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page 4

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Listen to Favorite Music and Get Paid for It

By Dorothy Rieke

Disc jockeys!

What would we do without these men and women who play music, chat, deliver news, weather reports or sports news, occasionally visit with celebrities, and conduct call-in sessions? These individuals brighten and enhance our days with their unique personalities and specially selected music.

Disc jockeys must have knowledge of music genres, know how to mix and combine different kinds of music, and be updated on current hits and trends in music. More basic--these individuals must know how to spin and mix records and be knowledgeable about the history of each song played. A disc jockey is a 'performer' who conducts recorded music and informal talk and more. Walter Winchell, in 1935, was the first person to coin the term, disc jockey. Disc, of course, meant records, and jockey meant operator of a machine. He used this term to describe Martin Block, the first announcer to become popular for an illusion he created. During the Lindbergh kidnapping, he kept listeners entertained in his make- believe ballroom featuring the nation's top dance bands' music. It was not a 'live' broadcast as many believed.

The history pertaining to this term, disc jockey, goes back to 1857 when Leon Scott in France invented the phonoautograph which recorded sound with no playback. Shortly after, in 1877, Charles Cros patented a phonograph but did not carry through to build one. Finally Thomas Edison invented the phonograph cylinder which played back recorded sound. Later in 1892, Emile Berliner invented the first gramophone records which were the first disk records.

In 1906, Reginald Fessenden transmitted the first audio radio broadcast in history when he played the record of a contralto singing Handel's LARGO from Xerxes.

The first disc jockey was Ray Newly in Stockton, California, when he played records on a small spark transmitter in 1909. At that time, he was a student at Herrold College of Engineering and Wireless in San Jose, California.

Ray Newby in I'VE GOT A SECRET (1965), explained: 'We used popular records at that time, mainly Caruso records, because they were very good and loud; we needed a boost...we started on an experimental basis and then, because this is novel, we stayed on schedule continually without leaving the air at any time from that time on except for



a very short time during World War I, when the government required us to remove the antenna...Most of our programming was records, I'll admit, but of course we gave out news as we could obtain it...'

By 1910 regular broadcasting had begun with comedy, drama, news, music and sports news reports. Eventually, on-the-air announcers and programmers became 'disc jockeys.' Juke Joints, popular in the 1920s, were establishments where people spent time drinking, dancing, and listening to recorded jukebox music. The popular Big Band Era a few years later had quite an influence on disc jockeys that introduced that music and played it on the radio.

Today's disc jockeys introduce and play music as well as converse on AM, FM, shortwave, digital, or internet radio stations.

Disc jockeys are a creative group. Because they mix music, sound effects, and special effects, they must be extremely organized and synchronized. In other words, the songs played must occupy a certain amount of time; commercials must be aired during certain blocks, so disc jockeys are very much aware of time.

Disc jockeys build audiences based on music selected, ability to field calls, and respond to requests with pleasing personalities. If all these are in place; the disc jockey develops a consistently loyal listening audience.

In order to do their job in an acceptable way, these individuals must be knowledgeable with familiar, current musical trends and know how to select and group songs. The type of music selected and the personality determines a disc jockey's popularity and type of listeners. It is important that disc jockeys be sensitive to all listener responses as well as their requests for certain songs.

Even though their regular job requires eight hours daily, some disc jockeys devote about 40% of their time to 'outside' work in clubs or at parties. On these special 'outside' assignments or gigs, the disc jockey selects music around certain themes or plays requested songs. Because they must keep crowds satisfied with their selected music, they need to be familiar with a variety of kinds of music that appeal to different groups. Random crowds are difficult to please. A real problem can develop if disc jockeys are unaware of listeners' likes and dislikes.

After World War II, disc jockeys became known not only for their selections of music on radio but for

Continued on page 6

Listen to Favorite Music and Get Paid for It

their distinctive personalities. Most disc jockeys learned to ad-lib, that is talk without a script. However, even this skill of projecting ones personality over the air required preparation.

Because disc jockeys became familiar with current or specialty musical trends, they were the first to popularize rock and roll. Bill Randle, a DJ at WERE in Cleveland, Ohio, introduced Elvis Presley to radio audiences in that area.

Jimmy Savile, in 1943, produced the first DJ dance party by playing jazz records. In 1947, he used twin turntables for continuous play. During the same year in Paris, France, the Whiskey a' Go-Go opened the world's first commercial discotheque, or disco .Twin turntables were also used in that location. During World War II, disc jockeys' popularity soared because they often entertained troops. It was easier and cheaper to transport one person than many band members for entertainment.

Disc jockeys were often asked to introduce new songs by certain artists. DJs received payments from record companies in return for airplay. However, payments from record companies to push certain artists and their songs caused problems. As a result, tighter control was exercised by radio management, and the Top 40 format, popular songs playing repeatedly emerged.

The 'sock hops' and 'Platter Parties' of the 50s required DJs who played 45 rpm records while talking between selections. A well- known sock hop DJ began the two-turntable system in the United States.

During the 60s and 70s, several innovations took place. DJ Francis Grasso popularized beatmatching, creating seamless transitions between records with matching beats or tempos. He also practiced slip-cuing, holding a record still while the turntable revolved underneath, releasing it at a certain moment creating a sudden transition from the previous record.

During the 70s, certain techniques were developed to create different sounds. One technique was mixing back and forth between two identical records to extend the rhythmic instrumental segment or break; and another, turntablism, was the art of using turntables to manipulate sound and create original music. In succeeding years, many innovations occurred that involved disc jockeys.

When one disc jockey was asked about his job, he exclaimed, 'Where else can you listen to music you love and get paid for it?' Truthfully, this work is a bit more complicated than that statement leads one to believe. These workers must be punctual, cooperate with others, communicate well, be aware as to what radio listeners want, and carefully select material to be played. In addition, they must act professionally do the job well, and leave a good impression.

Disc jockeys are entertainers as well as informers. They can add to your knowledge, make you think, increase your enjoyment of music, raise your spirits and introduce you to different kinds of music including the most recent hits. Their communication skills must be outstanding and their chatter interesting. They often begin our days and end our days with evening entertainment. They are 'special' in the lives of radio listeners.



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Radios From the China Connection

By Gordon West, WB6NOA

For over a year, single band handhelds and dual band handhelds were beginning to show up in the USA. TYT, and Wouxun were the two most popular brands that everyone was bringing in.

A year ago, the Chinese radio manufacturers were happy to sell these over the internet to anyone who would send over the bucks. And not many bucks – a little over $100 US could buy a dandy dual band VHF/UHF handheld unlocked, and ready to transmit almost everywhere.

136 MHz – 174 MHz
400 MHz – 480 MHz

These Chinese handhelds started of at an incoming trickle, and then flowed in to the point where likely both the FCC and customs wanted to see some certifications for both Part 15 Receiver Emissions, and Part 90 of the FCC Land Mobile radio rules.

At the same time, I imagine both TYT and Wouxun saw the undisputed success rate of these radios in the USA, and began to establish some solid USA import distributors.

TYT Kato Communications, Texas
Wouxun Powerwerx, Southern California
TOTAL RADIO SERVICE (.COM)

The subtle differences between a Part 90 Land Mobile handheld and an amateur radio "HT" can be worked out via software. The import distributor, like Kato Communications and Powerwerx, would program the equipment to meet both the rules as well as the needs of the radio operator.

Part 90 Land Mobile radios have the keyboard active for most everything, OTHER THAN FREQUENCY ENTRY.

For ham radio operators, the keypad is active for both transmit and receive frequency entry, along with CTCSS input.

Powerwerx, sells both over the internet direct (Powerwerx.com/Wouxun-radios) and distributes the radio at a quantity discount to participating ham radio dealers. And, like most ham radio manufacturers and distributors, the Wouxun radio intended for ham radio distribution get his proprietary software ham-only transmit band limits. It will tune everywhere on receive, but for hams, just like everyone else in the ham radio market, transmit is confined specifically to the two ham bands.

Ken, at Powerwerx, also tells me that the dual band models of Wouxun he brings in, KG-UV3D, have subtle refinements over other Wouxun imports without the "3D" in the model number.

So there appears to be two sets of software – a proprietary set to lock down land mobile



radio units, and the proprietary set for ham radio transmit band edges. Yet, the hams are encouraged to take advantage of the free download programming software, with the $15 USB programming cable on ALL models beginning with KG-UV.





So, what hams are buying is a Part 90 certified commercial radio, capable of storing 128 channels in memory, as well as capable of receiving the FM music band, but no AM aircraft monitoring capability.

The Wouxun radio I tested came from Powerwerx, model KG-UV3D, serial number 2011020075, locked in to ham transmit, and wide band receive. I had heard that keyboard programming of the ham channels would be more complex than other handheld radios, similar to the multiple simplex and duplex steps needed for those of you who remember the early Radio Shack handhelds!

Luckily, my unit came loaded from the Powerwerx factory with plenty of channels to get the radio playing right out of the box.

I screwed on the antenna, and noticed it is a REVERSE SMA. They have plenty of adaptors and adaptor cables, and the reverse SMA is actually quite common on computer WiFi extender systems. Just be sure to get the reverse SMA to BNC antenna connector ($6) that will let you work with other adapters for that outside dual band car antenna or your home dual band antenna.

Interesting, the Wouxun dual band radio (they have a model for 2 meters and 220 MHz, too) takes KENWOOD speaker/mic accessories. At least we have some commonality, but I don't expect this pleases Kenwood at all – an import Chinese radio that shares some of their features!

On turn-on, it takes about 2 seconds to come up. The LCD screen is fairly readable, with black numbers or characters on a light grey background. I certainly prefer this over tiny blue characters on a silver screen.

Right off the bat, you'll notice one very bright green LED, showing channel activity. Volume is the big knob on the right, and channel changing is the knob to the left. Squelch is a pre-set menu item, along with a squelch override monitor button.

The radio with its 1700 mAh 7.4 volt lithium ion battery pack feels solid. There's nothing wimpy about its rugged appearance. This model is absent of the chrome accents I have seen on similar sets. The keypad is lit. The LED system stays on for about 3 seconds after turning the channel knob.



It even features a built-in LED white light, so you can use your radio as a double duty flashlight.

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Radios From the China Connection

continued

The audio was unbelievably loud, and sharp. Not many ham handhelds pump out this kind of sharp audio. A loud ham handheld is very important these days. Why? Some ham repeaters have already gone to narrow band, and when you try to receive any signal that is narrow band when YOU are in the normal wide band mode, volume really needs to be turned up. This radio ALSO can do narrow band, independently memorized in any memory channel tuning in to a narrow band system.

Power output, as advertised, 5 watts on VHF, and 4 watts on UHF. Frequency sensitivity was hotter than 0.1 uV, and it was within 20 Hertz of being on Channel, and I actually see this purposely set to compensate for normal master oscillator crystal aging. Very smart, those Chinese!

The instruction manual is good. Pay close attention to "short cut operation sheet", especially Menu 2-1, "working mode" that gets you to the dial VHF mode, memory mode, and how you want the memorized channels displayed on the readout. The menu takes you through hand programming of memory channels. And, once you get the hang of it, you can program, manually, about one new channel every minute.

Hint: Download the free programming software, type in the load calculating the offset transmit channel and memo it to the radio with the USB programming cable - $15. Or, if your club has brought in a bunch of these at a discount price for a quantity order, clone one radio to another with the $10 cloning kit.

Interesting observations:

While the display can show 2 bands or 2 individual frequencies, the Wouxun only gives you reception of 1 displayed frequency / channel. If you are working an event with 2 frequencies in memory, the Wouxun will lock on to the first frequency with activity, and that is all you hear. If you look at the display, you need to decide which of the dual frequencies is the active channel.

I prefer to run my dual receive handheld on a single channel, and this way I minimize getting a call on one frequency, and accidentally responding on another frequency. A single push of the Wouxun SDR puts you in the single frequency mode, a good way to work a public service event with this handheld.

This radio is compatible with both CTCSS as well as digital coded squelch. You can select any channel for narrow or wide band. You can order antenna adapters that will terminate to the common UHF / PL 259 connector or to a BNC connector. It has an optional AA dry battery pack holder, too. The charger is drop in, with gold contacts on the back of the battery.

Nifty! Jump right on the $6 trifold reference card laminated available at your local ham radio store or through Powerwerx.

There are mobile DC adaptors, and only use those provided by Powerwerx so you don't accidentally introduce a ground loop hum from a small mag mount, dramatically increasing your range.

At the Consumer Electronics Show, we spotted several transceivers coming in from China. For several







years, major manufacturers have their name brand transceivers manufactured in China; so it is no surprise that this equipment is now finding itself on the USA marketplace.

Repair? I doubt it – they just replace it up to a year+. Quantity discount from Powerwerx? You bet! Ham club orders encouraged.

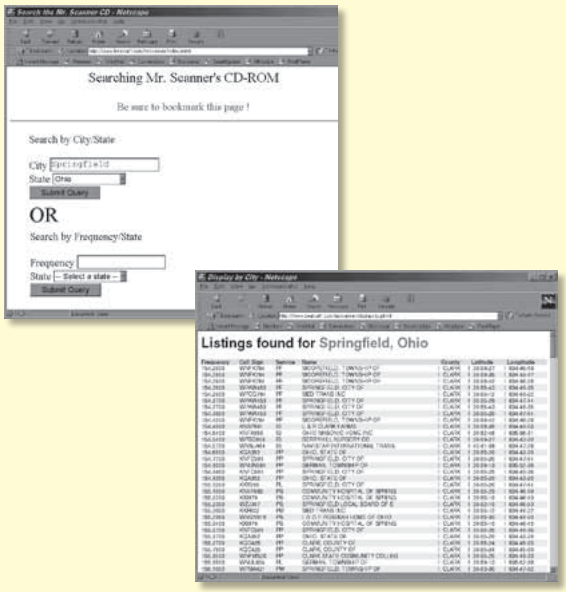


Long time ham radio dealer views on this new kid on the block – some are actually carrying the equipment; but they keep it low key from likely pressure from the regular USA ham gear suppliers.

But for under $120, the Wouxun KG-UV3D that I tested from Powerwerx was an amazing performing handheld, and even includes the FM broadcast band too! ●



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- Pick Option #4 and insert your member number (which can be found on your mailing label) e.g. OH 8 AAA

Generally within the next 24 hours your user name and password will be e-mailed back to you and you will be ready to search for frequencies.

Top 10 Most Unusual Scanner Frequencies

Here's a selection of interesting radio channels to try to monitor.

By Chuck Gysi, N2DUP

Over the years, I've gotten a pretty good grasp on the radio spectrum and its users. I'm especially fond of the VHF and UHF bands that can be heard on scanners.

Here's a list that I compiled, primarily from personal recollection and experience over the years that I consider my top 10 most unusual scanner frequencies. These channels may or may not give you listening pleasure. You may delight in hearing the strained sounds of a passing satellite or the wireless microphone at a nearby church. Without further delay, let's look at this interesting list I've assembled.



Astronaut Sunita L. Williams, Expeditions 14 and 15 flight engineer, talks with students at the International School of Brussels in Belgium during an Amateur Radio on the International Space Station, or ARISS, session in the Zvezda Service Module. Monitor 145.800 to hear the space station working hams on earth. Photo courtesy of NASA

145.800 MHz: This is a good frequency to keep in your scanner year round, especially when the International Space Station is being manned. During free time on the orbiting space station, astronauts and cosmonauts get on the air and make short contacts with earthbound hams. It's always exciting to hear a signal from space, and a voice signal at that. You'll only hear the space station for about 10 minutes as it passes overhead making contacts with hams all over the continent.

150.000 MHz: Well, not exactly, but in this neighborhood, you can hear many satellites sending signals back to earth. While several satellites used 150.000 in the past, if you tune slowly up and down around this range, you'll hear signals from up high in space. These include telemetry and weather imagery that is being transmitted to earth stations. It's always exciting to hear a signal from so high up on your scanner. If you tune from about 149.910 to 150.012, you may hear signals. There are a bunch of satellites on 150.012 and 149.988 MHz. Here's a catalog of some satellite signals you can hear on your scanner: http://www.zarya.info/Frequencies/Frequencies 150.php

151.625 MHz: This is a favorite frequency of mine because you never know who may show up using it. It's an itinerant business channel, meaning users can use the frequency anywhere at any time without protection from other users. Base stations, mobile and handhelds can be used here. You may hear the circus setting up in town on here, as well as rail cleaning crews along the railroad. It was reported that the frequency was used for surveillance microphones during the famed Abscam investigation in the late 1970s that brought down numerous public officials, including a one U.S. senator, several congressmen and state and local officials in the New York-New Jersey-Philadelphia area.

454.000 MHz: This is a frequency paired with 459.000 for oil-spill cleanup. It's an interesting frequency to monitor because most of the time it's pretty quiet unless you have an oil-spill nearby. Companies that perform oil-spill cleanup can use this frequency. However, occasionally it's used for car racing and other itinerant users who figure they can get away with it, since it's a pretty quiet channel.

Continued on page 14

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Top 10 Most Unusual Scanner Frequencies

continued



This Azden wireless microphone and receiver operates on 171.905 MHz. It's a frequency worth monitoring.

171.905 MHz: This is a frequency used by more powerful wireless microphones and it's worth programming in your scanner, especially if you are mobile. Similarly, it's worth monitoring other wireless mic channels in the same range: 169.505, 170.245, 171.045 and 171.105 MHz. What can you expect to hear? A few drive-through windows at fast-food chains might show up here. In my neighborhood, the wireless mic used by the pastor during church services can be overheard. I've also heard wireless mics from patrol cars I've driven by. The mics are used on the cop in conjunction with video cameras so when they approach the car they stop, the audio is sent back to the patrol car for recording with the video. One time, I drove by two cops sitting on the side of the road chatting and one had his wireless mic on. Needless to say, I could hear their conversation as I drove by. Wireless mics are used by more than entertainers!



Monitor 123.450 MHz to hear airline pilots chat with each other while high in the skies. You never know what you will hear them talking about.

47.42 MHz: This is the nationwide frequency used by the American National Red Cross. It's the only frequency awarded by the FCC to an organization for exclusive national use. If you monitor it, no matter where you live, it will be the Red Cross using the frequency. In some locales, the local Red Cross chapter also may be using VHF or UHF or even 800-MHz radios, but all chapters have the capability to use this channel, especially to work with other chapters that might get called in during a disaster.



The American National Red Cross uses 47.42 exclusively on a nationwide basis, especially for disaster relief purposes. It's worth programming in your scanner no matter where you live.

29.600 MHz: On a good day, you can hear hams all over the country and even on an international basis on this frequency. It's an FM 10-meter ham band channel and when there is skip, you can expect to hear hams from far away on your scanner. It's a good way to know when low-band VHF skip might be coming in so you can tune around from 30-50 MHz.

462.5625 MHz: This is Family Radio Service Channel 1 in most radios, and as a default in most handhelds, you can expect to find many users pop up on this channel because they don't know how to change the channel! It's also been designated for emergency watch by FRS users, especially in the wilderness. Sometimes the chatter

Continued on page 16

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Top 10 Most Unusual Scanner Frequencies cont.

may be mundane, but it also could be a significant user who is using the radio right out of the box.

123.450 MHz: I love when an official frequency gets used for unofficial reasons. That always makes a frequency worth monitoring. This frequency is used by airline pilots on an unofficial basis for chit-chat while in flight. You'll hear pilots talking about their weekends, layovers, sports, other airline employees and more! The reason this frequency is used is that it's entered into aviation radios as "23.45," an easy succession of digits. You never know what you'll hear on this frequency.

315.000 MHz: OK, here's a really unusual frequency! It's one used by garage door openers. Many of them can be found here and because the transmitters are such low power, unless you are very close, you won't hear the weak signal. It's a momentary signal, too, but if you have an insatiable desire to hear all types of signals, it's worth a shot. You might just hear when other family members are coming home – or the neighbors. 390.000 MHz also is a popular garage door opener frequency, but it seems that it's being phased out because of increased military use of nearby frequencies for trunked land-mobile radio systems at bases in the United States.

Write in

What interesting frequencies have stumbled across? Have you heard anything on the frequencies in this list? You can write to me at nat-com@scanning1.com (be sure to put "Nat-Com" in the subject line or your e-mail may wind up in my spam bin). This e-mail address is only for the author of this column.



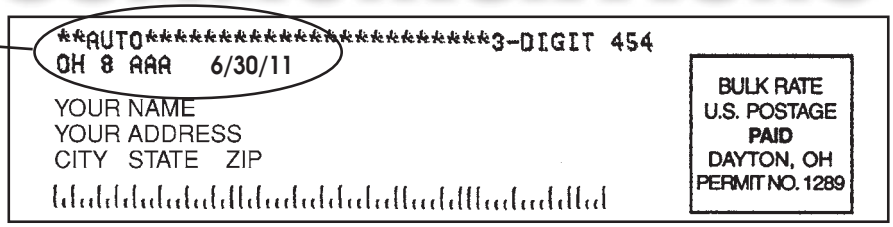
This garage door opener remote works with a variety of systems, including those transmitting on 300, 310, 315, 372 and 390 MHz. The 315.000 MHz channel is the most popular.

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RIP – Rest In Pieces

An inside look at electronics recycling.



By Jim Sutton, N2OPS

THE BASICS

According to the Consumer Electronics Association (CEA), Americans own approximately 24 electronic products per household, and there's a good chance that such devices owned by scanner listeners and hams far exceed that average. All of our electronic "stuff" eventually has the potential to make a major negative environmental impact at our local landfill.

From the EPS website: "Electronics are complex devices which are made of a wide variety of material constituents. Some of the constituents, such as lead, nickel, cadmium, and mercury, could pose risks to human health or the environment if mismanaged at their end-of-life."

Examples of some of the "complex devices" include: audio equipment, batteries, cable/wire, cell phones, computers, keyboards, laptops, mice, monitors, pagers and printers.

The days of just tossing our electronic items into the trash are gone. We have to weigh the consequences of careless disposal and the benefits of bringing new life from our electronic items just as an organ donor brings life to others.

WHAT COMES FROM ELECTRONIC RECYCLING

From the Manitowo WI Recycles website – Electronic items are processed to recover raw materials and/or refurbish electronic components. Materials recovered include: plastic, glass, lead, mercury, steel, copper, aluminum, brass, gold, silver, platinum, and nickel. Below are some examples of the raw material recovery process:

Plastic Flotation Separation - Shredded and co-mingled plastics from electronic hardware are segregated by type, i.e., ABS, PSP, PVC, etc. utilizing a flotation process. The segregated plastics are sold to manufactures as production feed stock and/or blend.

Melt/Smelting – Aluminum breakage (material that has aluminum

Continued on page 18





RIP – Rest In Pieces

continued



content) is melted in a furnace and poured into a sow form. These sows are mill ready grade and are sold to secondary processors who alloy it for a specific use, or sold directly to manufactures as feed stock. The steel and other metal alloys that are not melted are sold to steel mills and foundries as production feed stock.

Shredding – Low-grade material, such as printed circuit boards are shredded and reduced to metal via an initial bake and then fusion via a pyro-metallurgical process.

Precious Metal Recovery - High-grade component material is processed utilizing a hydro-metallurgical process. This chemical process produces zero waste as chemicals and waste waters are recovered and reused.

Wire Chopping – Copper and/or aluminum core insulated wire is processed through a machine that chops the wire into small pieces. These pieces are fed into a de-stoning separator that uses mechanical and pneumatic forces to separate the metal from the insulation. Both metal and insulation are then segregated and sold.

Electrowinning is a unique reverse plating process that allows a high recovery percentage of precious metals, as opposed to various other methodologies.

Grinding/Deburring of Glass – Lead glass from cathode ray tubes is initially size reduced. The leaded glass is then sold to cathode ray tube manufactures. The non-leaded glass is size reduced, deburred of sharp edges and used as granular material substitute in production processes, i.e. retaining wall brick.

INSIDE SUNNKING

The view is jaw dropping and the record is nothing short of amazing. Sunnking boasts a facility measuring 80,000 square feet and a 97% recovery or refurbishing rate.

Sunnking offers reusable items for sale at their retail store and on EBay. Sunnking teams up with non- profit organizations to raise funds and increase recycling awareness.

My tour began with safety glasses and a safety vest. The huge facility





RIP – Rest In Pieces

continued



has every imaginable electronic item waiting for recycling. Every item is that much less bulk for landfills.

The first stop is the immense amount of two way radios and accessories that are now becoming obsolete because of narrow banding. Older radios cannot be programmed to the new bandwidth required by the FCC.

Some equipment can be used in the amateur radio service where narrow banding has not been required. Sunnking sets up at the Rochester Hamfest every June with many radio and computer items for sale.

Special thanks to Mark Salamaca of Sunnking for the tour of the facility.

LINKS

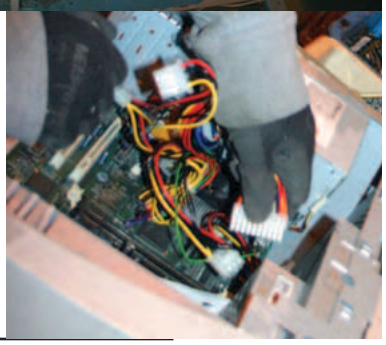
EPA E-Cycling
http://www.epa.gov/osw/conserve/materials/ecycling/
Stats and other basic information on electronics recycling.
E-waste Frequent Questions
http://epa.gov/epawaste/conserve/materials/ecycling/faq.htm#impact
Summary of the impact of disposal of electronics items without precaution.
Find an electronics recycling center near you
http://www.ecyclingcentral.com/
http://earth911.com/
Manitowic County WI Recycling Center
http://www.manitowocrecycles.org/electronics.htm
Excellent information on the basics of electronics recycling.
Sunnking Electronics Recycling
http://www.sunnking.com/
Sunnking Blog
http://www.sunnking.com/blog/
Sunn King helps the author's youth outreach.

THE NEXT STEP IS UP TO YOU

The above links will assist you in finding an electronics recycling facility near you. Since scanner listeners, ham operators and other radio hobbyists boast way more than the average 24 electronics per household we are all the more obligated to make sure we recycle.

Until next time, may your signals be strong, your static be few.





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Nebraska's Offut Air Reserve Base

By: Mark Meece

Anyone who has spent any time listening to the United States Air Force's High Frequency Global Communications System (HFGCS) on the shortwave bands, one station heard on regular basis are "Offutt". For information on general calling guidelines and frequencies on HFGCS for Offutt see TABLE 1.



Sitting on 4,000 acres between the Missouri River border with Iowa and US Route 75 in Sarpy County, Nebraska is Offutt Air Force Base. The base is adjacent to the City of Bellevue and about 10 miles south of downtown Omaha.

It is the headquarters for the U.S. Strategic Command (USSTRATCOM) and the Air Force Weather Agency. The host unit at Offutt is the 55th Wing of the Air Combat Command (ACC).

The base originated with the construction of Fort Crook between 1894 and 1896 taking its name from Major General George Crook, a renowned Indian fighter and Civil War hero who commanded the forces that Apache War Chief Geronimo surrendered to in 1896. Today, many of the structures that were built before 1900 are still use, among them the guard house and quarters housing. On September 10, 1918 the 61st Balloon Company began the aviation heritage at the field for the Army Air Service during World War I. In 1921, work was done to create a field suitable for landing and takeoff and became a refueling stop for military and government aircraft flying cross-country. It was on May 10, 1924 that the field was renamed Offutt Field in honor of 1st Lieutenant Jarvis J. Offutt. While flying with the Royal Air Force in France Lieutenant Offutt became the first World War I air casualty from Omaha. No long after the end of the hostilities in World War II, Fort Crook and the Martin-Nebraska facilities were redesignated as Offutt Field in June of 1946. Eighteen months later on January 13, 1948 Offutt Field was transferred to the newly formed Department of the Air Force.

With its location in the very heart of the United States, Offutt became a major facility as the Cold War starting taking shape. During the years the Cold War lasted from 1947-1991, Offutt played a major role in both defense and deterrent. Alert bombers and tankers were placed in service throughout the 1950s and

Continued on page 22



Offut continued

60s at Offutt along with support operations for intercontinental ballistic missile sites in Nebraska and Iowa in the 1960's and worldwide reconnaissance from the mid-1960's to present day. The Strategic Air Command (SAC) was moved to Offutt on November 9, 1947 with its primary mission of providing long range bombing capabilities to anywhere in the world. SAC remained headquartered at Offutt until it was reorganized into USTRATCOM following the collapse of the Soviet Union in 1992.

From October 1, 1960 until December 15, 1964, the 549th Strategic Missile Squadron operated three SM-65D Atlas ICBM sites with each site consisting of three silos strategically placed near the area around Offutt.

Today, Offutt is hosted by the USAF's largest ACC wing the 55th WG. Their primary mission is to provide dominant intelligence, surveillance, reconnaissance; electronic attack; command and control; and precision awareness to national leadership and war fighters across the spectrum of conflict any time, any place. An associate unit of the 55th WG is the 55th Operations Group, which operates 46 aircraft, including 13 models of seven different types. At Offutt one can find the strangest modifications of aircraft used for electronic aerial surveillance. NIGHTWATCH is the project name given to the National Airborne Operations Center (NAOC) based at Offutt AFB.

The Boeing E-4 Advanced Airborne Command Post are four Boeing 747-200 airframes that were specially modified to serve as a survivable mobile command post for the National Command Authority, including the President of the United States, the Secretary of



Defense, and successors. The aircraft are operated and maintained by the 1st Airborne Command and Control Squadron (1 ACCS), a subordinate unit of the 55th WG. In TABLE 2 we list the various flying units operating from Offutt.

TABLE 1
HFGCS CALLING

Aircrews use a preliminary call as outlined in ACP-121 US Supp 2 using the collective call sign "MAINSAIL" or the HFGCS station call sign (example: Sigonella Global this is Dark 86 on 11175, OVER). HFGCS operators require approximately 10 seconds (for automated equipment configuration) to respond to calls for service. The HFGCS operator may request the aircraft change to a discrete frequency for improved and/or extended service.

(a) PUBLISHED FREQUENCY LISTING - HFGCS stations operate on "core?? frequencies to provide increased "Global" coverage. The published frequency listing does not reflect complete system frequency authorizations. These published frequencies will be used for initial contact, EAM broadcasts, and short-term C2 phone patch and message delivery. Other extended or special services will be moved to each station's available "discrete" frequencies.

(b) FREQUENCY GUIDE - The frequency guides are designed to optimize air/ground communications.

Primary HFGCS Frequencies 24 Hours: 8992 and 11175
Back up HFGCS Frequencies Day: 13200 15016
Back up HFGCS Frequencies Night: 4724 6739

DISTANCE (1) TIME (2)

	200-750 NM	750-1500 NM	More than 1500 NM
0000L	4724	6712-6739-8992	6712-6739-8992-11175
0400 L	4724	4724-6712-6739	6712-6739-8992
0800 L	4724-6712-6739	6712-6739-8992-11175	11175-13200-15016
1200 L	4724-6712-6739	8992-11175-13200	13200-15016
1600 L	4724-6712-6739	8992-11175-13200	13200-15016
2000 L	4724-6712-6739	6712-6739-8992-11175	11175-13200-15016

1. When less than 200 NM any frequency 2. Local time at ground station.

FREQUENCIES - SUMMER (Apr-Sep)

STATION	4724	6712	6739	8992	11175	13200	15016
Offutt	0400-1330Z 1330-0400Z		0200-1700Z 1700-0200Z	24 hours	24 hours		

FREQUENCIES - WINTER (Oct-Mar)

STATION	4724	6712	6739	8992	11175	13200	15016
Offutt	0030-1330Z 1330-0030Z		2300-1400Z 1400-2300Z	24 hours	24 hours		

Offut continued



TABLE 2
55th Operations Group

The 55th Operations Group, Air Combat Command's largest group, has operational control over 12 squadrons and two detachments worldwide. The group consists of approximately 3,200 personnel. It employs 46 aircraft, including 13 models of seven different types. The 55th Operations Group uses the tail code OF for its aircraft

1st Airborne Command and Control Squadron (E-4)
- 38th Reconnaissance Squadron (RC-135)
- 45th Reconnaissance Squadron (OC-135/RC-135/WC-135)
- 338th Combat Control Squadron (RC/OC-135)
- 343rd Reconnaissance Squadron (RC-135)

82nd Reconnaissance Squadron (RC-135)
- Operates from Kadena AB, Japan

95th Reconnaissance Squadron (EC-135, OC-135, and E-4B)
- Operates from: RAF Mildenhall, England
- Operates from: Souda Bay, Crete

Offutt Air Force Base has one 11702 x 150 foot runway (12/30). Aeronautical operational frequencies can be found in TABLE 3

TABLE 3
OFFUTT AIR FORCE BASE (KOFF)

AERONAUTICAL

120.100	Omaha Approach/Departure West
121.700	Ground
123.700	Tower
124.500	Omaha Approach/Departure East
126.025	ATIS
227.400	Metro
263.000	Omaha Approach/Departure East
273.500	ATIS
279.625	Tower
289.400	Ground
298.875	Omaha Approach/Departure
311.000	Command Post Primary
318.700	Royal Air Force Ops (PLAINSMAN)
321.000	Command Post Secondary
354.050	Omaha Approach/Departure West
379.400	Special Flight Authorization (SFA)

Support operations can be found on Offutt's P-25 trunked radio system. In TABLE 4 we list the details for it.

TABLE 4

SYSTEM: Offutt Air Force Base
TYPE: Project 25
VOICE: APCO-25 Common Air Interface Exclusive
SYSID: 291

CUSTOM TABLE:
BASE: 406.000 SPACING: 12.5 kHz OFFSET: 380

FREQUENCIES:
406.56250c 406.96250 407.36250 407.76250
408.56250 408.96250a 409.36250 409.76250
410.16250 410.56250

TALKGROUPS

ID	MODE	USE
1	D	55WG COMMAND POST/EAGLE EYE
3	D	NIGHTWATCH NET
4	D	POL
5	D	Maintenance Net, RECCE Net
6	D	SLY Net
7	D	Airfield Operations Net
9	D	RAMP/Expediter Net
10	D	POL Net
11	D	55th Transportation Squadron
12	D	Airshow Comm
13	D	CE Net
14	D	Offutt Fire/Rescue
15	D	Offutt Urgent Care Clinic
22	D	Offutt STRATCOM Elite Guard
28	D	Airshow/Base Ops Liaison
29	D	Airshow Security
30	D	Offutt Police
31	D	Airshow Control
34	D	Airshow Transient Alert
35	D	Airshow Pyrotechnics
67	D	Offutt Security
96	D	Airshow Ramp Ops
98	D	Airshow Medical
99	D	Airshow "Lost Child" Net
104	D	Airshow Sanitation

Popular culture has featured Offutt in some fashion perhaps more than any other air force base. During the heyday of SAC, the command was featured in the 1955 James Stewart film "Strategic Air Command" and 1964's "Fail Safe" starring Henry Fonda. However, best of all it was depicted in the iconic original Star Trek episode "Tomorrow is Yesterday" referred to in the episode as "The Omaha Installation".

About 25 miles west of Offutt just off Interstate 80 is the Strategic Air and Space Museum with a wide variety of aircraft on display including an SR-71 Blackbird and U-2C Dragon Lady. The museum is open all year except for four major holidays. For more information check out their website http://www.sasmuseum.com/visit/

If you are in the area, check it out, load up your scanner and let us know what you hear!

New (Old) Game in Town

NJTRANSIT The Way To Go.

By Ed Muro - K2EPM

Just when you thought you were getting a handle with the latest technology and obstacle to thwart your scanning pleasure. There may be a new game in town to wreak havoc on your radio play time.

New Jersey Transit has just launched a new TETRA radio system in Newark, New Jersey that is the first TETRA network in the United States. Manufactured by PowerTrunk, TETRA networks are operational throughout the world and are very prevalent in Europe. The New Jersey Transit pilot demonstrates the viability of PowerTrunk's TETRA technology in the United States.

Terrestrial Trunked Radio (TETRA) is a digital trunked mobile radio standard developed by the European Telecommunications Standards Institute (ETSI). The purpose of the TETRA standard was to meet the needs of traditional Professional Mobile Radio (PMR) user organizations such as those listed below. TETRA originally stood for Trans-European Trunked Radio and grew out of a need for public safety and utility agencies in different European countries to communicate with each other. Major air and sea disasters involving multiple agencies from several countries made it clear that a common radio standard was necessary. In addition, the growth of the European Union and the gradual removal of trade barriers highlighted the opportunity for commercial business communication across national borders.



TETRA standards and radio spectrum

The TETRA standard was developed to provide optimal performance in the frequency range 300 to 1000 MHz and outside this range the performance has not been verified. In practice, TETRA system deployments and product developments concentrate on only a few frequency bands as a result of European harmonization and also de facto global spectrum harmonization. This reduced number, but widely available number, of radio frequency bands has greatly contributed to developing the current multi-vendor market for TETRA with multiple suppliers delivering interoperable products for the same radio frequency bands. Interestingly, if the radio frequency spectrum for TETRA was fragmented, there would be a risk that some frequency spectrum allocations would only have products available from one supplier, thus defeating the benefits of an open standard supported by multiple vendors. This is not a situation that users would usually appreciate.

The TETRA standards have recently been updated to Release 2 which includes the wideband TETRA Enhanced Data Service (TEDS) air interface that can support 50 kHz, 100 kHz and 150 kHz channel widths. In Europe the TEDS capable channels are already taken into account in PMR spectrum decisions even though those channels are not yet readily available for use in all countries.

Radio spectrum for TETRA in Europe

The fast roll-out of TETRA in Europe partly resulted from the fact that a virgin frequency band was allocated for the emergency services based on agreement between the EU and NATO. As a result, European

continued

Public Safety and Security forces are using the radio frequency band 380-385//390-395 MHz for operation of their TETRA networks. It is worth noting that the build-up of shared national Public Safety multi-agency radio networks has significantly contributed to the overall spectrum efficiency of the Public Safety services via the following mechanisms:

- one shared and trunked network for all agencies is always much more efficient use of spectrum
- the spectrum efficiency of TETRA - 4 slots in 25 kHz - meant a major improvement
- the agencies have now vacated or are vacating the VHF/UHF spectrum that they used earlier

Within this emergency service TETRA spectrum allocation most of the radio frequencies are reserved for Trunked Mode Operation (TMO). The Direct Mode Operation (DMO) frequencies are typically allocated at the lower end of the radio frequency band (from 380 MHz upwards) and specific frequencies for Air-Ground-Air (AGA) operation are allocated at the upper end of the band (from 385//395 MHz downwards) to allow international compatibility. For the European non-emergency services, TETRA frequencies are mainly allocated in the 410 to 430 MHz band with some countries allocating frequencies in the 450 to 470 MHz band. Countries that are not members of NATO can sometimes allocate radio frequencies in the 385-390//395-399.9 MHz band for TETRA users.

Radio spectrum for TETRA elsewhere

In Asia Pacific and South America the so-called 800 MHz band, i.e. frequencies 806-824//851-869 MHz are available for Digital PMR systems like TETRA. In some distinct areas like South Korea, South-East Asia,



the Hong Kong SAR, Venezuela, etc., radio frequencies in the 380-400 and/or 410-430 MHz bands have been allocated to TETRA. China has reserved frequencies in the 350 to 370 MHz range for national security radio networks using TETRA. In all cases the allocations and overall availability of radio frequencies needs to be verified by the national regulator concerned.

The TETRA standard has the endorsement of the European Telecommunications Standards Institute (ETSI), which plays a somewhat similar role in Europe that the American National Standards Institute (ANSI) serves in the United States. Although the standard is not mandatory, the ETSI endorsement has helped TETRA win more than $3 billion in orders for nearly 50 proposed networks. Britain has shown a particular interest in TETRA, where several police services and the London Underground are using it.

The air interfaces, network interfaces as well as the services and facilities are specified in sufficient detail to enable independent manufacturers develop infrastructure and radio terminal products that would fully inter operate with each other. For example, radio terminals from different manufacturers can operate on infrastructures from other manufacturers.

The ability for full interoperability between different manufacturer's products is a distinct advantage of open standards developed by ETSI. As the TETRA standard is supported by several independent manufacturers this increases competition, provides second source security and allows a greater choice of terminal products for specific user applications.

- **Public Safety**
- **Transportation**
- **Utilities**
- **Government**
- **Military**
- **PAMR**
- **Commercial & Industry**
- **Oil & Gas**

Because the TETRA standard has been specifically developed to meet the needs of a wide variety of traditional PMR user organizations it has a scalable architecture allowing economic network deployments ranging from single site local area coverage to multiple site wide area

Continued on page 26

continued



national coverage. Besides meeting the needs of traditional PMR user organizations, the TETRA standard has also been developed to meet the needs of Public Access Mobile Radio (PAMR) operators.

In the United Kingdom Motorola offers a range of voice and data features that provide much faster call set up times than telephone systems and allow operational groups of users to communicate together on an all-informed basis, often coordinated by one or more dispatch operators.

Features offered range from basic group call, telephone interconnect and packet data capabilities to advanced features such as recent user priority, dynamic regrouping and site wide calls. Such services ensure the overall efficiency of Motorola's solution.

Key features ensuring the efficiency of Motorola's solution include:

Group Call
Highly efficient one-to-many conversation with fast call set-up by pressing talk button only

Individual Call
GSM like one-to-one full duplex conversation

Telephone Call
Enabling full duplex communication with landline or cellular phones - usage can be configured individually

Emergency Call
Emergency calls have highest priority

Priority Call
Range of features to ensure the success of key, priority calls

Announcement Call
Enabling announcement calls to be made to multiple groups

Depth of implementation

The New Jersey Transit system consists of a two site network that includes PowerTrunk-T base stations, mobiles, a line dispatcher, and a switch to integrate the old VHF system. In addition, the network is integrated with an existing Computer Aided Dispatch system and a gateway allows full duplex cellular-like communications between cell or switched public phones and PowerTrunk radios.

So, if the news of a new system being implemented on American soil where there is no way to currently monitor it isn't bad enough brace yourself for this news: even though most law enforcement and fire operations in the United Kingdom utilize TETRA systems there currently are no scanners available that are capable of receiving TETRA communications because TETRA uses a special encrypted digital protocol. Should TETRA take hold in this country, because the protocol is encrypted one would think there will never be a scanner capable of monitoring those types of systems. ●

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Power and Control: The Sideband Advantages

Galaxy DX 959 AM/Sideband 11-Meter CB Mobile Radio

By : Alan Dixon, N3HOE / WPUC72Ø / KST8678



Wow! Happy days really are here. And why not? The eleven-year solar cycle has finally been "heating up" over the past year. And, there is no end to the excellent Citizens Band Radio Service products on the market. Let's face it, 11-Meter operators – particularly sidebanders – require two things to make their magic happen: We need good propagation conditions, and we deserve excellent gear with which to work. With the solar "weather" already cooperating, we can now turn our attention to a most excellent 11-Meter mobile rig, the Galaxy DX 959. This is a top-of-the-line full-featured unit with digital frequency readout as well as channel number display, operating AM, Lower Side Band, Upper Side Band, and Public Address modes.

Interesting thing – right about eleven years ago, at the opening of the previous solar cycle, I had written a product review article (in a different magazine) about another 11-Meter transceiver in somewhat the same class as the DX 959. Just as now, I was crowing about great propagation conditions and a really sweet rig. And so it was – really happy days back then, given this "magic" combination. And so it remains!

So, let's have a look at this superb radio before us right now. Keep in mind that there are three key aspects to the Galaxy DX 959. First, it is a sideband rig with direct frequency readout. Second, it is very feature-rich (more on that as we progress here). And finally, it is a mobile transceiver designed for in-vehicle use, but well suited for base station use, just the same. Overall though, this unit is one of traditional, "classic" CB Radio design, reflecting those sets manufactured at the height of the CB fad days. The housing is rather large. And the faceplate sports chrome knobs and trim. It's got a real analog meter! This beauty looks like it belongs under the commodious dashboard of a 1976 Plymouth Fury or mounted within the generous overhead space in a Chevy Suburban of that same era. Naturally, it'll be at home in the cab of an 18-wheeler of any point in time.

This is all quite a contrast to the similar-class 11-Meter radio that I had been so pleased with in my review some eleven years ago. I had been examining the Midland 79-290 AM/SSB mobile transceiver (apparently now out of production by Midland) – another quite excellent radio. While it had the three key aspects mentioned above regarding the Galaxy DX 959, there were substantial differences. Yes, it was a sideband unit with frequency display. It was also fairly well suited to base station use. And while it too was rich in features, they were quite a different set of functionalities. These included NOAA weather channels (WX) reception, dual channel monitoring, and the ability to jump directly among several favorite channels (among other things).

But, by way of comparison, the 79-290 had the high-tech look and feel. The entire faceplate and visible box panels were a satin black finish with all controls backlighted. There was no analog meter; rather a large black LCD screen in the center of its face with a segmented bar graph for S/RF levels. It had large numerals for channel and frequency information – but NOT both simultaneously. The user had to toggle

Continued on page 29

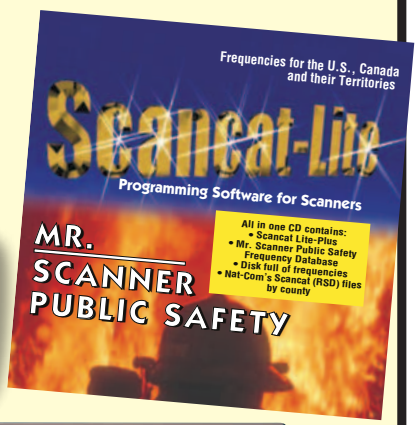
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Galaxy DX 959 AM/Sideband 11-Meter CB Mobile Radio continued

between the two numerical displays. Push-buttons were plentiful and knobs were kept to a minimum. This meant no RF Gain control, no transmit power level control, and only a two-step mic gain regulation.

While the Galaxy DX 959 has, on the other hand, copious knobs and toggle switches to control its many – and sometimes unique – features and functions. And let's not forget that large multiple-scale real analog meter. Functionally, it's as high-tech as just about anything else on the market. But in form and appearance it's all *business* – serious knob-twiddling radio-operating, DX-grabbing, eye-on-the-meter heart-pounding modulating BUSINESS.

The DX 959 isn't exactly new. It has been on the market in one iteration or another for a number of years now. However, several independent source reports indicate that Galaxy has changed the RF finals to a dual-MOSFET design in very recent times. This upgraded design reportedly facilitates RF output power levels 5 to 8 watts higher than the 2SC1959 bipolar transistor previously listed. (Always be sure to check manufacturer product specifications carefully yourself, before making any purchase decision.)

The ample transceiver box itself measures just shy of eight inches wide and stands about two and a quarter inches tall. It's some 9-1/4 inches deep and weighs in at a stunning five-and-a-half pounds. What's surprising is that a radio this size might typically weigh about two or three pounds. So when you get this baby in hand its heft will astonish you, feeling more like twenty pounds of solid metal! This tells us that the '959 is filled with more components and less air. This unit is large and this unit is solid. The box itself is metal, not plastic. This is important for RFI (interference) immunity, especially in a mobile setup.



It's got a fine sounding bottom-firing speaker, and the mic connector is on the left side of the box, about 2-1/2 inches back from the front edge.

What a sharp looking and functional front control panel we are presented with! The panel itself is a satin black finish, contrasting those chrome knobs and chrome bezels. One bezel surrounds the entire face, with others around the digital displays, meter, and all toggle switches. I really appreciate the black faceplate for mobile (in-vehicle) use. It just doesn't scream "steal me" to passersby like the traditional flashy brushed chrome type finishes do. Yet its perfect combination of black and chrome accents preserves the traditional, classic look.

The well-lit analog meter is located in the upper left of the panel, occupying a nearly one by two-inch area. The meter has four separate easy to read scales: Receive S-units, all the way up to a whopping +60 dB maximum (!); Transmit Power, topping out to over 18 watts; Modulation Percentage; and SWR ratio.

The other striking attributes on the front end are the two fairly large digital displays. The two-digit channel number appears in the upper right-hand corner. Just to the left of that is the 5-digit frequency readout. Both of these are LED-type displays, which I really love. In contrast, a backlighted LCD may be somewhat more readable in bright sunlight, but just doesn't have the visual appeal of these brightly illuminated numerals. The frequency is no mere readout from a channel number lookup table function. You get an actual frequency counter that varies with the fine-tuning adjustments of the Clarifier control.

Just under the channel display on the right, are three indicating LED's (keep reading). Under these is the channel selector knob. It is the single larger knob on the set – prominent and easy to grab. Now, centered along the bottom of the front panel are five knobs. The left-most of these is a concentric dual knob arrangement where the center, protruding knob is the Volume control (AF Gain) and On-Off switch, and the outer ring controls squelch. This happens to be the only dual control concentric knob set on the rig.

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Galaxy DX 959 AM/Sideband 11-Meter CB Mobile Radio continued



Sitting just to the right is the Mic Gain knob. This is commonly found on high-end 11-Meter rigs and effectively allows user control of modulation. What's nice about this great feature is that it obviates the need for an aftermarket power microphone. Adding power on top of power can only result in overmodulation and splatter, unless of course this very control is dialed way back. However, with the built in modulation meter and talkback functions there is no need to guess if overmodulation distortion is occurring!

There is yet another nice function of this same knob though. Pushing the knob in activates the Roger Beep (Courtesy Beep) function indicating end-of-transmission. An indicating LED just under the channel number display lights up whenever this is activated. I find the Roger Beep very useful for weak signal operation. This feature is standard on VHF and UHF repeaters and really needs to be included in HF (Shortwave) rigs for simplex weak signal work. Well, it's included in the DX 959. There's nothing extra to buy and install. Bravo! Pushing the knob again deactivates the Roger Beep.

Right in the center of these five lower knobs is the receive RF Gain control. To the right of that we have another "plus" you may find useful, a Dimmer control knob. This dims the illuminating lamps in the meter and the LED's in both digital displays. Additionally, pushing in this knob extinguishes these same lights, and pressing the knob once more lights them up as before. The three indicating LED's are unaffected by these controls.

The last knob in this row, next to the channel selector, is the transmit (TX) RF Power control. Here is a feature rarely found on 11-Meter transceivers! This is an RF gain control for transmission, just as we have one for receiving. This can be used to dial back TX power all the way to one watt. This is useful for (relatively) somewhat more secure very short distance communications, such as from the '959 to a CB walkie-talkie perhaps only a couple of hundred feet away. There's no need to broadcast all your business halfway across town only to reach a portable practically within sight of you! The TX/RX indicating light right below the meter illuminates red when transmitting at any power level, and returns to green at all other times when the set is turned on.

There is an upper row of just two knobs along the top of the front panel, situated between the meter and the frequency display. Nearest the meter is the control to another great feature, the Talkback (Sidetone or Feedthrough) control. Sidetone is sometimes designed into military and marine HF rigs. During transmission key-down, it feeds your transmitted voice (and any other audio) back through the set's speaker, or any external speaker plugged into the EXT. SP. jack on back of the set. No special add-on Talkback speaker is needed for the '959. This feature is actually useful to hear that your audio is not overmodulated or otherwise distorted, and to verify that your mic is in fact functioning. The knob controls the Talkback volume level. Pressing the knob activates Talkback and pressing it in again turns the feature off.

During my evaluation of the DX 959, I found that I had to turn this control all the way to minimum and position the stock microphone away from the speaker in order to avoid creating feedback. This could have been very annoying. But, I had already purchased an upgrade noise-cancelling mic, and using it in place of the stock mic completely got rid of the problem. What a difference using a good quality microphone can make!

The knob just to the right here is the Clarifier (Delta Tune or RIT) control. This is our receiver fine-tuning control. It is just about a necessity for sideband operations, and can come in handy for off-frequency AM stations, as well. The Clarifier on this rig has quite a bit of excursion as it turns out, with an overall range of some three KHz. The clarifier circuits on certain other rigs I have tried sometimes have so little variance that there is no perceptible difference in reception. Not so with the DX 959. And we know this by watching the frequency display numbers roll up and down as we twist the knob! I notice that the Clarifier here has no center detent position. I would really have preferred that. But, after all, this is a radio for the *operator* and not at all a close-your-eyes type do-little

Continued on page 32

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Galaxy DX 959 AM/Sideband 11-Meter CB Mobile Radio continued

set! The numeric display will tell you whether you are on frequency or not.

Right between the top and bottom rows of knobs, right across the middle of the faceplate, we find five toggle slider switches in a row. Each of these is a three-way switch, moving horizontally. The left-most switch controls meter transmits functions. Your choices are RF power in watts, modulation percentage, and Standing Wave Ratio (SWR). What's really nice here is that there is NO calibration control for the SWR. This unit auto-calibrates. This means that you can rapidly switch from one antenna to another, and keep an eye on antenna performance just as quickly. Also, any less-than-perfect SWR lights one of the three indicating lights just below the channel display, letting you know to take a look at the actual reading on the meter. The meter always indicates signal strength "S" units in receive mode, of course.

Moving right, the next switch handles basic noise control. We can select the Automatic Noise Limiter (ANL) or switch on the ANL together with the Noise Blanker (NB) circuit. Or we can disable both the ANL and NB for maximum receive sensitivity.

The center switch operates two entirely different functions. The designers obviously thought this to be a convenient location to place this particular control. When slid to the left, the Public Address (PA) function comes on. Microphone input is then amplified and output to any user-supplied speaker plugged into the PA. SP. jack on the back of the set.

The other two positions of this switch place the rig into receive mode, and allow us to switch on the DX 959's obviously proprietary GNF Signal Processor circuits. This special feature alone really places these Galaxy radios in a class by themselves. According to the manufacturer, this Galaxy Noise Filter



de-emphasizes audio high frequency response for the purpose of increasing the signal-to-noise ratio of weak signals. Logically then, with the noise floor "dramatically" reduced, weak signals become more readable. The GNF then, has minimal effect on strong signals, which is just fine!

The manufacturer doesn't indicate whether this Signal Processor is an Analog or a Digital circuit design. The schematic diagram simply shows the GNF's dedicated circuit board as a mysterious blank box. It appears to be positioned in the signal path between the IF stages and the audio stages. Hmmm. I would be tempted to guess that this is a Digital Signal Processor *but* that would only be a guess. Nevertheless, digital would appear to be the more practical way to accomplish its operational objective. Either way, this greatly overlooked feature is something long overdue in 11-Meter transceivers. Analog or Digital, it matters little which the design happens to be, as long as it does what it is supposed to do. Thank you, Galaxy! It's about time.

The next switch to the right, centered under the frequency display, is your basic Mode switch. It centers on AM, with Upper Side Band (USB) to the left, and Lower Side Band (LSB) over to the right.

Last switch on the right is, yes, still another excellent feature of the DX 959. This little slider is a Tone control! Anyone who thinks that something like this is superfluous has never operated a communications receiver equipped with one of these. This is yet one more tool to be used in digging out weak or interfered signals out of the mud. The simple three-position affair enhances bass when set to Low, and enhances treble when set to High. The center Medium position presumably produces a normal flatline response. In reality, the Low setting can tend to muffle an annoying heterodyne squeal. And setting High for treble can add a certain crispness to an otherwise mired voice signal.

What an excellent radio! Do the great design "extras" never stop coming?! Even the '959's mounting bracket means business. I operate two other big-name large chassis mobile CB radios just slightly smaller than the '959. Both of these other units use ordinary two-bolt mounting where the bracket meets the radio. So, no matter how I arrange lock washers and how much I tighten down the bolts, they are never totally immune from pivoting. The '959 however, has a four-bolt mounting bracket, much like most Amateur rigs and commercial transceivers. The bracket offers three different mounting angles (vertically). Mount the bracket backwards and you gain two more angles. In any

Galaxy DX 959 AM/Sideband 11-Meter CB Mobile Radio cont.

event, there's no opportunity for slippage. Trust me, this is important given a radio weighing in excess of five pounds!

It's no secret that DX'ing is a large part of the CB avocation. And the DX 959 is an excellent 11-Meter rig for that purpose, whether working AM or sideband. DX'ing can mean working those challenging stations beyond the typical eight to 25-mile line-of-sight range right up to the 155-mile regulatory distance limit. And it can mean merely listening for CB stations hundreds or thousands of miles away. There's no law against that. Licensed hams (any class) can operate emergency communications on 11-Meters with stations at any distance (on any channel), subject to the authority and conditions granted in FCC §97.403 and §97.405 and in the International Radio Regulations Appendix S13, §3, ¶1 and ¶3 (ITU, Geneva).

These legalities just may soon be rendered moot by the FCC, anyway. Under a present Notice of Proposed Rule Making proceeding (WT Docket 10-119, FCC 10-106 see ¶57), the Commission has finally suggested eliminating the 155-mile distance-of-communications limit (FCC §95.413(a)(9)) for the Citizens Band Radio Service. Only time will tell if this will actually come to pass, probably within the next year or two. Here again, when I was conducting that product review of a different CB Radio product eleven years ago, there was at that time a proposal to repeal the 155-mile distance limit (RM-9807). As it turned out, the proposal failed back then. Maybe we'll be blessed with some favorable action this time, though.

Like any first-rate sideband set, the DX 959 is a true 11-meter HF communications rig. With 12 watts of power in sideband mode, the SSB operator sails over the arbitrary "QRP" 5-watt "low power" barrier. For the seasoned CB operator or for the Technician-class Amateur ready to get a feel for HF sideband operation without having to invest nearly a kilobuck, this unit is the one to have.

I've said this before too: Is anyone thinking that CB radio is a technological anachronism? Then, think again. Single Side Band is the one analog mode that can seriously challenge digital voice technology in the world of commercial communications radio. SSB offers significant spectral efficiency and is superior in energy efficiency.

In any case, there is little reason to have anything less than the best for working the 11-Meter band. And the DX 959 has those almost unquantifiable qualities found only in top-of-the-line radio sets. Such quality is always evident especially in the transmitted and received signal quality, and again in the design and construction of the set. I heartily recommend the Galaxy DX 959 to any 11-Meter radio hobbyist and to the professional over-the-road user who wants more than the customary AM CB rig. ●

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IS HAVING LESS BETTER FOR CB?

With fewer CB operators on the air, is it a good thing?

By Chuck Gysi, N2DUP

It's no big secret that the population of the CB channels has gone up and down over the years. When there are more CBers on the air, there is more noise on the channels. As fewer operators remain on the air, channels get to be a bit quieter.

Historically, CB took a long time to reach its most popular days. The first CB service was created on UHF frequencies back in the late 1940s and very few people took advantage of the service because of its short range and lack of equipment. It pretty much remained that way for the better part of a decade. CB, or the Citizens Radio Service, was an untapped resource, only to lie untapped for decades, literally, in that form. In the late 1950s, a new CB service was born.

The FCC took away a swath of frequencies from amateur radio operators and redubbed it as the new Citizens Radio Service on the 11-meter, 27-MHz band. For the better part of a decade, the new CB service was off to a slow start, with bulky tube radios the only way to get on the air. Stations needed FCC licenses and the appeal just wasn't there from the get-go.

CB continued to grow slowly through the 1960s into the 1970s. Channels back then were relatively quiet minus the ever-present skip. CBers were far and few between each other back then and they often chatted over the air much like they do today – there just were fewer operators and less traffic on the channels.

Then something happened … the oil crisis of the 1970s helped to rebirth CB as we know it today. First truckers, and then the four-wheeler motorists, were installing CB radios in their vehicles in order to know where fuel was available (service stations rationed sales on odd and even days, depending on the last digit of your license plate number. CBers also were able to tell others were lines were short or long for fueling and also could apprise of where "smokey" was hiding.



During CB's heyday in the 1970s, many state troopers monitored CB Channel 9 for emergency calls. It provided the first and last link directly from the motoring public to law enforcement agencies until cellular 911 was refined. From 1977-1982, Ohio State Highway Patrol troop cars carried this license plate to remind truckers and motorists to call on CB Channel 9 for assistance. The plate was placed on the rear of patrol cars only.

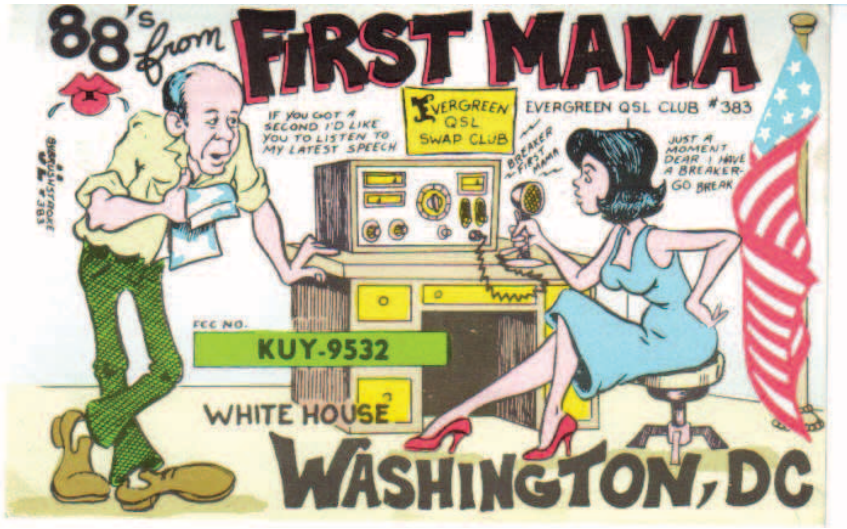
An entire culture of CB radio evolved in the 1970s, where many movies seemed to have CB radios used in them. Hollywood stars were posing with CB radios, and their "handles" were published with their photos. The hysteria went all the way to the White House where first lady Betty Ford took to the airwaves, too. All of a sudden, all 23 CB channels were crowded everywhere. Bleedover from one channel to another was intense and it just made it difficult in many areas to have a decent conversation or exchange of communications without difficulty.

With every mile of highway populated with mobile CBers and many CB base stations on the air to talk with mobile CBers, it literally was chaos on the airwaves. Every channel was congested to the point where even Channel 9 was used just to get a word in edgewise when the other channels were overloaded. Needless to say, the emergency stations monitoring Channel 9 would become upset with those using the emergency channel for routine communications.



Al Gross is considered the inventor of CB radio back in 1948. He's seen here holding a walkie-talkie he invented in 1938.

With all the channel congestion, the FCC needed to step in and expand this popular band that all of a sudden had millions of users, the most-used radio service not only in the United States, but the world. The FCC found an additional 17 channels to expand CB from 23 to 40 channels, but it probably was too little too late. Because it took the FCC too long to act on delivering the new regulations, and because CBers became



In the mid-1970s, CB became a cult and it spread right into the White House. Gerald Ford was president during the era and his wife Betty Ford took to the airwaves. Here is a QSL card reportedly used by her and it included, of course, her FCC call sign, KUY9532.



The November 1977 issue of CB Times, one of many CB radio magazines during the mid-1970s, shows TV and movie star Claude Akin on its cover. However, if you look closer to the microphone, it's actually a Motorola two-way radio mobile microphone and not a CB mic!

disenfranchised with the crowded channels, many left the air in short order, frustrated at not being able to talk with others when needed. By the time CB had 17 new channels, many CBers already had yanked the rigs from under their dashboards and had delegated the radios to garage shelves or garage sales.

From the late 1970s through the 1980s and into the early 1990s, CB was just there, not necessarily increasing in the number of users. But for some odd reason, there was a resurgence of CB in the mid-1990s. A number of new users came into the fold and were on the air. There were enough new CB radios being sold that there even was a new CB magazine created to address the new surge then. It didn't last long, however, and the new surge quickly started to die off once again. One might guess the surge in the mid-1990s might have been from people who saw others using cellular phones to keep in touch, however, they were attracted to the low-cost and non-recurring expense of CB vs monthly cell phone bills.

Since the mid-1990s, CB has remained pretty much even keel, not growing and not necessarily declining. While daytime skip always kills CB, it still is very much used on the local level for those who want to communicate with others. Truckers still have CB radios in their trucks as well as a number of motorists. With the way gas prices have been soaring in recent years, it's surprising that more people don't come on board and get on the air at the very least to find out where gas is cheapest – and of course, to track where "smokey" is.

Perhaps it can be proven that there are fewer CBers on the air now than in the 1970s and even the mid-1990s surge. There are pluses and minuses to both. When CB use rises, there is a larger variety of CB radios for sale. Manufacturers have more money to put into research and design for new models of CB rigs. When there are fewer buyers of radios, there are fewer choices to get on the air.

Is it a bad thing to have fewer CB operators on the air now? Not necessarily. There may be fewer CBers to talk with, but you also know that you will be able to communicate without others stepping all over you on a channel. Bleedover from one channel to another will be less. Skip conditions actually will be less with fewer CBers shooting skip.

But as we can see, CB has proven cyclic. It's just a matter of when others jump on the CB bandwagon again and repopulate the CB channels and make them busy. It probably will last a short while, a bunch of CB radios will get sold and then as the channels become too busy again, there will be disenfranchisement with the radio service and the new CB rigs go back to garage shelves once again. It's just a matter of when.

Write in

What do you remember about days when CB channels were crowded? How long have you been a CBer? Have you taken time off the air, only to return once again – either with your old rig or new equipment? You can write to me at cb-natcom@scanning1.com (be sure to put "Nat-Com" in the subject line or your e-mail may wind up in my spam bin). This e-mail address is only for the author of this column. ●

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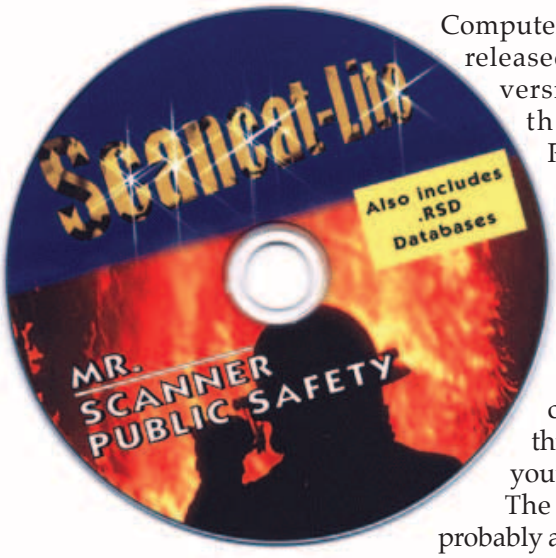
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Scancat Promised Video Tutorials for the Home Patrol-1 programming, and now, they have produced two new video tutorials specific to the Home Patrol-1. The videos can be accessed by going to this link: www.scancat.com/youtube

The HomePatrol-1 Scanner is probably as close to a "Has everything already programmed" scanner as anyone has come up with. But that being said, the "supplied" Sentinel software from Uniden only enables programming with a subset of the Radio References info, and many frequencies hobbyist normally listen to are not in Radio Reference's data, so they can't be added (unless Radio Reference first puts them in their database).

Scancat-Lite-Plus can overcome this drawback. It can program any frequency you wish, no matter what or where. So services like FRS, GMRS, Marine band, CB, Cordless phones, most amateur radio (which can't be programmed with Uniden's Sentinel software) is a piece of cake with SCL.

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CLOSING COMMENTS

To me, free has always been better than pay.



By: Norm Schrein, KA8PGJ

I guess I have always been in a unique group of people – those who do not have cable television. Instead I have always relied on my television antenna. Back in the day, it was not unusual to DX stations from hundreds or thousands of miles away, simply by rotating the outdoor antenna.

Today television has changed a lot. The primary method of over the air broadcast television is done in the digital format. This, of course, has the advantage of receiving a very clear signal from the broadcast station. In fact, the signal that is received over the air is actually clearer than what you would receive through your cable provider.

Since I have never had cable television, I really anticipated the move to the digital. I was not disappointed either. I can now get crystal clear reception from stations that were snowy when I watched in the earlier analog mode. Additionally my station count went up from about 15 to over 50. However, now I find that my small group of over-the-air television viewers are steadily increasing. More and more people are abandoning their cable service.

Dan Kinney is the owner of MCS Communication in the Dayton, Ohio area (www.mcscommunication.com). He has seen a marked increase in requests television antennas. "First of all a television antenna is a television antenna, there is no such thing as a digital antenna," he said. So, if you are going to get a television antenna, don't get sucked into buying a more expensive "digital" model.

Kinney charges about $300.00 to install a quality outdoor television antenna, mast, mount and coax as well as a splitter to operate two televisions for about $300.00. In a few month's time a customer can pay for the antenna and installation by saving the money on their cable bill. In Kinney's area, the cost of basic cable is about $60.00 per month.

Basically people are coming to the realization that cable is too expensive and that customer service is poor. Many are keeping their internet service and watching TV on-line or over the air. PBS or services such as HULU offer all types of programming at no charge.

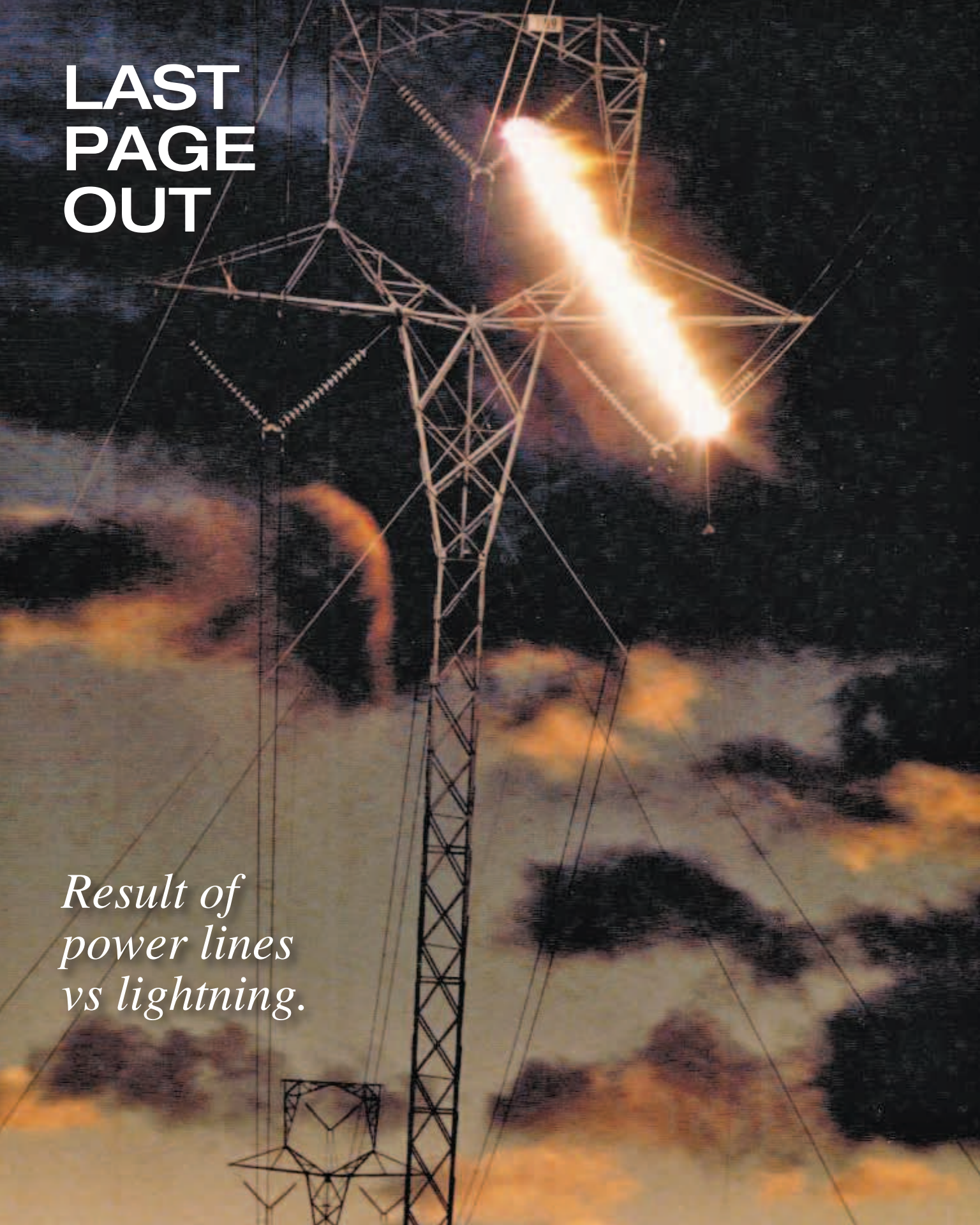
In my family room, we have our flat screen TV hooked up to an outdoor antenna on the chimney of our house along with an antenna rotor. Additionally, I have my DVD player and a computer hooked to the set. That way I can watch anything from local and national news, to any number of movies or other programs that I might have only seen on cable (if I had ever had it). So, now I can watch the History channel programs and other similar programs whenever I want – and for free.

This new generation of people joining the ranks of us who watch TV over the air rather than over the cable are known as cord cutters. Not only does it mean that they are cutting the cable, but also the satellite TV feeds as well.

Dan feels that in the years to come, most people will be watching TV either over the air or via the internet. He feels that cable will be a thing of the past. Currently Dan is having installers and other employees from Time Warner (the local cable provider in the Dayton area) coming to him to see if he may be hiring. "There are a lot of layoffs happening now in the cable industry", Dan said.

About the only time I have watched cable is if I happened to be staying somewhere that cable is offered as part of the room. I end up looking through a hundred or so TV channels trying to find something interesting to watch. Now at home, I will be surfing through 50 or channels or so looking for something interesting to watch as well. The only difference is that it is free.

LAST PAGE OUT



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