ATCO NEWSLETTER

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ATCO HAM IN THE SPOTLIGHT

This time the ATCO spotlight shines on Jessie, KB8OFF. Jessie has been active in our club for just a short time but he is no stranger to the DARA group in Dayton. In fact he has been very instrumental in re-activating the DARA repeater and is a major builder of the present equipment. He hand built a dual slot antenna, brought it to me for checkout and then helped install it on their tower. Thanks to him, we now see the DARA repeater on a regular basis.

Jessie is also an active airplane pilot so maybe someday he can rig his plane with ATV gear and fly down this way. It’s been quite some time since we’ve seen an aeronautical mobile ATV signal.

Oh by the way, the dog’s name is Sparky. I wonder if he got that name from playing in Jess’s Ham equipment.

ACTIVITIES ... from my "workbench"

Well, here we go again! I've said it before and I kind of hate to start my ramblings the same old way by complaining about the weather or seasonal changes. It's supposed to get cooler this time of year. But I can't help thinking as I was raking leaves today, I haven't been up my tower to do anything constructive yet this year…and it's almost gone! (The year that is). Oh well, there's always next year. But wait! The next couple of days are going to be warm and dry…maybe I'll put up that inverted V antenna so I can enjoy activity on the DC bands this winter.

OK, the first item is the 10 GHz repeater transmitter. I know I've been working on it all summer but there are other things to do also so be patient, I'm almost finished. The topside enclosure, the one that houses the 10 GHz transmit module and mounts on the camera mounting pole, is complete. Also the cable that will feed it is finished as well as the lightning protection module that goes in the line feeding the outside module. I am presently working on the inside control box that houses the video baseband modulator and power supplies with work interrupted by, you guessed it, the Newsletter. The cable and associated wiring needs to be checked out with the roof camera because the common cable to the roof will also carry the camera signals. There is a connector on the bottom of the enclosure to connect the camera cable. I wanted a single cable to travel from the enclosure to the inside controls so I combined the camera and 10 GHz transmit functions. (More about the camera in a moment). So as soon as I can get the cable checked out and inside controller operational, it goes topside. I'm trying to get it complete before the weather turns too cold so bear with me.

Next is the ATCO/DARA link activity. Dick, W8RVH, is working on the 915 MHz transmitter/receiver portion of the controls. That's the portion that receives the 915 MHz from the DARA repeater and also sends the ATCO information back to the DARA repeater via 915 MHz. We will use a G1MFG type module for receive and an HF Technology transmitter coupled to an ATV Research amplifier for about 10 watts on the transmit side. Dick found a 12 volt 10 amp power supply that he'll use externally so it can be the power for all modules. Hopefully he will be complete with his portion soon so we can run a link test before "the snow flies". There..I said it, SNOW! The rest of the controls are just barely started. I have been very delinquent on getting any progress in this area and I'm sorry. It couldn't be helped. Too many things to do, too little time. The winter will give me some more time I hope. When complete, my portion will contain the control logic and the 1200 MHZ transmitter and receiver for our side of the link. The system will take the 1250 MHz signal from our repeater and relay it to DARA on 915 MHz. The return path will start out on 915 MHz at DARA's repeater and be retransmitted to us on 1280 MHz.

OK, now to our camera. As many of you know, our camera became very marginal in the early spring and was taken out of service. I think the focus motor locked up but I don't know for sure yet. In any case, the camera itself has been on for a number of years and I think has been pointed toward the sun at least one too many times. A CCD camera isn't ruined by direct sun exposure as a vidicon camera is but after continuous bright illumination, the color mosaic becomes bleached out so it looses color and sensitivity. It needs to be replaced and ATV Research has a sensitive board level camera module I believe will fit into my existing camera housing so I will order one and see. The rest of the camera needs to be rebuilt so I will see if I can do that this winter. I looked into using a commercial camera with pan/tilt mechanism but the change in camera control logic would make it just as hard as making a new housing to house the existing modules. I looked at some of the newer remote control camera systems available today and are very impressive but at $5000 and up, they are out of our price range but they are very small and easy to mount. They are the ones mounted outside in what looks like a street light. Up close, they are very complex and compact. However, even those are not up to the capability of the lens we have in our camera! At 300 mm, it will zoom in to read the license plate of a car in the parking lot behind the Nationwide Arena from our repeater location.

Here's some good news! I reported last year that my 439 MHz antenna quit working right after a lightning storm. The signal directivity was split indicating I had a broken phasing line (I have a 48 element collinear antenna). I gave up using it and decided to wait till this summer to take it off the tower and repair it. That's a large chore to remove so I've been putting it off. Well, I decided last week that it was time to investigate it one last time so I climbed to the tower top to see if I could spot anything. Maybe the flex section that goes around the rotor is bad and not the antenna, I thought. I replaced it and asked for a signal to check it out. Ken, W8SMK, sent me a signal and viola! P5 signal and good antenna directivity. It's fixed I thought. But what was wrong with the section I replaced? Hmmm, checks out OK on the ohmmeter. Then I pointed the antenna toward the repeater and my problem returned. After scratching my head for a short time the "light went on"!!! My problem started about the same time channel 14 digital went on the air. I point my antenna directly at the channel 14 antenna when I look at the repeater. Channel 14 is on 475 MHz just above the 427/439 ham band. Receiver desense is the culprit and not lightning. A good bandpass filter solved the problem. (I would have been real angry if I'd taken the time to remove the antenna to find no problem. I should have known better for the same problem existed with my 2.4 MHz 4 ft. microwave dish that was solved with a filter. I guess I DID do some good on the tower this year after all. (indirectly)

That's all for now. Don't forget the Fall Event on Sunday October 26 at the ABB shelter house. See you there.

PS: I need material for articles. There seems to be decreased ATV activity lately for the discussion groups are providing little material of interest for publication. I wonder what ATVQ will come up with?

…WA8RMC

INTERFERENCE FROM BROADBAND OVER POWER LINE

Field studies conducted by the American Radio Relay League (ARRL) representing Amateur Radio operators in the U.S. showed that spectrum pollution from broadband over power line (BPL) posed a significant threat to amateur radio operations (and broadcasting) in the HF and low-VHF (TV channels 2-6) region. As noted in RF Report for May 12, BPL uses frequencies between 2 and 80 MHz to deliver broadband services over existing power lines. When the RF carrier is added to the power lines, some of the energy is radiated.

The ARRL field study showed BPL interference in the amateur radio bands ranged from moderate to extremely strong. Different BPL systems created different types of interference. In some cases, the interference sounds like data signals or TV sweep noise at regular intervals. In other cases, the interference sounded like static pulses from a noisy motor with occasional pulses like a Geiger counter. You can see and hear the interference in a video link in the ARRL article "http://www.arrl.org/news/stories/2003/08/08/2/?nc=1" ARRL documents interference from Broadband over Power Line.

ARRL Pres. Jim Haynie, W5JBP, said, "BPL is the most crucial issue facing amateur radio & one that has the most devastating potential."

ARRL Lab Manager Ed Hare, W1RFI, visited BPL trial communities in Maryland, Virginia, Pennsylvania and New York to measure interference from BPL. He said he didn't have to look hard or track down a few hot spots to find BPL interference. "Signals were all over."

While the impact of BPL on Amateur Radio operations in the HF bands could be devastating, TV broadcasters using channels 2-5 should be concerned about interference to off-air reception of their signals. It is generally accepted that viewers can notice noise 30 to 40 dB below that of an analog TV station's peak visual power. Although the ARRL video did not include any tests above 29 MHz, even harmonics from these BPL signals could be a problem for low-VHF TV stations in medium to weak signal areas.

The interference levels shown in the video on the ARRL web site are troubling. ARRL President Haynie said, "Anyone seeing these BPL signals for megahertz after megahertz for miles along a power line should be convinced that BPL--even operating at the present FCC limits--poses a serious threat to all HF and low-VHF communications." One other thing for amateur radio operators and low-band VHF broadcasters to worry about: Power lines that can radiate RF can also receive it. While it doesn't help the ham radio operators or viewers, BPL data customers are unlikely to associate the local ham radio operator or Channel 2 TV station with their connectivity problems. They will blame the power company or ISP, who will likely request higher power levels to overcome the "interference".

The comment period on the FCC Notice of Inquiry has passed, but the reply-comment period will be open until August 20.
...From ARRL letter vol 22 no 3. 8/22/03

NTIA EXPRESSES "BROAD CONCERNS" IN BPL COMMENTS

The National Telecommunications and Information Administration (NTIA) has weighed in on the FCC's Broadband over Power Line (BPL) initiative. While urging the FCC to "move forward expeditiously" with its inquiry into BPL, the NTIA expressed "broad concerns" about interference to government users. The NTIA also has launched an extensive modeling, analysis and measurement program for BPL. A Commerce Department branch, NTIA administers spectrum allocated to federal government users.

"Notwithstanding BPL's potential benefits, the Commission must ensure that other communications services, especially government operations, are adequately protected from unacceptable interference," the NTIA said in late-filed comments in the BPL Notice of Inquiry. "In tailoring its rules to promote BPL deployment, the Commission must be certain to provide all communications stakeholders with adequate protections against BPL emissions that may cause unacceptable radio frequency interference."

Until releasing its comments this month, the NTIA has been largely silent on the issue since last spring. In an April 24 letter, then-NTIA administrator Nancy J. Victory applauded the FCC's decision to launch its inquiry into BPL, but called on the Commission to make sure that BPL does not cause harmful interference to other services.

In early July, Frederick R. Wentland, NTIA's associate administrator in the Office of Spectrum Management, told the FCC that the NTIA did not favor Current Technologies LLC's <http://www.currenttechnologies.com/> request for a permanent waiver of the field strength limit specified for Class B emissions under FCC Part 15 rules. A Maryland BPL developer, Current Technologies already is field testing and marketing the technology.

Wentland worried that the pole-mounted interfaces and outdoor power lines used for BPL could interfere with public safety communication in the 30 to 50 MHz range. He told FCC Office of Engineering and Technology Chief Edmond J. Thomas that the "unobstructed and ubiquitous nature of this BPL application, and perhaps other aspects of BPL, differs considerably from the situations presently found in typical unintentional radiators" operating under Part 15.

Wentland--named recently to succeed Victory as NTIA administrator on an interim basis--also invited the FCC to coordinate its own BPL measurement activities with those of the NTIA. The NTIA's comments, which have not been posted on the FCC Web site, are available on the NTIA Web site http://www.ntia.doc.gov/ntiahome/fccfilings/2003/bplcomments_08132003.htm

CHIP DELIVERS DATA OVER ANALOG TV SIGNALS

By Anthony Cataldo
PALO ALTO, Calif. — Dotcast Inc., the company helping Disney deliver video on demand, has opened the hood on a chip that uses existing analog TV signals to ferry digital data to the home.

Dotcast (Kent, Wash.) said it has designed a digital signal processor that harnesses NTSC signals to deliver digital content a rate of one to three Mbits/sec per second. Eventually the company expects to push that rate up to 4.5-Mbits/sec.

The ReX chip, described here at the Hot Chips conference, has been approved by the Federal Communications Commission and has been built into set-top boxes. The boxes should be deployed later this year as part of Disney's roll out of its MovieBeam service, said Slobodan Simovich, Dotcast's vice president of ASIC engineering.

The ReX chip takes a different approach from other “datacasting” techniques such as the use of DTV signals or unused portions analog TV spectrum. Instead, the ReX chip places data on top of existing video and audio signals.

Specifically, the chip modulates visual data in quadrature with the NTSC visual carrier and is inserted so that it is coherent with NTSC framing. The technology calls for audio data to be modulated on the aural carrier, though only the visual carrier will be used for the first version, Simovich said.

For this to work, the data spectrum has to be prefiltered and the subcarrier carefully spaced to avoid impairing picture quality. Signals can be received by households with a TV station's so-called contour A sphere with a bit-error rate of 10^{-8}. There are 1.67 million contour A households in Los Angeles, for example, according to Simovich.

The ReX chip's “family jewels” reside in its DSP technology, which mixes dedicated logic and programmable elements. At the front end, the DSP handles decoding algorithms, forward error correction and general signal processing functions.

The crux of the signal processing chain is an element called a “configurable stream processor” that blends a unique instruction set architecture, programmable hardware buffers, I/O and buffer synchronization mechanisms The pipeline is designed to handle 52 instructions-including scalar and vector operands—and has set aside memory segments for code, buffers and data. As many as 16 buffers can be configured, and their size may vary. Moreover, the stream processors can be strung together as a multiprocessor subsystem, Simovich said.

In addition, the chip includes a CPU subsystem for system I/O, interrupts and certain DSP applications. For this task the company chose the V850 processor from NEC, which is also Dotcast's foundry partner.

Just as it is trying to breathe new life into old analog TV signals, Dotcast is trying to make the most out of nearly obsolete chip processing technology. The ReX is being manufactured on a five-metal layer, 0.25-micron process from NEC, some three generations behind what some consider to be the leading edge of chip manufacturing. The DSP alone takes up one-third the 12.5-mm x 12.4-mm die area.

Simovich said having access to an advanced process technology was never a priority. Rather, the goal was to make the chip programmable, simple to design and cheap to manufacture. “What we didn't want to do is go for a cutting edge process, which at this point is unstable,” he said.

The chip taped out last December and have been in the field since July. In his presentation, Simovich showed the board of a wireless set-top box containing the ReX chip and a separate PowerPC processor from IBM.

The MovieBeam service, announced earlier this year by Disney Chairman Michael Eisner at a National Association of Broadcasters conference, will allow subscribers to download movies to a set-top box over existing airwaves. The datacasting service is being touted as a less expensive alternative to wireline Internet connections.

…Dotcast Inc., the company helping Disney deliver video on demand, has opened the hood on a chip that uses existing analog TV signals to ferry digital data to the home.

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PHILLIPS' REFERENCE DESIGN CONVERTS CRTS TO LCD TVs

By Junko Yoshida

PARIS — Philips Semiconductors launched a new reference design that enables TV set manufacturers to make a quick and painless migration from CRT to mid-end LCD TV sets.

By rolling out the new reference design — consisting of the company's existing one-chip TV solution called PNX300x and SAA6713 scaler chip — Philips is hoping to capitalize on an explosive demand for flat panel-based TV sets.

Practically all the consumer electronics manufacturers are "moving into LCD TV sets," said Jos Klippert, marketing manager at Philips Semiconductors. They are looking for a solution that lets them "jumpstart quickly in the new market."

According to iSuppli/Stanford Resources, a market research firm, total LCD revenues will reach over $30 billion by the end of 2003 — an increase of 12 percent compared with 2002. Still missing, though, are inexpensive, mid-end LCD TV sets, with all the right TV features, for a volume consumer market.

By using two proven ICs TV set manufacturers can easily leverage their analog TV software and hardware investment now into the LCD arena, said Klippert. The PNX300x is a system-on-a-chip originally designed to enable digital processing in analog TV, and the SAA6713 is a scaler chip developed for monitor or LCD TV applications.

Further, the system knowledge that comes with the reference design can help the TV set manufacturers "tune the settings for the right picture improvement algorithms optimized for each display — CRT or LCD," added Klippert.

The PNX300x, based on a 54MHz MIPS Technologies processor integrated with advanced geometry correction, is a one-chip TV solution developed for the global market. It integrates multi-standard TV front-end technology for PAL, SECAM and NTSC video decoding in addition to deinterlacing, advanced scan rate conversion at 100 MHz and picture improvement capabilities.

The SAA6713 is a dual-input display controller with integrated analog-to-digital converter for RGB analog sampling up to 110 MHz and for DVI implementation.

The reference design is available now. The PNX300x and the SAA6713 scaler together are priced at $20 in volume quantities.

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http://newsletter.EDTN.com/cgi-bin4/DM/y/ecZo0ByCoP0tH0B6qw0Aq

TV VENDORS THINK FLAT AS LCDS TAKE OFF

PARIS; In the buildup to Europe's largest consumer electronics show, the product category generating the most buzz was one that's going flat; that is, flat-screen. The venerable TV is seeing a spike in consumer demand, generated not by the arrival of terrestrial digital broadcasts or interactive applications but by the platform's migration to the LCD panel.

"The transition most obvious to consumers today is not digital TV but flat-screen TVs," said Peter Rost, marketing director of digital TV at Micronas GmbH, which is showing an LCD TV reference design at Internationale Funkausstellung (IFA). The show opened in Berlin last Friday and runs through Sept. 3.

A concomitant trend that's transparent to consumers, but a glaring reality for chip makers, is the "transition from the 8-bit microcontroller to the 32-bit CPU," observed Rost. Maintaining a coherent software development environment is a must during that transition, he said.

Meanwhile, the LCD shift is opening the TV market to scaler chip companies that have traditionally played in the PC and high-end projector arenas, potentially broadening the rivalry between the traditional consumer and PC system camps.

Europe's three largest IC suppliers for TVs; Philips Semiconductors, Micronas and STMicroelectronics ; are pitching chips at IFA to ease the LCD migration. Philips and Micronas will show LCD TV reference designs. ST, working with Sanyo Electric Co. Ltd., has developed integrated digital TV (iDTV) products using the ST20, a 32-bit system-on-chip platform designed for both CRT and LCD TVs. Slated for an IFA demo in Sanyo iDTV products, the ST chip, the STV35x0, incorporates all TV front-end functions except audio processing and works with a scaler IC developed by the chip maker's LCD business unit.

Leon Husson, executive vice president for consumer businesses at Philips Semiconductors, called LCD TVs "the most significant market opportunity" Philips will pursue in the near to midterm. "I think LCDs are going to replace CRTs in TV much more quickly than even [what's predicted by] the latest market research forecast," Husson said.

Market researcher iSuppli/Stanford Resources (San Jose, Calif.) forecasts a 74 percent compound annual growth rate for global LCD TV shipments through 2007, when flat screens could overtake CRTs in value or unit terms. Riddhi Patel, the firm's senior analyst, predicted the LCD TV market will grow 130 percent this year, to just over 3 million units.

The strong momentum behind the shift has taken chip makers by surprise. Hermann Zibold, director of marketing for consumer products at Micronas, said his company would have been in a position to offer an integrated front-end TV/back-end scaler today if it had actually believed a market forecast two years ago that predicted the dramatic spike. Instead, Micronas will offer an integrated solution within the next year, he said.

As traditional TV makers scramble to replace CRTs and CRT display controllers with LCDs and scalers, their PC display counterparts are looking for ways to add TV functionality to computers and improve their platforms' picture quality for TV input. Small but agile PC monitor companies from Taiwan, Singapore and Malaysia are all jockeying to break into the TV market, spurred by a far lower cost of entry than for CRT TV manufacture.

Scaler IC companies such as Genesis Microchip Inc. and Pixelworks Inc., traditionally strong in PC displays and high-end projectors, are moving into the LCD TV segment. Samsung Electronics recently selected Pixelworks' video image processor IC for a line of high-performance LCD televisions, according to Pixelworks. And Genesis Microchip said last week that Vestel Electronics, one of the Europe's largest electronics companies, designed Genesis' digital-video-format converter into LCD TVs that are being demonstrated at IFA.

David E. Mentley, senior vice president at iSuppli/Stanford Resources, said Pixelworks, Genesis, iChips, SmartASIC and Oplus are among the companies making image processors for LCD TVs. The parts "are more than scalers, as they handle deinterlacing, artifact removal and color control," Mentley said.

The battle is joined, but it's far from over. "Many of the top-tier system makers still do their own chips," Mentley said, "so the merchant market for these products is just starting to take off." Both Philips and Micronas hope to become dominant players by leveraging their global TV system knowledge and intellectual property, including existing TV chip solutions that cover progressive-scan analog TVs, hybrid digital/analog televisions and high-end digital TVs.

The reference design that Philips is showing at IFA taps an existing global one-chip TV solution from the company. The chip, the PNX300x, enables digital processing in analog TVs. It's paired in the reference design with the SAA6713 scaler.

ST has a two-pronged strategy to cater to traditional TV set manufacturers and PC display vendors. For the PC world, ST offers a digital chroma decoder integrated with a data slicer, zooming and picture improvement algorithms. The part can be a companion chip for a scaler IC from companies such as Genesis or Pixelworks, said Jean-Yves Gomez, ST's TV division director.

For TV makers, ST will roll out a 32-bit CPU-based TV platform to replace the CRT RGB converter with an in-house LCD scaler. The platform will integrate chroma decode and video-processing functions.

While helping push the transition to flat-screen TVs, chip vendors must keep an eye on the transition to digital TV, which has proved a slow starter but is nonetheless a factor. The mandate for chip makers looking to enable both transitions is to ensure that TV makers can continue to exploit the investments they've already made in software and hardware.

"Quarter after quarter, midrange TVs are slowly disappearing," said Micronas' Rost. "Twenty- to 25-inch, single-scan, 4:3 aspect ratio analog CRT TVs are no longer attractive to anyone."

Aware of the trend, Philips has unveiled a home entertainment engine at IFA for hybrid digital televisions and home entertainment hubs. The PNX8550, integrating a MIPS RISC core with two TriMedia cores running at 240 MHz, can be used with the SAA6713 scaler to create a digital flat-screen TV. Because the system-on-chip is built on the same software environment as Philips' analog LCD TV reference design, "you can migrate to LCD TV while still protecting your investment in TriMedia," said Paul Martin, marketing manager of broadband IC solutions at the company.

While Philips and Micronas are counting on their large existing customer bases to secure shares of the LCD TV market, both realize they must also court the raft of Asian startups. "Instead of talking to 10 big TV set manufacturers, we now need to work with 50 different LCD TV vendors," Micronas' Zibold noted.

Chips for the global market must handle NTSC, PAL, Secam video processing and all broadcast variants in between, ST's Gomez said. "We need to ask how long it will take for [LCD scaler chip companies] to get all the know-how necessary to build a TV."

Anders Frisk, executive vice president and COO of Genesis, emphasized the importance of "the right scaling technology." Genesis' scaler includes deinterlacing and the company has integrated the home-theater technology of its Faroudja wholly owned subsidiary into its solution, he said.

Those offering "ease of integration, engineering support and a flexible software design tool kit" will win the LCD TV market, said Mentley. "An infinite number of features can be added to an image processor. Image quality is subjective. The trend is to build up a brand image from the processor."

http://www.eet.com http://www.eet.com/story/OEG20030902S0020

'TV-ON-MOBILE' SCHEMES HEAT UP AT IBC

By Junko Yoshida
AMSTERDAM, the Netherlands
"TV-on-mobile" is a hot button issue among many broadcasters and technology companies at this year's International Broadcast Convention (IBC).

While the Digital Video Broadcast (DVB) Project is working to complete development of its DVB Handheld (DVB-H) spec by year's end, a European Union-funded research project called Cismundus was unveiled here as the the first public demonstration of a proof-of-concept system. It is based on the convergence of digital terrestrial TV and mobile telecommunications.

Separately, RadioScape, a developer of digital radio software, demonstrated a new gateway system that allows reception of real-time digital video streamed over digital audio broadcast (DAB)services. The result, anticipated by chip companies, system vendors and broadcasters, is the development of technologies that allows broadcasters to deliver video to consumers through portable TVs, Web pads, PDAs and mobile phones.

In a recent interview, Leon Husson, executive vice president for consumer businesses at Philips Semiconductors, called TV-on-Mobile "an absolutely killing application" for cell phones in the future.

The near-term question now is how to develop and deploy such systems.

RadioScape is betting that DAB, already designed for battery-operated radio, is the right place to start streaming video for TV-on-mobile applications. Digital Video Broadcast "is great for fixed TVs already installed in homes, but for portable applications, it has problems with low power requirements and multipath fading," said Nigel Oakley, vice president of marketing at RadioScape.

RadioScape-designed new gateway broadcasts video and audio over a Eureka 147 DAB data channel that can handle many types of multimedia content such as Windows Media 9, MPEG-4 or RealVideo9. RadioScape said the digital radio broadcast system is already a robust technology that was designed to for use in car radios.

The DAB-based video transmission, enhanced by extra forward error correction, can either be streamed or sent via a packet data channel. Countries like South Korea are in an early stages of implementing "video over DAB," said Oakley.

Meanwhile, Cismundus (convergence of IP-based services for mobile users and networks in DVB-T and UMTS systems) developers are spearheading the convergence of terrestrial digital TV (DVB-T) and cellular networks based on UMTS. The project's mission is to explore complementary coverage and service provisioning models between broadcast and mobile telecommunications networks. The are also developing a hybrid mobile terminal prototype integrated with DVB-T and GPRS network interfaces.

Under this scenario, when many users want the same IP-based video streaming service, it is delivered via multicast over DVB. Otherwise the service is delivered via unicast over the mobile operator network.

The group has already developed a hybrid mobile terminal that can receive both Cismundus-specific converged services as well as traditional DVB and IP-based services. The portable unit that resembles a tablet PC is integrated with National Semiconductor Corp.'s Geod processor and Philips Semiconductors' TriMedia processor. It runs on the Linux operating system. The unit comes with a 2.5-inch hard disk drive, a PCMCIA slot, DVB-T and GPRS network interfaces.

Stuart Butterfield, a senior scientist at Philips Research, explained: "There is a huge technical challenge" in order to make such a hybrid mobile terminal truly battery operational, while offering a good antenna diversity. The race is on to shrink the fabrication process for DVB-T tuner and channel decoder ICs while building a new power-saving mechanism in the terminal, he said. The project will stage field trials later this year.

Butterfield said the Cismundus project doesn't compete against such emerging standards as DVB-H. "This is something we can already implement before the DVB-H device reaches the market."

Asked if using DAB may make more sense for TV-on-mobile applications because the infrastructure already exisits and the system is designed to be used on the move, Butterfield responded, "The problem is not enough spectrum." It's up to regulators to decide how much of the DAB spectrum can be used for data applications. In England, for example, only 256-Kbits/sec out of 2 Mbit/sec multiplex channel is reserved for data.

Cismundus include Brunel University, France Telecom R&D, Institut Fuer Rundfunktechnik, Motorola Labs, Philips Research Laboratories, Radiotelevisione Italiana (RAI), Telediffusion de France and TV Cultura of Brazil.
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PLASMA TV . . . THE MOTHER OF ALL RFI PRODUCERS

Have you noticed the big push by Best Buy and others of those plasma TV screens? Unfortunately, no one is mentioning the horrendous RFI that these things put out on HF.

I recently installed a CCTV system to keep an eye on my toys. The security company, ADT, suggested a Panasonic 42 inch plasma TV/CCTV monitor, since the light output was high enough that the picture could be viewed in broad daylight.

The morning after the installation of the plasma screen, I noticed a huge digital signal around 7.001 MHz and a few other places on the same band. Next, I checked 20 meters, then 15 meters and found the same signals, but a little weaker as I went up in frequency. Then, I checked 80 meters. There was a gigantic noise at 3.50 MHz and other frequencies within the band and l60 meters was the same.

A little direction finding found it was coming from my house! Sure enough, when I switched off the plasma display, the noise disappeared and I could hear the DX again.

The security company, ADT, talked with Panasonic, who informed them that there was nothing that could be done, I owned it. I hooked up my HP Network Analyzer, to see just how bad the problem was across the HF spectrum. It was unbelievably strong! The ambient levels, in the house, topped at 50 db, about 8 S units! The noise is worse on low bands, but the rest of the HF bands are impacted, as well. The test covered 1.8 to 30 MHz.

I have a 40 meter antenna located a quarter-mile from my house. The signals from this Panasonic plasma screen are still S3 to S5. This radiation is from the back of the unit, where the signals are attenuated by the metal casing. The signals from the front are stronger. I have a 4 square for 40 meters located about 150 feet from the side of the screen and measure noise levels at S9 plus 10 db. Unless the DX is stronger, you will have a problem hearing it.

Just one Panasonic unit produced an S3 raspy signal, on many frequencies at ¼ mile from my antenna. How many houses are with ¼ mile radius from your house? What percentage of those houses will have one of those super efficient raspy RFI generators, by say 2004? Lower prices will result in more sales and you may find ten or more within ¼ mile from your location. Get the picture?

This device, which is allowed to pollute the entire HF spectrum, is allegedly consistent with Part 15 rules. It is stated in their literature. It says that this device can't cause any licensed station any interference and it has to accept all the interference from licensed devices. Now all you have to do is get the rule enforced against all those people that surround you. Good luck!

Some of the commercial airplane manufacturers are getting ready to use those things in commercial flights. The communications systems, of the friendly skies, are more concerned with VHF/UHF than the HF spectrum, so it's lucky for them that the spurious output of the screens is reduced as the frequency increases. Even so, in order to comply with the regulations, some of the screen manufacturers had to resort to a mesh over the front of the screen to form a sort of Faraday Shield, that reduced the signal. Of course, this reduces the picture quality too. So, don't expect your neighbor to start putting the mesh over their screen to help you listen for the latest weak signals.

Apparently, the manufacturers don't think that those of us on the ground are worth the investment in shielding and the FCC backs them up with the limp Part 15 rules. Or, maybe Part 15 spawned the unthinking use of high voltage switching for a bright picture and RFI be damned attitude.

You could try one of those noise reduction boxes, made by MFJ or JPS, but my experience has been that they require a lot of fiddling and retuning every time you change frequency. In any case, get ready for the RFI storm. It's forming now at your local Best Buy and lots of greedy electronics manufacturers don't mind polluting the spectrum, while grabbing your money.

Is it true, that if a device puts out a spurious signal, on a certain frequency, that it is susceptible to incoming signals on the same frequency? That's just a question. I'm not advocating anything.
… Paul N080

For a picture of the increase in background noise, from 1.8 to 30 MHz, as displayed on a Hewlett Packard 8712ET Network Analyzer, visit the website at: http://dxengineering.com/plasmatv/asp

This is the first article seen regarding RFI from plasma television displays and how it could affect amateur radio communications. It is another source for operators to add to their list of causes of interference to the HF spectrum. Perhaps if this is more well publicized, manufacturers may cooperate in helping to reduce interference from their product. One can only hope. The article was not meant to single out any particular brand or retailer.
…This item found on the Internet at the DX Engineering website and reprinted from the "QRM" Newsletter Vol. XXVII #4 Oct 2003.

73 MAGAZINE SAYS "73 AND QRT"

After completing 43 years of publication, 73 Amateur Radio Today magazine is calling it quits. Plans to publish a joint October/November issue fell through this week, and the September 2003 issue was the magazine's last. According to self-proclaimed "El Supremo and Founder" Wayne S. Green II, W2NSD, it was a simple matter of economics.

"After failing a last minute effort to collect on some larger accounts receivable we decided yesterday to throw in the towel--that the September issue will have to be the last," Green told ARRL October 9. "SK after 43 years of publishing."

The first issue of 73 was published in October 1960 from what Green—a former editor of CQ--once described as "a small, dingy apartment" in Brooklyn, New York. Since the summer of 1962, 73 has been based in Peterborough, New Hampshire--Green's home state. The magazine was a pioneer promoter of SSB, FM, solid-state, easy construction projects and the marriage of personal computing and Amateur Radio. His interest in microcomputing led Green in 1975 to found Byte, a magazine devoted to the then-nascent and largely do-it-yourself computer hobby.

At the peak of its popularity in the 1970s and 1980s, individual issues of 73 totaled more than 300 pages of ads, articles and commentary. Heading each issue was Green's inimitable "Never Say Die"--some would say never-ending--editorial, in which he rarely missed an opportunity to tweak the ARRL and his magazine competitors for their perceived shortcomings.

QST Editor Steve Ford, WB8IMY, says 73 published his first article in the 1970s. "I was saddened to hear that 73 has ceased publishing," Ford said. "Wayne's excitement about the growing amateur FM repeater phenomenon at he time was infectious."

Green's 73 editorials and regular round of personal appearances originally concentrated on Amateur Radio and his ideas to improve, advance and grow it. In recent years, however, they've veered into conspiracy theories, cures for cancer, AIDS and other ailments and Green's proliferation of book titles on those topics.

Green says he'll continue his essays on his Web site <http://www.waynegreen.com> "for those subscribers who mainly bought the magazine for them." He told ARRL that no definite arrangements have been made yet about how to handle outstanding 73 subscriptions.

CQ Publisher Dick Ross, K2MGA, said he takes no joy from the passing of 73. "The loss of any publication serving Amateur Radio leaves all of us a bit poorer," he said. "Thank you, Wayne, for 43 entertaining, informative, sometimes infuriating, and always interesting years of 73. We'll genuinely miss it."
…The ARRL Letter Vol. 22, No. 40 October 10, 2003

NEW MEMBER(S)

Let’s welcome the new members to our group! If any of you know anyone who might be interested, let one of us know so we can flood him or her with information. New members are our group’s lifeblood. It's important that we actively recruit new faces aggressively.

KC8UQS David Dominy Radnor, Ohio

…WA8RMC

TWIST YOUR NOODLE

OK here is another puzzle for you to solve. Now, I admit, this one is not easy for those who have a difficult time with 3D visualization and are not very good at math so maybe this puzzle is a little unfair. Knowing the answer required me to study it for a while before I could even get a rough concept of how it can be done. As a result, the answer is below for study. See if you too have a difficult time with the visualization process. There must be people out there with a lot of spare time on their hands to come up with his stuff…or maybe just bored with work! In any case, sharpen your minds by thinking about this one. Can anyone out there simplify it so the rest of us can understand it more clearly? WA8RMC

BLOCKING LIGHT WITH BALLS

I have to admit this is a tough one. It doesn't solve easily on a piece of paper as it is 3 dimensional in nature. So wad your flat two-dimensional representations of space up into a ball and have a go at this little problem.

Imagine an area of three-dimensional empty space. In that space, there is a singular source of light, a very, very small light bulb if you will. Now, from this point source, rays of light spread everywhere in radial directions as light tends to do.

Your task is to put exactly four 4 balls or spheres around source of light thus blocking the rays of light. The point source should be blocked completely. Don't worry about reflections, the spheres are black and do not reflect light.

You have to completely block the light source, oh, and by the way, no infinite size balls, and no black holes. The balls must be solid too (you can't put the light inside one ball, very creative thought though!).

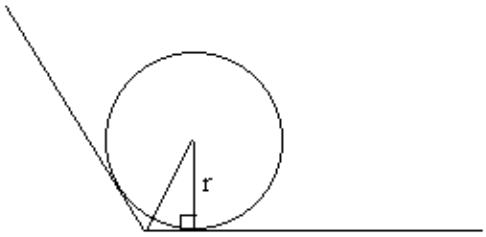
“Solution exists and there is relatively small number of people on the planet Earth who can find solution."

Answer to Blocking Light with Balls

The solution to this was actually quite hard for me to see, but reader Scott Hoover saw it in an instant and sent this in.

To understand the solution, place the light source at the center of a regular tetrahedron (a pyramid with all four sides triangular). Now, draw a cone with apex at the light source that goes through the three vertices of a side. Repeat this process for the remaining three sides. You now have four overlapping cones. To block all light, simply place a ball in a cone so that it is tangent to a cross-section of the given cone. Repeat this process for the remaining three cones and you are done. Of course the balls must differ in size so that they don't occupy the same space.

The tetrahedron illustration is one of an infinite number of solutions. Sticking with that, we can identify four balls that suffice. I believe the cone angle (which is slightly greater than the angle between the center of the tetrahedron and any two vertices) is 120°. This is nice because it makes the math easy. Consider the following radial cross-section of the cone with ball positioned tangent to the cone.



The 30-60-90 triangle tell us that the hypotenuse of the triangle is a 2*r*/sqrt(3). Thus, a ball of radius r that is tangent to the cone will be a distance 2*r*/sqrt(3) from the light source.

Now, we need only find four balls that are guaranteed not to overlap. A simple way is to make sure that the inner point of the second ball is at least as far away as the outer point of the first ball, etc. So, suppose the first ball has r=1. The outer point of the ball is 2/sqrt(3) + 1. Making this the inner point of the second ball, we see that the second ball is centered 2/sqrt(3) + 1 + r from the light source. Setting this (which is the hypotenuse of our 30-60-90 triangle for the second ball) equal to 2r/sqrt(3) and solving gives r = (2+sqrt(3))/(2-sqrt(3)) for the second ball. This becomes the factor for determining the next sizes. So balls of radius
{1, (2+sqrt(3))/(2-sqrt(3)), $[(2+\text{sqrt}(3))/(2-\text{sqrt}(3))]^2$, $[(2+\text{sqrt}(3))/(2-\text{sqrt}(3))]^3$} will suffice.

Note that we could get away with slightly smaller balls (because the balls are along different radii), but the math becomes complicated. An interesting yet substantially more difficult (I think) variation of the problem is to suppose that the first ball has unit radius and then find the smallest balls needed to block the light.

…EE Expert Darren Ashby at EE Times http://www.chipcenter.com/eexpert/dashby/dashby029_tyn.html

ATCO

2003 FALL EVENT

1:00 PM - SUNDAY

OCTOBER 26, 2003

ABB PROCESS AUTOMATION

*** SHELTERHOUSE ***

650 ACKERMAN ROAD

FOR MORE DETAILS, CONTACT

ART - WA8RMC 891-9273

LUNCH PROVIDED - DOOR PRIZES -

BRING A FRIEND AND SEE OLD BUDDYS

MINI HAMFEST - SHOW AND TELL

DIRECTIONS TO THE ATCO EVENT

From I-70 either EAST or WEST Bound:

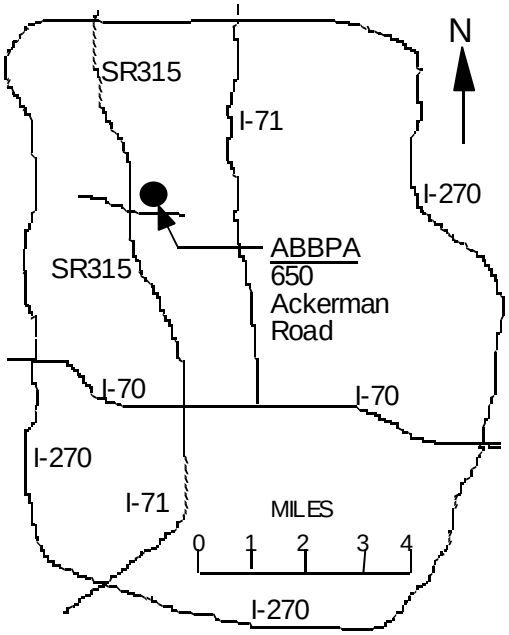
Take I-70 to SR-315 near downtown Columbus. Exit onto SR-315 north about 4 miles to Ackerman Road. Turn east on Ackerman about 200 yards to first driveway on left.

From I-71 traveling NORTH bound toward Columbus:

While traveling north on I-71, continue past I-70 and onto SR-315 north. Travel on SR 315 north about 4 miles to Ackerman Road. Turn east on Ackerman about 200 yards to first driveway on left.

From I-71 traveling SOUTH bound toward Columbus:

(DIRECTIONS IF YOU'RE "NORTH" OF I-270).
Take I-71 SOUTH to I-270 Bypass Loop & head WEST on I-270 to SR 315. Take SR 315 south about 5 miles to Ackerman Road. Turn east on Ackerman (under SR 315) about 200 yards to first driveway on left.



INTERNET ATV HOME PAGES (list verified 01/18/02)

If you have access to the INTERNET, you may be interested to know of some of the HAM related information that is available. Most addresses listed below are case sensitive, so type exactly as shown. (For comments or additional listings contact me at towslee@ee.net).
Note: The listings below without URL's have disappeared! If any of you know otherwise, let me know.

Domestic homepages

http://psycho.psy.ohio-state.edu/atco	Ohio, Columbus, homepage (ATCO)
http://www.activedayton.com/community/groups/rmeeksjr/index.html	Ohio, Dayton ATV group (DARA)
http://users.erinet.com/38141/atv.htm	Ohio, Xenia KB8GRJ
http://www.qsl.net/ka8mid	Ohio, Chilicothe area, KA8MID homepage
	Alabama - Gulf Coast Amateur Television Society
http://www.hayden.edu/Guests/AATV	Arizona, Phoenix Amateurs (AATV) Carl Hayden High School
http://www.w7atv.com	Arizona, Phoenix Amateurs(AATV)
http://www.citynight.com/atv	California, San Francisco ATV
http://www.qsl.net/atn	California, Amateur Television Network in Central / Southern
http://www.qsl.net/scats/	Florida, Melborn Space Coast Amateur TV Society (SCATS)
http://www.bsrg.org/aatn/aatn1.html	Georgia, Atlanta ATV
http://members.tripod.com/silatvg	Illinois, Southern, Amateur Television group
http://www.ussc.com/~uarc/utah_atv/id_atv1.html	Idaho ATV
	Kentucky, Lexington Bluegrass ATV Society (BATS)
	Kansas, Kansas City Amateur TV Group (KCATVG**)**
http://www.bratsatv.org	Maryland, Baltimore Radio Amateur Television Soc. (BRATS)
http://www.icircuits.com/dats	Michigan, Detroit Amateur Television System (DATS)
http://come.to/amateurtv.mn	Minnesota Fast Scan Amateur Television (MNFAT)
	Missouri, St Louis Amateur Television
http://www.qsl.net/kd2bd/atv.html	New Jersey, Brookdale ARC in Lincroft
http://www.no3y.com/radio.html	New Mexico, Farmingham
http://www.ipass.net/~teara/menu3.html	North Carolina, Triangle Radio Club (TEARA)
http://www.oregonatv.org	Oregon, Portland OATVA Oregon Amateur TV Association
http://www.jones-clan.com/amateur_radio/klamath_amateur_television.htm	Oregon, Southern Oregon ATV
http://www.nettekservices.com/ATV/	Pennsylvania, Pittsburg Amateur Television
http://members.bellatlantic.net/~theojkat	Pennsylvania, Phila. Area ATV
http://www.geocities.com/Hollywood/5842	Tennessee, East ATV
http://www.hats.stevens.com	Texas, Houston ATV (HATS)
	Texas, WACO Amateur TV Society (WATS)
http://www.hamtv.org/	Texas, North Texas ATV
http://www.ussc.com/~uarc/utah_atv/utah_atv.html	Utah ATV
	Washington, Western Washington Television Soc. (WWATS)
http://www.shopstop.net/bats/	Wisconsin, Badgerland Amateur Television Society (BATS)

Foreign homepages

http://lea.hamradio.si/~s51kq/	Slovenia ATV **(BEST OF FOREIGN ATV HOMEPAGES)**
http://www.batc.org.uk/index.htm	British ATV club (BATC)
http://www.sfn.saskatoon.sk.ca/recreation/hamburg/hamatv.html	Saskatoon, Canada ATV
http://www.gpfn.sk.ca/hobbies/rara/atv3.html	Regina, Canada ATV
http://www.inside.co.uk/scart.htm	UK, Great Britain ATV (SCART)
http://www.cmo.ch/swissatv	Swiss ATV
http://www.rhein-land.com/atv	German ATV in "Niederrhein" area
http://www.arcadeshop.demon.co.uk/atv/	UK, G8XEU ATV homepage
	British Columbia, Canada VE7RTV repeater
	Auckland, New Zealand ATV
http://www.cq-tv.com	British ATV Club and CQ-TV Magazine
http://oh3tr.ele.tut.fi/english/atvindex.html	Finland ATV, OH3TR repeater.

INTERNET MISC HAM RELATED HOME PAGES (list verified 01/18/02)

The following addresses are helpful in searching for many different Ham Radio items on the INTERNET.

http://www.hampubs.com/	ATVQ Magazine home page. ATV equipment & article references.
http://www.hamtv.com	PC Electronics Inc. Lots of proven ATV equipment for sale.
http://downeastmicrowave.com	Down East Microwave Inc. Lots of uhf/microwave parts & modules.
http://www.arrl.org/hamfests.html	Current yearly hamfest directory.
http://amsat.org	AMSAT satellite directory/home page.
http://www.arrl.org	ARRL home page
http://www.arrl.org/fcc/fcclook.php3	ARRL/FCC revised CALLSIGN database. Search call sign or name.
http://hamradio-online.com	Ham Radio Online "newsletter" Lot of Ham related info.
http://www.qsl.net/atna/	ATNA homepage
http://www.ham-links.org	Ham Radio collection database
http://fly.hiwaay.net/~bbrown/index.htm	Tennessee Valley Balloon launch info (Bill Brown WB8ELK)
http://www.ipass.net/~teara/atv4.html	Arizona ATV 2.4Ghz Wavecom page (Wavecom mod. info)
	Space Shuttle Launch Info Service & Ham TV System (LISATS)
http://www.svs.net/wyman/	Wyman Research Inc. W9NTP Don Miller ATV equipment
http://www.m2inc.com /	M2 Antenna Systems Inc.
http://www.dci.ca/amateur_radio.htm	DCI Digital Communications Inc. Bandpass filters
http://scott-inc.com/wb9neq.htm	Kentucky, Airborn ATV from WB9NEQ in Bowling Green
http://www.icircuits.com/	Intuitive Circuits Inc
http://www.qsl.net/kd4dla/ATV.html	KD4DLA ATV web page index
http://www.severe-weather.org	Columbus, Ohio severe weather net at Columbus airport
http://www.mods.dk	Ham radio modification lists.
http://gullfoss.fcc.gov:8080/cgi-bin/ws.exe/beta/genmen/frequency.hts	look up any frequency on the FCC data base.
http://www.fcc.gov/wtb/	Starting point from which all radio license holders can be found
http://www.labguysworld.com	Lab Guy Antique TV camera listing
http:\\www.earlytelevision.org	Antique television museum in Hilliard, Ohio
http://radioscanning.wox.org/Scanner/scanner.htm	Radio scanner info for all frequencies in Columbus, Ohio area.
http://www.labguysworld.com/	Television recorder history web page. Lots of tv info.

HAMFEST CALENDAR

This section is reserved for upcoming hamfests. They are limited to Ohio and vicinity easily accessible in one day. Anyone aware of an event incorrectly or not listed here, notify me so it can be corrected This list will be amended, as further information becomes available.

26 Oct 2003	+	Massillon ARC http://www.marcradio.org **Contact:** Terry Russ, N8ATZ 3420 Briardale Circle NW Massillon, OH 44646 Phone: 330-837-3091 Email: w8np@qsl.net	Canton, OH **Div:** Great Lakes **Sect:** Ohio
10 Jan 2004	**	SWOH Digital Symposium Dial Radio Club http://www.swohdigi.org **Contact:** Hank Greeb, N8XX 6580 Dry Ridge Road Cincinnati, OH 45252-1750 Phone: 513-385-8363 Email: n8xx@arrl.net	Middletown, OH **Div:** Great Lakes **Sect:** Ohio

18 Jan 2004	+	Sunday Creek AR Federation **Contact:** Russ Ellis, N8MWK 8051 Kochis Road Glouster, OH 45732 Phone: 740-767-2226 Email: n8mwk@arrl.net	Nelsonville, OH **Div:** Great Lakes **Sect:** Ohio
25 Jan 2004	+	Tusco ARC **Contact:** Gary Green, K8WFN 32210 Norris Road Tippecanoe, OH 44699 Phone: 740-922-4454 Email: k8wfn@tusco.net	New Philadelphia, OH **Div:** Great Lakes **Sect:** Ohio
8 Feb 2004	+	Inter-City ARC http://www.maser.org **Contact:** Jack Weeks, K8RT 1210 East Hanley Road Mansfield, OH 44903 Phone: 419-756-5301 Email: bigdogg@richnet.net	Mansfield, OH **Div:** Great Lakes **Sect:** Ohio
21 Mar 2004	+	Toledo Mobile Radio Association http://www.tmrahamradio.org **Contact:** Brian Harrington, WD8MXR 4463 Holly Hill Drive Toledo, OH 43614 Phone: 419-385-5624 Email: wd8mxr@arrl.net	Maumee, OH **Div:** Great Lakes **Sect:** Ohio
28 Mar 2004	+	Lake County ARA http://www.lcara.org **Contact:** Robert Liddy, K8BL 7321 Enfield Drive Mentor, OH 44060 Phone: 440-951-0283 Email: k8bl@ameritech.net	Madison, OH **Div:** Great Lakes **Sect:** Ohio
18 Apr 2004	+	Cuyahoga Falls ARC http://www.cfarc.org **Contact:** Ted Sarah, W8TTS 239 Bermont Avenue Munroe Falls, OH 44262 Phone: 330-688-2013 Email: w8tts@arrl.net	Cuyahoga Falls, OH **Div:** Great Lakes **Sect:** Ohio
14-16 May 2004	x	Dayton Hamvention Dayton ARA http://www.hamvention.org/ **Contact:** Gary Des Combes, N8EMO PO Box 964 Dayton, OH 45401-0964 Phone: 937-276-6930 or 937-276-6934 Email: info@hamvention.org	Dayton, OH **Div:** Great Lakes **Sect:** Ohio
7 Aug 2004	+	HAM "OH" RAMA Voice of Aladdin ARC http://www.qsl.net/w8fez **Contact:** James Morton, KB8KPJ 6070 Northgap Drive Columbus, OH 43229-1945 Phone: 614-846-7790 Email: kb8kpj@arrl.net	Columbus, OH **Div:** Great Lakes **Sect:** Ohio

ATCO REPEATER TECHNICAL DATA SUMMARY

Location:	Downtown Columbus, Ohio
Coordinates:	82 degrees 59 minutes 53 seconds (longitude) 39 degrees 57 minutes 45 seconds (latitude)
Elevation:	630 feet above average street level (1460 feet above sea level)
Transmitters:	427.25 MHz AM modulation, 1250 MHz FM modulation and 2433 MHz FM modulation.
	Interdigital filters in output line of 427.25, 1250 & 2433 transmitters
	Output Power - 427.25 MHz:40 watts average 80 watts sync tip
	1250 MHz:50 watts continuous
	2433 MHz:15 watts continuous
	Link transmitter - 446.350 MHz 1 watt NBFM 5 kHz audio
Identification:	427, 1250 & 2433 xmtrs. Video identify every 30 minutes showing ATCO & WR8ATV on four different screens
Transmit antennas:	427.25 MHz - Dual slot horizontally polarized "omni" 7 dBd gain major lobe east/west, 5dBd gain north/south
	1250 MHz - Diamond vertically polarized 12 dBd gain omni
	2433 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni
Receivers:	147.45 MHz - F1 audio input control of touch tones
	439.25 MHz - A5 video input with FM subcarrier audio (**lower sideband**)
	915 MHz - F5 video link data from remote sites
	1280 MHz - F5 video input
	2398 MHz - F5 video input
Receive antennas:	147.45 MHz - Vert. polar. Hi Gain 12 dBd dual band (also used for 446.350 MHz output)
	439.25 MHz - Horiz. polar. dual slot 7 dBd gain major lobe west
	915 MHz - DB Products vertically polarized 10 dBd gain omni
	1280 MHz - Diamond vertically polarized 12 dBd gain omni
	2398 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni

Input control:	Touch Tone	Result (if third digit is * function turns ON, if it is # function turns OFF)
	00#	turn transmitters **off** (exit manual mode and return to auto scan mode)
	00*	turn transmitters **on** (enter manual mode -keeps transmitters on till 00# sequence is pressed)
	264	Select Channel 4 doppler radar. (Stays up for 5 minutes) Select # to shut down before then.
	697	Select Time Warner radar. (Stays up till turned off). Select # to shut down.

Manual mode functions:		
	00* then 1 Ch. 1	Select 439.25 receiver - manual mode (hit 00* then 1 to view 439.25 signal only)
	00* then 2 Ch. 2	Select 915 receiver - manual mode
	00* then 3 Ch. 3	Select 1280 receiver - manual mode
	00* then 4 Ch. 4	Select 2411 receiver - manual mode
	00* then 5 Ch. 5	Select video ID - manual mode (the 4 identification screens)
	01* or 01#	Channel 1 439.25 MHz scan enable (hit 01* to scan this receive channel & 01# to disable it)
	02* or 02#	Channel 2 915 MHz scan enable
	03* or 03#	Channel 3 1280 MHz scan enable
	04* or 04#	Channel 4 2411 MHz & camera video scan enable
	A1* or A1#	Manual mode select of 439.25 receiver audio
	A2* or A2#	Manual mode select of 915 receiver audio
	A3* or A3#	Manual mode select of 1280 receiver audio
	A4* or A4#	Manual mode select of 2411 receiver audio
	C0* or C0#	Beacon mode – transmit ID for twenty seconds every ten minutes
	C1* or C1#	427.25 transmitter power output select (C1* = 40W output power or C1# = 1.5W output)
	C2* or C2#	2433 transmitter for on/off. (C2* enables transmitter and C2# disables it)

Auto scan mode functions:		
	001	2411 receiver (normal mode - returns to auto scan)
	002	Roof camera (select 001 when finished viewing camera so repeater will shut down)
	003	Equipt. room camera (select 001 when finished viewing camera so repeater will shut down**)**

CAMERA CONTROLLER KEYPAD FUNCTIONS *(TEMPORARILY OUT OF SERVICE)*

002 = ENABLE CAMERA Note: sometimes enter 003 for room cam then 002 for roof cam is better.

001 = RETURN TO NORMAL

FOCUS 1	ZOOM 2	APER-ATURE 3	DISABLE AAA A
FILTER (4 STEPS) 4	TILT 5	PAN 6	ENABLE B
IN/RT/DN 7	8	INC SPEED (PAN/TILT) 9	C
OUT/LF/UP *	0	DEC SPEED (PAN/TILT) #	D

OK, that's it folks. Play with it to your heart's content. Oh, one more thing. Use the camera in the repeater automatic mode only. If you access it in repeater manual mode, the first time you hit a function button, the controller thinks you want another input and shuts it down. In auto mode hit "002" to enable the roof camera and "001" when finished to return the controller to the 2400 MHz input. Since there will be no 2400 MHz signal, the repeater will then shut down. Use the keypad diagram at left as a function reference. Cut it out and paste it beside your keypad if you prefer. Thanks to Dale, WB8CJW, for the handy work.

ATCO MEMBERS AS OF October 20, 2003

Call	Name	Address	City	St	Zip	Phone	URL
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	OH	43224-3011		sdiggs4590@aol.com
K8AEH	Wilbur Wollerman	1672 Rosehill Road	Reynoldsburg	OH	43068	614-866-1399	wilbur.w@juno.com
KC3AM	David Stepnowski	735 Birchtree Lane	Claymont	DE	19703-1604		kc3am@aol.com
KC8ASD	Bud Nichols	3200 Walker Rd	Hilliard	OH	43026	614-876-6135	kc8asd1@netzero.com
KC8ASF	Tom Pallone	3437 Dresden St.	Columbus	OH	43224	614-268-4873	
W8CQT	Jim McConnell	350 N. State Road	Delaware	OH	43015-9644	740-363-1008	w8cqt@arrl.net
WB8CJW	Dale Elshoff	8904 Winoak Pl	Powell	OH	43065	614-210-0551	delshoff@columbus.rr.com
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125	614-491-8198	jbusic@copper.net
W8DLB	Denny Beardmore	PO Box 313	Bethesda	OH	43719-0313	740-484-4822	dlb@1st.net
K8DW	Dave Wagner	2045 Maginnis Rd	Oregon	OH	42616	419-691-1625	
WA3DTO	Rick White	133 Concord Way	Cranberry Twp.	PA	16066	724-776-2436	wa3dto@aol.com
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	OH	43026	614-876-6033	wb8dzw@aol.com
KB8FLY	Rod Shaner	124 West Walnut St.	Lancaster	OH	43130-4344	740-654-5694	rshaner@copper.net
KS4GL	John Barnes	216 Hillsboro Ave	Lexington	KY	40511	606-253-1178	jrbarnes@iglou.com
W8FZ	Fred Stutske	8737 Ashford Lane	Pickerington	OH	43147		w8fz@arrl.net
KC8HCE	Adam Porr	6825 Ridgeway Ct.	Pickerington	OH	43147	614-837-6489	kc8hce@arrl.net
WA8HFK,KC8HIP	Frank, Pat Amore	3630 Dayspring Dr	Hilliard	OH	43026	614-777-4621	famore@wowway.com
WD8ITF	Larry Fields	953 W. Hopocan Ave	Barberton	OH	44203-7007	330-825-7148	lfields@neo.rr.com
K8KDR,KC8NKB	Matt & Nancy Gilbert	5167 Drumcliff Ct.	Columbus	OH	43221-5207	614-771-7259	k8kdr@arrl.net
K4KLT, KD4ODQ	Bob & JoAnnSchmauss	P.O. Box 1547	Land O' Lakes	FL	34639-1547	813-996-2744	schmauss@att.net
N8KQN	Ted Post	1267 Richter Rd	Columbus	OH	43223	614-276-1820	n8kqn@juno.com
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	OH	45331	513-548-2492	walkingcross@mail.bright.net
N3KYR	Harry DeVerter Jr	303 Shultz Road	Lancaster	PA	17603-9563		deverterhf@dejazzo.com
N8LRG	Phillip Humphries	3226 Deerpath Drive	Grove City	OH	43123	614-871-0751	phumphries@columbus.rr.com
WB8LGA	Charles Beener	2540 State Route 61	Marengo	OH	43334		cbeener@columbus.rr.com
WB2LTS	Manny Diaz	74 Lincoln Rd	Medford	NY	11763		mvdiaz@suffolk.lib.ny.us
KC8LZC	Tom Walter	15704 St Rt 161 West	Plain City	OH	43064	614-733-0722	twalter@emec.us
W8MA(ex wa8tte)	Phil Morrison	154 Llewellyn Ave	Westerville	OH	43081		
WD8MDI	Dave Mathews	2404 Hoose Drive	Grove City	OH	43123		wd8mdi@qsl.net
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	OH	45660		ka8mid@qsl.net
WB8MMR	Mike Knies	1715 Winding Hollow Dr.	Columbus	OH	43223	614-875-4236	
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	OH	43026	614-876-2127	n8nt@columbus.rr.com
WD8OBT	Tom Camm	63 Goings Lane	Reynoldsburg	OH	43068	740-964-6881	firefoxtom11@netzero.com
KB8OFF	Jess Nicely	742 Carlisle Ave	Dayton	OH	45410		kb8off@prosurvisp.com
N8OPB	Chris Huhn	2720 Wood Leaf Lane	Reynoldsburg	OH	43068	614-866-2632	cjhuhn2@aep.com
W6ORG,WB6YSS	Tom & Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537	626-447-4565	tom@hamtv.com
W2OTA,WA2DTZ	Michael Chirillo	942 Bruce Drive	Wantagh	NY	11793	516-785-8045	
KC8OZV	George Biundo	3675 Inverary Drive	Columbus	OH	43228	614-274-7261	kilowatt@biundo.org
WB8PJZ	Dave Morris	2323 Allentown Road	Lima	OH	45805	419-226-6997	dave@towercominc.com
KE8PN	James Easley	1507 Michigan Ave	Columbus	OH	43201	614-421-1492	jeasley11@hotmail.com
W8PGP,WD8BGG	Richard, Roger Burggraf	5701 Winchester So. Rd	Stoutsville	OH	43154	614-474-3884	rgburggraf@juno.com
K4PRS	Peter R. Sinkowski	4532 W Kennedy Bl #114	Tampa	FL	33609-2042		k4prs@yahoo.com
WA8RMC	Art Towslee	180 Fairdale Ave	Westerville	OH	43081	614-891-9273	towslee1@ee.net
W8RRF	Paul Zangmeister	10365 Salem Church Rd	Canal Winchester	OH	43110		w8rrf@copper.net
W8RRJ	John Hull	580 E. Walnut St.	Westerville	OH	43081	614-882-6527	
W8RUT,N8KCB	Ken & Chris Morris	3181 Gerbert Rd	Columbus	OH	43224	614-261-8583	wa8rut@aol.com
W8RVH	Richard Goode	9391 Ballentine Rd	New Carlisle	OH	45334	937-964-1185	w8rvh@glasscity.net
W8RQI	Ray Zeh	2263 Heysler Rd	Toledo	OH	43617		zehrw@glasscity.net
KB8RVI	David Jenkins	1941 Red Forest Lane	Galloway	OH	43119	614-878-0575	kb8rvi@hotmail.com
W8RWR	Bob Rector	135 S. Algonquin Ave	Columbus	OH	43204-1904	614-276-1689	w8rwr@sbcglobal.net
W8RXX,KA8IWB	John Perone	3477 Africa Road	Galena	OH	43021	740-548-7707	
WA8SAR	Gary Obee	3691 Chamberlain	Lambertville	MI	48144		
N8SFC	Larry Campbell	316 Eastcreek Dr	Galloway	OH	43119		
W8SJV	John Beal & family	5001 State Rt. 37 East	Deleware	OH	43015	740-369-5856	w8sjv@midohio.net
W8SMK	Ken Bird	244 N Parkway Dr	Delaware	OH	43015	740-548-4669	ken@midohio.net
N8SNG	Terry Rankin	414 Walnut Street	Findlay	OH	45840		
W3SST	John Shaffer	2596 Church Road	York	PA	17404		w3sst@juno.com
K8STV	Jim Carpenter	823 Quailwood Dr	Mason	OH	45040		k8stv@arrl.net
KB8TRP,KB8TCF	Tom, Ed Flanagan	1751 N. Eastfield Dr	Columbus	OH	43223	614-272-5784	ed48@columbus.rr.com
KB8UGH	Steve Caruso	6463Blacks Rd SW	Pataskala	OH	43062-7756	740-927-1196	dae14@copper.net
KC8UQS	David Dominy	7017 Taway Road	Radnor	OH	43066		
WB8URI	William Heiden	5898 Township Rd #103	Mount Gilead	OH	43338	419-947-1121	
KB8UU	Bill Rose	9250 Roberts Road	West Jefferson	OH	43162	614-879-7482	
WA8UZP	James R. Reed	818 Northwest Blvd	Columbus	OH	43212	614-297-1328	wa8uzp@qsl.net
KB8WBK	David Hunter	45 Sheppard Dr	Pataskala	OH	43062	740-927-3883	hiramhunter@aol.com
N8XYZ	Dan Baughman	4269 Hanging Rock Ct.	Gahanna	OH	43230		dbaughma@insight.rr.com
KB8YMN	Mark Griggs	2160 Autumn Place	Columbus	OH	43223	614-272-8266	mmgriggs@aol.com
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	OH	43064		
N8YZ	DaveTkach	2063 Torchwood Loop S	Columbus	OH	43229	614-882-0771	
KB8ZLB	Dave Kibler	243 Dwyer Rd	Greenfield	OH	45123	937-981-4007	Bricks@dragonbbs.com
KA8ZNY,N8OOY	Tom & Cheryl Taft	386 Cherry Street	Groveport	OH	43125	614-836-3519	ka8zny@copper.net

ATCO MEMBERSHIP INFORMATION

Membership in ATCO (Amateur Television in Central Ohio) is open to any licensed radio amateur who has an interest in amateur television. The annual dues are $10.00 per person payable on January 1 of each year. Additional members within an immediate family and at the same address are included at no extra cost.

ATCO publishes this newsletter quarterly in January, April, July, and October. It is sent to each member without additional cost.

The membership period is from January 1ST to December 31ST. New Members will receive all ATCO newsletters published during the current year prior to the date they join ATCO.. For example, a new member joining in June will receive the January and April issues in addition to the July and October issues. As an option for those joining after mid July, they can elect to receive a complementary October issue with the membership commencing the following year Your support of ATCO is welcomed and encouraged.

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC
V. President: Ken Morris W8RUT
Treasurer: Bob Tournoux N8NT
Secretary: Frank Amore WA8HFK
Corporate trustees: Same as officers
Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT
Dale Elshoff WB8CJW
Statutory agent: Frank Amore WA8HFK
Newsletter editor: Art Towslee WA8RMC

ATCO MEMBERSHIP APPLICATION

RENEWAL O NEW MEMBER O DATE _____
CALL _____
OK TO PUBLISH PHONE # IN NEWSLETTER YES O NO O
HOME PHONE _____
NAME_____
INTERNET Email ADDRESS_____
ADDRESS _____
CITY _____ STATE _____ ZIP _____-_____
FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY
_____
COMMENTS_____
_____
_____
_____

ANNUAL DUES PAYMENT OF $10.00 ENCLOSED CHECK O MONEY ORDER O
Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026. Or, if you prefer, pay dues via the Internet with your credit card. Go to www.tournoux.com/~atco and fill out the form. Payment is made through "PayPal" but you DO NOT need to join PayPal to send your dues. Simply DO NOT fill out the password details and there will be no PayPal involvement.

TUESDAY NITE NET ON 147.45 MHz SIMPLEX

Every Tuesday night @ 9:00PM WA8RMC hosts a net for the purpose of ATV topic discussion. There is no need to belong to the club to participate, only a genuine interest in ATV. All are invited. For those who check in, the general rules are as follows: Out-of-town and video check-ins have priority. A list of available check-ins is taken first then a roundtable discussion is hosted by WA8RMC. After all participants have been heard, WA8RMC will give status and news if any. Then a second round follows with periodic checks for late check-ins. We rarely chat for more than an hour so please join us if you can.

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (04/20/03)..... $2481.55
RECEIPTS(dues)..... $ 280.00
OTHER INCOME (bank interest)..... $ 3.08
Pop and food for spring event..... $(177.03)
Hamvention sales ..... $ 134.00
Pay Pal charges..... $ (0.59)
Antenna party pizza..... $ (50.00)
July Newsletter postage..... $ (45.00)
Domain name Web space ..... $ (60.00)
ATCO State re-certification fee..... $ (25.00)
CLOSING BALANCE (10/21/03)..... $ 2541.01

ATCO Newsletter
c/o Art Towslee-WA8RMC
180 Fairdale Ave
Westerville, Ohio 43081

FIRST CLASS MAIL

REMEMBER...CLUB DUES ARE NEEDED.
CHECK MAILING LABEL FOR THE EXPIRATION DATE AND SEND N8NT A CHECK IF EXPIRED.