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Getting the Most Out of Sirius/XM Satellite Radio

By Jon Van Allen KF7YN

To quote the Monty Python comedy movie... "And now for something completely different", we will take a walk outside the box and talk about Sirius/XM satellite radio. Previously two separate and competing companies, Sirius and XM merged into one big happy family. Or perhaps you prefer... one big happy monopoly.

From the radio hobbyist's point of view, you wouldn't normally think there is much to say about subscription satellite radio which is pretty much plug and play. Some purists don't consider sat radio to be "real radio" and are unwilling to pay for something that otherwise may (or may not) be available for free. The flip side of that coin is having so many choices in one package which has significant merit for many. And you don't have to program memory channels or worry about day/night/seasonal radio propagation and keep track of ever-changing schedules like you do with shortwave. No longer do you have to be tied to that shortwave receiver and inherent time constrictions between the country of origin and local time at your location. As you begin to use your Sirius or XM in different applications, it becomes apparent that sat radio has limitations. Our job here is to find helpful ideas and solutions.

I have been an XM subscriber for years and I like getting my money's worth! There are as many reasons for listening to XM as there are subscribers. For me it is the abundant source of news, music, sports and comedy



Sirius Satellite Roady in Car

all in one package. One major improvement for me was the addition of World Radio Network (WRN) which was brought over from Sirius when the two companies merged. WRN carries diverse programming from many stations around the world. World band broadcasters such as BBC, Radio Canada, Radio Netherlands, Duetsche Welle Germany, REI Ireland, Voice of Russia, China Radio International, Czech Republic, Israel, Sweden, France, Denmark, Romania, Slovakia, Poland, Hungary, South Korea, South Africa, United Nations Radio, Radio Guangdong (Chinese regional), and Vatican Radio. Other programs such as NPR and Glenn Hauser's World of Radio can also be found on WRN.

Okay you are thinking you can get those stations on shortwave or Internet radio stations but we can't always be around an Internet connection or WiFi hot spot. I can take my XM Roady from my home dock, put it in my car dock and even use it in a portable headset. I love listening to XM while I am out on my daily walk at the parkway whether it is WRN, business news or a baseball game, there are so many choices. I also listen to XM when I am on a road trip, no more searching for new stations every 50 miles or hauling



a stack of CDs with me. XM works from sea to shining sea (and beyond) without interruption! To me, XM is just another form of radio and icing on the cake of hobby radio choices.

You do not have to be tied to a home or car receiver to enjoy XM, there are numerous portable receivers and boom box combos available. If you google Sirius or XM, many websites of dealers and eBay sellers will give you a quick idea what is out there. Read user reviews before you buy, some will be better for your requirements than others. I prefer to buy from trusted dealers such as www.tss-radio.com

XM uses two Geo-stationary satellites; one over the Eastern US and one over the Western US. This satellite duo is known as "Rock" and "Roll". Even though XM guarantees coverage 300 miles offshore, I can attest reliable reception much, much further with the right antenna. Virtually all mid to large metro areas have domestic repeaters to fill in gaps in satellite coverage such as, driving in a city with tall buildings, under freeway overpasses, etc.

Beyond the shores of North America, we receive XM on the ship out to the international dateline at 180 degrees longitude if we are in northern latitudes. Other ships report they get XM all the way to Gibraltar. That is some kind of amazing coverage!

The reason for this expanded coverage is not intentional on XM's part but is simply the physics of a satellite over the equator beaming a signal to northern latitudes. The further north the signal goes, the more it spreads out. XM did not include spot beams for Alaska and Hawaii which is unthinkable, but the signal does indeed reach most of southern Alaska because of the signal spreading. Unfortunately for Hawaii residents, XM is not available. We lose the signal halfway between Long Beach and Honolulu even with the superb antenna. I will discuss this antenna and others later in the article.

Pixel Pro 500



Door Home Antenna

Sirius satellites are configured different from XM. Sirius recently launched a high power Geo-stationary satellite to fill in coverage gaps from the original 3 satellite array. This unique trio of satellites are in a highly elliptical "Molniya" orbit designed so that at least two satellites are visible at any one time. The trouble with the Molniya orbit is the satellites are not always at optimum position high in the sky, there are gaps and weak signal conditions in coverage from time to time. The new Geo-stationary satellite reportedly fills in the gaps. I will be doing some testing to compare the new Sirius coverage with the old.

If you have tried receiving XM or Sirius inside a building or through trees, or if you are in a canyon or otherwise unable to get a clear shot at the southern sky, you may not get reception with the small antenna that comes with a home kit. Here is where a high gain antenna really comes in. I have experimented with several types of antennas and the one you want is the Pixel Technologies Pro-500 Professional Satellite Radio Antenna http://www.tss-radio.com/pixel-technologies-pro500-professional-satellite-radio-antenna-p-5563.html

This antenna is compatible with both XM and Sirius receivers. XM is plug and play, Sirius requires an included attenuator. I could not be happier with this antenna, we start getting a signal from XM as soon as the western satellite is visible over the horizon at about 170 degrees East. Yes, I said East! The

Continued on page 6

Getting the Most Out of Sirius/XM Satellite Radio

continued

signal breaks up until we cross the dateline at 180 degrees. From there it is 100% all the way to the US west coast. I have also successfully tested it in thick forest and through several floors of building, it really does work well.

If you don't need quite as much gain, try the less expensive Sirius Outdoor Home Antenna which provides plenty of gain for most folks. http://www.tss-radio.com/sirius-outdoor-home-antenna-p-231.html?osCsid=9def16f99decae36be1f17a0553bc522

or for XM, the Terk Outdoor Home Antenna XM6 http://www.tss-radio.com/terk-outdoor-home-antenna-xm6-p-6911.html

Another reason to get a high gain antenna is if you are in Puerto Rico, Caribbean or Pacific south of the US border. Small antennas do not work in these regions. TSS Radio http://www.tss-radio.com/ TSS has everything you need for Sirius and XM. Car, home, mobile and portable receivers, docking accessories, bundle specials, antennas, business solutions and even hard to find items for older equipment. My friend Taylor Mitchell owns TSS Radio and has provided me with top notch satellite radio equipment & accessories for years. Taylor is a serious Sirius/XM Radio enthusiast and knows exactly what you need.

You can drive up to 8 XM receivers from one antenna, combiner/splitter units come in 2-port, 4-port and 8-port units. We use a 4-port splitter on the ship, we run up to 4 separate



Sirius Satellite Radio in Silverado

XM stations from one antenna. Obviously, this gives the crew choices. We listened to the 2009 World Series on our way across the Pacific to Long Beach. This would have not been possible any other way!

If you are on the road a lot, Sirius/XM is a must have. It is easy to set up a portable system for use from car to car using a magnetic antenna and A/C vent mount for the receiver. Power is supplied from the cigarette lighter plug. If you have an Aux input for your MP3 player or iPod, so much the easier, you don't have to enable the FM transmitter. Going through the Aux or MP3 input always provides superior audio quality than transmitting through your FM receiver, this is the most desirable hookup. Many new cars are supplied with Sirius or XM radios. My new 2009 Chevy Silverado has XM and I love it! I also put my Roady XT in my Grand Prix GTP (see photos).

If you haven't investigated Sirius/XM you may be interested to know there are a few hundred channels with A to Z programming. News, specialty stations such as Old Time Radio, the classic radio shows from the 30s, 40s & 50s, seasonal stations that play everything from Christmas music to Halloween fright clips. There are talk radio programs all across the political spectrum, a medical channel, Coast to Coast AM and dozens of commercial-free music channels. No obnoxious commercials is worth the subscription price alone in my book. The news

Continued on page 8

Universal Radio — Quality equipment since 1942.

ICOM

R75



The impressive **Icom R75-12** receiver offers full coverage from 30 kHz to 60 MHz; all longwave, medium wave and shortwave frequencies are supported plus extended coverage to include the 6 meter amateur band. Some innovative features of the R75 include: FM Mode Detection (but not the FM broadcast band), Twin Passband Tuning, Two Level Preamp, 99 Alphanumeric Memories, four Scan Modes, Noise Blanker, Selectable AGC (FAST/SLOW/OFF), Clock-Timer, Squelch, Attenuator and backlit LCD display. Tuning may be selected at 1 Hz or 10 Hz steps plus there is a 1 MHz quick tuning step plus tuning Lock. The front-firing speaker provides solid, clear audio. The back panel has a Record Output jack and Tape Recorder Activation jack. The supplied 2.1 kHz SSB filter is suitable for utility, amateur, or broadcast SSB. However, two optional CW/SSB filter positions are available (one per I.F.). The formerly optional **UT-106 DSP board** is now included and factory installed! Get a **free Icom ball cap** with your new R75 for a limited time! *Order #0012* **$599.95**

R5



The **R5** ***Sport*** covers 150 kHz to 1309.995 MHz (less cellular gaps) in: AM, FM Narrow and FM wide. 1200 memories store: frequency, mode, step size, duplex direction and offset, CTCSS tone, tone squelch and skip settings. Other features include: attenuator, LCD lamp, AM ferrite bar antenna, auto power off, CTCSS decode, weather function and battery save. A great value!. **Call or visit website for price.**

R20



The **Icom R20** covers an incredible 150 kHz to 3304.999 MHz (less cellular) with 1250 alphanumeric memories, bandscope and SSB/CW. It has: two VFOs, dual watch, voice scan control, NB, large two line LCD and CTCSS/DTCS/DTMF. A built-in IC **audio recorder** can record up to 4 hours of reception! With charger, Li-ion battery, belt clip and strap. **Call for price.**

R8500



The Icom **R8500** is a full coverage wide band communications receiver that tunes from 100 kHz to 1999.99 MHz in AM, LSB, USB, CW, FM-N and FM-W modes. Available to government customers only. *#0663* **$1699.95**

ICOM

PCR1500
R1500



The **Icom PCR1500** wideband computer receiver connects externally to your PC via a USB cable. This provides compatibility with many computer models, even laptops. Incredible coverage is yours with reception from 10 kHz to 3300 MHz (less cellular gaps). Modes of reception include AM, FM-Wide, FM-Narrow, SSB and CW. (CW and SSB up to 1300 MHz only). The PCR1500 comes with an AC adapter, whip antenna, USB cable and Windows™ CD. *#1501* **$479.95**

The **Icom R1500** is similar to the above, but also includes a controller head for additional operation independent of a PC. *#1500* **$579.95**

ICOM

PCR2500
R2500



The **Icom PCR2500** wideband computer receiver uses a similar form-factor to the PCR1500, but has several enhancements, including two powerful features: ***dual watch*** (the radio can receive two signals simultaneously) and ***diversity reception*** (two antennas can be connected at the same time and employed to provide stable reception). The optional UT-118 Digital Unit provides D-STAR® digital voice reception and the optional UT-121 supports APCO25 digital voice decoding. The R2500 is shown above. *#2501* **$709.95**

The **Icom R2500** is similar to the PCR2500, but includes a controller head for additional operation independent of a PC. *#2500* **$879.95**

FREE ***ICOM Bonito CS 4.5 Software included!*** A $69.00 value included **FREE** with your R1500/R2500, PCR1500/2500 purchase for a limited time.

Special Note: Prices shown for the R1500/PCR1500 and R2500/PCR2500 reflect the $20 Icom limited time, mail-in rebate.



The **Icom R9500** raises the bar for professional receivers. Covering 5 kHz to 3335 MHz, this instrument represents the state-of-the-art in receiver technology! Visit the Universal website for details. *#0095* **$13500.00**

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Getting the Most Out of Sirius/XM Satellite Radio

continued

channels are not commercial free, most are simulcasts of their respective TV network broadcasts. This is no deterrent to the serious radio enthusiast. I have many friends who cannot do without their Sirius or XM. Legions of long haul truck drivers love the uninterrupted coast to coast service.

An easy way to get the signal from your antenna to satellite receivers around the house is via a signal repeater transmitter. This converts the Satellite radio signal it receives from your home antenna positioned near a southern facing window to a 900 MHz signal capable of penetrating throughout the surrounding environment. Repeater antennae pick up the 900 MHz signal and converts it back to the satellite radio signal. In essence, it serves as a wireless extension cable.

I have helped several friends and read many blogs from people who were in 'signal challenged' areas use the above mentioned resources to get a usable signal to their satellite radios. If you are having trouble receiving a stable signal, don't hesitate to try something new, or email me with your specific questions.

We hope that Sirius/XM smartens up and gives Hawaii and Alaska the service they crave and deserve.

Folks in Puerto Rico and other fringe areas have come up with some ingenious methods to hear XM. One blog gives details of one determined XM user who used an 18 inch satellite TV dish to snag XM in Puerto Rico. He removed the TV LNB feedhorn and replaced it with an XM antenna but had to reverse polarity because the dish reverses the image (like looking in a mirror). Very ingenious! 99.9% of us don't need to take such extreme measures, high gain antennas are available at reasonable prices.

You may not realize you don't need a satellite receiver to hear Sirius or XM programming. Both services have online streaming and several Internet radios offer the ability to listen anywhere WiFi is available. Check out some of the offerings at http://www.tss-radio.com/Internet-radios-c-513.html

How many of you are using Internet radios? I am still on the trailing edge of the Internet radio craze, I only recently jumped on that bandwagon when I bought a Grace Wireless Internet Radio. I have much to learn but that's half the fun, is it not? I would like to hear what is working for you and what isn't. Meanwhile, I encourage you to explore all radio options, including satellite radio, with me.

Your questions, suggestions and comments are always welcome. My email is kf7yn@yahoo.com be sure to put "Nat-Com" in the subject line to get through the spam filter. Until next time, happy listening!



AROUND THE WORLD ON YOUR SCANNER

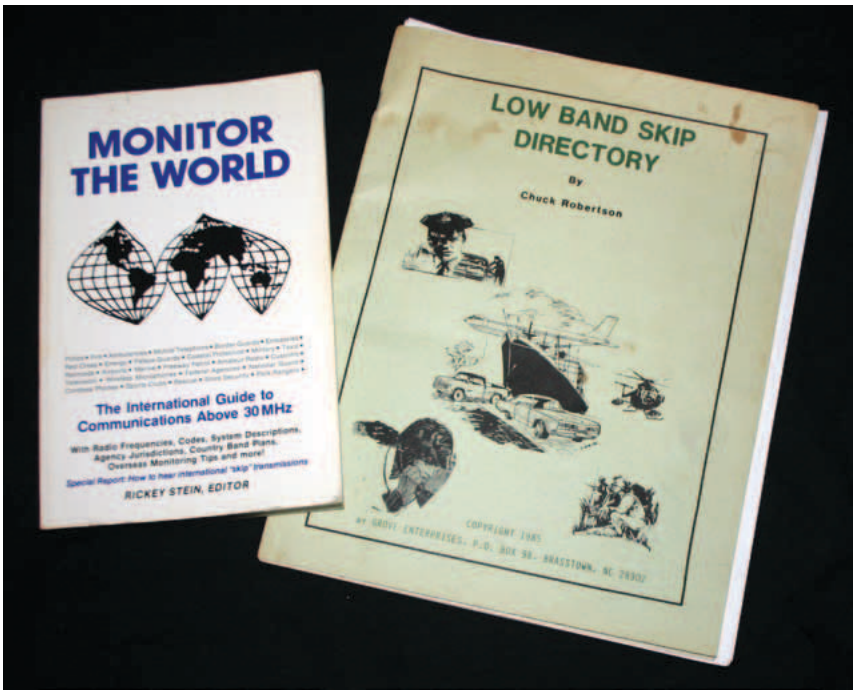
LONG DISTANCE RECEPTION COMPLIMENTS OF THE SUN

BY Jim Sutton N2OPS

In late October of 1967 while tuning my low band Salch Tunaverter around 39 MHz I found a female voice dispatching police units with tones following each transmission from the dispatcher. My dad remarked that the only agency he knew of that has female dispatchers was Los Angeles Police. Since Los Angeles was 2350 miles away from my western New

York location I ruled out Los Angeles. After listening for a little while my dad excitedly announced that it was Los Angeles. The transmissions continued thruout the afternoon until sundown.

In the days that followed I realized we were hearing Los Angeles County Sheriff on several 39 MHz frequencies. For the remainder of the winter for about two out of every three days we listened to Los Angeles County Sheriff. Year after year the signals returned like clockwork from mid-October til around the first week of April.



But, why was I getting calls from the west coast almost as clearly as I received local agencies? And why not calls on the same frequencies much closer than Los Angeles County?

F2 SKIP

A little research led to the conclusion that I was receiving Los Angeles County Sheriff as a result of F2 skip. Directly related to the 11 year sunspot peak, signals were reflected from the ionized F2 layer of the ionosphere which is about 100 miles

Typical range is 2000+ miles with occasional multiple hops taking signals around the world. Different languages and radio band plans make identification even more challenging. At times F2 skip signals have a grinding sound to them.

F2 skip beings in mid-October and runs through around the first week of April from as early as 10 AM through sunset.

The MUF or maximum usable frequency is the highest frequency that will carry signals over extended range. When F2 skip begins the MUF will slowly climb us through the low band.

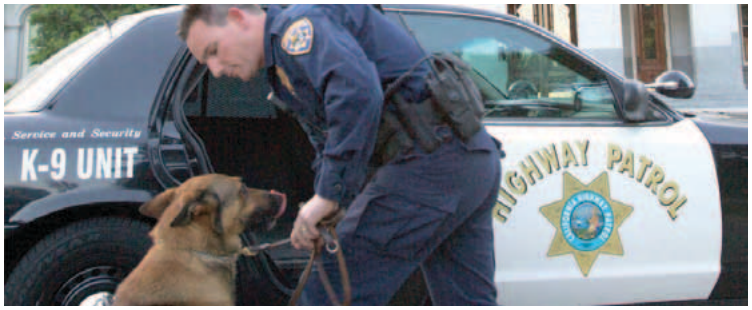
Los Angeles County Sheriff in the 39 MHz range was always there. California Highway Patrol in the 42 MHz range came in less frequently. Rarely did the MUF rise to the 46 MHz portion of the low band.

On a few rare occasions I did have a US TV signal on 59.75, but never long enough to make an ID.

Two references that helped me ID my F2 skip reception were the Low Band Skip Directory by Chuck Robertson published in 1985 and Monitor the World by Ricky Stein published in 1993.



AROUND THE WORLD ON YOUR SCANNER continued



US Low Band and Ham Search Ranges

25.870-26.470	Broadcast remote
26.965-27.405	CB Channels 1-40
28.000-29.700	10 meter amateur
29.700-30.550	US government/military
30.580-31-980	Business/conservation
32.010-32.990	US government/military
33.020-33.980	Fire/emergency/business/local government
34.010-34.990	US government/military
35.020-35.980	Business/paging
36.010-36.990	US government/military
37.020-37.420	Police/local government
37.440-37.980	Utilities/local government
38.010-38.990	US government/military
39.020-39.980	Police/local government
40.010-41.990	US government/military
42.020-42.940	State Police
42.960-44.600	Business/paging
44.620-46.580	Fire/police/local government
46.610-46.990	US government/military
47.020-47.400	Highway
47.420	Red Cross
47.440-49.580	Utility/business
49.610-49.990	US government/military
50.000-54.000	6 meter Amateur

US government and military frequencies are in odd .020 MHz steps such as 40.01, 40.03, 40.05, etc. All others are in even .020 MHz steps such as 39.02, 39.04, 39.06, etc.

US military operations on the above low band ranges can be heard from around the world during F2 skip peaks.

Interesting Moments

One afternoon while receiving the typical F2 skip from the west coast I heard a dispatcher using Eastern time. And it was coming in as clear as the other west coast low band stations. Then at the top of the hour the dispatchers ID's as Baltimore County.

A little research in my Police Call directories found that Arizona State Police had a 39 MHz repeater station that apparently was no longer being used. It was receiving Baltimore County and relaying it back to the east.

South Africa National Police was my best catch via multiple hop F2 skip. On even .100 MHz in the 37-38 MHz bands their repeaters came in a number of times with both English and Africana spoken on the air.

European TV came in only once on 48.25. Multiple Spanish stations from Central and South America gave me a total of four continents on my scanner.

During the height of F2 skip I had the opportunity to travel down the east coast and back through Tennessee, Kentucky and Ohio and then west to Chicago. Los Angeles County Sheriff came in each day during the entire trip.

My F2 Regulars – in addition to Los Angeles County Sheriff

30.45	Fort Hood Range Control
33.82	KOG634 Kent, WA Fire Los Angeles City Fire
39.18	KMG280 San Louis Obispo County, CA KOA776/KOA777 Arizona Counties
43.58	KMB305 San Francisco paging A continuous loop that indicated who had messages. Subscribers had to listen to a receiver to find out if they had messages.

Where are they today?

Los Angeles County Sheriff	Now on 480 MHz frequencies.
Los Angeles City Fire	Operating on 800 MHz conventional frequencies.
KMB305 San Francisco	900 MHz paging.
Kent Washington Fire	800 MHz trunking.
S Africa National Police	A current photo of a police car shows what appears to be a high band and one low band antenna.

Los Angeles County Sheriff History – from the LA Co Sheriff website

1937 -	The Montrose and Lancaster (became Antelope Valley Station in 1961) Stations opened. Two-way radio service was instituted.
1989 -	Department began transmitting radio calls on new portable 480 Radio Systems. Sheriff's Museum dedicated.

Continued on page 12

Big Savings on Radio Scanners

Uniden® SCANNERS



Bearcat® 796DGV Trunk Tracker IV with free scanner headset

Manufacturers suggested list price $799.95

CEI Special Price $519.95

1,000 Channels • 10 banks • CTCSS/DCS • S Meter

Size: 6 15/16" Wide x 6 9/16" Deep x 2 3/8" High

Frequency Coverage: 25.000-512.000 MHz., 806.000-956.000 MHz. (excluding the cellular & UHF TV band), 1,240.000-1,300.000 MHz.

When you buy your Bearcat 796DGV Trunktracker package deal from Communications Electronics, you get more. The GV means "Great Value." With your BC796DGV scanner purchase, you also get a **free deluxe scanner headphone** designed for home or race track use. Headset features independent volume controls and 3.5 mm gold right angle plug. The 1,000 channel Bearcat 796DGV is packed with features to track Motorola Type I/II/IIi Hybrid, EDACS, LTR Analog Trunk Systems and Motorola APCO 25 Phase I digital scanner including 9,600 Baud C4FM and CQPSK. Also features control channel only mode to allow you to automatically trunk many systems by simply programming the control channel, S.A.M.E. weather alert, full-frequency display and backlit controls, built-in CTCSS/DCS to assign analog and digital subaudible tone codes to a specific frequency in memory, PC Control and programming with RS232C 9 pin port (cable not supplied), Beep Alert, Record function, VFO control, menu-driven design, total channel control and much more. Our CEI package deal includes telescopic antenna, AC adapter, cigarette lighter cord, DC cord, mobile mounting bracket with screws, owner's manual, trunking frequency guide and one-year limited Uniden factory warranty. For maximum scanning enjoyment, order magnetic mount antenna part number ANTMMBNC for $29.95. For complete details, download the owners manual from the **www.usascan.com** web site. For fastest delivery, order on-line at www.usascan.com.

Bearcat® BCT8 Trunk Tracker III

Manufacturer suggested list price $299.95

CEI Special Price $169.95

250 Channels • 5 banks • PC Programmable

Size: 7.06" Wide x 6.10" Deep x 2.44" High

Frequency Coverage: 25.0000-54.0000 MHz., 108.0000-174..0000 MHz., 400.0000-512.000. MHz., 806.0000-823.9950 MHz., 849.0125-868.9950 MHz., 894.0125-956.0000 MHz.

The Bearcat BCT8 scanner, licensed by NASCAR, is a superb preprogrammed 800 MHz trunked highway patrol system scanner. Featuring TrunkTracker III, PC Programming, 250 Channels with unique BearTracker warning system to alert you to activity on highway patrol link frequencies. Preprogrammed service searches makes finding interesting active frequencies even easier and include preprogrammed police, fire and emergency medical, news agency, weather, CB band, air band, railroad, marine band and department of transportation service searches. The BCT8 also has preprogrammed highway patrol alert frequencies by state to help you quickly find frequencies likely to be active when you are driving. The BCT8 includes AC adapter, DC power cable, cigarette lighter adapter plug, telescopic antenna, window mount antenna, owner's manual, one year limited Uniden warranty, frequency guide and free mobile mounting bracket. For maximum scanning enjoyment, also order the following optional accessories: External speaker **ESP20** with mounting bracket & 10 feet of cable with plug attached $19.95. Magnetic Mount mobile antenna **ANTMMBNC** for $29.95.



Bearcat® BCD396T Trunk Tracker IV

Suggested list price $799.95/**CEI price $519.95**

APCO 25 9,600 baud compact digital ready handheld TrunkTracker IV scanner featuring Fire Tone Out Paging, Close Call and Dynamically Allocated Channel Memory (up to 6,000 channels), SAME Weather Alert, CTCSS/DCS, Alpha Tagging. Size: 2.40" Wide x 1.22" Deep x 5.35" High

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25.0000-512.0000 MHz., 764.0000-775.9875 MHz., 794.0000-823.9875 MHz., 849.0125-868.8765 MHz., 894.0125-956.000 MHz., 1240.0000 MHz.-1300.0000 MHz.

The handheld BCD396T scanner was designed for National Security/Emergency Preparedness (NS/EP) and homeland security use with new features such as **Fire Tone Out Decoder**. This feature lets you set the BCD396T to alert if your selected two-tone sequential paging tones are received. Ideal for on-call firefighters, emergency response staff and for activating individual scanners used for incident management and population attack warning.



Close Call Radio Frequency Capture – Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS® analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NiMH or Alkaline battery operation and Charger** – 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAH Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396D using 3 AA alkaline batteries. Unique Data Skip - Allows your scanner to skip unwanted data transmissions and reduces unwanted birdies. Memory Backup - If the battery completely discharges or if power is disconnected, the frequencies programmed in the BCD396T scanner are retained in memory. Manual Channel Access - Go directly to any channel. LCD Back Light - A blue LCD light remains on when the back light key is pressed. Autolight - Automatically turns the blue LCD backlight on when your scanner stops on a transmission. Battery Save - In manual mode, the BCD396T automatically reduces its power requirements to extend the battery's charge. Attenuator - Reduces the signal strength to help prevent signal overload. The BCD396T also works as a conventional scanner to continuously monitor many radio conversations even though the message is switching frequencies. The BCD396T comes with AC adapter, 3 AA nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, SMA/BNC adapter, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO or ESAS systems. Order on-line at www.usascan.com or call 1-800-USA-SCAN.

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Bearcat 350C 50 channel desktop/mobile scanner	$104.95
AOR AR16BQ Wide Band scanner with quick charger	$199.95
AOR AR3000AB Wide Band base/mobile receiver	$1,079.95
AOR AR5000A+3B Wide Band 10 KHz to 3 GHz receiver	$2,599.95
AOR AR8200 Mark IIIB Wide Band handheld scanner	$594.95
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Frequency Coverage:

25.0000-54.0000 MHz., 108.0000-174.0000 MHz., 216.0000-224.9800 MHz., 400.0000-512.0000 MHz., 806.0000-823.9875 MHz., 849.0125-868.9875 MHz., 894.0125-956.000 MHz., 1240.0000 MHz.-1300.0000 MHz.



The handheld BC246T TrunkTracker scanner has so many features, we recommend you visit our web site at www.usascan.com and download the free owner's manual. Popular features include **Close Call Radio Frequency Capture** – Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. **Dynamically Allocated Channel Memory** - Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 1,600 channels are typical but **over 2,500 channels are possible** depending on the scanner features used. You can also easily determine how much memory is used. **Preprogrammed Service Search (10)** - Makes it easy to find interesting frequencies used by public safety, news media TV broadcast audio, Amateur (ham) radio, CB radio, Family Radio Service, special low power, railroad, aircraft, marine, racing and weather frequencies. **Quick Keys** - allow you to select systems and groups by pressing a single key. **Text Tagging** - Name each system, group, channel, talk group ID, custom search range, and S.A.M.E. group using 16 characters per name. **Memory Backup** - When power is lost or disconnected, your BC246T retains the frequencies that were programmed in memory. **Unique Data Skip** - Allows the BC246T to skip over unwanted data transmissions and birdies. **Attenuator** - You can set the BC246T attenuator to reduce the input strength of strong signals by about 18 dB. **Duplicate Frequency Alert** - Alerts you if you try to enter a duplicate name or frequency already stored in the scanner. **22 Bands** - with aircraft and 800 MHz. The BC246T comes with AC adapter, 2 AA 1,800 mAH nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. For more fun, order our optional deluxe racing headset part **#HF24RS** for $29.95. Order now at www.usascan.com or call 1-800-USA-SCAN.

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Early Warning Frequencies

These are some typical frequencies to enter into your scanner to give you a head's up when F2 skip begins again.

29.60	10 meter ham FM calling frequency
33.90	SE PA Fire (for those on the west coast of the US, Mexico, South America and Europe)
35.22	US Paging (if there is no local activity)
35.58	US Paging (if there is no local activity)
45.25	New Zealand TV
46.25	Australia TV
48.25	European TV

A good search range in 33.02-33.98 @ 0.02 MHz for US fire frequencies.

F2 Skip Today

The sun has been remarkably void of sunspots. Soon the sunspots will begin again and the 11 year sunspot cycle will be underway.

Many of the stations that I logged have migrated out of the low band, but there are still low band stations around the world ready to be received when the sunspots are up. Patience and persistence will result in the most amazing reception loggings to be had on your scanner.

What You Need to Log F2 Skip

A scanner with programmable multiple search limits and search steps along with the ability to decode CTCSS and DCS will give you the best loggings. Being able to lock out frequencies in each search is a must. Individual attenuation capability is a big help.

Remember that frequency allocations and steps vary around the world. For truly international reception searching must be done in .005 MHz steps.





A good outside antenna is a must! A discone antenna must have a low band element to receive F2 skip. Shop carefully as few discones have the low band element. The scantenna will do an OK job.

Why Just Listen?

Licensed amateur radio operators can talk around the world on 10 meters during F2 skip time. This is where the MUF first makes its climb into the VHF low band.

Log on to the link below and get started today.

LINKS

CHP – excellent compilation of California Highway Patrol frequencies and PL's
http://www.freqofnature.com/frequencies/ca/chp.html
DX Links – excellent list of VHF skip links including low band
http://www.amfmdx.net/links.html
Hello Radio – getting started in amateur radio
http://www.hello-radio.org/hello/index.php
Near-Real-Time Map of the F2-Layer Maximum Usable Frequency
http://www.spacew.com/www/fof2.html
Space Weather – check this site for the latest on sunspots
http://www.spaceweather.com/
Ten Meter Ham Radio
http://www.hamradiosecrets.com/10-meter-ham-radio.html
VHF Skip Archive – more international frequency information
http://groups.yahoo.com/group/vhfskip/message/2123

In Conclusion

The next 11 year sunspot peak is just around the corner. No other scanner activity takes the patience and yields such rewards as logging F2 skip. Check the Space Weather site frequently for the latest in sunspots.

May your signals be strong, your static be few. ●

WHY DIDN'T I THINK OF THAT?

Here are three ideas to enhance your scanner listening



By Chuck Gysi, N2DUP

Sometimes a simple thing hits you over the head like a bag of bricks and you scream out, "Why didn't I think of that before?" It may have been something really simple that made something you do so much better by adding that step. Every so often, we have an "ah-ha moment," and all of sudden, we've got a fix that was so simple.

The scanning hobby has its own things that hit you all of a sudden and you wonder why someone else didn't think of it before. Here are a few things, or perhaps tips, I'm passing along and hope you find that it works for you, too!

The base scanner antenna you already may have

My wife and I have moved several times over the years. In the past 13 years, we've lived in eight places. On the short and long ends, one place was for a month and another place was for four years. Some places I have put up a full compliment of radio antennas and some places I haven't.

At the current location I have not put up any outside antennas yet, even though we have been here more than three years. Work keeps me pretty busy and I am not sure I want to put up all the dozens of antennas I have used in the past. If I do anything, I probably will streamline what I put up. Yes, someday I will put up an antenna or two or three or four to support my interests in scanning, amateur radio, commercial radio and perhaps other radio services.

However, in the interim, I have become impatient with my lack of antennas and my desire to hear scanner activity within a 50-mile radius of my house. It becomes hit-and-miss with just the telescoping antennas on the back of my scanners in the living room and in my office at home.

This Winegard HD TV antenna is mounted atop the author's home and with its rotor, offers excellent viewing of not only local and regional TV signals, but also long-haul DX TV signals in the summer months. It also it a great directional antenna for scanning and works great on the VHF high, UHF and 800 MHz bands. Photo by Lisa Stephens/scancomm.net

Then it occurred to me! I already had a scanner antenna mounted on the roof of our home. When we moved, I had our big Winegard antenna for HD reception that I removed from our old home installed

Continued on page 14



WHY DIDN'T I THINK OF THAT?

continued

The gold F-to-BNC adapter makes it easy to plug the TV coax cable from the TV antenna into the back of the RadioShack Pro-197 in the author's living room. Using the TV antenna for the scanner offers much better coverage than the whip antenna that comes with the radio. Photo by Lisa Stephens/scancomm.net

at our new home. Here was a great directional antenna for VHF and UHF reception already mounted on our house with a rotor and which pulled in great TV signals, including DX TV signals in the summer when TV stations typically carry farther during ducting and other atmospheric conditions. Not only that, I had an amplifier inline, too, which boosted the signal levels for the TV stations. Why would this also not work for the scanner I have in our living room?

What a cheap fix, too! I went to the local department store in our small town and purchased a basic TV signal splitter, a coax adapter and an extra two short lengths of TV coax cable. I unhooked the output cable running from the amplifier to the TV set and plugged in a cable running from the amplifier's output to the splitter. From the splitter, I plugged in the antenna cable running to the TV set on one side and added the new cable to the other side of the splitter and plugged it into an adapter that converted the F connector on the TV cable to the BNC plug I needed for the back of my RadioShack Pro-197 scanner in the living room.

There it was! Voila! My scanner was plugged into the big array TV antenna on my roof and I also could rotate the antenna to pick up signals in various directions. No, it wasn't an omnidirectional antenna for the scanner, but most of my listening is in the direction of the TV stations we primarily watch, so I was good to go!

The amplifier works great in conjunction with the TV antenna and the scanner and I hear so much more now, including trunking systems much farther away than I was able to monitor before. TV antennas and their amplifiers typically have a 50-900 MHz range, which is perfect for scanners (unless you monitor a lot of VHF low band signals) for VHF high, UHF and 800 MHz systems.

Maybe you can carry out the same task to add new ears to your scanner!

The tone tracker

Not everyone pays attention to CTCSS or DCS tones on scanners. These are subaudible and digital tones (subaudible means they are tones transmitted at a level that only very trained ears can hear) that unlock radio receivers only when they are set for the same tone. So if your local police department shares a frequency with other departments or agencies within a 100-mile radius and you sometimes hear the other agencies, chances are your local police dispatcher and cars don't hear the other users because they transmit and receive these subaudible or digital tones on all their transmissions.

However, CTCSS and DCS tones can prove to be "digital fingerprints" when you find new frequencies. Let's say a certain federal agency uses 167.9 Hertz when it transmits. Chances are there aren't other agencies using the same tone. When you find a new frequency while you are searching and the same CTCSS tone comes up on your tone-enabled scanner, there is a good chance the new frequency you found is used by that agency, too!

I find the same typically is the case with county and municipal agencies, too. If a city fire department channel uses a DCS tone of 023 and you see another channel being used at a big fire that also shows the DCS tone of 023, you can guess it's the same agency involved.

I find the same can be the case on business channels, too. If you find an amusement park using a frequency with a CTCSS tone of 179.9 and you

WHY DIDN'T I THINK OF THAT?

find other frequencies in use nearby that seem to be coming from the same area with the same 179.9 tone, it's very likely they are additional frequencies in use in the amusement park. There are many exceptions to this rule, but typically, you will find the same tones used.

So go look for "digital footprints" when you search for new frequencies. It will help you identify who the new frequencies are used by, perhaps. It's a great tool to use! Let us know what you find with this method.

Swap the antenna

If you have a specific monitoring target and you want to get the maximum bang out of your scanner, use the right antenna. If you monitor primarily VHF high band channels in your area, why use a multiband antenna when you need the most bang for the buck on VHF?

Likewise, if you listen mainly to trunked 800 MHz radio systems, you should be using an 800-MHz antenna to get the most signal out of the systems you want to hear.

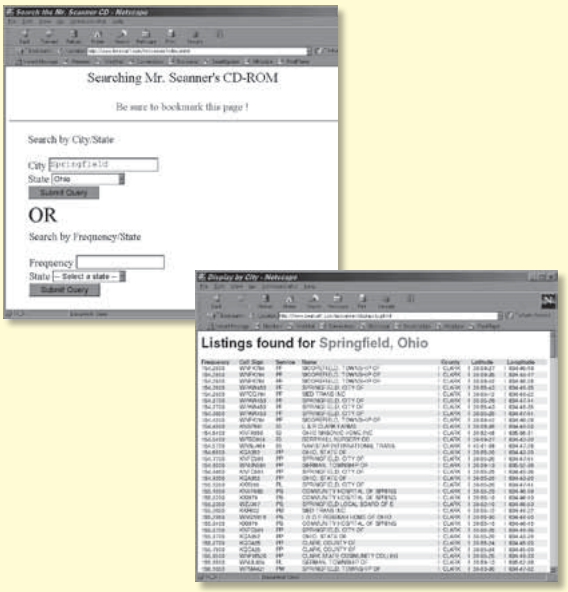
While using the right antenna with your scanner isn't as important for base scanning, it definitely holds the water when it comes to using handheld scanners. If you drive around using a handheld scanner in your car and you monitor mainly 800 MHz trunked systems, use an 800-MHz scanner antenna to get the best reception. The same holds true for any band you monitor the most. You'll notice you won't miss as many calls and you'll hear much better, especially in a handheld radio environment.

So there are three tips you may not have thought about. Hopefully, they are things you can perhaps do in your scanning activities. If you find some help from these tips, let us know. If you have some tips of your own that you'd like to pass along, we'd like to hear those, too.

Write in

What questions do you have about scanning or scanners? 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.

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- Scroll down to the picture of either the Mr.Scanner Public Safety or Mr. Scanner CD Roms
- Click on the "Search the CD Rom" link next to the photo
- On the next screen (first time) pick register for CD, (subsequent times) pick search
- When the form comes up fill it out with the exception of the credit card information. Be sure to include an e-mail address so we can send your user name and password back to you
- 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.

"Regulatory Roundup"

Can You Bet on Your Internet Connection in an Emergency—Anymore?

By Alan Dixon, N3HOE / WPUC72Ø / KST8678

Just a few months back, in our November-December issue, we discussed how secure—or not—our cell phone communications might be getting to be these days. Yes, we still have the possibility of cell phone jamming devices becoming legalized (although that is still very much up in the air at this time). But now we face the threat of having the federal government shut down US citizens' Internet service whenever doing so is deemed necessary, allegedly in the hallowed name of national security.

If passed into law, Senate Bill S. 773, the Cybersecurity Act, would grant the President broad authority to unilaterally declare a "cybersecurity emergency" and to order the "shutdown" of substantial portions of the Internet. Just like that!

In case this potential development strikes anyone as somewhat inconsequential in nature, then we need to consider just how indispensable the World Wide Web has become in recent years. Much of business and commerce absolutely depends upon it. And while we may tend to first think "computers" when we think of the Internet, we should consider that little computing typically occurs during Web browsing and interaction. Rather, our personal computers, laptops, palmtops, etcetera, are communications devices—operating on one massive comm's network. It's not about computing, people. Rather, it is all about communicating, networking, and interacting!

Consider especially the many consumers who have chosen to use Internet-based (VoIP) telephone service instead of the more traditional switched wireline service from their local landline telephone company. When the Internet goes down, so too does Internet phone service. Local calling, 911 emergency services, and of course long distance—it all goes down!

And I wouldn't for a moment want to speculate that government would only shut down the Internet for only the most seriously threatening scenarios. A threat to "national security" can be perceived as many different things by different officials in various agencies at various levels. All any such official would need to do is impress upon the White House the alleged urgency of the situation, and—BOOM—a whole lot of folks' business affairs and communications then come to a screeching halt.

Before we hit any panic buttons however, we should be aware that this bill was introduced into Congress months ago, and as 2010 dawned, had yet to see much action beyond merely being introduced into committee in the Senate. A whole lot of things remain to be done in order for this bill to pass both houses of Congress and head to the Oval Office for the President's signature. So S. 773 continues to languish in committee, apparently very low on anyone's legislative priority list. (This may well be due to the numerous other provisions in the bill, including a good bit of federal spending on

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cybersecurity preventive programs, at a time when the federal budget is already quite swollen.) Frankly, given the large lapse of time and the lack of any recent national cyber crisis (so far!), this bill likely isn't going anywhere at all.

But don't even think about sitting back and breathing a sigh of relief over this. We all need to take a serious lesson about so much reliance on the Internet. Fact is, the President already has substantial power to shut down various modes of communications in case of war (and we are still at war) and other serious national emergencies (Title 47 CFR §214.4, et al.; also Executive Order #12472). This is nothing new, so the Administration likely doesn't need any additional authority in the form of S. 773 in order to make life miserable for quite a few folks.

So what does this mean to dedicated communicators like you and me? It means that we all need to step back, take a moment, and ponder our growing dependency on the Internet. The possibility of government shutdowns aside, the World Wide Web will exhibit vulnerabilities of its own, just as will any large system of any sort.

For one thing: As individuals, we need to consider carefully whether we want to rely entirely on a Web-based telephone service, versus conventional landline telco service or even circuit-switched wireless phone services such as cellular or PCS. (For the record, I no longer have any business or financial interests in any particular telecommunications industry sector!)

Experienced emergency communicators know that *diversity* is the key to maintaining reliable communications circuits. So in the proposition above, if we happen to have any of two of the services mentioned, then we are far less likely to find ourselves without any telephone service due not only to a "cybersecurity" situation, but for any disruption of Internet service. This is simple, really. Though admittedly it's not the cheapest setup. Then again, we usually get what we pay for. Given that most of us probably want some sort of mobile phone service however, it's not unreasonable to consider having a cellular handset, while maintaining at least one type of home telephone service, whether telco, Internet, or cable TV-based—particularly if we happen to use a computer workstation at home.

Okay then, for another thing: Amateur Radio Service operators will want to contemplate their reliance on Internet-linked repeaters and VoIP nodes. When they work, which is most of the time, modes like EchoLink®, IRLP™, and D-Star™ are excellent. However, the "system" in question need only have one point of failure for communications to fail entirely. For example, in Internet site linking, merely the loss of the local site-to-IP node link—on either end of the overall communications circuit—will stop comm's dead for the duration. It doesn't take a presidential shutdown of the Web to disrupt Internet-linked ham radio site signals.

So, who needs HF/shortwave radio with its huge antennas and its typically high transmit power requirements? Well, you and I do, if we are into emergency communications (EmComm) operations at all. Moreover, we need HF if we are to have that communications "diversity" that is so valuable in—again—maintaining reliable communications circuits. Don't misunderstand me here: I'm not speaking against linked repeater nodes. (For the record, this time, please note that I am in fact rather heavily invested personally in D-Star equipment!) After all, we did say that we need more than one mode to maintain reliable communications circuits. For DX comm's we really ought to have RF links (our HF capabilities) as well as landline/wireline links (the Internet).

For those who are into EmComm but are not licensed radio hams, HF is not at all a dead issue for you. Whether or not you are active with a REACT®, Alert™, or CERT team, you do have the 11-meter Citizens Band available. And it's not just 4-watt QRP signals in AM mode, either. Set yourself up with a sideband rig and run both USB and LSB modes on the appropriate channels (Channel 16, & 35-40). Stock legal CB sideband rigs run 12 watts peak in those modes, putting your signals solidly out of the arbitrary 5-watt QRP "low power" realm! Yes, the FCC still stands on its ridiculous 155-mile distance-of-communications limit on 11-meters. But, the Commission has specifically

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ruled that nothing in the CB Radio Service Rules prevents an individual who receives a message requesting emergency assistance, regardless of how far away the transmitting station may be, from informing public safety providers (such as by telephone or by relaying over another radio service) of the need for assistance. (See DA Docket 01-1831, ¶9). That aside, we still want the maximum reliable ground wave distance within that 155-mile radius, anyway. So go for that 11-meter sideband rig!

We'll be watching here at NatCom to see whether S. 773 makes any headway in Congress. Whether it ever does or does not become law, always bear in mind the vulnerabilities of any Internet-based communications mode versus those of the alternate modes available. When choosing your comm's setup make your best choices accordingly. Always consider the "diversity" principle: More and varied modes offer greater relative safeguard toward signal path availability.

White House Appoints Ham Radio Operator as Cybersecurity Coordinator

So often, high-level federal government officials are appointed into office merely as the result of a political "favor" being returned. For example, an enterprising citizen might be instrumental in organizing an effective electoral campaign for a presidential or gubernatorial candidate in a given locality or state. Thus when the executive candidate is subsequently elected or reelected, that citizen may have his or her efforts rewarded by an appointment to a prestigious or influential office. Some of these appointed offices such as judges, ambassadors, and FCC commissioners require a confirmation vote from the full Senate. Others do not require such"rubber stamp" ratification.

Any number of these positions may functionally require specific technical or social skills in medicine, electronics, or foreign languages. Yet business executives and lawyers are often the ones in line for a favor when these appointments are made. Were you aware that nearly all of the various FCC commissioners appointed in at least the last twenty-five years have been attorneys by trade? And how many of them were engineers, or how many even had so much as a Novice class Amateur Radio license? I'm still doing the research on that question. So far, I haven't been able to identify a single one.

Occasionally however, common sense does prevail over partisan politics and the "Good Old Boy" system. Once in a while, an excellently qualified candidate really does get to be appointed to high office. One shining example of this is the recent White House appointment of a licensed radio ham and computer systems expert to the position of Cybersecurity Coordinator. This past December 22nd Howard Schmidt, W7HAS was appointed by the President to this office which is arguably key to national security.

Schmidt has been involved in cybersecurity for many years. He was a Special Agent with the Air Force Office of Special Investigations back in the 1990's. Schmidt was instrumental in establishing the Information Technology/Information Sharing and Analysis Center and until recently continued serving as a reserve capacity Agent for the Army Criminal Investigations Division. He had also been appointed by former President Bush to serve on the Critical Infrastructure Protection Board after the 9-11 terrorist attacks. According to government press releases, the Director of the National Cybersecurity Center at the Department of Homeland Security (DHS) reports that his agency will be working under Schmidt's leadership.

Government sources tell us that Mr. Schmidt, an experienced General class ham, actually has experience building his own computer equipment. He reportedly holds a postgraduate-level degree with studies in management/business. Yet the "ARRL Letter"/American Radio Relay League reports that Schmidt—a League Member—had taken electronics courses from Bell and Howell and NRI in preparation for securing his first Amateur Radio license back in the 1970's. I hasten to add that many of us who happen to work in the radio or electronics industry have our own stories to tell

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of trade school or correspondence courses being valuable stepping-stones leading to our subsequent careers. We in that category can readily identify with Schmidt, even more so if we happen to hold other, advanced degrees.

Schmidt's resume in law enforcement, both civil and military, as well as in computer security and forensics could fill pages! Let us suffice it to say that W7HAS is particularly well qualified to serve as "Cybersecurity Czar" for the coming years. So, we can all feel confident that we have someone in the executive branch thoroughly qualified to protect our nation's computer information systems against attack. Welcome, Mr. Schmidt, and thank you for "being there"!

Progress on The Amateur Radio Emergency Communications Enhancement Act

The Senate version Amateur Radio EmComm "Enhancement Act" now making its way through Congress, S. 1755, passed the full Senate in December. It now moves on to the House of Representatives where it will face the House version of the bill, H.R. 2160. Loosely stated, both bill versions essentially would direct DHS (Homeland Security) to study facilitating the capabilities of Amateur Radio in regard to providing government support to ham radio at all levels, and in removing impediments to Amateur operations. A primary expectation is that as a result of these bills we may ultimately see Federal preemption of all non safety-related antenna restrictions, particularly those in private restrictive covenants promulgated by condominium and homeowner associations.

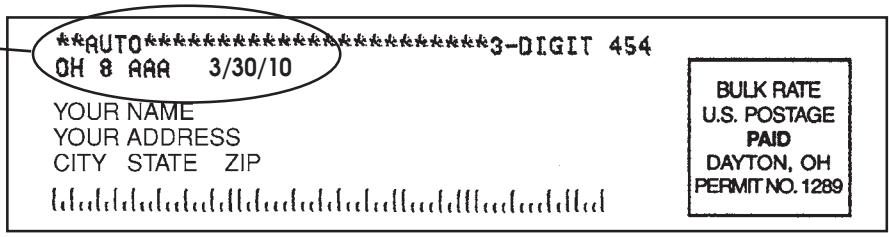
There's still a long, long way to go with these bills and their hoped-for results. But this time around it could actually happen. Stay tuned. ●

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MONITORING PENSYLVANNIA STATION

By Ed Muro, K2EPMA

1,290 trains pass through America's busiest train station each day, that's just about 1 train every 67 seconds at New York's Pennsylvania Station. With trains arriving and departing from three railroads (Amtrak, New Jersey Transit, and the MTA's Long Island Rail Road) there are some major two-way radio communications going on underground; one might call it organized chaos. Located on 33rd. Street, between 7th and 8th Avenues in New York City Penn Station is a major transit hub in midtown Manhattan. Penn Station serves commuters from Long Island and New Jersey as well as subway riders in New York City. It also provides intercity services through Amtrak. In 2008 Penn Station saw 8.7 Million Amtrak arrivals and departures, twice that of the next busiest depot....Washington, D.C.'s Union Station. 405,00 rail passengers use Penn Station every day and nearly half of them are Long Island Rail Road customers.

Pennsylvania Station is named for the Pennsylvania Railroad (PRR), its builder and original tenant, and shares its name with several stations in other cities. The current facility is the substantially remodeled underground remnant of a much grander structure designed by McKim, Mead, and White and completed in 1910. The original Pennsylvania Station was an outstanding masterpiece of the Beaux-Arts style and one of the architectural jewels of New York City. The station's air rights were optioned in the 50's. The option was executed soon after. The option called for the demolition of the head-house and train shed, to be replaced by an office complex and a new sports complex. The tracks of the station, which were located well below street level, would remain untouched. Demolition began in October 1963. The Pennsylvania Plaza complex, including the fourth and current Madison Square Garden, was completed in 1968.





Tracks 1-12 are exclusively used by Amtrak and NJ Transit trains, and the Amtrak and NJ Transit concourses both have gates to these tracks on the south side of the station. The LIRR has the exclusive use of Tracks 17-21 on the north side of the station, and shares Tracks 13-16 with Amtrak and NJ Transit. Except for the shared tracks, a passenger can not reach the LIRR tracks directly from the Amtrak and NJ Transit concourses, and vice versa. Since Amtrak and NJ Transit share the same tracks, it is possible for passengers to exit a NJ Transit train and wind up in the Amtrak concourse, and vice versa.



While it sounds like a daunting task, monitoring communications in and out of Penn Station can be most enjoyable if you take a little time to organize your scanner. My approach is to dedicate a bank or two to each of the operating rail lines (depending upon the channel capacity of each bank in a given scanner) and then break down that bank in to operating frequencies and law enforcement frequencies. As VHF

Continued on page 22

Hobby Radio Stop

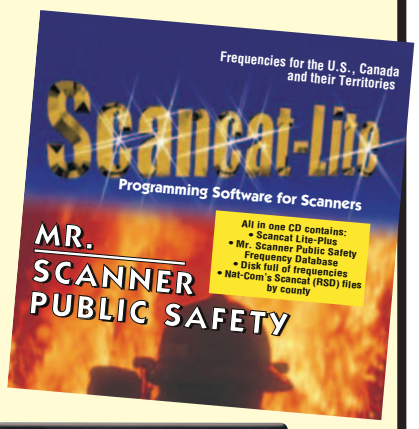


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Monitoring Pensylvannia Station continued





rail frequencies travel pretty far, you should do OK with a modest outdoor antenna if you are anywhere in the New York Metro region.

Long Island Rail Road

Operating Frequencies

161.445			Dispatcher		
161.265			Yard/Road East of Hicksville/Port Jeff./Ronkonkoma		
161.535			Train Info/Carmen/Babylon Yard/Intertrain/ Road Crews/West Side Yard		
160.920			East River Tunnel (shared with Amtrak)		
160.395			Maintenance		
160.785			Penn Station Crowd Control		
160.725			Maintenance of way		
161.385			Signal Maintenance		

Law Enforcement: Several Years ago the Long Island Rail Road Police were merged with other agencies under the MTA's purview and renamed the MTA Police.

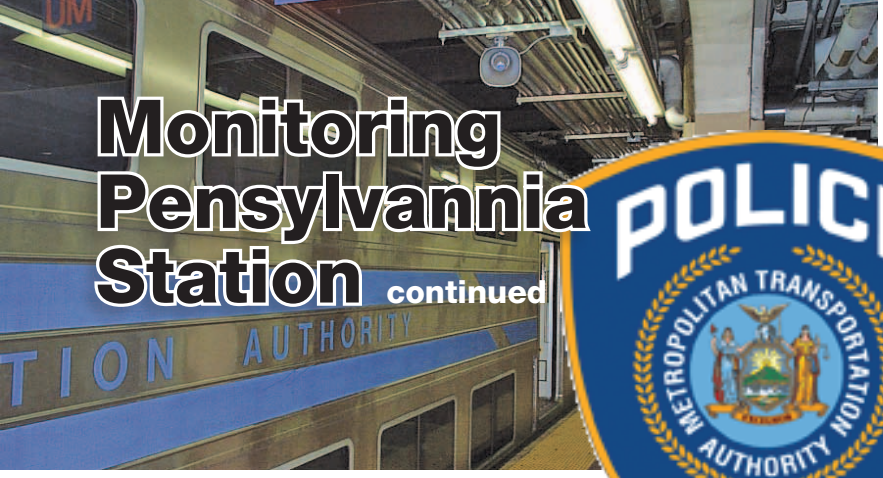
160.455		114.8	1	Dispatch Operations (mobiles use 151.4 PL)		
160.605		151.4	2	Car-to-Car		
160.320		114.8	3	Penn Station and Flatbush Terminal		
155.760			4	MTA Police Manhattan Division		
452.9125				Vehicle Repeaters		
452.6375				Portables		
452.6875				Portables		
452.7625				Portables		
452.8125				Portables		
452.8625				Portables		
452.8625				Portables		

Amtrak

Northeast Corridor	161.010 & 160.920
Sunnyside Yard Switching	160.650
Amtrak Police	161.295 PL=114.8
Passenger Services	160.305

New Jersey Transit - The **New Jersey Transit Corporation** is a statewide public transportation system serving the state of New Jersey, and Orange and Rockland counties in New York. It operates bus, light rail, and commuter rail services throughout the state, notably connecting to major commercial and employment centers both within the state and in the adjacent cities of New York, Philadelphia and Wilmington, Delaware.

The **Northeast Corridor Line** is a commuter rail operation run by New Jersey Transit along Amtrak's Northeast Corridor. It is the successor to commuter services provided by the Pennsylvania Railroad along the section between Trenton, New Jersey and New York Penn Station. At New York Penn Station, trains are either turned around for service back to New Jersey or head to Sunnyside Yard for storage. Most servicing is done at the Morrisville Yard at the western end of the line. The Northeast Corridor Line is colored red on the current New Jersey Transit system maps and its symbol is the State House in Trenton.



Monitoring Pensylvannia Station continued

Frequencies of Interest-

161.010
161.400

NYC Subways

156.105			67.0	Signal Department			
160.845				Yard			
161.190			127.3	IRT SUBWAY			
161.505			127.3	BMT SUBWAY			
161.565			127.3	IND SUBWAY			
470.3875				POWER SECTION			
			141.3	STATEN ISLAND RAILWAY			
470.4875			123.0	Maintenance of Way			

NYPD Transit Division Manhattan 471.0875

160.905		103.5	TR-1 DIV 1	DIV 1 - Manhattan South	Dispatch	
161.175		103.5	TR-2 TAC 1	TAC 1 - Manhattan South		
160.500		103.5	TR-3 DIV 2	DIV 2 - Manhattan North/Bronx	Dispatch	
160.485		103.5	TR-4 TAC 2	TAC 2 - Manhattan North/Bronx		
160.965		103.5	TR-5 DIV 3	DIV 3 - Queens/Brooklyn East	Dispatch	
160.260		103.5	TR-6 TAC 3	TAC 3 - Queens/Brooklyn East		
160.305		103.5	TR-7 DIV 4	DIV 4 - Brooklyn West & South	Dispatch	
160.530		103.5	TR-8 TAC4	TAC 4 - Brooklyn West & South		
160.695		103.5	TR-9 CW	CITYWIDE		
160.695		103.5	TR 10 T/A	TALK AROUND		

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RADIO : THE LONG TERM VOICE OF AMERICA



By Dorothy Rieke

Home entertainment centers did not exist during the 30s and 40s. However, most of us had radios for news, weather, music, "soap operas," drama, comedy, baseball games, and homemaker shows. Singers, bands, comedians, election reports, and play-by-play descriptions of sports events, all forms of "big city" entertainment, were carried through radio waves to farms and small towns. This wonderful invention brought outstanding events within the reach of everyone who had access to it.

Radio popularity blossomed with certain radio personalities such as Amos and Andy, Kate Smith, Burns and Allen, Rudy Vallee, Jack Benny, Red Skelton, and others.

Franklin Roosevelt was one of the first to use the radio to his political advantage with his "Fireside Chats" keeping listeners up-to-date on government policies relating to the economy and World War II. Also, documentary programs relating goals for the Second World War and for peacetime, took government policies directly to the citizens.

News reporters, H. V. Kaltenborn, Edward R. Murrow, Walter Winchell, Lowell Thomas, and others broadened the radio's influence by reporting and commenting on national and international affairs.

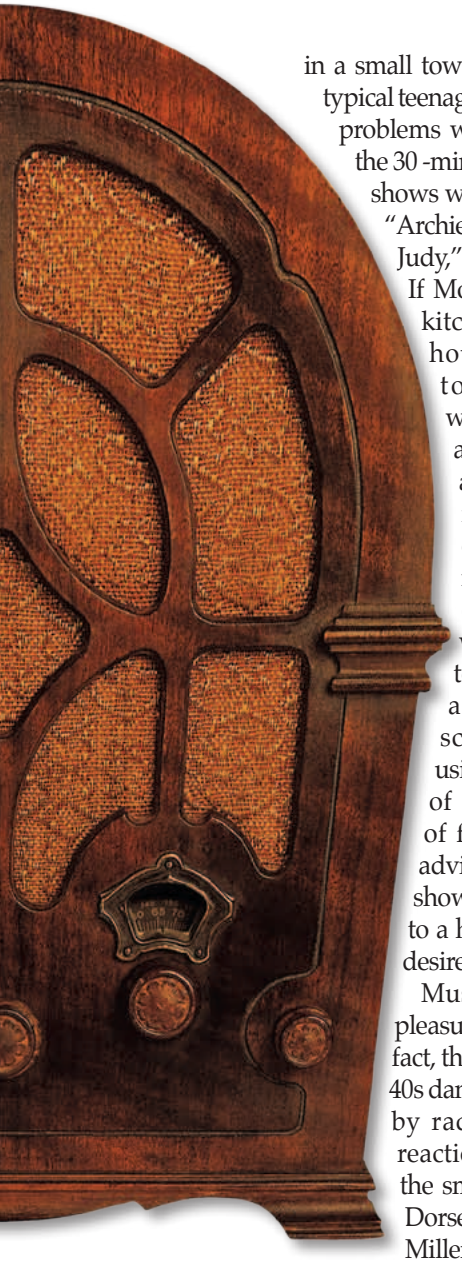
Farm families listened avidly to early morning crop reports, weather forecasts,farming and gardening hints. Farmers planned their days keeping in mind weather forecasts. I'll have to confide that some of those predictions were simply "by gosh and by golly' with little or no scientific knowledge employed. They often elicited such comments as "They don't know beans when the sacks are open!"

Our first family radio was a small brown box with two knobs, one for changing stations, the other for turning on power and adjusting volume. This radio serviced us for years. In 1939, for our family's Christmas present, Dad purchased a brown cabinet style radio with a long narrow lighted window for displaying station numbers and eight small transparent red push buttons that switched stations quickly. Turning one dial brought additional stations including shortwave; the other switched on power and adjusted volume. Occasionally, we were shocked and surprised when we tuned in to remote stations and heard voices speaking in foreign languages. That radio put our family in touch with others and broadened our horizons.

Like many other Americans who found relief in entertainment, our family crowded around that radio during evening hours listening to broadcasts. We all liked comedies such as Fibber McGee and Molly who lived at 79 Wistful Vista and contended with the overflowing contents of a hall closet. Gildersleeve, whose booming laugh was known to all listeners, Peavey,the druggist, and Myrt, the telephone operator joined to make this show a popular one.

Bob Hope's comedy show featuring Jerry Colonna and Francis Langford always ended with the song, "Thanks for the Memories." Red Skelton's show was the funniest of funny with his make believe unique characters, Clem Kaddidlehopper, Gertrude and Heathcliff (the seagulls), and the Mean Widdle Kid . Those who enjoyed mysteries listened to Sam Spade, "The Shadow," "The Saint," and "I Love a Mystery." "I Love a Mystery" related the happenings at the A-1 Detective Agency with a motto, "No job too tough; no mystery too baffling." I was very disappointed if I missed the adventures of the tough detective, Sam Spade solving a case because I imagined myself working along with Sam Spade as a sort of Girl Friday who shared in the excitement of solving cases.

Game shows were represented by "Truth or Consequences" where Ralph Edwards often shouted, "Aren't we devils!" after some unfortunate person who could not answer a difficult question was hit in the face with a meringue pie. Teenagers were not ignored in radio presentations. "Henry, Henry Aldrich!" with a reply in a squeaky high voice "Coming, Mother," heralded another popular program set



in a small town. Henry Aldrich was the typical teenager of yesteryear with many problems which were solved during the 30 -minute show. Additional teen shows were "Meet Corliss Archer," "Archie Andrews," "A Date with Judy," and "That Brewster Boy."

If Mother was working in the kitchen during the morning hours, she often listened to homemaker shows where radio ladies talked about their families, their activities, and their "tested" recipes. Some recipes were old favorites; others were new and sounded so delicious, most listeners were intrigued enough to try them. At one time, a homemaker suggested scrubbing kitchen floors using milk. Mother, thinking of sticky floors and hordes of flies, did not follow that advice. All in all, homemakers shows often provided solutions to a housewife's loneliness and desire for different family fare.

Music was one of the great pleasures of early radio land. In fact, the all- time popular 30s and 40s dance band era was advanced by radio audiences and their reactions. Millions listened to the smooth rhythms of Tommy Dorsey, Benny Goodman, Glenn Miller and others. A few shows such as Kay Kyser's Kollege of Musical Knowledge," "Information, Please" and Dr. I. Q." combined knowledge with prizes.

Some housewives and others spent afternoon hours listening to "Backstage Wife," "Ma Perkins," and other serials. Mary Noble, the star of "Backstage Wife," was cast as a small town Iowa girl who married a matinee idol. Ma Perkins spent her days trying to keep Banker Pendleton from foreclosing on her lumberyard in Rushville Center.

My sister enjoyed "One Man's Family," a story of Henry Barbour's family and its problems. Dad often laughed uproariously as he sat in front of the cabinet radio and listened to the "Amos and Andy Show." Amos, Andy, Sapphire, Miss Blue, Henry Van Porter, Kingfisher, and members of the Mystic Knights of the Sea Lodge combined to create many comical situations.

Of course, I had my favorite after- school exciting dramas, Captain Midnight, Jack Armstrong, Superman, and the Long Ranger, which once I heard, I hurriedly finished assigned homework.

Captain Midnight's code -o-graph breaker was a necessity in order to break secret codes given daily at the close of programs. By mailing proofs-of-purchase, one could receive this all important code breaker which gave clues to action on succeeding programs. To this day, I can not imagine how grocery stores supplied all the cereal proofs- of -purchase for young listeners. Jack Armstrong, the All American boy, and Bill, his uncle and friend, spent time in gruesome places such as the dungeons of the crocodile god. Masses of youngsters felt a rush of anticipation as they heard "It's a bird! It's a plane! It's Superman!" News reporter Clark Kent masqueraded as Superman fighting a never ending war against crime. Reporter Lois Lane, employed by the DAILY PLANET, aided and abetted him in his fight for justice. Western fans were intrigued with the daring exploits of the resourceful masked rider of the plains. "From out of the past come the thundering hoof beats of the great horse, Silver--the Lone Ranger rides again" preceded the hero's response, "Come on, Silver! Let's go, big fellow! Hi! Ho! Silver! Away!" This story set in the early west dealt with a survivor of a band of Texas Rangers, John Reid, who with the help of his Indian companion, Tonto, brought justice by apprehending train robbers, cattle rustlers, and other lawbreakers.

The radio of past years interested and intrigued meeting the needs of every individual with various offerings. Even though, today's broadcasts do not ordinarily include dramas or "soap operas," radio now accommodates all tastes with music of different kinds, broadcasts of sports, talk programs, and local, state, national and international news. Radios blare on beaches, soothe and interest those in cars, and keep pace with joggers and hikers. In fact, most of us are infected with "radio-itus," an affliction that requires no cure only enjoyment.

The radio of years ago, provided programs for every ages and met every need for entertainment. At that time, the programs lived the burdens of the Great Depression and of World War II, hard daily labor and discouragement causing people to laugh and dwell on other things.

Radio today has changed to some extent. The popular dramas and "soap operas" seldom invade air usage. However, music, news, and sports continue to be broadcast. The music of different stations is geared to appeal to different ages and preferences. The news continues to be extremely important for every citizen who takes part in our democracy. Certain sports which are not aired on television often are described by announcers with a flair for excitement and detail. Radio still retains an important place in our lives today.

How dB Down is a Broadband Antenna?

By Gordon West, WB6NOA

I always become apprehensive when a new General Class Ham student tells me they have a new broadband HF antenna system.

The literature certainly seems appealing:

- **75 meters through 6 meters, continuous tuning**
- **Low SWR ANYWHERE on the bands**
- **No moving parts for ALE operation**
- **1 KW power handling capability**
- **50 ohms impedance, throughout the band**

Years ago, the device was called MAXCOM, with a local radiologist taking it in for an x-ray! What he found was a collection of un-connected parts potted in, along with a toroidal inductor to provide loading and distribution of RF on the output terminals.

I indeed made some contacts, maritime mobile, with my trusty Maxcom, but my signal strength, compared to a regular dipole, was reportedly several S units less.

About a year ago, Dan Dankert, N6PEQ, an avid HF operator and contester, conducted some on-the-air evaluations of the broadbanded vertical, the CHA-250B from Comet (NCG Company). His results confirmed low SWR, broadband operation, no moving parts, and fair to good signal reports. On our morning 40 meter net, several stations run the NCG (Comet) broadband "250B" vertical and they are within an S unit or so of other stations running trap verticals or 40 meter resonant dipoles.



Gordo untangles the new B&W, a frustrating experience straight out of the box!

Radio missionary work on Christmas Island, south of Hawaii on the Equator, needed a broadband antenna system that would cover from 4 MHz marine through 22 MHz marine, plus special frequencies for the Christmas Island hospital and outlying island medical clinics. There were plenty of palm trees to string up dipoles, but we needed something broadbanded, where medical staff members could hop around various non-ham frequencies for communications between clinics and medical transport ships.

So, my thoughts turned to the well respected name Barker and Wil-



Gordo's cat watches the repeated testing process!

How dB Down is a Broadband Antenna?

liamson, based out of Coco, Florida. www.bwantennas.com

B&W antennas are military favorites. The military may use them with their elaborate ALE systems, and with no moving parts, they have instant switching. They always look like 50 ohms, great for near-deck mounting to take advantage of NVIS. They are broadband, folded dipole in design; and they offer various models from 20 feet in length all the way up to 180 feet.

The 20 footer goes from 14 MHz on up through 6 meters, and the 90 footer goes from 1800 kHz on up through 6 meters. The 180 footer – twice as long – likely offers better performance on the longer wavelength bands.

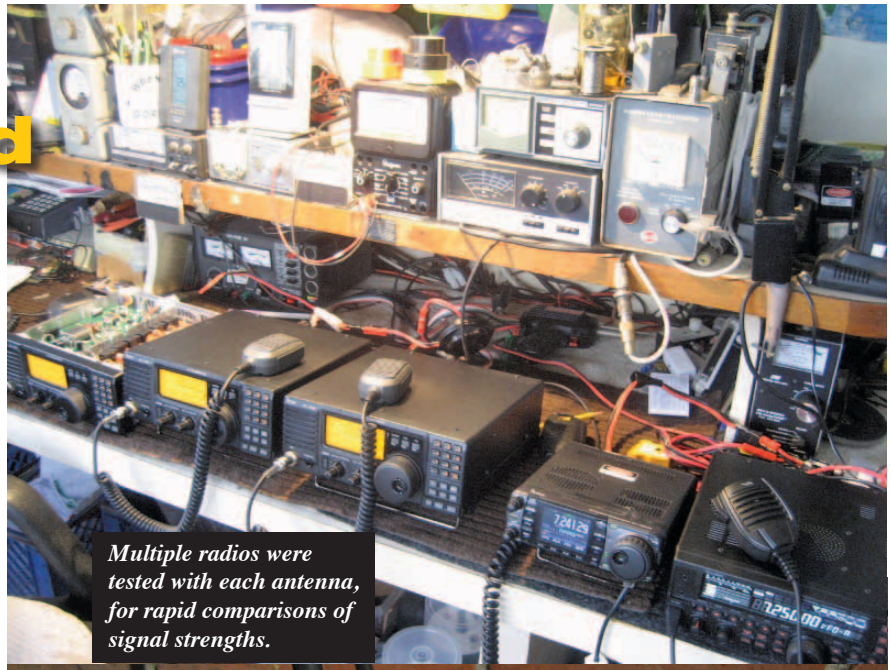
I brought in the BWD-65, 65 feet in length, covering 4 MHz and higher.

I would be comparing the results with nearly-instant antenna selection, using a 4 position Alpha Delta antenna switch. My comparison antennas, along with the B&W, would be hauled up the tower, and each antenna separated from the other by at least 40 degrees. These are the comparison antennas:

Homebrew half wavelength dipole, cut to 40 meters

- **RadioWavz 40 meter Bazooka dipole**
- **40 meter trap dipole on my Cushcraft A4 beam**
- **The broadband B&W**

My morning 40 meter net members, with stations spread all around me, several hundred miles out, would let me know my signal strength to them. We would switch between antennas so rapidly that 40 meter fading was not a problem. I would un-key as I went to each antenna to insure my transceiver would not hiccup during switch selection.



Multiple radios were tested with each antenna, for rapid comparisons of signal strengths.



Will a broad band dipole work better than the old MAXCOM resistive coupler?

The feedpoints were approximately 50 feet up. Both ends of each dipole were in the clear as they came down at about a 45 degree angle, forming multiple V's.

Best performance was the trap dipole elements on my A4 Cushcraft beam. Indisputably, it was one or two S units better than any of the dipoles.

Next best was the RadioWavz Bazooka, along with my $5 homebrew half wave dipole. On subsequent tests, they were absolutely equal. The RadioWavz Bazooka gave us lower SWR throughout the band than my cut –to-length dipole, so if you operate CW as well as voice, the RadioWavz antenna is a great way to go.

The performance of the B&W was almost 2 S units down from the common dipole. However, the B&W

Continued on page 28

How dB Down is a Broadband Antenna?

continued



Black wire is the dipole , compared to the double wire B&W. 3 element beam on the top.

offered a dramatic improvement in picking out signals through local power line hash.

I then reconfigured the B&W into their recommended sloper design, and performance predictably improved in the direction of the downward slope. At times, the B&W was nearly identical to my homebrew half wave dipole for 40.

The B&W folded dipole was a nightmare to string up. The feedpoint is heavy, the copper-weld wires constantly tangled, and worse yet, developed kinks. It was a real effort to keep the white spacers from twisting vertical to horizontal. Although they do make a kit for terminating both ends to keep this from twirling, I didn't want to spend any more than the $300 for this broadbanded all-band folded dipole.

Barker and Williamson explains different wire configurations that may be ordered with their folded broadband dipole antennas.

"With our BWD series, (this is) copperweld for amateur antennas, one time deployable," comments Jeffrey Engel, of Barker and Williamson. His comment of "one time deployable" likely acknowledges the kink problem, and the nightmares associated with trying to take it down, re-roll it up, and then deploy it for a second time. Not recommended by B&W.

"BWDS series, stainless steel, (is) intended for professional base station use, although tempered dead soft to allow take up without kinking problems. (It terminates to an) N connector," adds Engel. I see he has replaced "amateur antenna" with "professional base station use". Yes, much more expensive.

"BWDI series, colored flexweave for tactical antennas, (is) intended for rear or forward tactical deployment, camouflaged, RFP spreaders, comes with plastic winding cores and carry bag. N connector," adds Engel, a most likely product that the military would specify and purchase with our tax dollars.

"The copperweld is only offered as a cheap alternative for radio amateurs. Islands and coastal regions should definitely be using the stainless steel version," finalizes Engel, summing up my opinion that the three B&W antennas I brought in for Christmas Island will indeed be a nightmare to erect, will not allow a second deployment, and will closely match the green waters as the same color that the copper will exhibit in just days.

We will see how long this "cheap alternative for radio amateurs" antenna will last in the tropics!

Next, we would operate near 4 MHz, and see how it performed in our near side-by-side comparison.

The test was then repeated on 75 meters, near where we would be operating on the 4 MHz marine band, on the water at Christmas Island. Great receive with the B&W, but again, at or below signal strength of dedicated homebrew 75meter dipoles, or the 75 meter RadioWavz Bazooka. On the plus side, with the B&W, we had the entire band, including 80 meters, too! The other dipoles only gave us a narrow 50 kHz window of low SWR operation.

I was not surprised at this outcome. I once operated from the United Nations' Radio room, 4U1UN, and the majority of stations I worked gave me lopsided signal reports. I would hear them at S-9, and they heard me at S-5 or S-6. They would NOT let me on the roof to see how their B&W was configured! (Before 911)

The military, as their main customer has B&W's main attention to antenna tests. I couldn't get much excitement out of them for these ham radio trials – even when I plunked down a kilobuck to purchase three of the 64 footers for my T32 Christmas Island expedition. In fact, on the day I called, they told me no one could take my order because "someone had the flu."



The B&W antenna, hoisted aloft.

The military most probably runs high power into these B&W antennas, making up for their inherent feedpoint and matching unit losses. The matching unit – a rather heavy tube – can be seen just above the feedpoint heavy tube in the photos. You might also spot a kink or two which they tell us to avoid. I think they want us to buy the stainless steel version that only the military can afford!

Summary: The relatively compact A4 beam from Cushcraft uses a 40 meter trap and a capacity hat to load as a 40 meter rotatable dipole. It did the best.

The RadioWavz Bazooka gave us more frequency excursion with low SWR, and comes already made up, with extra long wire lengths to get MARS operators below the bottom edge of 40. But this antenna only works on 40 meters.

My homebrew 40 meter cost me all of $5, and I found I can even get performance up on the 15 meter band. And with a tuner, I could sort of get it to play down on 75 – no more efficient than the awkward B&W.

As for the B&W, this design has been around for years, and I wish they had a more forgiving folded dipole conductor that won't kink, turn green, or just tangle with anything it can get near. I found it more efficient as a sloper than an inverted V. As for trying to configure the B&W as a straight across dipole, the weight of the matching elements, plus the feedline, causes the center to droop noticeably, so you really need three supports if ever you wanted to run it flat.

Hope to hear you on the air from Christmas Island. I'm all set to switch frequencies instantly with the broadband B&W!

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TOP 10 EVENTS OF CB HISTORY

Citizens Band Radio has been around for more than 60 years

By Chuck Gysi, N2DUP

The citizens band radio service has been around longer than many of us. It got its start more than six decades ago. Here's a look at some of the biggest moments in CB history from information I can round up, and my own memory of being a CBer for more than four decades. Some of the info might be a bit sketchy, but perhaps someone can help me with some of the info. Without much further congestion on One-Nine, let's get into the history!

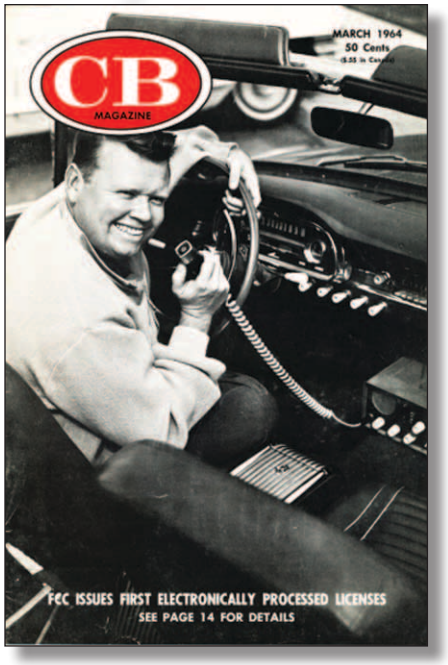
THE BIRTH: CB radio was geminated in the mid-1940s, with the FCC finally creating the first CB service on unused UHF frequencies in 1947. The first CBers used short-range UHF rigs, but it didn't catch on with many. The radios were bulky at best! The first 11 years of CB didn't get off the ground, but if you think about it, it really lent itself to today's GMRS channels at 462 and 467 MHz.

THE REBIRTH OF CB: Seeing how ineffective UHF radio was working for the citizens radio service in its Class A and Class B channels at 460-470 MHz, the FCC carved a new CB band from the former 11-meter amateur radio band by making 22 channels available for citizen use, and adding a 23rd channel from a radio control service. The new 23 channels opened in 1958 and while it was more popular than the older UHF CB, it still took a little while to catch on with the public.

SOLID STATE RADIOS: The first CB radios were tube radios – base and mobile. They were bulky and even smelled funny when the dust on them started cooking atop the tubes! As the 1960s turned into the 1970s, CB radios turned from the monster rigs into nice compact little radios that mounted easily under dashboards. That really helped make CB what it is today.

POPULARITY SOARS: After the 1973 oil embargo, a 55-mph nationwide speed limit was set, gasoline was rationed and motorists needed a way to figure out speed traps and where gas was available for fueling. Truckers knew about CB radio; the general populace had to jump on board. Everyone from actors and actresses and even the First Lady had to get in on the act and show that they were CBers. If you drove a vehicle in the 1970s, you had a CB radio under the dash. It was the in thing to do!

CHANNEL 9: While it was generally accepted by CBers that Channel 9 was for emergencies, it wasn't officially recognized as an emergency channel until 1969 when the Federal Communications Commission made the ruling. Some used Channel 9 in the past for calling and other purposes.



CB Magazine was the second most popular CB magazine and was published from 1964 until 1981. This is the March 1964 cover.

CHANNEL 19: I can't remember exactly what year it was, but in the early 1970s, perhaps around 1974, there was a nationwide campaign to shift truckers and other highway CBers from Channel 10 to Channel 19. The problem with Channel 10 was that it was so close to Channel 9 and emergency monitors had trouble handling emergency calls when truckers and others – especially those who operated with illegal excess power – were yakking on Channel 10 and they were handling

TOP 10 EVENTS OF CB HISTORY continued

emergency calls on Channel 9. The adjacent-channel splatter made it difficult to hear. The change came about on Oct. 19 that year, or 10/19, if you get the analogy. The slogan was "19 on the 19th."

CHANNEL RESTRAINTS: The FCC had long-standing restrictions on Channels 1-8 and 15-22 that allowed them to be used only by stations under the same license. The other channels could be used for communications for stations of different licenses. No one really heeded the rules ever, but when the FCC made the change, they also created Channel 11 as a calling channel, but later removed that restriction two years later in 1977.

MORE CHANNELS: Also in 1977, the FCC added 17 new channels to CB, increasing the channel count from 23 to 40. The new radios were a hit and everyone wanted the new channels because of the crowding from the 1970s explosion on the air of new users. As new radios went on the air, CBers quickly set aside Channels 31-40 for single sideband (SSB) users and used the rest of the channels, minus Channel 16 for sideband, for regular AM.

DYING DAYS: As the 1970s headed into the 1980s, many cars had CB radios, but the need to get around speed and gas shortages wasn't there and many gave up their CB radios. The diehard CBers remained once again, but the general populace gave up the noisy squawk boxes. The FCC also stopped licensing CBers, just requiring users to follow FCC rules.

RESURGENCE: The mid-1990s brought about a mini-resurgence of CB radio once again for some odd reason that I haven't been able to get my hands on. Many were looking for CB radios again and getting on the air. Some pulled the radios out of their garages from the 1970s and once again were chatting "breaker, breaker one-nine" down the highway. While there were dozens of CB magazines back in the 1970s, a new one was produced in the mid-1990s, but didn't last long. The quick resurgence ended rather quickly.

So there's my top 10 list of events in CB history that has transformed the service from what it was into what it is today. I didn't touch on the side services such as the Family, General Mobile or Multi-Use radio services, but they are history unto themselves.

Break out your CB radio and get on the air and find out who is out there. Some of them may be longtime CBers like me.

Write in

What do you remember about CB of yesteryear? Feel free to drop me a line via e-mail to this address: cb-natcom@scanning1.com. Make sure you put Nat-Com in the subject line so if your message gets spiked to my spam bucket, I can easily spot the "Nat-Com" in the subject line and move your message right to the "in" basket. Tell me your handle, too. The e-mail address is used to reach the author of this column only.

In the meantime, keep the sunny side up and the dirty side down. 3s



S9 magazine was the most popular CB radio magazine through the years. It was started in 1962 and lasted until the late 1970s or early 1980s. This is the August 1973 cover.



CB Illustrated was a niche CB magazine that appealed to the general populace and was produced during CB's heydays in the 1970s. Many of the CB magazines of that time featured women and celebrities on their covers and told stories about celebs using CB and other timely information for people on CB. There literally were dozens of CB magazines at the time. This is the July 1977 cover.

The Grundig Globe Traveler G3

By Jon Van Allen KF7YN



Just when I was beginning to wonder if anyone was ever going to come out with any meaningful new portable shortwave receiver designs, Grundig pulled another unexpected rabbit out of the hat with the new Globe Traveler G3. I plunked down my hard earned cash for one so I can bring you the scoop on Grundig's newest portable receiver.

Why did I choose the G3? Two years ago I reviewed the Eton E1XM (Eton is Grundig's N. American distributor). You may recall in that review I lamented that one major oversight in most portable SW receivers was the lack of Synchronous Detection (sync). It appears at least one manufacturer is listening to our concerns. The G3 is the first portable SW receiver for the North American market under $150 since the Sony ICF-7600G to include sideband selectable sync! This is what drew me to the G3 to begin with. Many DX'ers, including myself, prefer sync. I have passed up several other SW receivers simply because they did not offer sync.

The G3 boasts most of the requirements I have outlined for years as necessary in the ultimate portable receiver. Getting the most performance for our money is always the ultimate goal. Will the G3 finally be the mother lode of small SW receivers? Lets go pan for some gold and see what shakes loose!

Specifications and feature highlights: 700 randomly programmable memories; Line In/Out; 60 mm "wide range" speaker; 24 hr Clock; sleep time; 4 independent timers; alarm. Dimensions 6.6 x 4.1 x 1.1" (168 x 105 x 28 mm); Weight 12.1 oz (345g). Notice how small it is compared to my Eton E1.

Initial impressions: The first thing that strikes me is the clean layout, things are logically laid out and easy to get to. It looks nearly identical to the popular G5 with the exception that some keys have been shuffled. In fact it has been reported the G3 is an upgraded G5 with the addition of Sync and FM RDS. The display is large and easy to read and has a bright backlight. Unfortunately, the G3's keypad is not backlit whereas the G5's is. There is a tuning knob which many consider "a must". This is one advantage over the Sony ICF-7600GR.

The G3 is a dual conversion receiver which means interference and image reception are greatly reduced over single conversion radios. The G3 covers LW/MW and SW from 150 kHz through 30 MHz, FM 87.5 to 108.0 MHz, VHF Aircraft band 117.0 to 137.0 MHz. There is no portion of the Longwave, AM Band or Shortwave spectrum omitted in the G3. SSB reception is also included with selectable LSB and USB and can be fine tuned with a thumbwheel below the tuning knob. 700 memory presets are far more than I'll ever use but I do like the layout of 100 pages, each page holding 7 memories. Buttons F1 - F7 represent memory locations.

Goodies inside the box. I bought my G3 which included a free $30 Grundig AN-200 AM loop antenna which boosts AM reception on any portable receiver. There is a wall wart power supply and a 70 page manual in English, French and Spanish. The manual

is well written, covering operation in sufficient detail. There is a also a nice looking padded protective pouch and warranty registration card.

Priced at $149.95 the G3 has enough useful and worthwhile features to justify the price tag for seasoned DX'er and beginner alike. There are many portables ranging from $50 to $200. In my experience, those priced under $100 generally lack sufficient performance and features for meaningful listening. I'd rather spend $50 more and get something that works nicely. Our goal here is to find out how well the G3 stacks up against the competition.

I will take this little gem with me on my overseas working tour that starts in Long Beach CA out to Hawaii, Guam, 3 stops in China, back via Japan to Long Beach. I am interested in how well the G3 performs from the US west coast, the thousands of miles of wide open ocean and the Asian loop which is jam packed wall to wall with SW stations.

Power requirements: AC adaptor or 4 AA cells, alkaline or Ni-MH rechargeable (not included). If you prefer to use Ni-MH, you match the charging circuit in the menu to the capacity of the cell. 11 for 1100, all the way up to 36 for 3600. Most of us will choose 20 to 25 for 2000 to 2500 mAH cells. This is a major plus because before now, we had no real way to limit battery charging inside the radio according to cell capacity. No more taking the batteries out for charging or worrying about over-charging and ruining the radio from leakage or excessive heat! For alkaline, set the charging to 00 (off).

There are two bandwidths, wide and narrow which are selected with a slide switch under the tuning knob. Narrow works well with SSB and CW (Morse code) signals. The wide bandwidth seems to be about right for AM and Shortwave broadcasts.

Sync performance is not as good as I hoped. It does lock on medium to strong signals but loses sync on weaker signals. This is a disappointment because it was one of the main reasons I bought this radio. When a signal is strong enough it does help with adjacent channel interference by selecting the opposite sideband sync. It does not help much on deep fading however. I believe the Sony 7600GR synch is a little better. Neither stack up to the Eton E1 which has fabulous sync performance.

Audio quality is surprisingly good for a small portable, especially on FM. The audio has more bassy "punch" than most which has always been a Grundig trademark. Unfortunately there is no tone control, not even the usual "music/news" slide switch. Audio is great through my Altec Lansing computer speaker system.

Tuning can be done several ways, manually with the up/down tuning keys, tuning knob on the side of the radio, direct entry or auto scan or search (up or down). Direct entry is shall we say... direct! Rather than pressing an "Enter" key, you enter the frequency then press the band in which that frequency is for; 993 then FM for 99.3, 1160 then AM, 15720 then AM for shortwave, 118.3 Airband, very simple and easy This method of direct tuning is becoming common in portables, especially Grundig models.



Searching is a little slow but gets the job done in a reasonable amount of time. When using the up/down keys (manual or search), the radio does not tune out of the band it is currently in. You have to use the tuning knob or direct entry to move to a new band or open a new search range.

AM Band (MW) performance is good. Sensitivity is as good as most any portable radio I've tested, Weak signals in the presence of stronger adjacent signals are surprisingly good especially when the radio is rotated to null out the stronger station in favor of the weaker station. For example, while I was in Long Beach CA, I

Continued on page 34

continued

wanted to try for KSL 1160 in Salt Lake City. I could clearly hear KSL but I could hear some interference from a strong local station on 1150. I rotated the radio until KSL came up in strength and the other station no longer splattered over. I also used the same method to choose between 1120 KPNW in Eugene OR and 1120 KMOX in St. Louis MO. Both stations were able to be heard despite being on the same frequency simply by rotating the radio to null out the undesired station.

SW broadcast performance is very good using the built in whip. As I write this, I am listening to VOA to Asia on 7480 kHz, President Obama's speech to the Chinese people on Nov 17. I also logged New Zealand on 15720, Radio Thailand on 15275 and Australia on 15515 kHz with strong signals.

Listening to the packed bands in and near China, the G3 does a respectable job with weaker stations in the presence of strong stations, but the synch is not much help if the signal is weak. On stronger signals, sync helps with adjacent channel interference but also introduces a bit more noise. I had better luck using LSB and USB to reduce interference, a method often used by DX'ers that sometimes works as well or better than sync. Most of the time I leave sync turned off. Sensitivity is very good and selectivity is good. Dynamic range is decent for a small portable. (Dynamic range is defined by Eton/Grundig as the ability of the receiver to faithfully reproduce high quality audio over a wide range of signal strength conditions - from very weak signals to very strong signals). The G3 does this well for a small portable.

SW SSB performance is surprisingly good, the radio is very stable, very little drift was observed and



using the narrow bandwidth, many SSB and CW signals were heard on the 7 and 14 MHz ham bands at various points on my journey to Hawaii, Guam and China. AFN SSB stations on 10320 and 13362 kHz USB were both copied with ease from the deck of the ship crossing the Pacific. I also copied aeronautical comms from airliners over the Pacific on 13300 and 17904 kHz with good copy as well as military planes on 11175, 13200 and 15016 kHz GCS

FM performance is very good. I can hear stations on my G3 that are weaker or non existent on many other radios I've used. RDS shows station call letters, artist, song, etc when the station is transmitting RDS. This comes in handy to identify stations when traveling (see photos). Another nice feature is that Mono and Stereo is selected automatically according to signal strength. This comes in very handy when DX'ing weak FM stations; mono is the preferred mode for weak signals because it is far less noisy than stereo which requires a higher signal to noise ratio to separate the left and right channels. I really like this feature, no more "oops, I forgot to select mono" when DX'ing the FM band.

Airband performance is not bad, certainly not as good as a regular scanner but I heard quite a few aircraft around LAX, Honolulu and Guam. VHF Airband coverage starts at 117.0 MHz and ends at 137.0 MHz. It is curious why it doesn't start at 118.0 MHz where the voice portion of the band begins. There is no squelch but background noise is minimal. I don't use airband much but it could be handy in a pinch.

The G3 performs at least as well at the Grundig G5 (also known at Eton E5) and the Sony ICF-7600GR which I consider the main competition to the G3. The Sony has the advantage of somewhat better sync performance, but no tuning knob. All in all, I like the G3 a bit more. I do like the G5's backlit keypad which I wish the G3 also had.

Backlit display is bright and pleasant light blue. The backlight stays on when plugged into power, 6 seconds on batteries. The large alpha-numeric characters are easy on the eyes. I find it a bit too bright to leave on at night. There is no dimmer, you get On or Off. New to the G3 is 8 character alpha-numeric display, an improvement over the 4 character limit on the G5.

Four independently programmable timers can be set to turn the radio on at a specified time, specific weekday, volume, playtime and memory location. This really makes keeping up with your favorite listening targets much easier, louder for day, quieter for night, for example.

The clock is 24 hour format which

I prefer because in many other radios the "A" for AM or "P" for PM is a miniscule icon invisible to eyes over 40. The cool part of the clock on this radio is the "smart" time zone feature. You set it according to zone which is associated with a city in that zone such as Tokyo +9, LAX -8, GMT, etc. The smart part is that once you set your local time and day of the week, the correct day shows as you cross the international dateline! If you leave LAX on Wednesday but it is already Thursday in Hong Kong, the clock automatically shows the right day when you arrive in Hong Kong and set the clock for that time zone. And it remembers the right day when you return to LAX. How cool is that?

The antenna swivels and is plenty long but the top sections are a bit flimsy, use care when collapsing the antenna. The protective pouch is padded but is lacking in quality, the side panel stitching tore the first time I put the radio away.

The tilt flap props up the radio to a comfortable viewing angle. You'll appreciate this feature because the radio is very slim and tips over easily. I got a chuckle out of one blog that refers to the tilt flap as a "propper upper". That it does indeed.

The volume control is adjusted by + and - keys on the front panel. I do not like electronic volume controls but this arrangement is easy to use. The range is 0 to 31. There is a "dead zone" between 0 and 8 but volume increases from there. Many other users have noticed this curiosity as well. One nice part of the G3's volume control is that volume level can be programmed into any memory, very useful indeed. My old school ways are being seriously challenged!

External antenna jack: using the same vertical antenna, weak signals on my G3 are not as strong as my E1. Of course no other portable receiver I've ever used performs like the E1 but I was hoping for stronger signals on my external antenna until I realized the G3 has attenuation on the external antenna circuit to protect the front end. The G3 is one of the few portables that does not easily overload using an external antenna. I had better results with my Gainprobe H-900 than with my ham radio vertical antenna which obviously is not resonant on the SW Broadcast bands. I encourage you to experiment for best results.

DX/Local switch works well in decreasing sensitivity on strong local stations on all bands, this is nice but nothing beats a good old fashioned RF gain control.

Even though there has been a downturn in shortwave broadcast stations, the amount of SSB activity such as military & civilian aircraft, hams, utility and any number of other signals makes SW listening an enjoyable pursuit of the hobby. There are still plenty of broadcast stations on the air to listen to, but not as many of the usual players in North America. You can still hear many stations from Europe, down under, Asia, Africa and a seemingly endless number of religious broadcasters here in the US. I regularly rely on Radio New Zealand, Radio Australia, Voice of America and BBC for real time news when I'm at sea. There is plenty to listen to and having a portable such as the G3 makes it easy to tune the bands.

Final analysis: On the plus side, the G3 is small but not tiny, good audio quality for it's size,dual bandwidths, dual conversion, FM RDS, nice backlit display with 8 digit alpha-numeric display, hinged battery compartment cover, easy to change time zones, travel lock, good SSB reception, aircraft band, full frequency coverage in all bands.

On the negative side, mediocre sync performance, no tone control, stiff tuning dial, flimsy antenna sections, keypad is not backlit and no dim/bright selection for the display illumination.

There are a couple of errors in the manual worth noting: Page 6 states F1 thru F7 dual function button diagram are on a diagram under the rear tilt flap. There is no diagram under the flap on the G3, but there is on the G5. The other error: Page 8 states the signal strength meter does work on FM signals, another G5 attribute. It does in fact work fine on the G3. It appears the manual for the G5 was updated to include the new features of the G3 but the changes outlined were overlooked. The manual should be rewritten.

I rate the G3 a 6.5 on a scale of 10. It has room for improvement, better sync performance, better quality protective pouch, backlit keypad, a tone control and a heftier antenna. Overall I think you will be pleased with this radio especially if you travel. The free AN200 AM loop antenna from Universal Radio makes this a sweet deal!

Your questions and comments are always welcome. My email is kf7yn@yahoo.com. Please allow a few weeks for a reply as I am at sea for several weeks at a time. Until next time, Happy DX'ing!

Be sure to check for the latest frequencies on the Nat-Com web page www.nat-com.org

Write-In



Photo by Stephen Takacs, freelance photographer, he shoots the Jones Beach air show as well as the USMC helicopter Demo which they do every year.

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CLOSING COMMENTS

On the Road Again & Why are things so darned complicated?



By: Norm Schrein, KA8PGJ

With the beginning of another year, I will be traveling throughout the country to various ham radio and computer shows. This is my opportunity to meet many of our readers, and hopefully sign up a few new ones. I don't know if you have ever attended a hamfest or not, but you should try to take in one if there is a show in your area. To find out for sure which shows are in your locale, you can go to the ARRL (American Radio Relay League) web site and there you will find hundreds of shows listed.

At these events you can see some of the newest products on the market, not only ham radios, but scanners, computers, antennas and all sorts of gadgets. Most shows consist of three parts: inside vendors, a flea market and a forum. You should try to see all the vendors and try to attend a forum that is of interest to you.

Although I can't make it to all the radio shows, I do try to hit some of the bigger ones. For example, this year, the show in Orlando, Florida will be first on my list, then (hopefully) Charlotte, North Carolina, Dayton, Ohio, Ham-Com in the Dallas area, Southwest Division Convention in San Diego and the Fort Wayne Hamfest in Indiana. Of course there will be a lot of additional shows in-between. I will try to keep the Nat-Com web page updated with whatever is the next show I will be attending.

In the 1960's there also were CB shows, but those have kind of gone away. They were also quite interesting and followed the same pattern as the hamfests.

The thing about a ham fest or CB Jamboree is that you get to meet many of the people you either talk to on the radio, or hear there. Of course there are the new products and the ability to share project ideas with like minded individuals.

Now, changing the subject just a bit, I recently bought my first LCD wide screen TV. It was not terribly big as I have been watching a 26" CRT TV for years, but coming in at 32" made it bigger than what I had previously been used to. I did not get anything much bigger as I felt I would have to sit in my back yard to watch a TV in my family room.

Anyway, what I did not realize is that you no longer can get a TV that you simply hook up to an antenna or cable box, turn it on and you are ready to go. No, you have to program it. Granted, the procedure to program a TV and set up the auxiliary equipment such as a DVD player or even your lap top, if you wish, is not as difficult as a scanner. However, the procedure is more difficult than simply rolling the unit up to the antenna and turning it on. I also recently bought a combination telephone and answering machine and had to program it too. So, I can understand how someone who was used to a scanner where one simply plugged in crystals can feel overwhelmed when it comes to programming a new scanner.

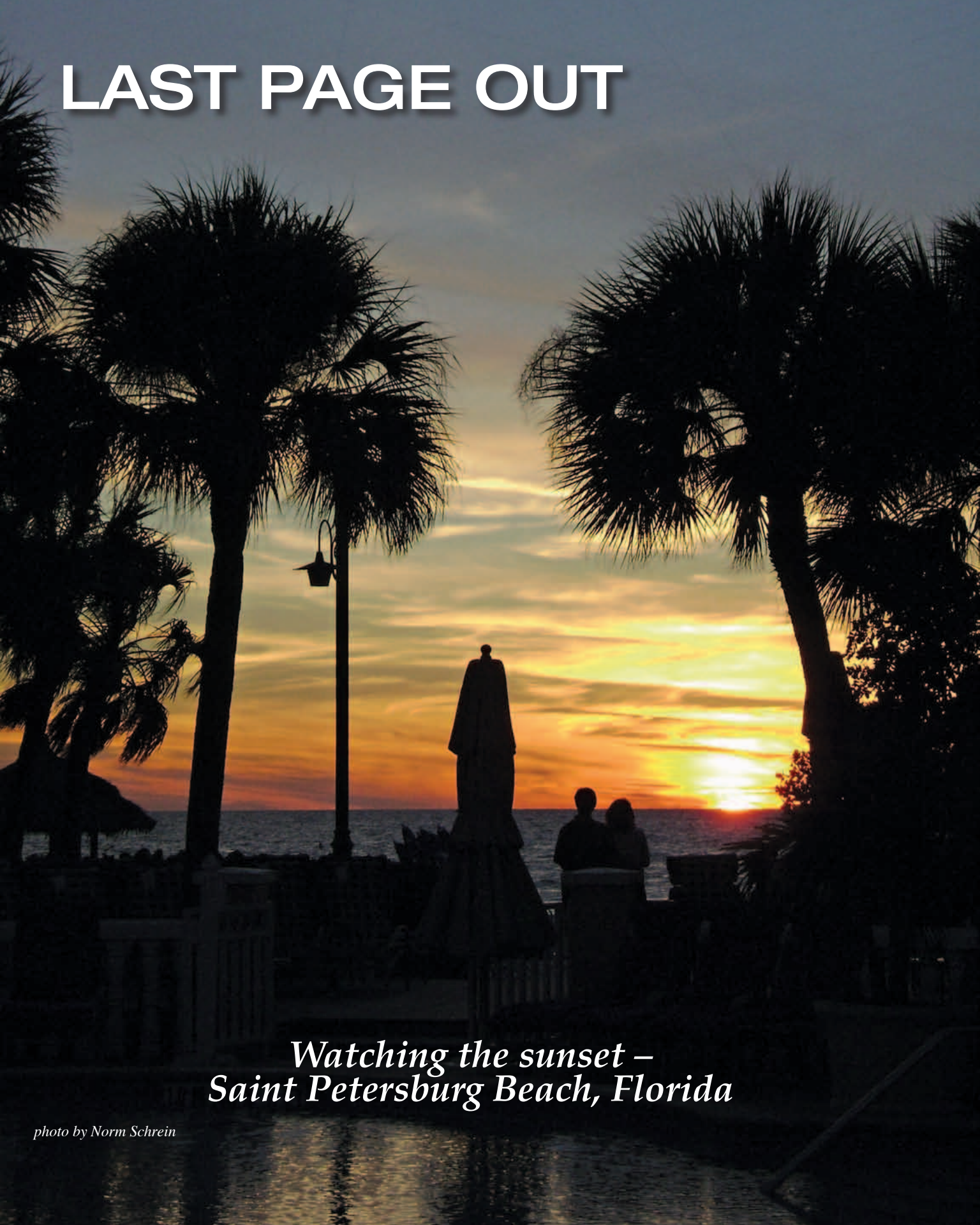
I guess my only question to manufacturers is: Is there any way to make the programming of a scanner any easier? Both GRE and RadioShack have the new I-Scanner which on the surface seems to be easier to program as long as you are used to operating an I-Pod, which I am not. So, then it is back to programming a scanner by hand or using software. Both of these options require me to read through a manual written by Japanese Engineers, or figuring out a software program.

Fortunately there are some electronic items that do not require some sort of programming. There is the ..... or the ..... Well I am sure there must be one someplace.

So, when I head out to one of the radio shows this year, you may see me spending more time than usual trying to program some of the scanners in order to demonstrate them. I will have my computer too to use some of the software as long as I have it already setup. Then I will have to try to make some sort of connection to the internet with the computer. I know I could probably do it with my cell phone, but don't get me started on Cell Phones.

Take in a hamfest this year and learn of the progress of technology. When you are there and see a piece of equipment ask the manufacturer how much programming is required. Then ask them if there is an easier way to do it.

LAST PAGE OUT



Watching the sunset –
Saint Petersburg Beach, Florida

photo by Norm Schrein

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