

Overview of the Selection Process

**NAB Convention
April 19, 1993**

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OVERVIEW OF THE SELECTION PROCESS

Background — Advisory Committee

Selection Process

Selection Criteria

Five HDTV Systems Tested

Testing

Special Panel Meeting

Special Panel Analysis

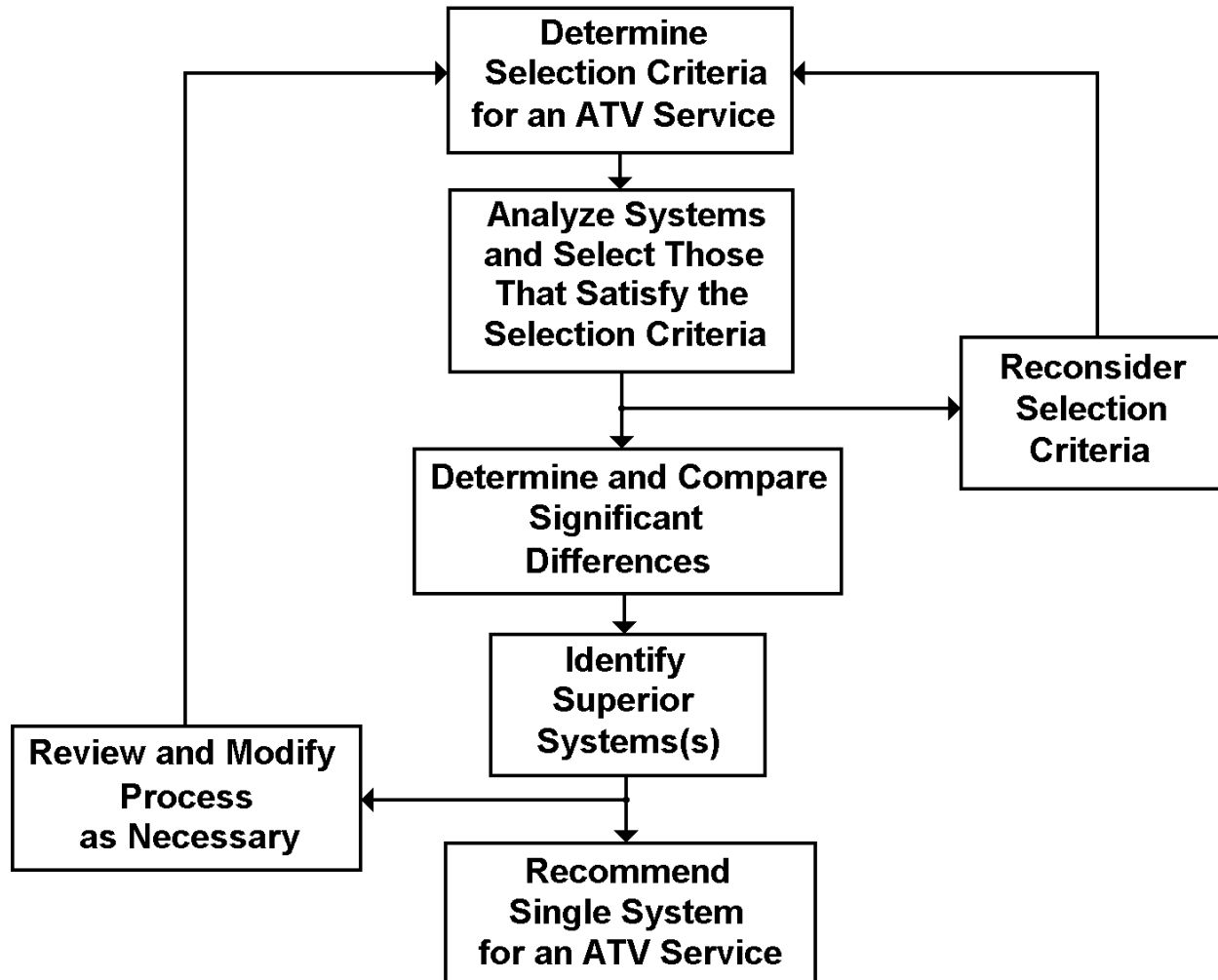
Advisory Committee Actions

Selection Process — Future

BACKGROUND — ADVISORY COMMITTEE

- 1987** **FCC Established Advisory Committee**
- 1989** **Twenty-one Systems Proposed**
- 1990** **Digital**
- 1990** **FCC Report and Order — Simulcast HDTV**
- 1991** **Laboratory Testing Began**
- 1992** **Laboratory Testing Ended**
- 1993** **Special Panel Meeting**
- 1993** **Eighth Advisory Committee Meeting**

SELECTION PROCESS



SELECTION CRITERIA

SPECTRUM UTILIZATION

**Service Area Compared to NTSC
Accommodation Percentage**

ECONOMICS

**Cost to Broadcasters
Cost to Alternative Media
Cost to Consumers**

TECHNOLOGY

**Audio/Video Quality
Transmission Robustness
Scope of Services and Features
Extensibility
Interoperability Considerations**

FIVE HDTV SYSTEMS TESTED

NARROW-MUSE

ANALOG

NHK

DIGICIPHER

DIGITAL

GI, MIT

DSC-HDTV

DIGITAL

ZENITH, AT&T

AD-HDTV

DIGITAL

PHILIPS, SARNOFF, THOMSON, NBC, CLI

CC-DIGICIPHER

DIGITAL

MIT, GI

TESTING

Testing conducted during 1991 and 1992

Test results analyzed by Working Party on Spectrum Utilization and Working Party on System Standards

Economic analysis conducted by Working Party on Economics

Interoperability assessed by Working Party on Alternative Media

Report containing all these individual system analyses drafted by Working Party on System Standards

SPECIAL PANEL MEETING

The Advisory Committee formed the Special Panel in March 1992

The Special Panel met February 8 - 11, 1993

The Special Panel was composed of Subcommittee and Working Party Chairs supplemented by other experts

The Special Panel compared the proposed systems and formulated recommendations for the Advisory Committee

The Special Panel completed the final report begun by the Working Party on System Standards

SPECIAL PANEL ANALYSIS

Spectrum Utilization

Economics

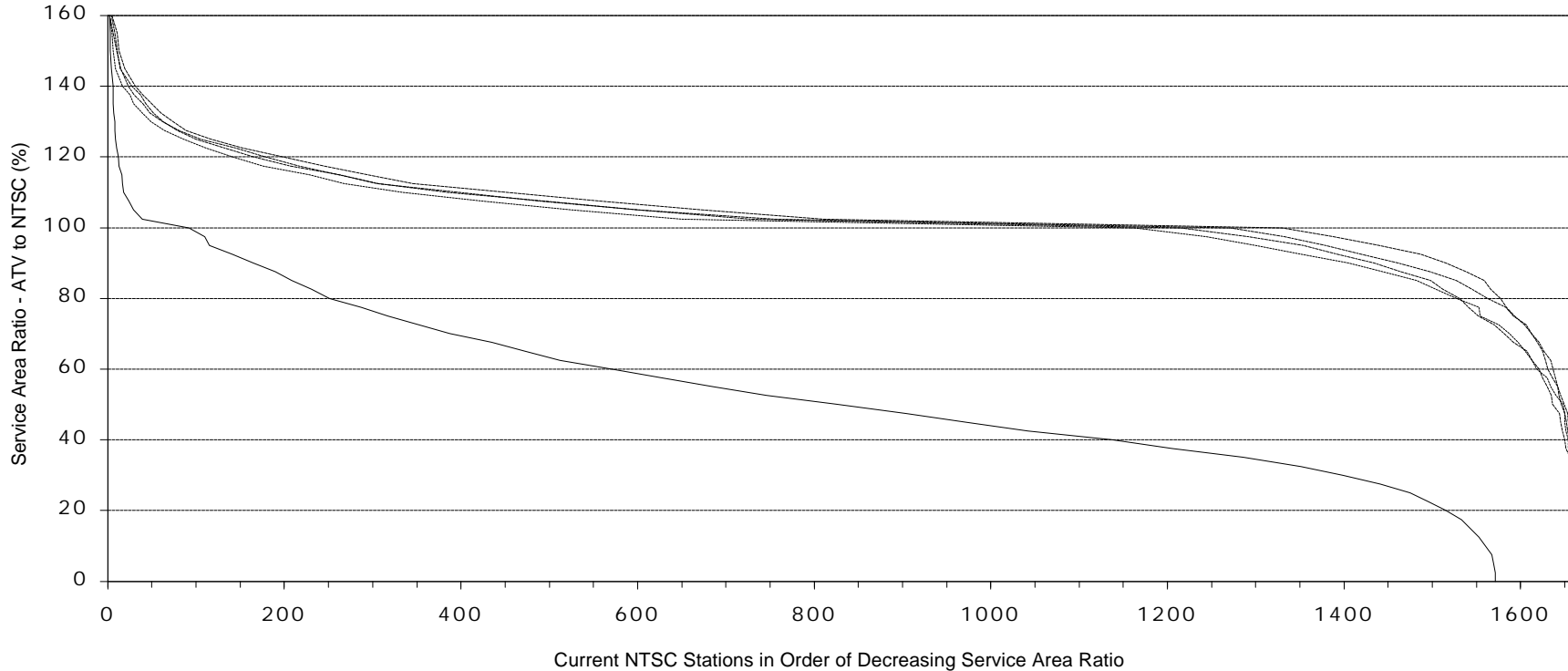
Video Quality

Transmission Robustness

Interoperability Considerations

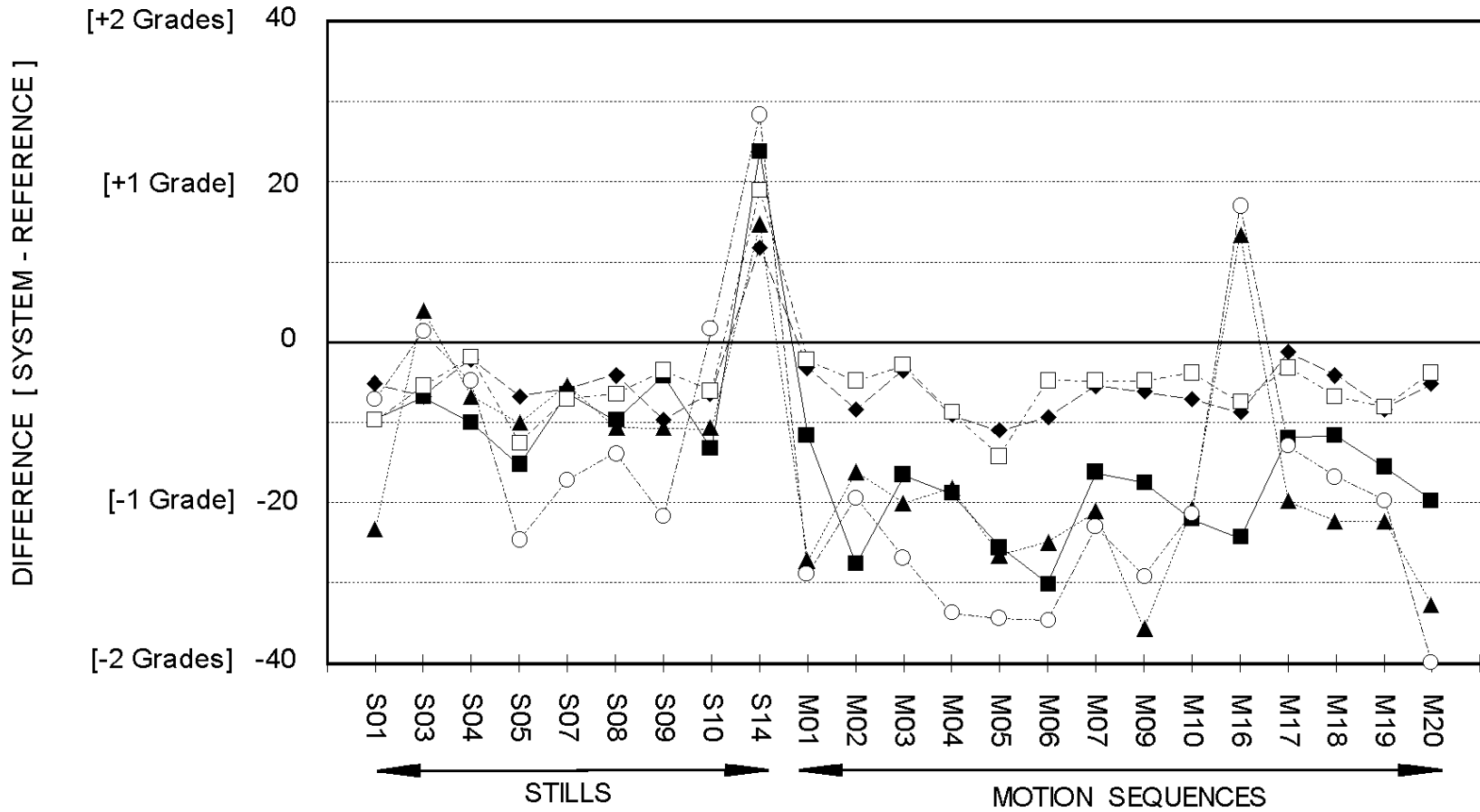
SPECTRUM UTILIZATION

UHF Scenario - Service Area of ATV Station Related to Service Area of Its NTSC Companion



Interference-limited service area of each ATV station relative to the interference-limited service area of its companion NTSC station (UHF-only, co-channel and adjacent-channel constraints).

VIDEO QUALITY



Average differences between quality judgments for the 1125-line studio quality reference and for each of the proposed ATV systems.

ECONOMICS

No Significant Cost Differences

TRANSMISSION ROBUSTNESS ISSUES

Noise Performance

Static Multipath

Flutter

Impulse Noise

Discrete Frequency Interference

Cable Transmission

Co-Channel Interference into ATV

Co-Channel Interference into NTSC

Adjacent Channel Interference

Taboo Interference

Channel Acquisition

Failure and Recovery Appearance

Power

Peak-to-Average Power Ratio

Average ERP

Multiple Impairments

Threshold Characteristics

INTEROPERABILITY ISSUES

Data Services

Encryption

Addressing

VCR Capability

Extensibility to Higher Resolutions

Interoperability with

Cable Television

Digital Technology

Headers/Descriptors

NTSC

Film

Computers

Satellites

Packet Networks

Interactive Systems

Format Conversion with

Conventional TV Systems

MPEG

Still Images

Scalability

ADVISORY COMMITTEE ACTIONS

The Advisory Committee met on February 24, 1993

Adopted Special Panel report

Authorized supplemental testing

Encouraged proponents to form a "Grand Alliance"

SPECIAL PANEL AND ADVISORY COMMITTEE CONCLUSIONS

- 1. Digital terrestrial television is achievable for the United States**
- 2. The analog system was dropped for spectrum utilization reasons**
- 3. No single digital system showed overall superiority**
- 4. Supplemental testing should be performed on all four digital systems**

SUPPLEMENTAL TESTING

Testing to begin in May 1993

1 1/2 - 2 months per system

When testing is complete the Technical Sub-Group of the Special Panel will evaluate the results and formulate recommendations for the Advisory Committee

Advisory Committee will meet in early 1994 to make recommendations to the FCC

GRAND ALLIANCE

If proponents form a Grand Alliance their technical proposal will be evaluated by the Technical Sub-Group which could recommend changes to the proposal. After certification the resulting system would be tested. The Technical Sub-Group would evaluate the results and formulate recommendations for the Advisory Committee.

Advisory Committee would meet in early 1994 to make recommendations to the FCC.