

FARROUDJA Laboratories

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MAIL BRANCH

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Yves C. Faroudja
President

October 23, 1987

Mr. William J. Tricarico
Secretary of the FCC
Federal Communication Commission
1919 M Street N.W.
Washington, D.C. 20554

Dear Mr. Tricarico:

Herein enclosed are the comments of Faroudja
Laboratories to the notice of inquiry adopted
July 16, 1987 (MM docket No. 87-268).

Sincerely,

Yves Faroudja

Yves Faroudja
President

YF:cp

Attachments

Original and five (5) copies

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OCT 26 1987

MAIL BRANCH

Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D. C. 20554

In the Matter of) MM Docket No. 87-268
RM 5811

Advanced Television Systems)
and Their Impact on the)
Existing Television Broadcast)
Service)

Review of Technical and)
Operational Requirements:)
Part 73-E. Television Broadcast)
Stations)

Reevaluation of the UHF Television)
Channel and Distance Separation)
Requirements of Part 73 of the)
Commission's Rules)

In the FCC Notice of Inquiry adopted July 16, 1987 (FCC document 87-246 - MM docket no. 87-268) comments are solicited on a proposed relaxation of the mandatory NTSC standard (prg. 89 to 96, p. 11 and 12, and prg. 110, p. 13)

As president of Faroudja Laboratories, and as a member of SMPTE and ATSC organizations, I would like to present the following comments to the FCC:

1. As a preamble, I should point out that the extraordinary commercial success of NTSC: An international transmission standard serving more than 200 million receivers, and which has been in existence for over thirty years, has essentially been made possible by a basic factor: Strict adherence to a set of well defined rules internationally accepted.
2. Presently, technological progresses seem to indicate that a relaxation of these rules may be desirable. There is, however, a great danger to NTSC if this necessary relaxation is carried out without specific and carefully defined guidelines. Poten-

tial compatibility problems introduced by new techniques may lead to degradation, instead of improvement, of the average home viewer picture quality I therefore propose to consider the adoption of the following guidelines:

- A. Any "new" NTSC should have both-ways compatibility.
- B. There should be no perceptible image degradation in the case of the reception of a "new" standard transmission on an "old" TV set.
- C. There should be a significant improvement if a "new" standard transmission is received on a "new" TV set.
- D. There should be a closer international coordination between the different committees involved in standards in the three main parts of the NTSC world:

North America

Japan

Rest of the NTSC world.

- 3. There are three classes of standards respecting in principle the criteria set in paragraph 2. These are:

Standard NTSC

Improved NTSC "A".

Improved NTSC "B". (some ATV systems)

A. Standard NTSC

Presently, only transmission specifications are defined. It would be desirable to publish a succinct document defining "video NTSC" (which has been practiced for more than thirty years without having ever been formally defined in a single document.)

B. Improved NTSC "A".

The definition herein adopted, by lack of a better term, covers only those systems which do not make use of an extra sub-carrier, do not make use of quadrature modulation of the carrier, do not make use of folded sidebands (Fukinuki), and do not make use of a second channel.

Potential improvement areas to be considered are:

1. Pre-combing of luminance and chrominance components in the encoder.
2. Vertical interval training pulse for ghost elimination.
3. Dynamic gamma correction for luminance transitions in order to increase resolution for saturated colors.
4. Elimination of the I-Q modulation system and replacement by equiband R-Y, B-Y modulation.
5. Use of 30Hz progressive scan and conversion to 2/1 60Hz interlace, in order to facilitate future progressive scan in the receiver, without vertical or diagonal aliases.

It is herein suggested that the different committees concerned coordinate their action in this area, and present to the broadcasting bodies a set of technical recommendations.

C. Improved NTSC "B"

The definition herein adopted, by lack of a better term, covers those systems which, although compatible with present receivers, achieve superior results on specially equipped receivers by making use of:

an extra subcarrier,
extra digital information,
quadrature modulation of the carrier,
folded sidebands in spectrum holes,
Pixel pre-processing, or
use of a second (augmentation) channel.

Some of the groups or individuals which have made proposals in these areas are:

Asahi
Bell Laboratories
Del Ray Group
Hitachi (Fukinuki)
Matsushita
NYIT (Glenn and Glenn)
Osborne
RCA/GE/NBC

A program of careful and prudent comparative analysis of these different approaches should be established, taking into consideration practical factors (the most important being transmission bandwidth, and frame store requirements in the receiver) before actual broadcasting experimentation begins.

In conclusion, I believe that it is of prime importance that the NTSC standard (which is still a major contributor to the broadcast/video industries income) shall be improved, and not hurt, by technological developments. I also believe that a concentrated effort on the following points is of great importance:

1. Work on improved NTSC "A".

Improved NTSC "A" does not impose difficult choices on committees (Improved NTSC "B" does) and is relatively easy to implement at a low cost to the industry, and as an obvious benefit to the viewer. This effort should be considered as a top priority.

2. Improved coordination between the different committees, the different NTSC countries, broadcast equipment manufacturers, broadcasters and consumer product manufacturers.

3. Creation of an international super-committee grouping representatives of the three main NTSC national groups and the two industries, broadcast and consumer products.

It is my opinion that the FCC should consult with the different committees and organizations involved in the use and practice of the NTSC standard, in North America. The technical consensus then reached could become the basis for an "improved NTSC" international standard.

FAROUDJA LABORATORIES

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FAROUDDJA Laboratories

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October 17, 1987

Mr. Victor Tawil
FCC - Engineering and Technical Office
2025 M.St. NW - Room 7130
Washington, D. C. 20554

MM 87-268 ✓

Dear Mr. Tawil:

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2. Presently, technological progresses seem to indicate that a relaxation of these rules may be desirable. There is, however, a great danger to NTSC if this necessary relaxation is carried out without specific and carefully defined guidelines. Potential compatibility problems introduced by new techniques may lead to degradation, instead of improvement, of the average home viewer picture quality I therefore propose to consider the the adoption of the following guidelines:

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- D. There should be a closer international coordination between the different committees involved in standards in the three main parts of the NTSC world:

USA (FCC, ATSC, SMPTE),

Japan (BTA),

Rest of the NTSC world.

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The ATSC committee seems to be in a good position to spearhead such an effort, establish a consensus between its members and advise accordingly the FCC and other concerned organizations.

Sincerely,



Yves Faroudja
President

YCF:pr