7.3.5 Fiber-Optic Cables (FO)
7.3.6 Telephone Company Lines (TELCO)
7.3.7 Video Cassette Recorders (VCR)
7.3.8 Video Disk Recorders

7.4 Transmission Security

8. Consumer Equipment Issues
8.1 Complexity of Receivers

8.2 Receiver Input/Output Characteristics
8.2.1 RF Interface
8.2.2 Baseband Video Interface
8.2.3 Baseband Audio Interface
8.2.4 Interfacing with Ancillary Signals
8.2.5 Receiver Antenna Systems Requirements

8.3 Compatibility with Existing NTSC Consumer Equipment
8.3.1 RF Compatibility
8.3.2 Baseband Video Compatibility
8.3.3 Baseband Audio Compatibility
8.3.4 IDTV Receiver Compatibility

8.4 Allows Multi-Standard Display Devices

9. Other Considerations
9.1 Practicality of Near-Term Technological Implementation
9.2 Long-Term Viability/Rate of Obsolescence
9.3 Upgradability/Extendability
9.4 Studio/Plant Compatibility

Section B:

EXPLANATORY NOTES OF ATTRIBUTES/SYSTEMS MATRIX

Items on the Attributes/System Matrix for which no explanatory note is provided were deemed to be self-explanatory.

I. General Description (Proponent)

Section I shall be used by a system proponent to define the features of the system being proposed. The features shall be defined and organized under the headings of the following subsections 1 through 4.

Section I. General Description (Proponent) shall consist of a description of the proponent system in narrative form, which covers all of the features and characteristics of the system which the proponent wishes to be included in the public record, and which will be used by various groups to analyze and understand the system proposed, and to compare with other proposed systems.

1. Compatibility

1.1 NTSC Receiver
The proponent shall state if the transmitted ATV signal can be viewed on conventional NTSC receivers without additional hardware. The proponent shall set forth the details of any lack of compliance with all applicable FCC Rules and Regulations.

1.2 VCR
The proponent shall state if and if so, how the system maintains compatibility with video cassette recorders as presently designed and available to and for use in the consumer market. Compatibility of a proposed system with the above VCR's shall be defined in terms of the capability of the signal to be recorded and played back, and the quality of the resultant video, audio and any ancillary services or features in comparison to the performance of such VCR's with present day standard NTSC signals.

1.3 Channel
The proponent shall state if the ATV system operates consistent with the present 6 MHz channelization scheme. The proponent shall set forth the details of any lack of compliance with applicable FCC Rules.

1.4 Other ATV Systems
The proponent shall identify compatibility with other proposed ATV systems. The proponent shall specifically classify those key system components necessary to ensure compatibility.

2. Transmission Scenario

2.1 Number of Channels Required
The proponent shall state the number of transmission channels required and the bandwidth of each. Specifically what transmission channelization scheme is being proposed shall be defined by the proponent.

2.2 Channel Bandwidth
The proponent shall state if the ATV system will be accommodated within the 6 MHz bandwidth channels presently allocated for television broadcasting. If additional channels are to be used, what spectrum (bandwidth and frequency) is proposed.

2.3 Contiguous/Non-Contiguous
Those proponents requiring more spectrum than the 6 MHz channels currently allocated, shall state whether the spectrum needed for augmentation must be adjoining the present allocation or if it can be in another frequency band.

3. Terrestrial Implementation Scenarios

The proponent shall state what steps would be necessary to implement the proposed systems. All pertinent changes and/or additions which would be required to be made to the present terrestrial broadcast system to fully implement the proposed system should be defined including sequence of changes and timetable.

4. Intended Display Size/Viewing Angle (Measured)

The proponent shall state what maximum size of video display and/or maximum viewing angle of display the proposed system is intended to support. The display size shall be defined in height and width of viewable image. Overscan percentage shall be y % in the vertical direction and x % in the horizontal direction.

II.

1. ATV Images Issues

1.1 Luminance spatial/temporal resolution

In a manner analogous to the description of an electrical filter by its frequency response, entire television systems or components of such systems can be characterized by their spatial and temporal frequency responses. In this case the inputs and outputs are sinusoidal function of space or time. The modulation transfer function (MTF) is the ratio of the magnitudes of output and input plotted as a function of frequency. For example, the "vertical frequency response" is measured by using, as input, an intensity function that varies sinusoidally in the vertical direction.[1] The spatial frequency is usually specified in samples (or cycles) per active picture height.[2] For example, a pattern of alternating black and white scan lines in an NTSC frame with 480 active lines would have a fundamental frequency of 240 cycles or 480 samples per picture height.

Horizontal frequency is often stated as "cycles (or samples) per picture height," even though it is the horizontal direction that is being characterized. This value may be converted to samples/picture width by multiplying by the aspect ratio.

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1 Since light values must always by nonnegative, these sinusoidal variations must be superimposed a suitable (specified) dc level.

2 A "sample" in this sense is a "picture element," "pel," or "pixel." There are two samples per cycle.

The need to have a measure of diagonal resolution comes about because many systems have diminished diagonal resolution. Because the corner is cut out of the 2-dimensional frequency plane in various ways, "diagonal" resolution should be measured.

It is desired to have a single number to characterize the MTF-vs-frequency curve such as "Otto Shades Ne."

Nearly all TV systems have different resolution in the stationary and moving areas. The "dynamic" resolution curves and numbers refer to this phenomenon. In some cases this is because of camera integration. The effect we are referring to here is not related to camera integration, but rather to the blurring caused either by spatiotemporal subsampling or transmitting the spatial high frequency components at a lower frame rate. This differing response requires plotting a second set of curves specifying the performance in image areas subject to this effect. Note that this measure does not directly give the spatial resolution of moving objects; that depends on the velocity of the moving object.

The purpose of the graph of samples/frame vs frame rate is to give another fairly simple measure of the diminished spatial performance as a function of frame rate, this time independent of the relative vertical, horizontal, and diagonal resolution. This graph also indicates the efficiency with which the system utilizes the channel for transmitting image samples. For the purposes of this graph, a picture element is considered resolved at frequencies having 30% response. For a further explanation of this curve, see PC/WP1/yy.

1.2 Chrominance spatial/temporal resolution

This is done as in section 1.1. For systems having different resolution for the two chrominance signals, separate data is required for each.

1.3 Chromaticity/Colorimetry Characteristics

Colorimetric fidelity is the transparent passage of the color signal through a given system.

1.3.1 Color Difference Signals Axes

For luminance/chrominance systems, the axes of the chrominance plane are to be indicated on the CIE chromaticity diagram. Alternatively, the equations of transformation between RGB (referred to the system primaries) and YUV (or YIQ) signals can be given. For further information see the recently adopted SMPTE standard for 1125/60 studio systems. (SMPTE 240M.)

1.3.2 Transfer Characteristics

Any systematic color shift the transmission system introduces for small or large color signals.

1.4 Artifacts

Some systems may have artifacts (such as cross effects in NTSC) including blurring of moving objects, spatial or temporal aliasing, unsmooth motion rendition, side panel effects, geometric distortions, etc., that cannot easily be characterized numerically. Such defects should be described in plain text.

1.5 Transient response

The response of the system to luminance and chrominance step and impulse functions, both spatially and temporally, should be given.

1.6 Aspect ratio

This is the ratio of the width to the height of the entire image less blanking periods, as displayed on a receiver having correct geometry and no overscan.

1.7 Baseband Video Bandwidth

This is the bandwidth of the signal or signals applied to the transmitter. In a composite system, it is the bandwidth of the composite signal. In a multiplexed time component system, it is the bandwidth of the signal after all the components are time-base transformed and multiplexed together. If more than one video signal is applied to the transmitter, it is the sum of their separate bandwidths.

1.8 Subjective Assessment of Overall Picture Quality

This is the rating given by viewers, under specified viewing conditions, with specified subject matter. The test should be carried out under studio conditions (no transmission degradation) under "average" at-home conditions, and under "poor" at-home conditions. (To be defined.) The test should be carried out with natural scenes and test scenes and material including computer-generated material.

All systems should be evaluated with the same type of source material and motion portrayal should be included. The source material should be of sufficient high quality so as to not limit transmission system performance. The same display devices should be used for all systems if practical.

2. <u>Compatible NTSC Image Issues</u>

For compatible systems, the same measures of image quality should be obtained on "standard" (to be defined) NTSC receivers as well as ATV receivers.

2.5 Sync/Blanking/Subcarrier Modifications

The proposed systems shall note any deviations from the specifications noted in FCC Rules, Part 73.

2.7 Aspect Ratio

Specify the aspect ratio of the compatible picture. Provide a description of how aspect ratio is achieved in a compatible fashion. Describe any compromises or artifacts in the compatible NTSC picture. Is "pan-and-scan" included?

2.8 Use of Overscan/Underscan

Does the system require the use of overscan or underscan in the NTSC receiver to conceal sound, data, or picture information?

2.9 Subject Assessment of Overall Picture Quality

These tests should be performed in parallel and with the same materials as in Section 1.8.

3. <u>ATV Audio Issues</u>

3.1 Numbers of Channels - Number of audio channels and intended use of those channels.

3.2 Modulation Scheme
FM, Digital or other Modulation System

3.3 Signal to Noise Ratio (per channel) (dB)
Self explanatory.

3.4 Nonlinear Distortion
3.4.1 The THD of each audio channel should be specified (%).
3.4.2 The Intermodulation Distortion of each audio should be specified.

3.5 Channel Crosstalk (dB) (Audio/Audio, Video/Audio)
Channel Crosstalk will be measured in each audio program channel and may originate from any other or combination of other audio program channels or the video channel.

3.6 Audio/Video Delay (lip sync) (±ms)
Lip sync errors may be caused by system video or audio signal processing.

3.7 Dynamic Range (dB)
Should be specified for each channel.

4. Degradation of Compatible NTSC Audio (MTS)

4.1 Can the proposed system in any way affect intercarrier audio recovery.

5. Ancillary Signals

Ancillary signals include the broad range of non-video or sound signals that are carried with the television signal. They include both program related and non-program related signals.

5.1 Provisions for Ancillary signals

Under this topic, the provisions for carrying ancillary signals included in each ATV system should be described including the method and the amount of data.

5.2 Lines available for Ancillary signals in compatible NTSC signal

Under this topic the number of vertical interval lines in the compatible NTSC signal that are available for use by the broadcaster should be listed.

6. Terrestrial Transmission Issues

NOTE: For systems employing a main channel and an augmentation channel, the susceptibilities of each to noise, multipath, etc. should be evaluated separately. For compatible systems, both ATV and NTSC compatible signals should be fully evaluated.

6.1 Characterization of Compatibility

Compatible with existing receivers?
Compatible with existing channels?
Compatible with existing transmitters?

6.2 Susceptibility to Noise

For what carrier-to-noise ratio is noise just perceptible in the picture? What indirect effect(s) does noise have? What effects are caused by reduced carrier-to-noise ratio? Subjective tests of carrier-to-noise ratio vs picture quality should be performed.

REV A

6.3 Susceptibility to Multipath or Echo

Under a variety of multipath conditions, what direct and indirect effects does multipath have? What is the required ratio of desired signal to undersired signals to make all such effects imperceptible? When strongest signal is a reflection, do leading signals present a special problem? What problems are there when multipath is complex, as with smear caused by vegetation?

Performance should be examined with a variety of single and multiple echoes of different phases and amplitudes and with time variations representing those found in characterization of the terrestrial transmission media.

6.4 Susceptibility to Interference

6.4.1 Adjacent Channel Interference

Indicate the desired signal to undesired adjacent signal ratio for which adjacent channel interference is just perceptible in the ATV picture for each type of adjacent channel signal under varying desired signal level conditions. Where augmentation channel signal bandwidth is other than 6MHz further consider all possible cases for augmentation channel frequency assignment(s) within the adjacent channel.

	UPPER	LOWER
NSTC		
main ATV		
augmentation ATV		

Indicate the desired signal to undersired adjacent channel signal ratio for which adjacent channel interference is just perceptible in existing NTSC receivers in each case.

Where augmentation channel signal bandwidth is other than 6 MHz further consider all possible cases for augmentation channel frequency assignment(s) within the adjacent channel.

	Upper	Lower
main ATV		
augmentation ATV		

6.4.2 Co-Channel Interference

Indicate the desired (D)/ undesired (U) ratio for which co-channel interference is just perceptible in each case. Where augmentation channel signal bandwidth is other than 6 MHz, further consider all possible cases for augmentation channel frequency assignment(s) within the adjacent channel.

		D		
		NTSC	main ATV	Aug. ATV
U	NTSC			
	main ATV			
	augmentation ATV			

6.4.3 Airplane Flutter

Indicate what direct and indirect effects airplane flutter has. Is system more or less susceptible than NTSC system is to airplane flutter?

6.4.4 Impulse Noise

Indicate for what carrier-to-(peak) noise ratio for which noise is just perceptible in the picture. What indirect effect(s) does strong impulse noise have?

6.4.5 Other

Is system more or less susceptible than NTSC system to interference from other services?

6.5 Susceptibility to Group Delay Errors

Measure system susceptibility to group delay errors between different frequency video waveform components (e.g., envelope delay)? Are some frequency components more critical than others?

6.6 Susceptibility to Nonlinear Distortion

Measure system susceptibility to nonlinear distortion of video waveform. Are some frequency components more critical than others?

6.7 Transmitter/Antenna Requirements

6.7.1 Required Number of Transmitters/ Antennas

Number of transmitters. Number of Antennas
If more than one, must antennas be co-located?

6.7.2 Complexity of Transmitter/Antenna

Are special techniques (e.g., quadrature modulation of visual carrier) employed? Is there a need for wideband antenna, ultralinearity, etc.?

6.7.3 Use of Present Transmitter/Antenna

To what degree of modification is necessary?

6.8 Bandwidth Requirements

6.8.1 Near Term

Example: 6 MHz + 4 MHz.

If more than one 6 MHz channel, is contiguous bandwidth a requirement?

6.8.2 Long Term

Example: 6 MHz + 4 MHz.

If more than one 6 MHz channel, is contiguous bandwidth a requirement?

6.9 Transmission Field Testing

What new image artifacts are introduced as a result of transmission? What system artifacts are made worse? Field testing should be performed to confirm laboratory results.

6.10 Coverage Relative to NTSC

What is the ATV coverage area relative to existing NTSC service? How is it achieved? If NTSC compatible, what is the compatible coverage area relative to existing NTSC

6.11 Gracefulness of Degradation

6.11.1 Video

Under increasing fringe conditions, is degradation abrupt or gradual? Does degradation of NTSC compatible picture approximate that of NTSC under the same conditions?

6.11.2 Audio

Under increasing fringe conditions, is degradation abrupt or gradual?

6.11.3 Audio vs Video

Under increasing fringe conditions, which first becomes unusable?

7. Suitability for Alternate Media Distribution

The main objective of the tests described in Sections 7.1 to 7.4 is to evaluate the attributes of a proposed ATV signal in order to determine how it can be interfaced with various media other than terrestrial broadcasting. To achieve this, the medium under consideration shall be characterized to establish the baseline parameters by which the performance of ATV systems can be compared.

One way of defining an unacceptable signal is by using the FCC's criteria for service grading contours A and B. It relates to the quality of service by considerations of field strength, receiver sensitivity and noise figure, and signal to noise ratios in the absence of interfering signals. (See NAB Handbook, Seventh Edition, page 2.7-204.) Modifications to the above criteria may be required to take into account the improvements in receiver technology.

7.1 Suitability for Cable Television Distribution

7.1.1 Channel Bandwidth: This defines the RF spectrum occupied by a complete composite ATV signal and specified in terms of half-power (3-dB), 20-dB and 40-dB bandwidths. Such bandwidths shall be specified for contiguous and non-contiguous channels, the primary channel and the augmentation channel. Modulation shall be varied and the spectral content shall be checked for bandwidth changes during static and dynamic modulation.

7.1.2 Cochannel Interference: Theoretically, since cable television is a "closed" medium, there should be no cochannel interference. However, "ingress," which is the penetration of off-air signals in poorly-shielded TV receivers or distribution paths, can corrupt the desired ATV signal. The effect of ingress between cochannel ATV and NTSC signals shall be investigated. This test is an extension of 6.4.2.

7.1.3 Adjacent Channel Interference: The objective of this test is to determine the mutual effect of adjacent channel interference among ATV and NTSC signals. This test is similar to 6.4.1 except that ratio between picture and sound (P/S) carrier levels in terrestrial transmission may be different from the P/S ratios used in CATV transmission.

7.1.4 Interference to/from other services: The ideal CATV system is "clean" in terms of ingress or egress. However, in practice the transmission of ATV signals require investigation because some bands (e.g., aeronautical band) require greater protection than others. Investigate how variations in ATV spectral density can affect the following bands:

7.1.4.1 Navigation/Aeronautical Bands
7.1.4.2 Amateur radio Bands
7.1.4.3 FM Band
7.1.4.4 Citizen's Band
7.1.4.5 Industrial Bands

7.1.5 Effect of micro-reflections: Reflections result from poor impedance matching between cables, amplifiers and other passive devices, which manifests as constant ghosts or echoes in the picture. Due to the coherent (6 MHz) nature of NTSC transmission, micro reflections are masked and are not readily visible in NTSC. The objective of this test is to find out how micro reflections appear in the ATV picture and whether or not such defects are tolerated by ATV viewers. Quantify if possible.

7.1.6 Intermodulation Distortion: This artifact is generated in amplifiers with nonlinear characteristics when two or more fundamental frequencies and harmonics are present. In NTSC transmission, such artifacts are well known, predictable, and they are currently factored into amplifier cascade design. In these tests, determine how Intermods are altered or created by ATV signals of various spectral contents, and determine if the interactions among NTSC and ATV signals cause objectionable artifacts.

7.1.7 Channel Loading: This relates to the maximum number of channels that can be carried in a CATV system. As loading is increased, intermodulation, cross modulation, composite triple beat and other spurious signals also increase. An objective of these tests is to consider the tradeoff between channel capacity and minimum acceptable signal quality. Note that channel bandwidth as in 7.1.1 can approximate channel capacity; but channel loading as described here provides a greater perspective of the exact number of channels that can be accommodated because it takes into account the acceptability of artifacts as ATV signals are added.

7.2 Suitability for Satellite Distribution

The objective of these tests is to determine if the ATV signal can easily interface with standard origination (uplink) facilities, satellite distribution systems such as C-Band and KU-Band, and various receiving equipment. Both commercial television distribution and satellite transmission to consumers shall be considered.

7.2.1 Baseband Video Bandwidth: This is defined as the half-power (3-dB) bandwidth occupied by the ATV video signal. In cases where audio (analog or digital) is embedded in the video, consider the overall composite baseband video signal bandwidth.

7.2.2 Baseband Audio Bandwidth: This is defined as the half-power (3-dB) bandwidth occupied by the ATV audio signal. Specify this bandwidth for each audio channel, whether analog or digital.

7.2.3 Audio Bandwidth Requirement: This is defined as the amount of baseband spectrum allocated to the aural portion of the ATV signal. This bandwidth may vary depending on the number of audio channels being carried, the frequency response of each audio channel and the method used to combine all audio channels.

7.2.4 Exciter Modifications: The objective of this test is to determine if the exciters currently used or existing in the market require modification(s) in order to accommodate the proposed ATV signal. Some considerations are: AFC requirements, sync, video levels, and frequency response.

7.2.5 Uplink Power Requirements: The objective of this test is to determine if the proposed ATV system requires changes in uplink power in order to properly saturate the satellite transponder while maintaining proper cross-polar/co-polar/adjacent channel/co-channel carrier-to-interference ratios.

7.2.6 Optimum FM Deviation: The objective of this test is to determine optimum deviations for existing satellite channel allocations.

7.2.7 Minimum C/N: The objective of this test is to determine the carrier-to-noise (C/N) ratio required for proper demodulation of the ATV signal in order to provide acceptable signal quality.

7.2.8 Minimum Antenna Size: The main objective of this test is to determine the smallest antenna size both at C-Band and KU-Band that can deliver reliable ATV signals with acceptable signal quality.

7.2.9 Satellite Receiver Requirements: The objective of this test is to determine the modifications that may be required of existing satellite receiver designs and manufacture. The ATV signal shall be evaluated to determine its impact on the receiver functions listed below. Quantify the associated costs if possible.

7.2.9.1 Clamping
7.2.9.2 Deemphasis
7.2.9.3 IF bandwidth

7.2.10 Compatibility w/ Satellite Security Systems: The objective of this test is to determine if the satellite security systems currently in use or in the market, can be used to secure the ATV signal. Some compatibility issues are: The ATV signal's ability to easily interface with the scrambling equipment at the origination (uplink) facility; and, the same ATV signal's ability to easily interface with existing de-scrambling equipment. The above shall be considered for both network television distribution and satellite television emmission to consumers. Some examples of existing satellite security systems are VideoCipher 1, VideoCipher 2, Oak Orion, Starloc, S/A A-MAC, B-MAC ... etc.

7.2.11 FM Channel Artifacts: While the effects of FM channel non-linearities are well understood for NTSC, the problems which will attend the use of ATV signal formats through FM channels must be investigated.

7.3 Suitability for Other Terrestrial Distribution Systems:

The purpose of the following tests is to evaluate the attributes of a proposed ATV signal and determine how it can be interfaced with other terrestrial media not including VHF/UHF broadcasting.

7.3.1 Amplitude-Modulated Microwave Links (AML)
Amplitude modulated links are specific applications of the Cable Television Relay Service (CARS) at 12.7 to 12.95 GHz for short-haul point-to-point transmission of up to 40 television channels per link. The ATV issues to consider are: the effects on channel capacity, distortions, interference and the compatibility with existing transmitter/receiver systems.

7.3.2 Frequency-Modulated Links (FML)
Frequency modulated links are coaxial cable wideband systems used as trunks for high-quality television transmission. Channel capacity depends on the frequency division multiplexing scheme. The proposed ATV system shall be evaluated for effects on channel capacity, distortions and compatibility with existing transmitter and receiver systems.

7.3.3 Microwave Distribution Service (MDS)
MDS is a common carrier point-to-multipoint AM microwave television distribution service. Channel one is at 2150-2156 MHz while channel two is at 2156-2162 MHz. Channel two may be 2156-2160 because 2160-2162 MHz is shared with directional radio systems authorized in other common carrier service. Determine if ATV can be accommodated as a secured, non-interfering service.

7.3.4 Multi-Channel MDS (MMDS)
MMDS shares the Instructional Television Fixed Service (ITFS) at 2550-2680 MHz. The FCC Rules and Regulations, Part 74, Subpart I govern the specifications of this service. Determine how many ATV signals can be accommodated in this frequency band and the possible impact on ITFS.

7.3.5 Fiber-Optic Cables (FO)
Fiber optics can be used for analog or digital transmission of ATV signals. Determine the maximum number of ATV channels that can be accommodated in a fiber strand using existing transmission schemes.

7.3.6 Telephone Co. Lines (TELCO)
In this section, investigate how common carrier telephone companies distribute television signals and determine how the proposed ATV system being evaluated may be accommodated in such distribution media.

7.3.7 Video Cassette Recorders (VCR)
This section considers current consumer VCR formats. Some issues under Compatibility are:

7.3.7.1 Playback only of ATV
7.3.7.2 Record/Playback of ATV
7.3.7.3 Record/Playback of both NTSC and ATV
7.3.7.4 Connector Interfacing requirement
7.3.7.5 Electronic (blackbox) Interfacing requirement
7.3.7.6 Audio Artifacts
7.3.7.7 Video Artifacts

7.3.8 Video Disk Recorders
In this section, only current consumer videodisk recorder/players shall be considered. Some issues are:

7.3.8.1 Playback only of ATV
7.3.8.2 Record/Playback of ATV
7.3.8.3 Record/Playback of both NTSC and ATV
7.3.8.4 Connector Interfacing requirement
7.3.8.5 Electronic (blackbox) Interfacing requirement
7.3.8.6 Audio Artifacts
7.3.8.7 Video Artifacts

7.4 Transmission Security

The basic objectives of this section are:

1) To investigate the compatibility of the ATV signal with security systems in various media other than terrestrial broadcasting; and,
2) To evaluate the ATV signal for transparency during secured transmission, including image reconstruction artifacts of both the center image and full aspect ratio image.

Current Video/Audio security techniques include:

1. Trapping
2. Jamming
3. Frequency Conversion
4. Video Inversion by line, field, or frame
5. Permutation by line, field, or frame
6. Rotation by line, field, or frame
7. Sync Elimination
8. Sync Alteration
9. Time/Frequency Compression
10. Digital Techniques
11. Mechanical
    (Switched Star topology using Fiber Optics or Coaxial cables)

8. Consumer Equipment Issues

8.2 ATV Receiver Input/Output Characteristics

The purpose of this section is to describe and characterize the consumer television receiver interface(s) which are available for ATV service signals, both input and output. The interface(s) will describe functional, technical and physical characteristics.

8.2.1 RF Interface (Composite video+audio+ancillary signal)

Describe RF signal characteristics including modulation, bandwidth, channel requirements, etc.

8.2.2 Baseband Video Interface

Define technical specification of the ATV baseband video signal(s), where available.

8.2.3 Baseband Audio Interface

Define technical specification of the ATV baseband audio signal. Define also the available number of audio channels supported by the proposed ATV system.

8.2.4 Interfacing with Ancillary Signals

Define the technical, physical and functional requirements of all proposed ancillary signals (e.g., control, teletex, other data).

8.3 Compatibility with Existing NTSC Consumer Equipment

The purpose of this section is to describe the proposed method of compatibility with NTSC consumer equipment including receivers, tuners, CATV set top converters, etc.

8.3.1 RF Compatibility with NTSC Equipment

Describe RF level interconnection and compatibility of ATV with NTSC consumer equipment.

8.3.2 Baseband Video Compatibility

Describe the relationship of the ATV video baseband signal parameter values with respect to NTSC baseband video signal. This section should provide explanation whether the ATV and NTSC video signals have common baseband parameter values and how complex is the signal conversion or transcoding from ATV to NTSC.

8.3.3 Baseband Audio Compatibility

Describe the relationship of the ATV audio baseband signal parameter values with respect to NTSC baseband video signal. This section should provide explanation whether the ATV and NTSC audio signals have common baseband specifications and how much better the ATV sound provisioning is.

9. Other Considerations

This section is to be used to cover all items that do not fall under one of the previous categories.

9.1 Practicality of Near-Term Technological Implementation

Is the technology required to implement the proposed system available or if it requires extensive further development, what is the anticipated time required?

9.2 Long-Term Viability/Rate of Obsolesence

Indicate the anticipated life of the proposed system. Indicate the changes in technology which may obsolete this system.

9.3 Upgradability/extendability

Can the proposed system be improved without obsoleting then existing hardware, and if so, how?

9.4 Studio/Plant Compatibility

Describe the extent to which the proposed system is compatible with current broadcast studios and other facilities.

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PSWP1 & WP2-079

TO: M.Richer, Chairman - SS Working Party 2 (SS/WP2)
FM: R. McMann, Chairman - PS Working Party 1 (PS/WP1)
DT: 26 November 1990
RE: Recent Modifications to ACATS Attributes List

PS/WP1 (Working Party on ATS Technology Attributes and Assessments) and PS/WP2 (Working Party on ATS Testing and Evaluation Specification) were reconvened at the request of the Planning Subcommittee Chairman to address various issues, as follows:

1) the need to supplement the testing of audio channels in the digital domain and objective testing of audio channels in the analog domain by subjective assessment;

2) testing of image dynamic resolution;

3) testing of compatible systems;

4) use of Show-scan material;

5) test method for EDTV into IDTV receivers;

6) use of pre-enhanced material for testing;

7) consider deleting the chroma resolution requirement in Section 6.2; and

8) source signal processing.

The Committee addressed these items in three meetings held on 29 May, 6 July, and 8 October 1990.

The members have agreed on certain changes to the Attributes Matrix. These changes were forwarded as a part of the minutes of the meetings, copies of which were sent to you.

The Attribute Matrix document has now been revised and a copy of the revised matrix is attached (reference PSWP1&2-078). The differences between the current revision and the prior one are marked "(rev.2)" and are as follows:

The members have agreed that testing of the audio channels in the digital domain and objective testing in the analog domain provides important and useful information about bit