ORIGINAL
FILE

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PERSONAL COMMENTS OF:

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WITH REGARDS TO:

FEDERAL COMMUNICATIONS COMMISSION
GENERAL DOCKET NO. 87-268
ADVANCED TELEVISION SYSTEMS

The Federal Communications Commission's inquiry into Advanced Television Systems (ATVS) is both welcomed and at the same time frightening.

> The near future introduction of a non-broadcast and non-regulated propriety High Definition Television (HDTV) systems places the local broadcast stations at a competitive disadvantage in supplying the home viewer with a diverse free television service. The needed spectrum space for a future free broadcast HDTV service can only be provided by the Commission.
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> Thirty eight years ago the Commission set about in similar inquiry to select a color television system for the United States. The Commission chose a standard that was good technically but a market place failure. The result was the United States having had two color television standards in less than three years.

The success of the United State television broadcast system of providing free programing to the home viewer is the result of a partnership between the television industry and the United States Government. The transmission standard is the result of work by television industry committees. The spectrum space for television transmissions is the result of actions taken by the Federal Communications Commission.

I urge the Commission to protect the home viewer by continuing the successful partnership between the television industry committees and the Commission. As in the past, the Commission can and should provide an impetus for television industry committees to produce workable United States television standards.

A look at history should clearly demonstrate the basis for my concerns for the future of free televisionin this country.

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BLACK and WHITE TV

During the 1930s the Radio Manufacturer Association television committee worked to setup a transmission standard for television in the United States. The Commission provided an impetus for the development of a television standard in 1936 by providing spectrum for experimental transmission on 6MHz channels between 42 and 56 MHz and 60 and 86 MHz. A regular experimental television broadcast service was begun by NBC in 1939.

The Federal Communications Commission, under Chairman J. Lawrence Fly, provided further impetus in May 1940 by not permitting commercial television broadcasting until there was an industry wide adopted standard. That push by the FCC resulted in the formation of the first National Television System Committee (NTSC1). The NTSC(1) met during 1940 and 1941. The group's work resulted in the submission of "transmission standards for commercial television broadcasting" to the Federal Communications Commission (FCC) at a hearing on March 20, 1941.

The Federal Communications Commission's STANDARDS OF GOOD ENGINEERING PRACTICE CONCERNING TELEVISION BROADCAST STATIONS and RULES AND REGULATIONS GOVERNING COMMERCIAL TELEVISION BROADCAST STATIONS, effective April 30, 1941 provided for an eighteen (18) channel VHF commercial television broadcast system based on the work of NTSC(1). Commercial television broadcasting in the United States began on July 1, 1941. A few months later when WWII caused a temporary halt to television broadcasting there were six operating commercial television stations in the United States.

COLOR TV

In 1949 the Federal Communications Commission decided it should select a color television system. In 1950, the Commission, after eight months of hearings and about 10,000 pages of of testimony, selected the CBS field sequential color tv system.

> The Commission's decision was challenged in the courts, with the U.S. Supreme Court upholding the validity of the F.C.C. decision on May 28, 1951. The challenges to the field sequential color tv system at both the Commission and the Court were based primarily on the fact that the field sequential color tv system was incompatible with the then existing black and white tv sets. The Commission apparently felt that the talk about compatible color systems was just a way delaying Commission action.

The Commission selected color television system was a market place failure. On June 11, 1951 the Commission provided the impetus for the television industry to set a new color television standard on by the issuing of Public Notice 656008 stating that it was to be the field sequential color tv system until someone could come up with a better (but not necessarily compatible) system.

The result was the formation of the second National Television System Committee (NTSC2). Meeting during 1951, 1952 and 1953, NTSC(2) created the present United States color television system. On February 2, 1953, NTSC(2) had approved for publication a recommendation for transmission standards for color television.

When work seemed to be going slowly the FCC again provided an impetus. On July 8, 1953, Rosel Hyde, Chairman F.C.C. wrote to committee asking for field testing information on the NTSC(2)'s proposed color transmission standard. At the full NTSC(2) meeting of July 21, 1953 the NTSC Petition was ready and a motion was passed sending the petition to the FCC.

The need to do a United States color television standard twice was a major embarrassment for the Federal Communications Commission and delayed the introduction of color television in the United States. During the 1950s when the United States was a technological leader and exporter, the delay did not cause any great harm to the home viewer or the television industry. Today with a completely different world marketplace, the United States television industry could be severely damaged by such a mistake.

HDTV

The third National Television System Committee, operating under the name ADVANCED TELEVISION SYSTEMS COMMITTEE (ATSC/NTSC3) is in place and has been working on HDTV for four years. The combined efforts of ATSC/NTSC(3) and others has already led to a de-facto worldwide HDTV studio standard.

All committees work slowly unless there is a major need (crisis). I urge the Commission to again provide an impetus. One of the results of this Commission inquiry should be a strong and clear signal to the the television industry that if an industry committee (be it ATSC/NTSC(3) or some other committee) does not complete work by January 1, 1990, the Federal Communications Commission's will select a HDTV standard by lottery from over the air demonstrated systems on July 1, 1990.

The present successful United State television broadcast system of providing free programing to the home viewer is the result of a partnership between the television industry and the United States Government. The home viewer needs the Commission's support if the television industry is to continue to supply the viewer with a diversity of free television programs.

SPECTRUM SPACE

This Commission inquiry, resulting from the land mobile industry request for more spectrum space (by sharing UHF-TV channels in eight specific markets) and the planned introduction of a non-broadcast propriety HDTV service in the United States by foreign manufacturers, is an opportunity for the FCC to require that the

various industries using spectrum space (like the land mobile industry and the television industry) to be responsible for their own futures. The Commission can effectively do this by clearly stating that spectrum users will be limited to their present spectrum space.

Unlike the past, the Commission does not have more usable spectrum space to hand out. There is no way that the Commission will ever divide the available spectrum space in a matter that will make any industry group happy. I suggest that the viewer/user of spectrum space would be best served by FREEZING THE PRESENT SPECTRUM ALLOCATIONS FOR AT LEAST 10 YEARS.

The various industries that use spectrum space should be free, through submissions to the FCC by their industry committees, to make changes in technical standards. These changes could include channel width, types of modulation and other technical specifications.

There must be continued partnership between industry and government, with the various spectrum user industry committees providing the technical standards and the Federal Communication Commission providing the protection of the spectrum.

Any time spectrum space is discussed alternate technologies such as RF cable and fiber optics are suggested. With 50 percent cable-tv penetration and VCRs in over one half of TV homes, what is the need for over the air broadcasting? Why not have everyone connected to RF or fiber cable?

THE FORGOTTEN VIEWERS

The TV viewers in Shiprock, New Mexico, do not have access to television through several transmission systems like the viewers in New York City, Philadelphia or Washington DC. Their one source of CBS-TV network programs is a translator (Shiprock) fed by a translator (Farmington) fed by a translator (Huefano) which receives the off the air signal of TV station KGGM-TV, channel 13, with its transmitter located on Sandia Crest (10,600 feet) a few miles east of Albuquerque, New Mexico.

For 18,000 viewers in the southern part of Colorado their only TV service is provided by a non-profit translator association (Mt. San Antonio Translator Committee) which operates eight translators on the 10,800 foot San Antonio Mountain in northern New Mexico.

INPUT CHANNEL	STATION	LOCATION	OUTPUT CHANNEL
13	KGGM-TV	Albuquerque	67
7	KOAT	Albuquerque	65
4	KOB	Albuquerque	63
14	KGWS	Albuquerque	61
23	KNAT	Albuquerque	59
11	KKTV	Colorado	57
8	KTSC	Colorado, PBS	55
5	KMNE	Albuquerque, PBS	53

The distance from the translators location, on San Antonio Mountain, to Sandia Crest, the location of KGGM-TV's transmitter, is 177 miles. It is very unlikely there will ever be fiber optic cable runs to San Antonio Mountain or Huefano Mountain in New Mexico (or many other mountain tops) to feed the translators which provide service to about one half of the viewers of Albuquerque local TV station KGGM-TV.

Direct Broadcast Satellite (DBS) can provide entertainment programing services (not for free) to some of the viewers in places like Shiprock and southern Colorado. DBS can not provide local or statewide news coverage to viewers in even a city like Albuquerque. Local and statewide news coverage only comes from local TV stations like KGGM-TV.

NON-BROADCAST HDTV

The planned introduction of a non-broadcast and non-regulated propriety HDTV service in the United States by foreign manufacturers in 1990 or 1991 will happen without regard for this Commission inquiry. There are sufficient numbers of US consumers known as early adapters to provide the necessary market (critical mass) to make such a product economically feasible.

To be successful in this country any product most have a good distribution chain. The failure of foreign manufacturers to dominate desktop computer sales in this country is an example of a poor distribution systems. Such is not the case with home entertainment products. Foreign manufacturers have an excellent distribution chain through non-technical outlets (department stores and appliance dealers).

The only way such a non-broadcast HDTV product can fail to reach critical mass in the United States is for more than one non-broadcast system to be offered in the US market place. The foreign manufacturers are not going to make such a mistake.

It probably will be argued that the foreign manufacturers would be better off limiting their technical equipment offering to a system which could be used for both the broadcast and non-broadcast distribution of television program material in the United States. That may be the ALL AMERICAN view of how things should be done but it does not represent the best profit route for aggressive foreign manufacturers. Any system offered as a broadcast standard to ATSC/NTSC(3) would require a reasonable licensing agreement to be acceptable.

The foreign manufacturers by going with non-broadcast propriety HDTV system will not have to license the technology to United States companies and can completely control access to the product. By offering HDTV through playback only VCRs and optical disk there

can be no pirating of the program material. All manufacture of the equipment and recording of the program material could be limited to a foreign country.

> Note: The largest single supplier of television sets in the United States (with two brand names) has only about 20 percent of U.S. TV set sales. Those two band names will shortly pass to ownership by a company which is in turn owned by the French government.

FREE LOCAL TELEVISION

The local broadcast stations have already seen a drop in the over-air/cable viewing due to cable programing and rental programing (VCR). The non-broadcast true HDTV systems will cause further market fragmentation for the local broadcast station. This fragmentation, with its reduction in revenues to the local broadcast station will in turn bring a reduction in programing choices to the viewer without the necessary expendable income to purchase the non-broadcast product.

For the early adapter consumer, with the necessary expendable income, the non-broadcast true HDTV system will quickly offer a source of better than over the air NTSC programing. I suggest that it is not "if" but when the non-broadcast true HDTV system will become available to the American consumer.

The other consumer/home viewers need the local television stations to be able to compete with the non-broadcast HDTV on and equal technological basis. The television industry must make the necessary transmission standards changes to provide the home viewer with a better television service if there are to be local TV stations in a few short years. Since the home viewer is the television industry's only customer, it is likely that single channel, channel and a half or two channel system, somewhat compatible with the present in place NTSC(2) receivers, will be the result.

6 MHz CHANNEL

Substantial improvements can be made in the broadcast television system using the present 6 MHz channel that are reasonably compatible with the present NTSC television sets. But it is already apparent that any new broadcast television system that will (or must) fit in the present 6 MHz channel will be inferior to the VCR or optical disk non-broadcast (true) HDTV systems when seen on TV displays of 45 inches or larger.

The use of channels wider than 6 MHz will not make the non-broadcast HDTV systems go away. Regardless of the procedure used (FCC or industry committee) for selection of a new U.S. broadcast television standard, and regardless of the quality improvement

brought about by the new standard, there will be non-broadcast non-NTSC compatible (true) HDTV systems in the US consumer market place within the next five years.

To restrict the broadcast television system to 6 MHz channels limits the local stations ability to compete and in turn limits the home viewer's supply of free programs. The existing television broadcast spectrum should be reallocated .

EXISTING TV SETS

Talk of compatible or non-compatible changes to the television standard brings about talk of the TV set count. Just like during the 1950s when there were 25 million TV sets in viewer's homes to protect, today the talk is about the 130 million plus TV sets in homes. There is the usual talk that a TV set has two lives, 5 to 7 years as the household's primary TV set and then a few more years of secondary use (like in the basement or a child's room).

There will probably never be a better time to consider switching to a non-compatible transmission standard, if that should be necessary. Starting around 1980, TV sets became transistorized. TV sets that use tubes are fast becoming non-serviceable. I suggest that a review of TV set data would show that less than one half of the present 130 million plus TV sets will still be in use in 1995.

UHF-TV TABOOS

The UHF-TV taboos are the result of 1950 technology. Using 1980 technology there are set-top cable-tv converters covering 40 or more contiguous channels with no image problems. There are "cable ready" TV sets, tuning 40 or more contiguous channels, with no image problems. UHF-TV taboos are a dead issue.

LOCAL OSCILLATOR RADIATION

My home computer has a steel case. My TV set (19 inch Proton) has a plastic case and a wood bottom. The home TV sets should be required to have the same level of shielding as any other consumer equipment. There simply should be no TV set radiation.

TIME TABLE

All TV sets sold in the U.S. after January 1, 1989 should be required to work with only co-channel (same channel) and first adjacent channel projection and have no LO or IF radiation. This TV set protection requirement should be a television industry committee standard given teeth by Federal Communications Commission's rules.

With only taboo free sets being sold starting in 1989, by 1995 or 1996 it should be possible to reallocate the UHF channels making possible an over the air free HDTV system. The reallocation of the UHF-TV spectrum will cause some disruption to some viewers with pre-1989 TV sets.

The taboo and radiation free TV sets will cost more, so do low emission automobiles.

MOVING TO HDTV

Several scenarios can be developed for moving to an Advanced Definition Television (ADTV) system or High Definition Television (HDTV) system. Most scenarios will windup with a new UHF channel allocation plan with 27 pairs of contiguous channels making it possible to transmit both the main channel (present NTSC2 signal) and the augmentation channel through a single UHF antenna.

In these scenarios it assumes that split (VHF-UHF) channel HDTV will not offer the same performance as UHF paired channels. Existing VHF stations would have one of the UHF channel pairs reserved for them until some date in the future. Until that date the VHF stations could use the upper part of the UHF channel pair to transmit an augmentation channel. After that future date all VHF stations would move to a UHF channel pairs.

There being a great deal of difference between the IDEAL and the REAL world, the existing VHF stations are not going to accept such as plan at this time.

VHF STATIONS

Several very elegant proposals have already been made in the trade press for limiting change to only a compatible NTSC(2) signal. There is no question that an Added Definition Television (ADTV) system can be transmitted through the present VHF channels in a form compatible to NTSC(2). No doubt this will be the desire of most VHF stations.

> It is possible to reallocate the VHF-TV spectrum to form HDTV channel pairs. The problem would be in selecting stations for these VHF channel pairs. In New York City with channels 2, 4, 5, 7, 9, 11 and 13 there might only be space for four HDTV channel pairs. Who gets bumped? The PBS/ETV station?
>
> Then what is done with the left over unpaired channels. Is channel 2 reassigned to the six meter amateur service or is channel 6 reassigned to the FM broadcast service?

UHF STATIONS

UHF station seeking a technical advantage will want a new UHF channel allocation plan with 27 pairs of contiguous channels. This along with taboo free TV sets will provide spectrum space for a near High Definition Television (HDTV) system to the UHF stations.

REAL WORLD

The change to ADTV and/or HDTV systems is not going to happen overnight. There will be many years of dual standard operation. All improved performance TV set manufactured in the 1990s will have to work with both the present NTSC(2) signal and the new standard(s). And STANDARDS may well be the way it will go for the time being. NTSC(2) & ADTV on the VHF channels and NTSC(2) & HDTV on the UHF channel pairs.

Yes, I did say "for the time being". There are no ADTV or HDTV TV sets in the market place. If the foreign manufacturers are successful with a non-broadcast, non-regulated propriety HDTV system (with better picture quality), the VHF stations may well change their minds about an all UHF-TV system or about reallocating VHF-TV spectrum in the future.

FCC ACTION

The Federal Communications Commission should remove NTSC(2) from the Commission's Rules and Regulations and replace NTSC(2) with a requirement that transmitted television signals will conform to the current American National Standards Institute (ANSI) standard.

Formulating the standards should be the responsibility of a television industry committee, be it the present ATSC/NTSC(3) or some other industry committee. The Commission should provide for an industry committee to plan reallocation the present UHF and VHF spectrum. The Federal Communications Commission was an observer at the first NTSC and in the latter part of the second NTSC. The Commission is an observer at the present ATSC/NTSC(3) and should be an active participant in committees as a representative of the home viewer.

The results of this Commission inquiry should be a strong signal to the the television industry that the industry must produce results which will provide the home viewer with an improved TV service.

PROTECTION OF THE VIEWERS

The television industry of the United States has only one customer, the home viewer. That viewer has very effective regress through the market place. With the fragmentation of viewing that has already been experienced, the viewer is very important to local television stations.

COMMENTS

The comments above represent only Walt Bundy's personal viewpoint. They do not necessarily represent the views of Mr. Bundy's employer or any trade association.

PERSONAL BACKGROUND

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Past Employment:

WVPT-TV (PBS) Channel 51 Harrisonburg, Va.	Director of Operations and Engineering, Constructed Station
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COMMITTEES

WPHL-TV and Walt Bundy were active in the FCC UHF-TV LAND MOBIL ADVISORY COMMITTEE.

Walt Bundy is the ASSOCIATION of INDEPENDENT TELEVISION STATIONS, INC. (INTV) representative to the ADVANCED TELEVISION SYSTEMS COMMITTEE (ATSC)