



The Blurbs



*Newsletter of The Phil-Mont Mobile Radio Club
Public Service Since 1949*

Volume 73 Number 045

www.phil-mont.org

PMRC Holds Its First Quarterly Radio Lab

Greg Cheng - KC3SMW Leads Successful Arduino Breadboarding Seminar pg 9

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Get the Net!

There's no ham radio without YOU!

Get on the air and share! Operate, cooperate, & celebrate ham radio!

Phil-Mont's Drive Time Net

Join us on the air every
Monday to Friday 1700
to 1800 EDT on:

- 147.030 MHz (+offset 91.5 PL)
- Bucks County and North PL 88.5 (147.030)
- [Echolink W3QV-R](#)
- [ALLSTAR 47970](#)

CLUB REPEATERS

VHF: 147.030 MHz (+offset 91.5 PL)

Bucks County and North PL 88.5
(147.030)

UHF: 444.80 MHz Yaesu System
Fusion WiresX

[ECHOLINK W3QV-R](#) &

[ALLSTAR 47970](#)

[EMAIL REPEATER COMMITTEE](#)

Sunday Morning Nets

*Three Nets on three
bands, all in a Row! Tune
in on any or all for a
Sunday morning 'Hello!'*

0930 EDT:

- 147.030 MHz (+offset 91.5 PL)
- Bucks County and North PL 88.5 (147.030)
- 2m, [Echolink W3QV-R](#)
- [ALLSTAR 47970](#)

1000 EDT:

75 meter Net (3.993
MHz LSB +/-QRM)

1030 EDT:

10 meter Net (28.393
MHz USB +/-QRM)

CQ! CQ! CQ!



**Calling CQ for New
Net Control
Operators!**

[Click Here and Sign Up To-
day! It's a Fun Way to Meet
Our Members!](#)

May Net

Control Schedule

5/1 Rich - AA3RC

5/8 Greg - WA3GM

5/15 Steve - WU3I

5/22 Joe - KB3SJS

5/29 Eric - N3QV

Club Business

FIELD DAY FOOD FACTS

from Steve Hoch - WU3I:

I will be cooking at Field Day this year.

There will be:

* Burgers and Dogs for Saturday and Sunday Lunch.

* Rotisserie Chicken and Salads from the local Supermarket for Saturday Dinner.

* French Toast and Sausage for Sunday Breakfast.

* There will be over night Coffee and Snacks and fresh Coffee for Breakfast.

A general count of who will be there for each meal will be helpful in purchasing the necessary supplies.

That is the Good News.

Now for the Bad News.

This will be my last year setting up the field Kitchen.

The accumulated equipment less the tables (need them for hamfests) will be available to my successor whomsoever that is.

I am keeping the trailer as I have other uses for it.

I can be contacted at wu3i@arrl.org to let me know you will be attending and which meals you will be there for.

Please let me know by email. If you hear me on the repeater I might not be able to write it down. Been doing this for a long time and now someone else (read: younger) needs to pick it up.

Not leaving, just relaxing more.

Stephen Hoch WU3I

NEXT GENERAL CLUB MEETING:

Wednesday, May 11th

IN PERSON *ONLY*

At the [Giant Supermarket 315 York Rd. Willow Grove, PA 19090](#)

7PM Start - (6PM Yack & Snack)

This Month's Presentation:

Mesh Networking

MEMBERSHIP STATS

At press time P.M.R.C. has:

121 Fully Paid Members

of which are:

7 Family Members

0 Youth Members

Honorary Members:

Elaine Spencer

Richard Moll - W3RM

New Members Pending:

Bill Kullmann - KE3YW - Extra

Tom Aiken - KC3SZB - Technician

Charlie Bricker - K3NOP - Extra

Keith Elliot - KB3VLA - General

May 2022 BIRTHDAYS

01 Dorene Weiner- (XYL WX3PHI)

05 Paul Policarpo- N3PP

Pat Taylor- W3HVG

07 Bob Swayne - K3NIE

George Walsh - KB3WAQ

11 Ben Krevsky - WD8RYV

15 Doug Crompton - WA3DSP

20 Jim Prumachuk - KZ4JIM

26 Jim McCusker - K3YO

28 Peggy Kauffmann - KB3DID

29 Maggie Leber -

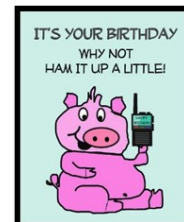
K3XS

30 Bill Chedeville -

W3GQD

31 Joyce Mitchell

(XYL KC3CEW)



The Prez Sez...

Hello Phil-Mont,

The INMATES ARE RUNNING THE ASYLUM, and isn't it grand?

Repeater activity. Nets. Labs. Meetings. Email questions. Email answers. Email info.

KEEP it UP!

From 8th graders to 80+ years old. All are welcome and encouraged to participate.

The more we offer; the greater possibility to engage. It's a great hobby with *much* to offer. **OFFER IT.**

And you know what? RE-offer it too. You know, some folks may have heard it before, and that's ok, BUT when others jump in....it's better. There are always more folks listening...but there are other folks that may have not heard something and will jump in and get involved. Don't worry if you've said it before.

We all have the same basic license. The privilege level changes, but at, and after, Technician, you are in the game. PLAY. At YOUR own pace,

As mentioned in our emails, everyone's learning path is different. All experiences need to be shared so that everyone has the opportunity to participate.

Great meeting and attendance this month. Thank You Neil!

OUR APRIL RF SHOWERS will yield MAY (and beyond) FLOWERS.

It rained our first PMRC Radio Lab. Thank you Greg KC3SMW and all who participated.

It has already yielded another HOUR for future labs. Now they will begin at 10am for social and setup so we can hit the ground running at 11:00am.

The next PMRC Radio Labs will be June 11th, and will be constructing an antenna for HF. Info Here: <http://phil-mont.org/Labs/LabsIndex.html>

It rained the debut of our new Tuesday night DENN. Well, they started drizzling a few months back with popup showers. Now, again, Greg KC3SMW and Ron NY3J will take us down the digital paths every Tuesday night at 8pm.

We added the extra N to remember...Newbies. We all had to start somewhere. I prefer to remain there! Watch the groups.io for what they will be doing. No worries if you can't/won't/don't...stop by and listen....If you want...let them know you're listening. If not, no biggee either. They'll be there for you when you are ready.

Info: <http://phil-mont.org/DENN/DENNindex.html>

It rained SSTV from the ISS. And just like the real weather forecast, the first shower was barely a drizzle. But the second storm made up for it. SSTV....hmm...isn't that where the popup Digital skeds started?

Members please post your stuff to encourage others to try....here is the thread from the second rainstorm: <https://philmontmobileradioclub.groups.io/g/main/message/2280>

It rained Field Day Planning. <https://philmontmobileradioclub.groups.io/g/main/message/2280>

<http://phil-mont.org/fd2022/fieldday2022.html>

This is a MAJOR STORM! Already yielding FUTURE FUN.

Let's start with the ham basics.

FOOD - our chef is back, for his farewell catering performance. Here is all the info:

Want to [EAT](#)? ←Menu at link→ Email our CHEF: wu3i at arrl dot net

Tower is back for Top of the Hill! We will need all hands on deck for Friday afternoon setup. Show up and we will gladly appreciate any assistance you can provide. Cheering and clapping count!

6 meters and ABOVE being run by Packratter Jim KC3BVL. This is an opportunity for all of us to learn and experience these bands and various modes by an active participant in these things. I know I plan on spending some time at the Top of the Hill.

The PARKING lot ON THE AIR (PIOTA) TEAM, run by Jeff KC3GJX will be manning the Hospitality and Information Center for the Field Day WEEKEND. Jeff

will need some help with this so reach out to him and/or the email list if you can assist. Any assistance will be greatly appreciated.

Lots of stuff still to do and plan for Field Day. Stay tuned. Get involved. There are some bands still open.

May.

VE Session. Every Second Monday. May 9th. <http://phil-mont.org/exams/GiantLicense.html>

General Meeting, EVERY SECOND Wednesday. (Except July and August)

NEXT MEETING Wednesday May 11th

Mesh Networking - MontCo Mesh - MeshPotts

Tom W3EX and friends

[LIVE LOCAL MESH MAP](#)

<http://phil-mont.org/#meetings>

EVERY SINGLE MINUTE remember, this is YOUR HOBBY, YOUR Club, YOUR repeaters. USE them. MONITOR them. BE A REPEATER GREETER. Answer calls when you can. Let's try to leave

NO CALL UNANSWERED.

PLAY*BREAK*LEARN

jim fisher

AJ3DI

www.aj3di.com

HamshackHotline ext: 14423

Philadelphia



ARES

The Amateur Radio Emergency Service are trained licensed amateur radio operators providing radio communications as a public service in disaster situations. All licensed operators are welcome to join. To get started fill out this [ARES Registration form](#) and [submit it to Cliff Hotchkiss](#) (KC3PGT), the Philadelphia Emergency Coordinator.

**Join the
A.R.E.S.
Training Net**

**Every Sunday
evening at 2100 (9:00
PM)
147.030 MHz**

From the Editor: Below is another excellent article from Vince Pisacane - WB3IDW which comes in response to my question to him as to why it is that bands we commonly think of as 'night time' bands and 'day time bands' will work on their opposite hours. This I'm sure is a common question, especially among new hams. If we seek out info on current band conditions it's not unusual to see that 40m will in fact be listed as 'good' during the day and 20m will be wide open well into the night. Hopefully this next article in Vince's series will answer that question.

FREQUENCY SELECTION FOR SKYWAVE COMMUNICATIONS

by Vince Pisacane, WB3IDW

INTRODUCTION

Skywave communications use refraction by the ionosphere to achieve long-range connectivity. The ionosphere is a weak plasma in that only about one percent of the upper neutral atmosphere is ionized by ultraviolet and x-ray emissions from the sun. Ionization of the atmosphere occurs above an altitude of about 30 miles (48 km). The degree of ionization, characterized by the electron density, is dynamic depending on the intensity of the day-night variation of sunlight and solar and geomagnetic activity. The ionosphere is essentially horizontally stratified but embedded with irregularities throughout due to variations in the solar x-ray intensity and geomagnetic activity and at the solar terminator (sunrise and sunset). The electron density varies as a function of altitude and time of day as illustrated in Figure 1, which shows the various layers identified as D, E, F, F₁, and F₂. Interactions between radio waves and plasma are a function of the *plasma frequency* and the *plasma refractive index*.

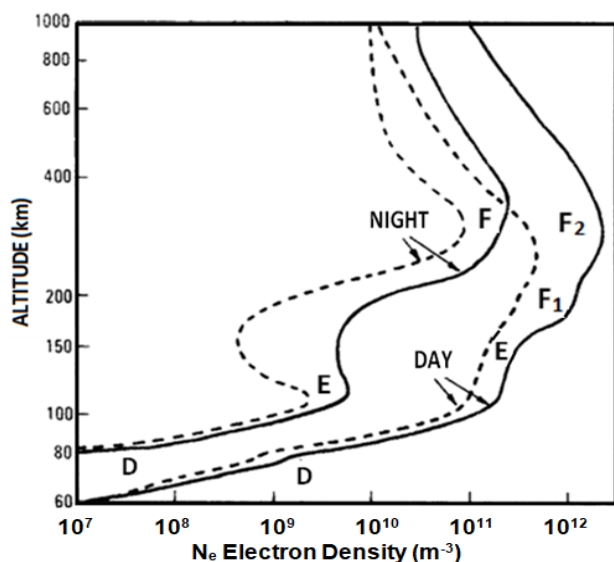


Figure 1 Typical electron density as function of altitude and time of day

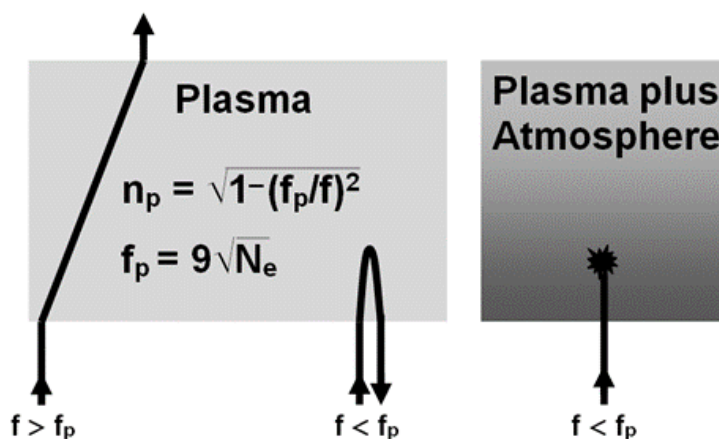


Figure 2 Radio wave ionospheric refraction and absorption; N_e =electron density (m^{-3}), n_p =refractive index, f_p =plasma frequency (Hz), f =radio frequency (Hz)

PLASMA FREQUENCY

The plasma frequency is the frequency at which the electrons in the plasma naturally oscillate relative to the ions when excited by an electromagnetic signal. It is a function of the electron density and typically has values between 2 and 10 MHz for the Earth's ionosphere. As shown in Figure 2, the plasma frequency in Hz is equal to 9 times the square root of the electron density in m^{-3} . As the electrons oscillate they can collide with other molecules, ions, and electrons with each collision dissipating energy and reducing signal strength. The degree of attenuation depends on the number of collisions that occur, which is a function of two factors. The first is the number density of the potential colliding particles in the plasma. The second is the frequency of the radio wave whose displacement of electrons increases as the frequency is reduced, increasing the potential for collisions. The degree of ionospheric attenuation varies inversely as the square of the frequency: if the frequency is doubled the attenuation is reduced by a factor of four. Ionospheric attenuation occurs principally at the lower altitudes of the ionosphere; i.e., the D and E layers. Figure 1 shows that

especially during the day the D and the E layers have lower altitudes where there is an increase in the density of the neutral atmosphere so that there is an increase in attenuation of radio waves in these regions.

REFRACTIVE INDEX

Refractive index is the measure of the bending of electromagnetic radiation when passing from one medium to another. As shown in Figure 2, the refractive index of plasma is equal to the square root of the sum of one minus the square of the ratio of the plasma frequency to the radio frequency. When the radio frequency equals the plasma frequency the refractive index is zero and the wave is refracted back as illustrated in Figure 2. To propagate in plasma the radio frequency must be greater than the plasma frequency so that the refractive index is less than one. The behavior of a radio wave in the ionosphere can be described by approximating the ionosphere as a series of thin slabs of different electron densities and therefore different refractive indices. The direction of a plane wave incident at an angle at a boundary is governed by Snell's law, which states that the ratio of the sine of the angles of incidence and transmission is equal to the ratio of the refractive indices of the materials at the interface. Thus for the configuration in Figure 3, $n_1 \sin \theta_1 = n_2 \sin \theta_2$ where n_1 and n_2 are the refractive indices and θ_1 and θ_2 are the refractive angles. Thus the angle of refraction increases as the electron density increases and the refractive index decreases and decreases as the electron density decreases and the refractive index increases. This allows radio waves to be refracted back toward earth, thus enabling long-distance radio communications as illustrated in Figure 4.

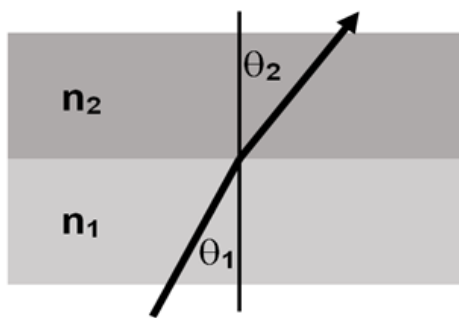


Figure 3 Application of Snell's law

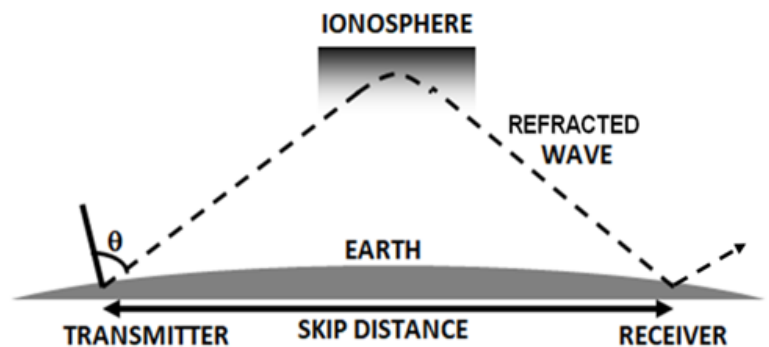


Figure 4 Ionospheric refraction of a skywave

COMMUNICATION FREQUENCIES

The critical frequency of the ionosphere, f_c , is the maximum plasma frequency that typically occurs in the vicinity of the F layer at night and F₂ layer during the day. The critical frequency of the F₂ layer is identified as foF₂. The *Maximum Usable Frequency* (MUF) is defined as the upper frequency limit that can be used for transmission between two points at a specified time. It can be approximated by $f_{MUF} = foF_2 \sec q$ where q is the angle of the wave relative to the vertical as illustrated in Figure 4. Often the MUF is specified for a particular distance, usually MUF (3000) for communication between two points 3000 km apart. As a rule of thumb, the MUF(3000) can be approximated by 3 to 4 times the foF₂. The *Lowest Usable Frequency* (LUF) is the lowest frequency that can be used to communicate between two points by refraction from the ionosphere. The LUF(3000) can be approximated as 0.25 times the MUF(3000). The *Frequency of Optimum Transmission* (FOP) is the highest frequency predicted to be usable for a specified path and time of day for 90% of the days of the month and can be approximated by $0.85 f_{MUF(3000)}$. Values for the MUF, FOT, and LUF for a typical day at mid-latitudes are shown in Figure 5.

FREQUENCY SELECTION

As previously described, the skywave propagation of radio waves is strongly affected by the frequency employed and the distribution of electron density. For effective skywave communication it is important to choose a frequency that will allow refraction and will not be absorbed in the lower ionosphere. For long range communication the best choice is the highest frequency that will be refracted in the F or F₂ layer; i.e., near the MUF to minimize D layer absorption, which can be significant especially during the day. Frequencies well below the MUF generally exhibit strong attenuation in the D layer. However, determining the MUF is an inexact science and underestimating it would result in a signal that

is not refracted back to earth but passes through the ionosphere. Consequently it is better to choose the FOT for long distance communications. For ranges less than 2000 km, it is sometimes better to choose a frequency lower than the FOT to attempt to match the plasma frequencies of the lower regions of the F layer or the upper regions of the E layer. Figure 6 illustrates the different potential propagation paths with skywave communications.

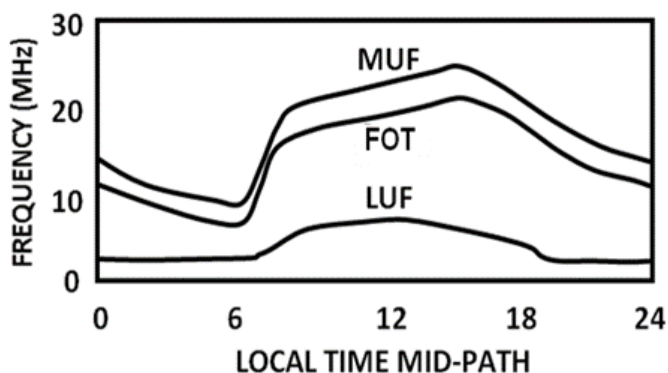


Figure 5 Typical variations in MUF, FOT, and LUF between two sites

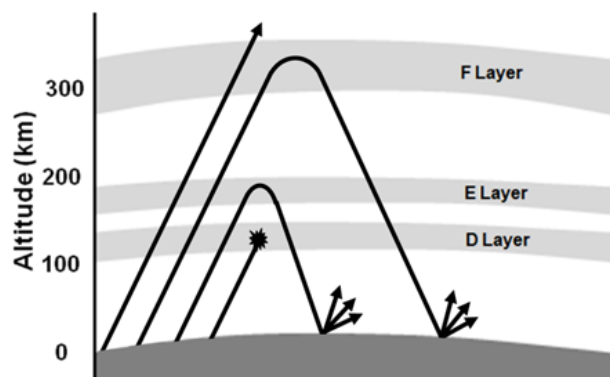


Figure 6 Choosing the correct frequency

REAL TIME MUF and FOT PREDICTIONS

The internet site prop.kc2g.com provides near-real-time ionospheric data and maps of ionospheric conditions for use by amateur radio operators. The data utilized are from ionosondes (ionospheric radars) around the world that are compiled by the NOAA National Centers for Environmental Information (NCEI) and the Lowell Global Ionospheric Radio Observatory (GIRO). As illustrated in the header of Figure 7, information is categorized by MUF, foF2, Data, and eSSN. The MUF map is for the MUF(3000) using colors and contour lines with MUF values at Ionosonde locations shown in colored circles. Faded circles indicate sites with values of low confidence. The MUF midway between any two locations

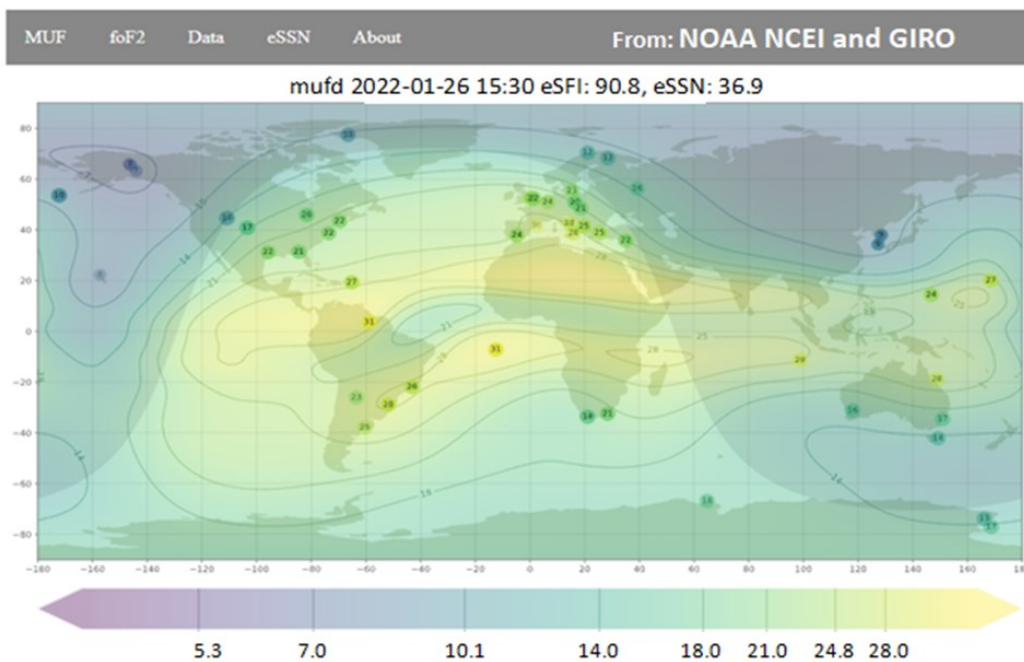


Figure 7 NOAA NCEI and GIRO MUF near-real time contour map, prop.kc2g.com

is the recommended value. For example, if the MUF is 12MHz, the FOP is ≈ 10.2 MHz so wavelengths 30 meters and slightly longer should be employed. As the communication distances shorten, the recommended frequencies decrease. The higher the incidence angle the shorter the communication distance with the usable frequency approaching the foF2. For example, if the local foF2 is 9 MHz or higher then high incident transmission at 7.7 MHz ($9 \text{ MHz} \times 0.85$) or 40m will provide local contacts. Both the MUF and foF2 maps also show the regions in transition from day to night where unique communication opportunities

are frequently possible. Provided under the header marked DATA are the ionosonde measurements and under the header marked eSSN are several timelines of solar data where eSSM is the Sunspot Number and eSFI is the Solar Flux Index; both measures of solar activity. ❖

Phil-Mont's First RADIO LAB: An Electrifying Success

The seven people in the Willow Grove Giant's Community Room on April 9th attending the first PMRC Radio Lab had two things in common: a passion for Ham Radio and little to no idea how to layout and program basic circuits with an Arduino. Perhaps surprisingly those two things have a great deal in common. It's no accident that each of the Ham exams contain some level of fundamental electronics that must be learned before privileges are granted on the bands. While many of us might have simply learned enough to pass the test it doesn't mean the electronic fundamentals have no place in everyday ham radio.

In fact a working knowledge of basic circuit design has everything to do with your radio, antenna and microphone. Each one is a basic circuit modified or enhanced for its application. Those improvements might be beyond the typical ham (and a lot of Electronic Engineers for that matter.) but it doesn't change that our rigs are comprised of some simple circuits that have been around for over a century. Despite that many of us still find them unfamiliar and even intimidating.

Enter Greg Cheng - KC3SMW.

Greg is a newer member and has volunteered to chair the new RADIO LAB DIY Seminars for the club. Greg is a ham with seemingly unending curiosity for electronics, gadgets, and all things ham radio as well as an obvious abundance of enthusiasm, patience and clarity for sharing that knowledge with others. If you were lucky enough to be one of the seven in attendance for the very first of these sessions you could see this plainly with the measure of care in preparing his presentation slides and his hands on support for the lab builds.

"The coolest part for me was seeing everyone get it." said Greg when asked what his favorite part of the event was. "I think it was inspiring to them knowing that I am not electrical engineer or anything of the sort. I am just playing with the Arduino and making, creating, failing, and [eventually] succeeding while having fun."

To illustrate the potential of the Arduino Greg showed off his homebrewed Arduino powered transceiver which was tuned to a NOAA weather station as a demonstration showing not just that you can make very useful things from basic and easily sourced electronic components but also to let the attendees see

how the sausage gets made, so to speak. Each element of every one of our radios was prototyped at some point in this seemingly chaotic fashion. Breadboarding, or making temporary and easily changed circuits on a board with push in connectors, lets builders test and experiment with circuits that are then shrunk and organized onto what we normally think of when we think of electronic circuits: PCBs, or printed circuit boards. Instead of tiny traces connecting components on a miniature board the connections are sized for human hands so swapping parts and nodes is easy and solder-free. This solderless



Shown above is Greg Cheng - KC3SMW's Homebrew ArduHamCeiver. An example of how useful Arduino can be to the Ham Radio Amateur.

connectivity is precisely what makes the Arduino microcontroller so interesting. Push in a few wires, drop in a little code and you can make nearly any circuit you desire.

Building what ever comes to mind is exactly the goal of these Radio Labs: Making the arcane accessible and fun for anyone with a sense of adventure and a persistent nature.

This event was the first of many the club will be holding, each with its own theme. Next Greg will be hosting an antenna build using the End Fed Half Wave Kit from the ARRL. Each participant is responsible for bringing their own kit and showing up at the Giant Community Room on June 11th at 11:00 AM (10AM if anyone cares to socialize before hand). The session will run until 2pm and tools and help will be provided by Greg, Dan Wagaman -W4GMN and Phil Zminda - N3ZP. Field Day is only two weeks after and all attendees are invited to bring their new antennas for use on the big day. - W4GMN ❖

Radio To the Rescue

Club Repeater Saves Day for Phil-Mont Mobile Radio Club Newsletter Editor

Philadelphia, PA - Local radio club newsletter Editor Dan Wagaman - W4GMN found himself in quite the tight spot on Wednesday April 13th. He sat parked in Chinatown ready to meet his friend for some pastry when his heart sank and the world started to close in around him.

Dan had left his home fifteen minutes prior in good spirits. His friend Matt was spending a few days visiting Philadelphia and staying at a downtown hotel. Matt made plans with our editor to meet wherever he found parking and then walk together to a bakery for breakfast. The plan confirmed, Dan grabbed his wallet, keys and, so he thought, his cell phone.

He headed into the city to Chinatown and, to his surprise, easily found parking near the bakery. Pleased with himself and looking forward to seeing his friend, Dan shut off the truck and reached over to grab his phone and let Matt know where he was. He reached over to the passenger seat and he felt only upholstery. There was no phone. He checked under the seat and in his pockets. Nothing. Without his phone there would be no way to contact Matt as to his location.

Time to think. Without comms there were only two options: Drive back home and likely blow the plan, or walk to the bakery and hope for the best.

But wait! He wasn't completely without comms. The dual band rig was under the passenger seat. He might be able to reach someone on the repeater who could call his wife and she could relay a message to Matt. It was a long shot. Would anyone would be listening? Only one way to find out. Dan pulled the rig out and slapped the antenna on the roof before calling out on W3QV.

Nothing heard.

Our editor's hands clenched. He was making the repeater but there might be no one listening. He could not stand the idea of letting down a friend having made such a silly mistake. Nothing to lose, he kept trying to raise someone.

"To anyone listening, I need help relaying some important traffic. W4GMN mobile."

Just as he set the mic down ready to admit defeat a familiar voice called back.

"AB3GB. Morning Dan. How can I help?"

It was Bob, a new regular on the W3QV repeater and contributor to The Blurb. Our editor's spirits rose with the hope that this crazy plan just might work. "Hold on, you're not clear yet." Dan heard a voice in his head say as he remembered that AB3GB doesn't have an email address. The odds were even lower he had a cell phone and could text a message. A phone call from a number not in your contacts list is unlikely to get picked up in this day and age. It was more likely to be ignored as potential SPAM. He wasn't out of the woods yet.

"Bob, I'm supposed to meet a friend in a few minutes. He doesn't know where I am and I left my cell at home. Could you call my wife and ask her to relay a message to my friend for me?"

**Dan swallowed hard.
Would his message get
through?
There was only silence
on the rig.**

"Sure, no problem Dan. Let me get over to the landline and I'll give her a call."

This was it. This one was for all the marbles. Would our intrepid editor be breakfasting with a friend or packing it up and driving back to his QTH pastryless and his credibility marred? Dan swallowed hard. Would his message get through?

There was only silence on the rig.

"Dan? I have Lisa on the line. She can call Matt. What's the message?"

It worked! Our editor jumped in his seat with pride and relief. His head bounced off the headliner and pushed down into his shoulders as he remembered the truck has low headroom and is no place to be jumping for joy. He winced a little as he picked up the mic and relayed the message for Matt.

"Bob, that's great! You really saved my bacon. I was just about to go home with my tail between my legs."

"Well Dan, I'm glad I could help. No problem at all!"

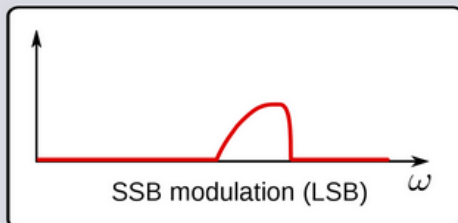
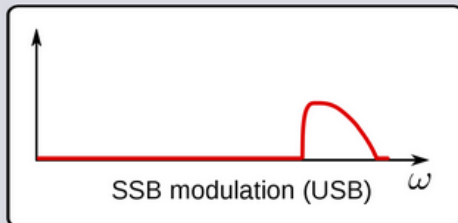
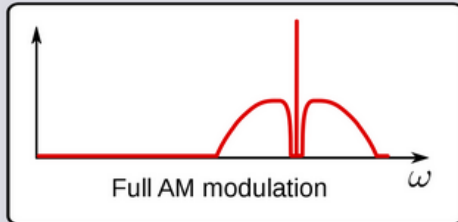
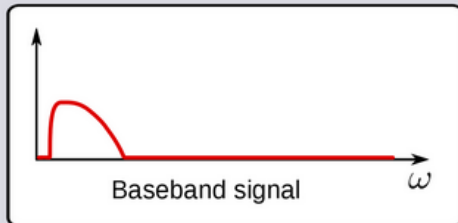
And so it was with the help of Bob AB3GB Phil-Mont's Blurb editor was able to pass traffic through the repeater and have it relayed to his friend. W4GMN thanked AB3GB for his help and both cleared the repeater.

A few minutes later Matt strolled up to the truck waving his hand. It was 9:30, right on schedule. More importantly the day was saved and fresh pastry was back on the menu.

"Wow!" thought Dan as he and Matt rounded the corner, "Ham radio really is useful in an emergency!" -W4GMN ❖

SINGLE SIDE BAND: WHAT IS IT AND WHY DO WE USE IT ?

(Courtesy of the Chameleon Antenna Newsletter - April 2022)



The history of SSB (Single Sideband Suppressed Carrier) dates back believe it or not to 1915: [SSB LINK](#)

Art Collins used Project Bird Call to demonstrate the superior performance of single sideband in 1956. This experiment changed long distance HF communications forever.

Major leaps forward need champions. For single sideband, these were two U.S. Air Force Generals – Curtis LeMay and Francis Griswald on the customer side – and Art Collins on the vendor side. All three were active hams. General LeMay commanded the Strategic Air Command. He was looking for ways to improve HF communications with his B-52 Bombers. Butch Griswald was Lemay's number two. Art ran Collins Radio, a major supplier of military communications and avionics. Previously, Collins had invented the mechanical bandpass filter and permeability tuned oscillator. It turns out that these developments made SSB radio transmission practical for the first time.

Reliable long distance HF radio was critical to Strategic Air Command in the 1950's. In particular, LeMay wanted to be sure that he could recall his bombers if necessary if their mission was to be safely aborted. So the three designed an experiment. Collins ham SSB gear was installed in a C-97 aircraft. This B-29 bomber, converted for passenger use, then made two very long distance flights from the U.S. One flight to Asia, the other to Greenland. All along the way, they tested SSB with amateurs and military bases. Their goal was to make sure they could communicate with SAC headquarters at Offutt Air Base

in Omaha. General LeMay called the flights Project Bird Call.

Project Bird Call – A Success for Single Sideband

LeMay's experiment was a big success. Project Bird Call clearly demonstrated the superiority of SSB over AM for long distance HF communications.

Collins installed off the shelf amateur radio gear for these tests, as shown above. The receivers were the venerable 75A4 receiver, and KWS-1 600 watt sideband transmitter. These flights comprised over 120 hours of flight time and made nearly 2,500 long distance radio contacts in the spring and summer of 1956.

Amateur Radio and SSB : When I first started listening to shortwave and amateur radio stations in the 50's I was using old 1930 and 40 radios I could find. I used to offer to clean out garages and cellars to find the old radios. The radios didn't have a BFO (Beat Frequency Oscillator) so I couldn't hear the SSB stations. Next came the old military command sets which I could buy for \$10.00 on the surplus market, they had BFO's.

[McElroy ARTICLE](#)

Built power supplies from old tv chassis I got from a tv repair shop and brought home in my red wagon.

SSB took off in the late 50's and early 60's. Many manufacturers slowly switched from AM to SSB production. Some of the companies survived and many gradually went under !

We are going through another transition with the introduction of more and more digital modes. 6 meters is almost all FT8 right now.

One of the early companies producing SSB equipment was SWAN Engineering started by Herb Johnson.

Herbert G. Johnson, W6QKI - Founder of Swan Electronics and ATLAS Radio Co

Herb Johnson was born November 10, 1920, in Pittsburgh, PA. The son of Swan and Ruth Johnson, he spent his child-

hood in Astabula, OH. A lifelong amateur radio enthusiast, he designed his first radio at age 14, and at age 15 earned his amateur radio operator's license.

After moving to Benson, AZ, he founded Swan Engineering (later, Swan Electronics) in 1961. Originally working by himself out of his garage, Herb created a line of radios that became a favorite of amateurs around the world. Herb chose the brand name "Swan" in memory of his father, whose name in his native land of Sweden, was "Sven". Upon arrival in the USA, his name was Americanized to "Swan".

Swan Engineering grew rapidly, and its growth continued after Herb relocated the company to Oceanside, CA, in 1962. At its peak Swan produced as many as 400 radios per month.

Needing more capital and engineering resources for Swan's rapid expansion, the company merged with Cubic Corporation in 1967 and Herb continued managing the Swan subsidiary until 1973. The Swan line of equipment was mostly tube type design, and through the years more than 80,000 transceivers alone were sold. Many Swan radios remain in service today, a tribute to the quality that went into their design and construction.

Herb founded his second company, Atlas, in 1974. Atlas produced a line of compact, rugged radios that became very popular for mobile communications from cars and boats. Herb was particularly proud of the many explorers and adventurers who used Atlas radios to stay in touch with the outside world during their expeditions.

Until next time stay tuned ! - Don W7SSB ❖

Were You Aware of It?

No, this antenna was not bent. No, no one sat on it either. This antenna was designed this way... by a computer. At right is an [evolved antenna](#) designed by an automatic computer program that starts with a basic antenna shape then adds or modifies elements in a somewhat random fashion and then compares each evolution until the ideal candidate is formed. This is the 2006 NASA ST5 Spacecraft antenna.



And you thought your antenna design looked a bit off.

Login to the Phil- Mont 'Coders Corner'

Like to code? Sure you do! Join up with fellow hams who like to bite into the bits. Come early to the monthly meeting and talk shop with the group.

Check out [the repositories on GitHub.](#)

Let's Get Geeky!

PMRC'S RADIO LABS

Hands on Ham Radio Fun!!

Come out and join in the excitement of making your own gear at Phil-Mont's next Radio Lab. All the satisfaction of DIY without the worry that you will screw it up. Our volunteer experts will be on hand to guide you along the way. No tools required, jut come out with your kit and a child like sense of wonder and leave with a working EFHW antenna.

Build Your Own EFHW Antenna!

Want to attend? Sure you do! Come out and build your own EFHW guided by Greg KC3SMW, Dan W4GMN and Phil N3ZP. Be sure to pick up your ARRL kit ASAP , you'll need it on June 11th as you follow along and get help from the presenters as you build your own EFHW!

Get Your ARRL

EFHW Kit TODAY!

Next Radio Lab: Saturday June 11th

10:00am to 2:00pm

10am Social/Setup - 11am LAB START

From the PMRC Archive...

Here are some highlights from
this month in Blurb history,
May 1962

PHILMONT TEK-NI-GRAM

MAY 1962

ELECTRONIC ENGINE ANALYZER
CONTRIBUTED BY K3GNM

F. C. C. LICENSE FEE -- WRITE NOW!

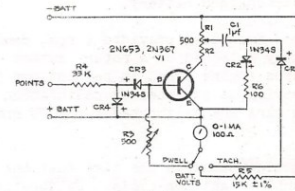
The date for writing to F. C. C. concerning proposed license fees has been extended to May 16th.

Now is the time for each individual to write making your feelings on Docket 14507 known. You must send an original and fourteen copies.

I am opposed to this fee for several reasons:-

1. Amateurs are already doing their share by conducting Novice, Technician and Conditional License Examinations.
2. The TVI Committees take a load off F. C. C.
3. Amateurs police their own frequencies.
4. Without the amateur, Civil Defense Communications would be a lot more costlier to Governments.
5. Hams create much goodwill by DX Contacts.
6. Plus the fact that some youngsters trying to get started might not have the fee so handy -- and how about the old timers on pension?

At a time when our Country is trying to improve our sciences and educations, this could only deter the program by putting our hobby out of reach of some, especially if fees grow.



READING RADIO CLUB BANQUET

Sixteen Phil-Mont members, XYL's and associates made up two full tables at the Reading Radio Club's annual banquet, Saturday night, March 31, 1962. Other out-of-town visitors included a table of hams from the Keystone V H F Club, representatives of Lancaster and Allentown radio groups. The Anniversary Room of the Crystal Restaurant in Reading was the site, with a good-size bar at one end of the room and the platform for the dance band at the other.

Festivities started almost on schedule, and all agreed that the banquet fare was very well served -- as well as delicious. One commentator said it was the first time he had had piping hot mashed potatoes at such an affair, and others commented on the excellent coffee, and the frequent cup refilling that took place.

<---- Editor's Note: 60 years later... The more things change they stay the same!

LIGHTS! ACTION! CAMERA!

Phil-Mont's venture into TV via WRCV-TV on Saturday, March 24, was apparently a success. Many favorable comments have been heard by your editor and, of course, this is the reward for all the work that was done by the committee. Congratulations to W3NIP and the group that worked so hard to score again for Phil-Mont.

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	K3GNJ - K3GNM
New members chairman	W3CDY

SPLATTER

This month the "Blurb" is new! New type, new format and new staff. This new look is one step toward making the "Blurb" as fine a publication as is possible -- typical of the fine club it represents. With the expanded editorial staff, we hope to make the content at least as good as the appearance; however, like most club projects, we need the cooperation of all the members. News, suggestions and comments are welcome and solicited. All we ask is that all material be in the hands of the editor not later than the Mid-Month Meeting.

Editorially, we'll do our best, but as they say in show business, W3ZPP will be a "tough act to follow".



The Last Page



The Blurb wants to hear from **YOU!**

Got a hot lead on antenna design? Soldering up a special circuit? Digging some new DSP? Reminiscing about some retro receivers? Maybe you have some goodies for sale.

Click the big blue envelope and [tell us your tale!](#)

Put a Smile on Everyone's Face!

It's easy: Every purchase you make through our club's Amazon Smile page donates part of that purchase to the club and helps us fund our scholarship, activities, and more. [Click the Amazon smile link and help us help each other!](#)



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