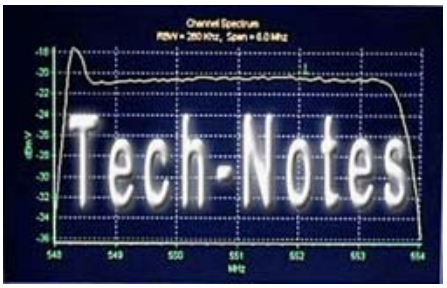


http://www.Tech-Notes.tv
September 3, 2002
Tech-Note #107
HTML Edition
Established May 18, 1997
Underwritten by: Bloomfield & Associates

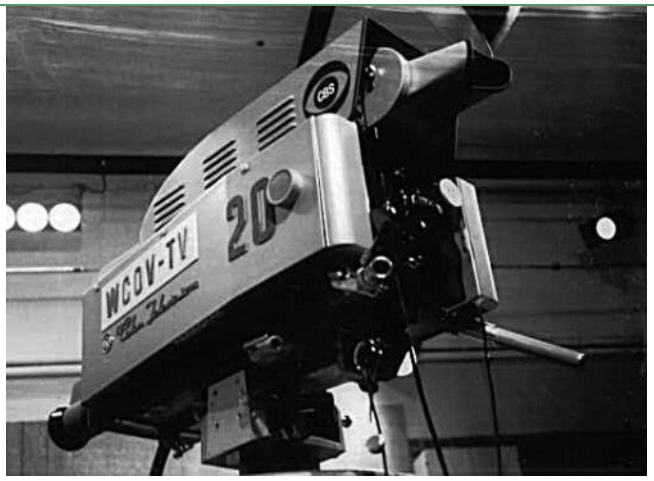
Our purpose, mission statement, this current edition, archived editions and other relative information is posted on our website. As of this edition, we've had over 23,160 different visitors since we started the website on July 1st, 2000.

Thanks to our regulars and welcome to the new folks.
This is **YOUR** forum!

Editor's comments

Welcome to Tech-Notes. You now have the option of receiving this enhanced (HTML) version or a plain text version. You can manage this yourself on the website at to bottom of the main page. (http://www.Tech-Notes.TV) If you have any questions or problems, send an e-mail to: webmaster@tech-notes.TV with your issue. Thank.

Starting with this edition, we'd like to feature the technical parts of any station or facility's website. Your input in support of this effort is most appreciated. Please submit your suggestions to webmaster@Tech-Notes.TV. For openers, go to: http://www.wcov.com/technical . Hope you find it as interesting as we did: A true slice out of the mid-60s small market television.



For about these picture, visit the website

Our thanks to Phil Whitt, Chief Engineer of WCOV-TV and member/survivor of the **Order of the Iron Test Pattern.**

With this edition, we'd like to welcome the members of Ancient, Honored and Respected **Order of the Iron Test Pattern**. These survivors of the television industry will be joining us. For more information about this august and most exalted group, visit our website at http://www.Tech-Notes.TV and click on the link at the bottom of the main page. Membership requirements are quite simple: You mustn't be dead and you must have worked in some aspect of television for more than fifteen minutes. Should you happen to lie about either of these two things, it really doesn't matter.

Robert Gonsett, Editor, The CGC Communicator was kind enough to point out that in our Tech-Notes #106, we carried two mix ups that need correcting, regarding the FCC's recent human exposure to radio frequency fields inspection on Mt. Wilson.

We said in #106: "One tower maintenance company complained that after a power reduction was finally accomplished on Mt. Wilson, a TV GM ordered his engineer to RESUME FULL POWER operation immediately. Full power operation was resumed, without warning, and with climbers on the tower structure...."

This is an accurate quotation for our company newsletter, The CGC Communicator #523 for July 16, 2002. However, according to Roger Knipp of KDOC-TV who was party to the incident, the problem occurred on Sunset Ridge (not Mt. Wilson) and the power increase was ordered by a TV network Director of Engineering (not a General Manager). We published a correction notice in CGC #525 dated July 18, 2002. The case is now known as the "Sunset Ridge Incident."

News

SONY 

Subject: **Sony kills Betamax!**
By: Larry Bloomfield

In a recent story out of Tokyo, Sony says it would be making only 2,000 more Betamax machines before discontinuing the product altogether after its 27 years run. It appears that digital has done what VHS couldn't do. Despite loosing the 1980s video format war, Betamax has held on for decades as a niche product. According to Reuters news service, Betamax video tape will finally be laid to rest after digital formats delivered a death blow to its prospects.

Subject: **Eighty-one million DTV capable television sets – latest count.**
From: NAB

Eighty-one million television sets in the U.S. receive programming exclusively from free, over-the-air TV stations, the National Association of Broadcasters recently announced.

In comments filed with the Federal Communications Commission, the NAB noted that:

- the total number of television sets in the U.S. is 267 million;
- 81 million TV sets (or more than three out of every 10 TV sets in the (U.S.) rely exclusively on "free TV" for programming, and are not hooked up to cable, satellite or any other subscription TV service;
- 21 percent of all U.S. TV households rely exclusively on free TV;
- 41 percent of all U.S. households receive free television on at least one of their TV sets;
- 25 percent of all cable and satellite homes have at least one TV set in the household that receives signals solely from free TV, and;
- 24 percent of African-American and 32 percent of Hispanic households rely exclusively on free TV for their television viewing.

NAB's analysis was provided to the FCC as part of the Commission's "Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming." NAB's comments demonstrate "the considerable extent to which consumers still depend on over-the-air broadcast television signals."

NAB's filing with the FCC noted that during an era of consolidation in the cable industry, local broadcasters "continue to provide a guaranteed minimum of local and diverse voices for subscribers."

The complete NAB filing can be found at:
http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6512761985

Subject: **ATSC FAQ list and new blood brings hopes for DTV's future**
By: Fred Lawrence

The Advanced Television Systems Committee (ATSC) has posted an up date to what they say are their "most frequently asked questions" (FAQ). No where do they say they have answers, though. It might be worth a look-see: http://www.atsc.org/faq_default.html Humor comes in all forms these days.

In a related story, it is interesting to note that Bob Rast, instrumental in the U.S. Grand Alliance for H/DTV when he was at General Instrument (now Motorola), and later at Dolby and DemoGraFX, is the new president of Linx Electronics, the latest great hope for ATSC DTV reception at high-multipath sites. Check out the PR at: http://www.atsc.org/memberpr/PR-Rast.html

Subject: **Broadcasters push multicasting**
By Larry Bloomfield

According to an article in Broadcasting & Cable, Broadcasters have a new wish list now that they have conceded the fight for mandatory cable carriage of both analog and digital channels during the switch to DTV.

It would appear that NAB hasn't retreated from its demand for dual analog/digital carriage rights during the DTV switch and wouldn't comment on the record about the new approach. But, behind the scenes, NAB members have ordered the Washington staff to pursue "legal alternatives."

Check out the story at:
http://www.tvinsite.com/broadcastingcable/index.asp?layout=story_stocks&articleid=CA240271&display=Top+of+the+Week&title=Broadcasters+push+multicasting&pubdate=08/26/2002

Subject: **BROADCAST STATION TOTALS AS OF JUNE 30, 2002 and other facts**
From: The Federal Communications Commission

AM STATIONS		4811	
FM COMMERCIAL	6147		
FM EDUCATIONAL	2303		
TOTAL			**13,261**
UHF COMMERCIAL TV	752		
VHF COMMERCIAL TV	579		
UHF EDUCATIONAL TV	254		
VHF EDUCATIONAL TV	127		
TOTAL			**1,712**
CLASS A UHF STATIONS	451		
CLASS A VHF STATIONS	103		
TOTAL			**554**
FM TRANSLATORS & BOOSTERS		3770	
UHF TRANSLATORS		2647	
VHF TRANSLATORS		2094	
TOTAL			**8,511**
UHF LOW POWER TV		1597	
VHF LOW POWER TV		523	
TOTAL			**2,120**

TOTAL BROADCAST STATIONS 26,158

(Editor's comment: And that's a lot of RF!)

States, to date, without DTV: Alaska, Nebraska, Rhode Island, South Dakota, Vermont and Wyoming

Subject: **Digital Closed Caption**
From: Dave Hill dhill@larcan.com

Recently someone asked me about the 708 Digital Closed Caption option requirements for encoding/transmitters. The question was "How do I know it is in operation?" (Your do need an encoder that will do this.)

I checked with Mike Gianneschi at Zenith who informed me that the Model HDV420 is capable, at a very reasonable price, to confirm that the DCC option works. It is a demodulator (the primary purpose) that provides outputs (S-Video, AV, RGB, RF out and Hi-Res component) to your older TV sets, or maybe your new one, in all the formats. That and Dolby digital, coaxial and optical: a great item for the transmitter site to insure that it is working or something for the studio conference room. If you are really into this digital stuff, you can buy one for your home. There is also a satellite version, the HDSAT520

If you would like to find out more, try www.zenith.com and search for HDV420 under the wonderful world of digital; complete specifications are listed. The price I have been quoted is under $500, but not confirmed. Zenith also has some nifty DTV sets (direct view, plasma, RP) shown on the web that one can purchase.

Contact me if I can help you and my thanks.

Dave Hill, LARCAN USA INC.

Subject: **DTV Tuner Rule Makes Cable See Domino Spots.**
By: Larry Bloomfield

Just about a month ago, the Consumer Electronics Association became the first domino to fall as a result of Federal Communications Commission chairman Michael Powell's plan to force the TV industry and every U.S. viewer to switch from analog to digital television as quickly as possible.

Calling it a 'TV TAX', the CEA says they'll sue, but to what avail; Congress what to get those extra channels they loaned out back so they can auction them off. Here's another opportunity for lawyers to get rich and everyone else wonder; what's the use?

Much like the CEA, the cable industry is trying to fend off a batch of burdensome DTV regulations advocated by the National Association of Broadcasters. With this Republican-controlled FCC apparently at ease with regulatory solutions in a crunch, the cable industry has got to be wondering whether it is the next digital domino in the agency's path.

For more on this and other related issues, see the full story by Ted Hearn in the Multichannel News at:
http://www.tvinsite.com/multichannelnews/index.asp?layout=story_stocks&articleid=CA238227&doc_id=98211&pubdate=08/12/2002

Subject: **Don't Unwittingly Rebroadcast EAS Tones**
From: CGC Communicator #533

Mark Manuelian reports that a Boston station - doing a broadcast news report on the AMBER alert - used a recording of an actual EAS alert previously broadcast in another market.

Please remind all station engineers, managers and newsroom personnel (again) that rebroadcasting an EAS alert as part of a news report is illegal.

Subject: **FCC Balks at Easing DTV deadlines**
By Fred Lawrence with input from Bill McConnell of Broadcasting & Cable

The Federal Communications Commission denied requests for additional time to build digital-television stations from Paxson Communications Corp. and other broadcasters very recently.

Paxson asked to double the time allowed for extensions granted to 22 of its stations from six months to one year. The FCC said it had no authority to grant extensions longer than six months. The commission noted, however, that a second six-month extension is permitted if Paxson can justify another reprieve.

The FCC also refused to lift admonishments levied against KBSI-DT Cape Girardeau, Mo.; WWAY-DT Wilmington, N.C.; and WTJR-DT Qunicy, Ill., for unjustified failure to meet the May 1, 2002, digital-TV-construction deadline.

Subject: **FCC -- News and Info**
By: Larry Bloomfield (from FCC press releases)

Early last month, FCC Chairman Michael Powell outlined four critical elements for future spectrum policy initiatives. Powell made his remarks at the opening of the final day of four

public workshops the FCC Spectrum Policy Task Force has convened to seek broad industry, government and public input on spectrum policy issues.

1. More efficient use of spectrum
2. Shift from a “command and control” model of regulation to market based mechanisms.
3. Reconciling critical governmental uses of spectrum with commercial uses.
4. Foster innovation.

Powell announced the formation of the Spectrum Policy Task Force in June to assist the Commission in identifying and evaluating changes and improvements in spectrum policy. The Task Force will present its recommendations in a report to the Commission by the end of October.

For more details on this, visit the FCC’s website at http://www.fcc.gov (good luck navigating it.)

The Federal Communications Commission soon will release its second report on how digital television should be carried on cable, FCC Chairman Michael Powell told Rep. Ed Markey (D-Mass.) in a letter sent last month.

The Order Powell plans to present to the Commission will address issues related to the carriage of both analog and digital television broadcast signals during the transition, and the carriage rights of multiple digital programming streams delivered over a single 6 Megahertz channel.

Powell also says the Commission soon will address how to achieve interoperability between all digital cable set-top boxes, digital TVs and digital cable systems. If he pulls this one off, it will be something no one else has even come close to doing.

Broadcasting & Cable carried more on this subject. See it at:
http://www.tvinsite.com/broadcastingcable/index.asp?layout=story&doc_id=98458&display=breakingNews

After mandating DTV tuners in all TV sets by 2007, the FCC gets ready to address compatibility, plug-and-play.

FCC Chairman Michael Powell has pushed ahead on two of three components that broadcasters say are crucial to the successful transition to DTV: DTV tuners and copy protection. The final key-making sure it's easy for consumers to hook up digital sets to cable TV-is next on his agenda.

All three initiatives are aimed at speeding the transition from analog signals used since the Depression era to digital transmission allowing broadcasters to offer high-definition pictures, multicasts of standard definition signals, high-speed Internet and other services.

Faced with the fact that the digital transition is going too slowly, Powell is under pressure from Congress to add momentum.

So far, the FCC hasn't weighed in on the third critical component in the mix: technical standards necessary for "plug-and-play" sets that work with cable without the need for extra converter boxes that consumers must buy or lease. Ensuring cable/DTV compatibility is critical because 70% (these figures vary, depending on who you are talking too) of Americans rely on cable for their TV (another 15% rely on satellite).

A more detailed version of this story can be seen at:
http://www.tvinsite.com/broadcastingcable/index.asp?layout=story_stocks&articleid=CA238246&doc_id=98191&pubdate=08/12/2002

In a standing room-only ceremony, on August 15th, FCC Chairman Powell launched the FCC University. The FCC University is supposed to ensure that FCC staff has the cutting edge knowledge and skills to respond to the challenges of the communications field in the 21st century. The FCC University incorporates mission-critical learning and development activities, including the Excellence in Engineering and the Excellence in Economic Analysis programs. (EdNote: Boy did their PR folks really flower up this PR)

Chairman Powell called for a major training and development initiative at the FCC as part of his larger FCC reform efforts after becoming Chairman in 2001.

An FCC University catalog provides the framework for agency staff to engage in continuing professional development. Employees can choose from a vast range of courses on generally applicable subjects as well as sections specifically geared to meet the educational needs of engineers, economists and lawyers. (An educated lawyer – now there's an innovative concept!) Courses are available on-site through FCC staff and guest lecturers, off-site through universities, professional associations and vendors/providers, through self-directed learning (on-line, print-based or computer-based) administered by universities and professional vendors and through distance learning also administered by universities and professional vendors.

It's one thing to take a horse to water; it's another to get it to drink.

It's time to take the FCC serious when it comes to force big-market affiliates to fulfill their DTV obligations. The FCC has ordered 16 stations to begin offering full-power digital transmissions rather than cost-saving reduced-power transmissions.

The crackdown, however, will not affect, so far, the roughly 233 stations that are either located outside top-30 markets or not affiliated with Big Four networks. Those smaller stations continue to have permission for lower-power transmissions.

Reduced-power DTV transmissions were authorized in November 2001 for most TV stations, which were required to begin digital broadcasts in May. The move was intended to give cash-strapped smaller-market stations a way to go digital without the huge energy and construction expenses of a full-power station. Although roughly two-thirds of the country's 1,300 stations failed to meet the May DTV deadline, many of those that did comply have relied on low-cost, low-power "turnkey" systems shaving millions off the cost of a DTV launch.

Big-market stations also could use a break on energy costs. The folks at KOMO-TV Seattle, one of the stations ordered to beef up transmissions say they will spend between $2,000 to $2,500 more a month on electric bills and the difference in coverage area will be insignificant.

The counter argument is that it isn't coverage-area size but signal reliability. At lower power levels, even those close to a transmitter may have trouble receiving signals without large outdoor antennas.

You can expect most of these facilities to appeal.

Subject: **HDTV Programming To Be More Available This Fall**
By: Fred Lawrence

According to several press release we've received here at the Tech-Notes and a story by Ken Kerschbaumer of Broadcast & Cable, the WB network has announced that they will be carrying no less than five hours a week of HDTV programming this fall season.

CBS will also expand its HDTV coverage of the U.S. Open tennis tournament and is close to finalizing deals to bring other sports it previously covered in HD on the air more regularly this fall.

NBC has been the laggard among the "Big Networks," followed only by FOX, when it comes to prime time high-definition programming. There are tentative plans to catch up this fall. Programs currently on the short list for HD broadcasts are Frasier, Crossing Jordan, In-Laws, Ed, American Dreams, Boomtown and Hidden Hills.

Insiders do find it curious that The West Wing and ER, two programs done in HD by Warner for foreign distribution, are not included).

ABC has more HD plans as well, including taking a hard look at an HD Super Bowl.

The other night, while watching Late Night With David Letterman, he walk over to one of their new Ikegami HDK-790E dual-mode HD/SD studio cameras and commented that although the equipment was HD, the show was not being aired that way. In addition to the four Ikegami HDK-790E studio cameras, CBS also bought eight HDK-79E hand-held cameras with Canon lenses. Insiders at CBS, who has this thing about anyone telling the press anything, say that this is more of a future-proofing than a sign of imminent HDTV broadcasts, but the capability for capturing HD images is in place.

Ira Goldstone, Tribune vice president, engineering and technology, says all the Tribune stations are being built to be capable of 1080i transmission. The missing links have been filled in with 19 KTech HD receivers to be installed at the stations to receive the HD content via satellite. "The KTech receivers are pretty flexible and are kind of the Swiss Army knife of receivers," he adds.

According to CBS Viacom boss, Marty Franks, UPN will be on in a timely fashion, but it won't be this fall. "We're hustling to get it done because we see it as a logical expansion of the business at CBS. As UPN came under the CBS umbrella, we began the process of getting it ready for HDTV."

Subject: **Markey & DTV**
From: An e-mail sent to us by someone asking not to be identified.

For those still not convinced that 85% means 85% of U.S. homes must be able to view the digital programming of DTTV broadcasters, here is another "CLUE" courtesy of Warren Publishing's Television Digest. The story - "Powell to Move on Cable Compatibility, Carriage" – discussed the next move by the FCC to help stimulate the DTV Transition. The NAB is calling for dual carriage of both analog and digital broadcasts, as is Representative Markey (D-Mass).

Just in case anyone here still thinks that analog carriage of broadcasts will count toward the 85% here is what the story reports from Rep. Markey: “Spokesman for Markey said that from consumer standpoint, compatibility was "critical" and from DTV transition policy view, "we'll never reach 85% without must-carry. It just won't happen and so that is also indispensable. And the sooner we do it, the faster we reach 85%." Markey, advocate of dual must-carry, was early champion of DTV tuner mandate. "You have to have a plan for segueing from analog to digital," he said, "and that segue may need to occur sooner

Subject: **Guilty Until Proven Inocent?**
From: John Devecka jdevecka@lpbinc.com
(After Sept 30, WLOYRadio@aol.com)

Sen. Fritz Hollings (D-South Carolina) proposed legislation that would put restrictive security chips in every piece of new hardware. Sen. Joe Biden (D-Delaware) offered a bill that would make it illegal to remove a digital watermark from any media file, even if it interferes with the file's use.

Rep. Howard Berman (D-California) introduced a measure that would allow companies to block people from trading files they believe to be pirated.

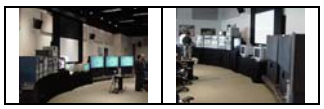
Each of the measures assumes the user's guilt and attempts to create a pre-emptive solution.

"We're basically legalizing tactics that are, for all intents and purposes, illegal for all other groups to do," said Kraus. "The media companies are launching a full-tilt assault on taking away fair use rights from consumers.

The reason they are doing that (is because) they are after far greater amounts of control over how consumers use media." "

....maybe being paranoid is a good defensive posture for consumers!

John Devecka



zenith

Subject: **8VSB Training**
From: Gary Sgrignoli, Staff Consulting Engineer, Zenith Electronics Corporation

Well, we're coming to the end of summer and it's once again time for more VSB seminars !

Here's another update on our continuing VSB Seminar activities as the DTV transition continues and the FCC's on-air commercial broadcaster date (May 2002) has passed. At the moment, there are at least 461 DTV stations on the air covering 136 markets and 88% of the TV households (45% of households have 4 or more DTV signals available to them). With more HD programming and more models of DTV sets coming on the market (even before the mandate kicks in), the transition is moving ahead !

As you may recall, Zenith Electronics Corporation has been offering all-day digital VSB transmission seminars (including an integrated hardware demo using 2400+ lbs of commercial & consumer equipment) for the last several years. We concluded a seminar in Orlando (7/25/02), and are planning another two seminars in the next couple of months. Some of the other cities across this country that have hosted such seminars in the past have been Chicago, Seattle, San Jose, Oakland, Dallas, Baltimore, Salt Lake City, Champaign (Illinois), Washington DC,, Milwaukee, Los Angeles, Columbia, Reno, Des Moines, Denver, Portland, Albuquerque, and Atlanta.

The next broadcaster VSB seminar is scheduled for Thursday September 12, 2002 in Minneapolis from 8:30 am to 5:30 pm, hosted by the local SMPTE group in Minneapolis and KSTP in conjunction with Andrew, Gepco, Harmonic, Harris, Larcan, Leitch, Net Insight, Thompson's Grass Valley Group, Tandberg, and Tiernan. In addition, another VSB seminar is scheduled for Wednesday October 30 in Philadelphia that will be hosted by WHYY-TV. More detailed information on this second seminar will be forthcoming. As always, the modest registration fees for these seminars include an updated 1" thick seminar notebook for attendees to take home.

We often get local broadcasters, SBE chapters, SMPTE sections, and other broadcast groups/societies to co-host the all-day broadcast seminars, along with commercial sponsors (consultants, equipment manufacturers, etc.) covering lunch & break refreshments. Very modest attendance fees (often between $30 - $70 per person, depending on the travel/shipping logistics for each city) help the hosts to cover the travel and shipping expenses while hopefully attracting the largest number of broadcast engineers. We've been getting between 60 - 90 broadcast-related people in attendance in recent seminars. We hope to hold seminars in various cities across the country every several weeks, with possibilities in Houston, Boston, Indianapolis, Greenville, Rochester, and Salt Lake City (to name a few).

Contact & general information for the Minneapolis seminar is included on this flyer. In the last year and a half, we have expanded the seminar significantly (more material, more equipment, thicker seminar notes). If you know of anyone wanting to attend such a seminar (e.g. any of your local station engineers or clients in the area), or know of any broadcast-related groups that would want to co-host or co-sponsor any VSB seminars in

their cities, please let me know or contact Zenith's ATSC Promotion Manager Mike Gianneschi (847-941-8043, mike.gianneschi@zenith.com). We are currently planning our fall and winter schedule, and will keep you posted. You can also check on these seminars on our Zenith website:

http://www.zenith.com/digitalbroadcast/tradeshows.html)

Please feel free to pass along the attachments below to anyone you think would be interested. We believe this educational seminar is well worth the time and money to attend.

As the DTV transition continues, we hope to see continued great progress in the second half of 2002.

Take care, Gary Sgrignoli

(**EdNote:** Schedules and contact information is posted on the Tech-Notes website under Educational Opportunities. http://www.Tech-Notes.TV)

Letters to the Editor

Subject: It's Time To Move On.
From: John Shutt, with tongue firmly planted in cheek & Robert Miller

Isn't it time for us to move on? The digital Train has left the station. The broadcasters, the manufacturers, and the ATSC are all on board. The Chairman of the FCC has personally thrown a lump of coal into the firebox to get the train moving faster, and the nay sayers, who are trying to pull on the emergency stop cord, will only find it is disconnected.

Sure, there's another, more modern train that left the station at around the same time. And sure, it's faster, cheaper, and more reliable. But the seats aren't quite as large, so it can't quite carry the passenger load that the ATSC Steam Engine can. And with a few modifications, our ATSC Steam Engine can go almost as fast as that other train, regardless of the cost or inefficiency of doing so.

Besides, we pre-sold a couple of seats on this ATSC train to some early adopting passengers, and it wouldn't be fair to ask them at this point to trade their tickets in for one on the other train, no matter how much better it may be. So in order to protect those who in good faith bought their tickets on the ATSC Express even before the tracks were completed, we all must line up at the counter and pay our fares, too.

See that gap in the tracks up ahead where there should be a bridge? Don't worry, I've been repeatedly assured that by the time this ATSC Express reaches that point in the journey there will be a perfectly fine trestle crossing that gap. Full Throttle ahead!

Yes, I know that the tracks for the other train are much more complete. Continually pointing out the obvious as that other train glides silently off into the distance won't help matters one bit.

John Shutt

To which Robert Miller responds:

If we are taking count, you can put me into that camp that does not care what happens. That does not mean that I am uninterested. It does mean that I really do not think that there are enough broadcasting people who have a vision of what may be. I have had an interesting summer, and will try not to become another individual hardened by a corrupt digital television system and associated process.

The analogy (I believe) should be changed. I feel sorry for those poor souls who will put so much energy into polishing the boiler of the ATSC train, and will have to look back on it much as the limited numbers of proud Stanley Steamer owners did.

ATSC is no different than steam powered automobiles. I think that the enhancements that we hear about being "under development" are no different than adding steam condensers that helped "improve" time between water, or quick firing boilers that helped the "start" time of the vehicle. Reading the following article was like reading today's modern story of sticking with the 'good 'ol American ATSC VSB'.

After all, just how long would folks live with such an inefficient means of transportation like gasoline when steam offered so many reasons for sustained success???

http://www.railroadextra.com/automo.Html
Just sign me "steaming madd".

Robert Miller

Subject: **Attitude Adjustment Time?**
From: M. Baker

Having subscribed to your Tech-Notes newsletter for awhile now, I immediately noticed the increasingly bitter tone of your remarks in the last several issues. What was formerly a pleasant "read" containing relevant technical news & useful information related to broadcast engineering has largely turned into an acrid rant which doesn't hesitate to "name names" and "take no prisoners". If you feel that this editorial approach accomplishes anything, I think you are fooling yourself and setting yourself up for more frustration. Being perceived as an obnoxious hothead does little for your credibility as an entrepreneur (no matter how 'well intended') or that of a beleaguered profession. If such sullen outbursts are typical of the remainder of your readership, it's no wonder that upper management is reluctant to view broadcast engineers as full members of their team. It's too bad that your "Taste of NAB" tour was unsuccessful in at least a few cities, but perhaps you should try harder to look inward and understand why that may have been the case in each individual situation rather than childishly flail away at the local SBE, SMPTE, distributors, etc.

M. Baker
Freehold, NJ

Subject: **Culture Shock?**
From: Wally Willemse ww@dmaut.com

Coming from across the pond I can not understand quite a few things.

1) We live in a canyon in what is said to be a sought after area. (City of Poway near SD) However this location is a RF dessert with no TV broadcast reception available off air. There is a fantastic mountain peak here, with numerous cell phone and other repeaters that could cover this entire highly populated valley with only a few watts. Why are there no gap fillers as in Europe?

2) To get the news we subscribed to latest digital cable service. It may be digital, but does not look it, with hundreds of old fashioned, low resolution, NTSC channels and not one really worth watching. In your last news letter it is stated that the RF spectrum is limited but I think this is so if it is stuffed so full of trash that there is no room for HDTV. Why can the TV transmissions not be limited to say 10 good channels which would conceivably offer something for everybody? If the answer is that more channels = more advertising revenue, I believe the public's right to free choice is being severely impaired. There are no good ones to choose from.

3) After Cox Cable advised they have no HDTV to offer me only many more trash channels, I bought a Dish Network receiver + $9 pm for the first year with 150 channels of you know what. On installation I noticed the receiver has NTSC composite and S-video out, no HDTV capability. After a big long fight I got and paid for a 6000 type receiver with 2 dishes but still no HDTV. I was told HDTV is on HBO which does not interest me as I want genuine broadcast which I still do not have. It looks to me there are considerable forces are at work to impede the progression to HDTV, probably to squeeze whatever bucks they can out of the (as per FCC, Government & broadcasters) outdated NTSC, DVD and 4 x 3 TV market. Is this a loosing battle mainly due to lack of broadcasters RF TV coverage, and on the other hand DVD, cable and satellite's unwillingness to move on?

4) Technically, why can the cable and satellite companies not transmit only in HD? My 6000 Dish Network receiver has a low resolution output even if is/was receiving HD.

5) Why are numerous references made to Standard Definition (SD) while I would call it low resolution? This I say, as by world standards, NTSC is the lowest of all and thus to me "standard definition" would be 500 plus lines.

6) I understand that the IEEE 1394 or firewire is an open standard as is used for interfacing of consumer HDTV. If this is so, why can I not find any details on the headers and packetization of this system ? I have a research project to do on broadcast HDTV and 1394 but am getting nowhere quickly. Is there anybody in your viewer / reader group that can help?

Yes it looks great but I see I need to explain "Trash TV". Where I come from viewers pay the broadcasters a viewing fee. This elevates the position of the viewers being a paying contributor so that hopefully less advertising gets dumped on them. If there is less advertising it probably leads to higher costs per insertion to the advertiser. This leads to greater effort to put across good adverts. I thus advocate quality and not quantity. There are some good adverts and many good programs but they get repeated too many times. Even the news is in a continual, usually unchanging, repeat loop, just filling up the hours and RF spectrum. Then there are numerous, usually discussion groups, that are saying just about the same thing, again filling up the RF spectrum. My feeling on TV is that they are trying to save a buck wherever they can, even to the detriment of viewers, as it is only the advertisers revenue that counts. I believe that if quality rather than quantity could prevail, HDTV would be received with open arms.

On the IEEE 1394 I highly recommend "Firewire System Architecture" by Don Anderson from Amazon.com. Being on the architecture it stops short before getting to the actual

protocols of DTV, HAVI etc.

Thank you for your excellent e-news letters,

Wally Willemse

(EdNote: Anyone wishing to address Wally is welcomed to do so. His e-mail address is at the beginning of his query. Please CC: webmaster@Tech-Notes.TV. Thanks)

Subject: **Tech-Notes #106**
From: J. J. Stapleton JJSTAPLE@aol.com

The FCC mindless mandate to manufacturers must remind all of like imposition of UHF tuners. It is absurd to think consumers will pay extra $250. 9-11 WTC tragedy proved OTA broadcast performed no public service. FCC should get back to communications and leave electronics to us engineers and customers to make proper demands with their pocketbooks. HD DTV is going the way of the 8 track tape and original beta VCR.

JJ Stapleton, PTE. Coast to Coast Consultants

Subject: **Tech-Notes 106 article "About General Human Exposure to RF Issues**
From: J. Carl Cooper, President, Pixel Instruments Corp. Info@Pixelinstruments.TV

Your new HTML enhanced version of Tech-Notes looks great. It's nice to have photos to go with the articles, and the format is much more impressive.

I wanted to offer a comment on the Tech-Notes 106 article "About General Human Exposure to RF Issues on Mt. Wilson, or anywhere else, for that matter" By Fred Lawrence with input from the CGC Communicator. I have been concerned about the radiation exposure standards which the US has adopted (based on IEEE/ANSI C95.1-1991 standards) because these standards are based primarily on tissue damage due to heating effects.

To make a long story short, these standards have been formulated by persons who have direct financial links to the microwave and cell phone industries. In many instances research to establish and/or support these standards has been paid for by the industry, a situation not unlike the big tobacco company sponsored research on smoking safety in the middle of the last century. I like to characterize the electromagnetic radiation industry as Ma Cell. For years there has been independent research (by what Ma Cell characterizes as rogue and unscientific) labs which indicate that there are other non heating tissue effects which result from much lower levels of electromagnetic radiation exposure than those levels permitted by ANSI.

Lately however, Ma Cell has been unable to control the publication of reputable scientific research which continues to support the existence of non-thermal tissue effects at radiation levels much lower than those currently considered safe. While it is still not proven that these effects are dangerous, neither is it known with reasonable certainty that they are not. I personally tend to want to error on the side of caution when considering safe exposure levels. While I don't advocate turning off all transmitters and banning all cell

phones, I do believe that a degree of caution is warranted.

Common sense precautions such as ensuring that tower (and other exposed) workers are not forced to work in radiation levels in excess of the current standards is one which clearly makes sense. Reducing exposure levels as low as possible when tower and other workers are present is another. Locating cell towers away from areas of population density makes good sense. I don't mean no cell towers in the city, I mean don't locate a cell tower 200 feet from a second story building causing the radiation to beam directly through large windows into a gym (as currently exists the corner of San Tomas Expy. and Campbell Ave. in Campbell CA). Don't locate a cell tower on the grounds of a middle school where it will radiate directly into the classrooms (as was proposed for Los Gatos, CA). Don't locate a full power VHF transmitter on a 50 foot tower next to a national park parking lot (as in Alburquque NM).

In many transmitter installations there are technically and commercially viable alternatives to substantially reduce the radiation exposure of both industry workers and the unsuspecting public. There is no good reason why these alternatives can not be adopted and no reason why station GMs and Ma Cell should not be fined for wantonly or carelessly causing unnecessary exposure.

For more information on this subject, there is an excellent article on exposure standards in the August 2002 IEEE Spectrum magazine "Cellphones, Radars, and Health" by Raymond S. Kasevich.

J. Carl Cooper
http://www.pixelinstruments.tv

Subject: **WOW TV**
From: Paul Boyden, Broadcast Operations Manager, WOW Digital TV
paul.boyden@wow.tv

I saw the note you included about our up-coming product in the Tech-notes. In an effort to better focus our business, the STB (and its associated distribution) has been placed more under the control of its manufacturer, ADB. We do plan on selling the box in Salt Lake City (SLC) in time for Christmas this year, and WOW will be building a limited interactivity service for the SLC market in association. Look for a more national rollout in March, 2003.

Paul Boyden

Features

Subject: **Some of My Observations** #03
By: Burt I. Weiner biwa@earthlink.net

That's Entertainment

Those of you who don't know me might think that all I do is sit around all day and complain. Those of you who do know me well know that I don't sit around all day and complain. I get up and move about also.

I'm supposed to be an engineer. I'm supposed to look at things from a scientific point of view. The problem is that when I turn on the TV at night -- it's for entertainment's sake. I want to be entertained. At this point I'm no longer an engineer; I'm Joe Blow. I turn on the TV and watch it with the analog interceptors that nature gave me, two eyes that sort of work and two ears that work reasonably well.

You know what annoys me most of all about TV? Audio levels! Is there no one that works for any station, anywhere that ever sits at home and just watches TV?

The other night I was watching a movie on one of the local over the air stations, off of a real antenna on the roof. There were a lot of explosions and crashes (in the movie) that should have left the earth perfectly flat. What had I tuned into??? Just as I though it couldn't get any louder or more annoying when they ungracefully cut to a commercial. It was some soft drink commercial that was 10 db louder than the end of the world that preceded the commercial. I've see, or should I say, I have heard this same thing going from a movie to a promo for the news.

I know we have a lot of sophisticated station engineers with the latest of computerized audio processing out there. But what is going on that precludes people from listening with the two receptors that nature gave them? Have we taken the art of show business and tossed it out in favor of a microprocessor? Are we assuming that because something is the latest computerized BelchFire VII processor that all that is needed is to turn it on and it will know what to do and know how we (like to) listen.

It seems to me that we've gone to a lot of effort to bring TV sound to the forefront. Maybe it's time that we stop looking at sound and start listening to it.

By the way, the program I was watching - I turned the TV off. Now, how do you plan on getting me to turn it back on?

Burt Weiner

Subject: **Ask, but can they receive?**
From: Sir Craig of Birkmaier craig@pcube.com

The TV Kingdom is in Tatters!

"It's good to be king!" So said Mel Brooks, in his cinematic spoof, "The History of the World, Part 1."

The recent decision by the FCC to mandate digital terrestrial television (DTTV) receivers in virtually all new TVs by July of 2007, proves once again that the broadcast lobby (e.g., the National Association of Broadcasters) still enjoys its status as "King of the Hill" -- Washington, D.C.'s Capitol Hill, that is.

This comes as little comfort for many broadcasters, especially those who are not in the lucrative top-40 markets. The old adage, "be careful what you ask for," springs to mind.

Back in 1987, the broadcast lobby was concerned about an impending disaster; the FCC was getting ready to approve a spectrum sharing plan in the nation's largest broadcast markets. Land mobile was at the castle door, and it looked like they were going to be given a share of the broadcast kingdom.

But broadcasters understood the power that they hold over the politicians, who granted them one of the most lucrative franchises in the history of the world. This was a marriage made in heaven. TV provided an incredible soapbox for the politicians; but it could bring down a political kingdom if the broadcasters used their power to expose a politician's indiscretions.

The broadcast kingdom quickly learned that in Washington they have divine powers.

"Ask and ye shall receive."

In 1987 they needed another favor. With the Land Mobile barbarians at the door, they needed an excuse to maintain control over "their" property, the broadcast spectrum. At the NAB, all the king's men gathered to develop a strategy to repel this attack on the kingdom.

HDTV --That's it!

In 1996 the politicians gave broadcasters a second channel for DTTV, an additional 6 MHz of spectrum, which broadcasters said they needed to deliver the power and the glory of HDTV. Most broadcasters never expected that they would actually have to use these channels; they expected to keep milking the NTSC "cash cow" for several decades. The lords of the top-40 markets could afford to develop the DTTV channels; after all, consumers were not asking for it.

Alas, all is not well in the kingdom of broadcasting.

Some lords wield more power than others. The networks, their owned and operated stations, and a few large station groups that control the top 40 markets, control the vast majority of the annual (commercial revenue) harvest. In recent years the lesser lords have struggled to survive - caught between multi-channel competitors and the lords of the networks that provide the fertilizer for their fields.

They asked for and received another channel for DTV. Then the FCC did the unthinkable. They mandated that everyone in the kingdom of broadcasting actually use those channels.

Be careful what you ask for --

Soon broadcasters learned that their subjects were not all that excited about HDTV. Most consumers had already taken down their antennas; nearly 70% subscribed to cable. And the DBS "Death Stars" offered a different kind of DTV; a simple unobtrusive satellite receive dish that delivered hundreds of digital channels and movies nearly on demand. Meanwhile, only the kings and their lords could afford an HDTV.

Soon broadcasters learned that the transmission system that they developed for DTV does not work as well as NTSC. Digital is different; it does not degrade gracefully like NTSC. It is an all or nothing proposition -- one that most consumers are rejecting.

With the DTV transition going nowhere, the most powerful lords of broadcasting asked for more.

"Make the TV manufacturers include DTTV receivers in every new TV."

"Make the cable lords carry both our NTSC and DTTV channels."

And the lords of Hollywood added:

"You must protect us too, or the serfs will steal our crops."

It looks like the broadcast kingdom is getting what they are asking for. But there is a hidden risk in this strategy.

The serfs are going to be taxed for the privilege of watching digital television. They may expect that the expensive new tuners they are being forced to buy actually work.

But they were not asked, and they may not be able to receive your DTTV broadcasts.

What a revolting situation.

Regards
Sir Craig

Subject: **Color Picture Tube Theory**
From: Peter Fasciano ITSMail@itsnet.org

Shadow-mask and the Lawrence tube: Doctor Lawrence's tube was extensively described in one of the street magazines of the day. I suspect it was Popular Electronics.

I recall they described it as Lawrence's Apple tube (a nickname), the Chromatron. It did indeed become the foundation for the Trinitron when Sony solved the stability problem for the delicate wire grid behind the faceplate.

There was a fundamental operational difference between the Chromatron and the Trinitron.

The Chromatron used rather high signal voltages on the 2 wire grids to accelerate or decelerate the single gun scanning beam as it passed across the color phosphor stripes.

The object was to get the beam to "linger at" or "avoid" a given color stripe as a means to time modulate the amount of beam excitation for a given primary color. I have to wonder how linear the result was. I also note that the stripe arrangement was not RGB. I think it was RGBG, presuming G to be the default color having no grid of its own. A negative voltage applied to both R and B grids herded all the electrons toward the G stripes. A positive voltage to both R and B pulled the electrons away from the G stripes.

I also recall that there was a saturation limit problem. They couldn't kill all of green.

(The above is my best recollection of what I read roughly 35 years ago when I was about 16)

Later on, Sony sorted the good concepts from the hard to implement ones. The Trinitron uses three guns and a somewhat thicker grill instead of the fine wires. It works essentially the same way a dot based shadow mask tube works. The Trinitron style tube's benefit is that the Trinitron stripe grill is up to 85% - ish transparent where a dot based shadow mask is only about 16% to 24% - ish transparent.

Over the years other makers have spun "slot tube" variants of the Trinitron approach.

Hope all my old "brain drippings" are useful to some of you.

My reference material is from the Library of Congress browser - I queried for the author, John Wentworth, who taught color television theory to the engineering staff at RCA., Camden, NJ

I have the 1955 book in my library.

FYI:

CALL NUMBER: TK6670 .W38
AUTHOR: Wentworth, John Warren, 1925-
TITLE: Color television engineering.
PUBLISHED: 1955 New York, McGraw-Hill, 1955.

CALL NUMBER: TK6670 .W4
AUTHOR: Wentworth, John Warren, 1925-
TITLE: Notes on color television engineering.
PUBLISHED: 1952 Camden, N.J., 1952.

As to the Sams publication- try the LoC browser as well:
http://lcweb.loc.gov/catalog/browse/prem.html

Pete Fasciano

Subject: **A Brief History of the Set Top Box (STB)**
From: Mark Schubin tvmark@earthlink.net

The cable set-top box was invented for what was then called Manhattan Cable Television. The issue is local pickup.

The cable operator can pick up a pristine signal and feed it into a shielded cable that feeds a TV set input. But unshielded tuner connections inside the TV set allow ingress of the off-air signal, which causes multipath (ghosting) with the cable-delivered signal.

The solution was Oak's Focus-12, a shielded converter that changed all local channels to channel 12, unused in NYC. The TV would be tuned to channel 12, and there would be no local pickup. With just seven VHFs on the air, Manhattan cable started filling in the five empty VHF channels with UHF, a camera panning weather instruments and a clock, and, eventually, local access and character-generated programming. The concept of "cable channels" was born. Oak followed with the Gamut-26, allowing nine more TV channels between broadcast channels 6 and 7 and a few more above channel 13 (including our infamous Channel J, home of "Midnight Blue," "Robin Byrd," and the like).

And the rest is history.

Mark Schubin

Subject: **The Road Show – A Taste of NAB Part III of VIII**
By Larry Bloomfield

Because we have so much News and other information in this edition, I know it will make you cry, but Part III will be held over until the next edition of Tech-Notes. Sorry.

Subject: **Less than one in three US TV Stations transmitting a DTV signal**.
From: Des Chaskelson, Research Director, SCRI International (http://www.SCRI.com)

By 2003 less than 7 out of ten expected to be transmitting DTV

According to SCRI's 2002 - 2007 DTV Migration Trends Report - TV Stations Report, only 28.6% of US TV stations are already transmitting a DTV signal. This is in line with current NAB estimates -- as of August 2002, according to the NAB, there are only 461 full power television stations on the air with a digital signal serving 136 of the 210 markets in the US. According to PBS, 76 of those (still) are non-commercial.

Almost three-quarters of the commercial broadcasters that were supposed to be offering a digital signal by May 1, 2002 failed to make the deadline. The delay is a further indication that the federally mandated transition to digital broadcasting will take longer than the planners had expected in the mid-1990's. But the missed deadline comes as no surprise. Hundreds of stations have been filing requests for extensions recently, citing a variety of financial and technical reasons.

By the end of 2002, SCRI data shows that 42.9% of stations will be transmitting a DTV signal, by 2004, the number reaches 69%.

Source: SCRI International (www.SCRI.com | info@scri.com)

Excerpted from SCRI's 2002 - 2007 DTV Migration Trends Report - TV Stations Report

For more information on SCRI's 2001-2002 Broadcast/Pro Video Product Reports, go to: www.scri.com/sc_reprt.html or contact info@scri.com

Parting Short
By Larry Bloomfield

I know that you all look forward to this part of our electronic journal, but wow, we're nearly twice as long as usual, so Parting Shots will be very brief.

Just want to mention the **Order of the Iron Test Pattern**. We're looking forward to our new association with them and hope you will enjoy some of the things we have in mind for both the Tech-Notes and these really great folks. You are invited to take a look see at their temporary website. The **Order** is looking for both members (no dues) and underwriters. Contact us if you are interested. Look for the link at the bottom of Tech-Notes website: http://www.Tech-Notes.TV

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