark. Take for example, the dark suckers in the room where you are. There is less dark right next to them than there is elsewhere. The larger the dark sucker, the greater its capacity to suck dark. Dark suckers in a parking lot have a much greater capacity than the ones in this room. As with all things, dark suckers don't last forever. Once they are full of dark, they can no longer suck. This is proven by the black spot on a full dark sucker.

A candle is a primitive dark sucker. A new candle has a white wick. You will notice that after the first use, the wick turns black, representing all the dark which has been sucked into it. If you hold a pencil next to the wick of an operating candle, the tip will turn black because it got in the way of the dark flowing into the candle.

Unfortunately, these primitive dark suckers have a very limited range. There are also portable dark suckers. The bulbs in these can't handle all of the dark by themselves, and must be aided by a dark storage unit. When the dark storage unit is full, it must be either emptied or replaced before the portable dark sucker can operate again.

Dark has mass. When dark goes into a dark sucker, friction from this mass generates heat. Thus it is not wise to touch an operating dark sucker. Candles present a special problem, as the dark must travel in the solid wick instead of through glass. This generates a great amount of heat. Thus it can be very dangerous to touch an operating candle.

Dark is also heavier than light. If you swim deeper and deeper, you notice it gets slowly darker and darker. When you reach a depth of approximately fifty feet, you are in total darkness. This is because the heavier dark sinks to the bottom of the lake and the lighter light floats to the top.

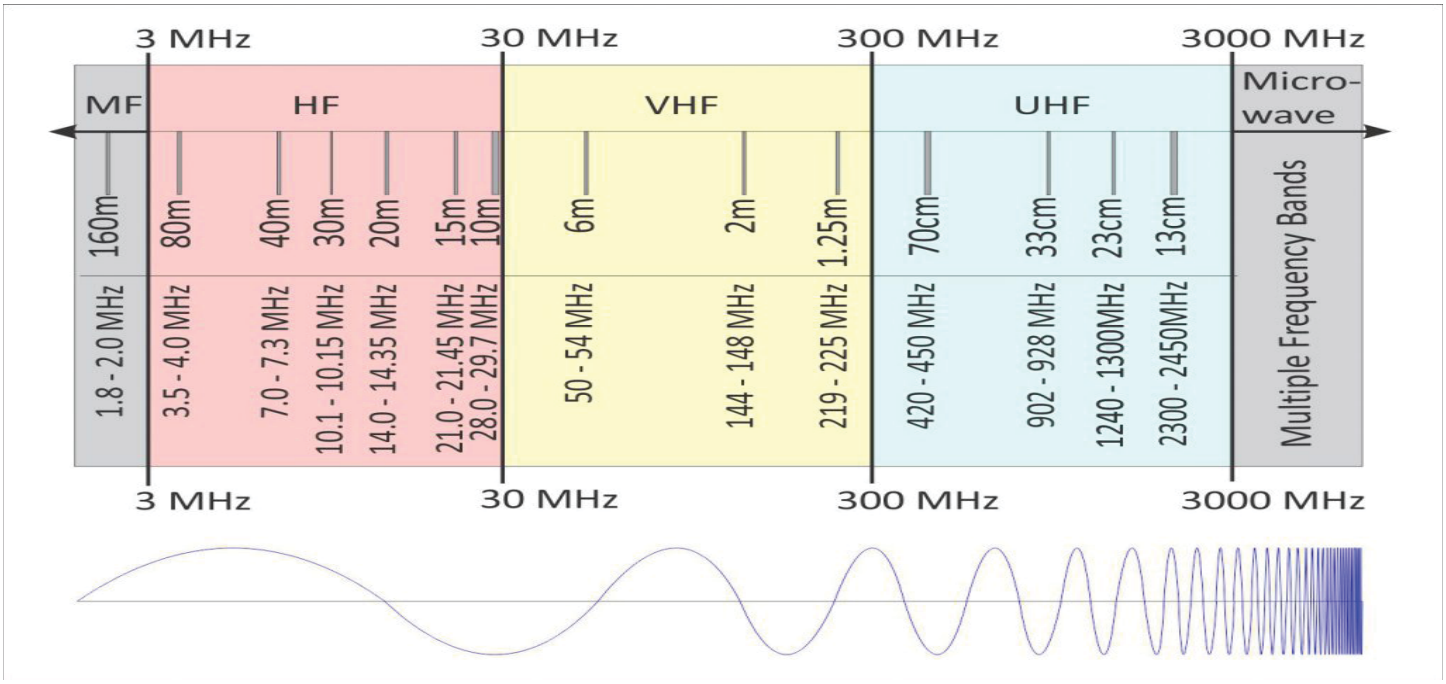
The immense power of dark can be utilized to man's advantage. We can collect the dark that has settled to the bottom of lakes and push it through turbines which generates electricity and helps push dark to the ocean, where it may be safely sorted. Prior to turbines, it was much more difficult to get dark from the rivers and lakes to the ocean.

The Indians recognized this problem and tried to solve it. When on a river in a canoe traveling in the same direction as the flow of dark, they paddled slowly, so as not to stop the flow of dark, but when they traveled against the flow of dark, they paddled quickly so as to help push the dark along its way.

Finally, we must prove that dark is faster than light. If you were to stand in an illuminated room in front of a closed, dark closet, then slowly open the closet door, you would see the light slowly enter the closet, but since the dark is so fast, you would not be able to see the dark leave the closet.

In conclusion, Bell Labs stated that dark suckers make all our lives much easier. So the next time you look at an electric bulb remember that it is indeed a dark sucker.

The above was reprinted from the Bell Labs Newsletter



Motorola Solutions sues Hytera for using stolen patents, trade secrets

Urgent Communications Donny Jackson Tue, 2017-03-14 17:58

Editor's Note: This articlewas updated at 11:25a.m. EST on March 15with a statement from Hytera Communications.

Motorola Solutions today filed lawsuits alleging that Hytera Communications'digital mobile radio (DMR) equipment and systems that leverage Motorola Solutions patents and trade secrets that were taken from the radio giant by three engineers who left the company to join Hytera Communications.

While some intellectual-property lawsuits involve disputes over the creation and use of technology developed along parallel tracks by different entities, the circumstances of Hytera Communications' use of Motorola Solutions' patents and trade secrets are much more "brazen," according to Mark Hacker, Motorola Solutions' general counsel and chief administrative officer.

"This isn't coincidental infringement of a patent," Hacker said during an interview with IWCE's Urgent Communications. "This is part of a deliberate scheme to steal and copy our technology."

According to the trade-secretslawsuit, Hytera Communications infringed on several features associated with Motorola Solutions' popular MOTOTRBO line of digital radios:

- Voice-Operated Transmission (VOX);
- Telemetry;
- Dynamic Mixed Mode (DMM) priority scan;
- Location-based services;
- GPS Revert Channel;
- Digital Telephone Patch (DTP); and
- Digital emergency ("Man Down") and "Lone Worker" capabilities.

These technology features were implemented in Hytera Communications' DMR products, which were developed "at a very quick pace" after Hytera—a company that previously manufactured only analog radios that "were quickly becoming 'obsolete'"—began hiring engineers who had resigned from Motorola Solutions in 2008, according to the lawsuit. At the heart of Hytera's digital technology was improperly obtained intellectual property that was developed and funded by Motorola Solutions, the litigation alleges.

"Motorola has been building its radios and its reputation for almost a century, and Hytera tried to hijack both in just a few months—and continues to do so to this day," according to the lawsuit.

A day after the filing, Hytera Communications provided the following statement about the legal action taken by Motorola Solutions:

"We have read Motorola Solutions' news release published on its company website and are aware of its complaint," according to the Hytera statement. "Hytera's policy is not to comment on cases that are presently before a court.

"As a global company headquarterdin Shenzhen, China, Hytera upholds a high ethical standard for business and strictly complies with the laws and regulations in the markets where we operate. Hytera firmly believes that its business practices and operations will be fully vindicated. Hytera aspires to, and will continue to, be the trusted partner for our customers and a respectful global corporate citizen."

Hytera Communications acquired the intellectual property after hiring three engineers that had resigned from Motorola Solutions, according to the lawsuit. All three of the engineers cited in the case—Samuel Chia, Y.T Kok and G.S. Kok—continue to work at Hytera Communication in senior-level positions today, according to a Motorola Solutions press release.

"In the period leading up to their resignations, through a series of serious misrepresentations and carefully planned illegal acts, these engineers maliciously accessed, downloaded and transferred more than 7,000 highly confidential files related to Motorola Solutions' technologies, including confidential technical, marketing, sales, legal and other types of trade secret materials," according to the Motorola Solutions press release.

"Subsequently, Hytera began illegally manufacturing and marketing a line of products and technologies containing technologies invented, designed, developed and in some cases patented by Motorola Solutions."

Motorola Solution sues Hytera Communications for using stolen patents, trade secrets

Each of the three engineers in question had access to details of the technology's development and supporting documentation while at Motorola Solutions, Hacker said. Upon leaving Motorola Solutions, all signed a "Resignation NDA (non-disclosure agreement)" in which they "agreed to protect and treat as confidential all Motorola's trade secrets and/or confidential information," according to the lawsuit.

None of the resigning Motorola Solutions employees disclosed that they would be working for Hytera Communications or that they had conducted unauthorized downloading of Motorola Solutions intellectual property during the weeks prior to their departures, according to the lawsuit.

"Since its employees acquired these documents, Hytera has perfected the misappropriation by incorporating Motorola's digital two-way radio technologies and related features into its products that are currently sold in the United States, which are in whole or part derived from Motorola's trade secrets," the lawsuit states.

"For example, Hytera implemented Motorola's digital two-way radio features as implemented in Motorola's proprietary MotoTRBO products, often using the exact same feature names. For instance, Hytera has incorporated the 'VOX,' 'Telemetry,' 'Lone Worker,' 'Man Down,' 'Mixed Mode Scanning,' 'Phone Feature,' and 'GPS Revert Channel' features, that are in whole or part derived from and/or comprise Motorola's trade secrets."

If the federal court rules in favor of Motorola Solutions, the company is seeking a declaration that Hytera Communications "has no rights or privileges to use Motorola's trade secrets" and monetary damages that would include "Motorola's lost revenues and profits" associated with Hytera Communications' actions, according to the lawsuits.