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July/August 1993

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# COMMON POINT®

A MONTHLY NEWSLETTER FOR BROADCASTERS

50 cents  
per copy

Out-Of-State 800-558-0222 Distributed by Electronic Industries Inc., 19 E. Irving, Oshkosh, WI 54901 In-State 800-445-0222

## Communications Regulation In A Digital Age

A Paper Delivered by Chris Imlay at the Wisconsin Broadcasters Association and SBE Conference Luncheon July 1993

There was a novel written in the 1950, during the heyday of the Existential Philosophers of Europe, by an author named Franz Kafka. Entitled "The Trial", it concerned a common, everyday man by the name of Joseph K., who was, without any prior expectation, arrested at his residence one day by people from the government law enforcement authorities, and charged with some sort of crime, though he was not told what it was. His attempts to discover what had happened, and why he was being charged, and indeed what the nature of the crime was were constantly frustrated by government offices which could tell him nothing. His constant efforts to determine what was happening to him were frustrated by a system that was alien to him, and from which he was alienated. In the end, his inability to determine what had happened to him, and his consequently poor handling of his case resulted in his conviction and a death sentence.

The unenviable situation of Joseph K. is not unlike the situation of the three, soon to be four, then finally five, members of the Federal Communications Commission, who are attempting to regulate an enormously complex communications infrastructure in the United States without the ability to do so, due to a fundamental lack of knowledge about the nature of the systems and the technology being regulated. The inevitable result of this lack of background in telecommunica-

tions is either an avoidance of decisions on technical issues, or simply bad decision making on those same issues. The FCC has been, and will in the future apparently be, guilty of both.

This is not the fault of the individual personalities of the commissioners, any more than it was the fault of Joseph K. for failing to understand a system which was both alien and hostile to him, accosting him as it did for no apparent reason. In fact, as in the situation of Joseph K., it is the nature of the governmental system that we have that has given rise to the problem.

Let me offer an example of the problem. FCC Commissioner, and interim Chairman Quello, who is a most intelligent and sensitive guardian of the "public interest", recently spoke of his successor as Chairman of the FCC, Mr. Reed Hundt. Mr. Hundt has just been nominated by the President as FCC Chairman. Mr. Hundt is not well known in the communications industry, nor even to communications lawyers active in FCC law practice. He is an antitrust attorney with a large Washington, D.C. law firm. Though he is by all accounts a most intelligent man and a good lawyer, he has no real communications background. According to Broadcasting and Cable Magazine of July 5, Quello said: "It isn't a bad thing to have a lawyer in here. This is still a lawyer's ballgame". The same issue of Broadcasting quoted communications lawyers as acknowledging that commission

members are political appointees, and as such it is not unusual over the years to have people come on the Commission who don't have a communications background. That, as I will discuss, is a profound understatement, and a major problem in regulating analog and digital electronic systems.

Why would the White House nominate a person to be Chairman of a technical regulatory agency who has no knowledge or demonstrated ability in the areas being regulated? The answer in the case of Mr. Hundt is apparent from the same Broadcasting Magazine article, which stated:

Hundt has all the right political credentials. He is believed to have been hand picked for the post by Vice President Al

Gore, with whom he shares a friendship stretching back to their days at St. Albans, a Washington private school. Hundt also knows President Clinton, having attended Yale Law School with him in the early 1970s.

Okay, so now we know how an admittedly competent lawyer who nonetheless has no demonstrated ability to manage a technical regulatory agency, or to make any technical regulatory policy decisions whatsoever, has become FCC Chairman. We all learned long ago that it is not what you know, but who you know, right? The trouble is, that is an explanation, but not a justification for the present arrangements for appoint-

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GORDY DAILEY

## Editor's Notebook

A few weeks ago I attended the Wisconsin Broadcaster's Association/Wisconsin SBE Chapter's summer get-together at Lake Geneva, Wisconsin. Chris Imlay, SBE's legal counsel, gave a talk at the luncheon that impressed me enough that I thought it deserved to be published in this issue of Common Point, and Chris graciously gave his permission to do so. Whatever your reaction to the article is, feel free to send your comments, pro or con, to me here at Electronic Industries and we'll be glad to print them.

While I'm dealing with controversial subjects here is another one you might want to consider commenting on.

I've heard some rumblings that maybe revamping the EBS system is not going to accomplish much of anything except to require stations to spend more money that many of the smaller ones don't really have. It's felt that the EBS system as such may be outdated in any form and that it is slow and only partially effective. Since most of the emergencies are weather related the National Weather Service has a better system already in place. It might be interesting to find out just how effective the EBS system was during the past year or so as there have been a considerable number of weather related emergencies ranging from hurricanes and tornadoes last fall right up the present time with the midwestern flood situation.

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Finally make sure you take time to check out the special sale items which

appear elsewhere in this issue. You never know when you might run across something you can use at a really good price.

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(Cont'd from pg. 1)

ment of policy makers in an immensely complex field of digital electronic systems. The other trouble is, there is no satisfactory justification.

Mr. Hundt is the most recent, but hardly a unique example of the regulation of the communications industry by non-technical persons. The Society of Broadcast Engineers has done a study of the makeup of the FCC Commissioners since the FCC was first chartered by Congress.

Since its creation in 1934, there have been a total of 64 FCC Commissioners. Of these, only 8 have had backgrounds in communications technical issues, or engineering. Only one of these has been appointed since 1970. And the yardstick with which the term "engineering or technical background" is defined is a liberal one. FCC Chairman Charles Ferris has an undergraduate degree in Physics, so we counted him. It seemed odd to the SBE that an agency created primarily for technical regulatory purposes should have a dearth of engineering talent among its policy makers. Even if one assumes that the FCC staff includes competent engineers, and indeed there are a number of them, that is no substitute for a first hand understanding of the technical issues at the Commission level, where policy decisions are made. In the half century that has passed since the FCC was created, the technical sophistication and complexity of communications regulatory issues, especially regulation of the radio spectrum, has risen dramatically. The technical expertise and sophistication of FCC Commissioners has not kept pace. Until 1982, the Communications Act required that at least one of the three professional staff assistants that each FCC Commissioner could appoint had to be an engineer. This was to insure that at least the advice that Commissioners received included technical input, even if the Commissioner himself or herself couldn't understand it first hand. That requirement was removed in 1982 in a bill introduced by Senator Goldwater. Today, only one of the (potentially) 15 professional staff persons working for the Commissioners is an engineer.

There are those who suggest that the FCC is not the type of regulatory agency that should be run by engineers, or even economists. They suggest that the FCC has only two

functions according to the Administrative Procedure Act: to adjudicate cases and disputes relating to licenses and enforcement, and the enactment and modification of rules for operation by communications licensees. If technical advisory information is necessary, it can be provided by engineering staff at the agency. Basically, they suggest, the adjudication of licensing issues and the conduct of rule making proceedings are functions that require the talent of lawyers to perform in accordance with prior cases and Constitutional requirements.

Others suggest that the basic role of the FCC is to make spectrum allocations decisions: to divide the radio spectrum among classes of users so as to avoid interference between different users of the radio spectrum, and encourage the most efficient use of a scarce resource. The allocation of scarce resources is the proper role of an economist, and the best background, they argue, for an FCC commissioner is an economics background. An economics background would also permit a commissioner to make intelligent choices in connection with the regulation of telephone charges, returns on capital of common carriers, and tariff matters involving the telephone industry. The problem with spectrum allocation decisions made by economists, however, is that it results in decisions such as the 27 MHz Citizen's radio service, which is as we all know is a failure as a non-commercial radio service, and an enforcement nightmare. No engineer would have created such a monster.

Finally, there are the engineers, who believe that the Communications Industry is made up of component parts, which have to be at least basically understood before they can be effectively regulated. The application of technical standards to the communications industry, the technical decisions that are an inherent part of the spectrum allocations process, understanding of radio propagation, and the technical choices between and among competing technologies are all decisions which should be made on technical merits. Too long, they say, have technical decisions been ignored in FCC regulatory proceedings, because the agency focuses on economic or legal issues instead of deciding what technology would best suit the public interest, and going with that. A market driven FCC, they say, will make decisions that will not provide the best technical solutions to problems.

I suggest to you that the engineers are correct: legal and economic advice is easier to obtain from staff, and for non-lawyers and non-economists to

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understand and analyze, than is engineering advice given to a non-engineer policy maker, when the topic is communications regulation.

The textbook example of the problem with non-technical decision making, and evidence of the merit of the engineers argument is the AM Stereo standard. The possibility of improving the health of AM broadcasting in the United States was an opportunity not gained years ago. There was a clear choice to be made, and FCC failed to make it. The Commission made its decision based on an economic model: it would let the marketplace decide what AM stereo standard to choose,

despite the need for leadership. This was after the Commission had a clear record from its normal notice and comment rule-making procedures which would have allowed a decision to be made based on technical merit of the respective choices for an AM stereo standard. Instead, the market place failed to accept FCC buck passing, and no standard emerged. Instead, AM stereo has foundered. AM stations have suffered tremendously from the recession of the late 1980's and early 90s, and stations are still failing at historically high levels. In what should serve as embarrassment for the FCC, but so far has not, Congress has instructed the Commission to select a standard, and now, years after the AM

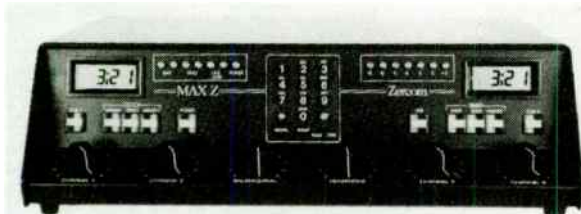
broadcasting business has fallen on hard times, perhaps permanently, FCC takes the instruction from Congress. It is now in the process of choosing the AM standard it could have chosen years ago.

Is this an isolated incident of the failure of the system in technical decision-making matters? Sadly not. Commission licensees for years have suffered at the hands of receiver manufacturers who have failed to provide adequately filtered products. Broadcasters, land mobile licensees, and radio amateurs endure a barrage of interference complaints because the FCC, which has had jurisdiction for eleven years to require minimum per-

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formance standards for receiver performance, has taken no action to implement any. When Senator Barry Goldwater's legislation was enacted in 1982, FCC was told that Congress was not pleased that it had to enact legislation to regulate receiver performance, but there had been a marketplace failure to improve receiver selectivity and filtering, and it was affecting the communications industry. In the years since the legislation was enacted, FCC has stated that it does not want to regulate receiver performance, but rather rely on the marketplace to improve matters. This, notwithstanding that the legislation was based on a marketplace failure in the first place.

The result of this is not just that the burden of resolving interference complaints is placed on the transmitter operator. It also affects the ways FCC deploys the radio spectrum, as finite a natural resource as exists anywhere. An engineer would never agree to determine frequency allocations using receiver deficiencies as a basis for doing so, but FCC has repeatedly and continuously done just that. The Association for Maximum Service Television is forced to oppose frequency allocations up to four Megahertz from the upper edge of certain television channels because of concerns about interference to television reception. It is high time that the marketplace stops limiting the use of radio frequencies, with FCC's benign neglect behind them.

The general area of frequency allocation decisions by FCC is another comedy of technical errors. It is understood that there are international treaty obligations involved in the allocations process, and that there is immense pressure for spectrum allocations for new technologies and systems. However, what this means is that compatible users of the radio spectrum must share it to a larger extent than in the past. Who determines the compatibility between different technologies? It is apparently antitrust lawyers!

A current example of that problem is the allocation at 902-928 MHz. This band is allocated to military radar, industrial, scientific and medical devices, such as medical diathermy machines and microwave ovens, Part 15 home electronic equipment, nonmilitary radar, amateur radio, automatic vehicle monitoring systems, and certain land mobile systems. Now the FCC has proposed to expand the users of this junk band to include location of objects and wind profiler radars. If I have a so-called "intelligent vehicle" in the future with a built-in collision

avoidance system, the last thing in the world that I want is for it to be operating in the midst of radio signals from eight other services in the same locations, in the radio landfill at 902-928 Mhz.

A current proposal at FCC is to adopt the new standard for occupational and non-occupational exposure to RF energy. That standard has been adopted by the American National Standards Institute (ANSI) at the urging of the IEEE. FCC has asked whether to utilize this standard in evaluating the environmental effects of exposure of the public and workers to RF energy. However, the proposed standard incorporates limits on body and contact currents that extend into the VHF frequency range, and specifically to 100 MHz exactly: right in the middle of the FM broadcast band! What this would mean is that FM stations in the lower half of the band would be subject to stringent RF limitations, requiring acquisition of large amounts of land for antennas, difficulties in location of transmitter sites, and other expensive problems such as fencing and power limitations. A situation operating at 99.9 MHz would have to comply with strict standards, but a station in the same town operating at 100.1 MHz would not. There are other technical problems with the proposed new standard for RF exposure, but that one is the most glaring.

In addition to standards setting, spectrum allocations, and technical environmental issues, FCC has shown an overall inability to address operational rules. It is now considering technical rules changes for directional AM stations. But the state of skywave interference now is such that the total product of the AM broadcast service is, due to skywave interference, less than the sum of its parts. FCC has addressed this by changes in the AM technical rules which in essence make it impossible to modify an existing facility to improve it. Better to take the station to the expanded AM band, where there is no skywave interference now. There are no listeners, either, but .....

Now, what is frightening is that there are some extremely important technical decisions facing the FCC. According to a recent speech by Commissioner Duggan, within the next year, FCC will set aside spectrum and enact rules governing new personal communications services, including wireless networks. It will also select a standard for HDTV, a major step toward digital video for all media. Regulations governing switched cable television are at hand, which stands to provide video on demand, video

telephony and other interactive video services. DBS television and radio, advanced digital messaging, high speed cellular data services, and other new data technologies are to be regulated in the immediate future. Thank God we have an antitrust lawyer overseeing all of the high tech decision making that has to go into the provision of these services.

So what is to be done? It is certain that the FCC Commissioner positions are political plum jobs, and are going to continue to go to those who demonstrate political, but not technical, ability. Recently, operating on the basis of principle, and with the understanding that the goal was probably unachievable politically, the SBE during the 102nd Congress sought to amend the Communications Act to require that at least one of the five FCC Commissioners be an engineer, as that term was loosely defined. This was not as revolutionary a concept as one might think. The Nuclear Regulatory Commission, the National Transportation Safety Board, the Export-Import Bank, the United States Sentencing Commission, the Board for International Broadcasting, the Federal Housing Finance Board, and several other Federal agencies have requirements for the composition of the governing boards based on technical ability in the area being regulated.

Former Congressman Ritter of Pennsylvania, during the last term of Congress, sponsored the FCC Engineering Sciences Qualification Act of 1991, which provided that at least one of the FCC Commissioners have an engineering background. This bill, H.R. 3501, did not survive the 102 Congress, but most Congressional offices had good things to say about it. It only received a token number of cosponsors, however, far short of that required to make it move last term.

Perhaps a more conservative approach is in order. Perhaps it is time to return at least to the requirement that each Commissioner at least have an engineer among his or her professional staff. Perhaps it is merely time that the engineering staff in the FCC's bureaus be allowed to participate more actively in FCC decision making. Or perhaps it is time that rule-making proceedings be conducted in a more open environment, in a negotiated fashion, as some of the other agencies do it, so that the technical talent of the communications industry is permitted to participate in the formulation of rules and policies for the Communications industry.

In any case, the subject of FCC regulation in a digital age is the same

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as the story of poor Joseph K. The regulatory system was ready for him, but has was not ready for the system. Similarly, the digital communications revolution is at hand, but the FCC is hardly ready for it.

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### Broadcasters Ask For Flexible Use Of HDTV Spectrum, Plan Will Ease Costs For TV Stations And Consumers

More flexible uses of HDTV airwaves will help speed America's introduction into the digital TV world, helping stations pay for expensive HDTV transition costs and offering consumers wireless data, computer and other valuable digital services, broadcasters told a House panel back in May.

Without market-driven approaches, the National Association of Broadcasters said stations are concerned they may not be able to pay for the conversion to HDTV. Each of the nation's 1,100 TV stations must invest \$10-\$14 million for HDTV equipment, regardless of whether the "station is in Boston or Billings;" many of those stations are not worth half that investment.

"Advertisers are not going to pay more for advertising just because our costs have gone up...so this is a dilemma," said National Association of Broadcasters Executive Vice President/Operations John Abel, testifying before the House Telecommunications and Finance Subcommittee.

The NAB executive noted that the association has asked the FCC to give stations more flexibility in making the transition, perhaps basing transition requirements on market size or ability to pay.

Abel said digital television, or digital broadcasting, gives broadcasters "the ability to deliver a variety of services never dreamed possible" and that revenues from these new services "could help us offset the huge start-up costs for HDTV."

One application he described is broadcasting data to 30 million computers in U.S. homes, offering services such as Comuserve, Prodigy and America Online at transmission rates much faster than modems. Other uses could include broadcasting data for a new generation of "personal digital assistants," developed by computer companies, which combine computer, fax, and cellular phone technologies into one device.

"We don't require the deployment of fiber to do this," said Abel, alluding to ambitious plans by cable and phone companies to build a rate-payer or subscriber-financed, \$500 billion information highway in the U.S. "All we require are FCC regulations that will permit broadcasters to do these kinds of ancillary and enhanced broadcasting applications."

Abel commended the HDTV system proponents for their work in reaching an understanding on the "grand alliance" announced earlier this week that will allow the companies involved to develop a single, digital TV broadcasting standard, but also had some cautionary words.

Abel noted HDTV equipment makers still have a number of technical details to work out "which are absolutely crucial to the future viability of HDTV and to the American public."

"We see three main areas of concern: the cost to consumers; the quality of services that (users) will be able to access via the HDTV system; and the impact on broadcasters, cable and other industries," Abel told lawmakers.

He expressed broadcasters' interest in working with the alliance to see that "interoperability" standards, which will allow digital TVs to work in tandem with computers and other digital communication devices, will be developed

"that make sense for the American people, not just the computer industry."

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### Broadcasters Plan New Technology Seminar In Singapore: Scientific-Atlanta Was Sponsor

The National Association of Broadcasters, in conjunction with the 1993 Pan Asia Television & Radio Industry Conference, presented a two-hour free seminar on merging radio and TV technologies, June 29 at the Marina Mandarin Hotel in Singapore.

The seminar was sponsored by Scientific-Atlanta, a leading worldwide provider of satellite communications networks, and the NAB.

Dr. Richard V. Duces, NAB senior vice president, research & information, gave a presentation on emerging radio and TV technologies such as HDTV, digital audio broadcasting (DAB), and radio and TV data systems. Other topics included high-speed data broadcasting, new AM radio improvements, and interactive TV.

A representative from Scientific-Atlanta made a presentation on advances in broadcast technologies such as satellite digital audio.

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Russco MA325 dual channel, 25 watt monitor amp . . . . .	205.95
Radio Design Labs STA-1 xfmr/line amp . . . . .	95.75
Radio Design Labs ST-PA6, 6 watt amp . . . . .	56.50
Radio Design Labs STD-1/150, divider/combiner, 150 ohm . . . . .	29.95
Radio Design Labs STD-6/600, divider/combiner, 600 ohm . . . . .	26.50
Radio Design Labs STM-2, mic preamp . . . . .	99.95
Radio Design Labs STM-DA3, mix level distribution amp . . . . .	91.25
Radio Design Labs STP-1, variable attenuator . . . . .	26.95
Radio Design Labs ST-ACR1M, audio controlled relay . . . . .	68.25
Radio Design Labs ST-ACR2, audio controlled relay . . . . .	68.25
Radio Design Labs ST-AMC3, active mic combiner . . . . .	77.00
Radio Design Labs ST-DA3, distribution amp . . . . .	80.45
Radio Design Labs ST-EQ3, 3-band equalizer . . . . .	59.75
Radio Design Labs ST-LCR2, logic controlled relay . . . . .	74.50
Radio Design Labs ST-MMX3, mic mixer . . . . .	95.75
Radio Design Labs ST-PH1, phone preamp . . . . .	95.75
Radio Design Labs ST-SSR1 solid state audio relay . . . . .	64.35
Radio Design Labs NRSC "B" KIT, mono . . . . .	323.00
Radio Design Labs NRSC-DM, mono . . . . .	91.00

## Miscellaneous Items

Eddor MX-100 watt mixer/amp . . . . .	175.50
Audisar 9K-300-3/4, transformer . . . . .	22.75
Audisar 9K-16W, 70 volt line transformer . . . . .	25.50
Triad TY-52X, 20k ohm/2k ohm interstage transformer . . . . .	17.35
YC-161, RPU yagi . . . . .	58.95
S66MI-50 punch blocks . . . . .	6.75
S66B3-50 punch blocks . . . . .	11.40
S66B4-25 punch blocks . . . . .	11.35
Digimax LCD-1000 freq. counter w/AC adapter & antenna . . . . .	168.50
Digimax D510 freq. counter w/AC adapter & antenna . . . . .	157.95
Shallco LAQ-350-KU 150/300 attenuators . . . . .	99.95
Fidelipac "ON AIR" & "RECORDING" light signs . . . . .	50.00

## Headphones

R-Columbia, Model SQ . . . . .	125.00
R-Columbia, Model SQZ . . . . .	155.00
Astrolite headset/mic, double sided, Model; 2636-GL . . . . .	198.95
Astrolite headset/mic, single sides, Model 2656-G1 . . . . .	166.00
AKG45 . . . . .	38.95
Stanton 30M/SR (especially suited for DJ'ing dances, etc) . . . . .	24.95

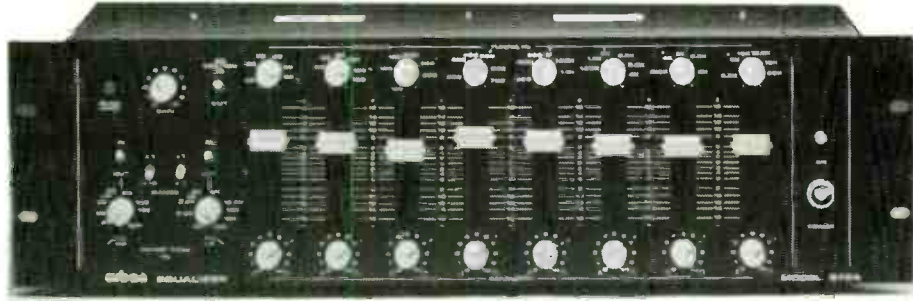
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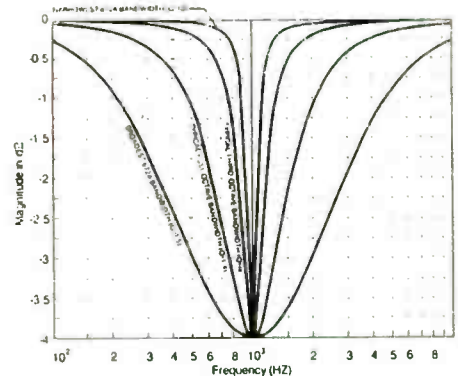


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## Technical Tips

by John Bredesen

This month's column will be a catch-all in that I'm going to cover a couple of "small" subjects: ideas that perhaps can help you do your job more easily.

Let's start with the subject of temperature measurement. Examples might include transmitter air inlet and outlet temperatures, room temperatures, the temperature of the cooling water from the dummy load, outside temperatures for the jock on duty. These are a few of the temperature measurement situations that any station engineer is apt to face at one time or another. There are innumerable techniques for measuring temperature, but one of the neatest and easiest to implement is provided by National Semiconductor in its LM 34 (scaled in Fahrenheit) and LM 35 (Centigrade) series of ICs. These are three terminal devices, the most inexpensive ones taking the form of a TO-92 plastic package. Price is very reasonable with the least expensive units under \$3.

One terminal is grounded, another is connected to a source of voltage, and the third is the output. The source voltage can be anything from 5 to 30 volts and doesn't need to be regulated because the IC has a built in voltage regulator. It may be necessary to use some ceramic disc bypass capacitors on the leads if RF pickup is a problem. Laser trimming is used during manufacture so that output voltage is directly proportional to temperature at the rate of 10mv/degree. The units I've used (LM34DZ) give an output of .32v at freezing with an increase to 2.12v at the boiling point of water. A digital voltmeter yields a direct temperature reading. Because the output doesn't have an offset voltage which must be cancelled, these devices are suitable for direct connection to most Transmitter Remote Control units and will give a reading directly in degrees. Be careful that at maximum temperatures you don't exceed the maximum input voltage capabilities of your Remote Control. For instance, the unit I'm using has a maximum input of 2 volts, and that limit would be exceeded if the temperature were to rise above 200 degrees. A voltage divider using temperature stable resistors would solve the problem.

For use as an outside thermometer, connect the output to one of the many digital voltmeters that are available on the market, some of which are kits. Digi-Key Corporation in Thief River Falls, Minnesota has a selection of digital panel meters. They also stock the National Semiconductor temperature transducers and have a handbook with detailed information about the use of

the temperature transducers.

Are you called upon to do remotes for your station where radio equipment is used to get the station back to the studio? Those of you with adequate budgets may be fortunate enough to have a van with a pneumatic mast; some of us don't. KLCC really can't justify such an expenditure because we don't do all that many remotes. Many of our remotes are in stereo using two RPU transmitters and antennas. We made our own mounts for the "quickie" remotes using 1 1/2 inch thinwall electrical metallic tubing (EMT) for the mast. We had a welding shop make up two bases for use depending upon the situation.

The first was for applications where the antenna could be next to the vehicle. It consists of a 1/4" thick plate of steel 12" X 18" with a 10" long piece of thick wall galvanized water pipe welded perpendicularly to the plate at one end. With a wheel on the plate and a 10 foot mast inserted in the welded pipe, you have a quick and secure way of supporting the antenna. The mast EMT is held securely with two 1/4" wing bolts (like wing nuts, only bolts) which are threaded through the side of the pipe. It's important to use thick wall pipe for this so there's adequate material for threading. You should be able to find the wing bolts at any store which specializes in fasteners.

For applications where I have to install the antenna on a flat roof, a variation of the old fashioned wooden Christmas tree stand works well. Two 2" x 6" boards about 6 feet long are bolted together in an "X" with four 3/8" bolts. A small version of the above mount with a base of 6" x 6" with the pipe centered, is drilled to match the bolts holding the lumber together. When assembled, it provides a sturdy mount easily capable of supporting a 10 foot mast with antennas. If you have reason to anticipate high winds, use cement blocks or a sandbag or two to weight it down.

All small antennas I've seen, including mine, use U-bolts to mount to the supporting mast. This is fine except you must remember to carry an appropriate wrench with you. I found that the same thick wall pipe used on the bases fits perfectly in the U-bolts. A piece about 10" long, drilled, tapped, and fitted with wing bolts and left permanently in the antenna makes mounting on the EMT mast a snap!

Be sure to at least paint the steel plates to prevent rust. A much better answer to the rust problem is to have the steel hot dip galvanized. KLCC has seven FM translators around central Oregon and most of the antenna moun-

(Cont. to pg. 11)

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(Cont.'d from pg. 10)

ting hardware was specially fabricated for each site. We have a practice of hot dip galvanizing all hardware before installation and have not experienced corrosion or rust at any site. It's quite cheap to have it done; in our area the cost is 15 cents a pound with a \$15 dollar minimum. Considering the total investment, it's cheap protection. After all, this is what tower manufacturers do. Check under "galvanizing" in your Yellow Pages.

\*\*\*\*\*

### Federal Action Needed To Prevent State And Local "Un-licensing" Of FCC Broadcast Permits

Broadcasters have asked the Federal Communication Commission (FCC) to take prompt action against state and local laws that unreasonably keep broadcasters and other communications companies from building FCC-licenses transmission towers, or prevent consumers from using roof-top antennas to receive radio and TV signals.

Reiterating past NAB calls for such broad preemptive action, NAB pointed to "myriad examples of broadcasters unable to build FCC-licensed facilities." In effect, NAB said, local denial of tower construction permits amounts to "non-federal authorities "unlicensing" FCC-licensed facilities."

NAB also urged the FCC to adopt a new and strengthened policy of federal preemption that will give broadcasters and others an opportunity to overcome local and state regulatory obstacles. NAB said the FCC has full authority to federally preempt overrestrictive state and local restrictions on broadcast and nonbroadcast technologies, such as HDTV and CD-quality digital radio, and non-broadcast technologies such as personal communications systems.

\*\*\*\*\*

### Hundt Is Clinton Nominee For FCC Head

Reed Hundt, a partner in the law firm of Latham & Watkins and a founding member of it's telecommunication, practice, has been nominated as FCC Chairman by President Clinton.

Although the Senate is expected to approve the nomination, the Senate Commerce Committee may not hold a confirmation hearing until after the August recess. Chairman James Quello will remain at the helm until his successor is qualified by the Senate.



Hundt has all the right political credentials. He is believed to have been hand-picked for the post by Vice President Al Gore, with whom he shares a friendship stretching back to their days at St. Albans, a Washington private school. Hundt also knows President Clinton, having attended Yale Law School with him in the early 1970's.

Outgoing commission chairman Jim Quello said he has not met Hundt, but has spoken to him briefly. "He called me...he was very friendly, said he hoped he could count on my advice and guidance.

"It isn't a bad thing to have a lawyer in here," he said. "This is still a lawyer's ballgame."

Hundt, 45, has practiced with Latham & Watkins since 1975. He is a graduate of Yale, with a law degree (1974) and a B.A. in history (1969). With his history degree, Hundt graduated magna cum laude. He was the book review editor for the Yale Law Journal in 1973 and 1974. He, his wife and their three children live in Chevy Chase, MD, a close suburb of Washington.

\*\*\*\*\*

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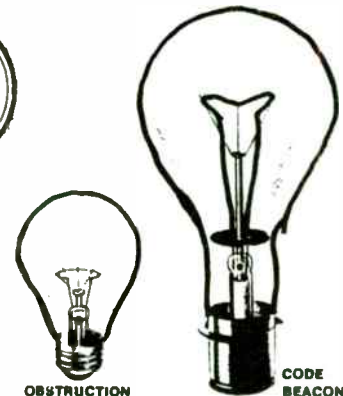
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## Government Agency Testing Traffic Navigation System

The Federal Highway Administration (FHWA) is testing a prototype FM subcarrier system being considered as part of a new Intelligent Vehicle Highway System (IVHS). The system subcarrier is being developed under government contract by the NITRE Corporation and uses a 76 kHz FM subcarrier as an SCA Traffic Information Channel (STIC). As part of IVHS, STIC will provide real-time, location sensitive reports concerning traffic congestion, road closings and emergency conditions to automobile drivers. In vehicles equipped with GPS receivers and other equipment, STIC will be one component of a complete IVHS. The systems even could provide alternate routes to individual drivers based on their locations and desired destinations.

Recently, the STIC FM subcarrier system was tested on two different FM radio stations, WQSM (Fayetteville, NC) and WPGC (Washington, DC). The WQSM tests, which took place March 24-26, measured the coverage of the STIC signal on a 76 kHz subcarrier. The signal was broadcast at 100 kW from a height of 850 ft. (259 m) HAAT. The STIC subcarrier was broadcast with an injection level of about 9%. WQSM also broadcast an RBDS sub-

carrier at 57 kHz. Coverage was measured over a radial arc, 40 miles (64 km) from the tower. Engineers noted no noticeable degradation to either the stereo audio program or the RBDS signal from the STIC signal.

Tests on WPGC took place April 14-16. The STIC subcarrier again was injected at approximately 9% and was transmitted along with WPGC's regular 92 kHz subcarrier. The FM signal was broadcast at 50 kW from an antenna at 500 ft. (152 m) HAAT. MITRE installed a subcarrier receiver in a DOT vehicle and drove it throughout the Washington, DC, area. The STIC IVHS messages were received reliably 40 miles from the transmitter site. As before, the engineers reported no noticeable degradation to reception of the stereo broadcast or the 92 kHz subcarrier.

The MITRE-designed IVHS subcarrier system uses QPSK modulation and convolutional error correction coding to transmit a total of 19 kbps in a baseband bandwidth of 16 kHz. The information throughout is 8.5 kbps, with the remaining data capacity used for error correction and overhead. The system uses time interleaving to mitigate the effects of multipath interference.

FHWA plans to turn the technologies for the various components of the IVHS system over the private industry. Federal grants will help local

and state transportation authorities purchase the equipment to operate IVHS. In turn, the local IVHS administrators will lease subcarriers from local radio stations to provide the STIC signal. Over \$900 million have been allocated by the federal government for IVHS projects over the next four years.

(Reprinted from NAB Associate News)

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## Station Cited For Excess Power Violation

The FCC has fined WWWT(AM) \$20,000 for operating in excess of its nighttime power authorization. According to the FCC, WWWT operated at its daytime power of 1000 watts 24 hours a day from at least May 1992 to September 1992, instead of powering down to the 66 watts nighttime authorization. The original complaint had alleged that the station had operated at higher-than authorized power since September 1991.

In its response to the complaint in Sept. 1992, station management said its automated computer system had software problems, but that the chief engineer was making repairs. In a February 1993 letter, the station asked the FCC to consider its overall record of compliance with Commission rules in making a determination about a fine.

\*\*\*\*\*

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## Proponents of HDTV Systems Form "Grand Alliance"

The seven sponsors of the four remaining competitive U.S. digital HDTV systems announced on May 24 the formation of a "Grand Alliance" (GA) to develop a single combined system for consideration by the FCC's Advisory Committee on Advanced Television Service (ACCTS).

Thus, the Advanced Television Test Center (ATTC) will not proceed with a second round of tests of the four competing systems but will test the GA system next year.

ACATS Chairman Dick Wiles said the GA members now will meet with subgroups of his committee to determine how the various elements of the four systems will be melded into the GA system. He emphasized that while ACATS endorses formation of the GA, the committee's decision whether or not to recommend the GA system, following tests in 1994, remains to be seen. Wiles added that although ACATS will make a recommendation to the FCC, the Commission will make a final decision on a system for the U.S.

The goals of the GA business and

technical agreement are:

- The systems will be configured to "facilitate interoperability among broadcasting, cable, computer and telecommunications technologies;"

- It will use progressive scan transmission and the use of square pixels which "are important for the interoperability of HDTV with computers, telecommunications and other media and applications;"

- Interlaced scan transmission (as developed in today's TV systems) would also be accommodated in the initial deployment;"

- "The proponents agree that all large-screen HDTV receivers (34 inches in diagonal and above) will incorporate a 60-frame-persecond 787.5 line or higher progressive scan display mode. Progressive display would be optional initially for smaller screen receivers;"

- All transmission of film material will be in a progressive scan format beginning immediately upon the commencement of HDTV service;"

- The GA members "unanimously endorse the objective of migrating the standard to a higher line number (i.e. thousand-line plus) progressive scan transmission, as soon as feasible, and

will work together to eliminate interlaced scanning format from the transmission path in the future;"

- "To support multiple transmission formats, the merged system will feature source adaptive processing" and "to promote system flexibility and extensibility, the merged system also will feature a prioritized, "packetized" data transport structure."

Wiley said that "before the end of 1993 we will have a good idea of the (specific design details of the GA) system."

The entities forming the GA; AT&T, David Sarnoff Research Center, General Instrument Corp., Massachusetts Institute of Technology, North American Philips, Thomson Consumer Electronics and Zenith Electronics.

(Reprinted from NAB Associate News)

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## NOW COMES THE REBS4

### AN EBS CONTROL UNIT FOR DIAL-UP REMOTE SYSTEMS

The REBS4 was designed as an accessory to dial-up radio broadcast remote control systems. It provides an easy means to interrupt program audio and insert EBS tones and live voice announcements from the same telephone line that is being used to operate the remote control.

FCC rules require all broadcast stations to air the EBS two-tone attention signal and an EBS announcement within five minutes of receiving an EBS alert. Stations using Alternate Control Points after normal business hours typically use an EBS receiver at each control point to alert the operator. The operator then dials the transmitter remote control and uses control functions to turn off regular programming and turn on a two-tone EBS generator. After 20 to 25 seconds, the operator turns the EBS generator off and enters a control code to put telephone audio on the air. The operator (announcer) then states the nature of the EBS bulletin. The operator can then sign off the station, if the station will not be participating, or he can continue to air bulletins, if the station is going to participate in the EBS system. It is important to note that a "non-participating" station must air the tones and a voice announcement before signing off.

The REBS4 was designed to operate with the Sine Systems RFC-1/B dial-up remote control system. It uses two otherwise unused on/raise and two off/lower relay channels for controlling the audio of each radio station. If desired, the control for two or more stations can be combined to the same two control channels for simultaneous EBS operations on all stations by one operator at one time. The REBS4 will work equally well with the Gentner VRC-1000 or VRC-2000 providing the Gentner relay interface is used. It should also work with other dial-up remote controls having dry contact relay outputs. One important feature of the REBS4 is that if the operator forgets to restore normal program audio before hanging up on the remote control, he can still call back and make the corrective action even if the unit is left in the "telephone on the air" mode by accident. Line loading is so light that it will not inhibit line ringing.

The REBS4, is normally supplied on a standard 19 inch wide rack panel 7 inches high. Power required is 120VAC 20 watts. REBS4 units rely on the station's audio processing to control levels. The actual unprocessed telephone audio levels can be screwdriver adjusted from -20DBM to +15DBM. Peak clipping occurs at +20DBM.

REBS4-1 for one monaural audio pair -

**\$450.00**

REBS4-2 for one stereo audio pair -

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## Ted Snider To Receive NAB National Radio Award

Ted Snider, owner of KARN-AM and the Arkansas Radio Network, Little Rock, AR, has been named the 1993 recipient of the National Radio Award, the National Association of Broadcasters announced today.

The National Radio Award recognizes significant contributions and a lifetime of service to the radio industry.

Snider will be honored during the NAB Radio Show at the Dallas Convention Center, September 8-11. The award will be presented on Thursday, September 9 before a keynote address by Ross Perot at 9 a.m.

"Ted is an exceptional choice for this award," said Wayne Vriesman, vice president, radio group, Tribune Broadcasting Company, Chicago, IL. "What amazes me about Ted are the many facets of the industry he has influenced. His contributions to broadcasting, particularly AM improvement, have been significant. He was the spark behind the current AMAX movement, formerly the NAB Receiver Manufacturers Liaison Task Force. As NAB Joint Board Chairman, Ted developed a long-range strategic plan for the NAB

that is still very influential," said Vriesman.

Snider began his career in radio at age 20 with various positions in announcing and sales, and has held general manager positions at stations in California, Minnesota, Texas and Arkansas prior to establishing the Snider Corporation, comprising KARN/KKYK, the Arkansas Radio Network, and Business Music of Arkansas, in 1971.

He holds BA and MA degrees from Baylor University. Snider was honored with the Community Service Award, Chico, CA, in 1963, received the Distinguished Broadcaster Award from Baylor in 1969 and was Arkansas of the Year in 1986. Snider is past NAB Joint Board Chairman (1987-89) and also served as both NAB Radio Board Chairman (1985) and Vice Chairman (1984). He is past president of the Arkansas Broadcasters Association, a former director of the California Broadcasters Association, and retired with the rank of captain in the U.S. Naval Reserve.

\*\*\*\*\*

## RDS Up Front At Summer CES

Taking a lesson from last winter's Winter Consumer Electronics Show (CES) and the NAB convention in

April, both in Las Vegas, Radio Date System (RDS) products were put in front of retailers at the summer CES earlier this month.

Twelve stations went on the air with RBDS in Chicago to help promote the technology, which enables radio receivers to: receive text from stations transmitting RBDS (call letters and slogans), scan stations by format, and automatically switch from one translator or transmitter to another. The technology also can provide emergency alerts.

Stations involved in the demo included: WBEZ-FM, WGCI-FM, WLIT-FM, WLS-FM, WLUP-FM, WNUA-FM, WPNT-FM, WUSN-FM, WVAF-FM, WXRT-FM, WTMX-FM, and WWBZ-FM. Nationwide, more than 50 stations are now on the air transmitting the 57 kHz RDS data stream.

Six manufacturers exhibited products at CES including Axxess USA, Delco, Denon America, Goldstar, Jensen, Sony and Coupon Radio, an innovative interactive use of RDS for stations and customers.

The Electronic Industries Association said manufacturers, such as Denon, are now starting to ship new RDS receivers to retailers. Some receivers are already available. RDS is considered a logical bridge from analog to digital transmission systems.

# PI



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FOR SALE: 1990 GATES ONE AM transmitter, Optimod 8000 audio processor, BE Triple Deck cart player, ITC R/P Cart machine. Make offer by calling Roger at (406) 449-4251.

FOR SALE: Schaefer Automation System, A-1 condition; On-air, available late August; Three mono IGM48 Instacarts, six ITC-750 stereo tape decks, Extel logger, all in five matching racks; Full boat system! Best offer! Call Vern Killion, KRVN (308) 324-2371.

FOR SALE: CCA FM1000D 1.5 KW FM transmitter. Can be upgraded to 3 or 5 KW. In-service, clean and reliable, \$5,500. Mr. Benson (916) 893-8737 or (619) 764-2564.

FOR SALE: Jampro JA4-B "V" type Hor. Pol. FM antennas; 4 bays on 94.5 with 1 5/8" feed divider; 2 bays on 89.9—no interbay cables, \$250.00 per bay or best offer. (916) 893-8737 or (619) 7642564.

FOR SALE: Emcee TV translator tube type, Model HTU-100, ch 70 inch, 78 out, good condition, \$650.00 plus shipping and crate; DB products base station antenna, Model DB264, tuned to 155.625 MHz, \$602 new, \$200.00 plus shipping; Cushcraft base station antenna, Model BR-4, 42-50 MHz, \$190 new—\$50.00 plus shipping; Motorola base station antenna, Model 6073A, 150-159 MHz, \$630 new—\$200.00 plus shipping; Tapecaster cart machine, Model 700P, stereo, play only, excellent condition, \$275.00; ITC cart machine, Model RP8290003-000, mono record & play with triple cue, \$325.00 excellent condition; Telex Magnecord, Model 1022 Reel-to-Reel, 2-track play & record and 4-track play with rack, good condition, \$200.00 plus shipping. Contact Wes or Al Martin, Segue Services, Inc., HCR 1, Box 286-D, Merrifield, MN 56468, Phone (218) 765-3333.

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## Ross Perot To Keynote NAB Radio Show

Ross Perot will deliver a keynote address at the National Association of Broadcasters' Radio Show, the largest radio-only gathering in the world. The billionaire businessman and former presidential candidate will speak Thursday, September 9 at 9 a.m.

NAB's annual radio convention will be held at the Dallas Convention Center, September 8-11. Nearly 7,000 people are expected to attend, including about 600 international broadcasters. The Radio Show will have more than 50 sessions covering all facets of radio operations: management/operations, programming, sales/marketing and technology management.

The convention will close Saturday, September 11 with the MARCONI Radio Awards honoring the best and brightest radio personalities, stations and formats. This year's ceremony will be hosted by Rick Dees and will feature a reception, dinner and show.

For program information on the NAB Radio Show, call the NAB Radio Department at (202) 429-5420. To register, call (800) 3422460 or (202) 775-4972 or fax (202) 775-2146.



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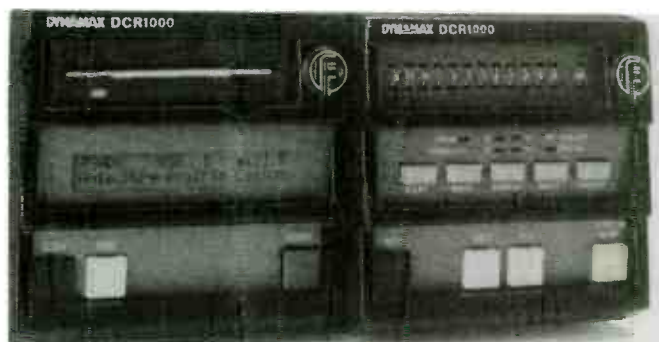
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The Record Module features extended scale peak metering with digital overload indicators. Sampling rate may be selected from the front panel or slaved to the standard AES/EBU digital input. Secondary and Tertiary cues are standard. Dubbing is made easy with the START ON AUDIO feature which allows a variable threshold audio detector to begin the process automatically. Addition of a PC/AT keyboard permits titling carts, editing their "cue tones," end checking, and looping. A built-in clock/calendar with battery backup permits inclusion of the date and time in logging entries as well as checking spots against their kill dates. A Centronics parallel printer port is included for automatic generation of cart labels.

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Standard, low-cost 2MB computer floppy disks are used for commercials and other short material. Songs up to 5:10 are recorded on 13MB diskettes which cost about the same as a premium tape cartridge. 13MB diskettes can store up to 15 minutes of voice or AM program material. Both 2MB and 13MB disks may be used interchangeable in any player.

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