BLUE SKY TO CASH FLOW - MARKET STUDY

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After rereading the synopsis of the content of this session, I'm a little uncertain as to whether or not the task can be properly accomplished at this time. The title "Blue Sky to Cash Flow" implies a wide range of developing technologies and techniques for the CATV industry. These include the use of satellites, interconnection of cable systems, new social services, data retrieval, digital, microwave or laser transmission of CATV programming and expanded communications bandwidth, among others. In almost all cases, the so-called "Blue Sky" can be brought down to the bottom line, to cash flow, only by use of a broadband communications network incorporating some form of interaction with the individuals comprising the population.

In this discussion, I will restrict myself to the interface with the ultimate consumer since this is where the market is conclusively established. This means an interactive home terminal for the broadband communications network and is the crucial link for the subscriber to participate in the programming and services offered in the next decade. The synopsis went through a brief general discussion of the topic, and then wound up with the real nut "reducing complex systems to basic parameters leading toward valid predictions of potential cash flow." That is what is needed to make the decision of whether or not to install interactive home terminals and which services to offer if and when these terminals are installed. How should we study the market?

I think a good way to put this in perspective is to ask ourselves a question: What if Henry Ford had a management consulting firm make a market study on horseless carriages? The answer, I believe, is obvious, based on my having participated in some studies of this type. An expert would have sent out a questionnaire to a lot of horse and buggy owners; he would have assembled statistics; he would have conducted personal interviews; he would have made an economic and technical model, and would have come up with the "obvious" answer. The horse and carriage is here to stay and the horseless carriage is a toy that only the very wealthy can afford.

Now there just might have been someone in that firm with a gut feeling who would guess the future and predict the right answer. I don't think so, however. If he had even dared to predict that these "toys" would someday outnumber horses, he would have seemed foolish.

Today we can look back and see how major industries have developed in the past 70 years. In almost every case of a major social or commercial need in this country, we have consistently grossly underestimated the potential; i.e., telephone, electric power, computer use, office copiers, color television, etc.

Today we are faced with a situation similar to the horseless carriage manufacturer. We have a product – interactive home services – which can economically and conveniently supply services that are already in existence and being taken care of by a variety of other means. As an example, we can supply to the subscriber a device which will store one frame of video information, a "frame grabber" with semi-random accesss to a large data bank. He now satisfies this requirement with libraries, magazines, reference works at home, newspapers, telephone calls, etc. The frame grabber, however, will do this more quickly and conveniently. We are now attempting to make a market study to determine how many such services people will be eager to accept. How will people want to use a broadband communications system with interactive capabilities?

At this point, I think it appropriate to bring another factor into the analysis. In the last 20 years, the big change in buying habits has been to convenience items, such as frozen or prepared foods, automatic kitchen appliances, etc. We reach the conclusion that the Broadband Communications Network with interactive home terminals will bring essentially the same services and information to the subscriber that he now has available, but in a faster time frame and in a more convenient way. He might also avail himself of more services than he now uses, because of the convenience of using interactive home terminals.

We could spend many hours examining this issue in detail; however, one example would suffice. When you go to a department store, the first thing you usually do is to get into an automobile and drive to the department store location. This takes an automobile, gasoline, and a lot of frustration. When you finally get to the store, you have the problem of finding a space and parking so as not to have the car damaged by others. You enter the store and try to find a clerk. They are usually quite independent people and very elusive. Now you have him, and you tell him what you want to buy. They may or may not have the exact item you wish to purchase in inventory. It may take 10 or 15 minutes to find it or to determine if they are out of stock. If they are you must go to another store. If they have the item, he checks your credit card usually by telephone. Finally, he rings up the ticket and then you must retrace your weary steps home. This entire process may have involved 2 to 4 hours of your time.

The purchase might have been accomplished by phone; however, the buyer usually likes to see and feel what he is buying even if he could shop by phone. The interactive home terminal should be successful for shopping services if we can convince the consumer that it is not necessary to feel the item. Although some consumer behavior must be modified, the greater convenience will sell the service. What I'm moving towards is how you can approach making a market study for the services that a Broadband Communications Network utilizing interactive home terminals can offer.

If you note the costs of all the services that people buy or participate in, you might say that the costs could, in the limit, transfer as gross revenue to the company operating the broadband communications network and interactive home terminals. This would be the height of optimism and could result in disaster. To start with, personal habits in obtaining the services and information are going to have to be modified. This means a slow buildup in volume. Secondly, the services and information provided will need to be less costly. And lastly, the convenience must make it attractive.

This brings to mind an example of how wrong a paper market study can be. Some years ago I worked on a program of cold sterilization using electron beams or nuclear by-products. Among the many things tested was milk, which is normally pasteurized. We originally assumed that there would be a big switch to cold sterilization due to the inherent cost advantages. We finally rejected this, after discovering that milk did not change its taste after cold sterilization and most people are accustomed to the burnt taste of pasteurized milk. Today, however, the use of raw milk is increasing by leaps and bounds. Moral: predicting tastes on the basis of paper market surveys is unreliable.

There are some firm facts that seem to be available. People today will pay for a premium program, i.e., movies, sports events, opera, etc. At least if they are in a motel or a hotel they will. Think of the choices the individual in a motel or hotel has, and I think if you travel you can understand why a first-run movie in your room is successful. Another fact is the increasing demand for convenience, service and information.

My conclusion, based on the foregoing, is that there is only one way to properly evaluate the market potential, and you might say that is through the established techniques of test marketing in a limited area. Take a community and install a broadband communications system, or convert an existing system to two-way operation. Install the interactive home terminals on a complete saturation basis. Furnish as many good services as you can and market them. Analyze and project the results to cover other markets. Then there will be some historical data to go by. But in extrapolating this test data, be aware that the process of changing behavior is gradual and evolutionary. Habits of a lifetime will not be modified by the installation of an electronic box.

Look at the office copier market; not only did the sales of machines increase at a phenomenal rate, but, and this is the crucial point, the use of machines increased dramatically after the initial sale. It was one step to introduce the machines to industry, and quite another to have industry change its habits and patterns to make the best use of the office copier. Pro-

jecting the ultimate use of the machines first after they were installed would have lead to a completely incorrect estimate of total market potential. This problem holds true for the use of a broadband interactive terminal. How do you estimate changes in behavior and life style? Will family units spend more time at home watching first run movies if they are available?

Several others have previously indicated their belief that the potential market for services, entertainment, and information is available and extremely large. However, the broadband communications networks will not retain a large share of this market without vigorous and specialized marketing on site.

This leads to another conclusion: that in general, the services, entertainment, and information should be handled by a separate or subsidiary group rather than the company operating the cable. The reason for this is the specialized nature of the marketing effort required. The operator, of course, would derive his income from leasing channels on the cable or taking a percentage of the gross. I favor the latter.

I do not wish to make an advertisement of this presentation; however, I would like to review how Theta-Com of California is approaching the problem. We have designed and are installing a complete two-way interactive system in El Segundo. We are performing this test to measure the market which we feel exists for services, data retrieval and entertainment. No matter how many paper studies are performed, there is only one true test of market acceptance; the marketplace. The remainder of this talk sketches the El Segundo test plan and the premises upon which it is based.

The first slide (Figure 1 - Market Size) indicates what we think the market size is. Although this chart was prepared several years ago for another purpose, it agrees essentially with most recent studies made by others. Note that by 1981 we expect that the coaxial cable will be

available to 50 million homes, and that about 25 million subscribers will be on the cable. Of that 25 million subscribers, about 18 million will be in systems with more than 2500 subscribers, and about 11 million will be in systems with interactive communication capability of some type. These latter figures were based on assumed projected growth and that equipment is available when needed, the cost of the interactive home terminal is reasonable and that services and information are available and can be marketed profitably.

As you may have observed, we have already made several simplifying assumptions such as that average saturation will be about 50%.

The next slide (Figure 2 - Market Assumptions) shows the additional assumptions we have made in analyzing the quantity of full-scale interactive units required.

The next slide (Figure 3 - Market Plan) describes the test bed that was made available to us. Initially we will install 25 to 30 units that have previously been tested on three simulated systems we now have in our plant.

A. The so-called A-B (dual) cable system, which is the actual equipment that is going to be installed in El Segundo.

B. A single cable two-way system.

C. A single cable system retrofitted with outboard filters and reverse amplifiers for two-way operation. This is intended for those systems that are in existence and wish to convert to two-way service without rebuilding or who may want to be selective on where they initially install two-way.

The next slide (Figure 4 - Test Plan) shows the progress we have made and what the actual test will consist of.

The next slide (Figure 5 - Services to be Offered) shows you our plan for services to be furnished during the El Segundo test phase. It is our opinion that we can realize at an average of at least $10.00 per month of added income per installation. We think we are conservative for the long run. This has a base of premium or pay television with the other items adding incremental income. The figures indicate $120.00 per year of cash flow which will more than pay the carrying charges on the added investments. Based on what we know now, it appears that the capital investment, when the units are in production, will be $200 to $250 for each home terminal equipment set. This figure includes a pro-rata share of the computer and the computer software for the headend. It does not include the cost of converting the cable system to two-way, inasmuch as this is now essentially an FCC requirement. Besides, the incremental cost of two-way versus one-way is rather small today in new construction using modern equipment.

Following are a quick series of slides that show you the actual equipment to be used in the market test. As mentioned previously, our interactive home terminal has been under test on the various types of two-way cable systems and we will install these and similar units in the field, starting in the Fall.

Figure 6 - A-B Cable System - Two Way

Figure 7 - Single Cable System - Two Way

Figure 8 - Single Cable System - Two Way Retrofit

Figure 9 - Computer PDP-11 - Local Processing Center

Figure 10 - Computer Simulator

Figure 11 - SRS - Wall Unit

Figure 12 - SRS - 101 Subscriber Console

Figure 13 - SRS - 102 Subscriber Console

Figure 14 - SRS - Tape Printer for SRS 102

To return to the original question, that of "reducing complex systems to basic parameters

leading toward valid predictions of potential cash flow," I feel there is only one way this can be done for interactive home terminals to arrive at a meaningful answer. That is to make an actual installation in the market and evaluate the results. The accuracy of even this direct approach will depend to a large extent on the management of that test, the marketing vigor of the people conducting the test and the foresight and ability of those analyzing the outcome.

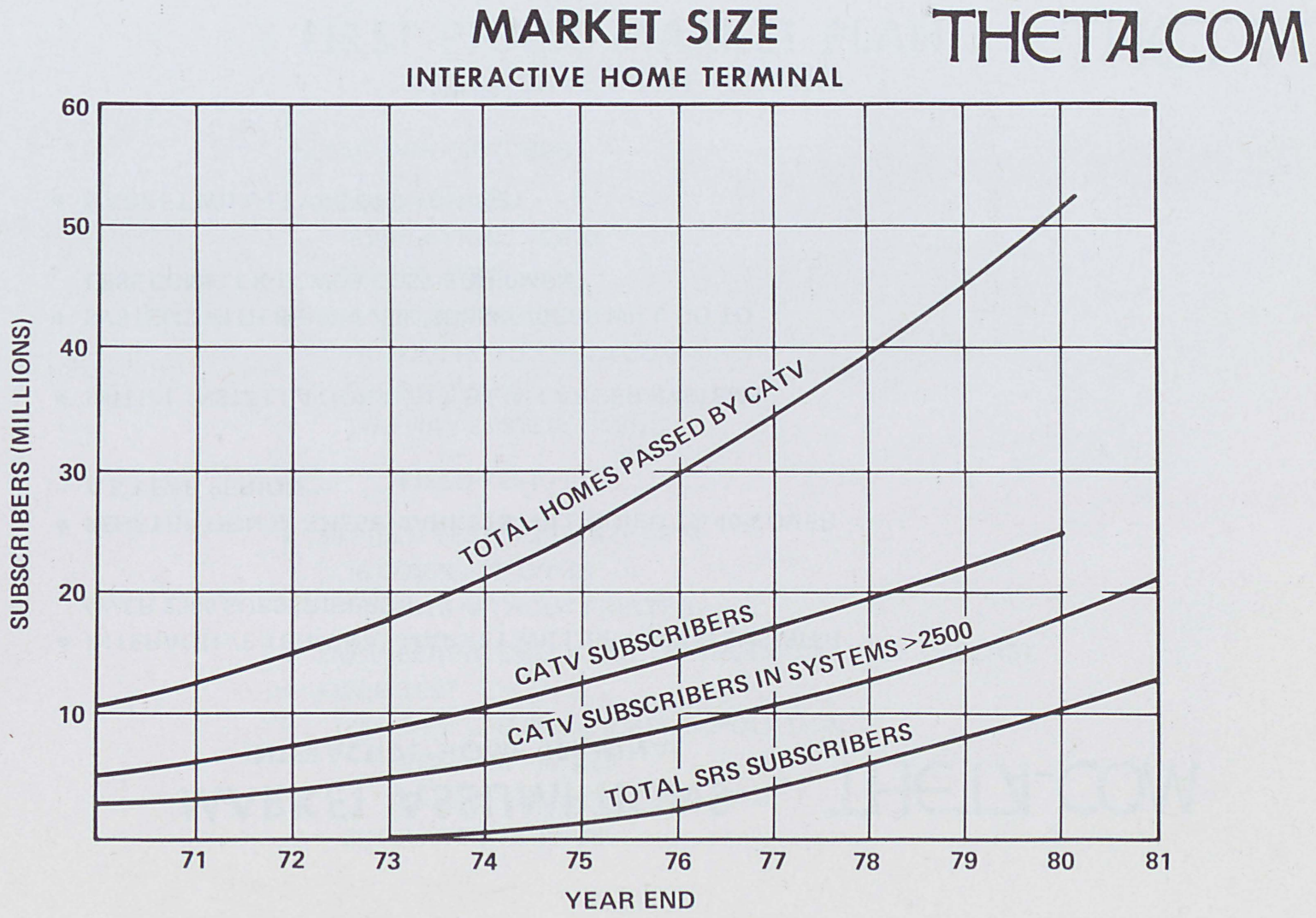
MARKET SIZE
THETA-COM
INTERACTIVE HOME TERMINAL
SUBSCRIBERS (MILLIONS)
60
50
40
30
20
10
TOTAL HOMES PASSED BY CATV
CATV SUBSCRIBERS
CATV SUBSCRIBERS IN SYSTEMS >2500
TOTAL SRS SUBSCRIBERS
71
72
73
74
75
76
77
78
79
80
81
YEAR END

Figure 1

MARKET ASSUMPTIONS

INTERACTIVE HOME TERMINAL

THETA-COM

- INTERACTIVE TERMINAL MARKET WILL BE IN SYSTEMS WITH OVER 2500 SUBSCRIBERS
- PENETRATION IN THESE MARKETS WILL BUILD TO 40% OVER A 5 YEAR PERIOD
- INITIAL INSTALLATIONS WILL BE IN LARGER SYSTEMS
- SYSTEMS WITH BELOW 2500 SUBSCRIBERS WILL GO TO LESS COMPLEX-LOWER COST EQUIPMENT
- MARKET WILL LEVEL OFF BY 1981

Figure 2

FIRST PHASE MARKET PLAN

INTERACTIVE HOME TERMINAL

THETA-COM

EL SEGUNDO TEST BED

- DEMOGRAPHICS
  - POPULATION - 15,620
  - HOMES - 4000
- WHY EL SEGUNDO?
  - PROXIMITY TO THETA-COM
  - CORRECT SIZE
  - TWO WAY SYSTEM TIMING

FIELD TEST

- 30 FIELD TEST MODELS (FTM'S)
  - 15 COMPLETE UNITS
  - 15 UNITS WITHOUT PRINTER
- ENGINEERING CHECK-OUT ON THETA-COM TEST CASCADE
- FIELD TEST
  - CONTROLLED SUBSCRIBER POPULATION
    - 5 CITY OFFICIALS
    - 25 HAC (EXEMPT) EMPLOYEES
  - SIMULATED SERVICES

Figure 3

TEST PLAN

INTERACTIVE HOME TERMINAL

THETA-COM

- EL SEGUNDO AUTHORIZATION
- EL SEGUNDO CATV SYSTEM CONSTRUCTION
- DELIVERY OF TWO-WAY CATV EQUIPMENT
- THETA COM IN-HOUSE TESTS
- 30 FTM'S - EARLY FALL 1972
  - CITY OFFICIALS
  - HAC EMPLOYEES
- 1000 PREPRODUCTION UNITS - FALL 1972
- TEST MARKET - FALL 1973
- PRODUCTION UNITS LATE FALL 1973

Figure 4

SERVICES TO BE OFFERED

INTERACTIVE HOME TERMINAL

THETA-COM

1000 PREPRODUCTION MODELS (PPMS)
SERVICES

1. STANDARD OFF-AIR/LOCAL ORIGINATION TV
2. PREMIUM TV
   - MOVIES
   - SPORTS EVENTS
   - SPECIAL EVENTS
3. RESTRICTED TV
   - DOCTORS - TO BE DEVELOPED
   - POLICE - EL SEGUNDO
   - EDUCATIONAL - LOCAL COLLEGES
4. EMERGENCY ALARMS
   - POLICE - EL SEGUNDO
   - ADT
   - HOLMES
5. ACCESSORY POWER CONTROL
6. CHANNEL POLLING - CONTINUOUS CHECK
   - COMPARISON TO NIELSEN RATINGS
7. HI SPEED PRINT ACCESSORY
   - SMALL SCALE TEST IN SELECTED HOMES
   - TELEGRAM DELIVERY
8. METER READING
   - SOUTHERN CALIFORNIA EDISON
9. OPINION POLLING
   - SELECTED LOCAL/POLITICAL ISSUES
   - INTERACTIVE PROGRAMMING (CHANNEL 28 - ADVOCATE PROGRAM)
10. UP/DOWN STREAM MESSAGES
    - OPERATING FUNCTION
    - SHOP-AT-HOME
      - DEPARTMENT STORES: SEARS-PENNEYS-WARDS
      - ONE-TIME ITEMS
      - MERCHANDISING - COUPONS
      - TICKET SERVICES
      - GAMES
11. SYSTEM DIAGNOSTICS
12. REMOTE SUBSCRIBER ENABLE/DISABLE
    - PREVENTS MISUSE OF SYSTEM
13. FRAME GRABBING
14. VEHICLE MONITORING

Figure 5

Figure 6 - A-B Cable System - Two Way

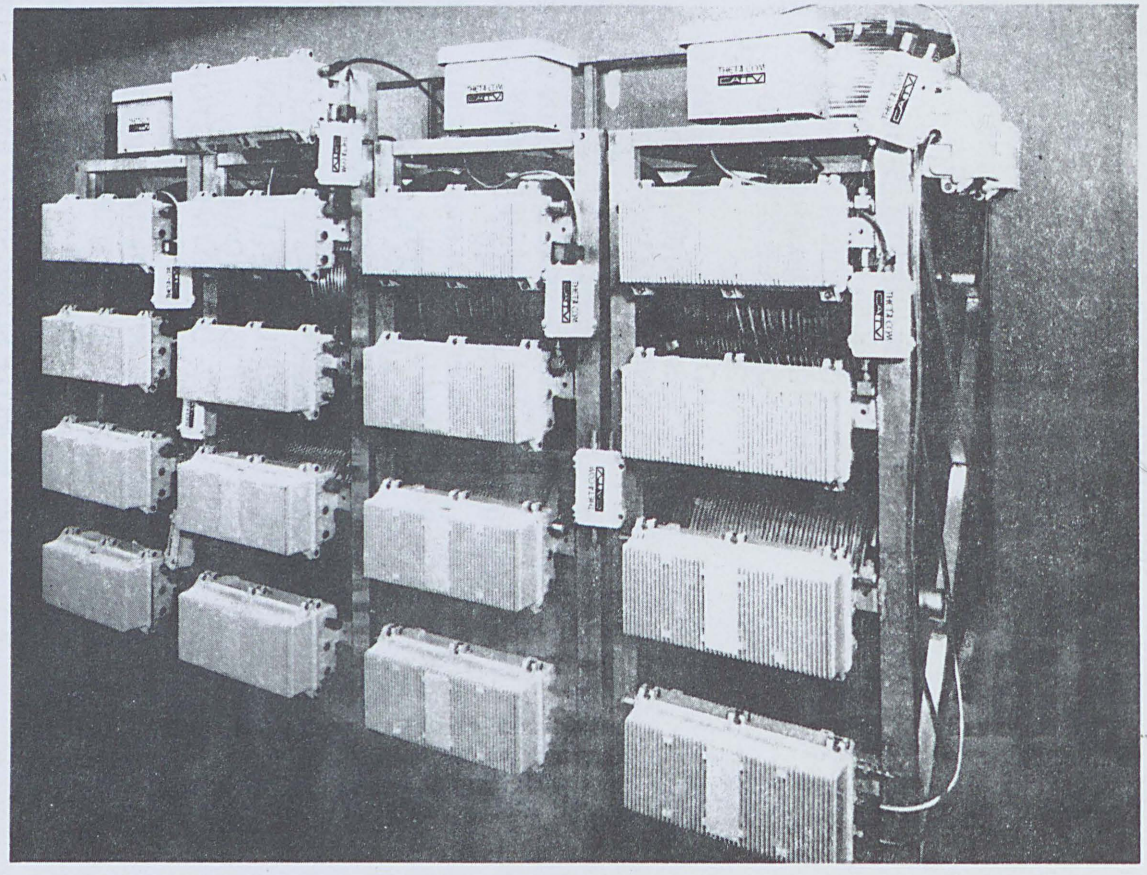

Figure 7 - Single Cable System - Two Way

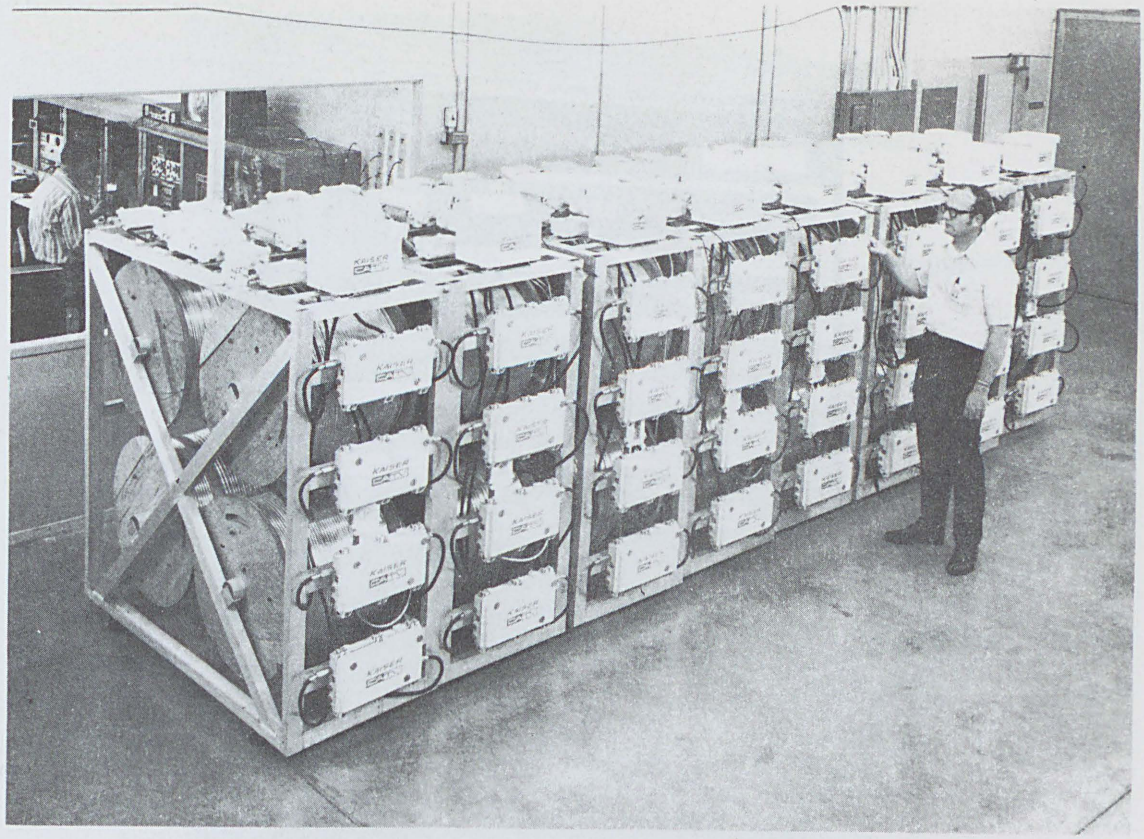

Figure 8 - Single Cable System Two Way Retrofit

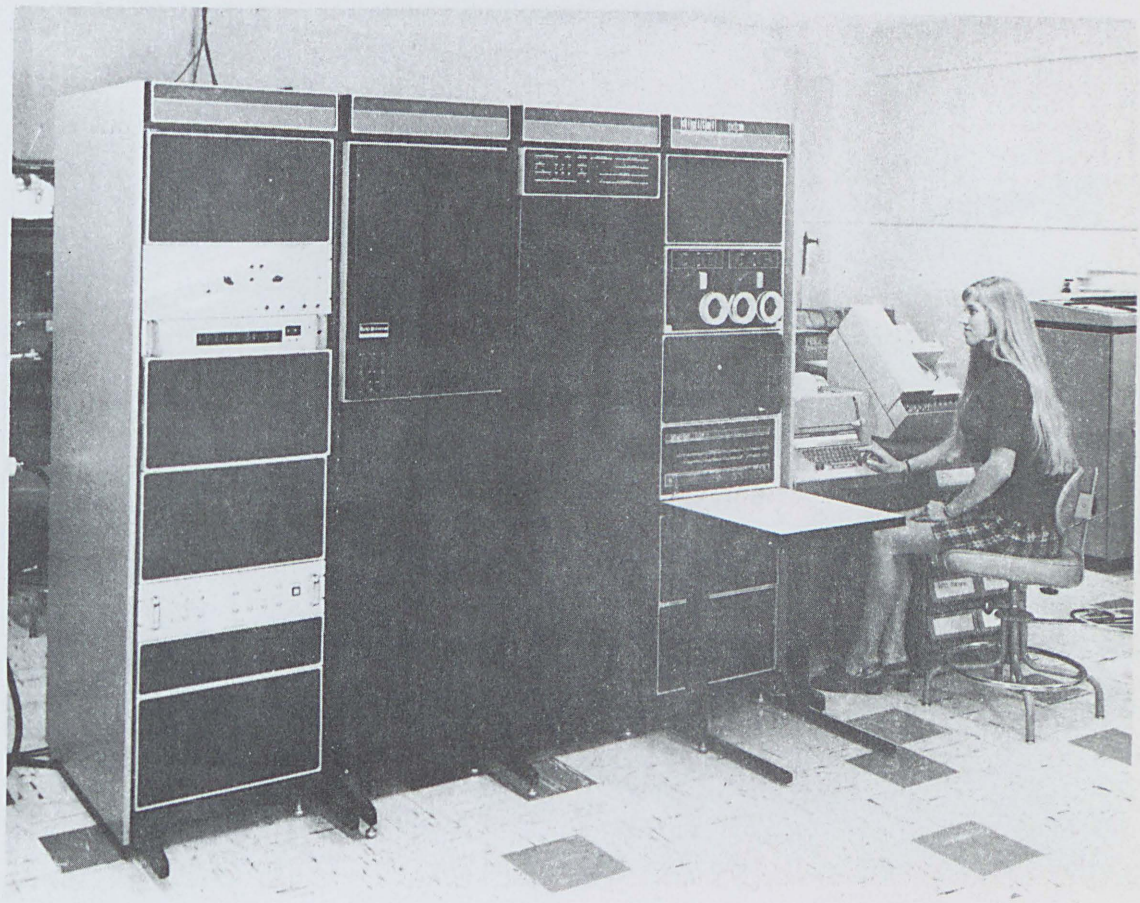

Figure 9 - Computer PDP-11 - Local Processing Center

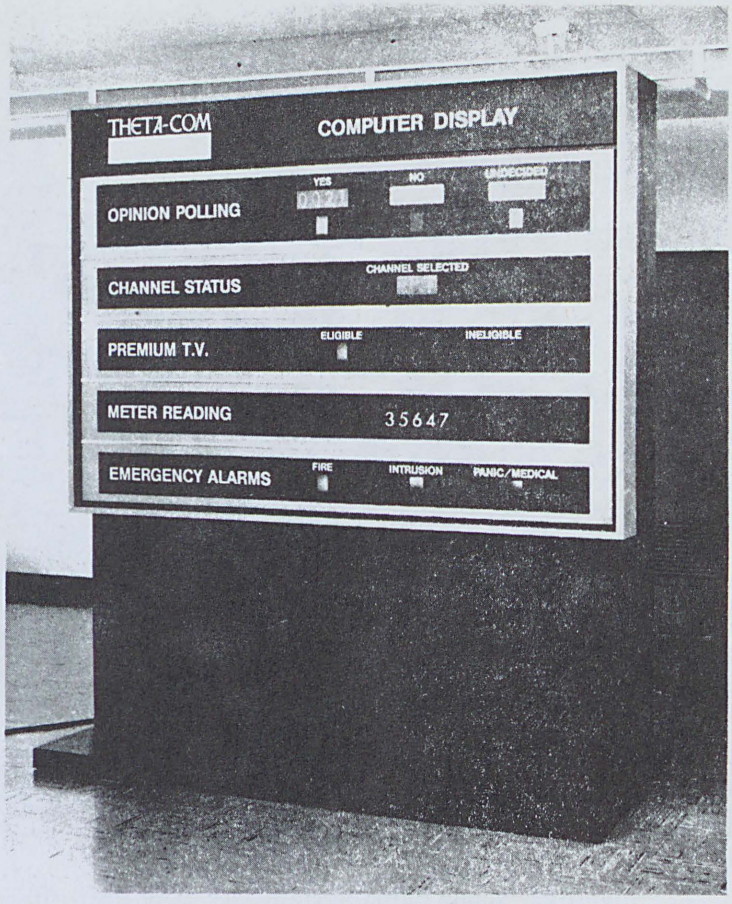

Figure 10 - Computer Simulator

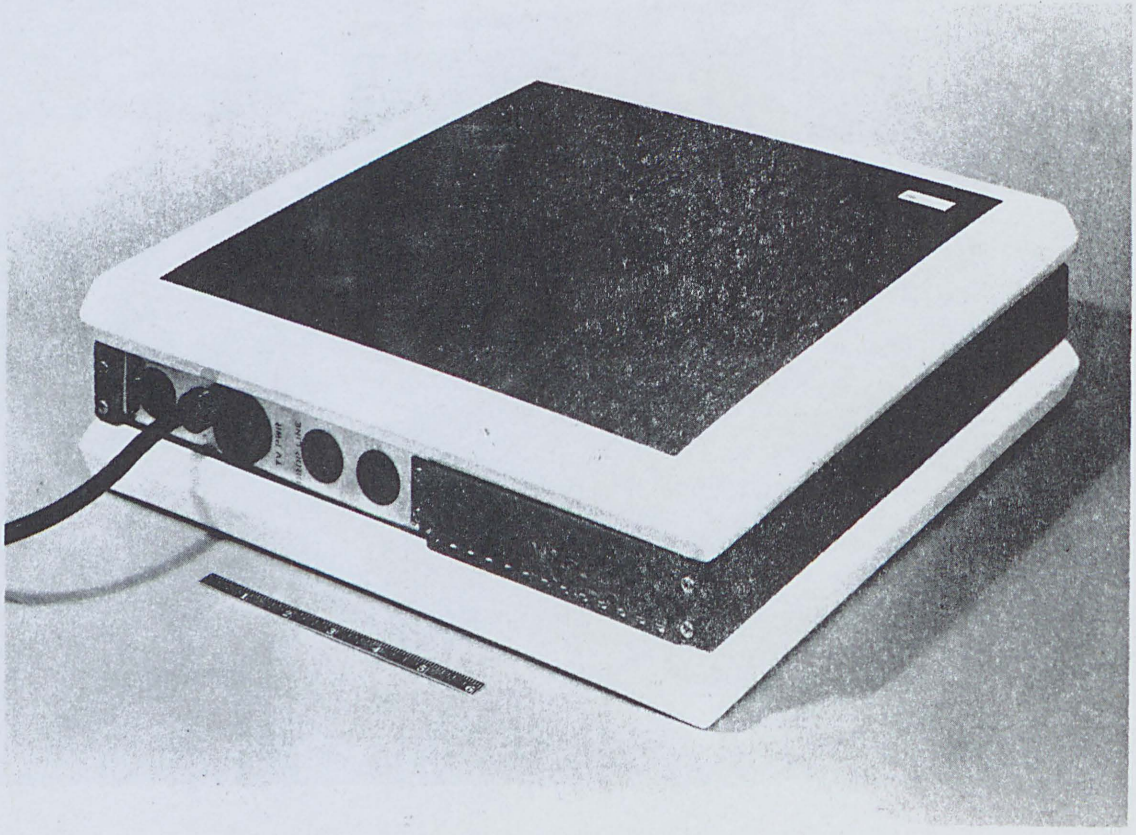

Figure 11 - SRS Wall Unit

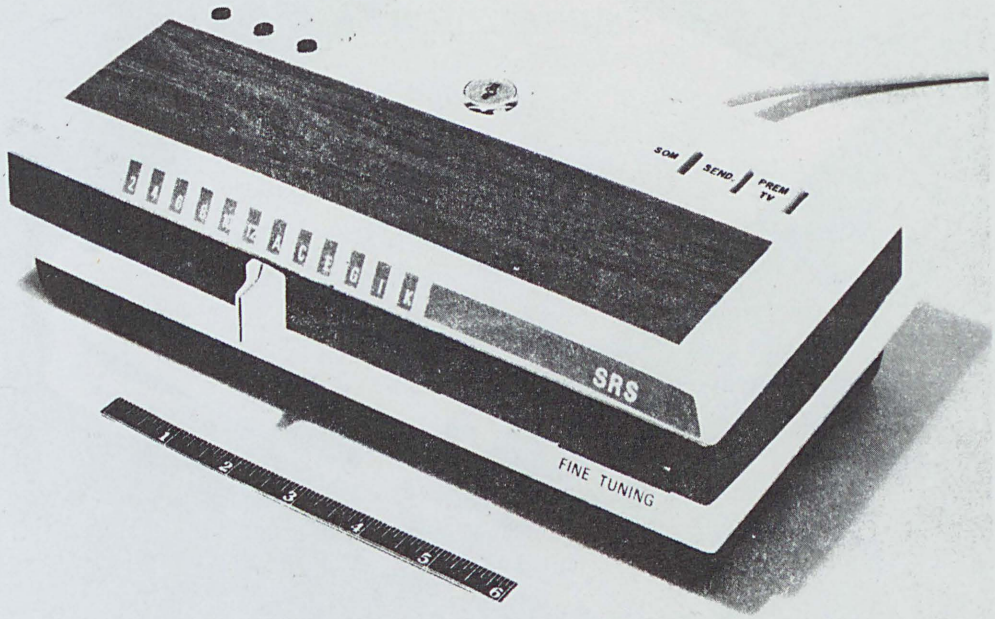

Figure 12 - SRS-101 Subscriber Console

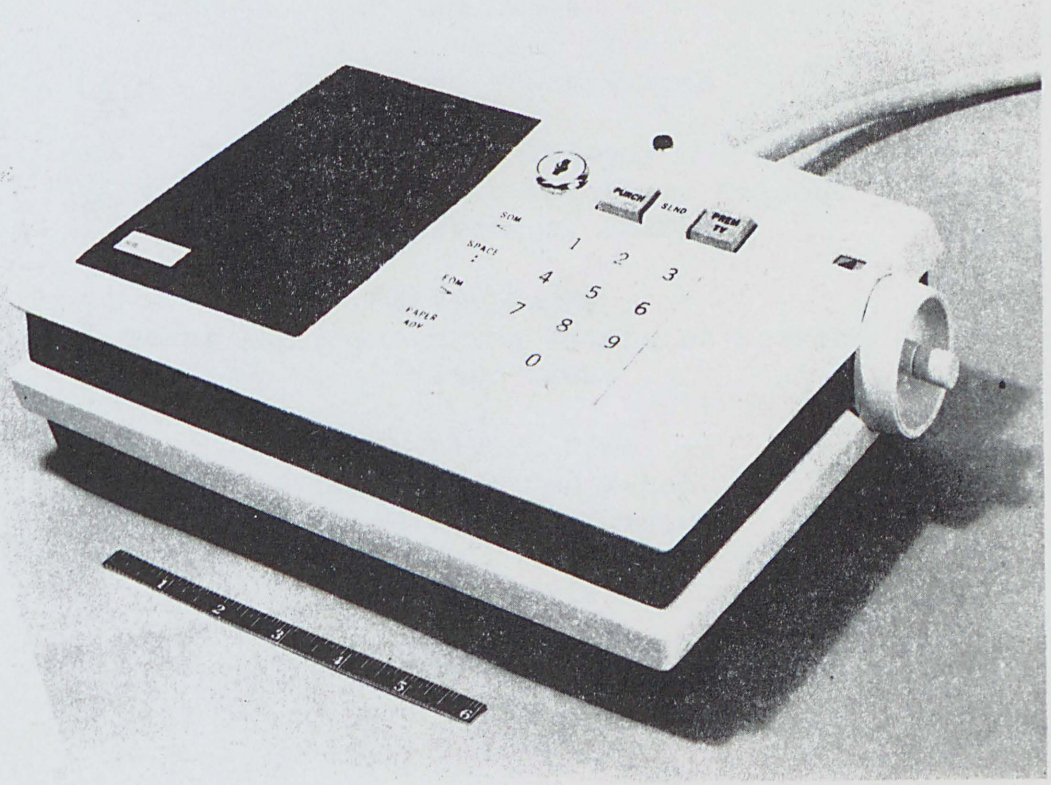

Figure 13 - SRS 102 Subscriber Console

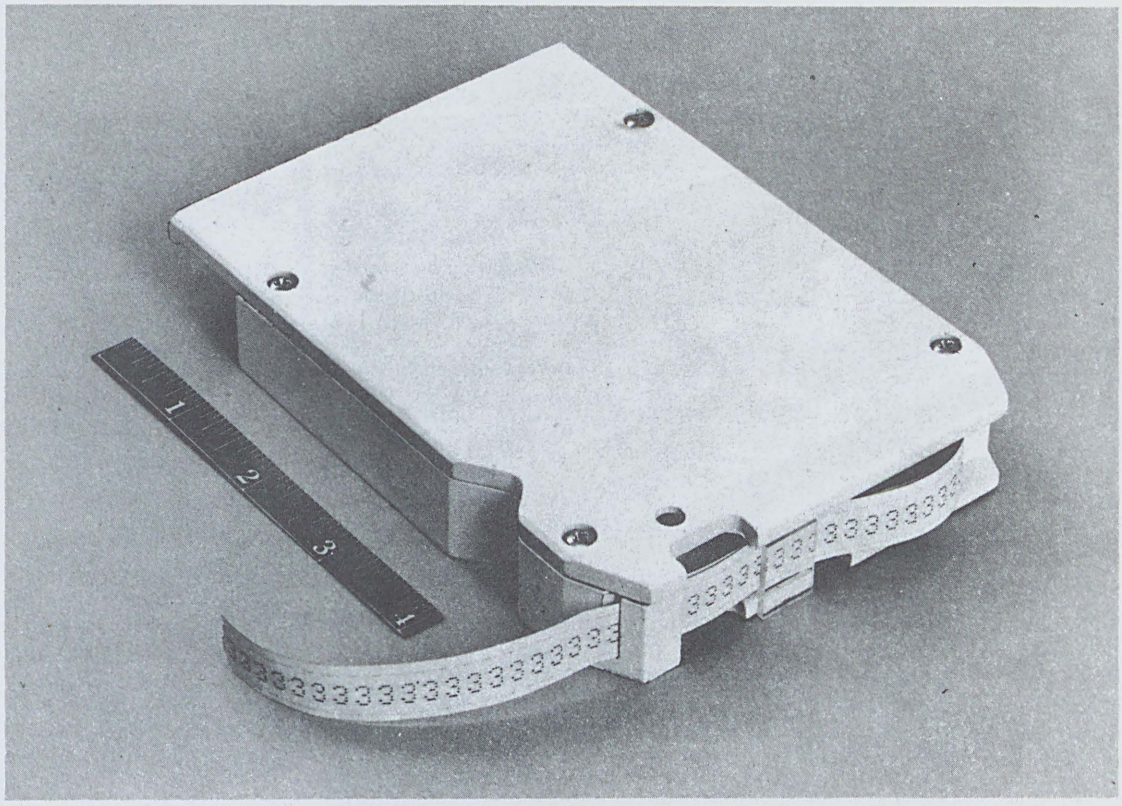

Figure 14 - Tape Printer - SRS 102