THE STRELOK'S GUIDE TO HAM RADIO

WRITTEN BY BOSSMAN

APROVED BY IVAN THE REMOVER AND THE /K/OMRADES OF FULLCHAN

FOR THE REMOVAL OF KEBAB AND KEBAB SYMPAHTIZERS

/K/

WARNING: UNTILL SHIT HITS THE FAN, THE FCC REQUIRES THAT YOU OWN A HAM RADIO LICENSE (Technician Class) BEFORE OPERATING A HAM BAND RADIO SUCH AS THE BAOFENG UV-5RA. THE FCC HATES THIS RADIO, BECAUSE IT DOESNT MEET THEIR "TECH STANDARD". SO EVEN IF YOU HAVE A TECHNITION'S LICENSE, IT'S STILL ILLEGAL TO USE. IF YOU GET YOUR ASS HANDED TO YOU BY THE FCC BECAUSE YOU WERE CARELESS AND STARTED BROADCASTING FART NOISES THROUGH YOUR LOCAL REPEATERS, THAT'S ON YOU. JUST REMEMBER, EVERY TIME YOU KEY THE MIC WITHOUT A LICENSE, YOU'RE PLAYING RUSSIAN ROULET WITH A SWAT TEAM AND A 5 FIGURE FINE, SO GET A LICENSE AND HAVE YOUR CALL SIGN MEMORIZED!!!

ALSO, THIS GUIDE IS ONLY TO HELP SPARK YOUR INTEREST IN RADIO TECH. MUCH OF WHAT IS SAID HERE IS THE OPINION OF THE WRITER, AND SHOULD BE TREATED AS SUCH. I EXPECT YOU ALL TO DO YOUR OWN FUCKING RESEARCH AND TO GET LICENED. BECAUSE SHTF OR NOT, HAM RADIO IS JUST FUCKING FUN. IF DRAGON DILDO SUCKING FURRIES CAN DO IT, SO CAN YOU!!!

The Strelok's Beginner's Guide to Ham Radio and Antenna Theory.

Okay Strelok. You want to learn how to shoot skip on 10 meters on a sunny day to get the latest QSOs? Well too bad! Here Bomb! Fuck you! Cause Shit just hit the fan and you're out innawoods with a shitty Baofeng and a slavshit SKS!!! Better make the best of what you've got! Hope you memorized your phonetic alphabet and Morse code. You'll need them...

UNDERSTANDING YOUR RADIO

Radios don't run on magic you moron! They rely on an invisible force called, THE ELECTROMAGNETIC SPECTRUM! Or radio for short. Radio waves are a form of radiation. Relax silly, it's not "Hiroshima" radiation. Electromagnetic Radiation is a non-ionizing radiation that doesn't fuck with your DNA. So no grandpa, cell phones don't give you cancer! But if you're close enough to an exposed antenna that has a 1.5 kilowatt transmitter going, you're going to get real toasty real fast. Remember, it's the same shit you warm your breakfast burritos with every morning. So be careful regardless.

HOW RADIO WAVES TRAVEL

Well, chances are you bought yourself a 30 dollar ching chong radio called a Baofeng UV-5R. This is a Frequency Modulated (FM), VHF/UHF (Very High Frequency/Ultra High Frequency), dual band, Hand Transceiver (HT) radio. VHF and UHF are very good for basic "Line of sight" field communications. Line of sight means exactly that. These radios operate best when the users are within eye shot of each other, thus "Line Of Sight". HOWEVER!! There are ways of extending the range of these radios by way of better propagation and MORE radios. Once you push the transmit button (Key the mic) your radio will release an electromagnetic wave called the "carrier wave" and it does just that! It carries your voice in the form of a Frequency Modulated signal, out your antenna.

2 METERS AND 70 CENTIMETERS

These are the bands that your Baofeng HT can transmit and receive on. The 2 Meter band is 144 - 148MHz, and 70 Centimeters is 420 – 450MHz. The "meters" are the length of the radio waves. Picture a Sine Wave (you know, that line that goes up and down in waves), that's your carrier, and the distance between the peaks of the waves is the band size. If you've ever seen an oscilloscope, you'll know what I'm talking about.

REPEATERS

Repeaters are essentially two radios. One that receives and one that transmits. They are connected together and once the receiver picks up your signal, the transmitter will re-transmit (or Repeat) your signal on a different frequency. Most if not all repeaters are usually set up on mountain tops, overlooking a town or city so that anyone within range of the repeater may communicate freely.

METHODS OF PROPOGATION

Another way of getting a signal out farther is by either;

1. Climbing a damn tree or mountain to get better Line of Sight Propagation.
2. Finding a clearing in the dense woods or city so that the signal carries farther. (Usually this isn't a problem as VHF/UHF is known for cutting through dense objects and foliage better than High Frequency signals.)
3. Moving your antenna to a horizontal or vertical position. (This is known as Changing the Polarization)
4. Pray to god that the Ionosphere is giving off Sporadic E. (See Below)
5. Increasing Radio Output Power
6. Making a better antenna. (more on this later)

THE IONOSPHERE AND YOU

Did you pay attention in earth science while you were in 5th grade? I hope so. Because there's this thing that surrounds the earth in a nice warm glow that makes radio waves horny as fuck! It's called the Ionosphere. Think of it as a giant trampoline that bounces radio signals around the earth. Now, VHF/UHF signals are special in that they can pass through the Ionosphere and into outer space. In fact, if you have a Technician's license, you can talk to the crew aboard the International Space Station. YOU HEARD RIGHT STRELOK! YOU CAN TALK TO ASTRONAUGHTS!!

Where was I...?

Oh yeah, so Sporadic E! This is a phenomena that happens every so often to the ionosphere. In simple terms, it gets a huge lady boner for VHF signals during this time. She starts to squirt sporadic E all over the place, and you'll be able to get signals WAY beyond Line of Sight. How this works is that when Sporadic E happens, the ionosphere refracts the radio waves coming off your radio and scatters it like a beam of light through a prism to make a gay rainbow of jolly communication. But it only works a short time, as the layer likes to move around. Kind of like a cloud on a windy day.

ANTENNAS: THE EYES AND MOUTH OF YOUR TRANSCEIVER!

One thing about your radio is that in order for this fucker to work, it has to have a decent way to "see" the signals you want it to. Like your eyes, the antenna is designed to "see" a specific part of the Electromagnetic spectrum. Human Eyes are essentially antennas that can see the 390 to 700 Nano Meter band. (Yeah that's right, visible light is electromagnetic radiation. Humans work like radios. Did I just blow your fucking mind or what?) Anyway, the antenna is a very important part of your radio.

Now I know what you're thinking. "But Strelok, I just clipped a mile long piece of wire I found in my garage to my car radio plug and that worked out great!" Well shut your diarrhea spewing sewer, and listen here you little shit... You clip any length of wire to a radio and there's no doubt that it's going to "work". But the big question is: Is it going to work PROPERLY?! You might be receiving well, but once you key the mic, and you get no reply from your comrades, because they couldn't make out heads or tails of what the hell you just said. They're going to be the ones who find your brutally raped and shot up corpse in a wheat field because you had the bright idea of putting a shitty speaker wire antenna on your radio, with no knowledge of how antennas work.

So what was the problem? Your antenna wasn't tuned to the right frequency! Now don't get confused when I say tuned, I don't mean the radio, I mean the antenna. The antenna of your radio has to match the wavelength of the frequency you're using to talk to your fellow comrades. In the case of your hand held transceiver, the antenna it came with is what we hams call a, "Rubber Duck". It's neither the best, nor the worst kind of antenna to use. But if you want better performance out of your hand held, then you better invest in a nice aftermarket ¼ wave or full wave VHF/UHF antenna.

You see, when you have an antenna that's out of tune, your transmitting effectiveness will suffer horribly, unless you either cut or lengthen your antenna to the proper wavelength. Antennas need to be AT LEAST a 1/8 wavelength in size to be moderately effective in the field. Bonus points if you can make a full wavelength antenna. Here is a SUPER EASY mathematical formula that YOU can use to find the proper length of wire IN FEET, for the frequency that you and your buddies will be operating on, so that you can build your own antennas!

Full wave = 936 / frequency you want to use

BURN THIS FUCKER IN YOUR HEAD!!! IT WILL SAVE YOUR LIFE ONE DAY!

I will also include the formulas for making shorter antennas. They are as follows:

½ wave = 468 / frequency

¼ wave = 234 / frequency

1/8 wave = 117 / frequency

Now, so far I've only shared with you information on building a simple a VERTICAL antenna. This is as simple as an antenna can get. But did you know that there are different kinds of antennas that can do different kinds of jobs? It's true! Here are just a few that you can look up how to build on the internet.

DIPOLE

The dipole antenna is quite simply a "balanced" antenna that is probably the most easy to make antenna right next to the Vertical Antenna. Except this one is usually hung up high in the trees, horizontally polarized, so that it can pick up whatever it's tuned to pick up. It's uglier than your mom's cottage cheese ass, but its simplicity makes it one of a kind for quick deployment.

YAGI

If you've lived anywhere near a house with a TV, you already know what a Yagi antenna looks like. A Yagi antenna is simply a dipole with reflectors mounted in line on a stick. It was invented by a Japanese man by the name of Yagi Uda, who said one day that his dipole didn't have enough shit on it, so he put a bunch of metal rods in ascending order from largest to smallest on the sides of this dipole (because autism) and discovered that by doing that, he just increased the gain of his antenna! You see, the Yagi antenna is known for being kind of the "Sniper Scope" of radio antennas. A "High Gain antenna" means that it both receives and transmits in a narrow beam that can be directed toward where ever you want. In fact, this is what you want to use if you ever want to talk to Cosmonaut Ivan on the ISS. It's also useful for finding faint signals in a specific direction.

J-POLE

You like J-Pop right? Well just you wait until you've heard J-Pole! (Shut up, I thought it was funny...) To be fair, this design was made by the Germans for their zeppelins. So if it's good for the Luftwaffe, then it's good enough for me! A J-Pole is just a Dipole that's been vertically polarized. Meaning that the long end is pointed up and so is the short end. So it kind of looks like the letter "J" and provides a little more gain than a typical dipole. Simple but effective.

Note: These are best built to ¼ wave length to save space.

GROUND PLANE

Okay, this is really just a normal vertical antenna that has 4 or so reflectors connected to the ground on the radio. It's a little more involved than a J-Pole, but it's worth it.

NVIS

I'll get to this antenna when I get into HF propagation and the 80 meter band. Trust me though; it's a fun antenna to build!

Okay that should do it for a basic introduction to antenna theory. I expect you to google around and do more research on these antennas, as each antenna will suit a different need. Now that that's over with, we can finally get into some way more cooler stuff! That's right! I'm talking...

COAX CABLE: NOT JUST THAT UNPLEASANT TV WIRE ANYMORE

Of course, your nice, new, homemade, antenna would be absolutely useless without the proper coax to go with it! Coax is a special kind of cable that has a copper core, surrounded by a foam insulator, and has a metallic braid going the whole length around the cable. I will now explain the basic function of coax and explain the different types, as not all coax is made equal!

Look at the white letters on the rubber jacket of the cable. You will see the letters "RG", followed by an identifying number and another number followed by an Omega symbol. The RG rating is an old military rating that hasn't left the field since the 40's. The number with the horseshoe (Omega) is the impedance (or Ohms). Typically, the lower the impedance the better for radio transmissions, 50 ohms is the ideal number in this case.

Here are the three most common used coax you can find and use with your radio.

RG-6 75 Ohm

This is your typical television coax. It's possible for use in ham radio, but the impedance is too high. That means most of the radio energy is going to be converted into heat through the wire and will be wasted and might actually damage your transceiver. Use only if nothing else is available.

RG-58 50 Ohm

This is what you should be using for your radio. So use it faggot!

RG-8 50 Ohm

This is the fancy shit! It has less loss per foot, making it best suited for receiving and transmitting with higher quality base station radios.

99 LUFT BALUNs

If you want to use one of those balanced antennas such as the dipole, you'll need something that will convert the "balanced signal" from the antenna to an "unbalanced signal" for use with your coax*. You see, a balanced line has two signals going where ground is not needed. Whereas with a coax cable; the signals going in and out are unbalanced and need a ground connected to the braid. While it is possible to just run the core of your coax in one direction and the braid of your coax in another and call it a dipole, you certainly can! But to get the most out of your antenna, you will need a balun to help convert the signal so it's easier for the radio to convert the signal, so you won't burn your hand or lips when you're using your radio.

Unfortunately, baluns are too complicated for me to explain in simple terms, so I will leave you with a link to study up on.

http://www.hamuniverse.com/k4dpkfirsthfdipole.html

*Note: A balun is totally optional in this case, as this is mainly for HF radios. But they're nice to have for VHF/UHF as well.

OPERATING MODES: THE MANY LAUNGUAGES OF THE HAM

Okay. So after talking about your hand set and your antenna, now we can talk about how your radio can communicate with MORE than just your voice. But for the sake of starting simple, let's talk about Voice Modes!

FM

As you may or may not know, when you key the mic on your radio, you start transmitting a "Carrier Wave". Simply put, the carrier wave does exactly what the name implies. It carries your voice on an electromagnetic wave. With Frequency Modulation, your voice is converted into a varying frequency inside the wave when transmitted out by your transceiver.

AM

AM is much simpler compared to FM. AM is Amplitude Modulation. In this mode, you're literally imprinting your voice onto the carrier wave. Not much else to say really, other than it takes up less bandwidth than FM.

SIDEBAND

Okay, now we're going to have some fun! Sideband is like AM's dirty little secret. Yeah you thought AM was a plain and simple girl, well buy her a drink and watch her go wild! Because I would like you to meet AM's two sexy sisters; LSB and USB (Lower Side Band and Upper Side Band).

Think of them as a group of sub frequencies that are underneath the primary frequency you're tuned to and are almost entirely their own thing. A neat thing about sideband is that they don't use nearly as much bandwidth as AM or FM, so not only are you going to have more room for communication, but you can also transmit farther without overdoing the power of your radio. HOWEVER! If you use a sideband frequency and some jackass transmits on AM near your sideband Frequency, you're going to get jammed up worse than an M16 in Vietnam.

Okay, that just about does it for voice modes. Now on to the Computer stuff!

DIGTAL MODES: HEY KID, I'M A COMPUTER! STOP ALL THE DOWNLOADING!!!

Okay, this has very little to do with "Innawoodsing" as you need a computer to operate on these modes. However, if the happenings happen, and somehow you end up on the /k/arrier or one of the well regulated militias that have a source of power to operate a functional base, then it's a good idea to know how to operate digital radio modes. They have an advantage over operating voice, by sending large amounts of data at a faster rate than the human voice will allow.

There's actually a radio program that comes on shortwave called VOA Radiogram. They broadcast world news in PSK with reports and pictures to go with them. Google them and find out more! It's really fun to decode, and all you need is a shortwave radio and a "male to male" audio cable to connect the headphone out on the radio to your line in on your computer.

To get started with digital packet radio, download a piece of software called; "FLDIGI".

http://www.w1hkj.com/Fldigi.html

It has almost everything you need for operating the most common digital packet radio modes.

CW

Or Continuous Wave is a mode for transmitting Morse code. It's known for having the absolute least amount of bandwidth for transmission. Because of this, it doesn't take much to get a signal out long distance with much power. Keep It Simple Stupid seems to be the best way for me to describe Morse code.

RTTY

Or Radio Teletype. Yes, THAT Teletype. Yes, from the 60's show Dragnet. No, it's not obsolete. Yes, it's still useful even today.

PSK31

Or Phase Shift Keying, 31 bps. Think of it as RTTY's more stable brother. It has a way of error correction upon transmission. So if the person receiving is having a sketchy time picking up your signal, he'll still be able to make out most of the transmission.

HELLSHREIBER

One of my favorites, because it reminds me of an Enigma machine for some reason. While mostly novelty, think of it as RTTY but with ticker tape instead.

AX.25

Okay, remember how you would sit in your living room or basement, and stare into your TV screen with your Atari ST or your Commodore Amiga, and just tack away at your keyboard, hooked into your parents phone line with an 11 baud modem hanging off the side of your PC, plugged into Fido Net, and logging into the local BBS servers, playing on DOORS and MUDS and reading old 2600 magazine articles the SysOp sends you? That's the feeling I get every time I search for AX.25 TNCs. They're an alternative to the internet in a weird way. MUCH slower than a 56k modem, so don't get all excited over the alternative.

APRS

Okay, now this is where things get particularly OPERATOR! APRS or Automatic Packet Reporting System is a TACTICAL real time information exchange system, which was developed by a Navy Academy Engineer that wanted to share his

glorious GPS reporting system with the world! Long story short, it's a mode where your position on a GPS is transmitted to other APRS ready radios, and everyone can keep an eye on each other's position in real time. Pretty damn cool right?

SSTV

Slow Scan Television! This is the common method of sending pictures of the happy merchant and dank Spurdo may-mays through the airwaves. It's also how we get those pictures of deep space from Ivan on the ISS!

This concludes the most commonly used digital radio modes. I expect you to be a good boy and study up on all the other operating modes that are out there. They all have different uses for different operating environments.

CB RADIO: /b/ BEFORE THE INTERNET

So we've talked about VHF and UHF for the most part. Now we're going to go deeper into the radio world. So deep, we're going to grow feathered hair and watch "Smokey and the Bandit" reruns, while wearing bell bottoms and sitting in our avocado colored couch, in our house with wood paneling.

YEE-HA MOTHER FUCKER!!! I'M TAKING CITIZENS BAND*!!!

No doubt about it, CB is a fucking TRAIN WRECK when it comes to using it for anything other than shit talking a bunch of truckers on the freeway. This is mainly because CB doesn't require a license to use, thus more retards are shouting at each other from hundreds if not thousands of miles away. But on some days, you can slide past the entire peanut gallery and have a meaningful conversation on your CB.

As a ham, I'm obligated to not ignore the 11 meter band and still acknowledge it as a part of the spectrum, which I do. Unfortunately, CB operators have a vernacular all their own. They all sound like southern hillbillies and name all their equipment after household items. Something we hams don't really do too often. We like to speak like normal human beings when we can, which is why I'm more mic shy on CB than I am on any of the ham bands.

But don't let that stop you from getting a CB radio yourself. It's good practice if you don't already have your ham license. Just don't bring any of the lingo you pick up from the retards on CB to the ham bands. Some of us would rather you say "amplifier" rather than "kicker" on the airwaves, keeps things simple and less dramatic.

Anyway, on to the meat of the matter!

*Not just for Truckers, Australians, and Hillbillies anymore.

A CB is most useful in your car than as a home base station. So when installing a CB (or any radio for that matter) into your car, be sure to ground it to either the engine block or the ground terminal on your car battery. That's the beauty of ham and CB radios. All it takes to run them in an emergency are any 12 volt, deep cycle, batteries that you have available. A great way to keep them topped off is by keeping your car running and using it like a power generator. However, running your CB/ham radio in your car set to accessory mode will drain your car battery faster than you can say "Cheeki Breeki" depending on how much you transmit.

Now let's talk about what you can and can't do on a CB during peace time.

1. No digital modes.
2. No broadcasting music (this goes for CB and ham).
3. No encryption (this goes for CB and ham).
4. No high power linear amplifiers of any kind.
5. You can use any alias of your choosing.
6. The highest point of your home antenna must not be more than 20 feet.
7. But for some fucking reason, there is no limit as to how high the antenna on your car or hand held CB can be.
8. You must always give emergency transmissions priority (this goes for CB and ham).

Okay, now that that's covered. Ignore each and every one of those rules minus the last one, because that's what everyone else does. Truth be told, the FCC stopped giving a shit after 1975, and CB has become the containment band for all the "radio enthusiasts" that failed their Technician's test and have nothing better to do other than bitch and moan about it on their own little slice of the band (Australians especially). They like to say us hams are goody two-shoe, faggy, want to be engineers, who suck the FCC's fat cock.

To that I say… it's true, but at least I can use a 1.5 Kw linear amp without getting V& faggot! Get good scrub!!!

HIGH FREQUENCY PROPAGATION: YOUR GOLDEN TICKET AROUND THE WORLD

HF or High Frequency is your go to method for "Around the World" communication. Remember way back when I was talking about the IONOSPHERE and how VHF/UHF can cut right through that shit? Well now we're going full ionosphere! Don't worry, I'll start out simple and work my way to more complicated matters later. First let's just establish the HF range.

HF is any frequency from 1.8 – 30.0 Megahertz.

Just because you have a Technician's license, doesn't mean that you're just limited to the 2 meter and 70 centimeter bands (VHF/UHF). As a tech you're allowed to operate CW on almost all the HF bands, but **ONLY CW**. No voice or sideband, until you get your General License. In this part, I'm going to go through all the HF bands and tell you their pros and cons for certain operations. Some bands are more useful for certain things than others.

10 METERS: CB WITHOUT THE RETARDS

28.0 - 29.7 MHz

This band is right next to the CB band, but it's reserved for hams only. Streloks with Technicians licenses will like this band, because it's the only HF band we're aloud to use voice on until we get our General License. Like CB, it's a fairly short range propagation method (ground wave), but don't be surprised if you pick up people from 1,000 miles away from you. 10 Meters is reliant on sunspots for long distance communications. So times during the day of high sunspot activity, such as early sunrise, or just before sunset, are the best times to use the 10 meter band for long range activity. As a Technician, you are allowed to operate on only **28 -28.5 MHz**

28.0 – 28.3 is reserved for digital modes, while 28.3 – 28.5 is reserved for USB voice. Remember that so as not to crowd the band.

12 METERS: 10 METERS WITHOUT THE PEOPLE

24.89 – 24.99 MHz

Technicians aren't allowed on this band, but this is a SHTF guide, so fuck that noise.

12 meters is right underneath the CB band, so as you can expect, there's no real solid difference between 12, 11, and 10 meters. Remember, that these bands operate best during sunspot activity so expect ground wave distance during the rest of the day. At most, 40 or so mile ranges depending on power during the day.

15 METERS: 12 METER'S GIMP SLAVE

21.0 – 21.45 MHz

Technicians can use CW on this band from 21.0 – 21.2 MHz.

In general, this is a daytime band, that works really well with Sporadic E (remember that kinky bitch?) during the day.

17 METERS: ALWAYS TRYING TO GET 20 METERS TO NOTICE HER

18.068–18.168 MHz

Technicians aren't allowed to touch her, but it's not because sh… she doesn't likes you… or anything...

17 meters is extremely sensitive to solar activity (both high and low), so keep an eye on her to see if she's really warming up to you or not. B… Baka!!!

20 METERS: 17 METER'S SEMPAI AND TRACK RUNNER

14.0–14.35 MHz

Technicians are too casual to be around him though. He likes to hang with the cool kids (Generals and Extras).

20 meters is like the popular kid, when it comes to long range communications. He's right there, ready, willing, and able to deliver your message around the world, both day and night. PSK31 is his specialty at 14.071MHz, right there next to SSTV around 14.230MHz. He truly is the flagship that carries all to the Promised Land. No wonder 17 meters loves him so much.

30 METERS: THE SJW BAND WITH DADDY ISSUES

10.1–10.15 MHz

Technicians aren't her thing. She prefers her own cluster fuck of a clique.

30 meters is like that fat feminist in college that never talked to anybody but her gender studies professor. Voice modes are strictly forbidden and you're only supposed to use CW and data modes with 200 watts peak power only. She's still good for long distance communications, but just be mindful of all the baggage that comes with her.

40 METERS: YOUR BEST FRIEND THAT BUYS YOU LUNCH EVERY FRIDAY

7.0–7.3 MHz

Unlike 12, 17, 20, and 30 meters; 40 meters will let Technicians drive his car for a beer run, and not complain about the BO smell you left on the seats.

Techs can operate CW on 7.025 – 7.125MHz. 40 meters was a shortwave broadcasting band until a bunch of stations decided to shut down and the FCC decided to throw the band to the hams (lucky us, we always get the scraps). Anyway, during the day this band shines as a medium range (900 Mile) band, but at night expect greater performance. He's just a cool and dependable guy you can operate with all year round, but be careful though… There are broadcasters that still use some of the frequencies, so be careful not to crowd them.

60 METERS: THAT NEW AUTISTIC KID YOU SEE PICKING HIS NOSE ON THE PLAYGROUND

5.33 – 5.403 MHz

Okay, so this band is a little different. It just became available to hams not too long ago, and people are still trying to figure out its qualities. Don't touch him though, you have to be General or higher to do that, unless you live in Alaska.

That's where the emergency frequency for the Alaskan troopers is, which is 5.1675MHz. You're not allowed to exceed 100 watts of power, and you're only supposed to use USB, Data, and CW.

80 METERS: THE EDGY WEIRDO THAT LIKES TO ONLY COME OUT AT NIGHT

3.5-4 MHz

Techs can use CW on 3.525 – 3.6 MHz

80 meters works best at night and even betting at night in the winter. That's what's weird about the band, it hates sunlight in general, so he just sit's in his room and cuts himself and posts pictures of it on Tumblr. CRAAAWWWWLLING IIIIIIIINNNN MY SKIIIIIIINNNNN!!!!

160 METERS: THAT OLD FART THAT WON'T SHUT THE FUCK UP

1.8-2 MHz

Technicians aren't allowed to touch him because he might whack you on the head and call you a hooligan.

160 meters is what's known as the "Gentleman's Band". Because if you've been doing your homework, you'll know that the lower the frequency, the larger the antenna. Can you imagine a 160 meter long antenna in your yard? No? Good! Make a ¼ wave like everyone else does. Anyway, this band has no real special quality that I know of. It's mostly used by hams that want a real challenge for building the right kind of antenna for the band. Thus, rarely anybody goes on it and is reserved for those who can support such a mighty antenna, so you're more likely to run into a kind and knowledgeable gentleman on the band.

BONUS: NVIS ANTENNA

Remember when I told you I would talk about the NVIS antenna when we got to HF? Well here we are!!!

NVIS or Near Vertical Incidence Skywave, is a method of propagation that was discovered by solders in WWII. What would happen is, a soldier would bend the long whip antenna of their jeeps to keep it from being exposed, and once that was done, they would find that transmitting with the antenna bent, would improve their radio signal in mountainous areas. How this works, is that with the antenna bent, it's blasting RF energy into space and the ionosphere would pull it back down and over an obstacle and scatter the signal over your intended receiver. Kind of like how a mortar works, the higher you aim the tube the higher the arch of the shell, thus the shorter the distance the shell will travel. This has been found to work great with 60, 40, and 30 meters. So if you're in the mountains, and you need to get a signal over a mountain, NVIS ALL THE WAY BABY!!!