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November 17, 1987

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MAIL BRANCH

Mr. William Tricarico
Secretary
Federal Communications Commission
Room 222
1919 "M" Street, N.W.
Washington, D. C. 20554

Dear Mr. Tricarico:

RE: Comments on Advanced Television Systems
MM Docket No. 87-268

Attached please find our comments to Notice of Inquiry released on August 20, 1987 regarding the Advanced Television Systems.

We would appreciate you reviewing our comments carefully and hope they will be useful for establishing new requirements.

Yours very truly,

S. Yasuda

S. YASUDA
Manager, Engineering

SY:rm
att.

pc: Mr. E. M. Tingley, Staff V.P., EIA-CEG
Mr. Makino, Toshiba

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Answers to the questions from FCC on HDTV standards.

QUESTIONS

1. WHAT CRITERIA

Before discussion of the ATV, it is very important that the standard concept should be clearly classified for both HDTV and EDTV and the technical feasibility of the system. In this sense, the most dominant point is their potential performance or the ultimate performance.

Pertaining to this matter, we believe the following are the main points.

PERFORMANCE: Potential capabilities of the luma, chroma resolution, ultimate S/N ratio, signal bandwidth, capability of the band compression for the transmission, audio channel capability, audio fidelity, and data channel capability.

FORMAT CONVERSION: Flexibility of the CONVERSION between systems.

2. TECHNOLOGY ANTICIPATION:

Recent progress in the electronic field is quite significant, which makes us so optimistic that any difficulty in the implementation of complicated system will bring about by digital ICs and IC microprocessors.

However, there is little progress in the transmission criteria. We understand that the high resolution system is the HDTV standard which is defined by the endorsement of the ATSC and SMPTE.

In that sense, there seems to be little chance that there will be a band reduction to 6MHz. We feel that the bandwidth for the transmission should be set appropriately by referring to the current technology and then the performance could be increased by the technology advancement.

3. ATV TECHNOLOGY STATUS

The most advanced system of the HDTV is no doubt a MUSE developed by NHK. MUSE is proved as operational system through several satellite broadcasting and terrestrial broadcasting experiments. The MUSE broadcast service is scheduled to begin at the start of the BS-3 satellite service in Japan in 1990.

All of the other competing systems are not thoroughly investigated. They have at least one of the drawbacks of insufficient resolution within the whole picture area, insufficient sensitivity in the camera, insufficient investigation on the transmission as well as broadcasting format and insufficient development on Video Tape Recorder or Video Disc not only for consumers but also for commercial use.

As far as the EDTV is concerned, the discussion for implementation is carried by BTA (Broadcast Technology Association) in order to aim the service start in 1989.

4. NEW TRANSMISSION COST

Not estimated yet.

5. CHANNEL AUGMENTATIONS

Current channel bandwidth in NTSC standard is limited within 6MHz, which is sufficient to broadcasting of the EDTV. The channel bandwidth for HDTV signal transmission should be at least 9MHz. In order to transmit the picture signals appropriately, the phase characteristic should also be guaranteed or specified. The pass-band of the signal should therefore have more than 8.1MHz. The performance is proven excellent through the experiment of Washington, D. C. in the beginning of this year. In order to acquire the band, two contiguous channel should be assigned for the particular HDTV channel(s). The current UHF terrestrial broadcasting channel has 6MHz band. The most adequate channel bandwidth for the HDTV signal channel as a result, is 12MHz, which is two channel bandwidth of the current NTSC channel.

5. UHF ONLY OR BOTH UHF AND VHF

A HDTV signal requires very high level of transmission quality. A ghost would degrade the picture quality significantly because the ghost might affect the clock regeneration of the receiver. In order to avoid the interferences, it is better to transmit HDTV signals in UHF band only. The highest quality picture, of course, could be reproduced by the satellite transmission.

7. ECONOMIC ADVANTAGES AND DISADVANTAGES OF THE SPECTRUM

The high IF band receiver for the HDTV reception is not easily implemented, because the system requires quite high phase linearity and amplitude linearity. However, the technical development could be so significant that such difficulties can be solved in the near future. We expect, the theoretical cost of the wide band tuner will not be as expensive compared to that of the conventional receivers.

The theoretical cost of the EDTV receiver to comply with the requirements will not be high. However, there might be ghost problems as well.

8. HOW MUCH BANDWIDTH FOR ATV

TO BE DETERMINED after thorough examination.

9. IMPACT ON EXISTING NTSC

TO BE DETERMINED after thorough examination.

10. ATV SPECTRUM ALLOCATIONS

This depends only on the demand of the system. Basically, the HDTV band-compressed signals can be transmitted to any portion of the broadcasting band of the current TV signals. In particular, low band signals would be inclined to be interfered with by the ghost or any other interferences.

11. ADVANATAGES AND DISADVANTAGES OF THE FREQUENCY ALLOCATION

Compared to the system cost, the cost for the receiving portion is much less than that of the whole cost. There seems no significant differences between them. When the frequency assignment of the Broadcasting is in the SHF DBS band, the only items we have to consider is the cost increased by the antenna size to keep pictures beautiful against the rain attenuation.

12. HOW WELL COMPARED?

At this time, Japanese are trying to have DBS HDTV services through the use of newly coming BS-3. So far, there is little discussion on the scheme for cable transmissions. These items will be discussed later by BTA.

13. ATV PURSUANCE IF THE BAND IS OUTSIDE CURRENT TV

In general, every TV should have HDTV capability.

14. WHAT TECHNICAL PROBLEMS IF TERRESTRIAL GHz PORTIONS

TO BE EXAMINED. So far we have little experience. However, in Japan we have terrestrial SHF broadcast in a small area to the people who are suffered by the hard TV reception caused by building shade.

From these questions we are totally agree that the answers or comments from EIA are confident to our comments on the questions from FCC.

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