

Dissemination of Technical Information - *cont'd.* (2)

- **Approach needed to mitigate impact**
 - **No readily apparent means to shorten work effort**
 - **Availability of all equipment depends on quality documentation**
 - **Not likely without indication of system selection**
 - **Same personnel needed to prepare documentation as are developing system designs/demonstration hardware**
 - **Major investment by proponents**
 - **Necessary documentation involves release of proprietary information**
 - **Technical support of others by selected proponent probably needed**
 - **Not all proponents may be equally qualified for this task**
- **Head start on development & release of required documentation is possible solution**
 - **Possible topics for IS/WP-1 investigation:**
 - **Can FCC provide advance notice of its system decision?**
 - **Are there other mechanisms for getting a head start?**

Summary

- **IS/WP-2 taking pro-active approach to problem-solving**
- **FCC proposed timetable can be met by many stations**
- **Personnel available for stations to reach pass-through stage**
- **Dissemination of Technical Information is new issue identified**
- **Proponent meetings planned for Mid-January, 1992**

REPORT OF IS/WP-2: STUDY RESULTS AND PRELIMINARY CONCLUSIONS

As part of its work in producing Implementation Plans for Advanced Television, IS/WP-2 has developed significant information that can be of substantial use to the FCC and to other parts of the Advisory Committee while IS/WP-2 is completing its work. The information derives from a series of surveys and studies conducted to date by the Working Party. This report provides the highlights of that data in the hope that others will find it both important and helpful. Note that this report and the data that supports it were developed prior to an FCC rulemaking on implementation issues anticipated to be released on 10/24/91.

The Working Party has identified the tasks required for implementation by all industry segments. With the participation of experts from each industry segment, it has determined the time required for completion of each of these tasks. From this data, it has constructed a series of PERT networks and timelines showing the overall process and timing for completion of the transition to HDTV.

IS/WP-2 has surveyed the owners of all station groups having 3 or more stations and some additional groups with 2 stations (107 in all), seeking their expectations for implementation of HDTV transmission and looking at the problems they will face. It has surveyed the chief engineers of approximately 100 stations, looking at the resources each has and will require to carry out the implementation. It has also instigated discussions among the television stations in some of the larger markets both to understand the problems they may face and to give them a head start in addressing them. The results of some of this work underlie the data reported herein.

Both CBS and PBS have provided input on their expectations for a transition to HDTV, and their results have been incorporated into the Working Party's output. IS/WP-2 has become cognizant of the work done by PS/WP-5 in projecting the penetration of HDTV among the viewing public. This report attempts to bring coherence to these several efforts, all of which concern the relationship between the HDTV transition and time.

Station Conversion Will Be Time Phased

Because of limited resources, both capital and personnel, group owners intend to stagger the conversion of their stations. A similar approach, in which increasing numbers of stations started the transition process in succeeding years, was adopted in the CBS study. As in the CBS study, the owners plan to start with the stations in the largest markets first, moving later to the smaller markets.

Many television station owners anticipate a relatively early start of conversion to HDTV simulcast operation. Of the 61 respondents to date, representing 260 stations in their responses, 42 groups expect to start conversion of their first station within years 1, 2, and 3 following the final FCC decision on a system. They further indicate that half of the stations covered by the survey responses will start their conversions within those three years. On average, owners expect to take 1½ to 2 years after start to reach the stage of being able to "pass through" the network or equivalent syndicated programming. Completion times for full conversion to HDTV

local origination are expected by the owners (and by CBS) to take significantly longer. These expectations are in substantial agreement with the times determined by the Working Party to be required to complete the various tasks if all tasks are accomplished in the minimum possible times. It should be noted that singly-owned stations were not included in the survey.

The CBS study shows the first 30 stations, located in the top 10 markets, completing the "pass through" stage in the first year. IS/WP-2's work indicates this to be somewhat optimistic. If all tasks, including governmental approvals, are accomplished in minimum feasible times, approximately 1½ years are needed to get on the air if tower space is available and approximately 2¼ years if a new tower must be built. Since the tasks include local government approvals, environmental impact statements for new towers, FCC construction permits, and the like, it is not anticipated that the minimum times (assumed to be 90 days per approval) are likely to be achieved in many markets. We believe more normal zoning, planning, and environmental approval times will result in "pass through" implementation times of 2¼ years without a tower and 3½ years with a tower. In some major markets, even longer governmental approval times are likely to be encountered. The work of the Local Area Groups (chief engineers of all stations in an area), enlisted by IS/WP-2 in five major cities, determined in four of them that adequate tower space is not currently available for HDTV transmission. The very fact of our inquiry has stimulated the chief engineers in several of these communities to look further into the problems they will face and to begin identifying possible solutions to them.

The staggering of conversions anticipated by both CBS and the group owners surveyed (even with their assumptions about conversion time) results in approximately 50 per cent of the stations reaching "pass through" after five years. CBS indicates that most of the stations converting after the first five years will be smaller stations, many in smaller markets.

It must be recognized that the time at which stations receive uncontested channel assignments is the starting point for calculating the various time aspects of the transition to HDTV. It is anticipated that the FCC will make channel assignments during the process of establishing the rules for HDTV service. If the channel assignments are made later, the time taken to make the assignments will add directly to the implementation time. Similar consideration must be given to the documentation and dissemination of the technical details of the selected system sufficient for manufacture of both broadcast and consumer equipment, or a similar addition to the implementation time will be required.

Manpower Resources to Accomplish Conversion

One area which the Working Party has been exploring is the availability of qualified personnel to carry out the design work required to implement the conversion to HDTV. This concerns two distinct aspects of design - transmission facilities and studio or production facilities. The survey of group owners showed that there is a small resource available from headquarters operations of some to supplement the personnel at the stations in designing the new facilities. In addition, some owners may be able to provide some assistance to the stations by moving personnel between their operations on a temporary basis to carry out the conversions. This reinforces the need to have some stations convert later in order to help others convert sooner. Assuming such staging of stations, adequate personnel seem to be available to reach the "pass through" stage in the time frames discussed above, especially if vendors and consultants can pick up a

significant part of the transmitter work effort.

The personnel requirements are far more acute for the studio conversion for local origination than for the transmitter and studio "pass through." This results from the fact that the studio conversion represents a much greater change and a much greater expenditure. It is also likely to take considerably longer to achieve because of the magnitude of the conversion required.

Consumer Electronics

Another aspect of the Working Party's effort has been to investigate the time expected for consumer electronics manufacturers to begin production and sales of receivers compatible with the new transmission system. IS/WP-2 has consulted with receiver manufacturers and developed a time schedule, reflected in PERT charts and timelines, for the development and introduction of television receivers. The current estimates is that it will take approximately 3½ years from the time that adequate information for product design becomes available to the manufacturers for product to begin entering the distribution chain. Separately, PS/WP-5 has made forecasts of the penetration over time of HDTV receivers in the marketplace.

When considering time forecasts for implementation, the starting point for system-specific equipment design is the availability of adequate technical information. The first major task in the implementation is the design of products and their introduction into the marketplace. Translating the penetration data developed for HDTV receivers by PS/WP-5 into this context is necessary before actual dates can be applied to the penetration forecast. The penetration forecast currently starts with 1 per cent penetration of HDTV sets and extends to between 5 and 10 per cent 5 years later. Working backwards, an optimistic estimate by PS/WP-5 is that 1 per cent may be reached two years after product introduction, depending solely on cable and rental tape as program sources. The work of IS/WP-2 on the timing of receiver development indicates that receivers may be generally introduced approximately 2½-3 years after the FCC Report and Order, provided full technical information is available at the time of the NPRM. Some believe that the successful proponent may, in some cases, have a small time advantage. This indicates that 1 per cent penetration may be reached 4 to 5 years following the FCC Order.

Availability of Technical Information

Time will be required to develop a description of the selected system sufficiently complete to permit the design and manufacture of consumer electronics and professional equipment products. The information currently being provided to the Advisory Committee through SS/WP-1 is not sufficient for such a purpose. Expectations with respect to and a mechanism to accomplish dissemination of the required information are yet to be determined.

Details to support the discussion above and information regarding other work of the Working Party are available upon request.