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Minutes of Implementation
Subcommittee WP 2 (1/13/92)".

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IS/WP2-0170
17 JAN 92

**ADVISORY COMMITTEE ON ADVANCED TELEVISIONS SERVICE
IMPLEMENTATION SUBCOMMITTEE
WORKING PARTY 2 - TRANSITION SCENARIOS
MINUTES OF THIRTY-FOURTH MEETING 1/13/92**

**ORIGINAL
FILE**

1. The meeting was called to order by Vice Chairman, Merrill Weiss, at 10:25 A.M. at PBS in Alexandria, VA.
2. A list of attendees is attached.
3. The agenda was approved as issued.
4. Proponent Presentations

RECEIVED

FEB 4 - 1992

Federal Communications Commission
Office of the Secretary

Presentations of industry assumptions, PERT charts and Gantt charts were made to Proponents by the various industry representatives. A copy of the information sent to Proponents is available upon request.

Introduction

Merrill Weiss presented an introduction and overview of Working Party 2 efforts. Merrill also distributed a revised presentation index, an updated set of cable assumptions and a letter from SS/WP3 asking for a Proponent meeting to discuss system economics. IS/WP-0167.

Broadcast

Merrill Weiss stated that nine separate PERT and Gantt charts have been developed to describe the various Broadcast/Production transition scenarios. Merrill described each of these scenarios and spent some time reviewing various critical path items.

Cable

Roger Pience reviewed the assumptions unlaying the cable PERT networks. Roger stated that cable systems are being rebuilt or refurbished at a rate of 20% per year and it is forecast that most cable systems will have the capability of carrying simulcast ATV signal within five years.

Common Carrier

Paul Donavon stated that the SONET optical interface network has been developed by the common carrier industry as an interface standard for digitally encoded video signals. Paul described the various bit rate standards and stated that designs currently exist for this equipment. Paul also presented a SONET network penetration forecast and indicated that equipment for the higher bit rates would only be manufactured as demand materialized.

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A discussion took place concerning which industry PERT charts should include the development of consumer premises equipment (CPE). Paul Donavon indicated that CPE development is not part of the common carrier responsibility. Further discussions on this issue were deferred until the next meeting.

Larry Cochran stated that there is a potential inconsistency in the common carrier PERT since technical specifications are not begun until the FCC Report and Order instead of at the time of NPRM. It was agreed that the PERT chart should be modified.

Satellite

Larry Cochran stated that the satellite PERT chart was developed during a time period when all Proponents were proposing analog systems, but it is believed that the PERT chart is still valid. Larry also stated that there has been no recent involvement in Working Party 2 from the satellite industry. Merrill Weiss suggested that this is an area where Proponents may provide useful inputs to WP2 since they are very interested in the means of signal delivery.

Consumer Products

Larry Cochran reviewed the PERT network assumptions and emphasized that the PERT networks represented a scenario for general market availability of consumer equipment - not the earliest possible availability. Bob Rost suggested that a different PERT scenario may exist if it is assumed that a set of IC's is developed that is available simultaneously to all industry members. Larry Cochran will develop such a scenario.

Preliminary Proponent Question List

Merrill Weiss reviewed the preliminary list of questions prepared for Proponents. IS/WP2-0168. Considerable discussion took place concerning the first question on extensibility. Merrill Weiss will rewrite this question for clarification. Only minimal comments were made on the remainder of the question list. The revised question list will be sent to Proponents.

Merrill Weiss gathered information from each of the Proponents on their estimate of transmitted signal power. Merrill stated that his information was solicited to assist the Local Area Groups in their planning.

5. Follow-Up Proponent Meeting.

A discussion took place on the desired format for the follow-up meeting with Proponents. It was decided that Proponent presentations could be minimized by requesting written responses to the questions three weeks prior to the next Proponent meeting. The following schedule was established:

2/24/92	Written responses due from Proponents
2/26/92	WP2 Meeting
3/2/92	Compilation of responses distributed
3/17/92	Meeting with Proponents

Minutes of 12/17/91 Meeting.

The minutes of the 11/19/91 meeting were approved as issued.

7. Review of 12/17/91 action items:

- a&b) Carry as an action item to be addressed after Proponent meetings have concluded.**
- c) Carry as an action item. Will be completed prior to next meeting.**
- d) Complete.**
- e) Partially complete. Survey will be conducted through EIA R4 Committee.**
- f) Partially complete. Review under Agenda item 13.**

8. Preparation of Fifth Interim Report.

The draft document resulting from a series of conference calls was reviewed by the Working Party. Updates to the section on the Group Owners and Chief Engineers surveys were submitted by Art Allison and Ken Skinner. Merrill Weiss reviewed the sections of the document needing further work and identified those responsible for completing those sections. Peter Bingham suggested that the final document identify those (individuals and companies) who participated in the drafting committee. It was agreed to add this information. Carol Darling suggested that a section should be added stating that industry interdependencies will be considered. This suggestion was accepted.

A discussion took place on the usefulness of adding an Executive Summary. Charles Heuer cautioned that, should such a summary be included, it is essential that it encompass the key points of the document. Peter Bingham will draft a summary with the assistance of Merrill Weiss and the summary will be reviewed at the next meeting to determine whether or not it should be included.

Merrill Weiss stated that the report should include firm conclusions reached by WP2. Issues recommended for inclusion were on the subject of:

- a) availability of technical information**
- b) phased implementation**
- c) important critical path events**
- d) availability of consumer equipment**
- e) availability of professional broadcast equipment.**

Merrill Weiss will compile all new inputs to the document and distribute to Working Party members prior to the next meeting.

9. Implementation Subcommittee Report.

It was agreed the 2/28/92 Implementation Subcommittee Report should include the following items:

- a) Summary of meeting with Proponents
- b) Summary of preparations for Fifth Interim Report
- c) Statement concerning WP2 assignments from last Implementation Subcommittee meeting.

10. Review of Surveys.

Merrill Weiss reviewed a letter from the Chairman of the Advisory Committee establishing a review procedure for all surveys conducted by the various Working Parties. Merrill also stated that Richard Ducey has been assigned this task.

11. Summary of Action Items

- a) Identify PERT network resource requirements and determine total resources required to implement PERT tasks (To be completed after Proponent meetings) - Merrill Weiss
- b) Determine impact on broadcast PERT implementation assuming typical staff limitations of small, medium and large stations (To be completed after Proponent meetings)- Merrill Weiss
- c) Contact SS/WP4, ATSC and FCC-OET concerning dissemination of system technical information - Merrill Weiss
- d) Revise and distribute Proponent question list - Merrill Weiss
- e) Create consumer PERT chart assuming a standard set of industry IC's - Larry Cochran
- f) Revise satellite & common carrier PERT charts concerning availability of technical information - Larry Cochran
- g) Distributed updated version of Fifth Interim Report draft to WP2 members - Merrill Weiss
- h) Draft an Executive Summary for the Fifth Interim Report - Peter Bingham
- i) Prepare outline for an updated Professional Equipment Manufacturer Survey - Caaj Greebe

13. The next meeting is scheduled as follows:

IS/WP2 Transition Scenarios
Tuesday, January 28, 1992
12:00 P.M. - 6:00 P.M.
NCTA Building
1724 Massachusetts Avenue, N.W.
Washington, DC

The meeting was adjourned at 5:00 P.M.

**FCC ADVISORY COMMITTEE ON ADVANCED TELEVISION SERVICE
IMPLEMENTATION SUBCOMMITTEE
WORKING PARTY 2 ON TRANSITION SCENARIOS (IS/WP-2)**

**January 13, 1992
10:00 am - 6:00 pm (Lunch included)
10:00 am - 3:00 pm - w/Proponents
Public Broadcasting Service
6th Floor Board Room
1320 Braddock Place
Alexandria, VA**

AGENDA

1. Adoption of Agenda

Presentation to Proponents

- | | |
|--|-----------------|
| 2. Introduction (M. Weiss) | (20 min) |
| 3. Broadcast Review (M. Weiss) | (60 min) |
| 4. Cable Review (R. Pience) | (30 min) |
| 5. Common Carrier Review (P. Donovan) | (15 min) |
| 6. Satellite Review (L. Cochran) | (15 min) |
| 7. Consumer Electronics Review
(L. Cochran, C. Heuer) | (15 min) |
| 8. Questions for Proponents | (30 min) |
| 9. Questions from Proponents | (30 min) |
| 10. Follow Up/Summary | (30 min) |

IS/WP-2 Business

- 11. Approval of 12/17/91 Minutes**
- 12. Review of Action Items from 12/17/91 Meeting**
- 13. Preparation of Fifth Interim Report**
- 14. New Business**
- 15. Conclusions & Action Items**
- 16. Next Meeting**

TRANSITION SCENARIOS

WP-2

January 13, 1991

NAME	COMPANY	ADDRESS	PHONE
LARRY COCHRAN	THOMSON CONSUMER ELEC.	600 N. SHERMAN / MOPLS 170 46201	317-231-4226 317-267-5946
JIM GASPAR	PANASONIC ATVL ADVANCED BROADCASTING	95E CONNECTICUT DR. ROYLINGTON NJ	(609) 386-8527 - 8530 (FAX) 613 236 5850
CAROL DARLING	SYSTEMS OF CANADA	280 ALBERT ST OTTAWA, ONT, CAN K1P 5K4	613 236-9241 (LEAD)
Bob Rast	GI	6262 Lusk Blvd San Diego, CA 92121	619/535-2532 535-2485/FAX
Keiichi Kubota	NHK	1 Rockefeller Plaza Room 1935, NY, NY 10020	212-489-9550 212-489-9559 (FAX)
Bill Zou	PBS	1320 Bradlock Pl. Alexandria, VA 22314	703-737-5475 703-737-8933 (FAX)
Paul Donovan	NYNEX	1113 Westchester Ave, Rm 3396, White Plains NY 10600	(914) 644-6165
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PETER BINGHAM	"	"	914-945-6100
S. Merrill Weiss	Consultant	25 Mulberry Lane - Edison, NJ 08820-2908	(908) 906-0907 Phone & Fax

IS/WP2-0167

13 JAN 92

January 9, 1992

All ATV Proponents
FCC ACATS

Dear ATV Proponents,

As indicated in our letter of December 17th last, SS WP-3 is ready to begin a focused effort to cost analyze each of the contending ATV transmission systems. We pointed out the need for a close participation of each of the ATV proponents in this process. WP-3 would like to begin this activity by taking advantage of your collective presence at today's IS WP-2 meeting to disseminate this paper. The chairman of IS WP-2 has courteously agreed to distribute it and to explain a little of the background. The intent is to initiate your own thinking process prior to your first meeting with SS WP-3.

WP-3 has spent a considerable amount of time preparing for the actual task of attempting to assess the costs of the ATV systems. At the very least, we have a respect for the magnitude of the task we face. We are aware of the early phase of the total cycle in which each of you currently find yourselves - and that accurate assessment of costs prior to a final manufacturing phase will be difficult. Nevertheless, we are charged with doing the best job we can to establish at the very least an objective comparative assessment to provide an important input to the final FCC ACATS selection process. It is therefore very much in each of your interests to work closely with us in our analysis.

1.0 Basic Assumptions:

The purpose of this paper is to list some questions to all ATV proponents with the goal of using your replies to apply final refinements to our methodology.

In our December 17th letter we outlined the approach we plan to take - which I summarize as follows:

- 1.1 Separate cost analysis of each ATV Encoder and associated receiver decoder
- 1.2 Cost analysis of the minimum broadcast origination system required to implement a basic local service of "network pass-through" of an ATV signal with the capability of local commercial insertion (in the ATV format) - See attached revised block Diagram in Attachment #1
- 1.3 A model has been structured to anticipate the volume growth of ATV Encoders over the first five years of national conversion to this ATV service - Attachment #2
- 1.4 Based on this model cost analyses will be made on ATV encoders of quantity: 100 400 1600 10,000
- 1.5 A second model - for the receiver/decoder system - will shortly be forthcoming from work currently on going within PS WP-5 and within the ATV Receiver Specialist Group of SS-WP-3.

2.0 General Questions to each ATV Proponent:

Based upon the above I would request each of you to give careful consideration to the following general questions:

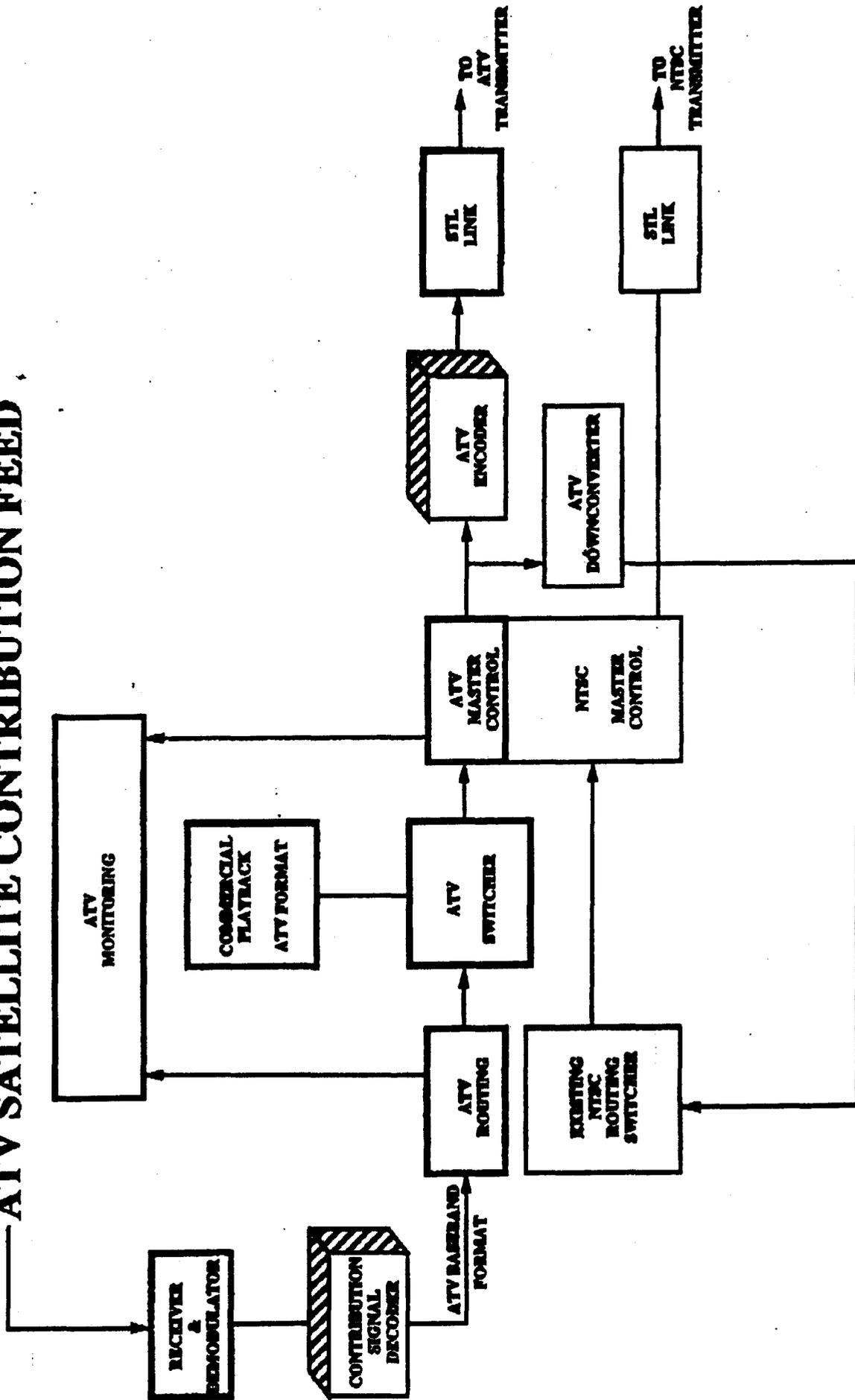
- 2.1 Do you agree with the ATV system block diagram we have developed for local ATV broadcast origination capability? If not - could you carefully explain your proposed alternative?
- 2.2 For your system - can you comment on the ATV Decoder that may be required to transform the satellite contribution feed from the network? - See Attachment #1
Do you have to decode this contribution signal to Baseband component signals?
Have you designed this ATV contribution decoder at this stage of your ATV system development?

- 2.3 Are there any other ancillary equipments - that should be part of this block diagram required to support ATV origination based on your system?
- 2.4 Do you accept the ATV Encoder penetration model developed by SS WP-3?
- 2.5 Do you accept the selected "quantity points" at which we propose to cost assess your ATV Encoder? Which of these quantities might represent your commitment to a "next generation" design?
- 2.6 SS WP-3 has made the assumption that at the outset - a small number of ATV encoders will be built by you under contract with one manufacturer. Do you agree with this? If not - can you outline your own plan?
- 2.7 Is the hardware you supply to ATTC for testing of your ATV system representative of these first units actually manufactured for sale to broadcasters?
- 2.8 SS WP-3 has made the assumption that this first small quantity will utilize a very small commitment to custom LSI design - hence costs will be higher at this phase 1 stage. Do you agree with this scenario - and if not can you explain the alternative?
- 2.9 SS WP-3 also assumes that as decoder volume builds that:
- More manufacturers will be licensed to build.
 - Some LSI design will be implemented - based on confidence gained from early experiences.
- Can you outline (as best you can at this early stage) what you anticipate in your refining of your system's ATV Encoders to utilize more LSI - and any other possible approaches to lowering manufacturing costs over time?

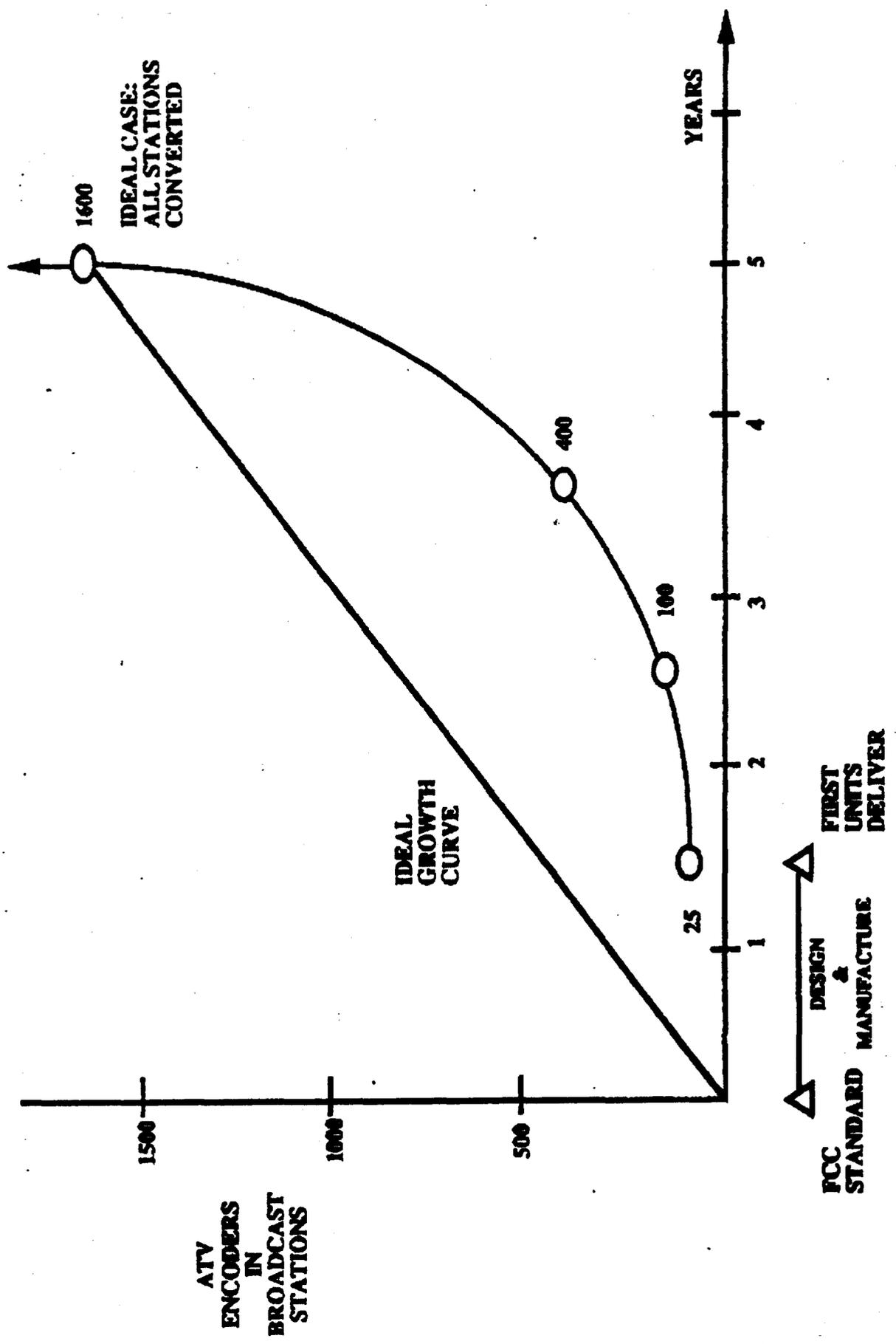
Laurence J. Thorpe

LT/ash
LT-217

ATV SATELLITE CONTRIBUTION FEED



ATV NETWORK PASS THROUGH



**Implementation Subcommittee Working Party 2
on Transition Scenarios**

Preliminary List of Questions for Proponents

The following questions are for your consideration and response at the meeting of IS/WP-2 to be scheduled in March, 1992. They are divided into a general category and categories corresponding to the industry segments represented in the PERT and Gantt charts being supplied to you simultaneously with this list. The questions will be explained at the meeting of January 13, 1992.

General

1. Is extensibility built into your system? When can it be implemented? Under what prescribed conditions?
2. How long following an Advisory Committee recommendation of your system will the detailed technical information necessary for the setting of standards and for the design and manufacture of both professional and consumer products be available?
3. What provisions have you made for communicating information sufficient for design and manufacture to manufacturers of consumer and professional equipment? Do you have a program planned for providing direct support to help get such organizations up and running with your system?
4. What arrangements have you made with integrated circuit vendors for supplying chips for your system? What availability of ICs do you anticipate for other manufacturers?
5. What is your expectation for the time of introduction of your system? Do you have any suggestions for possible head starts in any areas to shorten the time to introduction?

Broadcast

1. What are the transmission power levels (ERP) required for the system for coverage equal to NTSC? Please specify for both low and high VHF and for UHF. Are there any power variations across the UHF band? Are any special transmitter or antenna characteristics required?

2. What signal form is anticipated for use in distribution to Network affiliates and/or to cable headends? Have you anticipated both satellite and terrestrial common carrier delivery? Have these been tested experimentally?
3. What forms of further production are possible using the signal delivered to affiliates and headends?
 - a) cut into the signal
 - b) key into the signal
 - c) full image manipulation
4. If the signal delivered to affiliates/headends must be fully decoded for further production, in the forms listed in 3 above, how many times can this be done with acceptable quality in the resulting picture? Have you tested this experimentally?
5. Is it possible to carry the ATV signals and NTSC signals together on a single microwave channel, as for Studio-to-Transmitter Links (STLs) and similar circuits? If so, what is the required bandwidth?
6. What signal form is anticipated for contribution circuits for production? Are different quality levels provided? Have you considered both satellite and terrestrial common carrier delivery? Assuming the production processes listed in 3 above, how many times through the signal form can an image go while retaining acceptable production quality in the resulting picture? Have you tested this experimentally?

Cable

1. What provisions are made for conditional access without decoding the signal? Is partial decoding required? How complex is the equipment required to accomplish these functions?
2. See questions 2, 3, 4, & 5 under Broadcast above.

Common Carrier

1. What form of signal do you propose for transmission over terrestrial common carrier links?
2. Are the SONET bit rates assumed the correct choices?
3. What bit error rates does your proposed distribution format require of the transport system? Your production contribution format?

Consumer

1. **What is required in a consumer VCR for the system? When will such a VCR be available? Is new technology required first? What format is to be recorded? Are any current VCR features not possible with this format? Have you verified this experimentally?**

Satellite

1. **Is it possible to carry the ATV signal and an NTSC signal on the same transponder? If so, at what bandwidth? What other multiples are possible with your system?**