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**(FOUO 8/79)**

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JPRS L/8523

19 June 1979

TRANSLATIONS ON TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT  
(FOUO 8/79)



WORLD



WIDE



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WORLDWIDE AFFAIRS

BRIEFS

FRANCE-INDONESIA SATELLITE AGREEMENT--France and Indonesia have signed a framework agreement for scientific and technical cooperation in various fields particularly space, oceanography, electronics, nuclear physics, etc. The agreement was signed on 8 May 1979 by Pierre Aigrain, French Secretary of State to the Prime Minister in Charge of Research and Mr B. J. Habibie, Indonesian Minister of State for Research and Technology. Mr Habibie stated that Indonesia could use the European "Ariane" launcher to launch its second and third generation telecommunications satellites (Palapa B and Palapa C). However, the Indonesian Telecommunications Administration (PERUMTEL) had, on 9 April 1979, signed a memorandum of agreement with NASA in order to have the launchings of two "Palapa B" series satellites (to be manufactured by the American Hughes Aircraft Corporation) be accomplished by the "Space shuttle." Pierre Aigrain also informed his Indonesian counterparts of the existence of a new French group, Satel-Conseil, which looks forward to providing consultation service in future Indonesian telecommunications satellite projects. [Text] [Paris AIR & COSMOS in French 19 May 79 p 49]

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JAPAN

JAPAN'S PROPOSALS FOR WARC-79 ANNOUNCED

Tokyo DENPA SHIMBUN in Japanese 8 Mar 79 p 2

[Text] A World Administrative Radio Conference (WARC-79) will be held in Geneva, Switzerland during 24 September - 30 November this year for the purpose of effecting overall revision of radio communication regulations, international rules concerning radio and supplementary radio service regulations. On 7 March, the Ministry of Posts and Telecommunications disclosed the Japanese proposals to be presented at the conference.

In the area of frequency allocation, Japan will present six proposed revisions at the WARC-79. Attention is drawn to the gap between the currently effective frequency allocation for 10 KHz to 275 GHz which provides for worldwide or regional allocation to broadcasting, maritime, air, fixed and space services and recent developments in radio communication technology and progress in radio utilization. The six are: (1) With the introduction of space communication technology and appearance of seabed cables, dependence on HF band (3-30 MHz) fixed service is decreasing. Therefore, fixed service frequencies should be shared with maritime mobile and other services. (2) UHF (300-3000 MHz) bands for mobile service ought to be enlarged. (3) To respond to advances in fixed satellite and maritime mobile satellite services, frequency allocations for these services ought to be established and expanded. (4) Frequencies ought to be assigned to earth survey satellite service, based on remote sensing technology. (5) The 40-275 GHz band not currently allocated for terrestrial communication should be allocated for fixed and radio location services. (6) In order to promote development and utilization of the frequency spectrum, the upper limit of frequency allocation ought to be raised to 400 GHz.

The currently effective regulations governing coordination, reporting and registration procedures for frequency assignment were adopted in 1957 in the case of terrestrial services and in 1971 for space services. Based on examination of the record on their application since adoption, proposals will be made for clarifying which space service stations will be subject to coordination on frequency assignment and for periodically clarifying the status of use.

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A proposal to provide the International Frequency Registration Committee with more effective procedures for handling harmful jamming situations will also be presented.

Proposals dealing with technological standards include: (1) With regard to allowable frequency deviation and spurious emissions level which are general technological standards for efficient use of the frequency spectrum, recent technological advances should be borne in mind and an overall revision made. (2) With respect to technological standards for joint use of frequencies by terrestrial and space services, appropriate expansion of frequency band, in keeping with the proposal for expanding the joint-use frequency band in the frequency allocation, ought to be made. And, there will also be a proposal for improving satellite position maintenance precision in order to avoid mutual interference among radio signals and enable effective use of the geostationary satellite orbit.

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JAPAN

SHARP DEVELOPS JAPANESE LANGUAGE VOICE SYNTHESIZER

Tokyo MAINICHI DAILY NEWS in English 12 May 79 p 5

[Text]

Sharp Corporation recently developed a new simple voice synthesizer for the Japanese language for use in home electronic appliances.

The demand for voice synthesizers is growing rapidly as more and more office machines and home appliances are becoming so sophisticated that it has become harder to operate these machines, although the situation is partly eased by various procedural instructions on display units.

The problem of man-machine interface is most acutely felt by people using and developing computers. Some voice synthesizers have been developed on a more or less experimental basis but they require fairly large-capacity computers and are quite expensive.

An example of such computerized voice synthesizing systems in operation is the telephone time-telling service. The smallest of such systems needs a computer at least about the size of a bookshelf.

But such a bulky system is impractical for use in offices and at home, to say nothing of the price. Nor can tape recorders come to the rescue. For they cannot respond quickly enough as the machine has to spot each needed syllable by running the tape back and forth. An uncontrollably long tape becomes necessary to meet all the possible requirements.

Sharp attacked the problem by using two LSIs (large-scale integration) circuits, a fruit of the latest semiconductor technology.

One of them is an 8-bit microprocessor (micro-computer) and the other is a 16,000-bit (16K-byte) ROM (read-only memory). The ROM stores about 60 Japanese or English words and these words are processed by the micro-processor to synthesize the needed words. The

microprocessor can work in literally a split-second and the user can get a voice response almost at the same moment he touches one or more keys on the keyboard.

To actually emit sounds a small speaker or a ceramic diaphragm and its driving unit must be connected to the LSIs.

Sharp incorporated these units into a desk-top calculator for demonstration of the voice synthesizer. No larger than the average desk-top models and looking no different, the demonstration calculator "voices" the key just touched, i.e., if the key for three is pressed, the machine "says" san (3 in Japanese). If such keys for "+," "-", and "x" are touched, the machine says "plus," "minus," and "kakeru (multiply in Japanese)."

And the calculator remembers the whole calculation and repeats the whole process when the repeat key is pressed. It can also "read" a series of numbers in sequence and the unit, i.e., 3,456,789 for three, four, five... in Japanese as well as three million four hundred and fifty-six thousand seven hundred and eighty-nine.

Sharp said the speaking calculator's ROM is designed to allow replacement to expand the response capability and in the future it would be very likely to use larger ROMs such as 16K-byte and 32K-byte ones or larger.

The developer said the application of technology promises the emergence of speaking clocks, speaking typewriters which tell which key is pressed, and speaking cash registers for the benefit of customers at store checkouts.

Sharp added that the demonstration speaking calculator has another LSI for computation and it voices through a small loudspeaker. Even-

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tually, the company said, a hand-held calculator would also be able to "speak."

The voice synthesizer used in time telling on the telephone uses phonemes, not words, to synthesize the needed words. This method is said to be more appropriate for systems that must respond to a vast or almost unlimited scope. But it is said to be unfit for rather restricted scopes.

Sharp said it is planning to introduce its first "speaking" machine this coming autumn and it could well be a calculator.

A somewhat similar "speaking" machine was developed by Texas Instrument of the United States last year. The machine is being marketed in America and here under the name of "Speak & Spell," an English language teaching machine.

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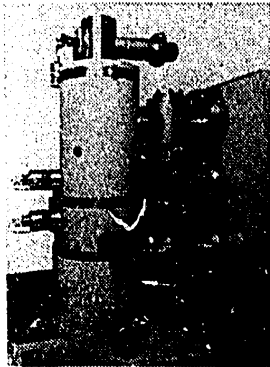
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JAPAN

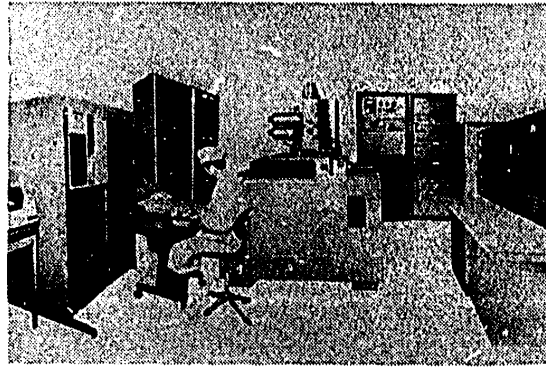
FINE LINE ELECTRON BEAM MACHINE DEVELOPED

Tokyo MAINICHI DAILY NEWS in English 17 May 79 p 5

[Text]



The field emission electron



The entire system of the field emission electron beam

VLSI Technology Research Association announced Tuesday that it has developed an electron beam machine that can "draw" submicron lines, the world's finest line width, on silicon chips in making micro-electronic circuits such as LSIs (large-scale integration) and VLSIs (very large scale integration) which are needed to produce future small-sized, yet very powerful computers.

The association said the EB machine can draw circuit lines with a width of less than 0.5 micrometer or one-fourth of the conventional EB machines in use. Which means, the association said, that the new machine makes it possible to cram 16 times more electronic elements (for instance, discrete transistors) in a given unit: that is to say, the machine can cram 1 million elements into the size of a chip currently containing

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64,000 elements. The 64k-bit memory chip is the densest semiconductor memory now commercially available.

The association said it broke through the barrier of one micrometer with a new field emission electron gun. When a very high voltage (10 million volts per centimeter) is supplied to the pointed tungsten tip of the electron gun in a very high vacuum at a room temperature, the gun yields the world's highest electric current density, enabling the machine to draw the finest line or patterns.

The association said the current density thus derived is 100 times the current density utilized in the most advanced high-resolution electron microscope and 10 times that of another type of EB machine which needs heating (cathode-type EB machines). The

cathode-type machines need a power supply that is impractical to gain the same results, the association added.

Because of nonheating (cathode-type beam emitters must be heated to above 2,000 degrees C), the new EB machine's gun's life is considerably lengthened, it added.

The new EB machine, which was developed by Hitachi Ltd., a member of the VLSI association, employs the vector scanning method to draw lines, dots, and patterns such as triangles and rectangles.

The machine is tentatively estimated to cost 4 million yen.

Before the commercial utilization of the new EB machines in producing micro-electronic circuits, development of other related technology must be made in such fields as chemical dry etching.

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JAPAN

BRIEFS

CHEAP FACSIMILE MACHINE--The Nippon Telegraph and Telephone Public Corporation (NTT) has unveiled a relatively inexpensive experimental model of a facsimile machine suitable for home use. The new machine has the ability to send any form of information written on a paper the size of ordinary letter paper in one minute and 30 seconds. According to the NTT, the cost for installing a unit of the new facsimile machine would cost less than 100,000 yen if it was mass-produced, compared with the cost of from 400,000 yen to 500,000 yen per unit for the models presently available. The NTT has developed two facsimile systems, which will be the prototype models for future mass-production of the machines for home use. One has combined the apparatus to transmit and receive facsimile information. The other serves only as either the transmitter or receiver. The former model measures 35 by 28.5 by 12.5 centimeters and weighs 8.1 kilograms. The NTT intends to start home facsimile service connecting major cities across the nation by using telephone communications lines starting late this fiscal year. The corporation also intends to start the facsimile service between Tokyo and Osaka by using an exclusive facsimile communications line in the latter half of fiscal 1980. The facsimile information transmission service by using the exclusive line would be extended to other cities across the nation in the following 10-year period. NTT officials said the transmission cost in home facsimile service would be reduced considerably with the introduction of the exclusive communications line for the service. [Tokyo ASAHI EVENING NEWS in English 25 May 79 p 3 OW]

COMPUTER TRANSLATOR--Matsushita Electric will begin to market around the world what it calls a hand-held computer/translator next year as it has concluded a basic technological contract with Friends Amis Inc. of California, the developer of the computerized translator that has been marketed in the U.S. since this spring. Matsushita says it will begin to sell the new computerized translator in Japan this year and to export it next year. Matsushita said its machine will be able to contain three memory modules at a time and each 2 by 4 cm module will contain about 1,200-1,500 words. Each module will be plug-in plug-out type so that the machine will be able to expand its vocabulary by relacing the modules. The maker said it has developed memory modules for Japanese, English, French, German, Spanish, Italian and is developing ones for Chinese, Swedish, Dutch and Portuguese. [Tokyo MAINICHI DAILY NEWS in English 25 May 79 OW]

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PERSONAL COMPUTERS--Sharp Corp. has marketed two new personal computers that allow man-machine interaction in alphanumeric and katakana (Japanese syllables). The Sharp PC-7300 (photo) and PC-7300C personal computers employ the Sharp FORTRAN, display letters and signs in 5X7 character display unit, and has a printer that can print three 56-letter lines per second. Both machines have the minimum user area of 8k bytes and are expandable by 16k bytes up to 56k bytes for the 7300 model and to 24k bytes for the 7300C model. The input is made by either keyboard operation or magnetic cards. The machines measure H19.2 x W42.7 x D49.3cm, and weighs 16.5 kilos. The units consume 52W per hour. For details, and optional peripherals, call Tokyo 03-260-1161 or Osaka 06-621-1221. [Text] [Tokyo MAINICHI DAILY NEWS in English 17 May 79 p 5]

VLSI WIRING TECHNOLOGY--Toshiba Semiconductor Technology Lab has developed a taper plasma process technology, a new wiring technology for integrated circuitry expected to be effective for MOS LSI and VLSI applications. Applications research at the lab has commenced. [Tokyo NIKKAN KOGYO SHIMBUN in Japanese 11 May 79 p 5]

FUJITSU U.S. TIE-UP--Fujitsu considers it essential to expand its share in the U.S. computer market as part of its offensive against IBM and has started negotiations on tie-up with a U.S. firm suitable for providing software, support and maintenance for Fujitsu medium computers in the M-160S, M-140, M-130 class. U.S. candidate firms have been narrowed down to four or five. [Tokyo NIKKAN KOGYO SHIMBUN in Japanese 14 May 79 p 15]

OFFICE AUTOMATION--The lead article in a special section devoted to the information industry argues that while processing of quantitative data has been almost totally mechanized by computerization, qualitative information processing--involving typewriters, copiers, filing systems, and other devices not generally recognized as information processing equipment--has remained largely untouched. The article goes on to assert that this state of affairs is unsatisfactory and calls for a qualitative transformation in the information industry to correct this imbalance and allow further gains in office efficiency during the 1980s. [Editorial Report] [Tokyo NIHON KEIZAI SHIMBUN in Japanese Evening Edition 9 May 79 p 25]

PROJECTED SOFTWARE UNION--Computer industry sources on 23 May disclosed plans to form by mid-July what is tentatively called a "new computer research and development union" for research and development of software--an area where Japan is said to be lagging 3 or 4 years behind IBM. Anticipated members of the union are: five computer makers--Fujitsu, Nippon Electric, Mitsubishi Electric and Toshiba; and two research unions created for development of super large-scale integrated circuits--Computer Development Laboratory and NEC-Toshiba Information System. In addition, Oki Electric Industry, Matsushita Communication Industrial, Sharp and Tanimura Shinko Seisakusho also are expected to join for development of peripheral equipment. [Tokyo YOMIURI SHIMBUN in Japanese 24 May 79 Morning Edition p 9 OW]

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GABON

BRIEFS

TELECOMMUNICATIONS DEVELOPMENT LOAN--The Central Fund for Economic Cooperation granted 40 million French francs (2 billion CFA) to the Gabon Postal and Telecommunications Office on 26 April in the form of two equal loans. They represent part of the financing for program aimed at the development of telecommunications, especially in the field of electronic centers. The implementation of this program will be completed by a "training and maintenance" operation to be undertaken by the French builders. The total cost of this program will be nearly 176 million French francs (8.8 billion CFA) and will also be financed through Africa Development Bank loans and through private credits guaranteed by the COFACE [expansion unknown]. [Text] [Paris MARCHES TROPICAUX ET MEDITERRANEENS in French 11 May 79 p 1198]

TELEPHONE NETWORK MODERNIZATION--Gabon has decided to resort to the temporal E 10 electronic telephone system for the expansion and modernization of its telephone network, and is preparing to order a temporal telephone network provided by CIT-Alcatel. The first E 10 network will cover the area of "greater" Libreville. It will comprise particularly urban centers, a national transit center, an interurban nodal center and a national manual. The choice of Gabon confirms the competitiveness of the E 10 system. At the present time, actually, more than 2 million E 10 lines are ordered or in service in 16 countries. In Africa the E 10 system is already in service or in the course of installation in Morocco, Egypt, Ivory Coast, Mauritius, and in its private version in Zaire. [Text] [Paris MARCHES TROPICAUX ET MEDITERRANEENS 18 May 79 p 1259] 6108

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INTERNATIONAL AFFAIRS

INTRA-EUROPEAN TELECOMMUNICATIONS VIA ECS

Paris AIR & COSMOS in French 19 May 79 p 47

[Article by Pierre Langereux: "European Telecommunications Via ECS"]

[Text] Europe will have its own regional communications satellite system, the ECS [European Communications Satellite] system, that will be incorporated during the 1980's into the long-distance intra-European communications network and provide telephone, telex, television, and data transmission links.

The agreement covering construction and operation of this system was signed recently between the two organizations concerned: the European Space Agency (ESA) that will furnish the satellites, and Interim Intelsat, the new European association of 17 European countries that will become owner of the satellites and manage the ECS system. The agreement was signed in Paris on 15 May by Roy Gibson, ESA's managing director, and Gerard They, director general for telecommunications in the French Ministry of Posts and Telecommunications, representing Interim Intelsat.

It is planned to have two operational ECS in orbit at the same time. One will be working and the second will serve as a backup prepared to take over should the first malfunction. They will be placed in geosynchronous orbit between longitudes 10 deg. E and 12 deg. E. Each satellite will be able to handle up to 12,000 telephone calls simultaneously plus two color television programs for the Eurovision system of member countries of the European Broadcasting Union. The first is scheduled to be launched at the end of 1981, and the second approximately 10 months later, by the new European launch vehicle, Ariane. ESA plans to buy a total of five ECS to maintain Interim Intelsat's scheduled service for a period of 10 years. The contract for construction of the first two satellites has already been awarded to the British Aerospace Dynamics Group, leader of the MESH consortium of 14 industrial firms in 10 European countries. The contract for production of the other three operational satellites is currently being negotiated.

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This agreement comes 1 year after the 11 May 1978 launch of the first European communications satellite, the OTS-2 [Orbital Test Satellite], which is functioning most satisfactorily. OTS-2 is employed with ground stations of four countries--France, Germany, Italy, and Great Britain--in preparation for operation of the ECS.

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FRANCE

**DIRECT-BROADCAST TELEVISION SATELLITE SUPPORTED**

Paris AIR & COSMOS in French 14 Apr 79 pp 34-35, 40

[Article by Pierre Langereux: "The Higher Council of the Audiovisual Authority Supports French Direct-Broadcast Television"]

[Text] The French Government theoretically has to determine soon its position concerning the direct-broadcast television satellite project studied by TDF [Telecasting of France] and the CNES [National Center for Space Studies] and supported by the Higher Council of the Audiovisual Authority. On the favorable assumption that it will approve this plan, the French Government will have to decide whether to develop its satellite on a strictly national level or in cooperation with German industry in the context of the joint development of the French direct-broadcast television satellite and the German "TV-SAT" telecasting satellite which the government of the Federal Republic of Germany wants to start building in July 1979. A decisive meeting is scheduled on this score at the end of April or early May 1979 between Andre Giraud, French minister of industry, and Volker Hauff, minister of research and technology of the Federal Republic of Germany (see AIR & COSMOS, issue No 755).

**In Favor of a Global Audiovisual Communications Policy**

The Higher Council of the Audiovisual Authority, in a new report recently submitted to the French Government by Jean d'Arcy, unequivocally came out "decidedly in favor" of the construction and launching of a direct-broadcast television satellite which would be "operational by 1983-84." This "mandates a decision in 1979."

"It is not desirable for France to allow a neighboring satellite to be placed in orbit" and which would be represented "as the European broadcasting satellite," the Higher Council of the Audiovisual Authority opined. It behooves France "as much for its political, cultural, and economic independence as for the future of its electronic and space industry to take the initiative and explore all possibilities of European cooperation."

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"The use of direct-broadcast television satellites could not be envisioned in itself but only as a function of a global audiovisual communications policy of France, both on its territory and outside of its borders," the Higher Council of the Audiovisual Authority reported. It thus recommended "concerted policy among French-speakers jointly with our neighbors in Belgium, Switzerland, and Luxembourg," especially with Luxembourg which sees in a direct-broadcast television satellite "the only way to reach its potential French- and German-speaking audience" and would stand ready to use a channel on a French or German satellite for this purpose.

100 Million Television Viewers

The Geneva Plan (1977) of the ITU [International Telecommunications Union] assigned to France an orbital track (19 degrees west) and five channels (one television program or 15 radio programs per channel) as well as a "zone of nominal coverage" making it possible to reach 100 million television viewers in Europe of whom 6 million would be Francophone. The broadcasts of the French satellite will in fact cover at least eight countries: the whole of France but also the whole of Belgium, Luxembourg, and Switzerland, nearly the whole of England and the Netherlands, south-western Germany, and northern Spain.

On the other hand, the unavoidable areas of overlap (authorized by the ITU) of the satellite broadcasts of neighboring countries will also cover France and it would thus be "difficult to accept that the only advertising should be foreign programs in French," in the opinion of the Higher Council of the Audiovisual Authority.

Mass Communications Instrument

The direct-broadcast television satellite thus proves to be an "ideal mass communications instrument." But it may also make it possible to completely achieve and at lesser cost the coverage of the national territory (TF 1 and ANT 2 chains) as a complement of the existing land network which could then be earmarked more specifically to regional broadcasting (via FR-3).

Telecasting of France would indeed have an interest in using the satellite to cover the 3,250 "shadow zones" still subsisting in the national network and which would necessitate the installation of as many relay stations. This "would involve 230 million French francs in annual operating outlays," the Higher Council of the Audiovisual Authority noted, that is, "a cost higher than the annual operating costs of two satellite channels over 10 years." The latter may total 60 to 80 million francs per channel, that is, 120 to 160 million francs in all over 10 years (excluding the costs of broadcast programs).

The French direct-broadcast television satellite seems then to have some attraction. Nevertheless, the Higher Council of the Audiovisual Authority

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is of the opinion that a profitability study is "indispensable" and that it should "take into consideration different possibilities regarding means, notably, paying services"--for example, for the new services which could be generalized to a large extent through the direct-broadcast television satellite such as the electronic directory and other "pay television" networks (Antiope, EPEOS, Discret, and so on).

It would also be necessary to examine the possibilities of sound radio-broadcasting since a single satellite channel would make it possible to relay up to 15 radio programs targeted to receivers operating on the band of 1 gigahertz (not yet assigned to satellites).

To Find 2 Billion Francs

However, the Higher Council of the Audiovisual Authority noted, "it seems to be necessary that new funds be found to avoid having the realization and use of investments occur at the expense of credits allocated to programs." This is incidentally one of the major constraints to be solved inasmuch as the budget of the major organ concerned (TDF) does not now make it possible to initiate the assembly of a direct-broadcast television satellite. Hence a certain reticence of those responsible to support the plan too openly.

According to the financial estimates made by the CNES and presented by the Higher Council of the Audiovisual Authority to the French Government, the cost of a system including five direct-broadcast television satellites with five channels each of which four satellites would be placed into orbit by "Ariane" would be "in the order of 2 billion francs."

This includes (price at mid-1978) the following over a 10-year period: The development of the first operational satellite (400 million francs), the purchase of four other satellites to insure uninterrupted service over the 10 years (720 million francs), the cost of putting the four geostationary satellites into orbit (700 million francs), the building of the control stations (25 million francs), their operating costs (2.5 million francs a year per station), construction of the television program broadcasting station (50 million francs), its operation (3 million francs a year), and the operating costs of the administrative organ (5 million francs a year).

Assuming cooperation, specifically with the Federal Republic of Germany, for studies and development of a five-channel prototype satellite, "France's outlays for this initial stage could be estimated at some 200 million francs (1978 prices)," the Higher Council of the Audiovisual Authority estimated.

For the users, who will have to equip themselves with a special device for receiving the signals from the satellites (at 12 gigahertz), the Higher Council of the Audiovisual Authority has figured out the following

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costs: 1,500 to 2,500 francs for an individual installation (with a parabolic 0.9-meter antenna) and 10,000 francs for a community installation (with an antenna 1.8 meters in diameter). The latter would certainly turn out to be more profitable in the immediate term by sharing costs among several homes (100 francs per home).

But the prices of domestic receivers would obviously evolve as a function of the volume of production, itself conditioned by the attractiveness for the public of programs broadcast via the satellite. The Higher Council of the Audiovisual Authority feels "reasonably certain" that 6 million homes could be reached in 10 years and from 12 to 13 million homes in 15 years, not counting the potential market outside of France. According to the authority, "a market of [only] 5 million homes equipped in 15 years would represent for France a relative setback of the new technology."

Interest in Industrial Cooperation

On the industrial level "special effort is necessary in connection with large public receivers" (linked antennas and hookups). However, the Higher Council of the Audiovisual Authority is of the opinion "that this is not out of our reach." But a decision has to be made in short order to enable our electronic industry to face the competition of the other European, Japanese, and American builders.

On the other hand, in the view of the Higher Council of the Audiovisual Authority, "from an industrial viewpoint it is in France's interest to find a partner for the construction of the satellite," namely, to reduce costs.

Germany may be willing to fill this role of partner as it was earlier for the realization of the "Symphonie" telecommunications satellites which have now been in operation for 5 years in completely satisfactory manner.

"This industrial argument is not to be rejected, for space technology will be among those which could be exported for a longer time than other technologies," Pierre Usunier, director of the ballistics and space division of the Aerospatiale Company, said at the colloquy of FIREP held in Nice on 5 and 6 April 1979 on the theme of "the future of radio-television monopolies in the light of satellites."

Even though on a personal basis he considers that the French Government does not seem to have decided to launch itself rapidly into the building of a direct-broadcast television satellite, Pierre Usunier believes that in any case the television satellite will be built. According to him, the obstacle to making a decision in this respect is neither of a technical order (all the technologies are available to Aerospatiale which has already studied such a plan--"H-SAT"--jointly with MBB) nor of a

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financial nature (the cost of the space system is competitive in covering the "shadow zones"). Neither is there a problem of placement into orbit: The "Ariane" rocket will be available in 1980 and improvements are already planned to enable it to put direct-broadcast television satellites weighing a ton into geostationary orbit in 1983.

45 Programs in France

Nor are the regulations of the ITU any more of an obstacle to the development of television broadcasting for, as Calin Rosetti, in charge of projects at the future programs directorate of the ESA, noted at the FIREP colloquy, it will be possible for an individual television viewer to receive broadcasts from several foreign satellites by merely adding to his set an electric motor for redirecting his antenna (additional cost, U.S.\$100) and, if necessary, by outfitting his receiver with a polarization switch (for an additional \$10). As for the reception of signals by various television systems, it has been done for several years now with the multisystem sets used by those who reside in border areas. Calin Rosetti also envisioned in the long term an important extension of reception zones of various direct-broadcast television systems thanks to better performing aerials and better filters which will undoubtedly make their appearance on the market. Thus, according to him, France could receive broadcasts from seven countries, that is, 35 programs including five in French throughout France and those of nine countries, that is, 45 programs, in half of French territory.

Besides, the direct-broadcast satellite television market is not only of interest to industrialized countries but also to developing countries with different motivations, Pierre Usunier said.

Thus, in Europe, Luxembourg is interested in telecasting by satellites, mostly for commercial purposes, while the Scandinavian countries are readying their "North-SAT" satellite project to protect their economic but also cultural interests.

In contrast, for developing countries such as India and China, what is involved first and foremost is to overcome, rapidly and at least cost, the handicap represented by the shortage of their infrastructural facilities over an extensive territory and to bring literacy to their populations, necessary conditions for economic development.

The market prospects are considerable. For it is anticipated that the putting into service of the first operational direct-broadcast television system in Europe or elsewhere will trigger a chain reaction by neighboring or "competitor" countries.

For the time being Europeans--and France--have the opportunity to enjoy equal standing with the United States in this field of direct-broadcast

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television satellites while that of conventional telecommunication satellites is monopolized by American manufacturers.

This is an opportunity not to be missed.

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FRANCE

TELSPACE GETS NEW STATION CONTRACTS

Paris AIR & COSMOS in French 14 Apr 79 p 36

[Article: "Telspace: New Station Contracts"]

[Text] The Telspace economic interest group made up of Thomson-CSF [General Wireless Company] and CIT-Alcatel [Industrial Telecommunications Company-Alcatel] (General Electric Company group) has just received within a month three new contracts for a total amount of 60 million French francs from Djibouti, Ivory Coast, and Iraq. Telspace thus confirmed its ranking as the leading European builder of land stations and the second builder in the world (after the Japanese firm, NEC [Nippon Electric Company]).

The Djibouti Telecommunications Company, of which France Cable and Radio is part, gave an order for the construction of a land station with an antenna 11.8 meters in diameter (Standard B, INTELSAT [International Telecommunications Satellite Consortium]) equipped with 24 vector channels to provide telephonic, telegraphic, and Telex links with the INTELSAT satellite over the Indian Ocean beginning in September 1979.

In Ivory Coast INTELCO [International Telecommunications Company of Ivory Coast] chose Telspace after issuing an international call for bids for the construction of a second land station with an antenna 32.5 meters in diameter (Standard A) and 24 SCPC vector channels to be built 30 kilometers from Abidjan. This station will communicate via the INTELSAT satellite over the Atlantic Ocean to boost the power of the station already installed by Telspace in 1972. It will become operational at the end of August 1980.

On its part, Iraq ordered Telspace to modify the two Standard A land stations installed by the French GIE [?Electrical Industries Corporation] in 1976 at the space telecommunications center of Dujail, 60 kilometers from Baghdad. What is involved is the doubling of the transmission capacity of the two stations. The radioelectric equipment, the power broadcasting stations, and the receivers very sensitive to low level sound will be supplied by Thomson-CSF. The updated equipment will be completed by September 1980.

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On the other hand, the agreement involving the supply by France of a land station to Colombia has not yet been signed definitively despite the recent declaration of Olivier Stirn, the French secretary of state to the minister of foreign affairs, on an official visit to that country. Theoretically, the French builder has been chosen, but the agreement still has to be negotiated.

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FRANCE

BRIEFS

TELECOM 1 SATELLITE--Some 2 weeks ago, the General Telecommunications Directorate (DGT) issued a call for industrial bids for production of the first French communications satellite, Telecom 1. DGT manager Gerard They stated the prime contractor would obviously be a French firm, but that European manufacturers could also be associated in the project should use of the satellite be extended to Europe. The two leading prime contractor candidates for the Telecom 1 project are the French firms Aerospatiale and Matra. If, however, DGT maintains its previously-announced intention of basing Telecom 1 on the design for the European Communications Satellite (ECS) developed by the European MESH industrial consortium [Matra, Erno, Saab, Hawker Siddely Group, and Aeritalia], then Matra will likely be selected as prime contractor, although major items of equipment will be furnished to Aerospatiale. The electronics firm of Thomson-CSF will also participate in the Telecom 1 project as manufacturer of the communications payload. Bid submissions for Telecom 1 must reach DGT by 1 June. [Text] [Paris AIR & COSMOS in French 5 May 79 p 51] 8041

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END

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